Neutral Citation Number: [2018] EWHC 2616 (Ch)

Claim No. HC-2015-000268

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS OF ENGLAND AND WALES
BUSINESS LIST (ChD)

Royal Courts of Justice
Rolls Building
Fetter Lane
London EC4A 1NL

Date: 9 October 2018

Before :

THE HONOURABLE MR JUSTICE MARCUS SMITH

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Between :

BRITNED DEVELOPMENT LIMITED

Claimant

- and -

(1) ABB AB
(2) ABB LTD

Defendants

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- -

Mr Robert O'Donoghue, QC and **Mr Hugo Leith** (instructed by **Squire Patton Boggs (UK) LLP**) for the **Claimant**
Mr Mark Hoskins, QC, **Ms Sarah Ford, QC** and **Ms Jennifer MacLeod** (instructed by **Freshfields Bruckhaus Deringer LLP**) for the **Defendants**

Hearing dates: 7-9, 12-16, 19-23 February, 5-6 March 2018

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Approved Judgment

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

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Mr Justice Marcus Smith:

A. INTRODUCTION

(1) The Cartel

1. By a decision of the European Commission dated 2 April 2014 in Case AT.39610 – *Power Cables* (the "Decision"[1]), the European Commission found the existence of a cartel (the "Cartel") in relation to (extra) high voltage submarine and underground power cable projects.

2. The Cartel was global, with participants from Europe, Japan and Korea. Amongst the undertakings participating in the Cartel were the Defendants, collectively referred to herein as "ABB".

3. The Cartel operated between 1999 and 2009.

(2) BritNed's claim and ABB's response to that claim

4. The Claimant – "BritNed" – is jointly owned by National Grid and TenneT, the operators of the UK and Dutch electricity grids. BritNed owns and operates the BritNed "Interconnector", a 1,000-megawatt ("MW") capacity electricity submarine cable system connecting the Dutch and UK electricity grids. It was constructed between 2009-2010.

5. BritNed was a customer of ABB. ABB supplied the cable element of the BritNed Interconnector (the "Cable"). The other, significant, element of the BritNed Interconnector was the converter element (the "Converter"), which ABB was not asked to supply by BritNed, but which ABB tendered for.

6. BritNed contends that, by reason of the Cartel and its operation, it has suffered loss and damage. It brings a claim in tort against ABB, for breach of statutory duty, specifically a restriction of competition by object contrary to Article 101 of the Treaty on the Functioning of the European Union ("TFEU") and Article 53 of the Agreement on the European Economic Area ("EEA Agreement").

7. BritNed claims three heads of loss:

   (1) *Overcharge.* BritNed contends that, as a result of the Cartel, the price it paid for the cable element of the BritNed Interconnector was higher than it otherwise would have been.

   (2) *Lost profit.* BritNed contends that, absent the Cartel, it would have acquired a cable of a higher capacity – 1,320MW rather than 1,000MW – which would have generated additional revenues and higher profits than the 1,000MW cable actually purchased.

[1] A list of the terms and abbreviations used in the course of this Judgment, identifying where those terms and abbreviations are first used in the judgment, is at Annex 1 hereto.

(3) *Interest.* BritNed contends that, as a result of the overcharge (paragraph 7(1) above), it incurred higher capital costs in commissioning the Interconnector than would otherwise have been the case under competitive conditions. BritNed claims compound interest on this basis.

I shall refer to these three heads of loss as, respectively, the "Overcharge Claim", the "Lost Profit Claim" and the "Compound Interest Claim".

8. ABB cannot, and does not, deny the existence of the Cartel, nor its participation in the Cartel. Nevertheless, all three of BritNed's heads of claim are disputed:

(1) *Response to the Overcharge Claim.* ABB does not accept that the operation of the Cartel resulted in any overcharge to BritNed in relation to the BritNed Interconnector. It contends that the Cartel had no effect on the prices charged to BritNed for the Cable element of the BritNed Interconnector.

(2) *Response to the Lost Profit Claim.* ABB denies that, absent the Cartel, BritNed would have acquired different capacity cabling.

(3) *Response to the Compound Interest Claim.* It follows, from ABB's denial of BritNed's Overcharge and Lost Profit Claims, that any claim to interest is also denied. However, if (contrary to ABB's primary position) there was an overcharge, then ABB disputes that compound interest is recoverable by BritNed.

(4) *A regulatory cap on earnings.* Because of the regulatory regime to which BritNed was subject, and which is described in greater detail in this Judgment, ABB contends that if (contrary to ABB's primary position) BritNed does have a claim for damages, those damages should be assessed in light of a regulatory cap imposed on BritNed's earnings. This point is really an aspect of quantification of BritNed's loss, but it makes sense to treat it separately. I shall refer to the point as the "Regulatory Cap Issue".

(3) Approach and the structure of this Judgment

9. The points in dispute between the parties are thus both extensive and fundamental. This Judgment approaches matters in the following way:

(1) Although the cause of action on which BritNed's claim is based – breach of statutory duty – might be said to be straightforward, the interrelationship between a breach of duty and the quantification of loss arising out of that breach is not. Section B considers various questions in relation to the tort, including the relationship between liability and quantum and (in a point that arose during the course of the trial) precisely the nature of the overcharge being alleged by BritNed.

(2) Section C considers the evidence that was presented to me during the course of the trial and on the basis of which I must make the necessary findings of fact. The evidential material before me comprised four discrete strands: *(i)* factual witness evidence; *(ii)* contemporary documentary evidence; *(iii)* the Decision of the European Commission; and *(iv)* the expert evidence. Section C describes and assesses this material.

(3) The next Sections contain the bulk of the analysis to enable me to determine BritNed's various claims. That analysis has various strands:

(a) Section D considers the nature and operation of the Cartel in general terms and ABB's role in the Cartel in particular.

(b) Section E considers the characteristics of submarine cables: the Cable element of the BritNed Interconnector was (unsurprisingly, given the geography) submarine. The distinctions and similarities between submarine and underground cables are points of considerable significance when the views of the experts come to be considered.

(c) Section F considers the history of the tendering process commenced and run by BritNed for the supply and provision of the BritNed Interconnector.

(d) Section G considers the competitive pressures that arose – or (as importantly) that did not arise, because of the Cartel – during the process of negotiation between BritNed and ABB. This Section also considers the effect of the Cartel within ABB and how ABB's participation in the Cartel affected its negotiations with BritNed.

(e) Section H considers the experts' assessment of the overcharge. This Section sets out the approach of each expert, and then seeks critically to assess each approach in terms of its viability in assisting me in assessing what, if any, was the overcharge in this case.

(4) Section I, drawing on the findings made in Sections D to H, sets out my assessment of, and conclusions in relation to, the overcharge and determines the Overcharge Claim. The next Sections consider and determine, respectively, the Lost Profit Claim (Section J), the Regulatory Cap Issue (Section K) and the Compound Interest Claim (Section L).

Finally, Section M sets out in brief the conclusions that I have reached and how this dispute is to be disposed of.

B. LEGAL PRINCIPLES AND APPROACH

(1) Elements of the tort

10. In English law, competition law infringements are vindicated as statutory torts. To establish a claim, two things must be shown: *(i)* an infringement of competition law; and *(ii)* actionable harm or damage, caused by that infringement.[2] As has been stated in the context of the tort of negligence – but the point holds good for breach of statutory duty – "[i]t is a truism that a fundamental requirement for a claim in negligence is that the plaintiff has suffered some past "damage". A breach of duty by the defendant is not enough. The cause of action will not accrue until actionable damage occurs. The damage is said to form the gist of the action. Recovery is not limited to this threshold "gist

[2] See *Cutler v. Wandsworth Stadium Ltd* [1949] AC 398 at 407-409; *Pickering v. Liverpool Daily Post and Echo Newspapers plc* [1991] 2 AC 370 at 420; *Cullen v. Chief Constable of the Royal Ulster Constabulary* [2003] UKHL 39 at [41]-[42].

damage", but without it there is no cause of action."[3] Proving actionable damage inevitably involves demonstrating a causal link between the infringement and the damage, generally using the "but for" test of causation.[4]

11. It is often said that in terms of what a claimant has to prove in order to recover a loss depends upon the distinction between past facts on the one hand and future events or hypothetical actions on the other. In *Mallett v. McMonagle*,[5] Lord Diplock said this:

> "In determining what did happen in the past a court decides on the balance of probabilities. Anything that is more probable than not it treats as certain. But in assessing damages which depend upon its view as to what will happen in the future or would have happened in the future if something had not happened in the past, the court must make an estimate as to what are the chances that a particular thing will or would have happened and reflect those chances, whether they are more or less than even, in the amount of damages which it awards."

12. This is a helpful summary of the law. In order to apply this statement in the present case, it is necessary to unpack a little further the implications of Lord Diplock's statement:

(1) It is essential to be clear as to what the elements of the claimant's cause of action are. These elements will – inevitably – be in the past. If they are not in the past, then the claimant's cause of action will not have accrued, and (at best) the claimant will be entitled to some form of *quia timet* relief.

(2) Damage is by no means always a pre-requisite for a complete cause of action. It is not necessary to show loss or damage to bring an action for breach of contract, but it is necessary for an action in the tort of negligence or for breach of statutory duty.[6]

(3) Where loss or damage is a necessary element of the cause of action, it must be borne in mind that in some cases the law treats the loss of a chance of a favourable outcome as compensable damage in itself.[7]

(4) Since the elements of the cause of action are in the past, they must be proved on the balance of probabilities. As regards such questions, the court adopts an "all-or-nothing" approach:[8]

> "When the question is whether a certain thing is or is not true – whether a certain event did or did not happen – then the court must decide one way or the other. There is no question of chance or probability. Either it did or it did not happen. But the standard of civil proof is a balance of probabilities. If the evidence shows a balance in favour of it having happened then it is proved that it did in fact happen."

(5) If and when the cause of action is established, then inevitably the inquiry is driven to the hypothetical. The measure of loss, in the case of contract, is the amount of

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[3] Stapleton, *The Gist of Negligence: Part 1 – Minimal Actionable Damage*, (1988) 104 LQR 213 at 213.
[4] Stapleton, *The Gist of Negligence: Part 2 – The Relationship between "Damage" and Causation*, (1988) 104 LQR 389 at 389.
[5] [1970] AC 166 at 176.
[6] As is pointed out in Edelman, *McGregor on Damages*, 20th ed. (2018) ("McGregor") at [10-001], both the fact of damage (an adverse consequence) and its amount must be proved. The first is a question of causation; the second one of quantification.
[7] *Per* Lord Hoffmann in *Barker v. Corus (UK) Ltd*, [2006] 2 AC 572 at [36]; McGregor at [10-047].
[8] *Per* Lord Reid in *Davies v. Taylor*, [1974] AC 207 at 213.

damages that will place the claimant in the same situation as if the contract had been performed.[9] The measure of loss, in tort cases, is the amount of damages that will place the claimant in the situation he or she would have been in, had the tort not been committed.[10] Both of these inquiries involve an assessment of what would have happened in a hypothetical or counter-factual case – a case where the contract was performed or where the tort was not committed, so that the claimant's damages can be quantified.

(6) During this quantification exercise, English law moves away from the balance of probabilities. An assessment or quantification of damages involves the taking into account of all manner of risks and possibilities.[11] Of course, "loss of a chance" analysis may be appropriate when quantifying a claimant's loss, but that is by no means the only tool or even the most useful tool that is available to the court. Fundamentally, the process is evidence driven, and it is difficult to be very prescriptive. As Popplewell J noted in *Asda Stores Ltd v. Mastercard Inc*,[12] "the court takes a pragmatic approach".

(7) The *Asda* decision helpfully sets out the approach that courts take to questions of quantification. It was suggested by BritNed that this articulation of the law did not apply in the present case, on grounds that *Asda* was an "effects" case, and this case is not.[13] It was suggested that – because of the information asymmetry that existed between BritNed and ABB, some other approach should be taken. I do not accept this contention. I consider that *Asda* is doing no more than articulate principles relevant to the quantification of loss generally, albeit with an emphasis on the quantification of loss in competition cases. Indeed, it will be noted that Popplewell J's articulation of the relevant principles emphasises that a lack of information should not prevent a quantification. In short, I consider Popplewell J's articulation of the principles a helpful one for the purposes of this case.

(8) The following articulation of principles draws on Popplewell J's articulation at [306] of *Asda*. I have not repeated the citation of the authorities:

(a) Only as much certainty and particularity is insisted on in proof of damage as is reasonable, having regard to the circumstances and to the nature of the acts by which the damage is done.[14]

(b) The fact that it is not possible for a claimant to prove the exact sum of its loss is not a bar to recovery. In many cases, the assessment of damages will involve an element of estimation and assumption. Restoration by way of compensatory damages is often accomplished by "sound imagination" and

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[9] See, e.g., Parke B in *Robinson v. Harman*, (1848) 1 Exch 850 at 855: "The rule of common law is that where a party sustains a loss by reason of a breach of contract he is, so far as money can do it, to be placed in the same situation with respect to damages as if the contract had been performed."

[10] See, e.g., Lord Blackburn in *Livingstone v. Rawyards Coal Co*, (1880) 5 App Cas 25 at [39]:the tortious measure of damage is "that sum of money which will put the party who has been injured, or who has suffered, in the same position as he would have been in if he had not sustained the wrong for which he is now getting his compensation or reparation".

[11] *McGregor* at [10-046].

[12] [2017] EWHC 93 (Comm) at [306].

[13] Day 1/p.49.

[14] *Asda* at [306(1)].

a "broad axe" or a "broad brush". The court will not allow an unreasonable insistence on precision to defeat the justice of compensating a claimant for infringement of its rights.[15]

(c) Indeed, I would add that the exercise of "sound imagination" will involve the court in trying to understand the overall context in which the alleged harm was suffered. The broad brush must be used to paint a canvass that is a consistent and rational portrayal of circumstances in which the claimant and the defendant operated, so that the central question (what would have happened, had the tort not been committed) is answered in its context. This is not unlike the "theory of harm" that is articulated by regulators when seeking to ascertain whether there has been a competition law infringement.

(d) Popplewell J found value in the following passages from a *Commission Staff Working Document Practical Guide on Quantifying Harm in Actions for Damages* (the "Practical Guide on Quantifying Harm"), as do I:[16]

> "16. It is impossible to know with certainty how a market would have exactly evolved in the absence of the infringement of Article 101 or 103 TFEU. Prices, sales volumes, and profit margins depend on a range of factors and complex, often strategic, interactions between market participants that are not easily estimated. Estimation of the hypothetical non-infringement scenario will thus by definition rely on a number of assumptions. In practice, the unavailability of data will often add to this intrinsic limitation.
>
> 17. For these reasons, quantification of harm in competition cases is, by its very nature, subject to considerable limits as to the degree of certainty and precision that can be expected. There cannot be a single "true" value of the harm suffered that could be determined, but only best estimates relying on assumptions and approximations…"

Quantification of loss is not a question of mathematical calculation (although mathematical calculations will, no doubt, have their place), but turns on developing a robust understanding of what would have happened in the counterfactual case.

(9) In [307] of *Asda*, Popplewell J said this:[17]

> "…where the court is compelled to use a broad brush in the absence of precision in the evidence of the harm suffered by a claimant, it should err on the side of under-compensation so as (a) to reflect the uncertainty as to the loss actually suffered and (b) to give the defendant the benefit of any doubts in the calculation".

The claimant's compensation cannot simply be "plucked from the air". It must be grounded in the evidence before the court. The court must, when quantifying loss, be astute to identify those points where the evidence falls short, and where the court

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[15] *Asda* at [306(2)].
[16] C(2013) 3440; *Asda* at [306[3)].
[17] Following: Rimer J in *SPE International Ltd v. Professional Preparation Contractors (UK) Ltd* [2002] EWHC 881 (Ch) at [86]*ff*; Morritt V-C in *Blayney (t/a Aardvark Jewelry) v. Clogau St David's Gold Mines Ltd* [2002] EWCA Civ 1007 at [31]-[34].

becomes reliant upon estimates or assumption. Such estimates or assumptions will need to take account of the fact that the probabilities in the counter-factual world may not mean that these estimates or assumptions will inevitably hold good.[18] I do not take this *dictum* to mean that every calculation made in the course of assessment of damages must be reduced to avoid the risk of over-compensation.

(2) A preliminary pleading point: the Overcharge Claim and the definition of "overcharge"

13. In this case, the infringement of competition law has been established by the Decision. But the question of whether that infringement has caused actionable harm or damage to BritNed is in dispute and for me to determine.

14. So far as the Overcharge Claim is concerned, the Particulars of Claim plead that BritNed paid a price for the Interconnector "that was unlawfully inflated above the price which would have prevailed had there been no Cartel".[19]

15. There was a dispute between the parties as to how this unlawful inflation of price – the overcharge – was to be assessed. Two alternatives were contended for:

(1) The overcharge was the difference between the price actually agreed and the price that would have been agreed between ABB and BritNed had there been no Cartel; alternatively

(2) The overcharge was the difference between the price actually agreed and the price that would have resulted had there been no Cartel whether the party contracting with BritNed would have been ABB or some other supplier.

16. ABB contended that the recoverable overcharge was the first of these two alternatives. ABB's position is stated in its written closing submissions:[20]

"296. BritNed's pleaded claim in respect of overcharge is as follows:

"As a result of the activities carried out by ABB through their participation in the Cartel from 1 April 2000 to 17 October 2008, BritNed: (a) paid a price under the Agreement that was unlawfully inflated above the price which would have prevailed had there been no Cartel."

297. The Agreement in question is the contract between BritNed and ABB for the BritNed Works signed on 21 May 2007.

298. Both Mr Biro and Dr Jenkins, in considering the competitive price absent the Cartel, had used ABB's data from before and after the Cartel: they have therefore proceeded on the

[18] A good example is the case of *Chaplin v. Hicks* [1911] 2 KB 786, where the claimant lost the chance of participating in the final of a competition. Damages were assessed according to the claimant's chance of winning (i.e. one in ten). This level of compensation is, in one sense, wrong, in that either the claimant would have won the competition (in which case one in ten under-compensates) or the claimant would not have won (in which case one in ten over-compensates), but it achieves a proper outcome by navigating between these extremes.

[19] Particulars of Claim/para. 7(a). I refer to all pleadings in their latest, amended, form.

[20] I should say that when quoting from the pleadings, submissions and evidence before me, I have corrected obvious typographical errors and harmonised nomenclature (for instance, I describe the Cartel with a capital "C" throughout) where these do not affect the sense without marking these changes. Corrections or explanatory interpolations have square brackets ("[…]").

basis that the competitive price is the price that ABB would have charged to BritNed absent the Cartel (the "ABB counterfactual price").

299. Although its position is not clear, during the course of the trial BritNed may have posited a further counterfactual, based on the premise that a third party other than ABB would have won the project at a price lower than the ABB counterfactual price.

300. ABB submits that it is not open to BritNed to advance this argument for the first time during the course of the trial. It has not been considered by the experts and ABB has not had the opportunity to address it, by way of disclosure or factual or witness evidence."

BritNed contended for the second of the two alternatives.[21]

17. Considering the terms of BritNed's pleading – which, as it seems to me, is certainly the crucial and perhaps the only question that arises – I have no doubt that BritNed's pleaded case on overcharge defines the overcharge as the second of the two alternatives described in paragraph 15 above, that is the difference between the price actually agreed and the price that would have resulted had there been no Cartel, whoever the party contracting with BritNed would have been in the counter-factual world. As to this:

(1) Paragraph 5D of the Particulars of Claim pleads some of the characteristics of the Cartel, including the fact that the BritNed project was allocated to ABB by the other cartelists, and that the other cartelists would either refrain from bidding or else submit uncompetitive bids.

(2) The counterfactual scenario which must, therefore, be considered, is one where ABB was not "allocated" the BritNed project. That obviously implies competitive tenders from others, which *(i)* might render ABB more competitive, but which *(ii)* might result in a competitor putting forward a more competitive price than ABB and thereby winning the contract.

(3) I do not consider that paragraph 7(a) of the Particulars of Claim confines BritNed's claim to the more competitive price that ABB might have offered. Paragraph 7(a) pleads that the price under the Agreement was unlawfully inflated, and that this price was inflated above the price which would have prevailed had there been no Cartel. This counter-factual price is not limited to the price that would have been offered by ABB, and I see no reason for implying such a restriction into the Particulars of Claim.

(4) It is true that both parties have focussed on ABB's costs and how – in a competitive market – ABB's price might have changed. That I consider to be a reflection of the evidence available to the parties, rather than a consequence of BritNed's pleading. ABB has provided, on disclosure, a great deal of evidence regarding the other projects it was involved in and the costs associated with these projects. This has been considered – as I described – by the experts. There has been no corresponding disclosure from ABB's competitors, and none could reasonably have been expected by either party.[22] Inevitably, the experts and the parties have done what they can

[21] See Day 1/pp.129*ff*.

[22] They were not parties to the action. Third party disclosure would have been highly intrusive given the level of detail that would be required to carry out a robust assessment of the price that would have been offered by other cartelists in the counter-factual scenario.

on the evidence available to them; but that does not mean that the counterfactual inquiry is limited to a consideration of what price ABB would have offered. Such an approach is tantamount to treating the Cartel as if it still operated, at least to the extent of preventing competitive bids from suppliers other than ABB.

18. Accordingly, the overcharge that I am seeking to assess is the difference between *(i)* the price agreed between ABB and BritNed and *(ii)* the price that would have been agreed – whether with ABB or by another provider – had the Cartel not operated. That said, for the reasons given in paragraph 17(4) above, the sort of price that a third-party provider would offer is extremely difficult to determine, given the (lack of) evidence. Inevitably, that has a bearing on my approach to the assessment of the overcharge.

(3) A presumption of overcharge and the principle of effectiveness

19. Directive 2014/104/EU (the "Damages Directive"), which has been implemented into English law by an amendment to the Competition Act 1998, requires Member States to establish a presumption of harm in cartel damages cases.[23] The rationale for this is explained in Recital (47) of the Damages Directive:

> "To remedy the information asymmetry and some of the difficulties associated with quantifying harm in competition law cases, and to ensure the effectiveness of claims for damages, it is appropriate to presume that cartel infringements result in harm, in particular via an effect on prices. Depending on the facts of the case, cartels result in a rise in prices, or prevent a lowering of prices which would otherwise have occurred but for the cartel. This presumption should not cover the concrete amount of harm. Infringers should be allowed to rebut the presumption. It is appropriate to limit this rebuttable presumption to cartels, given their secret nature, which increases the information asymmetry and makes it more difficult for claimants to obtain the evidence necessary to prove the harm."

20. Paragraph 13 of Schedule 8A to the Competition Act 1998 now provides:

> "For the purposes of competition proceedings, it is to be presumed, unless the contrary is proved, that a cartel causes loss or damage."

21. BritNed accepted that neither the Damages Directive nor the amendment to the Competition Act 1998 applied in this case. Paragraph 13 of Schedule 8A applies to cases arising after March 2017 and so does not apply to this case.

22. Nevertheless, BritNed contended that the principle of effectiveness requires a presumption of harm. BritNed invited me (rebuttably) to presume that the Cartel had caused loss to BritNed.

23. I reject this contention:

(1) Clearly, when the amendments to the Competition Act 1998 pertain, they will be applied. They do not apply now.

(2) If the principle of effectiveness required the creation of a presumption of loss or damage, then it is difficult to see why the Damages Directive requires such a

[23] Damages Directive/Article 17(2).

presumption to be established and why an amendment to the Competition Act 1998 has been effected.

(3) I do not consider that a presumption of harm particularly assists in the assessment of damages in cartel cases, and I certainly do not consider that it is appropriate for me to pre-empt legislation specifically introducing into future cases this presumption. That is especially so, given the approach to the assessment of damages taken by English law, described in paragraph 12 above and expanded upon in paragraphs 419*ff* below.

(4) In its written closing submissions, BritNed suggested that the presumption of harm had a "strong and sound basis in economics"[24] and that "the facts as established at trial provide a compelling basis for the court to apply a presumption that the Cartel did have some effect on the BritNed price".[25] This strikes me as a somewhat arid and rather circular point. I will obviously have regard to all of the facts and evidence, including economic theory regarding the operation of cartels, in order to determine whether there has been an overcharge and, if so, how much. If the economic analysis and the facts are as compelling as BritNed contend (and this, of course, is the substance of my analysis in Sections D to I below) then BritNed will establish an overcharge without the need to rely on a presumption. If, on the other hand, the economic analysis and the facts are less cogent, then I fail to see why (absent legislation compelling me) I should buttress an otherwise weak case with a presumption that there has been such loss and damage.

(5) Obviously, I take the point about informational gaps, and the potential asymmetry in information that will exist between a cartel member and an outsider. This issue, however, is fully factored into the approach English courts take to the quantification of loss and damage. I fail to see how a bare presumption of harm – particularly one, which does not involve a presumed quantification of harm – takes matters any further at all.

(4) ABB's prior bad conduct

24. In opening, BritNed stated that ABB was a "dirty company":[26]

> "My Lord, in 22 years of practice, this is not a word I have used before any tribunal, but I'm afraid to say that ABB is a dirty company. For over two decades, its power business has involved itself in at least three pernicious global cartels, covering power cables, gas-insulated switchgear and power transformers, and a fourth cartel actually in pre-insulated pipes, which is something slightly different. These cartels were organised and implemented at the highest levels within ABB."

The suggestion that the court should have regard to the fact that the Cartel was preceded by other cartels involving ABB's power division was reiterated in BritNed's written closing submissions.[27]

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[24] BritNed's written closing submissions at para. 33.
[25] BritNed's written closing submissions at para. 35.
[26] Day 1/p.37.
[27] At paras. 39*ff*.

25. ABB contended that this was a jury point to be disregarded.[28] I agree:

(1) Whilst it may be that ABB's participation in other illegal cartels might amount to "similar fact" evidence as to ABB's propensity to participate in cartels, the fact is that ABB's participation in the Cartel is admitted.

(2) I do not consider that ABB's propensity to participate in cartels can say anything about the nature or extent of the economic benefit that ABB derived from this. I accept that, as an organisation, ABB would not have participated in cartels generally unless it saw some benefit from this. But the same point can be made in relation to ABB's participation in the Cartel itself. I accept that a rational organisation, and rational people, are not going to engage in illegal cartelist behaviour unless they are satisfied that it benefits them. The fact that ABB participated in other cartels adds nothing.

(3) Obviously, participation in cartels is unlawful, and the evidence of employees of ABB who knew of the Cartel and who therefore participated in unlawful conduct will have to be treated with caution. I obviously will consider this point when assessing the weight to be attached to the evidence of the witnesses who were called before me. But, again, the fact that ABB – or even these witnesses – participated in other cartels does not assist me in the matters I must address.

C. THE EVIDENCE

(1) Introduction

26. The evidence before me comprised the following types:

(1) Factual witness evidence (i.e. by witnesses of fact called to give evidence before me).

(2) Documentary evidence.

(3) The Decision.

(4) Expert evidence.

27. Each type of evidence gave rise to particular difficulties in terms of evaluation and the drawing of conclusions. Sections C(1) to C(5) describe and assess these various different types of evidence. Section C(6) provides some overview.

(2) Factual witness evidence

(a) General points

28. The general problems presented by witnesses of fact are well-known and have been clearly articulated by Leggatt J in *Gestmin SGPS S.A. v. Credit Suisse (UK) Limited*, [2013] EWHC 3560 (Comm) at [15] to [22]. Even if I had heard evidence from a number

[28] Day 2/p.12.

of persons regarding the operation of the Cartel, reconstructing its operation with particular regard to the BritNed Interconnector would have been extremely difficult.

29. As it was, I only heard evidence from one person with actual knowledge of the Cartel. BritNed's factual witnesses, unsurprisingly, had no contemporaneous knowledge of the Cartel. Of ABB's five factual witnesses, only one knew of the Cartel and ABB's participation in it. The other four, it was accepted by BritNed and I find, had no such knowledge. If and to the extent that their conduct caused BritNed to suffer an overcharge, this was unconscious on their part.

30. Thus, not only did the relevant events take place a number of years ago, but also the witnesses whose evidence I received could, with one exception, at best and at most, describe their innocent actions in the context of a cartelised bid. Inevitably, I have had to tread extremely carefully in assessing such evidence, and I say that out of no disrespect to these witnesses.

31. The evidence of the exceptional witness – Mr Hans-Åke Jönsson – who did know of the Cartel presented different and even greater problems, which I consider in greater detail below. In substance, however, those problems are twofold:

(1) First, Mr Jönsson's understanding of the Cartel was itself limited.

(2) Secondly, Mr Jönsson was, of course, testifying as to his own misconduct and I consider that this inevitably had a distortive effect on his evidence.

(b) BritNed's factual witnesses

32. BritNed called two factual witnesses, Mr Mathew Rose and Mr Michael Jackson.

(i) Mr Mathew Rose

33. At the times material to these proceedings, Mr Rose worked for National Grid plc. He worked for National Grid plc from 1999 to 2013, in a variety of roles. Between July 2005 and October 2007, Mr Rose was the managing director of BritNed, where he was responsible for running the BritNed project alongside his colleague, Mr Dick Bos. Mr Rose and Mr Bos were joint Project Managers, and they led the BritNed project team. That does not mean to say that Mr Rose was always, or even mostly, involved in the front-line negotiations regarding the BritNed project – often such negotiations or dealings would be handled by other members of the team. But I accept that Mr Rose was centrally involved in the BritNed project between July 2005 and October 2007.

34. Mr Rose made three written statements in these proceedings:

(1) A first statement, dated 8 February 2017 ("Rose 1").

(2) A second statement, dated 28 April 2017 ("Rose 2").

(3) A third statement, dated 7 November 2017 ("Rose 3").

Mr Rose gave evidence on Day 4 (12 February 2018).

35. Mr Rose was an impressive witness. Highly articulate, he radiated a quiet confidence in his abilities, and had a good recollection of the events he had been involved in and the way the BritNed project had developed. He was, during the time of his involvement in the BritNed project, unaware of the Cartel. His subsequent knowledge of the existence of the Cartel inevitably coloured how he saw past events: unsurprisingly, he saw them in a different light. For instance, the reason for the non-participation of certain parties in the BritNed tender, which might have puzzled him at the time, became clearer over time. I regard it as inevitable that Mr Rose's recollection would be coloured by events he learned of subsequently. I consider he did his best to separate what would have been his thinking in 2005-2007 and what his interpretation of those events was now, in light of his appreciation of the existence of the Cartel. He was an honest, straightforward and, as I have said, impressive witness.

(ii) Mr Michael Jackson

36. Mr Michael Jackson provides (through his company, Mike F Jackson Consulting Limited) consultancy services to a range of clients in the power sector. Between August 2006 and August 2008, he was engaged, as an independent contractor, as commercial manager for the BritNed project. His primary role was to lead BritNed's negotiation team.

37. Mr Jackson made one witness statement in these proceedings, dated 28 April 2017 ("Jackson 1"). He gave evidence on Day 4 (12 February 2018).

38. Mr Jackson was a bluff and forthright witness. He gave his evidence honestly, but I consider he had greater difficulty than Mr Rose in separating his subsequent knowledge about the Cartel from his attempt to recollect his thinking at the time. As I have already stressed in the case of Mr Rose, I regard this colouring of recollection as inevitable, and this is in no sense a criticism of Mr Jackson. Nevertheless, it is important to bear this factor in mind: it certainly coloured Mr Jackson's evidence regarding the "discount" provided by ABB during the course of the final stages of the negotiation of the contract between BritNed and ABB. It will be necessary to return to this discount later on in this Judgment: it constitutes one of the clearest indicators that ABB was under some competitive pressure, which of course sits uneasily with the Cartel effects contended for by BritNed. Mr Jackson's evidence on this point was a little skewed by the fact that he could not reconcile the granting of this discount by ABB with his after-the-event views of the effect of the Cartel.

(c) ABB's factual witnesses

39. ABB called five witnesses in the following order:

(1) Mr Hans-Åke Jönsson.

(2) Mr Peter Leupp.

(3) Mr Stefan Ekman.

(4) Mr Magnus Larsson-Hoffstein.

(5) Mr Hans Magnus Röstlund.

(i) Mr Hans-Åke Jönsson

40. Mr Jönsson is now retired. He worked for ABB between 1982 and 2009. For a short period after 2009, he worked as a consultant. He knew of the Cartel. His departure from ABB in 2009 was as a consequence of his involvement in the Cartel. The terms of his departure from ABB were set out in an agreement (that remains confidential, but which I have seen) made in 2010.

41. From 1994 to 2000, Mr Jönsson was the general manager of the ABB Reactive Power Compensation Business in Västerås, Sweden. From 2001 to 2009, he was the general manager and vice-president of the ABB High Voltage Cables business. During the period – specifically, between 2004 and 2008 – he was additionally the manager of ABB's cables factory in Karlskrona.

42. Mr Jönsson made four witness statements in these proceedings:

(1) A first statement, dated 5 February 2017 ("Jönsson 1").

(2) A second statement, dated 28 April 2017 ("Jönsson 2").

(3) A third statement, dated 30 May 2017 ("Jönsson 3").

(4) A fourth statement, dated 9 November 2017 ("Jönsson 4").

43. Mr Jönsson gave evidence on Day 5 (13 February 2018), Day 6 (14 February 2018) and Day 7 (15 February 2018).

44. Mr Jönsson was a self-confessed cartelist. I consider that he had an obvious interest in minimising his – and therefore ABB's – involvement in the Cartel. I do not consider that Mr Jönsson was a dishonest witness, but I do consider that he did, throughout his evidence, seek to minimise the effect of the Cartel and ABB's (and his) role in it, so far as he possibly could. Mr Jönsson was an extremely clever man, and his approach was to accept, pretty much without question, unequivocal findings in the Decision. However, the moment there was wriggle-room – for instance, where a more benevolent interpretation of the facts could be taken or where there was an alternative (non-Cartel-related) explanation for events – Mr Jönsson showed a distinct pre-disposition to opt for this, more advantageous, course. That does not mean to say that Mr Jönsson was wrong in what he said; still less that he was being dishonest. But the trend was very much one-way, and that is a factor I consider that I must bear in mind when evaluating Mr Jönsson's evidence.

45. There was, in short, a lack of frankness in Mr Jönsson's evidence as to how, in practical terms, the Cartel operated, specifically in relation to the BritNed Interconnector.

46. Accordingly, I am minded to treat Mr Jönsson's evidence with a relatively high degree of caution. That is particularly the case because – as is frequently the situation with cartels – the documentation regarding the detailed operation of the Cartel was probably always quite sparse, and most of such documentation as did exist has either failed to survive or else is kept under wraps by the European Commission itself (and is not available to me).

(ii) Mr Peter Leupp

47. At the time of the BritNed project, Mr Leupp was the head of division, Power Systems, within ABB Limited, based in Switzerland. ABB's cables business was, at this time, within the Power Systems Division.

48. Mr Leupp was involved in the process by which ABB sought to tender for the BritNed project. He claimed not to be aware of the existence of the Cartel, and BritNed did not seek to contend otherwise. I accept this evidence.

49. Mr Leupp was in a high-level position within ABB.[29] He would have relied on others to brief him on the details of the BritNed project, including the competitive dynamics and the state of negotiations. Those briefing Mr Leupp would have included Mr Jönsson, although Mr Jönsson did not report directly to Mr Leupp. Mr Jönsson reported to a Mr Per Haugland (who did not give evidence before me), who reported to Mr Leupp.[30]

50. Mr Leupp made one witness statement dated 27 September 2016 ("Leupp 1"). He gave evidence on Day 7 (15 February 2018).

51. Mr Leupp was a precise, clear and articulate witness. I regard his evidence as reliable.

(iii) Mr Stefan Ekman

52. Mr Ekman is now the senior advisor (finance) at NKT HV Cables AB. Prior to its sale to NKT in March 2017, Mr Ekman was the manager business controlling for ABB's High Voltage Cables business from 2010. Prior to that, he was the chief financial officer in the same business, which was located in Karlskrona, Sweden.

53. Mr Ekman had not been involved in the Cartel,[31] as BritNed accepted. He also played no role in the negotiation of the BritNed contract. His evidence was submitted in response to certain points made by Dr Jenkins – BritNed's expert economist – regarding ABB's order backlog. The significance of this point – and the significance of Mr Ekman's evidence – is considered further below.

54. Mr Ekman made one witness statement dated 9 November 2017 ("Ekman 1"). He gave evidence on Day 8 (16 February 2018).

55. Given the nature of his factual evidence – which essentially drew him into a dispute regarding the modelling of the effect of the Cartel and the extent of the overcharge between the expert economists – Mr Ekman was (I find quite understandably) somewhat of a defensive and cautious witness, determined to speak only to matters within his knowledge. Sometimes that caution was a little excessive: there were times when Mr Ekman declined to be drawn even on documents referenced in his own statement. But the fact is that because of the somewhat recondite area on which he was giving evidence, his defensiveness and caution were perfectly understandable, and I consider that he was doing his very best to assist the court and that his evidence is reliable.

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[29] Day 7/p.150 (cross-examination of Mr Leupp).
[30] Day 7/p.151 (cross-examination of Mr Leupp).
[31] Ekman 1/para. 4.

(iv) Mr Magnus Larsson-Hoffstein

56. Mr Larsson-Hoffstein is a project manager at NKT HV Cables (Sweden) AB, a position he has held since 1 February 2017. Prior to that date, between late 2007 and 31 January 2017, he was employed in the same position by ABB AB. He originally joined ABB AB in 2000.

57. Mr Larsson-Hoffstein was centrally involved in the tender process for the BritNed project. He had a team of people under him, working on the tender, and there were several echelons of people above him in the organisation (including Mr Jönsson) to whom he reported (directly or indirectly) and who also (directly or indirectly) had input into the tender process.

58. Mr Larsson-Hoffstein was not involved in nor aware of the Cartel,[32] and this evidence was not challenged by BritNed.[33] At the trial, Mr Larsson-Hoffstein made a single witness statement dated 6 February 2017 ("Larsson-Hoffstein 1"). He gave evidence on Day 8 (16 February 2018).

59. Mr Larsson-Hoffstein's English was good, but not as good as the other witnesses called by ABB. Nevertheless, I am satisfied that he understood all of the questions put to him, and his answers were clear. He was a transparently honest witness, who provided me with clear insight into the way in which ABB put together tenders and conducted its negotiations.

60. Subsequent to the trial, and in order to deal with a discrete point regarding the cost of copper purchased by ABB for use in the cable for the BritNed Interconnector, Mr Larsson-Hoffstein made a further witness statement dated 29 March 2018 ("Larsson-Hoffstein 2").

(v) Mr Hans Magnus Röstlund

61. Mr Röstlund began working for ABB in 2000. Throughout his career he was involved in sales. He was not involved in, nor aware of, the Cartel (a fact which BritNed did not challenge).[34] He commented on power cables projects from a technical perspective. He was not directly involved in the BritNed project but provided evidence regarding power cables projects more generally.

62. Mr Röstlund made two witness statements in the proceedings, the first dated 12 July 2016 ("Röstlund 1") and the second dated 6 February 2017 ("Röstlund 2"). He gave evidence on Day 9 (19 February 2018).

63. Mr Röstlund was a straightforward and extremely competent witness. He knew what he was talking about and was careful to make clear the limits of his knowledge (in particular on specific technical aspects). He was an impressive witness.

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[32] Larsson-Hoffstein 1/para. 4.
[33] Day 8/pp.82-83 (cross-examination of Mr Larsson-Hoffstein).
[34] Röstlund 1/para. 4.

(3) The documentary evidence

64. In the ordinary course, when assessing factual evidence, a Judge has well in mind the approach of Lord Goff in *Grace Shipping Inc. v. CF Sharp and Co (Malaya) Pte Ltd* [1987] 1 Lloyd's Rep. 207 at 215:

> "In such a case [where witnesses were seeking to recall events and telephone conversations of five years earlier] memories may very well be unreliable; and it is of crucial importance for the judge to have regard to the contemporary documents and to the overall probabilities…"

65. Whilst I obviously have had regard to the contemporary documents, it is (as I have said) in the nature of cartels that material documents are sparse. Either notes or records are not kept or else they are destroyed. In the case of the Cartel, and ABB's recording of its activities, the practice appears to have been for ABB to keep as few records as possible. Mr Jönsson's evidence was as follows:[35]

Q (Mr O'Donoghue, QC)	…secrecy was a major feature of this cartel, wasn't it?
A (Mr Jönsson)	Yes.
Q (Mr O'Donoghue, QC)	…In your activities, which phone did you use for Cartel discussions?
A (Mr Jönsson)	My phone, my office phone.
Q (Mr O'Donoghue, QC)	Insofar as you sent emails, which email did you use for Cartel activities?
A (Mr Jönsson)	I did very – there is maybe one or whatever – I never sent emails related to Cartel activities. There is – I can see one that I know of, but otherwise I don't send any emails.
Q (Mr O'Donoghue, QC)	So you were very careful not to send emails, were you?
A (Mr Jönsson)	Yes.
Q (Mr O'Donoghue, QC)	To avoid detection?
A (Mr Jönsson)	Yes.
	…
Q (Mr O'Donoghue, QC)	Did you create, at any stage, documents which were subsequently destroyed?
A (Mr Jönsson)	No. I can say the following: when I was in meetings, sometimes I had – there are the handwritten notes which have been connected to several of the meetings which we did back in 2009, but then otherwise I would be remembering, I was keeping it in my head. There has not been any document destroyed
Q (Mr O'Donoghue, QC)	So you took steps to avoid creating documents at all stages?
A (Mr Jönsson)	Correct.

[35] Day 5/pp.36-38 (cross-examination of Mr Jönsson). See also Day 5/pp.142-143 (cross-examination of Mr Jönsson).

Q (Mr O'Donoghue, QC)	To avoid detection?
A (Mr Jönsson)	Correct.

Meetings between cartelists took place under the cover of legitimate excuses to meet. One of the practices within the Cartel was to use the international cable-makers conferences as a cover to discuss the Cartel.[36]

66. There are thus significant gaps in the contemporary documentary record. In the first place, there is before the court only ABB's disclosure;[37] and that, as Mr Jönsson made clear, was an intentionally incomplete record.

(4) The Decision of the European Commission

(a) The law regarding the bindingness of decisions

67. The relevant law may be stated in the following propositions:

(1) The Decision is a decision of the European Commission.[38] As such, it is binding in its entirety upon those to whom it is addressed.[39] ABB is an addressee of the Decision. But neither BritNed nor (to state the obvious) this court is an addressee.

(2) It is well-known that decisions of the European Commission comprise an "operative" part coming after a series of recitals.[40] The Decision is no exception. Commencing with the basis upon which the Commission's jurisdiction is founded, under the word "Whereas", there follow – numbered (1) to (1078) – a series of recitals, before (on page 185) the words "HAS ADOPTED THIS DECISION" appear. There then follows, comprising a single Article, the operative part of the Decision. This provides:

> "*Article 1*
>
> The following undertakings infringed Article 101 of the Treaty and Article 53 of the EEA Agreement by participating, in a single and continuous infringement in the (extra) high voltage underground and/or submarine power cables sector:"

The undertakings are then listed, and they include ABB. The operative part continues:

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[36] Day 6/p.88 (cross-examination of Mr Jönsson).

[37] This was, however, extensive: it included the entire Accessible File, including documents from the other addressees of the Decision.

[38] See paragraph 1 above.

[39] See Article 288 TFEU: "A decision shall be binding in its entirety. A decision which specifies those to whom it is addressed shall be binding only on them."

[40] See, e.g., *Deutsche Bahn AG v. Morgan Crucible Co. plc* [2011] CAT 16 at [24]; [2014] UKSC 24 at [12]. Also, *Emerson Electric Co. v. Morgan Crucible Co. plc* [2011] CAT 4 at [11], where the Competition Appeal Tribunal Commission decision in the competition field as having "a relatively short operative part or *dispositif* and an often lengthy statement of reasons. The operative part identifies the addressee(s) of the decision and, for example, makes a finding of infringement and/or imposes penalties and/or requires the persons to whom the decision is addressed to bring the infringement to an end. The statement of reasons, which normally precedes the operative part, contains what are called the recitals to the decision, setting out the factual and legal assessment which the Commission has made in reaching its decision."

"This Decision shall be enforceable pursuant to Article 299 of the Treaty and Article 110 of the EEA Agreement.

Done at Brussels…"

(3) In the provisional non-confidential version of the Decision published in November 2017, the operative part did no more than identify the participating undertakings. There was no statement of the periods of their participation, nor of the fines imposed. A final non-confidential version was published on 4 July 2018, where this information was provided.

(4) The distinction between recitals and the operative part is important and well-recognised in European Union law. In Case C-164/02, *Kingdom of the Netherlands v. Commission of the European Communities* EU:C:2004:54, [2004] ECR I-1179, the European Court of Justice held:[41]

"…it need merely be stated that, regardless of the grounds on which such a decision is based, only the operative part thereof is capable of producing legal effects…By contrast, the assessments made in the recitals to a decision are not in themselves capable of forming the subject of an application for annulment. They can be subject to judicial review by the Community judicature only to the extent that, as grounds of an act adversely affecting a person's interests, they constitute the essential basis for the operative part of that act."

(5) The following points fall to be made:

(a) There is a central ambiguity in the term "decision":

(i) It can refer to the instrument by which a decision is or decisions are made. On this reading, the Decision is a decision. This is the "wide" meaning of the term "decision".

(ii) Alternatively, it may refer simply to the operative part of the decision (in the wide sense). This, "narrow", understanding of a decision looks only at what is capable of producing legal effects.

(b) It is quite clear from the European Union jurisprudence cited above that what matters is "decision" in the "narrow" sense understood by the European Court of Justice in Case C-164/02, *Kingdom of the Netherlands v. EC Commission* and that is how (from hereon) I shall use the term in this Judgment. I shall refer to the instrument containing a decision as just that – the "instrument".

(6) It follows that an instrument may contain three different types of provision:

(a) *A decision.* A decision in an instrument, as has been described,[42] is binding on its addressees. A decision is also – to the extent it constitutes a final

[41] At [21].
[42] See paragraph 67(1) above.

infringement decision within the meaning of section 58A of the Competition Act 1998 – binding on this court.[43]

(b) *A recital constituting part of the essential basis for a decision.* As Case C-164/02, *Kingdom of the Netherlands v. EC Commission* makes clear, whilst generally speaking recitals are not acts capable of review by the courts, an exception is made in the case of those recitals constituting the essential basis for the operative part of that act. Here, the relevant act is a decision and to the extent that a recital constitutes part of the essential basis for a decision then – where the decision is binding on this court – so too is such a recital. This, as it seems to me, is an inevitable consequence of section 58A of the Competition Act 1998 and Article 16(1) of Regulation 1/2003.[44] Clearly, what constitutes a recital constituting a part of the essential basis for a decision depends largely on the nature of the decision itself.

(c) *A recital <u>not</u> constituting part of the essential basis for a decision.* Such recitals are not binding on this court. I do not consider that such a conclusion is inconsistent with the duty of sincere cooperation arising out of Article 4(3) of the Treaty on European Union, and I can identify no other rule – whether of European Union law or English law – that compels such a conclusion. In *Crehan v. Inntrepreneur Pub Co. (CPC)* [2006] UKHL 38, Lord Hoffmann said this at [69]:

> "The correct position is that, when there is no question of a conflict of decisions in the sense which I have discussed, the decision of the Commission is simply evidence properly admissible before the English court which, given the expertise of the Commission, may well be regarded by the court as highly persuasive. As a matter of law, however, it is only part of the evidence which the court will take into account. If, upon an assessment of all the evidence, the judge comes to the conclusion that the view of the Commission was wrong, I do not see how, consistently with his judicial oath, he can say that as a matter of deference he proposes nevertheless to follow the Commission. Only a rule of law, in the nature of an issue estoppel which obliges him to do so, could produce such a result…"

(b) My approach in the case of the Decision

68. Applying this approach to the Decision is relatively straightforward. ABB did not seek to challenge the operative parts of the Decision nor, indeed, the recitals in the Decision that might be said to constitute part of the essential basis for a decision.[45] Indeed, Mr Jönsson agreed with the general description of the Cartel as set out in recitals (528) to (535) of the Decision.[46]

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[43] See section 58A of the Competition Act 1998. See also, to similar effect, Article 16(1) of Council Regulation (EC) No. 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty ("Regulation 1/2003")

[44] See also *Iberian UK Ltd v. BPB Industries plc* [1996] 2 CMLR 601 and *Enron Coal Services Ltd (in liquidation) v. English Welsh & Scottish Railway Ltd* [2011] EWCA Civ 2.

[45] While not relevant to this case, it should be noted that ABB did appeal in certain respects the findings of the Commission. The outcome of those proceedings has yet to be determined, but they do not affect this Judgment".

[46] Jönsson 1/para. 7. As I have noted (see paragraphs 44 to 45 above) this was a hallmark of Mr Jönsson's oral evidence also.

69. The problem is that most of the Decision does not deal with the BritNed Interconnector, although some reference is made to it. The Decision – entirely unsurprisingly – operates at an altogether higher level of generality, since it is concerned with the Cartel generally and not with any single project that was the object of the Cartel. In this case, of course, I am concerned only with the BritNed Interconnector: obviously, the findings I make will be made against the backdrop of the fact that the Interconnector was sold in a cartelised market, but it is difficult to see what specific findings this impels me to.

70. There are two other factors that are relevant to the weight that I attach to the Decision:

(1) Large parts of the Decision were redacted. Redactions were in two forms:

(a) Some redactions simply highlighted confidential passages. Thus, I was able to read the passage in question, but was alerted to its confidential nature.

(b) Some redactions – and there were many of these – replaced the passage with "[…]", so that it was impossible to read or understand the redacted passage.

(2) A number of the documents on which the Commission relied were not available to me. It is obviously difficult to say without actually seeing them, but some appeared to me to be potentially quite important.

71. In these circumstances, I am inclined to be cautious in terms of the weight I attach to non-binding recitals in the Decision. The statements by the European Commission may well be justifiable: but on these points I am the determiner of fact, and I am only prepared to accept a non-binding statement by the European Commission where it seems to me that it is a finding I can properly make on the evidence viewed as a whole.

(5) The expert evidence

72. I heard evidence – over six days – from two expert economists. BritNed called Dr Helen Jenkins of Oxera; ABB called Mr Zoltan Biro of Frontier Economics.

73. The experts submitted their reports in these proceedings in accordance with my order of 20 July 2017. That order required the parties to produce a list of issues to be addressed by the experts in an agreed form. That list was then supplemented by a statement by each expert, setting out in broad terms the methodological approach each expert proposed to take in relation to each issue. The list also identified on which issue or issues each expert was to take the lead. Save on the issue of overcharge, where the approaches of the two experts were so different that each expert took the lead in articulating his/her approach, this meant that the issues between the experts were addressed sequentially.

74. In all, the following reports were submitted by the experts:

(1) A report of Dr Jenkins dated 15 September 2017 ("Jenkins 1").

(2) A report of Mr Biro dated 15 September 2017 ("Biro 1").

(3) A report of Dr Jenkins dated 10 November 2017 ("Jenkins 2").

(4) A report of Mr Biro dated 10 November 2017 ("Biro 2").

(5) A joint statement of Dr Jenkins and Mr Biro dated 12 December 2017 (the "Joint Statement").

Additionally, in response to two questions I addressed to the experts at the end of July 2018, the experts produced a joint response (the "24 August 2018 Response"), which helpfully set out their answers to these questions.

75. The experts gave evidence in two stages. Before any factual evidence was called, I indicated that it would be helpful if each expert could provide a neutral explanation, under oath, of their working methodology. This came to be referred to as the "teach-in" and it took place on Day 3 (9 February 2018), after the parties' oral openings, which took place on Days 1 and 2 (7 and 8 February 2018). The experts were then cross-examined, for just over two days each, on Days 9 to 13 (19 to 23 February 2018). Both experts were extremely impressive witnesses. I consider that they did their very best to assist the court in what was, on any view, a complex and difficult exercise.

(6) Overview

76. Each of the different types of evidence before me has its strengths and weaknesses. The factual evidence, the documentary evidence and the Decision inform the substance of Sections D, E F and G below. The expert evidence, although it features incidentally in these Sections, is on the whole treated separately, in Section H. The various strands are then brought together, and the various claims and defences determined, in Section I and the subsequent Sections of the Judgment.

77. In considering the various strands of evidence before me, I have been concerned to build a picture of the relationship between BritNed and ABB and the manner and extent to which that relationship was affected by the Cartel. Without building as comprehensive a picture as possible, it will be difficult to discern the true nature and true effects of the Cartel.

78. In opening, BritNed said that "[t]he narrative side of the case, in terms of the contours and fabric of the Cartel, are in my submission critically important when it comes to understanding the factual evidence."[47] I agree with this statement, and consider the general nature and operation of the Cartel in Section D below. But that is not the only factual aspect that is of critical importance. Of equal importance are the characteristics of submarine cable projects (Section E), the history of the BritNed tender (Section F), and the competitive pressures that arose or – because of the Cartel – did not arise during the negotiating process (Section G). As I have noted, the expert assessment stands somewhat separate but also draws on this material. For that reason, I consider it separately (Section H).

79. The material before me inevitably has gaps. These I seek to bridge through careful deployment of the broad brush. I have not considered it necessary or appropriate to draw adverse inferences in relation to the absence of material before me, although I was invited to do so by BritNed.[48] It seems to me that, at least in this case, it would be a mistake to do so. I am not concerned, as I have noted, in determining the existence of the Cartel nor

[47] Day 1/p.7.
[48] Day 1/p.47.

in deciding ABB's participation in it. These are givens. I am concerned with the economic effects of the Cartel, translated into a claim for damages. To draw adverse inferences would be a distortion of the process of assessment that I must undertake, in much the same way as a presumption of overcharge for the reasons given above.[49]

D. THE NATURE AND OPERATION OF THE CARTEL

80. I shall consider the nature and operation of the Cartel first in general terms (Section D(1)), before turning to ABB's specific role and involvement in the Cartel (Section D(2)).

(1) General nature and operation

81. The Cartel had its genesis in a perceived excess of capacity amongst cable suppliers.[50] Although there were calls to reduce existing excess capacity,[51] the Cartel sought to deal with this problem by maintaining price levels and allocating bids.[52]

82. Essentially, the Cartel operated on a territorial basis, using a "home territory" principle.[53] Thus, Japanese and Korean producers would not compete for power cable projects in the European home territory and Europeans would not compete for power cable projects in the Japanese and Korean home territories.[54]

83. Within these territories, there was further territorial allocation. The Baltic and North Sea area was allocated to ABB and (to some extent) Nexans. The Mediterranean area was divided between Prysmian and Nexans.[55] But there were *ad hoc* exceptions to this territorial approach[56] and friction was generated when multiple parties sought the same contract.[57]

84. The Decision says this about the Cartel:

> "(67) Adhering to the rules of the Cartel, from February 1999 onwards, the parties allocated projects according to their geographic region or customer. In addition, they exchanged information on prices and other commercially sensitive information in order to ensure that the designated power cable supplier or "allottee" would make the lowest price while the other companies would submit a higher offer or refrain from bidding or submit an offer that was unattractive to the customer. The parties installed reporting obligations to allow monitoring of the agreed allocations. Finally, the parties also implemented practices to reinforce the [Cartel] such as the collective refusal to supply accessories or technical assistance to certain competitors in order to ensure the agreed allocations."
>
> (68) To ensure the implementation of the Cartel arrangements, the parties held periodical meetings and had contacts by email, telephone or fax.

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[49] See paragraph 23 above.
[50] Decision/Recital (405). Mr Ekman, although unaware of the Cartel, was able to testify to the fact that ABB's factory loadings were low in around 1999 and thereafter: Day 8/p.8 (cross-examination of Mr Ekman).
[51] Decision/Recital (405).
[52] Decision/Recital (406).
[53] Decision/Recital (108).
[54] Decision/Recital (10).
[55] Decision/Recital (108).
[56] Decision/Recital (108).
[57] Decision/Recital (109).

(69) Within the Cartel, and in line with [information pre-dating the infringement period], the European producers Nexans and Pirelli/Prysmian were normally referred to as "R" ("Regular") members, the Japanese producers Sumitomo, Hitachi and JPS, Furukawa and VISCAS (and later also EXSYM) as "A" ("Associated") members and the Korean companies LS Cable and Taihan as "K". In addition, the parties used the term "R associates" for ABB, Sagem/Safran, Brugg and nkt, while "A associates" was also used to refer to LS Cable, Taihan and Mitsubishi, Showa and EXSYM during a certain period.

(70) Most of the parties participated in two main types of meetings:

(a) the so-called "A/R meetings", between representatives of the European and Japanese producers, and

(b) regional meetings, such as the recurrent "R meetings" (also referred to as "seminars") in which only the local producers participated.

(71) In addition to the A/R meetings and R meetings, meetings including the Korean companies ("A/K/R" meetings), bilateral and multilateral meetings between selected parties and meetings at the occasion of industry conferences (such as the International Cablemakers Federation ("ICF") sessions) were also frequent.

(72) Given the long period over which the Cartel has been operating, certain aspects and details of the Cartel arrangements, such as the geographic areas considered as "home territories", the voltage levels covered by the arrangements or how projects were allocated within certain territories, have evolved over time. However, the evidence gathered by the Commission shows that the main features of the Cartel arrangements described below have in essence been maintained over time.

(73) The Cartel had two main configurations:

(a) On the one hand, the European, Japanese and Korean producers had as their objective the allocation of territories and customers. This configuration is referred to as the "A/R Cartel configuration"…Pursuant to this configuration, Japanese and Korean producers refrained from competing for projects in the European home territory while the European producers would stay out of Japan and Korea. The parties also allocated projects in most of the rest of the world and made use of a 60/40 quota arrangement for a certain period of time.

(b) On the other hand, the "European Cartel configuration" involved the allocation of territories and customers by the European producers for projects inside the European home territory or allocated to the European producers…

(74) These configurations were not separate but formed a composite whole."

85. The Cartel had, within its allocations, "compensation" mechanisms to ensure "fairness". Thus, if one member of the Cartel forwent a particular opportunity to bid (either by not bidding at all or by putting in an uncompetitive bid), that member would in due course receive "compensation" (generally in the form of being the favoured bidder in another project).[58] For example:

[58] Decision/Recitals (169), (322)(r) and (400).

(1) The Eirgrid SM power cable project in Ireland was allocated to ABB in exchange for Nexans obtaining the Fennoskan II project.[59]

(2) The NorNed project was allocated to ABB in exchange for foregoing the North Sea Interconnector project.[60]

86. This, of course, involved keeping track of allocations and monitoring who got what.[61]

87. In order to allocate projects to particular cartelists, it was, of course, necessary to exchange information regarding bids, so that the cartelists who were not to succeed could (if they were going to bid) ensure that their bids were appropriately unattractive.[62]

88. The Cartel involved a great many meetings, although not necessarily all of the cartelists attended all of the meetings. The Decision says this:[63]

"In order to achieve their overall aim, the parties established a network of multilateral and bilateral meetings and contacts and participated in one or more of the following cartel activities:

(a) All producers implicitly or explicitly entered into an agreement or concerted practice through which the European home territory was protected from competition by Japanese and Korean power cable suppliers and *vice versa*…

(b) In addition, the European Cartel members participated in the European cartel configuration; an agreement or concerted practice through which they allocated territories and customers within the EEA…

(c) All producers participated in the allocation of projects in the export territories…

(d) Several parties agreed on the prices to be offered for [submarine] and [underground] power cable projects by either the establishment of a floor price or the coordination of price levels…

(e) Several parties participated in the submission of cover bids in order to ensure the agreed allocation of [submarine] and [underground] power cable projects. To this end, the parties exchanged prices and other sensitive commercial terms and conditions, required for the preparation of the cover bids. These agreements concerned…projects in the EEA…

(f) Several parties participated in the exchange of other sensitive commercial and strategic information such as their available capacity or interest in participating in specific tenders. These agreements concerned both projects in the EEA as well as in the export territories…

(g) Some parties participated in the implementation of practices to reinforce the Cartel such as the collective refusal to supply accessories or technical assistance to certain competitors…

(h) Several parties were involved in the monitoring of the implementation of the allocation and price agreements through the exchange of position sheets, market information and the

[59] Decision/Recitals (433) and (441); Day 6/p.7 (cross-examination of Mr Jönsson).
[60] Decision/Recital (151).
[61] Decision/Recitals (110), (151), (335), (533), (1009).
[62] Decision/Recitals (67), (159), (180), (297), (313), (441).
[63] Decision/Recital (493).

> establishment what reporting obligations. These arrangements concerned both projects in the EEA as in the export territories…"

89. Although the Cartel had clear objectives, there were internal conflicts, rivalries and cheating (in the sense that a cartelist bid competitively for a project not allocated to it by the Cartel).[64]

(2) ABB and the Cartel

90. ABB was not in the Cartel from the beginning. According to the Decision, ABB started participating in the Cartel between April and June 2000. Other members of the Cartel considered ABB's participation important.[65]

91. In his witness statement, Mr Jönsson emphasised Recital (453) of the Decision, which noted that "ABB's position as a non-core player has prevented it from obtaining detailed information on the general application of the [Cartel]".[66] Recital (453) refers to the information that the various leniency applicants were able to provide to the Commission. But the Decision also notes at Recital (563):[67]

> "…Because of its absence from the A/R meetings, ABB was not able to set out the parameters of the Cartel. The level of participation of ABB is therefore lower than that of the core players. However, its deep involvement in many of the Cartel activities as set out in Recital (493)[68] and its participation in many contacts and meetings do not qualify ABB as a *fringe player*."

92. The Decision finds that ABB was aware of the allocation of projects within Europe:[69]

> "ABB's awareness of the allocation of projects within Europe is also evidenced in an internal email of 10 April 2000…This email contains the phrase: "I suspect that when [non-addressee] let Viking go to Pirelli and NorNed to us, the NSI [North Sea Interconnector, linking Norway and England] became their compensation".

93. Mr Jönsson was told about the Cartel in January 2001, when he became business unit manager for cables in the high voltage cable business of ABB.[70] The Decision says this:[71]

> "In March 2001, Mr Jönsson (ABB) was introduced by his predecessor, Mr Carlstedt, to Mr Romand (Nexans) and [company representative B1] (Pirelli). During this meeting, held in a hotel in Zurich, Mr Jönsson was made aware of the cartel arrangements and of the ways in which the illicit cooperation was being carried out. ABB has declared that it was clear for Mr Jönsson that his role was to continue the cooperation between the companies that had taken place prior to his assignment to the cable business…"[72]

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[64] Decision/Recitals (150), (282) and (543).
[65] Decision/Recital (141)(a), (143)(a), (144) and (149).
[66] Jönsson 1/para. 11.
[67] Put to Mr Jönsson on Day 5/pp.139-140 (cross-examination of Mr Jönsson).
[68] Quoted in paragraph 88 above.
[69] Decision/Recital (151).
[70] Decision/Recital (156); Jönsson 1/para. 7.
[71] Decision/Recital (163).
[72] This paragraph contains material redacted in the non-confidential version of the Decision. Given the nature of the redactions and the evidence adduced at trial, it is not appropriate to maintain these redactions in this Judgment.

94. Mr Jönsson attended a further meeting in July 2001, in Zurich again, to discuss allocation of certain projects.[73]

95. Entirely unsurprisingly, BritNed sought to play up ABB's role and involvement in the Cartel, whilst ABB sought to play it down. It is unnecessary for me to reach many findings as regards ABB's role and involvement in the Cartel in general terms, as opposed to the effect of the Cartel on the tender process and price of the BritNed Interconnector. It is sufficient for me to find, as I do, ABB was (as an organisation) appreciative of the general nature and operation of the Cartel, as I have described it in Section D(1) above.

96. It is unnecessary for me to consider the extent to which ABB was involved in the highest level of Cartel meetings, nor who exactly within ABB was aware of the Cartel. The general operation of the Cartel is only relevant insofar as it sheds light on the manner in which the Cartel affected the BritNed tender. That is a matter that I turn to in Section G below.

E. THE CHARACTERISTICS OF SUBMARINE CABLES

(1) Introduction

97. There are a number of technical points that need to be understood about the nature of submarine cable projects. These are as follow:

(1) The differences between submarine and underground cable projects.

(2) Alternating current or direct current.

(3) Cable width.

(2) The difference between submarine and underground cable projects

98. The very significant differences between underground and submarine cable projects were described in detail by Mr Röstlund in his statement.[74] His evidence was not – for the most part[75] – challenged in cross-examination.

99. The differences between underground and submarine cable projects are important because – as will be described – Dr Jenkins used both underground and submarine cable projects for the purposes of her overcharge analysis and modelling. Dr Jenkins recognised that there were significant differences between underground and submarine cable projects and sought to compensate for this in her analysis. I consider the extent to which she was successful in this regard below.[76]

100. It is, therefore, necessary to understand the differences that Dr Jenkins was seeking to represent in her model. Mr Röstlund identified a number of differences between underground and submarine cable projects:

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[73] Decision/Recital (180).
[74] Röstlund 1/paras. 8(a) and 10*ff*.
[75] See the point at paragraph 101 below.
[76] See Section H(5) below.

(1) *The cable structure is different according to whether the cable is for underground or submarine use.* Mr Röstlund noted that "the design and structure of submarine and underground cables differ substantially and the resulting impact on the mix and volumes of materials used in their manufacturing process leads to substantial differences in their production costs, which are reflected in the prices charged to customers."[77]

(2) *Submarine cables are manufactured on a bespoke basis, whereas underground cables tend to be bought "off the shelf".* Mr Röstlund stated that "the variety of challenges posed by the submarine environment and the range of different project types means that submarine cables are designed and manufactured on a bespoke basis, with the cables tailored specifically to the requirements of each individual project. In contrast, underground cables are a more commoditised product supplied on a relatively standardised basis, manufactured to pre-defined type-tested designs. This difference means that the prices, costs and margins associated with underground projects are very different to those relating to submarine projects."[78]

(3) *Submarine cables are more complex to manufacture than underground cables.* Mr Röstlund's evidence on this point was that "submarine cables are produced in a very long sections of tens of kilometres, as it is important that submarine cables have as few joints as possible. In contrast, underground cables are typically produced in sections of a few hundred metres. The production of a very long (tens of kilometres) single length of submarine cable is fundamentally different to the production of short (few hundred metres) sections of underground cable. The production of a single length of submarine cable requires specialised manufacturing capabilities, which substantially increases the costs of manufacturing submarine cables and limits the range of suppliers who are capable of competing for this business."[79]

(4) *The installation requirements for submarine cables are different to the requirements in relation to underground cables.* Mr Röstlund said that "the installation of submarine cables is fundamentally different from that of underground cables, requiring entirely different equipment (e.g. laying vessels) and capabilities. The complexity of the submarine environment creates particular risks and challenges. Submarine cable installation is necessarily highly bespoke, with requirements depending on the depth, seabed and weather conditions, as well as on the particular customer specification and permits which impose regulatory installation conditions. In contrast, underground cable installation used more standard and less costly equipment (i.e. cable laying vessels are obviously not required, but normally just standard trucks, mechanical diggers, etc.) and is much more straightforward than submarine cable installation. These differences in the nature of installation are similarly reflected in differences in the prices, costs and margins associated with submarine cables projects, compared to those associated with underground cables projects."[80]

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[77] Röstlund 1/para. 8(a)A.
[78] Röstlund 1/para. 8(a)B.
[79] Röstlund 1/para. 8(a)C. See also Ekman 1/para. 13.
[80] Röstlund/para. 8(a)D.

(5) *The supply chain is different in relation to underground and submarine cable projects.* Mr Röstlund's evidence was that "submarine cables projects at higher voltage levels are almost always supplied as so-called "turnkey" projects, in which the cable manufacturer takes responsibility for the end-to-end delivery of the whole project, including all design, manufacturing, installation activities and accessories. This is not the case for underground cables projects. While in certain cases underground cables may be supplied on a turnkey basis, manufacturers will frequently supply only the cables (sometimes referred to as "naked" cable sales) direct to the customer or to an EPC (engineering, procurement and construction) contractor who takes responsibility for the overall project delivery. This distinction in the nature of the supply chain means that the costs and risks faced by the manufacturer when supplying submarine cables are fundamentally different to those faced when supplying underground cables."[81]

As Mr Röstlund explained in relation to each of the five factors set out above, each has a significant effect on the price that will be charged in relation to submarine cable projects in contradistinction to underground cable projects, with the former generally being materially higher in price than the latter.

Mr Röstlund did identify a sixth factor, which I set out below, but which I propose to treat much more cautiously when considering the differences between underground and submarine cable projects. Mr Röstlund's sixth factor was as follows:

(6) *The competitive environment is different in relation to underground cable projects than for submarine cable projects.* Mr Röstlund said this:[82]

> "…the number of rival firms that can manufacture and install submarine cables projects is limited, due to the expertise and capabilities required. As underground cables are much more straightforward to manufacture, the number of firms actively competing to supply underground cables is significantly larger. This is because more firms have the capacity to produce underground cables than to produce and deliver submarine cables projects. This significant difference in the competitive environments relating to the manufacture and supply of submarine and underground cables is reflected in the differences in their respective prices and margins."

When considering the manner in which the differences between underground and submarine cable projects might be represented in an analysis like that of Dr Jenkins, I consider that this factor needs to be handled very carefully, first because the essential object of Dr Jenkins' exercise was to assess the level of the Cartel-induced overcharge, and secondly because both the underground and the submarine cable markets were part of the Cartel.

101. In cross-examination of Mr Röstlund, it was suggested that there was a degree of interchangeability or equivalence between underground and submarine cable projects because both types of project were allocated by the Cartel, and the participants in the Cartel would be determined to obtain a "fair" allocation. This, it was put, suggested that the differences between the two types of project were less significant than Mr Röstlund was saying.[83] Mr Röstlund did not accept this, and I do not consider that simply because

[81] Röstlund/para. 8(a)E.
[82] Röstlund/para. 8(a)F.
[83] Day 9/pp.73-77.

it is possible to allocate different types of project across the Cartel that fact renders the technical or pricing differences articulated by Mr Röstlund any the less relevant. It seems to me that the members of the Cartel would focus on the value of a particular project to them: that value would turn on a number of subjectivities – their factory loading, their ability to do certain types of work, their margins etc.

102. In short, I accept the evidence of Mr Röstlund so far as the differences between submarine and underground cable projects are concerned. The significance of these differences – for the purposes of the experts' evaluation – is a matter considered later on in the Judgment.

(3) Alternating current or direct current

103. The BritNed cable was a high voltage direct current ("HVDC") cable.[84] Mr Rose described the rationale for a direct current cable as follows:[85]

> "Given the length of cable required to traverse the North Sea (approximately 245km of submarine cable and, once the cable had "arrived" on land, 9km of land cable) BritNed decided to utilise a high voltage direct current (HVDC) cable. The rationale behind the decision to use a direct current ("DC") cable, as opposed to an alternating current ("AC") cable, was primarily because DC cables have far lower transmission losses when compared to AC cables. Transmission losses refer to the amount of energy lost (i.e., which in effect "leaks out" mainly in the form of heat) when being transferred through the interconnector. The greater the length of the cable, the more significant the impact of transmission losses becomes. In simple terms, transmission losses result in lost revenues which, for obvious reasons, BritNed was keen to minimise."

104. Mr Röstlund's evidence was that:

(1) Submarine AC and DC cables shared many of the features described in paragraph 100 above.[86] Both were very different from underground cables.[87] But that there were design implications in the AC/DC choice, notably in terms of the need for converter stations when using DC cables.[88]

(2) The constant electrical flow of DC lines means that over long distances, the amounts of power losses through a DC cable are lower than for an AC cable. For long distances – anything over 100 kilometres with a power rating of above a few hundred MWs – DC would be chosen.[89]

(3) Although there are design differences between AC and DC cables, resulting in differences in cost,[90] the real additional cost is the need for converters at either end of the cable, to convert the current from DC to AC.[91]

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[84] Rose 1/para. 8.
[85] Rose 1/para. 8.
[86] Röstlund 1/para. 8(b)A.
[87] Röstlund 1/para. 8(b)C.
[88] Röstlund 1/para. 8(b)B.
[89] Röstlund 1/para. 53.
[90] Röstlund 1/para. 59. DC cables are typically more expensive.
[91] Röstlund 1/para. 60.

105. The BritNed project was – given the distance (260 kilometres) and power rating (1,000MW[92]) – plainly always going to use a DC cable.[93] The price for using a DC cable, however, was the requirement for converter stations in both the UK and the Netherlands:[94]

> "The Interconnector is connected at its landfall in both the UK and the Netherlands to a converter station. Given that the electricity grids in both the UK and the Netherlands supply electricity in AC rather than DC format, the Project required the construction of converter stations to convert the AC electricity into DC format for transmission through the interconnector and to convert it back again into AC format for onward supply to customers through the respective electricity grids in the UK and the Netherlands."

106. The BritNed interconnector thus comprised two, major, elements:

(1) Converter station construction; and

(2) Cable manufacture and installation.[95]

107. The distinction between AC and DC cables highlights two important, and different, measures when considering the costs of a project: capital expenses ("CapEx") and operating expenses ("OpEx"). The terms are self-evident: CapEx represents the expenditure needed to acquire an asset, here the cost of the building the Interconnector. OpEx represents the costs of the day-to-day running of that asset. Very often, there may be a trade-off between the two. Clearly – since no-one appears to have suggested an AC cable for the Interconnector – the OpEx costs over the life of the project will have outweighed the additional CapEx costs of paying for the converters implied by a design based on a DC cable.

(4) Cable width

108. Generally speaking, the higher the power rating of the cable, the larger the dimensions of the conductor and therefore the larger the amount of material required for the conductor.[96] Thus, a 1,000MW capacity will imply a thicker cable than a 500MW capacity.

109. The relationship between cable thickness and power rating is not invariably proportionate. An alternative to increasing the cross-section of the cable conductor, in order to reach a higher power rating, is to increase the voltage.[97]

110. However, the diameter of the core of a cable, which is made of copper, affects the level of transmission losses. The thicker the cable, the lower the level of transmission losses – but the greater the cost of the cable.[98] There is, thus, once-again, a potential trade-off

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[92] As will be seen, BritNed considered other capacities, both lower and higher. It opted for a 1,000MW capacity in the end.
[93] See the evidence of Mr Rose above, and Röstlund 1/para. 53.
[94] Rose 1/para. 9.
[95] Rose 1/para. 10.
[96] Röstlund 2/para. 40.
[97] Röstlund 2/para. 41. See also Day 9/pp.11*ff* (cross-examination of Mr Röstlund).
[98] Rose 1/para. 53.1.

between CapEx and OpEx in the choice of cable width. This was a factor that BritNed had in mind.[99]

F. THE HISTORY OF THE BRITNED TENDER

(1) Genesis

111. As has been described, BritNed was a joint venture between National Grid and TenneT.[100] There is a shareholders' agreement, between National Grid, TenneT and BritNed setting out the terms of their relationship.[101]

112. The purpose of the BritNed Interconnector was to enable providers of electricity in both the UK and the Netherlands to meet demand for electricity in these different jurisdictions. A UK provider could thus meet a Netherlands demand and *vice versa*.

113. BritNed regarded the Interconnector project as commercially quite risky, for reasons explained by Mr Rose:[102]

> "12. At the time the Project was first conceived in and around 2000/2001, not only was there no interconnector between the Netherlands and the UK electricity markets, but it would have been the first interconnector to have been built between the UK and mainland Europe in approximately 20 years. Its development began against the backdrop of the collapse, in 2003, of the North Sea Interconnector ("NSI" project, a proposed submarine interconnector project between Norway and the UK (which was not dissimilar from the Project), despite the significant development expenditure of the two key stakeholders, Statnett and NG.
>
> 13. The capacity of the cable (namely, the "volume" of electricity capable of being transported between the UK and the Netherlands) was to be marketed through short-term auctions on the basis of capacity contracts of different durations. It was not expected that the duration of the capacity contracts would, or indeed could, exceed one year, given that there was little appetite in the market at that time for long-run contracts of that nature (i.e., customers would not commit beyond a year) and because of the regulatory pressure, particularly from the European Commission, to encourage open access to transmission.
>
> 14. It should be borne in mind that the interconnector is a separate business from the regulated business of National Grid and TenneT. It is a commercial merchant link and therefore its primary goal from the joint venture participants' perspectives was to make a profit. At the same time, the system for the sale of the capacity (and the fact that interconnectors are "price takers" (i.e., the price of capacity is determined by the market rather than the operator)) meant that the joint venture participants did not have the security of having long term fixed price contracts in place with customers. This inevitably entailed TenneT and National Grid taking on merchant risk, without having the security of long term contracts to underpin the investment that was necessary to construct the interconnector.
>
> 15. As a result of the above, the Project was an inherently risky investment and meant that the business case had to meet certain risk-adjusted financial "hurdles" in order to be deemed viable and proceed. Indeed, it was determined, in conjunction with the joint venture participants, that, ultimately, the business case for the Project had to show that it had, at

[99] Rose 1/para. 53.1.
[100] Rose 1/para. 6.
[101] Rose 1/para. 6.
[102] Rose 1.

the very least, in internal rate of return ("IRR") of between [X][103] and a substantial Net Present Value ("NPV")."

(2) The lots

114. The tender process around the Project was based upon seeking tender prices for three lots:[104]

(1) *Lot 1.* An engineering, procurement and construction ("EPC") contract for the design, engineering, procurement, manufacture, testing, installation and commissioning of the HVDC converter stations ("Lot 1").

(2) *Lot 2.* An EPC contract for the design, engineering, procurement, manufacture, testing, installation and commissioning of the HVDC cable system ("Lot 2").

(3) *Lot 3.* An EPC contract for the design, engineering, procurement, manufacture, testing, installation and commissioning of the HVDC converter stations and the HVDC cable system ("Lot 3"). Lot 3 thus combined Lots 1 and 2.

(3) Transmission capacity

115. A BritNed procurement and contracting strategy paper recommended that suppliers be asked to tender for three transmission capacity options or "Base Cases":

(1) 700MW (subsequently changed to 650MW);[105]

(2) 1,000MW; and

(3) 1,320MW.

This was in order to maintain BritNed's flexibility in terms of the Interconnector it was seeking.[106]

116. BritNed was conscious that asking tenderers to price three bids, rather than one, would involve tenderers incurring additional costs, and might result in "half-hearted" bids for one or more of the options by one or more of the tenderers.[107] However, the advantage of flexibility was considered to outweigh this risk,[108] and BritNed planned to strive to delete capacity options, when it became clear that such an option ceased to be viable for technical reasons or on the basis of price or both.[109]

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[103] The figure is confidential. There is no non-confidential version of this Judgment: I have been able to reach my conclusions without stating the IRR that BritNed had in mind.
[104] Rose 1/para. 18.
[105] Rose 1/paras. 49.1 and 53.2.
[106] Rose 1/para. 48.
[107] Rose 1/para. 50.
[108] Rose 1/para. 50.
[109] Rose 1/para. 50.

(4) The OJEU Notice (August 2005)

117. BritNed caused to be published in the Official Journal of the European Union a Period Indicative Notice in relation to the Project in August 2005 (the "OJEU Notice").[110]

(5) BritNed's negotiating team

118. Mr Rose was in overall charge of the BritNed interconnector procurement. It was he who had to ensure that BritNed's procurement strategy and procurement team were properly in place.[111] He was responsible for bringing in Mr Jackson to lead the negotiations for BritNed.[112]

119. Mr Rose said this about BritNed's negotiating team:[113]

> "So, the lead negotiator on our behalf was Mike Jackson, supported by Louise Negus and Marco Kuijpers. They were the three primary members of the procurement team. Also, they drew upon the expertise of many people around them, but those were the primary people."

(6) Expressions of interest (September to October 2005)

120. Following the publication of the OJEU Notice, the expressions of interest and tenders subsequently received by BritNed came from the following European entities:

(1) Siemens AG ("Siemens") in respect of Lot 1.

(2) Areva T&D UK Ltd ("Areva") in respect of Lot 1.

(3) Nexans Norway AS ("Nexans") in respect of Lot 2.

(4) Prysmian Cavi and System Energia S.r.l ("Prysmian", owned by Pirelli) in respect of Lot 2.

(5) ABB in respect of Lots 1, 2 and 3.

(6) A consortium of Prysmian and Siemens in respect of Lot 3.[114]

121. No expressions of interest were received from any Asian based cable manufacturers.[115] Nexans,[116] Prysmian[117] and (obviously) ABB were all cartelists.

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[110] Rose 1/para. 19.
[111] Day 4/p.10 (cross-examination of Mr Rose).
[112] Day 4/p.10 (cross-examination of Mr Rose).
[113] Day 4/p.10-11 (cross-examination of Mr Rose).
[114] Rose 1/para. 19.
[115] Rose 1/para. 20.
[116] Decision/Recitals (15)*ff*.
[117] Decision/Recitals (17)*ff*.

(7) ABB's tender team and its approach to tendering

(a) The ABB tender team

122. ABB's tender team was described by Mr Jönsson:[118]

> "17. At the time of the tender process for the BritNed project, I was head of the factory at Karlskrona. Magnus Larsson-Hoffstein was appointed as the tender manager for the BritNed project and had primary responsibility for preparing the response to the tender for the supply of the power cables system of the BritNed project (Lot 2).
>
> 18. For much of the time, I left the running of the tender largely to Magnus Larsson-Hoffstein and his team. Magnus Larsson-Hoffstein was experienced in pricing large submarine power cables projects, as he had been involved in the pricing of Gjøa and Estlink, two other large submarine cables projects. During the BritNed tender, he worked closely with Bo Pääjärvi, of the ABB HVDC (high voltage direct current) power converters team based in Ludvika, Sweden on the project. I would review some of the information that Magnus Larsson-Hoffstein and Bo Pääjärvi (and Åke Nilsson, ABB's in-house counsel) prepared in producing ABB's tender response. In particular, I reviewed and considered the risks, insurance and technical specifications of the power cables system element of the BritNed project.
>
> 19. The power converters element of the project was priced separately by ABB's HVDC converters team. I had no involvement in that pricing, or indeed in relation to any other aspect of the converters bid. In my few discussions with the customer during the tender process, I did, however, seek to emphasise the advantages of buying the whole package (i.e. the converters and the cables) from ABB, including by emphasising the efficiency benefits of having a joined-up team.
>
> 20. The BritNed negotiations were primarily led on the ABB side by its power converters team and, particularly in the early stages, largely took place between Bo Pääjärvi of ABB and Dick Bos, project manager for the BritNed project at TenneT. I therefore attended a few meetings with the customer during the course of negotiations. I became more involved in the discussions with BritNed in the period shortly before the power cables portion of the contract was awarded to ABB…".[119]

123. Thus, ABB's tender team was bifurcated between the Cables element and the Converter element. Mr Pääjärvi was in charge of the Converter side of the process, and I heard relatively little evidence about this. Mr Jönsson was in charge of the Cable side, but:

(1) He reported to Mr Leupp, via Mr Haugland.[120] Mr Leupp did not know of the Cartel.[121]

(2) He delegated to Mr Larsson-Hoffstein. Mr Larsson-Hoffstein did not know of the Cartel.[122]

(3) Mr Pääjärvi's converter bid team was closely involved.[123]

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[118] Jönsson 1. See also Larsson-Hoffstein 1/paras. 10 to 11.
[119] Mr Jönsson expanded on this in his oral evidence: Day 7/pp.133*ff* (re-examination of Mr Jönsson).
[120] See paragraph 49 above.
[121] See paragraph 48 above.
[122] See paragraph 58 above.
[123] See paragraph 122 above.

124. Mr Larsson-Hoffstein's influence was most significant during the earlier phases of the tender process, when Mr Larsson-Hoffstein and his team were assessing what, technically, was required by the tender, and how much it would cost. After the submission of a tender, the process became a rather more brutal process of what I termed during the trial as "horse-trading", where ABB would seek to defend its price, and BritNed would seek to obtain price concessions. Mr Larsson-Hoffstein's role was much less significant at this stage: if he, personally, made a concession, he would do it on instruction from his superiors.[124] But, as will be seen, it was not he, but Mr Leupp, who made a critical concession in the course of this tender.

125. It is, therefore, appropriate to consider separately ABB's processes during the "technical" and "non-technical" stages of the tender process.

(b) ABB's methodology during the "technical" process

126. This process was described in abstract terms by Mr Röstlund in his second statement, Mr Röstlund not himself having been involved in the BritNed project. His evidence was not challenged. Mr Larsson-Hoffstein gave evidence of how he conducted the process in the specific case of BritNed.[125]

127. In broad terms, without particularly referencing the BritNed project, the process was as described below.

(i) Pre-tender communications.

128. Even before a formal invitation to tender, there might be informal communications between the customer and one or more cable suppliers. These might involve high level estimates of cost.[126] The invitation to tender, however, would outline the key technical specifications that the customer sought. Invitations to tender would generally be issued to multiple suppliers.[127] During the tender process, there would be considerable interaction between each cable supplier and the customer, which might well cause the specification in the invitation to tender to develop.[128]

(ii) Initial design on tender.

129. On receipt of an invitation to tender, a sales team would be formed to assess the implications of the project. There would be input from various different departments within the ABB power cables business unit.[129] An initial design for the project would be produced, including a description of the requirements to manufacture and install the cable according to the customer's requirements.[130]

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[124] Day 8/pp.103*ff* and 125*ff* (cross-examination of Mr Larsson-Hoffstein).
[125] Larsson-Hoffstein 1/para. 61.
[126] Röstlund 2/para. 76.
[127] Röstlund 2/para. 77.
[128] Röstlund 2/para 78.
[129] Röstlund 2/para. 80(a).
[130] Röstlund 2/para. 80(c).

(iii) Costings

130. Based upon this design, costings would be produced. This would involve assessing the costs of supplying the services and products required, including internal costs and loading for risk and contingencies plus a margin representing ABB's hoped-for profit.[131] Mr Röstlund described the role of the tender manager as follows:[132]

> "…having received costings from its other departments, as well as any estimates of prices for third party suppliers or supplies from other ABB business units, the tender manager will assess the need to factor in any risks and contingencies as cost line items, and will also build in a margin based on the indicative margin targeted by the ABB Division in charge of power cables in a given year…No additional margin is applied to the costings by different departments involved in the supply of a cable (e.g. cable installation and manufacture) before this overall margin is applied. However, if together with the cables system, the turnkey project includes elements that are supplied by another ABB business unit – for example when the installation of the onshore cable is carried out by the local ABB entity – a separate price will be provided for that element, reflecting an internal margin applied by the relevant ABB business unit in charge of supplying this."

Mr Röstlund expanded upon this later on in his second statement:[133]

> "128. In addition to the underlying costs of producing and installing the power cable, and the risk involved, the price will also incorporate the margin that ABB seeks to earn on the project.
>
> 129. As explained in paragraph 80(e) above, in preparing an offer for a submarine cable project, the tender manager assesses the costs, risks and contingencies associated with the project. A margin will then be added on top. This is referred to as the "costs plus" approach. The costs, risks and contingencies used to calculate the project's gross margin are those that are directly attributable to the supply of the project. These costs include mainly:
>
> (a) any research and development related to the design and tests of the cable;
>
> (b) materials, labour and machinery used in the production of the cable;
>
> (c) transportation and installation of the cable;
>
> (d) risks and contingencies associated with the design, production and installation of the cable.
>
> 130. The costs used in the calculation of the net margin of a project are those listed in the paragraph above plus an allocation of the general and commercial overheads from the ABB Power Cable Business Unit."

131. Mr Larsson-Hoffstein confirmed that he was responsible for putting together the initial pricing proposal for the Cables element of the BritNed project.[134] He adopted the approach described by Mr Röstlund.[135] As regards the compilation of the costings, Mr Larsson-Hoffstein stated that "[t]his did not involve starting with the pricing of any other

[131] Röstlund 2/para. 80(d) and (e).
[132] Röstlund 2/para. 80(e).
[133] Röstlund 2.
[134] Larsson-Hoffstein 1/para. 61.
[135] Larsson-Hoffstein 1/para. 62.

project, but instead involved looking at the cost of each element of the project (e.g. conductors, insulation, and raw material prices) and putting together a costing on that basis".[136]

132. Mr Larsson-Hoffstein was asked to describe the process in a little greater detail during the course of his cross-examination:[137]

Q (Marcus Smith J)	So, Mr. Larsson-Hoffstein, your responsibility in this process at the start was compiling the tender price for the cabling side?
A (Mr Larsson-Hoffstein)	Tender price and the tender document.
Q (Marcus Smith J)	And the tender document, yes, of course, I appreciate it is more than just a figure, a lot of work goes into it. I appreciate that your superiors had some input into that process. First of all, can you enlighten me as to the number of people working below you who would have helped you put together the tender documents for the cabling side or was it just you?
A (Mr Larsson-Hoffstein)	No, it was a team. The price depends quite a lot [on] the technical side, so we had engineers, we had people from procurement, we had people from manufacturing and the installation. So the price was built up. One part was the cable design, which was included by the engineering solution under the lead engineer. Another big part of the price is the installation, where we were dependent on sub-suppliers. The installation department together with procurement could influence the price on the subcontractors. So that was the whole team working here.
Q (Marcus Smith J)	So when in your witness statement you say you adopted a costs plus approach, that is actually rather minimising the amount of work that goes into putting together a tender. Let me explain why I say that. You have to first of all work out how you are going to meet the tender specification?
A (Mr Larsson-Hoffstein)	[Nods.]
Q (Marcus Smith J)	So you have to do all the technical work there?
A (Mr Larsson-Hoffstein)	Yes.
Q (Marcus Smith J)	And only when you have worked out what your technical solution is – how you are going to do it – can you actually start working on costs?
A (Mr Larsson-Hoffstein)	Yes, in principle.

[136] Larsson-Hoffstein 1/para. 62.
[137] Day 8/pp.125*ff* (cross-examination of Mr Larsson-Hoffstein).

Q (Marcus Smith J) And, presumably, that involves speaking to subcontractors to work out their own price for a bit of the contract?

A (Mr Larsson-Hoffstein) Yes.

Q (Marcus Smith J) So, would you, or your team, have made inquiry of – for instance – the provider of a cable-laying ship?

A (Mr Larsson-Hoffstein) Yes. Yes, not the ship, as such, but installation works including…

Q (Marcus Smith J) Including the ship?

A (Mr Larsson-Hoffstein) Yes, yes.

Q (Marcus Smith J) And how specific would your team's inquiries be? Let's take the installation, including the ship, as an example. As I understand it, ABB didn't have its own cable-laying ship?

A (Mr Larsson-Hoffstein) That's correct.

Q (Marcus Smith J) So, presumably, you would have looked into who could have provided that facility?

A (Mr Larsson-Hoffstein) Yes.

Q (Marcus Smith J) And suppose you encountered a situation– and I am just talking hypothetically here – where, within the anticipated time for the completion of the project, there simply was no cable-laying ship available? What would you do then?

A (Mr Larsson-Hoffstein) In fact, that was the situation for BritNed. The two main bids that we had from Van Oord and from Oceanteam was based – from Van Oord it was a big modification of a ship or a barge, as I remember, and the other bid from Oceanteam was based on a ship that was not built yet.

Q (Marcus Smith J) I am moving ahead of myself, a little bit, but that sort of risk, would that be factored into the margin that you would add to the costs plus approach that you took?

A (Mr Larsson-Hoffstein) Yes. It always is taking a subcontractor. Even if we try to push as much risks as possible to the subcontractor, the limits – their limits – of their liability is a percentage of the subcontract, which is much lower than ABB's total liability, which is a percentage of a total price. So it is always an intermediate risk of the main contractor that needs to be priced in.

Q (Marcus Smith J) Now, I think it follows, but correct me if I am wrong, that your cost-plus approach means that you only look at the direct costs relating to the project in question?

A (Mr Larsson-Hoffstein) Direct cost – there are also overhead costs, and so on; that is then add-on in the price calculations, administrative and sales overhead and so on and so forth.

Q (Marcus Smith J) Right. But is that added later on?

…

A (Mr Larsson-Hoffstein) It is – first, we take the direct costs, and then it is added on, yes.

Q (Marcus Smith J) Yes. So taking it in stages. You start with the direct cost?

A (Mr Larsson-Hoffstein) Yes.

Q (Marcus Smith J) You then add a margin which is related to the specific risks arising out of the project that you have identified?

A (Mr Larsson-Hoffstein) Yes, yes.

Q (Marcus Smith J) And then you add a further margin, which is what I would call "common costs" like overheads…

A (Mr Larsson-Hoffstein) Yes.

Q (Marcus Smith J) …and your profit?

A (Mr Larsson-Hoffstein) Yes, on top of that is the profit, yes.

Q (Marcus Smith J) And when you have reached the end of those various stages, you have, obviously with the documents, what we call your tender price?

A (Mr Larsson-Hoffstein) Yes.

Q (Marcus Smith J) Now, in the process leading up to the finalisation of your tender price, what is your practice in terms of discussing problems or questions with your superiors in the process? What do you do? You don't, presumably, hand them one tender price with all the documents saying "This is it"?

A (Mr Larsson-Hoffstein) In general, we make a presentation of the overall technical solution and the related risks and the price and the answer. So it is not only the price; it is also presentation of the whole solution.

Q (Marcus Smith J) So it is an iterative process?

A (Mr Larsson-Hoffstein) Yes, yes.

Q (Marcus Smith J) And would I be right in thinking that where there are certain issues – now, they might be technical issues or they might be issues about availability, like the cabling ship – but where there are particular issues which will have a bearing on the tender price, you would presumably take care to identify those to your superiors?

A (Mr Larsson-Hoffstein) Yes.

Q (Marcus Smith J) And at that stage you would get guidance or instruction back saying "Well, this is how we think or we say you should treat that particular risk"?

A (Mr Larsson-Hoffstein) Well, we had some meetings, the management team and the tender team, where we present different solutions and there was some common conclusion on the way to go from those meetings.

Q (Marcus Smith J)	So, let's take an example of an alternative set of technical solutions to a particular issue, one costing X and one costing XX. At that stage you would have a debate within the team, including your superiors, to say "Well, on what technical solution will we base our tender price"?
A (Mr Larsson-Hoffstein)	Yes.
Q (Marcus Smith J)	And there would be a debate and there would be a decision?
A (Mr Larsson-Hoffstein)	Yes.
Q (Marcus Smith J)	And once the decision has been made, that is what you would bake into your tender price?
A (Mr Larsson-Hoffstein)	That's right.
Q (Marcus Smith J)	Is there a paper trail which can show the evolution of your tender price over time? In other words, do you present – I'm sure there is a huge volume of papers, I'm interested in something which might be less voluminous, something which shows how the various decisions that resulted in the final tender price that was submitted to the customer, how that was arrived at? In other words, can one see the various delta points that existed, whereby decisions were made as to certain pricing choices?
A (Mr Larsson-Hoffstein)	I think it is difficult to have the full tracking. Some decisions were done verbally. Many were followed up by email. But at certain points, when we submitted different bids to the customer, we updated the cost calculations. So those points where we made negotiated bids and updated the bids to the customer can be tracked back to cost calculations.
Q (Marcus Smith J)	Yes. I'm interested at the moment in the process before the customer ever gets involved. So it is at the stage before you have got a tender price that you submit to the customer. What I wondered was whether you had, as it were, draft costings with the margins appended, where you would say, "Well, here is where we are at on this date?". You would then discuss that document and make whatever changes arose out of that debate to the next draft. Is that how you worked or am I completely wrong?
A (Mr Larsson-Hoffstein)	In principle, but I'm not sure if we have a document with every decision and if it is fully traceable.

(iv) Risk review

133. Larger cable projects would go through an internal ABB risk assessment exercise, known as a "risk review process". The aim of the process, unsurprisingly, was to ensure that the relevant risks and contingencies had appropriately been considered and that the price

being put forward generated the minimum level of expected margin.[138] It was possible for there to be multiple risk reviews.[139] The BritNed project was risk reviewed. Mr Larsson-Hoffstein said this in relation to the risk review of his costings for the BritNed project:[140]

> "I ran my proposed price past my managers within ABB at this time, including Mr Jönsson, but no alterations were made to those figures. Similarly, no adjustments were made to my figures as a result of the risk review process for the project."

(v) Submission of a tender

134. As was the case with BritNed, there might be two discrete components to the tender. In the case of BritNed, there were the Cable element and the Converter element. These discrete elements would have to be combined, to form ABB's tender.

(vi) Use of Product Pricing Models

135. ABB's cables unit used Product Pricing Models (or "PPMs") throughout the tendering phase to help determine the sales price of a project. Such PPMs would be used on an iterative basis, frequently updated during the tender process so as to enable the reassessment of costs and risks.[141]

(c) The process post-tender

136. This was much less formalised and, as I have noted, was really a process of negotiation. What occurred in the course of the BritNed tender is described below.

(8) Pre-qualification to tender (March 2006)

137. Tenderers who had pre-qualified for one or all of the Lots were informed that they had done so by letter dated 6 March 2006.[142]

(9) Tender evaluation "Phase One"

138. On 7 April 2006, BritNed produced a document entitled Tender Evaluation Procedure: Phase One (19 June – 3 July) (the "Phase One Procedure Paper").[143] The paper set out, amongst other things, the various Base Cases for which suppliers would need to submit prices.[144] The paper also confirmed that, following evaluation of the bids, BritNed anticipated selecting one capacity option from the three Base Cases. Mr Rose describes the position as follows:[145]

> "The Phase One Procedure Paper also confirmed that, following the evaluation of bids provided by the suppliers, the Project Team "anticipated" selecting one capacity option from the three Base

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[138] Röstlund 2/para. 80(f).
[139] Röstlund 2/para. 80(g).
[140] Larsson-Hoffstein 1/para. 65. See also, to similar effect (but with rather less weight), Jönsson 1/para. 32.
[141] Jenkins 1/para. 3.84.
[142] Rose 1/para. 54.
[143] Rose 1/para. 55.
[144] Rose 1/para. 56.
[145] Rose 1/para. 57.

Cases after it had made a recommendation to the JV Board on 30 June 2006 and the decision had been notified to tenderers on 3 July 2006…Once the capacity option had been chosen, fixed prices would be required at the selected capacity during Phase Two, which would commence after the notification to tenderers had been dispatched on 3 July 2006. However, the Phase One Procedure Paper also confirmed that there was a possibility that two capacity options could "be taken forward to Phase Two" should they both be deemed viable during the evaluation process for Phase One."

139. A pre-tender meeting and site visit took place at Maasvlakte on 19 April 2006, which all tenderers attended.[146] At this meeting, it was made clear that there was no guarantee that the Project would go ahead: this would depend upon the business case, which was itself obviously in part dependent on the level of tenders received.[147] BritNed also refused to be drawn on which of the three Base Cases it favoured.[148]

140. After this meeting, various of the suppliers indicated that they would not be able to provide prices in respect of all of the Base Cases requested by BritNed.[149] This resulted in an amendment to the Phase One tender process.[150]

(10) ABB's discussions with Nexans

141. During the course of the Phase One tender process, ABB discussed the bid with Nexans.[151] Mr Jönsson's evidence was as follows:[152]

> "26. I do not have firm recollections of the pre-qualification stage of the BritNed tender. However, I recall having discussions with Nexans during Phase 1 of the tender process…regarding allocation of the BritNed project. I have been shown a copy of [Decision/Recital (395)] which states that I "met with Mr Romand (Nexans) on 9 or 10 May 2006 at Zurich airport in order to discuss the allocation of the BritNed project. The project was allocated to ABB and the two companies agreed that Nexans would ensure that it would not meet the customer's delivery requirements in its offer. In exchange, ABB would subcontract a portion of the work to Nexans. ABB has stated that this agreement was made even though the details of the project were not yet clear". This accords with my recollection.
>
> 27. This initial agreement regarding allocation was my only discussion with another cartelist regarding BritNed. At no stage did I discuss pricing of the BritNed project with Mr Romand or the other cartelists.
>
> 28. We did not include Nexans as a subcontractor in the June 2006 ABB bid…and quickly dropped any prospect of joint tendering with Nexans as it became clear that ABB had sufficient cable factory capacity at the time. We therefore proceeded alone and only engaged with Nexans (along with other companies with cable laying expertise) in relation to a potential cable-laying role. Mr Romand was annoyed with me for ignoring the initial discussion about allocation. I have been shown [Decision/Recital (424)] which notes that, at a meeting between ABB and Nexans on 4 June 2007, "Mr Romand (Nexans) reproached

[146] Rose 1/para. 58.
[147] Rose 1/para. 58.
[148] Rose 1/paras. 58-59.
[149] Rose 1/paras. 60-61.
[150] Rose 1/para. 62.
[151] The evidence appears to disclose other meetings between ABB and Nexans. It seems likely that the BritNed project would have been discussed. However, there was no evidence as to what was said at these meetings.
[152] Jönsson 1.

> Mr Jönsson (ABB) for doing all the work for BritNed itself". This, again, accords with my recollection."[153]

(11) The ILEX Study (May 2006)

142. In order to further investigate the levels of revenue that the Interconnector would generate, BritNed commissioned a study from ILEX Energy Consulting Limited (the "ILEX Study"). The ILEX Study undertook a forward-looking analysis of the potential revenues that the Interconnector could generate. It was provided to BritNed in May 2006.[154]

(12) Prysmian did not submit a tender (June 2006)

143. Prysmian had expressed an interest in tendering and had pre-qualified for both Lot 2 and (with Siemens) Lot 3.[155] On 9 June 2006, Prysmian informed BritNed that it would not be submitting a tender. The email in question stated:[156]

> "It is with much regret from our part that we have to inform you that Prysmian will not be submitting a bid for this project due to the acquisition of a major order and consequent impossibility to meet the deliveries request for BritNed.
>
> We do hope that this will not cause BritNed…any disruption and take the opportunity to wish you good luck for the successful implementation of this potential submarine interconnection project."

144. Prysmian did not identify to BritNed the "major order" in question,[157] but there was no obligation on them to do so.

145. So far as BritNed was concerned, this meant that the possible consortium between Prysmian and Siemens in relation to Lot 3 could not proceed.[158] Of course, that was a matter of BritNed's knowledge: what other tenderers – and in particular, ABB – knew is a different question that is considered elsewhere. Prysmian was, of course, a cartelist.[159]

(13) Areva did not submit a tender (June 2006)

146. In a letter dated 13 June 2006, Areva wrote to BritNed stating that having reviewed the tender documents, they were "not able" to make an offer for the Project.[160] The reasons for Areva not tendering were discussed before this letter was sent. One of the reasons –

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[153] The quotations in these paragraphs contains material redacted in the non-confidential version of the Decision. Given the nature of the redactions, the evidence adduced at trial and the fact that Mr Jönsson's evidence was adduced before the court, it is not appropriate to maintain these redactions in this Judgment.
[154] Rose 1/para. 64.
[155] Rose 1/para. 23.
[156] Rose 1/para. 24.
[157] Rose 1/para. 24.
[158] Rose 1/para. 25.
[159] See paragraph 121 above.
[160] Rose 1/paras. 29-30.

but it was only one – was the perceived dominance of ABB in being able to provide a full Lot 3 solution.[161] Areva was not a cartelist.[162]

(14) Nexans' tender (June/July 2006)

147. Nexans submitted initial and revised tenders for Lot 2 in June and July 2006.[163] These tenders were both priced higher than ABB's bids[164] and were assessed by BritNed as non-compliant on the basis that Nexans was unable to meet BritNed's required deadline for the completion of the Project.[165] The issue of meeting BritNed's deadline was explored further with Nexans,[166] but proved to be impossible to resolve. Given its inability to meet the required deadlines by some considerable margin, BritNed ultimately (in October 2006) took the decision not to proceed with Nexans.[167] Nexans was also a cartelist.[168]

(15) ABB's tender (June 2006)

148. ABB submitted its tender in accordance with the amended Phase One tender process on 16 June 2006.[169]

(16) BritNed's position at this point

149. Mr Rose described BritNed's position in the following terms:[170]

> "38. At the outset of the procurement process, members of the Project Team produced a document, dated 16 January 2006, entitled "Main outlines of procurement process" (the "Procurement & Contracting Strategy Paper").
>
> 39. The Procurement & Contracting Strategy Paper covered a number of issues, including the contracting strategy for the Project, which was based, in part, on the expressions of interest that had been received from Prysmian, Nexans, Siemens, Areva and ABB. In particular, the paper outlined the three contracting options available, with the "Single EPC approach" (namely, one tenderer or consortium being awarded Lot 3) being identified as the "preferred option". The alternative was to award separate contracts for separate and distinct lots of work (award one contract for the complete converter station system (Lot 1) and a separate contract for the cable supply and installation (Lot 2)). This, however, involved some "interface" risk between the respective contractors.
>
> 40. However, in the absence of any expressions of interest or bids whatsoever from Asian suppliers, the failure of Prysmian to submit any bids despite its previous expressions of interest, and after Nexans effectively disqualified itself from the process by stating that it was unable to meet BritNed's delivery deadlines, BritNed had no choice but to undertake

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[161] See the emails dated 18 and 21 May 2006; Rose 1/para. 30.
[162] See paragraph 121 above.
[163] Rose 1/paras. 31 and 80-83.
[164] Rose 1/para. 31.
[165] Rose 1/para. 31.
[166] Rose 1/para. 33.
[167] Rose 1/para. 34. Mr Rose explains that BritNed sought to get Nexans to improve its deadlines for delivery, but to no avail: Rose 1/para. 35.
[168] See paragraph 121 above.
[169] Rose 1/para. 75.
[170] Rose 1.

a procurement process in the full knowledge that there was no competition for ABB in respect of both Lot 2 and Lot 3.

41. In particular, the failure of Prysmian to submit a bid for the cable element of the Project not only meant ABB faced no competition from Prysmian in respect of Lot 2 but it also ensured that ABB faced no competition in respect of Lot 3, as without a consortium partner with cable expertise, Siemens was unable to bid for the combined package. This, in addition to Nexans' non-compliant tender submission, was a significant disappointment, given that it removed any competition for the cable element of the Project from the very outset and inevitably limited our scope for manoeuvre thereafter, in particular the ability to maintain any competitive pressure on ABB.

42. Consequently, despite the Project Team's preferred contracting approach being the single EPC approach, it had to consider the alternative of awarding separate contracts Lot 1 and Lot 2, a contracting strategy that the Project Team had stressed throughout to the tenderers was a viable alternative to the single EPC approach, should it be necessary to pursue it."

I accept this as an accurate statement of BritNed's position.

(17) Evaluation by BritNed

150. The joint venture board considered the outcome of the Phase One tender process on 30 June 2006.[171] Base Case 1 was rejected as not being competitive on a price per megawatt basis when compared to either Base Case 2 or Base Case 3.[172]

151. According to Mr Rose, the project was viable, but there were considerable commercial risks.[173] He recommended pursuing Base Case 2.[174] As to Base Case 3, Mr Rose said this in his witness statement:[175]

"However, if the budgetary prices provided by ABB for Base Case 3 had been lower, Base Case 3 would inevitably have been more attractive. Indeed, in accordance with the Capped Annual Revenue Figures in the ILEX Study, Base Case 3 would have meant access to additional revenue of EUR 11m per annum. From a revenue perspective, this option would therefore have presented a distinct advantage when compared to Base Case 2. As it was, the pricing received from ABB in its Initial Tender Returns for Base Case 3 ensured that the level of CAPEX that would have been required to pursue this option posed a substantial risk given the revenue uncertainty and precluded any recommendation being made to the JV Board that this option should either be pursued or explored further."

(18) Tender evaluation "Phase Two" (July 2006 onwards)

152. On 3 July 2006, BritNed notified the tenderers of the decision to proceed with Base Case 2.[176] On 24 July 2006, BritNed produced a document entitled Tender Evaluation Procedure: Phase Two (31 July – Financial Close) (the "Phase Two Procedure Paper").[177]

[171] Rose 1/para. 84.
[172] Rose 1/para. 87.4.
[173] Rose 1/para. 88.
[174] Rose 1/para. 89.
[175] Rose 1/para. 90.
[176] Rose 1/para. 94.
[177] Rose 1/para. 94.

153. The Phase Two Procedure Paper, which (like the Phase One Procedure Paper, was internal to BritNed) recorded some of the developments during Phase One tender evaluation and set out a timetable for Phase Two. It stated: [178]

> "As part of the Phase One evaluation process, Prysmian declined to submit a Tender for Lot 2 and therefore the Siemens/Prysmian joint venture withdrew from Lot 3. No submission was received from Areva for Lot 1 and subsequent to 30th June 2006 a letter has been received confirming their decision not to participate further in the Tendering Process.
>
> As part of the Phase One evaluation process, the capacity options were reduced to one capacity and voltage option, namely 1,000MW – 450kV. A limited number of optional prices have been requested as part of this Phase Two Tender submission and a full and detailed breakdown of the Tender Prices. As part of the Phase Two submission, the Tenderers are required for Lots 2 & 3 to provide firm prices for the cable installation element of the project, which was only submitted as a budget price at Phase One, no other changes have been requested."

BritNed's approach to evaluation was that the tenderer who represented the "most economically advantageous solution" would be selected as the preferred tenderer or tenderers.[179] This had been made clear to the tenderers themselves in instructions to tenderers dated 6 April 2006.[180]

154. Thus, by the commencement of the Phase Two tender evaluation, the only Base Case that suppliers were tendering for was the 1,000MW option.[181]

155. ABB submitted revised tender returns in respect of Lots 2 and 3.[182] Nexans submitted a tender return in respect of Lot 2.[183] Nexans' bid was some €41,338,664 more expensive than ABB's equivalent bid.[184]

156. On 10 October 2006, BritNed held a technical and procurement meeting to decide upon the strategy to be followed with the remaining tenderers during the negotiation phase of the project, scheduled to commence in October/November 2006.[185] It was at this meeting that the decision was taken not to progress with Nexans, given Nexans' inability to provide the cable within the required timeframes.[186] BritNed intended to begin detailed negotiations only with ABB and Siemens. Again, this was a decision that was internal to BritNed.

157. On 10 November 2006 and 13 December 2006, the joint venture board was updated on the state of play.[187] The Interconnector project continued to remain economically viable,

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[178] Rose 1/para. 99.
[179] Rose 1/para. 97.
[180] Rose 1/para. 97.
[181] This, of course, was fully discussed by the BritNed board, which followed the project team's recommendation to pursue this Base Case only: 1 Rose/para. 89. It will be necessary to consider this decision-making process further in the context of the Lost Profit Claim.
[182] Rose 1/para. 98.
[183] Rose 1/para. 101.
[184] Rose 1/para. 103.
[185] Rose 1/para. 104.
[186] Rose 1/para. 110.
[187] Rose 1/paras. 121 and 127.

but only just.[188] What appears to be a Powerpoint slide presentation entitled "Procurement Update December 2006" noted that under the current market position: [189]

"• Only ABB can provide cable in required timescales

• Both ABB and Siemens have limited but available capacity for converter stations

• Both have heavy tendering workload in Converter Stations and limited resource or appetite to engineer multiple options"

(19) Best and final offers (March 2007)

158. Best and final offers ("BAFO") were received from ABB and Siemens in March 2007.[190] According to Mr Rose, "[w]hilst price negotiations continued with both tenderers, the Project Team was largely content with Siemens' BAFO but extremely dissatisfied with those submitted by ABB".[191] One aspect of ABB's BAFO was that its prices for the cable differed as between Lot 3 and Lot 2, with the prices in Lot 3 being lower.[192] Clearly, ABB was prepared to offer better value if it could obtain the entire job, i.e. the Cable element as well as the Converter element.

159. An internal ABB email dated 10 March 2007, sent to Mr Pääjärvi and copied to Mr Jönsson recorded ABB's perception:

"1. BritNed will take a very tough position in the cable meetings, making it clear to ABB that based on the BAFO, the project will not get a go.

2. In the cable meetings next week, BritNed will request ABB to further reduce the price and to accept a more aggressive risk allocation…

3. At some point during the next coming weeks, BritNed will again introduce the converters into the discussions. They will try to squeeze ABB on the total package. BritNed will use two major arguments:

- If the total investment cost is not reduced and if the total risk exposure for the owners are not lowered, the project will not be approved by the Board.
- If ABB do not lower the price on the Converters, BritNed will award this part to another supplier…

The first meetings next week will be very important for us in order to get a better understanding of what BritNed really expects (price and risks). Based on this, we need to develop a strategy for how to proceed…"

(20) Last and final offers (March 2007)

[188] Rose 1/para. 122.
[189] Rose 1/para. 129.
[190] Rose 1/para. 143.
[191] Rose 1/para. 143.
[192] Rose 1/para. 146.

160. ABB submitted its last and final offer ("LAFO") on 28 March 2007.[193] ABB was prepared to offer a €10m reduction on the cable element of Lot 3, should it be chosen to provide the combined package.[194]

(21) Final Cable price negotiations (April 2007)

161. By this stage, BritNed only discussed the prices that had been submitted to it in respect of the Cable element of the project. In other words, there were only discussions with ABB, and not with Siemens.[195] A meeting was held with ABB on 18 April 2007.[196]

162. At this meeting, ABB was persuaded to provide the Cable in Lot 2 for the price offered for Lot 3 in the LAFO.[197] In other words, the discount which had previously only applied if ABB was awarded the entire contract (Lot 3) was to be applied to the Cable only part comprising Lot 2.

163. After the work on the project had been awarded, the parties were naturally more open about their thinking during the tender process. In particular, ABB received feedback from TenneT regarding ABB's loss of the Converter element of the project. ABB recorded the feedback as follows:

> "Today, I had lunch with Dick Bos, project manager acquisition BritNed on TenneT side. Afterward, we had a short chat with Marco Kuijpers, the purchaser. They gave me the following feedback on our lost the order.
>
> Dick was very surprised that ABB gave a discount without a firm coupling of the package (cables + converters). The package was the trump card on which we should have won the order. In his perception (Dick has been a professional BtB salesman in aviation) this was our biggest mistake and really opened the door to go with Siemens!"

164. Mr Rose did not appreciate that this was Mr Bos' view: but, independently of Mr Bos, Mr Bos' view reflected his (Mr Rose's) own,[198] and he regarded it as "an unusual behaviour".[199] He went on:[200]

> "…it is an unusual behaviour if you are trying to direct people to take your main bid, the Lot 3. I don't know what was going on in the ABB camp at that point. It strikes me even more as slightly odd behaviour, perhaps not very joined up behaviour, but I don't know…"

165. Mr Jackson also regarded ABB's conduct in this regard as incomprehensible:[201]

> **Q (Mr Hoskins, QC)** When you say:
>
> "We do not understand why ABB gave away the discount €10m for the Lot 2."
>
> Can you just explain what you meant by that?

[193] Rose 1/para. 148.
[194] Rose 1/para. 149.
[195] Rose 1/para. 150.
[196] Rose 1/para. 151.
[197] Rose 1/para. 152.
[198] Day 4/pp.82-83 (cross-examination of Mr Rose).
[199] Day 4/p.83 (cross-examination of Mr Rose).
[200] Day 4/p.83 (cross-examination of Mr Rose).
[201] Day 4/pp.178-179 (cross-examination of Mr Jackson).

A (Mr Jackson)	It is similar to the discussion we were having earlier in relation to Dick Bos' comments that ABB had in their power, if you like, the price to – the opportunity to use the fact that they were the only supplier of cable to alter the price in Lot 3 by giving the larger discount in the cable in that area and no discount in Lot 2.
Q (Mr Hoskins, QC)	You say they were the only supplier of cable. Why would they make you this surprising offer for Lot 2?
A (Mr Jackson)	Hence the comment. That is why I don't understand why they did it.
Q (Mr Hoskins, QC)	It may well be in fact that the reason they made you this offer that was surprising to you was because they felt under such competitive pressure they felt compelled to do it?
A (Mr Jackson)	No, I don't believe that.
Q (Mr Hoskins, QC)	That is a possibility, isn't it?
A (Mr Jackson)	I don't believe that.

166. Knowing what they did, those on BritNed's side of the negotiations obviously regarded this as an inexplicable error on the part of ABB. But, of course, ABB did not or did not necessarily know what BritNed knew. Instead of a mistake, the reduction in the Lot 2 price might reflect a concern on the part of ABB that it was not guaranteed to win even Lot 2. This was a decision made not by Mr Jönsson, but by Mr Leupp.[202]

(22) Letter of intent and contract

167. A letter of intent was agreed with ABB on 27 April 2007 in which the overall price of the cable contract was agreed at €263m (exclusive of VAT). [203]

168. Even when the tender had been agreed, some of the prices therein remained provisional.[204] That was so, in the case of the Interconnector, as regards metals, contractors all risks insurance and currency.[205] This remained the position in the final contract between ABB and BritNed.[206] Essentially, the contract provided that the cost of the various provisional items was to be adjusted to reflect their actual cost.[207]

(23) The price offered by ABB over time

169. It is convenient to record the price offered by ABB for the cable supply over the course of these negotiations. I leave out of account the price offered by ABB in relation to the Converter element (Lot 1). The table below, thus focuses on Lot 2 and the Cable element

[202] Jönsson 1/para. 48.
[203] Rose 1/para. 159.
[204] Rose 1/para. 154.
[205] Rose 1/para. 154.
[206] Day 4/p.84 (cross-examination of Mr Rose).
[207] Day 4/p.85 (cross-examination of Mr Rose).

within Lot 3. It is also necessary, at least for the earlier prices, to have regard to the three "Base Cases" for which BritNed sought prices.[208]

	Lot 2 (cables)	**Lot 3** (cable element only)
16 June 2006 ABB's initial tender returns[209]		
Base Case 1 (650 MW)		
Cable supply	€152,485,360	€152,485,360
Cable supply (provisional sum)	€75,190,317	€75,190,317
Cable installation	€60,000,000	€60,000,000
CAR insurance	€33,802,878	€33,802,878
Total	€321,478,555	€321,478,555
Base Case 2 (1,000 MW)		
Cable supply	€135,240,643	€135,240,643
Cable supply (provisional sum)	€49,756,790	€49,756,790
Cable installation	€60,000,000	€60,000,000
CAR insurance	€29,000,000	€29,000,000
Total	€273,997,433	€273,997,433
Base Case 3 (1,320 MW)		
Cable supply	€174,544,067	€174,544,067
Cable supply (provisional sum)	€74,033,904	€74,033,904
Cable installation	€66,029,836	€66,029,836
CAR insurance	€37,057,318	€37,057,318
Total	€351,665,125	€351,665,125
July 2006 ABB's revised prices[210]		
Base Case 2 (1,000 MW)[211]		
Cable supply	€135,240,643	€135,240,643
Cable supply (provisional sum)	€49,756,790	€49,756,790
Cable installation	€72,931,016	€72,931,016
CAR insurance	€29,500,000	€29,500,000
Total	€287,428,449	€287,428,449
March 2007 ABB's best and final offer[212]		
Base Case 2 (1,000 MW)		
Cable supply	€135,276,491	€131,830,648
Cable supply (provisional sum)	€36,308,024	€36,308,024

[208] The Base Cases are described in paragraph 115 above.
[209] See Rose 1/para. 77.
[210] See Rose 1/para. 99.
[211] Only Base Case 2 prices were provided from hereon in: Rose 1/para. 98. See also paragraphs 150 to 152 above.
[212] See Rose 1/para. 144.

Cable installation	€81,699,344	€80,065,358
CAR insurance	€28,150,000	€27,587,000
Total	€281,433,859	€275,791,030
March 2007 ABB's last and final offer[213]		
Base Case 2 (1,000 MW)		
Cable supply and installation	€248,000,000	€238,000,000
CAR insurance	€28,150,000	€27,587,000
Total	€276,150,000	€265,587,000
April 2007 Final negotiations with ABB[214]		
Base Case 2 (1,000 MW)		
Cable supply and installation	€233,000,000	€233,000,000
CAR insurance	€28,000,000	€28,000,000
Total	€261,000,000	€261,000,000
21 May 2007 Amount in the concluded agreement[215]		
Base Case 2 (1,000 MW)		
Cable supply	€120,403,580	
Cable supply (provisional sum)	€36,915,826	
Cable installation	€77,165,925	
CAR insurance	€27,587,000	
Other insurance	€1,000,000	
Total	€263,072,231	

Table 1: The price offered by ABB over the course of the negotiations. Prices are exclusive of VAT.

170. The total contract price was subsequently varied by a deed of settlement, dated 15 December 2011, and increased to €280,749,582.72.[216]

G. COMPETITIVE PRESSURES ARISING IN THE NEGOTIATION PROCESS

(1) Introduction

171. In order to assess the manner in which the Cartel had or may have had an effect on the finally concluded price reached between BritNed and ABB, it is important to pay regard to the process of negotiation between the parties; the competitive pressures that existed; and the extent to which these were subverted by the Cartel.

[213] See Rose 1/para. 148.
[214] See Rose 1/para. 152.
[215] See Rose 1/para. 155.
[216] See Rose 1/para. 156.

172. Having considered, in Section F, the history of the negotiations between BritNed and ABB, this Section seeks to articulate the competitive pressures operating on ABB and BritNed during that process. In particular, it considers the extent to which BritNed was affected by the Cartel; the extent to which BritNed was able to deal with the effects of the Cartel; and the extent to which ABB was able to exploit these effects. Specifically, the following factors are considered:

(1) *The limited response from bidders that BritNed had to contend with.* One of the objectives of the Cartel was to limit the number of suppliers putting forward a bid or a competitive bid (for, as has been seen, cover pricing did take place) for a particular project, so as to ensure that one particular supplier got the work.[217] This occurred in the case of the BritNed tender: ABB was the "preferred" bidder of the Cartel for the BritNed tender, resulting in fewer actual bids and also in non-compliant bids.[218] This obviously had an effect on BritNed's ability to play one bidder off against another. This is considered in Section G(2) below.

(2) *The various commercial pressures that BritNed sought to deploy during the negotiations.* Notwithstanding the thin field that was bidding for the BritNed Interconnector contract, and the lack of competition consequent on this, there were a number of commercial pressures that BritNed could, and did, deploy. It is necessary to understand what these were: they are considered in Section G(3) below.

(3) *The knowledge advantage ABB derived from the Cartel.* As I have noted, the limited number of parties interested in tendering for the Interconnector was one consequence of the Cartel. Another was ABB's appreciation that it had been "allocated" the BritNed project by the Cartel. It is very important to understand precisely what advantage ABB derived from this. This is a question that is considered in Section G(4) below.

I should stress that a more limited field of potential suppliers[219] and a knowledge advantage on the part of that supplier who is the preferred supplier under the Cartel[220] are not the only effects of the Cartel. They are two effects of the Cartel considered in this Section because they go to the negotiation process between BritNed and ABB. Two other effects that I will come to[221] are what I term "baked-in inefficiencies" and "cartel savings".

(2) The limited response from bidders that BritNed had to contend with

173. Clearly, as the party conducting the procurement, BritNed knew exactly who was interested and who was bidding and on what terms. As has been described, and as I accept, interest in the BritNed Interconnector project was thin. That may in part have been due to proper, commercial, factors, such as a potential supplier's inability to meet the deadlines of the project, but a major factor was the Cartel. I consider and find that the operation of the Cartel explains:

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[217] See, generally, Section D above.
[218] See Sections F(12), F(14) and F(16) above.
[219] The factor described in paragraph 172(1) above.
[220] The factor described in paragraph 172(3) above.
[221] They are briefly described in paragraph 215 below and then expanded upon in Section I below.

(1) The absence of any bids from Asian suppliers; and

(2) The absence of any real interest from Prysmian and Nexans. Certainly, neither company submitted a competitive bid, and I find that that was because of the Cartel. As regards the Cable element, these two companies were ABB's only European competition.

174. Of course, BritNed did not know of the Cartel and therefore did not know why the response to its invitation to tender was so weak. That, to my mind, is irrelevant to an assessment of BritNed's conduct during the course of the tender. What matters is that BritNed recognised that the response to its invitation to tender was thin, and it recognised that it would be less able to play-off one supplier against another.[222]

175. As shall be seen, BritNed did, to an extent, manage to keep pressure on those suppliers actually tendering, despite the thinness of the response to the invitation to tender, but I recognise that BritNed was significantly hampered in its ability to negotiate by the thinness of the response to its invitiation to tender for the Interconnector.

(3) The various commercial pressures that BritNed sought to deploy during the negotiations

(a) The commercial pressures identified

176. Despite being hampered by a thin field of interested suppliers, BritNed was nevertheless able to generate some commercial pressure on bidders. The significant factors that BritNed deployed were:

(1) Ensuring that Siemens continued to bid for the Converters element of the project.

(2) Pressing ABB on its failure initially to offer a "full bipole" solution.

(3) Pressing comparisons with the costs of the (earlier) NorNed project.

(4) Stressing the risk that the project would not go ahead if the price was too high.

(5) Stressing ABB's lack of its own cable laying vessel.

(6) Noting that ABB appeared to need the work represented by the BritNed Interconnector.

(b) Keeping Siemens in

177. BritNed's negotiating team sought to ensure that Siemens remained a tenderer throughout the process. There were concerns within BritNed that Siemens was seriously considering withdrawing from the process, which would render Lot 3 the only option for BritNed if

[222] Of course, those involved in bidding would seek to increase the pressure on BritNed by emphasising their own capacity constraints and the fact that they were tendering for other projects which – if successful – might constrain their ability to meet BritNed's requirements. In general, this sort of negotiation is entirely proper, albeit that the Cartel had a distorting effect here too. ABB might very well identify rival projects for which it was tendering, but where (because the work had not been allocated to it) its tender would not be competitive and it would not expect to win the contract: see, for example, Day 7/pp.29*ff* (cross-examination of Mr Jönsson).

the Interconnector project were to proceed.[223] BritNed was successful in ensuring Siemens remained a tenderer for Lot 1.

178. Siemens' role – albeit limited – was significant. Siemens' presence created competition in relation to the Converter element of the project, and so (even if, as to which I make no findings at present, ABB knew it was the only bidder in relation to the Cable element) ABB would be under pressure in terms of its desire to win the entire contract (i.e. Lot 3).

179. I find that Siemens' participation in the project *(i)* increased competition and *(ii)* increased ABB's perception of competition. Although BritNed's witnesses were a little reluctant to accept this latter point, in the end they did. Mr Rose said this:[224]

Q (Mr Hoskins, QC)	Mr Rose, your evidence is that you were searching, as one would expect, and perfectly normally, to find ways to put competitive pressure on ABB. One of the ways of putting competitive pressure on ABB was to hold out the Lot 3 carrot, keep them thinking as long as possible they might win Lot 3. The idea you would identify that as a competitive pressure and then not actually convey that to ABB is not particularly credible, is it?
A (Mr Rose)	I don't agree. I think it is entirely understood, was entirely understood at the time, that the prize of winning the entire project for ABB was there and was obvious for all to see. There was no need to express something quite so obvious and we didn't, to my knowledge.
Q (Mr Hoskins, QC)	So the point you are making in paragraph 3 is not that there was no competitive pressure on ABB as a result of the Lot 3 carrot; your evidence is that it was so obvious, you didn't have to tell ABB that that was the position. Is that a fair summary?
A (Mr Rose)	Yes, I think that is a fair summary. The idea that one company can win the lot, the whole lot, should be a prize considering the nature of the project.

180. In his witness statement, Mr Jackson appeared not to accept the significance of Siemens' role:[225]

> "35. …I do not agree that BritNed attempted to use the combined Lot 3 package, for which ABB was the sole bidder, as a means to drive down ABB's cable price…
>
> 36. …BritNed's preferred contracting strategy would have been to award Lot 3 to either a single tenderer or a consortium of parties with the requisite expertise. However, BritNed could not be seen to rely on Lot 3, since there was only one bidder for the combined package. This meant that Siemens' bid for Lot 1 was the only means of maintaining any vague semblance of competition in the bidding process for the BritNed Project. To have

[223] Rose 1/para. 132.
[224] Day 4/pp.67-68 (cross-examination of Mr Rose). See also Day 4/pp.69-70 (cross-examination of Mr Rose).
[225] Jackson 1, emphasis supplied.

> allowed ABB to believe that BritNed was committed to awarding Lot 3 would have run counter to BritNed's interests."

Reading these paragraphs as a whole – and in particular the emphasised part – it is clear that Mr Jackson did see the presence of Siemens as a means of placing commercial pressure on ABB, and I frankly do not understand his denial of this in paragraph 35 of his statement. Of course, I accept that BritNed's preference might well have been for a Lot 3 solution. But only if the price was right.

181. Mr Jönsson considered that "BritNed…used the fact that ABB was competing not just for the cable but also for the converter element of the project (in the combined Lot 3) to its advantage by using the "carrot" of the combined bid to put pressure on ABB's cables price. This was ultimately reflected in the significant discount offered by ABB and was the result in my view of clever negotiation by BritNed."[226]

(c) Full bipole versus simple bipole

182. One of the differences between the Siemens bid and the ABB bid was that Siemens offered a "full bipole" solution, whereas ABB, initially, did not.[227] The technical detail does not matter: it is sufficient to note that a full bipole solution was BritNed's preferred solution. ABB only moved to offer such a solution in late April 2007.[228] Whilst this difference between the bids continued in the period up to April 2007, BritNed sought to ascribe a monetary value to it, in order to assess the respective bids.[229] BritNed assessed the "negative valuation" for a simple bipole design for the Project at around €25m to €35m.[230]

183. The failure, on the part of ABB, to provide a full bipole solution was obviously one that played its part in the negotiations.[231] It clearly increased the pressure on ABB regarding the competition ABB perceived it had with Siemens in relation to Lot 1, and so pushed ABB to a more competitive stance in relation to Lot 3.

(d) Comparison with NorNed

184. During the tender process, BritNed sought to derive a sense of value and costs by comparing the Project with the NorNed project.[232] The NorNed project was one which had involved TenneT (as purchaser) and ABB (as supplier).

185. Quite how comparable the two projects actually were is not, for present purposes, the issue. The question is how the point played in negotiations:[233]

> **Q (Mr Hoskins, QC)** But you are saying you had no awareness that BritNed was using NorNed as a means to try to get ABB to lower its price? Is that your evidence?

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[226] Jönsson 1/para. 50.
[227] Rose 1/para. 118.
[228] Rose 1/para. 118.
[229] Rose 1/para. 119.
[230] Rose 1/para. 120.2.
[231] Day 4/pp.63-64 (cross-examination of Mr Rose).
[232] Rose 1/paras. 134*ff*; Day 4/pp.56*ff* (cross-examination of Mr Rose).
[233] Day 4/pp.57-58 (cross-examination of Mr Rose).

A (Mr Rose)	No, I'm saying that I don't have any – I don't – I wasn't involved in any direct discussions on it, but I'm aware that the analysis was done to draw a comparison between the two projects and that the calculations and discussions around that, I was aware of, yes.
Q (Mr Hoskins, QC)	What was the purpose of doing those calculations?
A (Mr Rose)	The purpose was to improve our understanding of any differences between the two projects, to try and understand if we were getting a competitive market price for BritNed. We had no other reason to assume that TenneT hadn't paid – at Statnett hadn't paid – a sensible competitive price for NorNed. So as a reference.
Q (Mr Hoskins, QC)	What was the purpose of telling ABB about the conclusions you had drawn?
A (Mr Rose)	To demonstrate our awareness of the pricing and where the pricing looked materially different or higher to enquire as to why that was the case and therefore to try to understand any differences and ensure we were getting a competitive price.
Q (Mr Hoskins, QC)	To put pressure on ABB to lower the price it was offering?
A (Mr Rose)	Yes, as one of the consequences, yes. If that could be achieved.

186. It may be that, in the course of negotiations, BritNed offered challenging conclusions as to price, drawn from its NorNed comparisons.[234] That would be expected in the course of commercial negotiations, and perfectly legitimate as an approach to negotiation.

187. Mr Jönsson described the effect of this use of NorNed as a comparator:[235]

> "…I recall that in January 2007, TenneT was complaining about the price of ABB's tender in relation to Lot 2 by comparing it to the price of the NorNed cable. I was particularly annoyed at BritNed's attempts to compare the price of the NorNed cable with the BritNed cable price in the run up to our BAFO submission. The NorNed project has some similarities with the BritNed project in that both projects are 450 kV HVDC submarine interconnectors in the North Sea which connect transmission grids of two countries, one of which is the Netherlands. However, there are significant differences between the projects."

The emails referenced below[236] provide some contemporaneous confirmation that this particular attempt at commercial pressure on the part of BritNed may not have been especially successful. Nevertheless, it was a factor.

[234] Day 4/pp.59-61 (cross-examination of Mr Rose).
[235] Jönsson 1/para. 42.
[236] See paragraphs 280 to 283 below.

(e) Risk of the project not going ahead

188. BritNed would only proceed with the Interconnector project if its two shareholders considered that the project was viable according to their criteria. That is an entirely reasonable commercial position to adopt: but it is also, by providing an upper limit as to cost, a negotiating tool. Mr Rose was clearly aware of this:[237]

> "The pressure we used across the project, particularly in relation to the cable, because we knew we only had one competitor, one party for the cable, was that the project risked not actually happening at all if a price that came in was too high and damaged the business case.
>
> So, I accept that type of pressure was used, rightly I think, to try to create a feeling of competitive pressure."

189. Naturally, this risk of the project not proceeding was conveyed to the tenderers.[238] ABB was aware of the risk.[239]

(f) ABB's lack of its own cable laying vessel

190. At all material times, ABB lacked its own cable laying vessel. Were it to succeed in the bid, the laying of the cable would be work that ABB would have to sub-contract.

191. In contracts of this size, an element of sub-contracting is inevitable. Mr Rose did not consider this to be a particular concern:[240]

Q (Mr Hoskins, QC)	…did BritNed think it was a concern that ABB did not have its own cable-laying vessel?
A (Mr Rose)	I don't think it was a particular concern. We knew, it was quite clear in the market, which suppliers did and didn't have their own vessel; and if a company doesn't have its own vessel, then it has to subcontract. And given the nature of the contracting arrangements, we would expect them to take the risk of that and to manage that.
Q (Mr Hoskins, QC)	Do you believe it put ABB at a disadvantage against companies who did have their own cable-laying vessels?
A (Mr Rose)	I don't think we viewed it like that. We viewed it that they could take the sub-contracting route, protect us, as BritNed, commercially from any risk that that might introduce. I do accept that that presents a management issue for that model. But no, we were pretty agnostic about that arrangement.

[237] Day 4/p.34-35 (cross-examination of Mr Rose).
[238] Day 4/pp.52-53, 55-56 (cross-examination of Mr Rose).
[239] Jönsson 1/para. 40. Quite what weight ABB placed on this risk is another matter: see Day 7/pp.16-17 (cross-examination of Mr Jönsson), which suggests that ABB may not have considered the risk of BritNed walking away as a significant one.
[240] Day 4/pp.13-14 (cross-examination of Mr Rose). Nor did Mr Jackson: Jackson 1/para. 38.

192. BritNed unsurprisingly identified ABB's cable laying capability as an issue. An evaluation of the various expressions of interest that BritNed had received – circulated within BritNed on 1 February 2006 – stated:

> "ABB has no ship or strategic relationship for the provision of a ship. However, the cable manufacturing capacity is smaller than cable laying capacity. Has to be taken care of during the tender phase."

193. A cable laying capacity was one of the factors specifically listed in a table evaluating the various expressions of interest.

194. Mr Rose was pressed on whether this was an area of "concern" for BritNed, and eventually agreed that it was.[241] I consider that "concern" actually puts matters too highly. The point would only become one of concern if the tenderer in question could not adequately reassure BritNed that the issue could be solved. In short, it was something that, as Mr Rose said, needed to be bottomed-out during the tender process.

195. It is, therefore, likely that the matter would have been raised with ABB. Mr Rose was asked whether ABB would have felt pressure because it lacked a cable-laying vessel. He felt unable to speculate as to ABB's internal position on this.[242]

196. Mr Jönsson said that ABB considered this a weakness:[243]

> "…ABB did not have its own cable laying vessel and I remember that BritNed had expressly said that not having a vessel had weakened our bid. BritNed had made it clear that it wanted to award the contract to a supplier who could complete the entire works as a turnkey project. Without a vessel of its own, ABB felt at the mercy of others, particularly as our position, being in need of sub-suppliers to complete what was known to be a turnkey project, was apparent to the market."

(g) Perception that ABB needed the work

197. The extent to which ABB was hungry for work was a matter which was, essentially, a matter of ABB's understanding. It appears that in the course of negotiations, BritNed got the impression that ABB was keen for more work, and obviously factored that into negotiations.[244]

198. The "loading" of a factory – fully loaded, meaning that the factory has no capacity for a particular project – is a complex matter. This is because the process of manufacturing cables is not a single process, but a complex mixture of different processes. Whether a factory can take on an additional cable job will depend upon a complex mixture of timings (when a particular process must be undertaken), processes (which particular processes are necessary for the job) and client demands (which may be capable of variation during negotiations).[245]

199. So far as the BritNed project was concerned, ABB regarded BritNed as a "priority project" as regards both the Cable element and the Converter element. This was because

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[241] Day 4/pp.15-16 (cross-examination of Mr Rose).
[242] Day 4/pp.16-17 (cross-examination of Mr Rose).
[243] Jönsson 1/para. 33. See also Larsson-Hoffstein 1/para. 70; Röstlund 1/para. 33.
[244] Day 4/pp.61-62, 65 (cross-examination of Mr Rose).
[245] See, for example, the evidence of Mr Jönsson on Day 6/pp.4*ff* (cross-examination of Mr Jönsson).

"there was a lot of spare capacity in both the cables and the converters factories".[246] In his witness statement, Mr Larsson-Hoffstein said this:[247]

"When subsequently submitting ABB's prices on 3 April 2006 to BritNed, I stated to TenneT that we were keen to start production of the BritNed cable as early as possible. This was because ABB did not have any other MI cables in the pipeline and we wanted to fill the factory's capacity."

200. I find that ABB regarded the BritNed Interconnector as important work, that it was keen to secure. Of course, I do not leave out of account the fact that the Interconnector project had been "allocated" to ABB pursuant to the Cartel.

(4) The advantage ABB derived from its participation in the Cartel

(a) Introduction

201. The advantage derived by ABB from the Cartel would have been in relation to the extent and strength of the competition it faced. This has two aspects:

(1) First, simply as a matter of objective fact, ABB faced less competition.

(2) Secondly, and it is here that the knowledge of officers within ABB becomes relevant, ABB might know that it faced less competition. Clearly, any bidder in a tender would seek to garner intelligence about the competition it faced: ABB's participation in the Cartel gave it an advantage in this regard.

202. The first matter to be explored is how BritNed sought to handle and exploit the competitive pressure that an invitation to tender creates (or seeks to create). Unsurprisingly, BritNed:

(1) Sought to negotiate with multiple bidders;

(2) Made that clear to the bidders; and

(3) Sought to keep confidential who the rival bidders and what the rival bids were.

203. These, somewhat elementary, points are considered in Section G(4)(b) below. Having considered them, I then proceed to the much more difficult question of ABB's own knowledge of its competitive position. The question is difficult because by no means everyone at ABB involved in the BritNed tender actually knew of the Cartel.

(b) BritNed's position

204. At the pre-tender meeting and site visit at Maasvlakte on 19 April 2006, one of the participant suppliers asked whether BritNed would be negotiating with just one bidder. The answer was that BritNed "would be negotiating with more than one bidder and potentially on more than one lot".[248]

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[246] Jönsson 1/para. 25. See also Jönsson 1/para. 44
[247] Larsson-Hoffstein 1/para. 30.
[248] Mr Rose confirmed that "we have a number of bidders clearly in the room and we would seek to be negotiating with multiple bidders": Day 4/p.22 (cross-examination of Mr Rose).

205. The Phase One Procedure Paper made clear, to those acting for BritNed, that it was important to keep the relative positions of tenderers confidential. Paragraph 5.3.1 stated that "[d]uring the Phase One Tender Evaluation, it will be extremely important to avoid giving any indications to Tenderers of the relative positions, particularly important in relation to the Phase Two Tender submissions". The importance of maintaining such confidentiality in a competitive process is self-evident, and Mr Rose confirmed that he and his team understood the importance of this.[249]

206. The same point was made in the Phase Two Procedure Paper and again – entirely unsurprisingly – Mr Rose confirmed the importance of this requirement.[250]

207. I am very confident that BritNed would have maintained confidentiality on its side. As I have noted, I was impressed with both Mr Rose and Mr Jackson, and I do not consider that information would inappropriately have "leaked" to tenderers.

208. Of course, tenderers would seek information about competitors and the Cartel – as I have described – involved exchanges of information between cartelists. The question arises as to what ABB would have known about this, the BritNed tender.

209. Mr Jackson was extremely sceptical of ABB's denials that they knew they were the only bidder for Lot 2 or Lot 3.[251] In cross-examination, he said:[252]

> **Q (Mr Hoskins, QC)** …I just want to sort of test the temperature of what you are saying here. At [Jackson 1/para. 24], you say:
>
> "Consequently, I do not think it is credible, and nor do I believe, that ABB's representatives, including Peter Leupp, Hans-Åke Jönsson and Magnus Larsson-Hoffstein would have harboured any belief that Nexans and/or Prysmian were competing with them for Lot 2 or for Lot 3."
>
> Just to make it clear, are you suggesting that they are lying, or is it something more nuanced than that?
>
> **A (Mr Jackson)** I think it is slightly more nuanced. I always hesitate to call somebody a liar. But I don't believe, given the very thin market in the cable world, where everybody knows everybody else – and, for instance, everybody goes to the same insurance people to obtain insurance quotes on such jobs, people go to the same metal providers. It is a very, very thin world and I do not believe that, even notwithstanding the Cartel arrangements not being in place, that ABB did not know they were the only supplier.

210. I take Mr Jackson's point regarding informal exchange of information in the market and market gossip. I also take the point that ABB was part of the Cartel. Clearly, these are

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[249] Day 4/pp.27-28 (cross-examination of Mr Rose). Mr Jackson also accepted the need for BritNed's team to maintain confidentiality: Day 4/pp.173-174 (cross-examination of Mr Jackson).
[250] Day 4/p.30 (cross-examination of Mr Rose).
[251] Jackson 1/para. 24.
[252] Day 4/pp.166-167 (cross-examination of Mr Jackson).

both factors that would or could affect ABB's knowledge. Beyond that, however, it seems to me that Mr Jackson's subjective belief as to ABB's knowledge does not take me any further as regards that knowledge.[253] It is a matter for me to determine. It is this aspect that I now proceed to consider.

(c) Approach to analysing ABB's knowledge advantage

211. It is not ABB's understanding of the Cartel <u>in general</u> that matters, but the extent to which ABB's participation in the Cartel gave it an appreciation of the competitive position in which it stood <u>in relation to the BritNed project</u>.

212. There are two general points that arise out of this.

213. First, I appreciate that there is a distinction to be drawn between "ordinary" market gossip regarding the BritNed Interconnector tender – i.e. communications which might have occurred even if there was no Cartel – and information acquired through the operation of the Cartel. In my judgment, to the extent that there were valuable communications between competitors for the BritNed project, these would have been due to the Cartel, and I so find. In the ordinary course, whilst genuine competitors may exchange market "gossip", they will be acutely aware of the need to preserve their own competitive advantage by maintaining confidence in "valuable" information.[254] The converse is more likely to be true as regards members of the Cartel. I consider that the appropriate approach to take is to presume that if valuable information was exchanged between "competitors" (e.g. as to participation in a bid or the level of pricing), that exchange occurred by reason of the Cartel, and would not have occurred but for the Cartel.

214. Secondly, it is important to note that as regards ABB's bid for the BritNed Interconnector it would be an error to regard ABB as monolythic. Different persons associated with ABB's bid for the Interconnector (and, specifically, the Cable element) had different knowledge in relation to the Cartel and in relation to ABB's competitive position regarding the BritNed tender. It will be necessary to consider three distinct questions:

(1) *Who knew about the Cartel and who did not know about the Cartel?* As I have noted, some of the people very directly associated with the compiling of ABB's bid did <u>not</u> know of the Cartel. On the other hand, others – notably Mr Jönsson – <u>did</u> know. Mr O'Donoghue, QC, for BritNed, devoted some time to ascertaining how many people, and exactly who within ABB, knew of the Cartel in general terms. That, as it seems to me, is the wrong question. I am not concerned with knowledge, in the abstract, of the Cartel, but only with knowledge insofar as it affected ABB's bid for the BritNed Interconnector.

(2) *What these persons actually knew regarding the BritNed bid?* Once again, it is necessary to stress that general knowledge of the Cartel is nothing to the point. What matters is what those persons, cognisant of the Cartel, would have known regarding competition in relation to the BritNed bid.

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[253] Matters would, of course, be different, if Mr Jackson had specific evidence in relation to ABB's knowledge of the competition it faced. It was quite clear from his cross-examination that he did not: Day 4/pp.168-170 (cross-examination of Mr Jackson).

[254] Let alone the competition law implications of such communications.

(3) *Whether, and if so how, any "useful" knowledge regarding (the absence of) competition could have been deployed?* Two very significant participants in the framing of the BritNed bid – Mr Leupp and Mr Larsson-Hoffstein – did not know about the Cartel or ABB's participation in it. I found them to be honest witnesses, and I therefore do not accept that they would consciously have caused ABB to put forward an uncompetitive price.[255] That leaves three possibilities:

(a) First, those who knew of the Cartel were able to circumvent those innocent of that knowledge so as to cause ABB's bid price for the Cable element of the BritNed Interconnector to be higher than it otherwise would have been. I shall refer to this as "direct influence" on the ABB bid.

(b) Secondly, those who knew of the Cartel were able so to influence those innocent of that knowledge (or the processes that such persons were involved in) so as to cause ABB's bid price for the Cable element to be higher than it otherwise would have been. Such influence might have been exercised consciously or unconsciously by those knowing of the Cartel. It does not seem to me to be profitable to distinguish between states of mind. It is the effect on the bid that matters. I shall refer to this as "indirect influence" on the ABB bid.

(c) Thirdly, although there were persons within ABB who knew of the Cartel and who were involved in the tender for the Interconnector, they were unable either themselves to inflate the price put forward nor influence others to do so. In short, there was neither direct nor indirect influence.

215. This, third, possibility, does not however exclude the possibility of an overcharge arising in relation to the Cable element. An overcharge could, in theory, arise in two ways:

(1) *By way of baked-in inefficiency.* It could, for example, be the case that ABB was an inefficient producer of cables and therefore tendered a higher (non-competitive) price for the Cable element which ABB actually considered to be competitive. The effect of the Cartel would be to cause ABB's price to be accepted because of an absence of competition from other, more efficient, suppliers. Such inflation of price arises out of the natural inefficiency of cartels, whereby an uncompetitive supplier receives business it would otherwise not receive simply because of the absence of competition caused by the cartel. Such inefficiencies are structural within the business of the cartelist, who may not even be aware of such inefficiencies. During the trial, inefficiencies of this sort were referred to as "baked-in inefficiencies", and that is a term that I use in this Judgment.

(2) *By way of cartel savings.* The absence of or reduction in competition is, of course, a disbenefit to consumers, in that it may result in overcharges. One benefit to cartelists is the saving that they may incur as a result of not having to compete. To a supplier, competition is expensive, because it means incurring the costs of engaging with competing suppliers, with no assurance that a firm order will be placed. The advantage of a cartel is that such costs may be avoided or reduced. I shall refer to such savings as "cartel savings".

[255] Indeed, it must be stressed that no such case was advanced by BritNed.

216. I consider the three questions articulated in paragraph 214 above in the following Sections:

(1) Section G(4)(d) considers who, within ABB, relevantly knew of the Cartel. By "relevantly", I mean those persons who were involved in the tender for the BritNed Interconnector.

(2) Section G(4)(e) considers what these persons knew.

(3) Section G(4)(f) considers the extent to which such persons could (directly or indirectly) influence the bid price for the Cable element of the BritNed Interconnector.

I do not consider the question of baked-in inefficiencies or cartel savings until later on in this Judgment, as such inefficiencies do not arise as a result of direct or indirect human intervention in the tender negotiation process, although they may nevertheless have an effect on price.

217. The difficulty underlying these questions of direct or indirect influence over the tender is illustrated by some of ABB's internal documents, which suggest a perception, on the part of ABB, of a properly competitive process. Thus, an email dated 21 December 2006 from Mr Pääjärvi (who, as will be seen, I assume knew of the Cartel, but without making a finding to this effect) to various persons within ABB circulated a "brief update after our latest meeting on Cable installation and protection yesterday at Schiphol". The final paragraph stated:

> "I am concerned about the process. We are helping BritNed to develop the Contract with great efforts and costs and still we will be squeezed in the BAFO. It may well be that some of our competitors will be awarded the Contract in the end."

This document was put to Mr Rose, who (unsurprisingly) was unable to say much about what was, after all, an internal ABB document.[256] He accepted that the email generally referred both to the Cable and Converter elements of the bid, but suggested that this comment made more sense in the context of the Converter element (where ABB did have competition) than the Cable element (where ABB did not have competition).[257] That, however, begs the very question of what ABB's negotiating team actually knew. That is a point on which I will have to reach a view: for present purposes, I would only say that this email suggests a fear of competition – in relation to all aspects of the contract – on the part of ABB.

218. Another ABB internal document is an email (sender and recipients are immaterial) dated 30 March 2007 stating:

> "As we said on the phone yesterday, Staffan, it feels terrible that we will probably lose yet another HVDC project. We now need to do everything we can do to win BritNed, if this still is possible. My ambition for getting as competitive a price as possible from us is to convince the bosses in Zürich etc. that we have to come in with a reasonable margin and risk provision. However, to succeed, I need your help:

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[256] Day 4/pp.30*ff* (cross-examination of Mr Rose).

[257] Day 4/pp.32-33 (cross-examination of Mr Rose). When the document was put to him, this was also Mr Jackson's position: Day 4/pp.170-173 (cross-examination of Mr Jackson).

> Staffan: When you have any more information about the Great Belt straight, such as who the low bidder is and what the difference is in price or greater differences on the technical solution for the Tfo's, then I will gladly receive this.
>
> Staffan/Bo: I'd be pleased to hear any news about BritNed as I will try to work on the bosses from a number of angles. It is highly unlikely that we will have time to change our business model on this. We then will have to ensure that we work closely together in terms of our updated quotes for BritNed. As soon as I have a technical quote from our estimators, we can talk about this."

It was put to Mr Rose that this document evidenced real commercial pressure on ABB. Mr Rose's response was as follows:[258]

> "The pressure we used across the project, particularly in relation to the cable, because we knew we only had one competitor, one party for the cable, was that the project risked not actually happening at all if a price that came in was too high and damaged the business case.
>
> So I accept that type of pressure was used, rightly I think, to try to create a feeling of competitive pressure."

Mr Rose, of course, knew who had bid and who had not. He knew that the field was thin, and that as a result the commercial pressures open to him were limited. He deployed them to the extent he could. But, of course, he could not speak to ABB's knowledge. Like the previous communication – this email suggests a concern on the part of ABB that the project could go ahead, but with ABB being unsuccessful in its tender.

219. I reference these emails not because I am persuaded that within ABB everything operated on a competitive footing. I reference them because it is important that, when considering the facts, I keep in mind the potentially insidious nature of cartels. Cartels do not advertise themselves, and their influence can be extremely difficult to discern.

(d) Who knew about the Cartel and who did not know about the Cartel?

220. BritNed accepted that a number of ABB employees – notably Mr Leupp and Mr Larsson-Hoffstein – had no knowledge of the Cartel. No case was advanced that these persons had used the existence of the Cartel to inflate the bid price.

221. If the bid for the Interconnector was inflated, then it was with the innocent involvement of such persons. In short, these persons considered that they were doing their duty – i.e. pricing competitively – and were effectively duped into producing a non-competitive price.

222. It is necessary to begin by identifying those aware of the Cartel and aware of the impairment of the competitive process as regards the BritNed tender. Clearly, Mr Jönsson was aware of the Cartel and aware of the fact that the Cartel might impair the competitive process as regards the BritNed tender. It was also alleged that Mr Pääjärvi had this knowledge. The evidence in this regard was much more tenuous, and I am a little reluctant to make a finding of this nature without having heard from Mr Pääjärvi. I shall proceed on the basis of an assumption that Mr Pääjärvi was aware of the Cartel and aware of the fact that the Cartel might impair the competitive process as regards the BritNed

[258] Day 4/pp.34-35 (cross-examination of Mr Rose).

tender.[259] For the reasons that I give in paragraph 225 below, I do not consider that proceeding by way of an assumption, in this way, actually prejudices ABB.

223. I regard the knowledge of these two persons as relevant because their role in ABB can be related to ABB's bid. Mr Jönsson was in charge of the Cable element of the bid, although he delegated to Mr Larsson-Hoffstein.[260] Mr Pääjärvi was in charge of the Converter element of the bid.[261]

224. Clearly, each might well have been in a position to influence the nature of ABB's bid, although I accept that in relation to the Cable element, Mr Pääjärvi's influence would have been somewhat attenuated. Nevertheless, given Mr Jönsson's evidence that Mr Pääjärvi had a broader role,[262] it is necessary to bear him in mind.

225. Unfortunately, it is very difficult to get any sense of how the various individuals worked together during the course of the BritNed tender. I heard no evidence from Mr Pääjärvi, and neither Mr Jönsson nor Mr Larsson-Hoffstein was able to paint a picture of how the ABB tender team really worked. It follows that I cannot actually trace – with any degree of specificity – the sort of influence that Mr Pääjärvi might have had. The same is all the more true of the other persons said by BritNed to have known of the Cartel. Their role in relation to the BritNed tender was exiguous. It seems to me that I should proceed on the basis that Mr Pääjärvi had the same knowledge and the same ability to influence matters as Mr Jönsson, simply as a safeguard against a tendency to regard Mr Jönsson as a "lone wolf", acting on his own within an otherwise "innocent" ABB. That was very much not the case, as BritNed emphasised. The fact is that knowledge of the Cartel was embedded within ABB, and it is important not to lose sight of this fact. At the same time, a number of persons having significant influence over the BritNed tender did not know of the Cartel. In these circumstances, I shall proceed to analyse what Mr Jönsson knew, without mentioning Mr Pääjärvi further. However, the assumption that I am making regarding Mr Pääjärvi's knowledge and influence underlies my analysis throughout for the reason that I have given.

(e) What these persons knew regarding the BritNed bid?

226. I consider that Mr Jönsson would have known the following things.

(i) The fact that projects were allocated by the Cartel and that the BritNed Interconnector was allocated to ABB

227. As has been described, the cartelists kept track of allocations of work and monitored who got what.[263] I accept, of course, that sometimes the allocation of work was not followed,

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[259] At one point in cross-examination, Mr Jönsson unequivocally accepted that Mr Pääjärvi knew of the Cartel: Day 6/p.34 (cross-examination of Mr Jönsson). At other times he was less clear. ABB's written closing submissions (at footnote 187) made clear that it was not accepted by ABB that the evidence suggested that Mr Pääjärvi knew of the Cartel, and a number of more equivocal passages in Mr Jönsson's testimony were referenced to this end. Not having heard from Mr Pääjärvi at all, the point is a difficult one. I consider that (in light of Mr Jönsson's admission but also the equivocality) that I should proceed on the basis that Mr Pääjärvi was aware, but make no specific finding in this regard.

[260] See paragraphs 122 to 124 above.

[261] See paragraphs 122 to 124 above.

[262] See Jönsson 1/para. 20, quoted in paragraph 122 above.

[263] See Section D above.

with resultant sanctions,[264] but that, in my judgment, cannot affect the broad expectation that I find all cartelists, including ABB, to have had: namely that when work was allocated to a particular undertaking, the other cartelists would behave in a manner that would assist, if not ensure, that that undertaking received the work.

228. The fact that ABB was not a "core" cartelist, and may not itself have kept track of allocations, is nothing to the point.[265] The point is not whether ABB kept track but whether there was an expectation that if ABB was allocated a project, the other cartelists would "play ball" and do their best to see that ABB got the work. I find that there was such an expectation, based upon the Decision and Mr Jönsson's general acceptance that the thrust of the Decision was right.[266]

229. In fact, Mr Jönsson's understanding of the competitive situation is likely to have more sophisticated and more specific than this.

(ii) Likely absence of competition from Japan/Korea

230. I consider that Mr Jönsson would have appreciated that there would be an absence of competition – at least so far as the Cable element of the bid was concerned – from Japanese and Korean suppliers. I reach this conclusion based upon the fact that such a geographic allocation of work was the starting point for the Cartel.[267]

231. Mr Jönsson sought to suggest, in his witness statement, that he regarded the threat of competition from Japanese cable suppliers as a real one:[268]

> "…I could not be confident that the Japanese cables suppliers would not compete for the cables contract since cartel discussions had broke off with Japanese companies in 2004. Any interactions I had with Japanese suppliers after that date…were not in the context of the Cartel but in the normal course of business. However, although they were developing technologies that could potentially be used for projects such as the BritNed project, the Japanese suppliers at the time lacked the technical expertise in certain areas to execute the BritNed project in its entirety…and were subject to significant transport costs."

232. The thrust of Mr Jönsson's evidence appears to be that the Japanese (and, no doubt, Korean) cable suppliers were not competitive rather than that they chose not to compete. I do not accept this evidence. It may be that these suppliers were uncompetitive: but that was not tested in the European market. I find that, by reason of the Cartel and as described in the Decision, the Japanese and Korean suppliers chose not to compete, and that Mr Jönsson would have appreciated this effect of the Cartel.[269]

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[264] See Section D above.
[265] This appears to have been Mr Jönsson's position: Day 5/pp.28*ff* (cross-examination of Mr Jönsson).
[266] See Section D above and paragraph 68 above.
[267] See Section D above.
[268] Jönsson 1/para. 31.
[269] It is quite possible, of course, that as a non-core cartelist, ABB was not fully involved with the geographic allocation of work. That may well have been the case, but this says nothing about the Cartel's effect on geographic allocation nor Mr Jönsson's appreciation of the general effect of the Cartel. Mr Jönsson's evidence regarding Japanese cable suppliers was tested in cross-examination, and I do not consider that he had a sound basis for asserting that the Cartel did not cause an absence of competition, in European markets, from Japanese cable manufacturers: Day 6/pp.76*ff*, 84, 85-86 and 91 (cross-examination of Mr Jönsson).

233. I conclude that Mr Jönsson would not have seriously been concerned about competition from Japanese or Korean suppliers. I do not go so far as to say that such competition was impossible: it simply would not have been expected and would have been discounted by those in the know.

(iii) Level of competition from European suppliers as regards cable projects

234. As regards ABB's European competitors, for cables, ABB's main competitors were Nexans and Prysmian.[270] Both of these companies were cartelists.

235. The contacts that Mr Jönsson had with Nexans have already been described,[271] as has Nexans' submission of a non-compliant tender.[272] In these circumstances, the inference that Nexans did not compliantly tender because of the Cartel must be a strong one and I have found that this was indeed the case.

236. Nevertheless, Mr Jönsson sought to suggest that – because ABB had not made provision in its tender for a sub-contraction to Nexans, and because Nexans has "reproached" ABB about this[273] – "[i]t could not…be ruled out that Nexans…would compete hard for the project".[274]

237. I do not accept this evidence. In cross-examination, Mr Jönsson accepted that the BritNed project had been allocated to ABB by Nexans.[275] The relevant passage in cross-examination was as follows:[276]

Q (Mr O'Donoghue, QC)	Mr Jönsson, come on. You went to Zurich in May 2006 with the specific purpose of allocating the BritNed project. Nexans told you that they would not meet the customer's delivery requirements for the project?
A (Mr Jönsson)	Correct.
Q (Mr O'Donoghue, QC)	You agreed that with Nexans?
A (Mr Jönsson)	Correct.

238. As regards the possibility of Nexans reneging on this, because of ABB's failure in its bid to make provision for a sub-contract to Nexans, Mr Jönsson said this:[277]

Q (Mr O'Donoghue, QC)	You had at least five separate contacts with Nexans in the period following [the allocation agreement] and at no stage did they indicate to you that they would bid for BritNed or that they were irritated with you for not subcontracting. You then find out in January 2007 that they are fully loaded and do not have capacity. Are you seriously

[270] Day 6/pp.69-70 (cross-examination of Mr Jönsson); Day 12/p.40 (cross-examination of Mr Biro).
[271] See paragraphs 93 to 94 and 141 above; see also paragraphs 237 to 238 below.
[272] See paragraph 147 above.
[273] See paragraph 141 above.
[274] Jönsson 1/para. 29.
[275] Day 6/p.95 and p.106 (cross-examination of Mr Jönsson).
[276] Day 6/pp.106 (cross-examination of Mr Jönsson).
[277] Day 6/pp.106-108 (cross-examination of Mr Jönsson).

expecting the court to believe that you considered Nexans a credible competitor for the BritNed project?

A (Mr Jönsson) Well, possible contract. I could not rule anything out, because you should also remember at that point in time, when it comes to 2007, Nexans had procured and aligned themselves and had factory resources in Tokyo, in Japan, so – and that plant could at least do oil-filled cables, which has certain similarities to – even if they are not the same. So how Nexans could use that plant, I could not be sure…

…

…it was maybe not likely, but I could not be sure. Therefore, my statement, I stay with my statement.

239. Clearly, it was not impossible that Nexans could tender – notwithstanding the Cartel allocation agreement. The question is how likely ABB would regard that eventuality. Mr Jönsson was pressed on this in cross-examination:[278]

Q (Mr O'Donoghue, QC) I suggest to you, it is at least extremely unlikely, would you agree with that?

A (Mr Jönsson) Yes, but then we are in the view of probabilities.

Q (Marcus Smith J) Well, yes. That is what I was going to ask you, Mr Jönsson, because the question that kicked off this last dialogue was whether Nexans was considered by you to be a credible competitor for the BritNed project and I think your answer was, "Well, it was a possible competitor"?

A (Mr Jönsson) Correct.

Q (Marcus Smith J) So I think, right off, you have been talking about probabilities: so I want to get a feel for where, on the scale of certainty, you considered Nexans to be as a rival bidder?

A (Mr Jönsson) I mean, to answer your question, it would be on the lower half.

Q (Marcus Smith J) Right. I will press you a little on that. Let's talk percentages. 100% is they will definitely bid, and 0% is they definitely won't. Where are we, on that sort of scale, in your subjective view?

A (Mr Jönsson) I have never thought about it from that perspective, of percentage points…as you put the question to be now…10-15%.

240. There is, of course, a spurious and artificial precision to percentages. But I consider Mr Jönsson's answer to be a helpful one as regards his own views regarding the likelihood of a truly competitive Nexans bid: not impossible, but quite unlikely.

[278] Day 6/pp.108-109 (cross-examination of Mr Jönsson).

241. As regards Prysmian, Mr Jönsson's evidence was again that he could not exclude them as a potential bidder, particularly in conjunction with a collaborative bid with Siemens for Lot 3, with Siemens tendering for Lot 1 and Prysmian for Lot 2.[279] Mr Jönsson's evidence was, essentially, that he was cautious when assessing potential competition, and took nothing for granted. He did not accept that Prysmian could be classified as an "unrealistic" competitor,[280] but he did not put the chance of a real bid at much higher than this:[281]

A (Mr Jönsson)	…Therefore, I am always very cautious for taking anything absolutely for granted, and we have always looked on the possibilities that there would be competition and that we needed to act accordingly. So that is my general policy, that goes 20 years back, and has nothing to do with the Cartel, but it is how I look upon it, I never take anything for granted and take it from the point of view that there would be ways for competitors to act.

Mr Jönsson showed a no doubt laudable conservatism in his assessment of the risk of rival bids. However, I do not accept that his assessment was "nothing to do with the Cartel". What Mr Jönsson would have been doing is assessing, given the existence of the Cartel, the risks of genuine competition from another cartelist. As with Nexans, I find that this was a risk, just not a very high one:[282]

Q (Mr O'Donoghue, QC)	Now, you accepted, in relation to Nexans at least, some of the tender team were made aware of the very low probability of them competing.[283] In relation to Prysmian, I would suggest that the tender team were also aware that there was a very low possibility of Prysmian competing. That is what [Mr] Agnevall is saying, isn't it?
A (Mr Jönsson)	Yes, I mean after – with SAIPEI, but the probability is not zero.

242. As with Nexans, I find that Mr Jönsson's view was that Prysmian was unlikely to constitute real competition in relation to the Cables element of the tender.

(iv) Level of competition as regards the Converter element and Lot 3

243. I heard much less evidence in relation to the Converter element of the tender. Mr Pääjärvi did not give evidence, and the parties (quite rightly, given the nature of BritNed's Overcharge Claim) focussed on the Cable (Lot 2) element of the tender, because it was in relation to Lot 2 that the question of the overcharge arose.

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[279] Day 6/pp.111-113, 116, 124-125 (cross-examination of Mr Jönsson).
[280] Day 6/p.124 (cross-examination of Mr Jönsson).
[281] Day 6/p.125 (cross-examination of Mr Jönsson).
[282] Day 6/pp.125-126 (cross-examination of Mr Jönsson).
[283] I do not consider that this question fairly put the evidence that Mr Jönsson gave. I accept that Mr Jönsson's own view was that Nexans were unlikely to submit a competitive bid. But I do not consider that there is cogent evidence to support the proposition that this view was communicated to others in the ABB tender bid team. Nor do I consider Mr Jönsson's answer to this question to amount to more than a statement of his own subjective view.

244. In theory, competition in relation to the Converter element could only affect prices and competition in relation to Lot 1 and Lot 3. Lot 2, being purely concerned with the Cable element, ought to be insulated. However, as demonstrated by ABB's own conduct in relation to Lot 2, it is not possible to regard the Cable and Converter elements as so isolated.

245. The relevance of Lot 1 to potential competition in relation to Lot 2 (and so Lot 3) is not that BritNed overpaid in relation to Lot 1. The evidence before me was such, however, that I can only proceed on the basis that the Cartel did not affect the level of the Siemens bid in relation to Lot 1, even though, had there been greater competition, it is likely that BritNed would have been able to place further legitimate competitive pressure on Siemens.

246. The importance of Lot 1 lies in – as I have described[284] – the commercial pressures it exerted on ABB. I consider that whilst ABB was assured – as it was with the Cable element of the bid – that it was the Cartel's "choice" for this element, unlike with the Cables element of the bid, where Nexans and Prysmian represented the competition,[285] competition in relation to the Converter element might emanate from non-cartelists. That threat of competition was made good by Siemens' participation in the process. I consider that Mr Jönsson would have appreciated that the supply-side for the Converter element of the project was wider than that for the Cable element.

(v) Conclusion

247. In terms of the knowledge that Mr Jönsson (and, inferentially, Mr Pääjärvi) had, I conclude that they appreciated that ABB would have a "clear run" in relation to Lot 2. By this, I mean that they appreciated (because of the fact that effective competition for Lot 2 only emanated from cartelists) that ABB would not face real competition from rival tenderers and that any tenders actually submitted would not be genuinely competitive.

248. That was not quite the case in relation to Lot 1. Here – although Mr Jönsson and Mr Pääjärvi could be assured that ABB was the choice of the Cartel – there was potential for competition from suppliers outside the Cartel. I consider that Mr Jönsson and Mr Pääjärvi would have been aware of this risk of competition at the time the tender process commenced, and their view would have been confirmed by the participation of Siemens in the tender process.

(f) Whether, and if so how, any "useful" knowledge regarding competition could have been deployed within ABB

(i) Introduction

249. I have found that the actual knowledge within ABB of the Cartel was limited. Some persons involved in formulating the ABB bid for the cable part of the contract did not know of the Cartel, whilst others did.

250. The question arises as to whether – and if so how – those aware of the Cartel transmitted their knowledge acquired through the Cartel within ABB so as to derive an advantage. One anterior question is this: was it necessary to transmit this information at all? BritNed

[284] See paragraphs 177 to 181 above.
[285] See paragraph 234 above.

contended that a cartelist would not participate in a cartel without wanting to benefit. I accept that: but the benefit may be the obtaining of work properly tendered for, as opposed to the obtaining of work at an inflated tender price. Given that the Cartel originated as a response to under-capacity, the perceived benefits of the Cartel may simply have been the allocation of work, thereby ensuring work flows were directed as the Cartel wished and minimising costs thrown away through unsuccessful tenders.

251. It seems to me, therefore, that I cannot presume that it was a necessary part of the Cartel to inflate tender prices by directly or indirectly influencing the bid. (As I noted earlier, the questions of baked-in inefficiency and cartel savings I leave for later.)

(ii) Direct influence on the level of the bid

ABB's process and the distinction between direct costs and common costs

252. The process by which ABB's tender was compiled was described in general terms in paragraphs 125 to 136 above. The question I consider here is the extent to which it would be possible directly to influence – in an upward direction – the level of ABB's bid.

253. For the purposes of analysis, it is necessary to differentiate between those costs which ABB considered to be directly attributable to the supply of a specific project (or part of a specific project – like the Cable element of the BritNed Interconnector) and all other costs incurred by ABB in the course of its business. This, as will be seen, represents a distinction drawn by Mr Biro as part of his analysis.[286] I shall refer to the former type of costs as "direct costs" and the second type as "common costs".[287] It is clear from Mr Larsson-Hoffstein's evidence regarding the production of costings during the "technical" stage of ABB's tender process that this distinction between direct costs and common costs is one that informed ABB's processes.[288]

254. I consider the question of the direct influence on the level of ABB's bid for the Cable element of the BritNed Interconnector in the following way:

(1) First, I consider the integrity of Mr Larsson-Hoffstein's assessment of direct costs, and the extent to which these could be inflated.

(2) Secondly, I consider the extent to which common costs could be inflated. That involves consideration of, in particular, the margin that was allocated in relation to the common costs of ABB – referred to as the sales, general and administrative (or "SGA") costs. These costs warrant greater examination, because they are inherently more subjective and less closely tied to the specific costs of a specific project.

I stress that I am simply seeking to gauge the extent to which ABB's internal processes could be affected by the Cartel. It is a further question – to which I will come – whether any inflation of price could survive negotiation with BritNed.

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[286] See Biro 1/paras. 3.3.7*ff*.
[287] I am aware that both of these terms have specific technical meanings: but I should be clear that I use these labels only in the sense defined in this paragraph.
[288] See paragraphs 126 to 135 above.

Influencing the level of direct costs

255. Mr Jönsson denied seeking to influence the amount of the BritNed bid. Mr Jönsson's evidence was that Mr Larsson-Hoffstein's process for costing would not be affected by the Cartel:[289]

Q (Mr O'Donoghue, QC)	[In Jönsson 1/para. 18] you say that "…Larsson-Hoffstein was experienced in pricing large submarine power cables projects, as he had been involved in the pricing of Gjøa and Estlink, two other large submarine cables projects." Now, first question: both of these projects were cartelised, weren't they?
A (Mr Jönsson)	Gjøa, to the extent that I got that information that Nexans was loaded or that they would not bid, as has been informed. This is correct.
Q (Mr O'Donoghue, QC)	So, Larsson-Hoffstein, if he was basing his pricing for BritNed on these two projects, or his experience in these two projects, would have been pricing in the Cartel effect, wouldn't he?
A (Mr Jönsson)	No. Let's be clear, from what you have been alluding to, we have discussed as well, the pricing structure, the whole way that things were done with material costs, production times, machine hours, engineering costs, the various components that you also have seen – I think it has been given to the court in fairly great detail – was never tampered with. That was running and that was even audited generally. So when Mr Larsson-Hoffstein was pricing the cable projects, he would run it perfectly, through those computerised calculation points, and they would come out what they were, and there were no changes to that… …That goes for Gjøa, it goes for Estlink and all the others. This was something important also for me, we never changed those things…

256. Unsurprisingly, given my view of Mr Jönsson's evidence and – most importantly, the fact that he admitted influencing other bids (so that ABB lost these) – I treat this denial with a degree of scepticism. In other cases, Mr Jönsson admitted he had been able to affect ABB's prices in specific bids for reasons that were not competition, but Cartel, related. Mr Jönsson admitted he caused ABB's prices to be adjusted upwards, so as to ensure that ABB did not get work:[290]

> "15. From March 2004, when I became head of the Karlskrona factory, the individuals from the factory who were aware of the power cables cartel and who helped me implement cartel arrangements were Mr Lars G. Carlsson (Project Manager/Marketing Manager) and Mr

[289] Day 7/pp.78-79.
[290] Jönsson 3. See also Day 5/pp.64*ff* and Day 7/pp.47-48, 66-68 (cross-examination of Mr Jönsson).

Håkan Agnevall (Marketing & Sales Manager for AC cables from September 2003 to January 2007).

16. Mr Carlsson was aware of the cartel before I became head of the Karlskrona factory. I do not recall how or when Mr Agnevall became aware of the cartel.

17. Even where I was involved in, or aware of, allocation discussions in respect of certain power cable projects, I did not always need to provide instructions to other individuals within ABB to ensure the cartel allocation was adhered to. This could be, for example, because ABB did not in any event have the technical capability for the project concerned or was not invited to bid.

18. When I did instruct other individuals to help implement the cartel arrangements, I nearly always did this in person, rather than by email.

19. I gave instructions to Mr Carlsson and Mr Agnevall on a small number of occasions as they were involved in the preparation of tenders for large projects. If I was concerned that ABB would submit a bid for a project that risked disrupting the cartel allocation, I would advise Mr Carlsson or Mr Agnevall to adjust the tender response in some way, for example by altering the commercial terms, that would have the effect of making it less attractive to the customer. For the avoidance of doubt, I did not give any instructions about the BritNed project in connection with the implementation of the cartel."

Mr Jönsson was able, when necessary, to ensure that ABB's bids on projects not allocated to it by the Cartel were "cover bids" not intended to win the tender.[291]

257. The question is whether the converse also pertained: was ABB able to inflate bid prices in order to increase its profit in relation to projects that were allocated to it? It was Mr Jönsson's evidence that there was no explicit increase of ABB's prices of the sort described by him in relation to tenders ABB was concerned to lose.[292] In other words, the benefit ABB derived from the Cartel was not business at a deliberately inflated price but simply business that it would not otherwise have got.

258. As I have said, I treat Mr Jönsson's evidence on this point with a degree of scepticism. Mr Jönsson's evidence was, however, confirmed by Mr Larsson-Hoffstein, at least so far as the BritNed Interconnector was concerned. Mr Larsson-Hoffstein's evidence was as follows:

(1) His costings process was "self-standing". It was not based on work done in relation to previous tenders or bids. The fact, therefore, that Mr Larsson-Hoffstein had been involved in pricing cartelised bids, which ABB was keen not to succeed on, would not affect the direct costs incorporated into the BritNed bid. As regards the compilation of the costings, Mr Larsson-Hoffstein stated that "[t]his did not involve starting with the pricing of any other project, but instead involved looking at the cost of each element of the project (e.g. conductors, insulation, and raw material prices) and putting together a costing on that basis.[293] I accept this evidence, so far as direct costs are concerned.

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[291] Day 7/pp.56, 62-63, 67-68 (cross-examination of Mr Jönsson).
[292] See the lengthy cross-examination on this point at Day 7/pp.71*ff* (cross-examination of Mr Jönsson).
[293] Larsson-Hoffstein 1/para. 62.

(2) Mr Larsson-Hoffstein's process was not altered by Mr Jönsson (or, for that matter, anyone else). Mr Larsson-Hoffstein said:[294]

> "I ran my proposed price past my managers within ABB at this time, including Hans-Åke Jönsson, but no alterations were made to those figures. Similarly, no adjustments were made to my figures as a result of the risk review process for the project."

(3) Mr Jönsson's general instruction to Mr Larsson-Hoffstein was to keep the bid price down:[295]

> "From the very outset of pricing the BritNed project, the only instruction I was given from the management in the ABB Karlskrona factory (including Hans-Åke Jönsson) was to push the price and costs for the project down as far as they could go."

Again, so far as direct costs are concerned, I accept this evidence.

(4) This conclusion is borne out by an analysis of the PPMs that were produced by ABB in relation to the BritNed project over time, up to the first tender submission:[296]

[294] Larsson-Hoffstein 1/para. 6.
[295] Larsson-Hoffstein 1/para. 72.
[296] A list of the bid prices set out in the various PPMs was produced, during the course of the trial, at my request: Day 10/p.18. As will be seen, Dr Jenkins and Mr Biro looked at the price set out in the PPM closest to the date on which the contract between BritNed and ABB was concluded. My request focussed on the PPMs leading up to this date, concluding with the submission of ABB's phase 1 bid (see paragraph 148 above).

Date	Event	Lot	PPM bid price
9 or 10 May 2006	Meeting between Mr. Jönsson and Mr. Romand.[297]		
15 May 2006	"PPM 1"[298]	Lot 3	€310,056,062
18 May 2006	"PPM 2"	Lot 3	€310,056,062
18 May 2006	"PPM 3"	Lot 3	€310,056,062
20 May 2006	Business Unit risk review[299]		
23 May 2006	Division risk review[300]		
30 May 2006	"PPM 4"	Lot 3	€276,072,970
6 Jun 2006	"PPM 5"	Lot 3	€272,772,255
15 Jun 2006	"PPM 6"	Lot 3	€283,184,087
16 Jun 2006	"PPM 7"	Lot 2	€188,808,653
16 Jun 2006	"PPM 8"	Lot 3	€274,000,000
16 Jun 2006	ABB submits its Phase 1 bid[301]		

Table 2: ABB bid prices as evidenced by PPMs.

On the whole, as can be seen, the trend is downward. Significantly, to my mind, the risk reviews resulted in a decrease in the bid price, in particular after the risk reviews in May 2006. Although Mr Larsson-Hoffstein very fairly accepted that it was "possible" for those knowing of the Cartel to cause increases in the bid price at the risk review stage,[302] there is no suggestion that this in fact occurred. I reject the contention that the risk reviews were used to increase the level of the bid price for the BritNed project as being inconsistent with the evidence before me.

259. I consider that the direct costs recorded in the PPMs represent an honestly and competently compiled statement of those costs, and that they were not inflated by the direct influence of Mr Jönsson or (for that matter) anyone else within ABB. I reach this conclusion essentially because I considered Mr Larsson-Hoffstein to be not only a transparently honest witness, but also an extremely competent compiler of the costs of the Cable element of the ABB tender. I do not consider that he would have allowed that process to be distorted and that if he had been required to include within the Cable element of the tender a cost that he did not consider to be justified, he would have told the court. Mr Larsson-Hoffstein was not cross-examined, in any detail, on exactly how he had compiled the BritNed tender. The bulk of his evidence was given in response to questions from me, set out in paragraph 132 above.

260. I find that Mr Larsson-Hoffstein's pricing of the direct costs of the BritNed Interconnector Cable bid were unaffected by the Cartel. They were properly calculated, competitive, costs. I also consider that any margin added by Mr Larsson-Hoffstein to represent risks relating to the project specifically (i.e. to the direct costs being

[297] See paragraph 141 above.
[298] I should say that these are my designations of the PPMs identified pursuant to my request. I should also say that no assurance was given as to the completeness of this list: these were the PPMs identified from the disclosure.
[299] See paragraph 133 above.
[300] See paragraph 133 above.
[301] See paragraph 148 above.
[302] Day 8/p.101 (cross-examination of Mr Larsson-Hoffstein).

underestimates or to contingencies regarding direct costs) were properly added and were not inflated.

261. To an extent, I am fortified in this conclusion by the fact that Mr Biro reviewed the costs set out in the PPMs and considered them sufficiently robust to base his analysis on them. Again, I am satisfied that had he identified any anomalies, he would have drawn these to the court's attention. However, I should say that I place only limited weight on the endorsement of Mr Biro. That is because Mr Biro gave evidence as an expert economist and did not hold himself out as having any expertise in relation to submarine cable projects like the Interconnector nor, indeed, any expertise in cable projects generally. Thus, whilst Mr Biro would no doubt be adept at spotting accounting anomalies in the PPMs, I doubt very much whether he would have been able to spot the illicit inflation of a direct cost for dubious and not well-founded technical reasons.

262. The same, of course, goes for Dr Jenkins. Like Mr Biro, Dr Jenkins was a formidable economist, but that was the limit of her expertise. Dr Jenkins did not consider the PPMs sufficiently reliable and relied on them as little as possible for the purposes of her analysis. In her first report, she set out her concerns regarding ABB's reported costs.[303] Whilst I accept that the internal workings and costings of ABB were unsurprisingly complex and no doubt difficult to follow, I do not regard the points raised by Dr Jenkins as supporting a suggestion that the direct costs in the PPMs were inflated by reason of the direct influence of those knowing of the Cartel. In cross-examination, Dr Jenkins said this:[304]

> "The difficulty with the PPMs that have been supplied by ABB is that it is very difficult to do any of that checking and sense-checking – certainly for myself, with no access to ABB itself – other than through written questions. And I think in the teach-in I did point out a few of those situations where some of the cells in these PPMs just look quite unusual. They are not the sort of thing you would expect to see. Now, as you rightly say, perhaps there is a very good reason for that. But it is very hard to glean that information in this process, and there are very, very many cells in these spreadsheets. So the ability for there to be issues with those and aspects that may not be reflective of true costs is quite high in my view and that is why I was not keen to rely on them."

263. This was explored further in cross-examination:[305]

Q (Mr Hoskins, QC)	What, then, is the actual issue you are concerned with? Are you suggesting the figures in the PPM may simply be false figures, put in to justify an increase in price? Is that what we are actually talking about, is that your concern, that it is a deliberate fixing of the figures because of the Cartel?
A (Dr Jenkins)	I don't know what the meaning of deliberate is, in that sense, in that does – I think the people who are putting those price schedules together may feel they are doing the right thing, they may be following guidance that they have been given.

[303] See Jenkins 1/Annex A3.
[304] Day 9/pp.114-115 (cross-examination of Dr Jenkins).
[305] Day 9/pp.115-116 (cross-examination of Dr Jenkins).

> I think one of the aspects that I pointed out in the teach-in, which was the copper cost, and subsequent to that there has been disclosure around that cell and what underlies it, and it was stated that there is good evidence of where that copper cost comes from, even when the document that is then disclosed doesn't actually match the numbers in that PPM and that document shows that in that copper cost, which has been described as a raw material cost, there are overhead elements included inside that cost.
>
> Now, an employee might feel that they are following the rules about how do we measure what costs of copper or other materials are, but is that actually a good reflection of in a competitive environment if they had gone out and procured copper and just said "This is the amount of copper it is"? That is the bit that is quite hard to see, and I think in the Cartel I do think there would be incentives on the business to ensure that when they present their final results, whether that is internally or potentially to the customer, that they have – it is much easier to say, "Here are all the different costs that have been incurred", including in the case of these PPMs a lot of risk elements, and therefore those costs are affected by the fact that it is during the Cartel and they are a way in which to increase the overall price of the project.

264. BritNed did identify two specific elements in the direct costs which, it was contended, were indicative of Cartel inflation in the case of the BritNed project. One of these related to the cost of the copper recorded in the PPMs. The other related to the cost of the construction all-risk ("CAR") insurance used by ABB in the tender. In neither case do I consider that these costs made good BritNed's contention that the direct costs as recorded in the PPMs were inflated:

(1) *Inflated cost of copper.* As to this:

(a) As Dr Jenkins indicated in the teach-in, the BritNed PPM recorded a cost for copper that was above the price of copper on the open market. The price in the PPM appeared to contain an (unexplained) overhead cost. Mr Larsson-Hoffstein was not asked about this. This may be because the point only surfaced during the course of the teach-in, resulting in subsequent inter-solicitor correspondence, initiated by BritNed's solicitors, during the course of which the point was further explored.

(b) The point was, however, put to Mr Biro (at some length) during the course of his cross-examination.[306] Mr Biro, perfectly understandably, felt unable to provide a granular explanation as to how specific numbers were put together by the ABB engineers at the time.[307] It was put to Mr Biro that the figure recorded in the PPM was 20.26% higher than the market price for

[306] Day 12/pp.135*ff* (cross-examination of Mr Biro); Day 13/pp.5*ff* (cross-examination of Mr Biro).
[307] Day 12/pp.164-165 (cross-examination of Mr Biro).

that quantity of copper,[308] and that there was no explanation for this increase. The inference was that this inflation of cost was Cartel induced.

(c) Unsurprisingly, this caused ABB's solicitors to look into the matter rather more closely. In the end, a convincing explanation of the reason was given by Mr Hoskins, QC, during the course of oral closing submissions (Day 15/pp.46*ff*).[309] This comprehensively explained the anomaly. Since Mr Hoskins, QC had provided an explanation of a matter of fact on instructions (albeit that the documents Mr Hoskins, QC showed me were very convincing in indicating how the copper cost had been compiled), I requested that the point be evidenced by a further statement from Mr Larsson-Hoffstein, which resulted in Larsson-Hoffstein 2.

(d) In short, there was nothing in the point. Indeed, this delving into the detail of the PPMs rather underlined their essential reliability, at least so far as direct costs were concerned.

(e) In a note dated 24 May 2018 submitted by counsel for BritNed, certain criticisms were made of ABB as to how the evidence on this point, culminating in Larsson-Hoffstein 2, had emerged. Nothing in this note undermined or caused me to alter the conclusion expressed in paragraph 264(1)(d) above. I do not regard the criticisms of the late-emergence of this evidence as well-founded. Of course, points can emerge late at trial, and have to be dealt with. However, in this case, the point began life as an example, from Dr Jenkins, as to how difficult it was to follow certain entries in the PPMs. As the matter was delved into further, it appeared to become a matter of altogether greater moment, and BritNed chose to pursue the point. ABB were entitled to respond and it seemed to me in all the circumstances appropriate to admit Larsson-Hoffstein 2 into evidence. The fact is that the sort of point that BritNed was seeking to make through Dr Jenkins and through the cross-examination of Mr Biro really needed to be made by an expert in cable costs called by BritNed, on which Mr Larsson-Hoffstein could then have been cross-examined. There is no reason why, had an application been made sufficiently before trial, such expert evidence could not have been adduced. In short, the reason I admitted Larsson-Hoffstein 2 – and, indeed, permitted Mr Hoskins QC to explain the position in closing – is because the point was raised by BritNed so late in the day.

(2) *Inflated cost of CAR insurance*. As to this:

(a) The contract between BritNed and ABB identified certain sums in the contract price as "provisional", which rendered the pricing of such cost items adjustable in light of their subsequent actual cost.[310] In such cases, the price payable by BritNed would reflect the true cost, and not the provisional cost recorded in the contract and in the anterior bidding documentation.

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[308] Day 13/pp.10-11 (cross-examination of Mr Biro).
[309] Day 15/pp.46*ff*.
[310] See the definition of "Provisional Sums" in the contract; clause 19.5; and clause 2.2.3 in Exhibit 3B to the contract.

(b) Both the CAR insurance and the copper referred to above were provisional items in this sense. Given this fact, it is difficult to see how an overstatement of cost in relation to such items could benefit ABB. Increasing such provisional costs would only serve to make ABB's costs look high, without any overcharge actually being received by ABB. In short, it seems to me highly doubtful that any overcharge in relation to the CAR insurance was attributable to the Cartel.

(c) The provisional sum for the CAR insurance was 10% of the project price.[311] The actual premium was considerably less, at 4.158%.[312] This was relied upon, by BritNed, as evidence of overstatement of costs by ABB.[313] I do not accept this. The whole point of provisional sums is that they are uncertain and they are adjusted in light of the actual prices. I can see no reason why a cartelist, seeking to benefit for the Cartel, would inflate such costs.[314]

265. In conclusion, I find that BritNed's attacks on the reliability of the direct costs recorded in the PPMs to be misconceived.

Influencing the level of common costs

266. Mr Larsson-Hoffstein accepted that it was possible for others involved in the process to influence margins.[315] He did not accept that this had in fact happened, and I do not consider that it did happen so far as direct costs are concerned. I consider that margins added to direct costs, including contingencies for risks relating to the Interconnector project, would properly have been added by Mr Larsson-Hoffstein.

267. However, the potential for inflation in relation to ABB's common costs is less easily dismissed. Such costs were described by ABB as "selling, general and administrative costs" or "SGA" costs.

268. In her first report, Dr Jenkins analysed the SGA mark-up on production cost (which she set out in a figure) and said this:[316]

"3.35 As shown in the figure, SGA allocation is not consistent across projects or over time. The SGA mark-up is quite volatile during the Cartel period, and increases markedly for the later cartelised projects. More importantly, the SGA mark-up falls once the Cartel collapses.

3.36 The figure above provides indicative evidence that cost reporting differed during and after the Cartel period. It might be the case that the Selling, General and Administrative

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[311] Day 9/p.129 (cross-examination of Dr Jenkins).
[312] Day 9/p.130 (cross-examination of Dr Jenkins).
[313] See Issue 15 of the Joint Statement (Dr Jenkins). Mr Biro disagreed.
[314] In a post-contract settlement between BritNed and ABB, various matters in dispute were resolved. One of the consequences of this settlement was that ABB retained the difference between the provisional and the actual CAR insurance premium. It was not suggested by BritNed that this was ABB's plan all along, and the evidence did not support such a suggestion. Accordingly, the fact that a provisional sum was dealt with differently than as envisaged by the contract originally concluded between the parties is nothing to the point.
[315] Day 8/p.93 (cross-examination of Mr Larsson-Hoffstein): "There is a risk that the people who decided what margins there should be in the project, if they were aware of the Cartel, they could decide on different margins".
[316] Jenkins 1/Annex A3.

> divisions at ABB were less efficient as a result of the Cartel, leading to inflated costs and a higher SGA mark-up…"

269. In the Joint Statement, Dr Jenkins' response to Issue 16 – "There is evidence that ABB's "SGA" costs were higher during the Cartel period" – was as follows:

> "There is evidence that cost reporting differed during and after the Cartel period…It might be the case that the Selling, General and Administrative divisions at ABB were less efficient as a result of the Cartel, leading to inflated costs and a higher SGA mark-up…"

270. Dr Jenkins very fairly put the issue no higher than this: that it was possible that the SGA costs were affected by the Cartel, either deliberately, indirectly or simply because of (for example) baked-in inefficiencies or cartel savings.

271. The point was put to Mr Jönsson in cross-examination. Mr Jönsson was quite prepared to describe in general terms how ABB would have calculated its SGA costs:[317]

Q (Mr O'Donoghue, QC)	Can you explain how ABB would have calculated its selling, general and administrative costs for a project, the SG&A?
A (Mr Jönsson)	Normally, we would assign a certain percentage point to the SG&A as part of our budget process for the overall organisation at the year-end, as part of the budget, and then we would assign a certain percentage point that would be used. That could then be adjusted in some specific cases in discussion with senior management.
Q (Mr O'Donoghue, QC)	So, just to get this straight, was it a specific calculation made in each case or did you start with the general position and then that could be adjusted in an individual case?
A (Mr Jönsson)	The latter.

Mr Jönsson was not, however, prepared to comment on Dr Jenkins' analysis,[318] which was – as all eventually agreed – really a matter of expert evidence.[319]

272. I come to the question of indirect influence on price, baked-in inefficiencies and cartel savings in due course. Here I consider the possibility that SGA costs were inflated by direct influence so that ABB recovered more than its costs because of the Cartel. I consider that I cannot – on the basis of the factual evidence – exclude that possibility. Indeed, I note that Mr Biro accepts the possibility, but seeks to control for it in his analysis.[320] For the present, that is my finding in relation to SGA, or common, costs: that they could have been deliberately inflated within ABB. The extent of any such possible inflation (which will involve consideration of other matters, notably the competitive

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[317] Day 7/p.120 (cross-examination of Mr Jönsson). See also Day 7/pp.128-129 (cross-examination of Mr Jönsson).
[318] See Day 7/pp.120*ff* (cross-examination of Mr Jönsson).
[319] Day 7/p.123 (cross-examination of Mr Jönsson).
[320] See Mr Biro's response in the Joint Report/Issue 16.

relation between ABB and BritNed) is a matter this is considered further in Section I below.

(iii) Indirect influence on the level of the bid

273. Although it is difficult to differentiate between baked-in inefficiencies and an indirect influence on the bid level, I nevertheless consider that such a distinction is worth drawing. Indirect influence, causing a bid to inflate, was well-described by Dr Jenkins:[321]

> "Indeed, that individuals who may themselves not know officially about the Cartel, but if they operate in an environment where there is actually not very much competitive pressure and therefore a process has grown up whereby you add 10% into a lot of your material costs, if you then face competition you discover you can't continue to sustain that.
>
> Now, if you ask that person, they say, "We are just following standard practice, and this is how we price things, there is a 10% overhead on all these costs", it doesn't mean it is a good measure of the counterfactual competitive costs that would have been observed absent the Cartel."

274. There would, in my judgment, be a number of such influences operating within ABB.

Communication of market capacities

275. Inevitably, within ABB, perfectly innocent conversations would have gone on as to which of ABB's rivals was bidding, for what, and at what prices. It would be very surprising if that did not occur.

276. It would be very easy for someone in the position of Mr Jönsson, knowing of the Cartel, to feed into such conversations information derived illegitimately from his participation in the Cartel.

277. In his evidence, Mr Jönsson was not very forthcoming about this, partly because (as I have found) he was careful not to admit matters not clearly found by the European Commission in its Decision, but also because such exchanges would not necessarily be easy to remember:[322]

Q (Mr O'Donoghue, QC)	…But are you seriously suggesting that recognising that there was zero or a low probability of Nexans and Prysmian competing, that when the tender team came to you and said, do we have competition, you sat there and said nothing? Do you really expect the court to believe that?
A (Mr Jönsson)	No, I don't think they came to me and asked this question at all. But what I remember when we discussed was that they felt that they had competition. I didn't question that because I didn't have such information – as I said, I would not agree that the probability for Prysmian was zero…

I accept that it would be most unlikely for persons innocent of the Cartel within ABB to ask Mr Jönsson point blank whether they had competition. That would imply guilty

[321] Day 9/p.117 (cross-examination of Dr Jenkins).
[322] Day 6/p.129 (cross-examination of Mr Jönsson).

knowledge on their part, which I have found not to exist. Equally, Mr Jönsson would be most unlikely to volunteer information that would show such guilty knowledge.

278. The conversations would have been much vaguer than this, and their effect difficult to judge. But I find that they would have taken place. One example concerns the low probability of Nexans bidding:[323]

Q (Mr O'Donoghue, QC)	But this extremely low probability of Nexans' bidding, you obviously made that known to the people involved in the bid within ABB, right?
A (Mr Jönsson)	Exactly how I did that make known, I must say I don't remember. There is probably some evidence here how – that I did something. I cannot remember it, sitting here.
Q (Mr O'Donoghue, QC)	Do you deny making it known?
A (Mr Jönsson)	No, the fact is that Nexans' factory, as it was before any extension of capacities, was smaller than ours, so that was well known. So, in that sense, it was known. But to – yes, this is what I can say.

Affecting the commercial approach of ABB

279. For reasons that I have discussed, it would not be possible for Mr Jönsson to explain to an ABB officer innocent of the Cartel that ABB's commercial approach could be more relaxed as regards costs because of the Cartel. I do not consider that such things would have been said overtly and explicitly. But I do consider that it would be possible for someone in the position of Mr Jönsson to affect the general approach ABB might take to a bid – to affect the "mood music" as it were, that would inform ABB's commercial approach.

280. It was suggested that one way of ensuring that a bid was higher or "fatter" than it might be was by ABB explaining (if only internally), in advance of any bid, why that bid might be "high". An example of this is an internal email within ABB which read as follows:

> "At our last HVDC meeting, Hans-Ake and I concluded it would be good that we both pay a visit to Mel Kroon (and possibly Lex Hartman). Each time I meet Mel Kroon he makes clear to me he is worried not to get competitive prices from ABB (factory full…). We believe we should create clarity around that issue now (in neutral time and proactively). I learned from Hans-Ake that it is anyhow to be expected that due to material price increases and a more sound cable market situation vs the days that NorNed was signed (nineties) the BritNed price could be some 20% higher versus the NorNed. The day Mel would hear from this, if we do not prepare that message upfront, he will definitely conclude: ABB are crooks! We want to avoid this."

281. This is a communication capable of a perfectly innocent reading. ABB was concerned that its prices for BritNed might appear too high and was proposing proactive steps to ensure that the (potential) client's expectations were managed so that, when figures were put forward, ABB was not regarded as a "crook". Yet the obvious effect within ABB would be to convey a sense that senior management within ABB were relaxed about a

[323] Day 6/p.109 (cross-examination of Mr Jönsson).

high bid.[324] Inevitably, this would have an effect on how the tender team approached costs.

282. Another instance is when ABB was called by TenneT, complaining that:

"TenneT experiences ABB as too arrogant with its pricing of the cable of

- BritNed – 70% price increase in comparison with NorNed
- NorNed 10km additional cable – 100% price increase in comparison with NorNed"

283. I take TenneT's complaints about pricing with a pinch of salt. TenneT's statements cannot, in my judgment, be regarded as an objective assessment of the situation. They were part of the bargaining process. ABB would have appreciated this. However, the reaction within ABB will have set the agenda for the tender team. Mr Jönsson's response, disseminated within ABB, was that the comparisons made by TenneT were unsustainable. He concluded:[325]

"I have personally reviewed the pricing in both cases and these have been reviewed all the way up to CEO level (BritNed case). A key aspect in this review has been to have prices that are defensible and correct and should not be possible to label as arrogant."

Here, therefore, we have the man in charge of the Cable element of the bid, aware of the Cartel and of the fact that ABB has an advantage in relation to the BritNed contract because of the Cartel, telling his team that the bid is not arrogant, but realistic. Leaving entirely on one side the question of whether the tender was inflated, if it was, then it was certainly not being challenged by a sense of competitive pressure coming from within ABB.

(g) Conclusions

284. In terms of the effect that the Cartel had on ABB's business practices so far as the Cable element of the BritNed Interconnector was concerned, I have reached the following conclusions:

(1) There were officers, within ABB, who knew of the Cartel and who were involved in the tender for the Interconnector. They were in a position to influence ABB's conduct, using their knowledge that ABB had been "allocated" the BritNed Interconnector. Although there were others who knew about the Cartel, I find that only one such officer was involved in the BritNed Interconnector tender such as to be able to influence it. That was Mr Jönsson. So far as Mr Pääjärvi is concerned, I have (for the reasons I have given) assumed that he was – in terms of knowledge – in the same position as Mr Jönsson.[326]

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[324] The point was put, in cross-examination, to Mr Jönsson, who denied it: Day 6/pp.134-140 (cross-examination of Mr Jönsson).

[325] Mr Jönsson was cross-examined on this document: Day 6/pp.142*ff*. He did not accept the proposition that the BritNed bid was inflated, but that is not the point. The point is that he defended the level of the bid, appreciating that the contract had been "allocated" to ABB by the Cartel. His response, therefore, must have been informed by this fact.

[326] See Section G(4)(d) above.

(2) The relevant knowledge of Mr Jönsson and Mr Pääjärvi was, in essence, that whilst competition for the Cable element could not be entirely excluded, the main competitors (for the Cable element) were Nexans and Prysmian, who were both cartelists and who had both acceded in the BritNed Interconnector being "allocated" to ABB. The position so far as the Converter element was concerned was different in one material respect: there were potential non-Cartel competitors, who could be expected to tender and to tender competitively.[327]

(3) Apart from Mr Jönsson and Mr Pääjärvi, the other persons involved in the tender were ignorant of the Cartel and ignorant of the fact that the BritNed Interconnector had been "allocated" to ABB. I find that these persons – who sat both above and below Mr Jönsson and Mr Pääjärvi within ABB's organisation – would have approached the tender on the basis that ABB was in proper competition for the Interconnector and that ABB would lose the tender if its bid was uncompetitive. The question therefore arises as to the extent to which Mr Jönsson and Mr Pääjärvi could deploy their knowledge that this was not in fact the case to cause ABB's bid to be inflated. As to this:

(a) Because the compilation of the detail of ABB's tender for the Cable element was in the hands of others – like Mr Larsson-Hoffstein – I do not consider that Mr Jönsson and Mr Pääjärvi had the ability directly to influence the level of direct costs within the Cable element of ABB's bid for the Interconnector.

(b) As regards the level of common costs within the Cable element of ABB's bid for the Interconnector, because of the rather subjective nature of these costs, and because Mr Larsson-Hoffstein and his team were less directly involved in the allocation of such costs to the Interconnector tender, I consider that Mr Jönsson and Mr Pääjärvi had the potential to affect ABB's internal processes so that the tender price, so far as common costs were concerned, was inflated. The question of whether they in fact did so is a question that I will have to return to, in Section I, after I have described the analysis of the expert economists.

(c) So far as indirect influence over the tender was concerned, I find that there was the potential for such influence within ABB. In terms of its effect, this is a matter that must be considered in the round, in Section I, after I have described the analysis of the expert economists.[328]

I have not yet considered the issues of baked-in inefficiency and cartel savings.

H. THE EXPERTS' ANALYSIS

(1) Introduction

285. The experts adopted very different approaches in terms of how they sought to analyse the effect of the Cartel and the overcharge that BritNed contended the Cartel had caused. It is necessary, first, to state the approaches of Dr Jenkins and Mr Biro, as well as their

[327] See Section G(4)(e) above.
[328] See Section G(4)(f) above.

findings, in as neutral a way as possible. This is done is Section H(2) in the case of Dr Jenkins and in Section H(3) in the case of Mr Biro.

286. Having articulated the different approaches of the experts, I then proceed to consider them more critically. The experts reached divergent views as to the amount of the overcharge. Dr Jenkins concluded that the overcharge was in excess of 20%: her precise estimates varied as Dr Jenkins refined her analysis during the course of exchange of expert reports and the compilation of the Joint Statement. Mr Biro put the overcharge at nil.

287. It goes without saying that it will be necessary to understand why this divergence has arisen, and whose assessment is the more reliable. This critical evaluation is undertaken in Section H(4).

(2) The approach of Dr Jenkins

(a) A summary of Dr Jenkins' approach

288. Dr Jenkins' general approach was described by her in her first report. Her expectation was that the Cartel would lead to higher prices, when compared with the competitive counterfactual.[329] She tested this expectation in the following way:[330]

> "I test this expectation by analysing and estimating the size of the cartel overcharge using information on the prices ABB agreed with its customers at the point of the tender award for disclosed cable projects supplied in the period 2001 to 2016. My preferred approach to estimate the overcharge is a during-and-after price regression. This uses the pricing of post-cartel cable projects (i.e. projects "after" the cartel period) as the benchmark for the competitive counterfactual price, while controlling for factors that affect the price of projects, and which differ between projects and over time."

289. Thus, Dr Jenkins was comparing the price of projects during the Cartel with the price of projects after the Cartel. The former were presumed by Dr Jenkins (although, as will be seen, Dr Jenkins tested for this) to be affected by the Cartel, such that their pricing was higher than it would be absent the Cartel. The latter were presumed to be competitive prices.[331]

290. Dr Jenkins' analysis proceeded through the following stages:

(1) *Identification of a sample dataset.* Plainly, it is necessary – as a starting point – to identify a dataset of "during" and "after" projects that can be the subject of the analysis. This dataset must:

(a) Be sufficiently large so as to enable a robust statistical analysis. Self-evidently, the larger the sample, the less likely it is that an outlier will distort the analysis.

(b) Be sufficiently homogenous so as to enable meaningful analysis. Again, self-evidently, if the dataset comprises projects which simply cannot

[329] Jenkins 1/para. 3.2.
[330] Jenkins 1/para. 3.3.
[331] Subject to a proviso entered by both experts, that the effect of the Cartel might linger into the post-Cartel period.

sensibly be compared, i.e. their differences cannot be adjusted for, then including such projects within the dataset will distort the analysis. There is a very close relationship between this aspect and the next stage in the analysis, which I shall call (Dr Jenkins did not use the word) "normalisation".

(2) *Normalisation.* Even assuming a sufficient and sufficiently homogenous dataset, it is the nature of underground and submarine projects not to be fungible but distinct. If, to take an extreme example, the projects in question were identical, any overcharge would be easy (or easier) to detect. But, as has been seen, there is in fact a considerable difference between underground and submarine cable projects[332] and submarine cable projects are each bespoke.[333] Thus, before any price comparison can be undertaken, it is necessary to control for the factors that will – apart from the effect of the Cartel – cause the price of any given project to vary. These factors are, as it were, the "legitimate" factors that would cause a competitive price to vary. This process of normalisation essentially seeks to account for factors that will cause the price of a project legitimately to change. As noted, there is a close relationship between normalisation and a sufficiently homogenous dataset. If a given type of project cannot be "normalised", then it is insufficiently homogenous to be included in the dataset. Of course, whether this is the case is itself an exceedingly difficult question, and one on which the experts before me differed.

(3) *Ascertaining the price and other project specific data for each project in the dataset.* Self-evidently, the price for and other data relating to each project included in the analysis needs to be ascertained. Again, there is a relationship between the data that is available and the normalisation that can be undertaken in relation to that data. To be clear, the analyst can only work with the data he or she is given and inevitably the nature of that data affects the nature of the analysis.

(4) *Regression analysis.* Having ascertained *(i)* the relevant dataset, *(ii)* the information relating to each project comprising the dataset and *(iii)* the factors that will affect the price of a cable project, it is possible to conduct what is known as a regression analysis. In Dr Jenkins' words:[334]

> "3.88 To estimate the effect of the cartel on the prices of cable projects, I use my sample of comparable projects with information on the relevant factors…to control for measurable and systematic differences between them. Using my regression analysis. I identify the relationships between the price of a project and other factors that have influenced the project price.
>
> 3.89 The analysis I have undertaken uses a common and widely accepted form of regression analysis: ordinary least squares ("OLS"). OLS identifies a "line of best fit", which minimises the difference between the actual observed values of the relevant cable projects and the values predicted by the regression…
>
> 3.90 While differences do exist between power cable projects, these differences affect the overall price in a systematic way. I consider that a reliable estimate of the

[332] See Section E above.
[333] See paragraph 100(2) above.
[334] Jenkins 1.

> overcharge in this case can be identified by applying regression analysis that controls for the differences across projects and includes an indicator variable for whether the project was procured during the cartel period. The coefficient on the indicator variable gives the overcharge estimate."

Regression analysis involves specifying a model using specifically formulated variables based on the material described in paragraphs 290(1) to (3) above, inputting the variables and the data into a standard piece of software (known as "Stata", which was used by both experts[335]) and producing as an output various correlation coefficients, including a coefficient indicating that the Cartel had an effect on prices.

If – as Dr Jenkins sought to do – a regression model is designed to explain price levels, but it also includes in the model variables representing other supply and demand factors, along with a variable that captures the illegal behaviour alleged in the case, the coefficient associated with that behaviour variable then provides an estimate of the impact of the alleged illegal behaviour on prices, holding constant the effects of other market factors.

(5) *Considering the reliability of the regression through sensitivity analysis and confidence intervals.* It is possible to have an estimated coefficient that indicates a relationship between the variable representing the challenged conduct and prices where none exists in fact. Statistical significance is a way of testing whether the results obtained in a regression analysis are due to a coincidence or whether they reflect a genuine relationship.

291. In the next sections, Dr Jenkins' approach is considered in a little greater detail. It is necessary first to explain my understanding of the various statistical tools and devices used by Dr Jenkins (and, indeed, Mr Biro). This is done in Section H(2)(b) below. Thereafter, I describe:

(1) The dataset used by Dr Jenkins.

(2) The information regarding each project forming part of Dr Jenkins' dataset.

(3) Dr Jenkins' consideration of how the data can be normalised.

(4) Dr Jenkins' regression analysis and its outcome.

292. Dr Jenkins' model went through a number of iterations, generally speaking as a result of and in response to points made by Mr Biro. That this occurred in no sense reflects negatively on Dr Jenkins' work: indeed, it is much more a reflection of her integrity as an expert that she recognised force in some of the points made by Mr Biro and adjusted her model to deal with them. Despite these changes, Dr Jenkins' model remained in essence unchanged: variables were changed, Dr Jenkins at times selected different data to draw on and, obviously, the specific figures produced by the model were different over time. I will, of course, place principal reliance on the final figures produced by Dr Jenkins' model, but I should stress that what matters more than the figures is the robustness of the model that produced them. Because Dr Jenkins' more detailed explanations were made in relation to her earlier models, there are times in the Judgment

[335] Day 3/pp.78-79 (teach-in: Dr Jenkins).

when I refer to an earlier model and its output, rather than Dr Jenkins' final model and its output. That simply reflects the fact that Dr Jenkins very properly was disinclined to repeat herself in her reports, and therefore I must at times have resort to earlier explanations made in relation to earlier models.

(b) Statistical tools and devices

(i) What is a coefficient?

293. A coefficient is simply a number that multiplies a variable. Thus, 6*x* means "6 times *x*", where *x* is the variable and 6 the coefficient. Lawyers would refer to it as a "multiplier".

(ii) Correlation

294. Correlation refers to a relationship between two variables. That relationship is described by a correlation coefficient. It is important to appreciate the correlation is just that – co-relation. It simply means that variation in the scores on one variable correspond with the variation in the scores on a second variable. There is no causation necessarily implied. Causation means that variation in the scores on one variable causes variation in the scores on a second variable.

(iii) Measuring correlation

295. Correlation is measured through the coefficient of determination. Where two variables are related, the scores on one variable are associated with the scores on a second variable. That association means that one can predict – to a certain extent – what the scores on the second variable ("V2") will be, if one knows the scores on the first variable ("V1"). In short, a variance in the scores of V1 may be able to explain or predict (without suggesting any causal connection) the scores of V2. The coefficient of determination measures this relationship.

296. The coefficient of determination is essentially a measure of shared variance. If V1 changes, V2 also changes. The stronger the correlation, the greater the amount of shared variance, and the more changes in V1 can explain or predict changes in V2. Essentially, the coefficient of determination provides a measure of the strength of the association between two variables.

297. The coefficient of determination is the square of the correlation between V1 and V2. It is the percentage of the response variable variation in V2 that is explained by a variation in V1. The coefficient is measured as a percentage or as a figure lying between 0 and 1.[336] Thus, if the coefficient of determination is 0 or 0%, there is no correlation. If it is 1 or 100% then changes in V1 are a perfect predictor of changes in V2. Usually, the relationship between V1 and V2 lies between these two extremes. Essentially, R^2 is the square of:[337]

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[336] Jenkins 1/para. 3.115 (notes under the table).

[337] *R* is a measure of correlation with a range of -1 to 1, where -1 and 1 denote perfect fits (perfect negative correlation and perfect positive correlation respectively) and 0 means that there is no fit at all. As stated, R^2 – *R* multiplied by itself – measures the percent of variation or correlation between two variables.

$$R = \frac{\text{Explained variation}}{\text{Total variation}}$$

298. Thus, if $R^2 = 0.92$ or 92%, if V1 moves by 100, V2 will on average increase by 92.[338]

(iv) Regression analysis

299. Regression can be either "simple" or "multiple". Simple regression is rather like correlation, save that correlation does not distinguish between independent and dependent variables, whereas simple regression has a designated predictor variable and a designated dependent variable. Just as with correlation, however, regression analyses do not allow analysts to claim a causal association. There is correlation, from which causation may be inferred, at most.

300. Multiple regression involves two or more predictor variables and a single dependent variable. Multiple regression analysis permits the analyst to see how the predictor variables, as a group, are related to the dependent variable. It is also possible to see the relative strength of each predictor variable, and the strength of the relationship between each predictor variable and the dependent variable, while controlling for other predictor variables in the model.

301. Two other points, regarding variables, need to be made:

(1) It is possible for variables to relate through what are known as "interaction terms".

(2) A "dummy" variable is one that takes the value of "1" or "0" to indicate the presence or otherwise of a categorical effect that may be expected to influence the dependent variable.

302. Both experts agreed that, in order to be reliable, a regression analysis must:

(1) Be based upon a sufficiently large data-set. Clearly, the more data that can be input and reviewed for purposes of correlation, the more reliable the model will be.

(2) Be well specified. To be well specified, it would (in this case) need to take account of the main drivers of project prices and not take account of factors which were irrelevant.

(v) Testing how good a model is: statistical significance

303. Dr Jenkins explains:[339]

> "…regression results can only be estimates of the true values associated with the coefficients. A result is referred to as being "statistically significant" if it is unlikely to have been observed by chance. In regression analysis, this is normally assessed by calculating the likelihood of the estimated coefficient being observed if the true underlying coefficient is actually equal to zero – i.e. if there is no true effect between the variable associated with that coefficient and the dependent variable. The significance is reported as "probability values" ("p-values"). Thus, significance is indicated by p-values that are close to zero (i.e. there is a low probability that these

[338] See the example given by Mr Biro at Day 3/p.110 (teach-in: Mr Biro).
[339] Jenkins 1/para. 3.114

results would have been observed if the true value of the underlying parameter is zero). Standard thresholds are 10%, 5% and 1%."

304. In her report, Dr Jenkins uses symbols to designate these thresholds. Thus:[340]

(1) "***" means significant at 1%.

(2) "**" means significant at 5%.

(3) "*" means significant at 10%.

305. I shall eschew the symbols and stick to measures of statistical significance at the 1%, 5% and 10% levels. A variable is said to be statistically significant at the 5% level (for example) if there is less than a 5% probability of having observed this estimate from the evidence, when in fact the true value is zero.

306. Another measure is the "t-statistic". The higher the value of the t-statistic, the lower the probability that the given estimate of the underlying parameter would have been observed, on the assumption that the true value of the parameter is in fact zero. As a rule of thumb, a t-statistic higher than 2 or lower than -2 indicates that there is a 5% probability, under a two-sided test, that the coefficient estimate would be observed, if the true coefficient is zero. The actual threshold for the t-statistic depends on the number of observations and number of control variables included in the analysis.

307. A final measure is the confidence interval or hypothesis testing. As has been described, the regression will produce a coefficient stating the correlation between the dependent variable and the predictor variables. Let us suppose a relatively high coefficient of determination, where $R^2 = 0.92$.

308. Hypothesis testing seeks to measure the uncertainty around this coefficient. Essentially, it produces a range around the coefficient where the analyst can express a degree of confidence that the coefficient will lie within this range. Thus, the analyst may be able to say that he or she is 95% confident that the true coefficient will lie within the range 0.90 to 0.94, with 0.92 being the most probable outcome. On the other hand, the analyst might only be able to express this confidence to a standard of 60%. That would imply, in order to have a confidence of 95%, the range of value attaching to the coefficient would be much greater.

(vi) The Practical Guide on Quantifying Harm

309. The Practical Guide on Quantifying Harm draws together the various threads extremely clearly, and says this about regressions and statistical significance:

> "81. Carrying out a regression analysis requires knowledge of various statistical techniques to measure the relationship between variables, to construct an appropriate regression equation and to calculate the precision of the parameters in this equation. In addition, it is necessary to have a good understanding of the industry concerned, in the first place, to formulate the right hypothesis when constructing the regression equation and to make the right choice as to the factors that are likely to have significantly influenced the variable of interest (and which should therefore be included in the analysis). Industry understanding is furthermore

[340] Jenkins 1/para.3.114 at fn 121.

necessary to make informed choices about which statistical techniques to use in a given situation, for instance, to account for unusual observations (outliers) or other specific features in data sets. In particular, where the influencing variables were themselves affected by the infringement, biased results may occur if this aspect is not taken into account, e.g. through applying specific statistical techniques or through using data observations that lie outside the infringement period or market.

82. Without a sufficient number of data observations, statistical analysis cannot identify relationships between economic variables. To identify the effect of influencing variables on the variable of interest therefore requires that a sufficient range of data observations is available for all variables considered. Regression analysis therefore typically requires extensive data. However, statistical techniques may help to overcome some gaps in data or biases in their interpretation and there can be situations where also the analysis of a smaller number of data observations is meaningful.

83. Data observations can, in principle, be gathered at different levels of aggregation. For example, where the relationship between price and input cost is to be analysed, data series either for the prices charged in individual transactions, for annual industry average prices or – in between – monthly data at firm level could be examined next to data series either for individual input costs per unit or for industry cost averages respectively. Using disaggregated data makes it possible to analyse a greater number of observations and therefore to obtain more precise estimates. Where such disaggregated data do not exist or are not accessible to the party carrying out the regression analysis, the analysis of aggregated data may still produce informative results, in particular if the aggregated data have a high frequency.

84. Having a sufficient range of data observations and the level of data aggregation are examples of the importance of data reliability and data relevance for economic analysis. However, most datasets are incomplete, and not all relevant facts may be observed or measured with high accuracy. It is therefore proper to explicitly acknowledge those imperfections. Deficiencies in the data should not prevent an economic analysis from being given proper weight, though conclusions should be drawn with caution.

85. Where used appropriately and on the basis of sufficient data observations, regression analysis can considerably refine the damages estimation through comparator-based methods. It should be stressed, however, that even very sophisticated regression equations rely on a range of assumptions and will (like any technique to predict a hypothetical situation) only be able to deliver estimates. It is good practice to consider the assumptions underlying a regression equation, because some assumptions may be more appropriate than others in a given situation and may lead to significantly different results.

86. One way to deal with the uncertainty of the estimate is to indicate the results not as a point estimate ("the price in the non-infringement scenario is 10€"), but as an interval ("the price in the non-infringement scenario is between 9€ and 11€"). The notion of "confidence interval" – which is standard in statistics – is used to describe how likely it is that the true value is contained in an interval. By convention in economics, a 95% likelihood that a specific interval does in fact contain the true value is regarded as a high degree of certainty.

87. A similar way of dealing with the uncertainty of estimates is to refer to the notion of "statistical significance", which is a standard way of testing whether the results obtained in a regression analysis are due to a coincidence or whether they reflect in fact a genuine correlation. For this, a certain hypothesis is tested: in the field of damages actions, such a hypothesis could for instance be whether the cartel infringement did in fact have an actual effect on prices or not. The hypothesis that the infringement did *not* have an effect (and that therefore the non-infringement price does not differ from the price in the infringement

> scenario) is called the "null hypothesis". Regression analysis is then used to test this null hypothesis. A result of a regression analysis is said to be statistically significant when it is possible to reject the null hypothesis, because it would be very unlikely that the results observed a due to chance. By convention, a likelihood of at least 95% that the null hypothesis is rejected is regarded in economics as allowing to judge that the results are "statistically significant".
>
> 88. As described above, it is a convention in economic science for both the notion of "confidence interval" and "statistical significance" to use a 95% threshold of probability. It should be stressed that this represents a pure convention and that more as well as less stringent thresholds (for instance: 99%, or 90% probability) may likewise provide useful information. This is because statistical significance is determined, in part, by the number of observations in the data set: other things being equal, the statistical significance increases as the sample size increases. It is good practice to indicate the probability threshold chosen. In a damages action, it is then for the court, under applicable law, to decide the probative value of such regression analysis and the procedural consequences (in particular with regard to the burden of fact-pleading and proof) which such analysis may entail."

(vii) One-sided and two-sided hypothesis testing

310. When considering statistical significance and hypothesis testing, it is necessary to understand whether a one-sided or a two-sided test is being conducted. A two-sided hypothesis test will have no *a priori* view about whether the null hypothesis is that the coefficient will be positive or negative. Thus, for a 90% threshold of statistical significance, what is tested is whether the estimated coefficient lies in either of the two extreme areas of the distribution around zero (positive and negative) with 5% lying at each end of the distribution.[341]

311. A one-sided test allocates the entire 10% to <u>one</u> end of the distribution. In this case, Dr Jenkins tended to use a one-sided test, with the 10% allocated to the positive side of the distribution. This is because Dr Jenkins' null hypothesis was that the effect of the Cartel was nil, i.e. that the prices charged by ABB were unaffected by the Cartel. Dr Jenkins rejected, as implausible, the hypothesis that the Cartel would cause ABB's prices to fall. Had Dr Jenkins considered such a hypothesis to be appropriate, then Dr Jenkins would have used a two-sided test. This aspect of Dr Jenkins' approach was explored in cross-examination:[342]

Q (Mr Hoskins, QC)	…Under a one-sided test, and you look at just one end of the graph, and that is what you have shown here, so a 95% threshold or 5%, whichever way you want to put it, rather than having a two-sided test, where you would have 5% at each end, in the one-sided test you look at the 10% at the positive end? Is that correct?
A (Dr Jenkins)	So, just to clarify, if you are looking at a 90% threshold, and it is two sided, then it is 5% at each end, and if it is one-sided, it is 10% at one end, yes. If it were a 95% threshold, which I think you started the question with, that would be 2.5% at each end or 5% at one end.

[341] An example of a distribution curve can be seen at paragraph 418(3) below.
[342] Day 9/pp.97*ff* (cross-examination of Dr Jenkins).

Q (Mr Hoskins, QC)	Thank you. And again, the convention is to use a two-sided test, is it not? In the same way the convention is to use a 95% threshold, there is a convention in economics to use two-sided test?
A (Dr Jenkins)	The convention for one-sided or two sided depends on whether you have a prior belief. So it is conventional to use a two-sided test where you have no prior view about whether the estimate is going to be positive or negative, and where you have a prior view that you will have – the underlying coefficient that you are trying to estimate is either positive or negative, so it is either less than or greater than, but if you have a prior view of about which side, then one-sided testing is conventional.
	…
Q (Mr Hoskins, QC)	Now, there has been a lot of factual evidence about the potential impact of this Cartel on the BritNed project. If the judge considers that it cannot be presumed that the Cartel raised prices on the BritNed project, then do you agree it would not be appropriate to use a one-sided test?
A (Dr Jenkins)	That would be correct. If the judge chose to the view that it was as likely to have a significant negative effect of the Cartel as a significant positive effect, then you would use a two-sided test.
	…
Q (Marcus Smith J)	…[Dr Jenkins] is saying that she has adopted the one-sided test on the basis that she has presumed…that cartels raise rather than lower prices. Now, of course, we are concerned here with the effect of the Cartel specifically on a single project, the BritNed cable. And I think what Mr Hoskins was saying was that if I were to take the view that the Cartel could be neutral in this case, would a one-sided or a two-sided test be appropriate?
A (Dr Jenkins)	So, then, the one-sided test is appropriate, because the null hypothesis is that it is a neutral effect, that there is no effect of the Cartel. If the question is what is your reply about the alternative, is that whether there is a positive effect or a positive or negative effect?
Q (Marcus Smith J)	So, if I were to take the view that the Cartel could actually move prices in either direction, at that stage I think you would be saying it would have to be a two-sided test that would be adopted?
A (Dr Jenkins)	That's correct.
	…
Q (Marcus Smith J)	What you do when you have adopted a one-sided test is effectively you put all of the probability on one side?

A (Dr Jenkins)	[Nods.]
Q (Marcus Smith J)	Is that in itself a reason for moving to a higher probability, that is to say, whereas if one was using a two-sided test with 5% on either side, is it an argument for having a 95% probability or 5% probability, so you just load the 5% on one side – or is that just not a very good question?
A (Dr Jenkins)	That is a good question. And as I said before, it is in a sense up to the reader's view about what amount of probability they want to tolerate for having the probability that this variable – this result would have been observed if the underlying true effect was zero. So, if you say 95% one-sided, as you rightly say, you are putting 5% in the top there, and you are saying you are only willing to tolerate a 5% chance that this could be observed if the true effect is zero. If you use a 90% threshold, you're saying I'm willing to tolerate up to 10% of a chance.

(c) Dr Jenkins' dataset

312. Dr Jenkins' dataset comprised:[343]

(1) Successful ABB tenders for projects;

(2) Comprising both underground and submarine projects;[344]

(3) From both the Cartel and the post-Cartel periods.[345]

Specifically, the dataset comprised:[346]

	Cartel	**Post-Cartel**	**Total**
Submarine	15	34	49
Underground	21	22	43
Total	36	56	92

Table 3: The dataset used by Dr Jenkins

313. Dr Jenkins regarded the size of this dataset as being at the lower end of what she would have hoped to have for the regression she performed.[347]

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[343] Clearly, Dr Jenkins undertook a process for identifying a dataset that she considered suitable for her analysis. This process is described in her reports (e.g., Jenkins 1/paras. 3.83*ff*), but it is unnecessary for me to describe this process in this Judgment.
[344] If any section of the project was submarine, it was classified as "submarine": Jenkins 1/para. 3.15 at Table 3.1. I have not had evidence in relation to the number of "mixed" underground/submarine projects.
[345] Jenkins 1/para. 3.15 (regarding Dr Jenkins' selection of projects); Jenkins 1/paras. 3.70*ff* regarding her exclusion of lost bids.
[346] The dataset varied, marginally, over time.
[347] Day 9/p.95 (cross-examination of Dr Jenkins).

(d) Information regarding each project forming part of Dr Jenkins' dataset

314. As regards each of these 92 projects, Dr Jenkins obtained the following information:[348]

(1) The contract award date.

(2) The contract price at the contract award date.

(3) ABB's expected installation costs.

(4) ABB's expected accessories costs.

(5) The number of cables provided.

(6) The length of each cable.

(7) The conductor cross-section of each cable.

(8) The number of cores within each cable.

(9) The voltage of each cable.

(10) Whether the cable was submarine or underground.

(11) The conductor material of each cable.

(12) ABB's copper and aluminium input prices.

315. Dr Jenkins' first source for this information were the PPMs.[349] Dr Jenkins described her process as follows:[350]

> "3.86 When compiling my dataset, I sought to draw all the relevant information for a given project from as few sources as possible, to ensure consistency within the project record. Therefore, I have drawn datapoints from the identified documents in the following way:
>
> - Where a selected pricing model includes all the required information, I have drawn all the information for a given project from that selected pricing model;
> - Where a selected pricing model does not include sufficient information on the cable specifications, I have drawn information from a combination of the pricing model and a detailed specifications document that is consistent with the selected pricing model."

(e) Dr Jenkins' process of normalisation

316. Dr Jenkins used the data described in paragraph 314 above to inform her analysis of the factors that would affect the price of a cable project. She did not use the price agreed by ABB with its customers. Dr Jenkins' thinking was that it was more appropriate to model what a competitive price should be by conducting her "during and after" analysis. In this

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[348] Jenkins 1/para. 3.81.
[349] Described in paragraph 135 above.
[350] Jenkins 1.

way – by assuming that post-Cartel projects would be competitively priced – her model would be able to ascertain the Cartel overcharge.

317. Obviously, a critical element in this process was the "normalising" of the various projects being used as part of the assessment.[351] In this case, normalisation involved two significant exercises:

(1) *Identifying the legitimate factors that would go to affect price.* In her first report, Dr Jenkins set out her understanding (derived from Mr Röstlund's evidence) of the cost drivers of cable projects.[352] She then explained how she proposed to model these cost drivers, so as to create the inputs that would feed into a model that was independent of ABB's actual reported costs.[353] In summary (and I do not propose to set out all of the relevant parts of Dr Jenkins' report) her approach was as follows:[354]

> "…I include controls in my overcharge analysis to take into account the drivers of the costs of raw materials and of manufacturing of HV cables…, which may vary across projects and over time. Specifically, I include cost drivers and use appropriate specifications to control for the length of cable, the size of the cross-section, the cost of the metals used for the conductor, the number of cores, the voltage, and whether the cable is for an underground or submarine project."

(2) *Ensuring that the differences between underground and submarine cable projects were correctly weighed.* The differences between underground and submarine cable projects have been described.[355] Dr Jenkins specifically considered whether underground projects were sufficiently comparable (or homogenous) to be included in her analysis. She concluded:[356]

> "3.65 I understand that the cartel covered all types of underground power cables of 110kV and above. Based on my review of the Decision and the factual evidence, I consider that there are many underlying similarities in terms of the factories used, the approach to allocating projects between cartel members, and the cost drivers.
>
> 3.66 In my view, the differences between submarine and underground projects…are systematic (i.e., they are likely to have a predictable relationship with price) and I am able to control for these in my price analysis. For example, submarine projects:
>
> - Are generally greater in length and size of the cross-section – I control for the volume of cable in my analysis;
> - More commonly use copper than aluminium – I control for the price of the metal used for the conductor in my analysis;
> - Are more costly due to the greater amount of insulation, armouring, production process, type-testing, storage and transport costs and insurance costs – I control for this by allowing submarine projects to have a higher price for a given set of characteristics.

[351] See paragraph 290(2) above on the issue of "normalisation".
[352] Jenkins 1/para. 3.22
[353] Jenkins 1/paras 3.18 to 3.40.
[354] Jenkins 1/para.3.32.
[355] See Section E above.
[356] Jenkins 1.

3.67 I therefore use information on both underground and submarine cable projects to estimate the cartel overcharge, controlling for the systematic differences between submarine and underground projects."

(f) Dr Jenkins' regression analysis

318. The project value at contract award is the dependent variable in Dr Jenkins' regression specification.[357] The other variables – the so-called "control" variables – are as follows:[358]

	Variable
Cartel Indicator	This is a "dummy" variable, having a value of "1" during the Cartel period and a value of "0" for the post-Cartel period.[359] This variable is intended to capture the cartel effect. Specifically, it captures the average effect of the cartel.[360] Dr Jenkins explained the point as follows:[361] "By having the binary indicator variable, what I'm doing is getting an average effect during the Cartel of all the projects that ABB sold during the Cartel, and it is saying that given the factors that one would expect to see driving the costs of those projects, that on average it looks as if these projects were too high by this amount. That's what the binary element is. It is saying, across all these projects, what is it saying about what seems to be the overall Cartel effect." It is the Cartel Indicator that is used to calculate the amount of the overcharge for any given project value. The manner in which the overcharge is calculated from coefficients for this variable is complex, but the process was agreed by both experts, and was uncontroversial.[362]
Total volume of conductor materials	This is derived by multiplying the cable length by the size of the cross-section and the number of cores. According to Dr Jenkins, this controls for costs that increase with the size of the cable.[363]
Submarine Indicator	To capture any differences in the level of costs between submarine and underground cable projects.[364]
Copper and Aluminium Prices	These are taken from the relevant time period, to control for the cost of the metal used for the conductor.[365]
Cable Voltage	To control for the differences across projects and the impact of the voltage on the thickness of insulation required.[366]
Cost of Installation and Accessories	These are controlled by scaling for the volume of conductor materials. For this variable, Dr. Jenkins relied on the reported costs of installation and accessories from ABB's disclosure.[367]
Capacity Utilisation Control	Dr. Jenkins initially used ABB's order backlog for the power technologies division in the quarter prior to the award of the contract to

[357] Jenkins 1/para. 3.92.
[358] See, generally, Jenkins 1/para. 3.92 and Day 10/pp.23*ff* (cross-examination of Dr Jenkins).
[359] Jenkins 1/para. 3.92; Day 10/p.32 (cross-examination of Dr Jenkins).
[360] Jenkins 1/para. 3.92.
[361] Day 10/pp.35-36 (cross-examination of Dr Jenkins).
[362] Jenkins 1/para. 3.115 at footnote 123; Day 10/pp.48-49 (cross-examination of Dr Jenkins); Day 11/pp.12-14 (cross-examination of Dr Jenkins).
[363] Jenkins 1/para. 3.92.
[364] Jenkins 1/para. 3.92.
[365] Jenkins 1/para. 3.92.
[366] Jenkins 1/para. 3.92.
[367] Jenkins 1/para. 3.92.

	control for ABB's "appetite" for a project, which (according to Dr. Jenkins) would be expected to affect the price for the project.[368]
Time Trend	To reflect the quarter and the year in which a project was awarded, to capture any long term changes in pricing over time, such as inflation or cost efficiencies.[369]

Table 4: Control variables used by Dr Jenkins

319. The results of Dr Jenkins' analysis were as follows:[370]

Variable	Coefficient	P-value
Cartel Indicator	0.30	5%
Total volume of conductor materials	0.86	1%
Submarine Indicator	0.73	1%
Copper and Aluminium Prices	0.29	1%
Cable Voltage	0.21	1%
Cost of Installation and Accessories	0.37	1%
Capacity Utilisation Control	0.70	1%
Time Trend	0.0075%	5%

Table 5: Outcome of Dr Jenkins' regression analysis

It should be noted that Dr Jenkins' p-value for the cartel indicator is based on a one-sided, not a two-sided, test.

320. On this basis, Dr Jenkins concluded that "a reasonable and reliable estimate of the overcharge suffered by BritNed as a result of the cartel in HV cable projects is 25.4%".[371]

(4) The approach of Mr Biro

(a) A summary of Mr Biro's approach

321. Mr Biro used what he called three complementary methodological approaches to assess what the price of the BritNed project would have been, but for the Cartel:[372]

(1) A price comparison analysis controlling for ABB's actual costs of supply.

(2) An econometric analysis of the relationship between prices and ABB's actual costs of supply.

(3) A price comparison analysis which does not directly control for ABB's actual costs of supply, but instead uses proxy measures based on the technical characteristics of the projects.

[368] Jenkins 1/para. 3.92.
[369] Jenkins 1/para. 3.92.
[370] Jenkins 1/para. 3.115.
[371] Jenkins 1/para. 3.118.
[372] Biro 1/para. 1.2.3.

322. The differences between Dr Jenkins' approach and Mr Biro's approach are considered in greater detail below, but one difference stands out immediately. Whereas Dr Jenkins sought to ascertain the overcharge generally caused by the Cartel by comparing cartelised and post-Cartel projects (including underground as well as submarine projects), Mr Biro compared the price of the BritNed Interconnector project alone with the prices of other submarine (not underground) power cable projects in the post-Cartel period.[373]

(b) Mr Biro's first approach: a price comparison analysis controlling for ABB's actual costs of supply

(i) Overview

323. Mr Biro described his approach as involving:[374]

> "…a comparison of the price of the BritNed project at the point of tender award with the price offers made by ABB in relation to other submarine power cables projects which were tendered in a competitive environment after the end of the cartel, adjusting for differences in the costs that ABB expected to incur in supplying these projects. This methodological approach controls for the impact of project-specific costs on project prices by analysing and comparing the margin (or mark-up) over these costs that ABB sought to achieve on the BritNed project with the margins on comparable submarine power cables projects tendered outside the cartel period for which ABB submitted a price offer; this price comparator analysis can therefore also be referred to as a "margin analysis". In particular:
>
> - If the margin on the BritNed project were not systematically higher than the margins on comparable non-cartel period projects, then I would conclude that the price of the BritNed project was no higher than would have been expected in a competitive environment, given the differences in costs of supplying the projects, and would indicate no evidence of an overcharge; and
> - In contrast, if the margin on the BritNed project were higher than those on comparable projects tendered outside the cartel period, then this would imply that the price of the BritNed project was higher than would have been expected under competitive conditions, taking into account differences in the costs of supply, and would indicate evidence of an overcharge. In this case, the size of any margin difference would provide a measure of the size of the BritNed overcharge."

324. Essentially, Mr Biro sought to compare the gross margin that ABB expected to achieve on the BritNed project with the margins that ABB sought to earn on comparable submarine power cable projects tendered after the Cartel.[375] Broken down, Mr Biro's approach was as follows:

(1) *Identifying comparable projects.* Like Dr Jenkins, Mr Biro needed a pool of comparator projects which would be subjected to his margin analysis.

(2) *Identifying and dealing with multiple margins earned by ABB.* ABB comprises several business units. In this case, only one business unit was involved in the supply of the cable to BritNed.[376] However, "for some other post-cartel comparator

[373] Biro 1/para. 1.2.4.
[374] Biro 1/para. 3.1.3.
[375] Biro 1/para. 3.3.1.
[376] Biro 1/para. 3.3.3.

projects which I have analysed, other ABB business units were involved in the supply of certain elements of the project, usually in relation to the logistics and organisation to the cable installation. The result of this internal structure is that an offer prepared by ABB for a submarine power cables project may have incorporated multiple margins."[377] Mr Biro needed to deal with such multiple margins in a consistent way.

(3) *Calculating gross margins.* Plainly, it is important that Mr Biro define "gross margin" and then apply this consistently across the comparable projects.

(ii) Comparable projects

325. Mr Biro did not consider that underground cable projects were suitable comparators for his purposes.[378] He was sufficiently concerned about potential differences between different types of submarine cable projects:[379]

> "…any analysis that seeks to assess the BritNed overcharge by means of a comparison of project prices needs to ensure that the price comparisons are genuinely on a like-for-like basis, or otherwise make appropriate adjustments to account for differences in the costs of supplying these projects and other relevant drivers of project prices. Through comparing anticipated gross margins, my methodological approach directly controls for differences across projects in terms of their costs of supply. However, there are also other commercial and competitive considerations which influenced the pricing of power cables projects, and which cannot readily be quantified, with implications for which types of power cables projects should appropriately be used as comparators to the BritNed project."

Mr Biro used submarine cable projects as his comparators, but noted the different types of project within this class.[380]

(iii) Multiple margins and margin consolidation

326. In relation to multiple margins earned by different units of ABB, Mr Biro used a single consolidated project margin which would reflect the return expected by <u>all</u> units of ABB involved in that particular project.[381]

(iv) Calculation of gross margin

327. Mr Biro noted that project margins were reported by ABB on both a "gross" and a "net" basis:[382]

> "a. gross margins refer to project profitability taking into account those costs which ABB considered to be directly attributable to the supply of the specific project in question; and
>
> b. net margins refer to the bottom-line profitability after also allocating to each project a certain proportion of the general business overheads incurred in relation to administration and management, non-order related R&D costs, and sales and marketing costs (including

[377] Biro 1/para. 3.3.3.
[378] Biro 1/paras. 3.4.18*ff*.
[379] Biro 1/para. 3.4.1
[380] Biro 1/para. 3.4.6 and paras. 3.4.10*ff*.
[381] Biro 1/para. 3.3.4.
[382] Biro 1/para. 3.3.7.

> any commission paid internally to local ABB units). Although these common costs were not directly related to the manufacture and delivery of any individual power cables project, they were allocated by ABB across projects to produce reported net margins in recognition that they would ultimately need to be recovered by the power cables business as a whole for it to remain viable."

328. Mr Biro used gross margin for the purposes of his margin analysis:[383]

> "For the purpose of assessing the extent of the BritNed overcharge, I consider it most appropriate to make comparisons across projects on a *gross margin basis*. Since gross margins should reflect only those costs which were directly attributable to individual power cables projects, conducting my comparator analysis at the gross margin level is the most economically meaningful approach. This is because one would, as a matter of economics, expect direct project-specific costs to constitute the primary driver of project prices. Moreover, this avoids any concern that the particular allocation by ABB of its business overheads and other shared costs may impact on the results of my overcharge analysis."

329. Mr Biro did not, however, base his analysis on the gross margins as reported by ABB but calculated his own. He did this using the information contained in the PPMs.[384] Specifically:[385]

> "…I have therefore not based my comparator analysis on the gross margins as reported by ABB and have instead calculated a consistent measure of gross margins across all relevant projects. Specifically, I have calculated gross margins by deducting from the project revenues the following cost items:
>
> a. manufacture of the cables, including raw materials, use of machines employed in the manufacturing process and direct manufacturing labour;
>
> b. design of the cables, and any required tests conducted on the cables;
>
> c. cable accessories, whether supplied directly by ABB SEHVC or by any other ABB business unit or external supplier;
>
> d. transportation of the cables from the factory to the location where the cable was to be installed;
>
> e. activities related to the installation of the cable;
>
> f. project management;
>
> g. insurances, warranties, taxes, duties and similar items; and
>
> h. provisions for cost overruns and project risks."

330. Mr Biro excluded from his calculations of gross margin any cost item he did not consider to be directly attributable to the specific project in question.[386] Mr Biro considered that the costs items he was considering had been accounted for by ABB in a consistent manner

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[383] Biro 1/para. 3.3.8.
[384] Day 12/p.106 (cross-examination of Mr Biro).
[385] Biro 1/para. 3.3.9.
[386] Biro 1/para. 3.3.10.

over time.[387] In terms the figures he used, Mr Biro sought to use price and cost information that was as nearly as possible contemporary with contract award. In other words, he did not consider earlier cost and pricing data, nor post-contract cost and pricing data.[388]

331. The outcome of Mr Biro's margin analysis was as follows:

Project	Bid outcome	Price	Cost	Margin	Type of project	
BritNed	Won	2,726,400,218	2,218,089,507	**18.6%**		**18.6%**
"Project 1"	Lost	2,080,093,029	1,712,813,775	**17.7%**	**Post-cartel submarine interconnectors HVDC MI**[389] **turnkey**	**17.6%**
"Project 2"	Lost	1,745,886,408	1,502,048,752	**14.0%**		
"Project 3"	Lost	3,521,665,480	2,906,391,434	**17.5%**		
"Project 4"	Lost	3,187,543,377	2,637,194,484	**17.3%**		
"Project 5"	Lost	2,325,662,065	1,922,135,626	**17.4%**		
"Project 6"	Lost	2,372,222,799	1,956,437,196	**17.5%**		
"Project 7"	Won	3,884,278,656	3,218,018,932	**17.2%**		
"Project 8"	Lost	1,014,491,836	803,520,465	**20.8%**		
"Project 9"	Lost	852,059,995	716,180,583	**15.9%**		
"Project 10"	Lost	5,247,786,554	4,177,060,126	**20.4%**		
"Project 11"	Won	391,404,858	313,653,215	**19.9%**	**Post-cartel submarine interconnectors HVDC XLPE**[390] **turnkey**	**19.3%**
"Project 12"	Won	3,246,651,510	2,594,326,728	**20.1%**		
"Project 13"	Lost	2,442,564,617	1,979,100,213	**19.0%**		
"Project 14"[391]	Won	3,111,467,997	2,487,839,113	**20.0%**		
"Project 15"	Won	2,758,616,823	2,273,843,923	**17.6%**		
"Project 16"	Won	223,953,709	180,114,752	**19.6%**	**Post-cartel submarine interconnectors HVAC**[392] **turnkey**	**20.3%**
"Project 17"[393]	Won	245,321,695	196,360,692	**20.0%**		
"Project 18"	Won	103,974,615	80,426,644	**22.6%**		
"Project 19"	Won	49,391,218	40,411,403	**18.2%**		
"Project 20"	Won	59,615,868	46,907,790	**21.3%**		
"Project 21"	Won	838,282,244	670,437,450	**20.0%**	**Post-cartel submarine for offshore wind farms and oil and gas platforms, turnkey**	**22.1%**
"Project 22"	Won	1,202,622,900	874,706,902	**27.3%**		
"Project 23"	Won	763,348,721	597,246,549	**21.8%**		
"Project 24"	Won	448,289,147	343,716,932	**23.3%**		
"Project 25"	Won	258,773,683	207,270,711	**19.9%**		
"Project 26"	Won	23,850,088	19,459,951	**18.4%**		
"Project 27"	Won	723,717,656	572,179,633	**20.9%**		
"Project 28"	Won	445,855,303	337,170,271	**24.4%**		

[387] Biro 1/para. 3.3.10.
[388] Biro 1/paras. 3.3.11 to 3.3.15.
[389] "MI" stands for "mass-insulation", a form of cable insulation.
[390] "XLPE" stands for "cross-linked polyethylene", another form of cable insulation.
[391] In cross-examination of Mr Biro, it was suggested that this project was, in fact, a Cartel-period project or at least might have been affected by the Cartel in that whilst the contract was signed post-Cartel, much of the tender process occurred during the Cartel period: Day 12/p.116 (cross-examination of Mr Biro). Mr Biro did not dissent from this as a possibility, and I have therefore taken this possibility into account.
[392] I.e. High Voltage AC.
[393] In cross-examination of Mr Biro, it was suggested that this project was also a project that might have been affected by the Cartel: Day 12/pp.116-118 (cross-examination of Mr Biro).

"Project 29"	Won	641,360,494	528,090,655	**17.7%**		
"Project 30"	Won	550,939,500	435,271,853	**21.0%**		
"Project 31"	Won	347,858,511	257,105,249	**26.1%**		
"Project 32"	Lost	3,145,770,949	2,275,942,713	**27.7%**		
"Project 33"	Lost	2,661,576,095	1,990,482,310	**25.2%**		
"Project 34"	Won	1,680,965,225	1,360,017,793	**19.1%**		
"Project 35"	Won	1,631,881,203	1,361,200,063	**16.6%**		
"Project 36"	Lost	2,977,041,950	2,287,331,575	**23.2%**		
"Project 37"	Lost	1,578,783,836	1,156,552,990	**26.7%**		
"Project 38"	Lost	1,890,107,007	1,510,234,350	**20.1%**		
"Project 39"	Lost	2,370,507,862	1,900,732,798	**19.8%**		
"Project 40"	Won	73,864,273	59,641,375	**19.3%**	**Post-cartel submarine non-turnkey projects**	**23.2%**
"Project 41"	Won	31,984,722	23,039,287	**28.0%**		
"Project 42"	Lost	85,875,986	67,381,358	**21.5%**		
"Project 43"	Lost	2,611,932,999	1,942,398,765	**25.6%**		
"Project 44"	Won	148,564,554	110,772,385	**25.4%**		
"Project 45"	Won	55,428,717	37,540,119	**32.3%**		
"Project 46"	Won	186,724,421	145,345,612	**22.2%**		
"Project 47"	Won	283,411,169	215,855,100	**23.8%**		
"Project 48"	Won	180,295,469	142,726,403	**20.8%**		
"Project 49"	Won	358,684,030	285,844,636	**20.3%**		
"Project 50"	Won	2,102,677,448	1,648,315,683	**21.6%**		
"Project 51"	Won	102,893,142	78,909,712	**23.3%**		
"Project 52"	Won	95,234,663	75,549,920	**20.7%**		
"Project 53"	Won	842,545,283	671,229,956	**20.3%**		
					All post-cartel submarine projects	**21.1%**
"Project 54"	Won	292,031,004	244,679,324	**16.2%**	**Cartel submarine projects**	**26.7%**
"Project 55"	Won	19,459,650	10,727,508	**44.9%**		
"Project 56"	Won	598,952,787	407,639,685	**31.9%**		
"Project 57"	Won	136,549,810	107,372,719	**21.4%**		
"Project 58"	Won	69,713,487	49,828,126	**28.5%**		
"Project 59"	Won	1,358,422,333	1,074,844,941	**20.9%**		
"Project 60"	Won	21,741,783	19,439,062	**10.6%**		
"Project 61"	Won	6,099,613	3,997,112	**34.5%**		
"Project 62"	Won	1,259,762,927	1,100,434,856	**12.6%**		
"Project 63"	Won	397,384,456	281,488,805	**29.2%**		
"Project 64"	Won	76,805,791	53,899,707	**29.8%**		
"Project 65"	Won	197,945,480	137,564,350	**30.5%**		
"Project 66"	Won	8,289,457	5,740,270	**30.8%**		
"Project 67"	Won	196,665,053	119,071,805	**39.5%**		

Table 6: Outcome of Mr Biro's margin analysis.

332. I should say that this table represents a simplified version of Mr Biro's work, in that certain data that I have not required for this Judgment has been omitted. In one respect,

the table represents an augmentation of Mr Biro's original work product. Cartel submarine projects were originally not included in Mr Biro's analysis, but Mr Biro added this detail when I indicated that this information might be of assistance. Apart from BritNed, the names of the projects in the table have been anonymised. The prices, costs and margins of the specific projects are confidential to ABB, but open justice requires that this data be set out, it being material to this Judgment. I consider that ABB's confidentiality is appropriately protected by anonymising the project names. The specific project names are not material to this Judgment.

333. Mr Biro's conclusion was that the margin in the case of BritNed was comparable – and, if anything, lower – than the margin for post-Cartel projects. In short, Mr Biro did not identify any material Cartel effect.[394]

(c) An econometric analysis of the relationship between prices and ABB's actual costs of supply

334. Mr Biro's second (complementary) approach was to conduct what he termed a price-cost regression analysis.[395] Given the far more limited number of parameters involved in Mr Biro's model, when compared to Dr Jenkins' model, this was a much more straightforward exercise than the regression undertaken by Dr Jenkins.

335. The project value at contract award is the dependent variable in Mr Biro's regression specification.[396] The other variables – the so-called control variables – were as follows:[397]

	Variable
Project cost	ABB's expected actual costs directly attributable to the supply of the specific project in question.
Non-turnkey dummy	An indicator variable denoting whether the submarine power cable project was tendered as a turnkey project or not.
Current dummy	An indicator variable denoting whether the project was DC or AC.
Insulation dummy	An indicator variable denoting the type of insulation involved in the project.
Application dummy	An indicator variable denoting the type of project application.
BritNed dummy	An indicator variable differentiating BritNed from all the other projects being considered.

Table 7: Variables used by Mr Biro

336. Immediately, it can be seen that Mr Biro's model essentially seeks to identify the correlation between price and cost. The dummy variables do no more than seek to refine the analysis by reference to project type.

337. Mr Biro ran two regression analyses, "Model 1" and "Model 2". Model 2 was, essentially, a slimmed down version of Model 1, in that it used fewer of the dummy variables. The outcome was as follows:

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[394] Biro 1/paras. 3.5.1*ff*.
[395] Biro 1/para. 4.1.1.
[396] Biro 1/para. 4.3.2.
[397] Biro 1/para. 4.3.2.

Variable	Model 1		Model 2	
	Coefficient	P-value	Coefficient	P-value
Project cost	0.996	5%	0.993	5%
Application dummy (differentiating offshore wind projects)	0.017		0.026	5%
Application dummy (differentiating oil and gas projects)	0.045	5%	0.059	5%
Non-turnkey dummy	0.023		Not used	N/A
Current dummy	-0.011		Not used	N/A
Insulation dummy	0.022		Not used	N/A
BritNed dummy	0.006		-0.002	

Table 8: Outcome of Mr Biro's regression analysis

338. The models showed a very high degree of correlation between project cost and price.[398] Neither model showed, according to Mr Biro, an overcharge in the case of BritNed:[399]

> "• Model 1…finds the price of the BritNed project to be 0.6% higher than the average price of post-cartel submarine power cables projects adjusting for costs, application, current, insulation and scope of supply. The results of the regression confirm that the uplift on the BritNed price is not statistically different from zero.
>
> • Model 2 finds the BritNed price to be no higher than the average price of the other post-cartel submarine power cables projects after adjusting for costs and application. The dummy variable on the BritNed project is found to be close to zero and statistically insignificant."

(d) A price comparison analysis which does not directly control for ABB's actual costs of supply, but instead uses proxy measures based on the technical characteristics of the projects

339. Mr Biro's third (complementary) approach was similar to his first, save that instead of using ABB's actual costs, it used proxy measures instead of actual costs to control for differences across projects:[400]

> "…under this approach, a number of key drivers of project costs – such as the technical characteristics of the project and the main raw materials – are used to control for expected differences in project prices before price comparisons are made for the purpose of assessing the cartel overcharge."

340. Mr Biro considered that this approach had a number of limitations, in particular the fact that the highly individualised and bespoke nature of submarine power cable projects meant that identifying reliable proxies for the actual costs was difficult.[401] For this reason,

[398] Biro 1/para. 4.3.5.
[399] Biro 1/para. 4.3.12.
[400] Biro 1/para. 5.1.3.
[401] Biro 1/para. 5.1.4.

he considered his first approach to be more robust and reliable than this one.[402] However, Mr Biro sought to render this third approach as reliable as possible by:

(1) Limiting the comparator projects to those that shared most of their core technical characteristics with the BritNed project;[403] and

(2) Restricting his price comparison to the cable element of these projects and ignoring the other components.[404]

341. By way of this approach, Mr Biro derived a "cable unit price" for the BritNed project and the comparator projects:[405]

"Figure 11 below shows the post-cartel projects for which the main submarine cable had the same technical specification as BritNed in terms of current, insulator and conductor material. For each of these projects and BritNed, the table shows the price of the main submarine cable at contract award, as reported in the tender documents prepared by ABB. The table also reports the dimensions of the main submarine cable – in terms of its length and conductor diameter – which I use to calculate the cable "unit price". The "unit price" for each cable is shown in the final column. It can be seen that the "unit price" of the main BritNed cable is 1,928 SEK.

Figure 11 Calculation of cable "unit prices"

Project	**Date of final offer by ABB**	**Cable price (mSEK)**	**Cable length (km)**	**Area of conductor cross-section (mm^2)**	**Cable "unit price" (SEK)**
BritNed	Jul-07	1,363	494	1,430	1,928
Skagerrak4 Sea	Aug-10	567	140	1,600	2,531
Estlink 2	Oct-10	642	153	2,300	1,830
Western Link	May-11	2,158	382	2,150	2,628
Konti Skan	Mar-13	57	24	1,260	1,925
Maritime Link	Nov-13	688	340	1,060	1,908
Nord Link	Mar-15	1,058	253	2,280	1,834
NSN2	May-15	2,036	521	2,000	1,954
NSN3	May-15	1,630	420	2,000	1,941"

342. Because of the different dates of the final offer by ABB, the unit prices were not comparable, without more, because of the fluctuation in prices over time.[406] In order to render them comparable, Mr Biro sought to control for changes in the prices of the relevant raw materials and production costs.[407] Adjusted in this way, BritNed's unit price was no higher than the adjusted unit price of the other projects, and in some cases distinctly lower.[408]

[402] Biro 1/paras. 5.1.5 to 5.1.6.
[403] Biro 1/para. 5.2.1(a).
[404] Biro 1/para. 5.2.1(b).
[405] Biro 1/para. 5.4.1.
[406] Biro 1/para. 5.4.2.
[407] Biro 1/para. 5.4.2.
[408] See the graphical representation at Biro 1/para. 5.4.3 (Figure 12).

(5) A critical assessment of the two approaches

(a) Introduction

343. The approaches of Dr Jenkins and Mr Biro are in essence different and they reach quite different conclusions as regards the overcharge. Dr Jenkins concluded that the overcharge was considerable, whereas Mr Biro concluded that there was no evidence of any overcharge.

344. Obviously, both experts cannot be right in their conclusions. Equally obviously, I cannot simply – in the abstract – state that I prefer one approach to the other. Both experts presented extremely well in their evidence, and I am quite confident that their work was done to the highest standards and that the experts put forward their work entirely in accordance with their duties to the court. I must, in order to determine the proper approach, probe the methodology of each expert, and reach a view as to who is right and who is wrong.

345. Fundamentally, Mr Biro's approach was more straightforward than that of Dr Jenkins: this is particularly the case for his margin analysis. This approach is tied very closely to the facts and to the data produced by ABB. As a result, Mr Biro needed to make far less use of proxies than Dr Jenkins. Inevitably, proxies of the sort introduced by Dr Jenkins – unless they are perfect proxies – will introduce uncertainties into a model. On the other hand, Dr Jenkins' reason for using proxies was because she considered reliance on ABB's data to be dangerous to a proper assessment because it was unreliable. The reliability – or otherwise – of ABB's data is therefore quite critical in that:

(1) It affects the reliability of Mr Biro's approach.

(2) It justifies Dr Jenkins' approach to move away, so far as possible, from the ABB data.

346. Accordingly, the first point to consider is the extent to which the ABB data is or is not reliable. I consider this in Section I(5)(b) below.

347. Whether or not Dr Jenkins was justified in her concerns about the ABB data, it is necessary to consider the extent to which her use of proxies to simulate cost has introduced excessive uncertainty into her process. That is considered next, in Section I(5)(c) below.

348. Thirdly, there is the question of whose analysis best addresses the question before the court, namely the extent of the overcharge to the BritNed project rather than generally. This point is addressed in Section I(5)(d) below.

(b) The reliability of the ABB data

(i) Dr Jenkins' criticisms

349. Dr Jenkins articulated two concerns arising out of the use of ABB's project-specific costs:

(1) First, she expressed concern at the reliability or accuracy of ABB's figures.[409] Unpacked, these concerns were twofold:

(a) That there was a lack of transparency and inconsistency in ABB's data that rendered it unreliable.

(b) That there might be a biased reporting of costs during the Cartel period.

(2) Secondly, that the inefficiencies introduced by the Cartel into ABB's business (because of a lack of competitive discipline) led to higher costs. In short, there was a baked-in inefficiency in ABB's costs.[410]

350. I have considered aspects of the reliability of ABB's costs in Section H(5) above, and it would be inappropriate to re-visit the conclusions I reached. Obviously, I reached those conclusions in light of the evidence of the experts. However, given the importance of the point to the expert analysis, it is appropriate that I say a little more about the ABB data.

351. Dr Jenkins expanded upon her concerns regarding ABB's data in Appendix A3 to her first report.[411] In this appendix she raised a number of concerns regarding ABB's reported costs, some of them focussing on extremely detailed points of accounting. These points were not traversed in any detail at the trial and it is fair to say that Mr Biro did not regard Dr Jenkins' concerns as well-founded.

352. Essentially, Dr Jenkins raised a series of points – essentially of query – where she could not (at least to her satisfaction) completely understand ABB's internal costings. On the other hand, it must be recognised that these concerns were raised in the context of the costings in relation to multiple, extremely complex, projects undertaken by a sophisticated (and so also complex) undertaking.

353. Dr Jenkins did not go so far as to say what inferences I should draw from her concerns. She simply used them as a reason for avoiding ABB's costings so far as possible, and for relying on her own (proxied) approach to costings. She did not, for instance, seek to assert that ABB's costings had been deliberately skewed; negligently compiled; or incorporated baked-in inefficiencies. She simply felt herself to be in a position where she could not exclude these possibilities.[412]

354. Whilst I am prepared to accept that Dr Jenkins justified in her own mind the course that she took, and I do not criticise her for this, I do not consider that it would be appropriate for me, without more, to adopt her position. No more than Dr Jenkins could can I plumb the detail of ABB's costings in general terms. However, I have had the benefit of hearing from a number of ABB witnesses and of course from Mr Biro himself, who took a different view from that of Dr Jenkins. Mr Biro – as I have described – regarded ABB's costs as being sufficiently reliable to use for the purposes of his analysis.

355. I propose to analyse the reliability of ABB's costs in the Cable element of the tender for the BritNed Interconnector using the distinction between direct costs and common costs

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[409] Jenkins 1/para. 3.7 and Appendix A3/paras. A3.11*ff*.
[410] Jenkins 1/para. 3.7 and Appendix A3/paras. A3.37*ff*.
[411] Jenkins 1.
[412] See the exchanges between Dr Jenkins and Mr Hoskins, QC on Day 9/pp.114*ff* (cross-examination of Dr Jenkins).

described in paragraph 253 above. I will then turn to the question of baked-in inefficiency and cartel savings. I then deal with two other issues regarding Mr Biro's use of ABB's data:

(1) Lost post-Cartel bids of ABB.

(2) Successful submarine Cartel bids other than in relation to the BritNed Interconnector.

(ii) Reliability of direct costs

356. I have described the process by way of which the price for BritNed was initially calculated. Mr Larsson-Hoffstein was a reliable and competent witness and I do not consider that it would be right to infer that ABB's direct costs were either deliberately or negligently inflated.

357. That was Mr Biro's conclusion also. During cross-examination, he was asked about his statement in his second report that ABB's reported costs of supply "have been accounted for in a consistent manner over time and have not been affected by the operation of the Cartel".[413] The exchange was as follows:[414]

Q (Mr O'Donoghue, QC)	You say: "…ABB's reported costs of supply, which I believe have been accounted for in a consistent manner over time and have not been affected by the operation of the Cartel"… Did you verify this?
A (Mr Biro)	Sorry, verify what?
Q (Mr O'Donoghue, QC)	That ABB's reported costs of supply have been accounted for in a consistent manner at the time and not affected by the operation of the cartel?
A (Mr Biro)	I looked at all the PPMs. I looked at how they were put together and, yes, I did, as best I could, from looking at all those PPMs and the way they were put together and looked at how that progressed as time evolved. They gave me granular information on a bottom-up basis as to the costs that went into those projects and allowed me on a consistent basis to put together a gross margin for each of those, because they were sufficiently granular for you to pick out what appeared to be directly attributable costs and take away the common costs.
Q (Mr O'Donoghue, QC)	Did you also look at ABB's disclosure documents, to confirm the PPMs?
A (Mr Biro)	Sorry, what do you mean by that? Which documents?

[413] Biro 2/para. 2.2.2(a).
[414] Day 12/pp.48-49 (cross-examination of Mr Biro).

Q (Mr O'Donoghue, QC)	Well, a number of internal documents have been disclosed by ABB. Did those documents also inform your assessment of the reported costs?
A (Mr Biro)	I did look through the disclosure. I can't recall now, specifically, which documents may or may not have been relevant though. We would have to go through those if we have some.

358. In the event, that exercise did not take place, and I am uncertain that it would have shed much light on the matter. It is clear that Mr Biro was very much in the same position as Dr Jenkins in terms of understanding the way in which ABB costed its projects. He, however, was more prepared than Dr Jenkins to rely upon the PPMs for the purposes of deriving direct costs.

359. In this, I consider he was right. Given my views regarding ABB's process, the evidence of Mr Larsson-Hoffstein, and the circumstances in which the BritNed tender was put together, I have found that the tender – so far as direct costs were concerned – was honestly and competently put together and I do not accept that the uncertainties raised by Dr Jenkins in her report compel a wholesale abandonment of this information. I do not say that Dr Jenkins was not entitled to follow the approach she did – see my finding in paragraph 354 above – and I consider that she was well within her rights and obligations as an expert to do so. But she was not, as I find, compelled to this approach, and Mr Biro was, as I find, entirely justified in his.

360. Ultimately, this is a factual question. For the reasons I have given, I have found, on the facts, and subject to the question of baked-in inefficiencies and cartel savings, that ABB's direct costs were reliable and capable of being relied upon for the purposes of expert analysis.

(iii) Reliability of common costs

361. I have indicated concerns regarding these costs, for the reasons given in paragraphs 266*ff* above. However, as I have described, Mr Biro's approach ensures that these costs are excluded from his margin analysis.

362. Mr Biro's margin comprised everything that was not direct cost. He did not differentiate between profit and an allocation for common costs. He recognised that there was an inherent flexibility in the margin applied to cover common costs and indeed fund profit, in that an undertaking can, quite properly, in order to win a job, accept a "hit" in respect of these margins and this profit. It is for this reason that such margins are capable of disguising a cartel effect.[415]

363. That is why Mr Biro cut the Gordian knot by simply ignoring these figures and providing a margin that comprised the difference between direct costs and total cost. Analysis of this margin – as a percentage of total cost – might serve to show a cartel effect, given the essential reliability of direct costs.

[415] See Day 12/pp.60*ff* (cross-examination of Mr Biro).

364. Thus, I find that the concerns regarding the potential for inflating price by way of common costs have been dealt with by Mr Biro in that I consider that if there has been such inflation, then it will be reflected in Mr Biro's analysis.

(iv) Baked-in inefficiencies

365. I consider that the direct costs contained in ABB's PPMs to be reliable, subject to the question of baked-in inefficiencies. As described in paragraph 214(3) above, such inefficiencies are structural within the business of the cartelist, who may not even be aware of the inefficiency.

366. Mr Biro acknowledged the risk that direct costs might be inflated for this reason,[416] but considered that there was no reason to believe it was a material factor:[417]

> "…I have found no reason to believe that the existence of the power cables cartel induced ABB either (i) to alter how the anticipated costs of supplying the BritNed project were assessed and reported in the internal ABB tender documents (i.e. the relevant cost-calculations and margin transparency reports) or (ii) to refrain from introducing efficiency measures which it would otherwise have implemented. Hence I have no reason to believe that ABB's reported costs exceeded those which would have prevailed in the absence of the cartel."

367. "No reason to believe" is a peculiarly weak formulation given:

(1) These are inefficiencies which could occur notwithstanding the honesty and competence of Mr Larsson-Hoffstein and his team. Baked-in inefficiencies might arise because of an absence of internal pressure to produce a competitive price or (anterior to this) an absence of internal drive within ABB to improve the products it was selling. Thus, Mr Larsson-Hoffstein's otherwise helpful evidence does not especially help here.

(2) The baked-in inefficiency might be highly technical in nature, relating to the products ABB was developing and seeking to supply through the tender. I do not consider that Mr Biro – an expert economist – would be able to identify such inefficiencies, as I am sure Mr Biro would himself accept.

(3) There was no reliable information regarding the direct costs of ABB's competitors to act as a comparator with ABB's direct costs[418] and as a control for any baked-in inefficiencies. Neither party sought to adduce expert evidence regarding the existence – or otherwise – of such inefficiencies.

I conclude that Mr Biro's analysis will not pick-up baked-in inefficiencies insofar as these are contained in ABB's direct costs as reported in the PPMs. Certainly, such inefficiencies will not be shown in the gross margin calculated by Mr Biro.

368. Baked-in inefficiencies ought to be competed away in the post-Cartel period. In the post-Cartel period, either:

(1) ABB will lose tenders, because it is uncompetitive; or

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[416] Biro 1/para. 3.2.10.
[417] Biro 1/para. 3.2.11.
[418] Day 9/pp.119-120 (cross-examination of Dr Jenkins).

(2) It will win tenders because it is competitive.

It is an inference that I am prepared to draw that a successful post-Cartel period tender, being competitive, will not have baked-in inefficiencies. Unsuccessful post-Cartel tenders might be unsuccessful for a whole host of reasons, one of which might be baked-in inefficiencies.

(v) Cartel savings

369. Cartel savings are closely related to baked-in inefficiencies. I am, however, reluctant to use the term "inefficiency" because – so far as the cartelist is concerned – cartel savings are not inefficiencies at all. They are savings to the cartelist, arising out of the fact that the cartelist does not have to incur the full costs of competition.

370. These savings might arise in many ways. In this case, for example, a cartelist who had not been allocated a particular project, might treat the tender process much less seriously (indeed, might not tender at all), and so incur fewer costs. Equally, the advantage of knowing which projects have been "allocated" to which cartelists will make a significant difference in terms of planning future work capacity.

371. Cartel savings can either be part of the direct costs or part of the common costs. To the extent that they form part of common costs, they are controlled for in Mr Biro's analysis.[419] To the extent they form part of the direct costs, they are not.[420]

(vi) Lost bids

372. Mr Biro included in his dataset of projects bids lost by ABB. In Table 6 above,[421] the bid outcome is recorded, and winning and losing bids are differentiated. Mr Biro considered that losing bids provided valuable economic data regarding what ABB believed to be a competitive price.[422] He considered that there was no economic reason to believe that margins associated with losing bids should have been systematically higher than those associated with winning bids in the post-Cartel period.[423]

373. I accept that this may be true as regards margins that ABB hoped to earn. However, I consider that whilst it is appropriate to consider these losing bids, because there is some probative value in them, the fact that ABB lost these bids cannot be disregarded. Inferentially, these bids were losing bids because they were inferior – including inferior as to price – to the winning bids. Of course, having no information about the winning bids, all that can be done is to note the fact that – for some reason – these losing bids were uncompetitive. One reason might be the existence of baked-in inefficiencies.

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[419] See paragraphs 361 to 364 above.
[420] See paragraphs 365 to 367 above. As I have noted, the distinction between baked-in inefficiency and cartel saving is simply that one is a genuine inefficiency, whereas the other constitutes an illegitimate saving to the cartelist.
[421] See paragraph 331 above.
[422] Biro 1/para. 3.4.26.
[423] Biro 1/para. 3.4.27.

(vii) Successful Cartel submarine projects

374. As I noted in paragraph 332 above, the data in Table 6[424] contains some information not originally included by Mr Biro in his analysis. This information relates to successful Cartel-period submarine projects. Although the samples are, inevitably, very small, the data shows:

(1) That the gross margin for Cartel submarine projects (at 26.7%) is some 5.6% higher than the gross margin for post-Cartel submarine projects (at 21.1%). Subject to the point that the samples are very small, this is indicative of increased gross margins during the Cartel period.[425]

(2) However, 26.7% is also significantly higher than ABB's gross margin on the BritNed project itself (at 18.6%).

375. As I have described, Mr Biro's margin analysis sought to compare the margins for the BritNed Interconnector project with the margins for post-Cartel projects which – because they stemmed from the post-Cartel period – ought to have been unaffected by the Cartel. Mr Biro did not regard a margin analysis of non-BritNed Cartel projects as especially helpful to his analysis but included them at my request.

(c) Reliability of Dr Jenkins' model

(i) The relevant uncertainties

376. Four parameters used by Dr Jenkins in her model (specifically two relating to the dataset used and two variables) were the subject of careful scrutiny by Mr Biro during the exchange of expert reports and by Mr Hoskins, QC during the course of Dr Jenkins' cross-examination.

377. These parameters were:

(1) The inclusion of Cartel projects other than the BritNed Interconnector project. This is a parameter going to the dataset used by Dr Jenkins.[426]

(2) The inclusion of underground projects. This, too, is a parameter going to the dataset used by Dr Jenkins.[427]

(3) The use of the "order backlog" or "capacity utilisation control" variable. This is a variable applicable to the entirety of Dr Jenkins' dataset, whatever that dataset might be.[428]

(4) The use of the "time-trend" variable. This is a variable applicable to the entirety of Dr Jenkins' dataset, whatever that might be.[429]

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[424] See paragraph 331 above.
[425] Day 11/pp.195-196, 198 (cross-examination of Mr Biro).
[426] See paragraph 312 above.
[427] See paragraph 312 above.
[428] See paragraph 318 above
[429] See paragraph 318 above.

378. Mr Biro re-ran Dr Jenkins' regression (in fact, he did so in relation to two of Dr Jenkins' models) so as to exclude each of these parameters in turn, whilst leaving the rest of the model unchanged.[430] The outcome on the overcharge deduced by the models was as follows:

Variable	"Model 1"[431]	"Model 2"[432]
ORIGINAL MODEL		
Dr Jenkins' model unaltered Overcharge produced by Dr. Jenkins' model unaltered by Mr. Biro	23.1%	21.8%
VARIANTS		
Variant introduced by Mr Biro Overcharge produced by Dr. Jenkins' model removing Cartel projects from the dataset only	-11.5%	-26.7%
Variant introduced by Mr Biro Overcharge produced by Dr. Jenkins' model removing underground projects from the dataset only	22.0%	17.9%
Variant introduced by Mr Biro Overcharge produced by Dr. Jenkins' model excluding the "time trend" variable only	15.2%	12%
Variant introduced by Mr Biro Overcharge produced by Dr. Jenkins' model excluding the "order backlog" variable only	7%	8.1%

Table 9: Effect on Dr Jenkins' model(s) of certain adjustments by Mr Biro

379. Clearly, removal of the parameters on a parameter-by-parameter basis makes (in most cases) a material difference to the outcome. That, in itself, without regard to the wider context, neither supports nor undermines Dr Jenkins' model. If the parameters are material within the model to deducing the overcharge, their removal from the model will make a difference. That fact says nothing of itself about whether these parameters should or should not be part of the model.

[430] See ZB Annex 1 to the Joint Statement.
[431] I.e. the basecase model used in Jenkins 2: see ZB Annex 1 to the Joint Statement/Figure 1.
[432] I.e. the basecase model used in HJ Annex to Issue 28 of the Joint Statement: see ZB Annex 1 to the Joint Statement/Figure 3.

380. There is a further point to be made. The overcharge was statistically significant to the 5% level using a one-sided test in both "Model 1"[433] and "Model 2".[434] However, when Mr Biro's variants were introduced, the overcharge ceased to be statistically significant at the 5% level or negative.[435] Again, this effect, whilst an important one, says nothing of itself about why the effect is significant.

381. It is necessary to consider the significance of these parameters in a little greater detail and in the context of what it is that is being modelled, to see whether they are appropriate or inappropriate to the model constructed by Dr Jenkins.

(ii) The inclusion of Cartel projects

382. Dr Jenkins included Cartel projects in her model, whilst the only Cartel project considered by Mr Biro in his analysis was the BritNed project itself. As has been described,[436] the inclusion of such projects makes a considerable difference, as is demonstrated by running the model without such Cartel projects being included in the dataset. Essentially, the projected overcharge becomes negative and ceases to be statistically significant.

383. Dr Jenkins agreed with Mr Biro's computations,[437] and considered that the exclusion of Cartel projects from the regression model represented one of the key differences between her approach and Mr Biro's. Whereas Mr Biro's analysis based itself on ABB's direct costs of post-Cartel projects, comparing BritNed's margin with the margin on these projects, Dr Jenkins eschewed ABB's costs data so far as possible, and (using her cost proxies) sought to establish the overcharge independently of the actual ABB costs.[438]

384. In response to Dr Jenkins' first report, Mr Biro re-ran his own regression to include Cartel projects:[439]

> "2.4.3 I have re-estimated the econometric models presented in [Biro 1] including data on the 14 submarine power cables projects sold by ABB during the cartel period to customers other than BritNed;[440] these are included in Dr Jenkins' sample. In order to allow for the fact that any overcharge for BritNed may have differed from those for other cartelised projects, I have included two cartel dummy variables within my regressions – one to measure any overcharge specifically relating to the BritNed project, and one capturing the average cartel effect for the other cartel period projects included in the analysis.
>
> 2.4.4 …It can be seen that, consistent with my previous findings, the estimated Cartel effect for BritNed is both small (approximately 1%) and statistically insignificant; the coefficient on

[433] Referring to that measure in relation to the "cartel indicator" variable, which is the variable used to derive the overcharge: see Jenkins 2/para. 4.32 and Table 4.1. This was accepted by Mr Biro in ZB Annex 1 to the Joint Statement/Figure 1.
[434] Referring to that measure in relation to the "cartel indicator" variable, which is the variable used to derive the overcharge: see HJ Annex to Statement 28 in the Joint Statement/Table 2. This was accepted by Mr Biro in ZB Annex 1 to the Joint Statement/Figure 3.
[435] See ZB Annex 1 to the Joint Statement/Figures 1 and 3. A negative figure is, of course, entirely at variance with Dr Jenkins' assumption that a cartel would produce a nil or positive effect, and not a negative effect – hence her use of one-sided test: see paragraphs 310 to 311 above.
[436] See paragraphs 378 to 379 above.
[437] Day 10/pp.90 to 93 (cross-examination of Dr Jenkins).
[438] Day 10/p.93 (cross-examination of Dr Jenkins).
[439] Biro 2.
[440] These are the 14 projects described as "Cartel submarine projects" listed in Table 6 at paragraph 331 above.

> the Cartel dummy for the other cartelised projects is somewhat higher than that for the BritNed project at around 6%, but is nonetheless statistically significant. Including data on other cartelised projects would not therefore alter my previous conclusion that there is no evidence of a material overcharge for the BritNed project."

385. This conclusion is broadly consistent with the revised margin analysis produced by Mr Biro and set out at paragraph 331 above. As has been noted, this table shows:

(1) A margin for all post-Cartel submarine projects of 21.1%.

(2) A margin for Cartel submarine projects of 26.7%.

(3) A margin for BritNed of 18.6%.

386. It will be necessary to return to the question of averaging in due course, but it is clear that one of the key differences between Dr Jenkins and Mr Biro is that the former derived her overcharge as the difference between the average of Cartel projects and the average of post-Cartel projects, whereas Mr Biro differentiated between *(i)* post-Cartel projects (an average), *(ii)* Cartel-projects excluding BritNed (also an average) and *(iii)* BritNed itself. As Dr Jenkins noted:[441]

> "So, taking the average approach – so, as I said, there appears to be some evidence from this that there is a significant cartel effect, but he has split it between BritNed and the other projects…So, depending on whether one wanted to have that differentiation or just take the average effect, because you see he has this cartel dummy, excluding BritNed and then the BritNed dummy."

This approach, *pace* Dr Jenkins, failed to reflect that fact that ABB's project costs were not clean:[442]

> "As I said, I don't think this is a reliable basis on which to conclude the cartel effect because I think the evidence suggests that those project costs also have a cartel effect baked into them, and therefore you would need to add that in to any effect that is on top of the project cost effect that you see. So this is sort of saying that project costs are clean, and then we see that there is some cartel effect, and then to say what the overall effect of the Cartel would be, you would also want to look at what is the effect on project costs, and add that on to that as well."

387. I do not consider that the fact that when Cartel projects are excluded from Dr Jenkins' model the outcome of the model dramatically changes is indicative of any flaw in the operation of Dr Jenkins' model. Rather, as Dr Jenkins' said, the inclusion or exclusion of these projects is indicative of the very different approach taken by each of the experts. I consider which approach I prefer (taking all factors into account) in Section H(5)(d) below.

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[441] Day 10/p.94 (cross-examination of Dr Jenkins).
[442] Day 10/p.95 (cross-examination of Dr Jenkins).

(iii) The inclusion of underground cable projects

388. Dr Jenkins justified the inclusion of underground cable projects in her first report.[443] She accepted that there were differences between underground cable projects and submarine cable projects but considered that these differences could be controlled for.

389. Mr Biro was of the view that even if the relevant group of projects being analysed was confined to submarine cable projects, any attempt to proxy costs would still be unreliable:[444]

> "Differences in the costs of supplying submarine power cables projects are the most important drivers of price differences between projects. It is essential therefore that these cost differences are controlled for in a robust and reliable manner before making any price comparisons…I am strongly of the view that it is most appropriate to use the *direct costs* that ABB expected to incur, *rather than proxy measures* of these costs, when conducting a price comparison exercise. Given the numerous potential sources of cost differences between submarine power cables projects…these costs cannot reliably be captured by reference to proxy measures, such as certain technical characteristics of the projects."

This was Mr Biro's view in relation to submarine projects. His view regarding the inclusion of underground projects was *a fortiori*.[445]

390. It is first worth asking why Dr Jenkins considered it desirable to include underground projects in her model. The short answer is that it extended the dataset which the model could process: the larger the dataset, the statistically more reliable the outcome. In this case, inclusion of the underground projects enabled Dr Jenkins to have a dataset of 92 projects. She considered 92 projects to be on the low side for her model.[446] Clearly, therefore, including the 43 underground projects was a matter of considerable importance for the purposes of her model's statistical robustness.

391. Of course, this requires that the projects are sufficiently homogenous so as to enable meaningful analysis. Dr Jenkins did not contend that without more underground and submarine cable projects were homogenous. She accepted that there were differences between these project types, but that these differences could be controlled for.[447]

392. The manner in which Dr Jenkins controlled for these differences was to use a dummy variable (the "submarine indicator"[448]) to indicate that a project was or was not submarine so as to enable the model to capture any differences in the level of costs between submarine and underground cable projects. This approach enabled the dependent variable (project value at contract award) to allow for the differences between submarine and underground cable projects.[449]

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[443] See paragraph 317(2) above.
[444] Biro 1/para. 3.2.6.
[445] Biro 1/paras. 3.4.18*ff*.
[446] See paragraph 313 above.
[447] See Biro 2/paras. 2.5.2 and 2.5.3.
[448] See paragraph 318 above.
[449] Jenkins 1/para. 3.92; Biro 2/para. 2.5.3 above. Mr Biro, of course, essentially disagreed that this approach would work.

393. The submarine indicator indicated – using the regression run by Dr Jenkins for the purposes of her first report – that submarine projects were, on average, 107% more (i.e. about twice as) expensive than underground projects.[450]

394. The question, of course, is whether Dr Jenkins was right in her conclusion that the differences between submarine and underground projects could be controlled in this way. Underlying Dr Jenkins' approach is an assumption that all underground and all submarine projects are sufficiently similar, so that what goes for one (submarine or underground) project, goes for each (submarine or underground) project for the purposes of her regression analysis. On this basis, all that Dr Jenkins had to control for was the difference between (generic) submarine and (generic) underground projects.

395. Dr Jenkins tested her conclusion by running her model using only submarine projects.[451] The overcharge projected by this (submarine-only) model was 27.7%, compared with the 25.4% projected overcharge of Dr Jenkins' preferred model (submarine + underground projects).[452] She concluded:[453]

> "Although the cartel overcharge estimate changes little when restricting the sample to submarine projects only, my preferred approach remains the inclusion of underground projects. It increases the number of projects in my dataset by approximately 90% and, given the low number of submarine projects available (fewer than 50), the addition of more comparator projects improves the accuracy and reliability of the overcharge estimate."

396. At first sight, this seems to be a persuasive conclusion. But the hidden assumption is that the 27.7% projected overcharge is in any way reliable, and no more than a coincidence. The very reason for the inclusion of the underground projects was to increase statistical reliability. There is, thus, something of a "bootstraps" point to the argument:

(1) Although Mr Biro accepted that the projected overcharge was as reported by Dr Jenkins, he noted that:[454]

> "…a number of the estimated parameters change considerably when underground projects are dropped from Dr Jenkins' analysis. In particular:
>
> a. the estimated parameter relating project price to the cable voltage falls by 50%, and becomes statistically insignificant at the 5% level;
>
> b. the estimated cartel effect becomes statistically insignificant;
>
> c. the estimated parameter relating to price to ABB's order backlog increases by more than 30%; and
>
> d. the estimated parameter on the time-trend variable becomes statistically insignificant."

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[450] Jenkins 1/para. 3.115.
[451] Jenkins 1/para. 3.121.
[452] Jenkins 1/para. 3.122.
[453] Jenkins 1/para. 3.123.
[454] Biro 2/para. 2.5.7.

(2) In short, the exclusion of underground projects brought about changes to the model's output that would not be expected if the set of projects comprising submarine and underground cables was as homogenous or as controllable as Dr Jenkins suggested. Mr Biro put the criticism as follows:[455]

> "These changes confirm that the dummy variable approach employed by Dr Jenkins does not adequately control for the differences between underground and submarine projects, contrary to her claims, because – if it did – then one would not expect to see the parameters of her model change when underground projects are excluded. The fact that Dr Jenkins' estimated parameters change suggests that the relationship between project prices and the drivers of prices which are included in her model are in fact different between submarine and underground power cables projects."

(3) These remained the battlelines between the experts in the Joint Statement.[456] Although Dr Jenkins refined her model (in particular to include interaction terms to further refine the relationship between underground and submarine projects[457]), Mr Biro's criticisms remained in substance the same: the relationship between project prices and the drivers of project prices were fundamentally different for underground and submarine projects.[458]

(4) Dr Jenkins was cross-examined on her opinion that underground cable projects should and could be included in her model:[459]

(a) It was noted that the "submarine only" regression showed that certain variables that <u>were</u> statistically significant in the "submarine + underground" regression were <u>not</u> statistically significant in this regression, specifically the "time trend" variable. Dr Jenkins was asked why she did not re-run the model so as to exclude this variable, as it was not statistically significant:[460]

Q (Mr Hoskins, QC)	Did you re-run your model excluding that time-trend variable?
A (Dr Jenkins)	No, I didn't.
Q (Mr Hoskins, QC)	Why didn't you do that? Is that not the norm? That is something we have seen you both do. Why wouldn't you do that?
A (Dr Jenkins)	Because, in this situation, by focussing only on the submarine projects, the sample reduces significantly from 92 projects to 49 projects, and when you have fewer observations, that can affect your ability to precisely estimate effects and I know from the other analysis that I have done that the quarterly time trend is an important variable to include, and

[455] Biro 2/para. 2.5.8.
[456] Joint Statement/Issues 22 and 23.
[457] See Dr Jenkins remarks in Issue 23 in the Joint Statement.
[458] See Mr Biro's remarks in Issue 23 in the Joint Statement.
[459] Day 10/pp.117*ff* (cross-examination of Dr Jenkins).
[460] Day 10/pp.118-119 (cross-examination of Dr Jenkins).

> therefore the fact that in this sensitivity it appears to me to be insignificant isn't a reason for me to drop it, because once I drop it, I'm omitting an important factor that I know in the model is an important explanator of pricing, even if with only 49 projects I'm not able precisely to estimate it.

This is a statement that because the time-trend variable is relevant to the submarine + underground set, it is relevant to the submarine set, even though the model shows it to be statistically insignificant, but capable of significantly affecting the dependent variable outcome.[461] The assumption being made by Dr Jenkins is that there is an essential similarity between the submarine + underground dataset and the submarine dataset: but that is the very point at issue.[462]

(b) I am not persuaded that Dr Jenkins' iterative refinement of the relationship between submarine and underground projects in her model solved this issue. All it did was re-package the problem, without resolving it.[463] I do not consider – where, as I find, the relationship between underground and submarine cable projects is essentially different – that it is possible, by tweaking the parameters defining the relationship between these two classes, to create a model capable of reliably stating the dependent variable.[464]

(c) Mr Biro's point – that there was an inappropriate assumption that the relationship between submarine and underground projects was the same – remained.[465]

397. In light of this evidence, I conclude that the inclusion of the underground cable projects into Dr Jenkins' model was inappropriate because it is not possible to model the differences that exist between underground and submarine cable projects. As a result, although Dr Jenkins attempted, in her model, to take account of these differences, the consequence was the introduction of significant unreliability into the model's output.

(iv) Exclusion of the time trend variable

398. Mr Biro's re-running of Dr Jenkins' model without the use of the time trend variable was triggered by the fact that that variable became statistically insignificant when

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[461] In Biro 2/para 2.5.6 at Figure 15 and para. 2.5.9, Mr Biro noted that the omission of this variable from the regression "leads to a significant reduction in the estimated cartel effect, and that the estimate of the cartel coefficient then becomes statistically insignificant at any level of confidence".

[462] See Dr Jenkins' evidence on this point at Day 10/pp.119-121 (cross-examination of Dr Jenkins)

[463] Day 10/pp.122-128 (cross-examination of Dr Jenkins).

[464] Dr Jenkins made a valiant effort to suggest that such tweaking was possible: Day 10/pp.132*ff*. But her essential problem was that her model needed to reflect reality. Where that reality is either unknown or so individualised as to preclude projection, it is clear that no matter how competent the modeller or how sophisticated the model, the model will fail to be meaningful.

[465] Joint Statement/Mr Biro's Statement 23.

underground projects were excluded from the model.[466] As has been described,[467] excluding the time trend variable (but including underground projects) has a significant effect on both the level of the overcharge and on its statistical significance.

399. As regards the time trend variable:

(1) Dr Jenkins explained the use of a time trend variable in the Joint Statement:[468]

> "It is standard practice to include a time trend in regression analysis. I include one here to capture any remaining trends in raw material prices, changes in manufacturing/efficiency and long term systematic changes in the cost of supply."

(2) Mr Biro's model did not use a time trend variable: any such effects were directly accounted for in his analysis because Mr Biro's preferred model used ABB's actual costs of supplying the projects. Had ABB achieved cost efficiencies over time, these would have been reflected in the actual costs of supply recorded by ABB. Equally, any inflationary impacts on costs would be directly factored in.[469]

(3) Of course, the fact that Mr Biro's model did not require a time trend variable says nothing about the need for or appropriateness of such a variable in Dr Jenkins' own model.

(4) However, Mr Biro also made the following criticism of the time trend variable as used in Dr Jenkins' model:[470]

> "Dr Jenkins' price technical characteristics modelling approach cannot control directly for the impact on costs and prices of any cost efficiencies achieved by ABB; moreover, as her analysis controls only for changes in the prices of the metals used in the cable conductor (i.e. aluminium or copper) and ignores the prices of other raw materials and inputs that are used in the production of the cable, there is a significant gap in her regression model with regard to capturing the impact of input price inflation on the costs of supply – and hence the prices – of power cables projects. Nevertheless, I do not agree with Dr Jenkins that including a time trend variable provides an appropriate or reliable basis for controlling for other drivers of costs which are omitted from her model. The time trend approach assumes that ABB achieved a constant percentage reduction in costs through efficiencies in each year; similarly, it assumes that the input price inflation faced by ABB was the same in each of the years covered by the data. I can see no basis for believing that either of these assumptions is valid.
>
> Examining Dr Jenkins' modelling results suggests that (i) her time trend variable does not provide a good proxy for the factors which are missing from her regression model and (ii) the statistical significance of that variable may be entirely spurious. In particular, Dr Jenkins' estimated time trend effects vary considerably when other cartel-period projects are excluded, and the ABB Power Technologies order backlog variable is replaced with the ABB SEHVC order backlog.

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[466] Biro 2/para. 2.5.9. See also paragraphs 378 to 379 above.
[467] See paragraphs 378 to 379 above.
[468] See Dr Jenkins' remarks in Joint Statement/Issue 30.
[469] See Mr Biro's remarks in Joint Statement/Issue 30. Dr Jenkins agreed with this: Day 10/pp.173 -174 (cross-examination of Dr Jenkins).
[470] See Mr Biro's remarks in Joint Statement/Issue 30.

Since the time trend variable appears to provide a relatively poor proxy for the evolution of the factors which are missing from Dr Jenkins' model, any predictions regarding the BritNed overcharge which are generated by this model will not be reliable. The estimated time trend effect in Dr Jenkins' basecase model would imply that the prices of power cables projects increased by around 35% over a ten year period simply due to factors missing from her model (which Dr Jenkins proxies with a linear time trend). When her time trend variable is excluded from her model, the cartel coefficient becomes statistically insignificant. These results hold for Dr Jenkins' original basecase model in HJ1 and both of her subsequent revised basecase models, as set out in HJ2 and HJ Annex to Statement 28 of this joint report."

Thus, Mr Biro considered that because of the failure of Dr Jenkins' model properly to assess the costs of the projects comprising her dataset, a time trend variable was necessary, but that the variable used by Dr Jenkins was not fit for purpose.

(5) It was put to Dr Jenkins that inflationary increases and savings due to efficiencies were unlikely to be purely linear over time. Dr Jenkins did not accept this. But she was unable to assert (or at least, assert convincingly) that a linear time trend did indeed reflect the real world, and I do not accept her evidence in this regard.[471] I note in particular the following exchange with Mr Hoskins, QC:[472]

Q (Mr Hoskins, QC)	So, just to take stock of that, your time trend is intended to capture the net effect on…prices of things such as inflation and improved efficiency that are not specifically included in your model, is that correct?
A (Dr Jenkins)	That's correct.
Q (Mr Hoskins, QC)	And your time trend increases at a constant linear rate?
A (Dr Jenkins)	That's correct.
Q (Mr Hoskins, QC)	It therefore assumes that the net effect on prices of the variables that you are seeking to capture is increasing at a constant linear rate?
A (Dr Jenkins)	That's correct.
Q (Mr Hoskins, QC)	But there is no *a priori* or empirical reason to believe that that was in fact the case? I.e. that the net effect is itself increasing at a constant and linear rate?
A (Dr Jenkins)	It is an assumption, that is correct.
Q (Mr Hoskins, QC)	And if the net effect of these variables did not increase, or did not increase at a constant linear rate, that calls into question the specification of your model, doesn't it?
A (Dr Jenkins)	So, then, that would be part of the unexplained variation in model, the fact that, perhaps, I don't know, you could – imagine you could put a curve

[471] Day 10/pp.175 to 181 (cross-examination of Dr Jenkins).
[472] Day 10/pp.179 to 180 (cross-examination of Dr Jenkins). See also Day 10/pp.193-194 (cross-examination of Dr Jenkins).

> or something that goes up for a bit, you could add different slopes at different points in time, if you had strong prior beliefs about when you wanted these things to change.
>
> Obviously, you need to– because we are looking at a period of time where what we are interested in testing is – or what my specification is designed to do is allow you to see whether there is an average difference in the prices at the time of the – while the Cartel is active as compared to when it isn't.
>
> You need to be careful that you are not – the purpose of the time trend is, in a sense, to say to the extent that there is this general overall increase in prices through this period, I don't want that to be the reason why I find a cartel effect or don't find a cartel effect. So, in a sense, I'm saying allow for the fact that these variables may change over time in this linear fashion and then see whether there is still a cartel effect when you have controlled in that way. You can put more structure into that, but you do need to be careful not to make that just the same test as the cartel effect.

400. The problem with Dr Jenkins' time trend variable was twofold:

(1) Accepting that there is a need for a variable to "mop up" for matters not already captured by Dr Jenkins' model,[473] if there is genuine homogeneity in Dr Jenkins' dataset, one would expect the output for the time trend variable to be similar whether the entire dataset is modelled or only a part of it. But we know that that is not the case, given the outputs for the submarine + underground model and the submarine only model.

(2) Equally, given that the time trend variable is an ancillary variable, not intended to create a cartel effect where none would otherwise exist, it is troubling to find that the removal of this variable makes a considerable difference to the outcome.

401. I consider that, as a proxy for capturing the real-world changes actually captured by Mr Biro's model, Dr Jenkins' time-trend comes a poor second. I also find that, as a variable, it highlights rather than resolves the fragilities that exist in Dr Jenkins' efforts at proxying the costs of underground and submarine cable projects.

(v) Exclusion of the order backlog variable

402. In the Joint Statement, Dr Jenkins explained the purpose of the order backlog variable as follows:[474]

"It is important to control for factors that have changed over time that may have affected ABB's pricing, particularly factors that are systematically different during and after the Cartel. If ABB's

[473] To use Mr Hoskins, QCs' description in cross-examination: Day 10/p.174 (cross-examination of Dr Jenkins).
[474] See Dr Jenkins' remarks in Joint Statement/Issue 27.

appetite to win projects was greater during the Cartel than after the Cartel, then failing to control for this would be expected to lead to downward bias in the assessment of the overcharge. Lower prices of projects during the Cartel period, when ABB had a strong appetite for new projects, would be incorrectly compared with higher prices of projects after the Cartel period, when ABB had less of an appetite for new projects. That is, the post-Cartel period projects would not be suitable benchmarks for the competitive counter-factual prices during the Cartel period, when ABB's appetite was high (or demand was low), unless this factor is controlled for in the assessment."

403. To control for this factor, Dr Jenkins focussed on ABB's order backlog, as the control for ABB's appetite for new projects.[475] The way in which Dr Jenkins sought to model for this factor varied over time. As with other aspects of her model, which also changed over time, Dr Jenkins is not to be criticised for this, as she was reflecting changes and developments in the evidence. Initially, Dr Jenkins' controlled by reference to ABB's order backlog in relation to ABB's Power Technologies Division.[476] However, as the evidence developed, Dr Jenkins controlled by reference to ABB's order backlog in relation to the global Power Systems division of ABB.[477]

404. Dr Jenkins' premise for the inclusion of this variable was that, during the Cartel period, demand was slack, and therefore prices were lower, whereas after the Cartel period, demand picked up, and prices rose. Demand, *pace* Dr Jenkins, was to be measured essentially by reference to ABB's capacity utilisation (i.e. the extent to which ABB had spare capacity for additional work). The inference was that if and to the extent that ABB was short of work, it would adjust its prices downwards accordingly.

405. In principle, Mr Biro agreed with this.[478] However:

(1) He considered that this was a factor that was very difficult to measure for. He noted that in his first report, he had been unable to identify a proxy measure for ABB's appetite to win new projects that was sufficiently reliable to merit inclusion in his analysis.[479]

(2) Furthermore, he did not consider that the facts supported the inference that Dr Jenkins sought to model:[480]

> "I therefore investigated whether there are grounds to believe that the expected level of commercial appetite across the submarine cables manufacturers in securing the BritNed project absent the Cartel would have been systematically greater than that associated with the post-Cartel comparators. On the basis of the available information, I do not consider this to have been the case; as such, I stated that I had no reason to believe that the competitive margin associated with the BritNed project should have been lower than those associated with the group of post-Cartel comparators used in my overcharge analysis."

406. Two points must be noted from Mr Biro's response.

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[475] See Dr Jenkins' remarks in Joint Statement/Issue 27.
[476] See Dr Jenkins' remarks in Joint Statement/Issue 27.
[477] See Dr Jenkins' remarks in Joint Statement/Issue 28.
[478] See Mr Biro's remarks in Joint Statement/Issue 27.
[479] See Mr Biro's remarks in Joint Statement/Issue 27.
[480] See Mr Biro's remarks in Joint Statement/Issue 27.

(1) First, consistent with his general approach, Mr Biro was seeking to establish whether the level of demand at the time of the BritNed project would have affected ABB's margins in comparison with the post-Cartel projects he was comparing the BritNed project with. By contrast, consistent with her general "averaging" approach, Dr Jenkins was looking at the entirety of the Cartel-period projects, and considering whether, as a group, these projects were affected by low-demand.

(2) Secondly, Mr Biro was explicitly considering what would have been the case in relation to the BritNed project had the Cartel never operated. This, as it seems to me, is the correct question. I am concerned to assess the extent of the overcharge, which requires me to consider what, in the counter-factual case where there was no Cartel, would have been the true price of the BritNed project. This, however, highlights a difficulty in using Cartel-period metrics to assess what would have happened had the Cartel never operated. I have no doubt that – had the Cartel not served as the basis for the allocation of projects to members of the Cartel – ABB (and the other cartelists) would have made different decisions regarding its business (e.g. as regardings reducing or augmenting capacity), which would have affected their levels of order backlog. Equally, the order backlog as it existed during the Cartel, did not arise in a competitive environment. I therefore see considerable difficulties in terms of reliability in Dr Jenkins' use of any variable based on ABB's order book during the Cartel period.

407. Mr Biro did not consider that Dr Jenkins' attempt to control for demand by reference to ABB's order backlog in relation to the global Power Systems division of ABB to be reliable.[481]

408. In cross-examination, Dr Jenkins accepted that there were two factual matters that underpinned her variable: *(i)* the demand conditions, and ABB's appetite to win projects; and *(ii)* the extent to which these conditions varied over time.[482] Dr Jenkins accepted that if ABB's appetite to win projects remained the same over time, it would not be necessary to control for this factor in any econometric model.[483]

409. Mr Ekman was called by ABB specifically to give evidence in relation to ABB's order backlog metrics.[484] His evidence was put to Dr Jenkins:[485]

Q (Mr Hoskins, QC)	So, again, these are all factual issues which you are not in a position to contradict, is that correct?
A (Dr Jenkins)	Yes.
Q (Mr Hoskins, QC)	And Mr Ekman's view, as stated in his evidence, is that ABB's order backlog does not provide a reliable proxy for the extent of spare capacity in ABB's Karlskrona cables factory. Given that that is the evidence of a factual witness, how do you bring your economic expertise to say that, despite that factual

[481] See Mr Biro's remarks in Joint Statement/Issue 28.
[482] Day 10/p.141 (cross-examination of Dr Jenkins).
[483] Day 10/p.143 (cross-examination of Dr Jenkins).
[484] See Ekman 1.
[485] Day 10/pp.143*ff* (cross-examination of Dr Jenkins). The quoted passage begins at Day 10/p.145.

position, you say nonetheless the court should have regard to it?

A (Dr Jenkins) So, the order backlog figure that I have used is that with respect to the Power Systems division, and I have based that on public domain information that ABB releases to the financial markets as part of its financial reporting and in those reports, when it is reporting to the financial market, it reports quite frequently on order backlog as a good indicator for the financial markets about future performance of the business and its success.

So, for me, what we are interested in is the appetite of ABB more generally for winning new work and that decision on final pricing for these types of projects is taken at a relatively high level and is also related not just to what is going on in the Karlskrona factory, but my understanding from the disclosure and the breadth of the witness evidence is that also involves the fact that ABB was generally looking to make package sales and therefore its appetite to win a given project will be affected by the scope of that project and – you know – which includes the converter station, substations, other aspects, that was well-matched to the Power Systems division.

So, while Mr Ekman's evidence focussed very much on order backlog and the Karlskrona factory, I think the way I'm relying on the order backlog figure is at a more general level, to capture how the business felt about acquiring these new major projects. And I thought – I think – that the order backlog variable does capture that at a sufficiently high level, given the evidence that this is one of the metrics that ABB relies on when reporting itself to the financial markets.

410. The problem is that the significance of the order backlog arises out of the assertion of Dr Jenkins, in circumstances where the point she makes is not accepted either by the relevant factual witness (whose evidence I believe) nor by the other expert.

411. The measure also does not seem to reflect the way in which – for instance – the BritNed negotiation was actually conducted. In Section F above, I have described the history of the BritNed tender in some detail. Obviously, order backlog did not feature in ABB's thinking: that is not necessarily inconsistent with Dr Jenkins' analysis, for the variable was intended as a proxy. But, even as a proxy, the measure seems an extremely doubtful one:

(1) If, for reasons of capacity, ABB was unable to meet the requirements of a tender, then in my judgment it would simply not bid. I very much doubt that – not having the capacity to meet the bid requirements – ABB would incur the costs of a tender, but tender at such a price that it would not obtain the contract. Such a course would not only give ABB a reputation for high (indeed, potentially uncompetitive) prices, but would also place it in a difficult position if (against all expectation) it won a tender it could not perform.

(2) As I have noted,[486] whether ABB had capacity to fulfil a particular project would depend upon the exact technical requirements of the job and the time-frame within which the work needed to be done. These are matters which turn on the specific project in question: order backlog (which references projects in general) is a much broader measure unlikely to provide a guide as to whether, in any specific case, ABB would be able to meet the tender requirements.

(3) Equally, ABB might find itself unable to tender for a particular project, because of a filled bottleneck in its processes rendering it impossible to meet the tender requirements, despite a relatively empty order book.

(4) Finally, although I accept that the general "busy-ness" of ABB would make ABB more eager to generate new business if business was otherwise slack, I doubt very much whether there is any particularly close correlation between such busy-ness and the outcome of any particular negotiation.

412. The reliability of the measure used by Dr Jenkins can also be tested – albeit not conclusively – in the following two ways:

(1) By the fact that – in the post-Cartel period – there is simply no correlation between gross margins and order backlog. This was an exercise carried out by Mr Biro, explicitly in relation to the post-Cartel period, in order to assess how far margin varied with order backlog. He found no correlation.[487] In effect, this was done as a test for the reliability of the measure when there was no Cartel in play. Dr Jenkins rejected the validity of the analysis:[488]

Q (Mr Hoskins, QC)	He states that this shows that there is not any relationship between ABB's order backlog, either Power Technologies data or SEHVC data, and its gross margins. Do you agree that that is the conclusion that can be drawn from these results?
A (Dr Jenkins)	No, I don't agree with that. I don't agree that you can conclude that from these two figures.
Q (Mr Hoskins, QC)	Why do you say that?
A (Dr Jenkins)	Because, if you look at the period that we are looking at here, that post-Cartel period, you can see that actually the variation – there is some variation in order backlog, but there is a very big variation in order backlog if you just go back in time another five years or so, right, and it is that move, which is just at the time that the Cartel is breaking down – you have the global financial crisis, you have a lot of things going on at that time, and it is that effect that is missing, that you are not capturing in this analysis.

[486] See paragraphs 198 to 199 above.
[487] Biro 2/paras. 2.7.30 to 2.7.31.
[488] Day 10/pp.165*ff*.

Why that is important is because you are going to extrapolate from this information back to a period in 2007 when BritNed was sold, and given that the order backlog situation was very different then than it was in this period post-Cartel, just relying on how order backlog affected margins in this period may not fully capture the effect during the Cartel.

Now, plus we have the margins argument, but I will abstract from that discussion.

Q (Mr Hoskins, QC) With respect, this is post-Cartel projects only, so there is no Cartel effect on the reported costs, because this is post-Cartel projects only, yes?

A (Dr Jenkins) Yes, but when we extrapolate into the Cartel period to predict the effect on BritNed from this information, that is when that becomes relevant.

Q (Mr Hoskins, QC) That's right. But that is not what this exercise is about. What this exercise is about is seeing whether there is any correlation between ABB's margins and its order backlog. This is a very specific purpose, which is to test the appropriateness of order backlog data for representing ABB's appetite and therefore the prices it might propose for projects?

A (Dr Jenkins) But the purpose of this is to then extrapoldate backwards in time and the fact – so the fact that you may or may not see relationships, I mean, I think it's – when I have done the regression analysis on the restricted sample size, what you find is that there is a positive relationship between Power Systems or Power Technologies and my measure of price. I haven't done a regression analysis on margins as presented here by Mr Biro, but it is not significant, right. So it is saying there is a positive effect, but there isn't enough information to identify it.

However, when I use the longer sample, which captures more of the large variation in respect of what was going on in respect of order backlog, then I do find significant effects.

So all I'm saying is the time period you look at affects how well you can capture the effect of order backlog.

Q (Mr Hoskins, QC) Looking at the effect of order backlog in the clean period, what this does allow you to see is whether there is any degree of correlation, and these two figures show that there is no correlation between them.

The question that you repeated a couple of times, that the point of this is to extrapolate backwards in time, but with respect, the point of this

exercise is not to extrapolate backwards, it is to take an absolutely clean period and just to see whether your premise, that backlog data can be used as a proxy for ABB's appetite and therefore the prices it is willing to propose, is a good one or not.

Now, that is a very narrow exercise and the results of this exercise show that there is no correlation. Do you accept that?

A (Dr Jenkins) No, I don't accept that. I think I explained this morning, when we were discussing backcasting, that one of the key requirements for a backcasting approach to be valid is that any of the elements you are seeking to capture that themselves change over time, then you need to be sure that in the post-Cartel period you are capturing sufficient variation in that period to reflect well the type of variation that is observed during the Cartel, and that is my criticism of relying only on post-Cartel data for identifying the effect of order backlog and indeed the effect of the time trend.

Q (Mr Hoskins, QC) One of us is not listening to the other, and it may be me not listening to you, and I apologise if that is the case.

This is nothing to do with regression analysis. It is simply plotting, is it not, of margins and backlog data?

A (Dr Jenkins) But I'm explaining why, even though I might agree that if you look just at these pictures, you might draw some conclusion or you might not – it is hard to often see just from a visual inspection these things – why it is not relevant for the question you then put to me, which is this tells you that there is no relationship between price and order backlog that is relevant in this case. That is what I understood the question you were putting to me to be.

Q (Mr Hoskins, QC) Let me resort to something I have had to do with you on a number of occasions, which is: do you accept there is any evidential value in this exercise when it comes to evaluating whether there is any relationship between order backlog data and ABB's appetite? Are we in a binary position or do you accept this has some evidential value?

A (Dr Jenkins) I think that for the question of interest, which is what do we think is the competitive counter-factual price for BritNed, then these have limited evidentially value because they don't capture how order backlog varies across the whole time period that is of interest.

I do not accept this last answer from Dr Jenkins. Mr Biro was testing – before getting into the point in time affected by the Cartel – whether there was a simple correlation between price and order backlog. Such a correlation must be evidenced for the order backlog variable properly to be input into a model. Unless one can be satisfied that there is some sort of correlation between the two factors, there is no point in putting a variable that has been shown not to correlate into the more complex, multi-variable, regression.

(2) The fact that, when the order backlog variable is removed from the regression, the overcharge is significantly affected and becomes statistically insignificant suggests that the cartel effect can only be established to a level of statistical significance when the order backlog variable is used. That, as it seems to me, is intrinsically unlikely.

413. In these circumstances, I regard the order backlog variable as liable to introduce dangerous levels of uncertainty into Dr Jenkins' model.

(d) Which approach is preferable?

(i) The reliability of Mr Biro's model

414. Dr Jenkins' approach was clearly significantly more complicated than that of Mr Biro and so inherently more prone to error. In my judgment, where there is a choice between using actual data and a proxy for that data, the former ought to be preferred, unless there is good reason for not relying on the actual data.

415. In this case, Dr Jenkins preferred the use of proxies for ABB's direct costs because she considered ABB's costs to be unreliable. I do not share those concerns:

(1) For the reasons that I have given, I consider that ABB's direct costs (which form the basis for Mr Biro's analysis) can be relied upon, save as regards baked-in inefficiencies and cartel savings. Baked-in inefficiencies and cartel savings are not, as I have found, sufficiently controlled for in Mr Biro's assessment of direct costs. However, these inefficiencies/illegitimate savings can be controlled for by using the distinction between successful and unsuccessful post-Cartel tenders.[489]

(2) As I have described, Mr Biro side-steps the difficulties that arise in relation to ABB's common costs. The fact that I have concerns about the allocation of ABB's common costs to particular projects – which I do – in no way undermines Mr Biro's analysis.

(3) There remain the concerns that I have regarding indirect influence on the level of ABB's tender for the BritNed Interconnector. However, just as with baked-in inefficiencies, I consider that this is a matter that can be controlled for within Mr Biro's analysis, and I seek to do so in Section I below.

416. In conclusion, Mr Biro's margin analysis represents a reliable tool for assessing the overcharge. The analysis cannot be followed blindly, and I do not propose to follow it blindly, having well in mind its limitations. But I regard the margin analysis as helpful evidence that I must take into account in my overall assessment of the extent of the

[489] See paragraph 368 above.

overcharge, which I consider in Section I below. So far as Mr Biro's two complementary analyses are concerned, I see them as just that: confirmatory of the margin analysis, but essentially no more helpful than that. I will principally make reference to the margin analysis.

(ii) The reliability of Dr Jenkins' model

417. On the other hand, Dr Jenkins' regression analysis is insufficiently reliable to be used in any way at all. In my judgment, Dr Jenkins has defined too complex a regression, with the result that the outcomes of her model are so unspecific that they simply cannot be relied upon:

(1) The proxies for cost are, in my judgment, insufficiently aligned with the actual – highly individual – costs of submarine projects.

(2) That problem is exacerbated by the inclusion of underground projects, which are essentially different from submarine projects.

(3) The unreliability of the model is further exacerbated by the time trend and order backlog variables.

I regard these issues with Dr Jenkins' model as sufficiently fundamental to its reliability as to justify an entire disregard of that model for the purposes of assessing whether there was an overcharge.

418. This is, as I appreciate, a significant matter so far as BritNed's claim is concerned. I have not reached this conclusion lightly and have sought to cross-check it: the essential unreliability of Dr Jenkins' model can further be demonstrated in three ways:

(1) First, as has been described, there is the fact that removal from the model of variables that might be said to be subsidiary has a disproportionate effect on the model's outcome. Neither the time trend variable nor the order backlog variable ought to be fundamental to the operation of the model. If there is an overcharge, then it ought to be capable of being demonstrated in a statistically significant manner without these variables. The fact that it cannot – added to the fact that I have grave concerns about the appropriateness of these variables – is obviously an issue.

(2) Secondly, the fragility of the model is in large measure hidden by Dr Jenkins' use of averages. Dr Jenkins has been clear throughout that her model contrasts Cartel and post-Cartel projects, and uses the average difference to compute the overcharge for the specific case, the BritNed project.[490] The accuracy of the model in an individual case can, however, be illustrated by applying it to a specific case other than the BritNed Interconnector. Mr Biro carried out this exercise in relation to

[490] See Jenkins 2/para. 2.12: "In my assessment, I included a similar number of projects, both submarine and underground, procured during and after the Cartel. This means that I rely on information on projects supplied by ABB during the Cartel period other than BritNed and that my approach gives an estimate of the average effect of the Cartel on the HV cable projects sold by ABB during the Cartel period. Within my statistical framework, I am able to test whether the Cartel effect relating to the BritNed project itself is significantly different from the average effect I estimate, and I find that it is not."

each of the 35 Cartel period projects within Dr Jenkins' dataset.[491] This showed considerable variation in the overcharge projected for each of the Cartel-period projects. Thus:

(a) BritNed came in with an overcharge of 21.8%.

(b) Negative overcharges were projected for five projects (Enertrag 1b, RodSand 1 (UG), Stora Bält, Trige and Æro).

(c) Small overcharges, of around 5% or less, were projected for four projects (Estlink 1, Messaure, Rijeka and Struer-Ramme).

(d) Massive overcharges, in excess of 40%, were projected for six projects (Burbo, Coalburn, Gjöa, Lister-Drive Wavertree, Q7 and Stalybridge).

These outcomes represent significant deviations from the mean. Some projections – the negative ones – are simply inconsistent with Dr Jenkins' assumption that the Cartel would inevitably generate an overcharge. These workings were put to Dr Jenkins in cross-examination:[492]

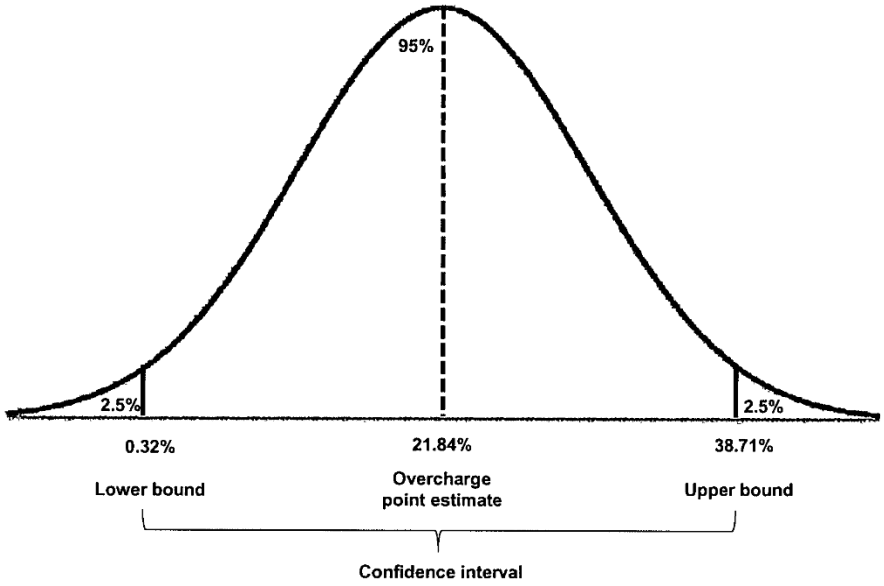
Q (Mr Hoskins, QC)	Then [Mr Biro] has set out, applying that model to each of the individual Cartel-period projects, the results, And again, I am not at this stage going to ask you about what one might draw from that, but do you agree with the actual results? Have you tried to replicate what Mr. Biro has done?
A (Dr Jenkins)	Yes, I agree with the results.
Q (Mr Hoskins, QC)	This graph shows quite clearly, does it not, that the assumption that one can assume a similar overcharge effect across all Cartel-period projects is incorrect, is it not?
A (Dr Jenkins)	So these differences…are the differences between the predicted price for my model and the actual prices. So these include idiosyncratic effects on the different projects. And, yes, there is a lot of variation in the dataset. I have acknowledged that. And that is why, even though, the BritNed-specific effect is slightly higher than the average throughout – and I think it was higher still in the earlier versions of my analysis – I always have preferred the average effect, because I think that is a better estimate of the Cartel effect, given we are trying to glean that effect from the data that we have available to us.

Mr Biro's work demonstrated that an average approach was unlikely to be representative of the overcharge in any given case: but that obviously assumed that the model provided reasonably accurate predictions of the overcharge. I do not

[491] See Annex 3 to ABB's written opening submissions.
[492] Day 10/p.62 (cross-examination of Dr Jenkins).

consider that such an assumption can be made. What Mr Biro's figures show is the essential unreliability of Dr Jenkins' model.

(3) Thirdly, the confidence interval of the model is scarcely impressive. The nature of a confidence interval was described above.[493] In the case of Dr Jenkins' model, the distribution curve for a 95% two-sided confidence interval is as follows:[494]



Source: Oxera.

Figure 1: 95% two-sided confidence interval for the output of Dr Jenkins' model

The point estimate – being the most probable outcome – is an overcharge of 21.84%. However, the confidence interval – the range that has a 95% chance of containing the true value – is vast, ranging from 0.32% to 38.71%.

It would be unconventional to use a 51% confidence interval for the analogy to the balance of probabilities test used by lawyers is entirely spurious. But even here, with a confidence interval of just 51%, the interval or range is considerable. The relevant figures for both confidence intervals, expressed both as a percentage and in monetary terms, are set out in the table below:

[493] See paragraphs 307 to 309 above.
[494] See the 24 August 2018 Expert Responses.

Confidence interval (two-sided)	Lower bound	Median (point estimate)	Upper bound
95% confidence	**Lower bound: 2.5%**		**Upper bound: 97.5%**
Overcharge (%)	0.32%	21.84%	38.71%
Overcharge (€)	€885,000	€61.3m	€108.7m
51% confidence	**Lower bound: 24.5%**		**Upper bound: 75.5%**
Overcharge (%)	14.92%	21.84%	28.19%
Overcharge (€)	€41.9m	€61.3m	€79.1

Table 10: Confidence intervals for the output of Dr Jenkins' model

In the 24 August Response, Dr Jenkins suggested that the overcharge at the lower bound must constitute the minimum overcharge, being a figure that commanded a 95% or 51% confidence (as the case might be). I reject this point. As Mr Biro made clear in the 24 August Response, a confidence interval provides a measure of the degree of uncertainty relating to an estimate of overcharge, but it does not provide a measure of certainty. I have regarded the size of the interval – ranging (at a 95% confidence) from €885,000 to €108.7 million as an indicator that the model is not producing useful outcomes such that I can rely upon.

(iii) Appropriateness

419. Mr Biro's model provides evidence on which I can rely: the extent to which I do so is separately considered in the next Section, for the expert evidence is, as I have noted, but one part of the evidence before me. On the other hand, Dr Jenkins' model – with great respect to her efforts – is one on which I can place no weight and reject as evidence.

420. In these circumstances, it is less necessary for me to explain why – if both models were equally reliable – I would have preferred Mr Biro's. The reason however, is very simple, and can be shortly stated. Submarine cable projects are bespoke and unique, both in their specification and in the manner in which they are negotiated. I have described the negotiating process in the case of the BritNed project in some detail and will revert to this in the next Section. It is clear that the BritNed negotiating team conducted negotiations in a skilful and hard-nosed manner, which may well have had an effect on ABB's margins. That may not be the case with other projects. Equally, the client in the case of other projects may not (unlike BritNed) have the option of simply not proceeding with the project.

421. In short, given the bespoke and unique nature of these projects, I find that an overcharge calculated by a model that is explicitly averaging across multiple projects to be an inappropriate one. I much prefer, all things being equal, an approach that focusses on the specific project in relation to which compensation is sought.

I. MY ASSESSMENT OF THE OVERCHARGE

(1) The "gist" damage: accrual of a cause of action

422. The first question that I must consider is what constitutes the "gist" or actionable damage to complete the cause of action of breach of statutory duty. Such "gist" or actionable damage must be shown to exist on the balance of probabilities.[495]

423. This is, I understand, the first claim for damages arising out of a restriction of competition contrary to Article 101 TFEU/Article 53 EEA on which judgment has been given in an English court. The question is, therefore and to an extent an open one. There is, however, a great deal of law regarding other, analogous, tortious, causes of action.

424. Although it is possible that, in order to make good the cause of action and show actionable damage, a claimant must have to show that he, she or it has sustained some monetary harm by reason of the defendant's breach of statutory duty, it seems to me most unlikely that that should be the case for this cause of action. In other torts, it may not be necessary to show damage of this sort before the cause of action arises.[496] Thus, in *Forster v. Outred & Co.* [1982] 1 WLR 86, the plaintiff claimed damages for negligence and/or breach of contract by the defendant solicitors in failing properly to advise her when, as the defendant's client, she executed a mortgage as security for a loan made by a third party to her son. The question arose as to when the plaintiff's cause of action in negligence was complete, the Court of Appeal accepting that it was necessary for the plaintiff to prove "actual" damage (i.e. actionable or "gist" damage) in order to constitute her cause of action. The Court of Appeal held that actual damage was sustained by the plaintiff when she executed the mortgage deed which subjected her property to a liability which might, according to matters completely outside her control, mature into financial loss.[497] Thus, actionable damage occurred on execution because, although there was no actual monetary loss at that time (and there might actually be no financial loss at all, if the security was not called upon), the encumbering of her property in this gratuitous fashion was sufficient harm. Dunn LJ put the matter as follows:[498]

> "Speaking for myself, I do not find the cases on physical and material damage very helpful. This is a case of economic loss…I approach this case on the basis that it is sufficient that it is financial loss that should be foreseen, and I would hold that in cases of financial or economic loss the damage crystallises and the cause of action is complete at the date when the plaintiff, in reliance on negligent advice, acts to his detriment."

Of course, there will be some cases where it cannot – at least until trial – be said with any certainty whether a transaction entered into following negligent advice was so harmful that the cause of action accrued on the execution of the transaction or at some later date. Thus, in *UBAF Ltd v. European American Banking Corporation* [1984] 1 QB 713, the Court of Appeal, Ackner LJ noted:[499]

> "The defendants successfully contended before Leggatt J that the accrual of the cause of action occurred when the plaintiffs parted with their money and acquired instead claims for repayment

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[495] See paragraph 10 above.
[496] See, generally, Stapleton, *The Gist of Negligence: Part 2 – The Relationship between "Damage" and Causation*, (1988) 104 LQR 389
[497] At 98 (*per* Stephenson LJ).
[498] At 99 (*per* Dunn LJ).
[499] At 725 (*per* Ackner LJ).

> of money lent against borrowers, whose ability to repay was, contrary to the alleged representations, a matter of considerable doubt. Again, there is a short answer to this question—it depends upon the facts as found at the trial. The plaintiffs do not assert that they are entitled to damages to be measured by the difference in the value of the chose in action which they acquired by making this loan as compared with the value it would have had if the representations had been accurate, as in a claim for breach of warranty. Their case is that, if they had known the respects in which the representations were inaccurate, they would not have entered into the contract. Accordingly, it is argued by the defendants that, at the very moment of entering into that contract, the plaintiffs must have suffered damage. In our judgment, this bare proposition is not self-evident. The plaintiffs are suing in tort—the tort of negligence. To establish a cause of action they must establish not only a breach of duty, but that that breach of duty occasioned them damage. This is axiomatic. It is possible, although it may be improbable, that, at the date when the plaintiffs advanced their money, the value of the chose in action which they then acquired was, in fact, not less than the sum which the plaintiffs lent, or indeed even exceeded it. This must depend on the evidence. The mere fact that the innocent but negligent misrepresentations caused the plaintiffs to enter into a contract which they otherwise would not have entered into, does not inevitably mean that they had suffered damage by merely entering into the contract."

425. This point is that it is necessary to be exceedingly careful in framing or defining what constitutes actionable harm. In *Barker v. Corus UK Ltd* [2006] 2 AC 572, a personal injury case, Lord Hoffman observed generally that "[s]ometimes the law treats the loss of a chance of a favourable outcome as compensatable damage in itself".[500] McGregor puts the point as follows:[501]

> "This then makes for three stages in the enquiry: first, it must be ascertained whether loss of a chance is recognised as a head of damage or loss in itself; secondly, it must be shown that on the balance of probabilities the claimant has lost the particular chance; thirdly, the lost chance must be quantified by resort to percentages and proportions."

426. Article 101 TFEU prohibits "all agreements between undertakings, decisions by associations of undertakings and concerted practices…which have as their object or effect the prevention, restriction or distortion of competition…". The provision is aimed at preserving or protecting competition and maintaining the consumer benefit of having a competitive market.

427. When seeking to articulate what constitutes actionable harm, it is necessary to have regard to the object and scope of the statutory duty imposed.[502] In this case, the object and scope of the provision is the preservation and protection of competition from collusive efforts to undermine it. This purpose must inform the "gist" or actual damage that a claimant must show when bringing a private action for damages. More specifically:

(1) Cartel cases do not, by definition, involve a single actor. Cartel cases involve two or more actors, by agreement or concerted practice, acting with the object or effect of preventing, restricting or distorting competition. It is not possible, in cartel cases, to identify the act of a single person that can be tested as being the cause of a

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[500] At [36].
[501] At [10-048].
[502] To re-frame in a tortious context the test articulated by Fletcher Moulton LJ in the early "loss of chance" case, *Chaplin v. Hicks* [1911] 2 KB 786, which concerned a breach of contract in depriving a contestant of the opportunity of winning a competition. Fletcher Moulton LJ stated at 795: "…[t]he very object and scope of the contract were to give the plaintiff the chance of being selected as a prize-winner".

claimant's harm. It is the collective failure to compete that is the wrong at which Article 101 TFEU is aimed.

(2) In this, Article 101 TFEU is different even from abuse of a dominant position under Article 102 TFEU, which is directed towards the unilateral conduct of dominant firms which act in an abusive manner. In such a case, assuming the abuse has been identified and proved, it is possible – applying the approach of Stuart-Smith LJ in *Allied Maples Group Ltd v. Simmons & Simmons* [1995] 1 WLR 1602 at 1609-1610 – to ascertain what loss the abuse has caused.

(3) What the collusive misconduct of cartelists does is prevent, restrict or distort competition. To require a claimant to show monetary harm in order to found a cause of action is to ignore the purpose of Article 101 TFEU and to impose too great a burden on the claimant. Rather, what the claimant must show, as the "gist" damage, is that the unlawful conduct of the defendant has, on the balance of probabilities, in some way restricted or reduced the level of the claimant's consumer benefit. In other words, that the claimant has suffered as a result of the prevention, restriction or distortion of competition created by the cartel. Such a restriction or reduction of consumer benefit might take the form of an increased price payable, but equally it might take the form of a reduction in the number of suppliers properly participating in a tender process. I regard consumer benefit as a broad concept, and there will be many ways in which conduct infringing Article 101 TFEU will adversely affect it.

428. This Cartel had its origins in a desire to substitute for competition a form of allocation amongst the cartelists, determined by the cartelists. In order to maintain a semblance of competition, rival bids might be put in, but these would be unattractive in terms of price and/or technical specification and/or non-compliance in terms of the tender. In this way, the customer's hand could be forced and a particular tenderer foisted upon it. This is exactly what happened here:

(1) BritNed entered into a contract with ABB for the supply of the Interconnector.

(2) That transaction was entered into, in the form that it was, by reason of the Cartel. But for the Cartel, BritNed would (as I find on the balance of probabilities) have been presented with a different commercial environment, with different tenderers tendering on different terms.

429. Those facts are sufficient for me to hold that the cause of action is made out. Of course, this says nothing about the quantum of BritNed's loss. The process of quantification may show substantial damages (as BritNed contends) or it may show nominal damages (as ABB contends). It is to this process of quantification that I now turn.

(2) Quantification of the overcharge

(a) Introduction

430. BritNed emphasised that the Cartel represented an extremely serious breach of competition law. In closing, BritNed said this:[503]

[503] Paragraph 2 of ABB's written closing submissions.

> "The [Cartel]…involved a highly organised virtually global effort to stop Asian suppliers coming into Europe and European suppliers competing in Asia, coupled with further sub-allocations of regions and projects to the local suppliers in each region. On top of this, there were understandings to strip out physical capacity, the sharing of sensitive information on prices and capacities, the establishment of price floor levels, and project allocations through cover bidding or even outright allocations without cover bids. Even on the basis of a heavily-redacted document like the Decision, the level and detail of co-ordination within the [Cartel] remains quite shocking."

431. I would not dissent from this so far as the general effects of the Cartel in the market were concerned. But that is not the issue before me. I am concerned with the much narrower issue of the overcharge to BritNed arising out of a single, specific transaction: the contract for the supply of the BritNed Interconnector. Sections D to H above have brought the focus to this specific transaction. Whilst, obviously, the general operation of the Cartel is highly material (see Section D), it represents the starting point and not the end point of the quantification process.

432. Mr Jönsson frankly accepted, in general terms, that the Cartel enabled ABB to increase its margins:[504]

Q (Mr O'Donoghue, QC)	What you are actually saying is that over time since NorNed the Cartel had become even more effective at raising the cartel price. That is what you are saying?
A (Mr Jönsson)	No, I don't think I say that. I mean, what I say is, I simply say, we would not be allowed to sell to prices that was the same as in NorNed. This is the simple fact.
Q (Mr O'Donoghue, QC)	So ABB was able to increase its margins during the Cartel?
A (Mr Jönsson)	Yes, well, here, as I said, there is a – there was an order, that was an order from us in general. That didn't go for cables *per se*. It went for the whole businesses in ABB. Every business.
Q (Mr O'Donoghue, QC)	You told us yesterday that the factory was losing money? How did you increase profitability?
A (Mr Jönsson)	By increasing the price, because we needed to at least break even and go with some profit. This is normal for any business.
Q (Mr O'Donoghue, QC)	The Cartel assisted you in raising the price, didn't it?
A (Mr Jönsson)	In the years 2001, 2002, 2003, yes, to some extent. Of course, because we were balancing load and we were sharing load. But the key part here was that there was a number of factors that drove price, but…

433. However, Mr Jönsson did not accept that ABB's BritNed tender was at an uncompetitive level. He only went so far as to accept that where a project was allocated to another

[504] Day 6/pp.146-147 (cross-examination of Mr Jönsson). Also Day 7/pp.94-95 (cross-examination of Mr Jönsson).

member of the Cartel, and ABB was also bidding for that project, ABB's bid would be uncompetitive:[505]

Q (Mr O'Donoghue, QC)	But you had agreed with Nexans that Fennoskan II would go to Nexans?
A (Mr Jönsson)	Yes, I monitored from that point of view, so there was – yes.
Q (Mr O'Donoghue, QC)	And you discussed with Nexans the price range in which ABB would make its bid?
A (Mr Jönsson)	Correct.
Q (Mr O'Donoghue, QC)	How can you then say that, having allocated the project to Nexans, and discussed and agreed ABB's bid, ABB's price was competitive? It was manifestly uncompetitive?
A (Mr Jönsson)	There was an uncompetitive element. To what extent and what degree I cannot tell.

To this extent, the customer would lose a genuine competitive alternative to the Cartel's allocated bidder:[506]

Q (Mr O'Donoghue, QC)	You would certainly accept that where the customer lacks a genuine competitive alternative because of your discussions of pricing and cover bidding, the customer loses the advantage of competition in that situation?
A (Mr Jönsson)	Yes.

434. Mr Jönsson did not accept the converse case, that where ABB was allocated a project (like the BritNed Interconnector), so that the other cartelists would not put in competitive bids, ABB's price for that project would be inflated. Of course, as I have made clear, I treat Mr Jönsson's evidence with more than a little bit of caution. But I heard far more evidence than simply Mr Jönsson's testimony, and it is in the light of the whole of that evidence that I must consider the potential for and existence of an overcharge.

435. In light of the totality of the evidence, I have concluded that some persons within ABB knew of the Cartel and knew that ABB would face limited competition when tendering for the BritNed Interconnector, that knowledge did not translate into a direct influence on direct costs. I have found that the direct costs in relation to ABB's bid for the BritNed Interconnector were honestly and competently compiled with a view to putting forward a competitive bid.[507]

436. However, I have also concluded that:

[505] Day 5/p.80 (cross-examination of Mr Jönsson).
[506] Day 5/p.83 (cross-examination of Mr Jönsson).
[507] See paragraphs 284(1) to 284(3)(a).

(1) Within ABB, Mr Jönsson and Mr Pääjärvi were in a position to influence upwards the level of common costs that ABB allocated to the BritNed tender.[508] Of course, whether they were in fact able to do so depends not simply on their position within ABB, but on the nature of the negotiations ABB had with BritNed itself. Although I have found that the Cartel caused competition for the Interconnector to be materially diminished,[509] nevertheless BritNed was able to bring some competitive pressure to bear on ABB.[510] The question is whether that was sufficient to enable BritNed to obtain a competitive price and avoid an overcharge.

(2) There was an indirect influence over BritNed's "hunger" to be competitive, in that this hunger was abated by a sense within ABB that – so far as the BritNed tender was concerned – ABB faced less competition than it might otherwise have done.[511] Again, the question arises whether BritNed was able to bring competitive pressure to bear on ABB.

(3) There was a potential for baked-in inefficiencies and for cartel savings.[512]

437. It is necessary to consider the potential for an overcharge in each of these three areas. I consider, in turn:

(1) The potential for an overcharge in the common costs by way of direct influence of Mr Jönsson and Mr Pääjärvi in Section I(2)(b) below.

(2) The potential for an overcharge by way of baked-in inefficiencies in Section I(2)(c) below.

(3) The potential for an overcharge by way of cartel savings in Section I(2)(d) below.

(4) The potential for an overcharge arising by way of indirect influence on ABB's prices in Section I(2)(e) below.

(b) Was there a directly influenced overcharge in ABB's common costs?

438. I have concluded that, unlike with direct costs, I can have no assurance from the PPMs that the common costs were at a competitive level. I have found a potential for an overcharge; however, I have not determined whether there was an overcharge.[513]

439. Those knowing of the Cartel and involved in the tender would, I consider, if the opportunity arose and they were able to do so, seek to inflate the bid price for the BritNed Interconnector. Subject to:

(1) The fact that not everyone within ABB knew of the Cartel; and

(2) The fact that BritNed was itself capable of exerting competitive pressures,

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[508] See paragraph 284(3)(b) above.
[509] See Section G(2) above.
[510] See Section G(3) above.
[511] See paragraph 284(3)(c) above.
[512] See paragraphs 365 to 371 above.
[513] See paragraphs 266 to 272, 284(3)(b) and 361 to 364 above.

I consider that they would have been able to manipulate the allocation of common costs so as to allocate more than a fair share of those costs to the BritNed project.

440. Of course, BritNed had to contend with a limited response to the invitation to tender for the BritNed Interconnector.[514] Inevitably, this weakened BritNed's negotiating position *quoad* ABB. BritNed could not play off one cable supplier against another:

(1) BritNed knew, as the party inviting tenders, that so far as the Cable element was concerned, ABB was the only show in town.[515]

(2) ABB may not necessarily have known, but Mr Jönsson and Mr Pääjärvi would have had a fairly shrewd idea, that this was the case. They would have known this because of their appreciation that the BritNed Interconnector had been allocated to ABB.[516]

Inevitably, this absence of competition hampered BritNed's ability to put ABB under commercial pressure.

441. That said, BritNed's negotiating position was not without its strengths. I have described the various commercial pressures that BritNed sought to deploy in Section G(3) above. In particular, I find that the very skilful deployment of Siemens as a competitor to ABB put ABB under very real commercial pressure.[517] This instance is an excellent illustration of BritNed's ability to get a good deal. The negotiations with Siemens demonstrate quite clearly that ABB was under commercial pressure in the negotiations:

(1) Siemens was not a potential supplier for the Cables element of the BritNed Interconnector (Lot 2). Siemens could only compete for Lot 1. Siemens did not have a partner, bidding for Lot 2, with whom Siemens could have made a joint bid for Lot 3.[518]

(2) But as regards Lot 1, there was competition. Indirectly, this provided an incentive or pressure on ABB to reduce its price in relation to Lot 3. ABB wanted to win the entire contract and was prepared to – and did – offer a lower price for Lot 3 in order to win it.[519] As a matter of commercial logic, that makes perfect sense.

(3) However, in the final stages of the negotiation, ABB extended the discount it had offered in relation to Lot 3 to Lot 2.[520] As a matter of commercial logic, this makes no sense at all, and that is exactly how BritNed saw the concession: as an incomprehensible mistake.[521]

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[514] See paragraphs 173 to 174 above.
[515] See Section G above.
[516] See Section G above.
[517] See paragraphs 177 to 181 above.
[518] There was a Prysmian/Siemens bid for Lot 3 (see paragraph120(6) above), but that was not genuine (because Prysmian was a cartelist (paragraph 121 above) and in any event Prysmian never submitted a tender (Section F(12) above).
[519] See paragraphs 158 and 160 above.
[520] See paragraph 162 above.
[521] See paragraphs 163 to 165.

(4) Of course, that is because BritNed knew the lie of the land as regards the competition for Lot 2: the only tender came from ABB. Equally, I find it very likely that Mr Jönsson and Mr Pääjärvi would themselves have understood this to be the case. But it was not they who made the concession: it was Mr Leupp, who knew nothing of the Cartel nor of the "allocation" of the BritNed Interconnector to ABB. I do not consider that Mr Leupp's decision to give away a €10 million discount in relation to Lot 2 can simply be explained away as a mistake. I have described Mr Leupp as a precise, clear and articulate witness.[522] I do not consider that he would have been prone to making errors.

(5) Mr Leupp was, of course, the person to whom Mr Jönsson indirectly reported. I consider it far more likely that Mr Leupp misappreciated (quite understandably[523]) the competitive situation and felt that ABB was not only at risk of losing Lot 1 and so Lot 3, but also Lot 2. In his witness statement, Mr Leupp said this:[524]

> "13. During the discussions at this separate BAFO cables meeting, ABB made an offer to BritNed to reduce the price for Lot 3 – the combined lot for cables and converters – by €10 million as it seemed that [BritNed][525] was leaning towards granting the Converters element to Siemens. In light of the hard negotiations [BritNed was] driving on the Cables portion of the project, we were also very concerned that we may otherwise have lost the combined lot to Siemens (in partnership with a cable provider), or the Cables element to another bidder such as Nexans or Prysmian.
>
> 14. I recall that I was not optimistic about ABB's prospects in relation to the Converter contract. This is because BritNed had stated that it was not willing to accept ABB's position that it would not take on the risk in relation to soil contamination and clearing unexploded bombs from World War II at the site where the Converters would be situated at Grain in England.
>
> 15. ABB made this offer as it did not want to risk losing the overall contract. I hoped that if ABB lowered its price, as we offered, it would have a greater chance to be successful in Lot 3.
>
> 16. Later in the meeting with [BritNed] representatives, it became clear to me that ABB had lost the Converter portion of the contract to Siemens. To avoid also losing the Cables portion of the bid to another bidder, I accepted in the same meeting that TenneT would apply the €10 million deduction that ABB had offered on Lot 3 (combined lot) to ABB's BAFO for the Cables-only lot (Lot 2). My fear was that, had I not offered to extend the discount to Lot 2 in this way, and given the parallel discussions with other suppliers, ABB would not even have won the Cables element of the BritNed contract. It was undoubtedly a painful decision to give this discount in relation to Lot 2 given the smaller scope of that Lot compared to Lot 3, and a real stretch for ABB, but I considered it to be just about worthwhile in order to at least win Lot 2 rather than walk away from the negotiations with nothing."

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[522] See paragraph 51 above.
[523] He knew nothing about the Cartel and the "allocation" by the Cartel of the BritNed project. Mr Jönsson knew – but did not share – his guilty knowledge.
[524] Leupp 1.
[525] In his statement, Mr Leupp differentiates between representatives of National Grid and TenneT. Although less accurate, I have substituted "BritNed" as it seems to me pointless to differentiate between BritNed and its parents.

(6) From the mouth of Mr Jönsson, I would not have accepted this evidence. Mr Leupp is a different proposition. I found him to be a witness of truth, who was unaware of the Cartel and so could easily have misappreciated the competitive situation. That is exactly what I find he did. Mr Leupp's version of events was tested in cross-examination and was maintained by him.[526]

442. The conclusion that I draw is that when making decisions regarding pricing for the BritNed bid – including the allocation of common costs – Mr Jönsson and Mr Leupp saw things quite differently, and Mr Jönsson did not explain to Mr Leupp why he (Mr Leupp) might be misreading the situation. As a result, because Mr Leupp was in overall control of ABB's bid for the BritNed tender, ABB acted in a way unusual for a cartelist: it acted competitively, simply because that was the mind-set of the individual in charge.

443. I conclude that there was no direct influence by Mr Jönsson (or anyone else knowing of the Cartel and involved in the tender) over the level of common costs that ABB charged to BritNed as part of the overall contract price for the Interconnector. In addition to the conduct of Mr Leupp, this is borne out by the following:

(1) *The fact that, over the course of the tender, ABB's prices trended down and not up.* I refer in this regard to ABB's bid prices as evidenced by its PPMs and as set out in Table 2 above.[527]

(2) *The margin analysis of Mr Biro.* The outcome of this margin analysis is set out in Table 6 at paragraph 331 above. Mr Biro's margins include everything that is not direct cost. The margins thus include common costs and profit. Table 11 below selects from Table 6 the margin figures that are material for present purposes:

	Margin	**No. of bids**	**No. of winning bids**	**No. of losing bids**
All post-Cartel projects	21.1%	53	35/53	18/53
Post-Cartel projects most comparable to BritNed[528]	17.6%	10	1/10	9/10
BritNed	18.6%	1	1/1	0/1
All other successful Cartel projects, apart from BritNed	26.7%	14	14/14	0/14[529]

Table 11: Selected margin data from Table 6

From this data, it can be seen that:

(a) The margin for ABB's successful Cartel-period bids is some 5.6% higher (at 26.7%) than the margin for all post-Cartel bids (at 21.1%[530]). As I have indicated, I proceed on the basis that these post-Cartel bids were

[526] Day 7/pp.151-180 (cross-examination of Mr Leupp).
[527] See paragraph 258(4) above.
[528] I.e. "submarine interconnectors HVDC MI turnkey".
[529] There may have been losing bids, but this data was not readily available to Mr Biro and I have not seen it.
[530] Extracting the losing bids makes very little difference to the gross margin. The gross margin for post-Cartel winning bids margin is 21.5%, 0.4% higher than the gross margin for all bids.

competitive. On this basis, given my conclusions in relation to direct costs,[531] there appears to be an inflation of common costs and/or profit, which I attribute to the Cartel.[532]

(b) However, BritNed stands out as an exception to this inflation. The BritNed margin is 18.6%. This is actually lower than the post-Cartel margin of 21.1%. To my mind, this strongly supports the conclusion that it was those officers in ABB (like Mr Leupp), who were ignorant of the Cartel, who led on pricing, and not those who knew of the Cartel (like Mr Jönsson and Mr Pääjärvi).

(c) The BritNed gross margin (at 18.6%) is 1% higher than the margin for those post-Cartel projects most comparable to BritNed (at 17.6%). I am disinclined to read anything into this:

(i) Although all of the data I am dealing with represents a small number of datapoints,[533] it would be (in my judgment) an error to draw too much of an inference from a mere 10 projects.

(ii) What is more, the difference in margin between BritNed and the BritNed-comparable projects is only 1%.

(iii) Further – as I shall come to describe – there is likely to be a distorting element in the direct costs for these particular projects, which would render the gross margin artificially low. It will be noted that most of the bids for these projects were unsuccessful. As will be seen, I attribute this lack of success to a baked-in inefficiency in ABB's direct costs for this type of project. Adjusting for this inefficiency affects the allocation between direct costs and common costs.

444. In light of the foregoing, I conclude that the common costs for the BritNed project did not contain an overcharge due to the direct influence of persons aware of the Cartel and involved in the BritNed tender.

(c) Baked-in inefficiencies

445. As I have described, whilst I consider that Mr Biro was, in general terms, entitled to rely on the direct costs in the PPMs for the purposes of his margin analysis,[534] Mr Biro's approach was not sufficiently robust so far as baked-in inefficiencies are concerned.[535] I

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[531] I have only heard in detail from the compiler of direct costs in the case of the BritNed project. I have heard no evidence from anyone in ABB regarding the specific direct costs in other projects, although I have heard from Mr Biro, who reviewed the relevant PPMs. It seems to me that I must proceed on the basis that all direct costs were properly compiled. To conclude to the contrary would *(i)* be unfair to those within ABB compiling the PPMs and *(ii)* be unfair to BritNed because it would allocate the Cartel Overcharge to elements of these bids where I have found no overcharge to exist in the case of the BritNed Interconnector.

[532] Mr Biro accepted this: although he pointed out it was a small sample.

[533] It is not a sample. With the exception of unsuccessful Cartel projects, Table 6 contains all of the submarine projects that ABB bid for. It is simply that the number of these projects was limited, which is unsurprising given their scale.

[534] See Section H(5)(b) above.

[535] See paragraphs 365 to 368 above.

do not consider that Mr Biro's analysis was able to identify such inefficiencies, which would constitute an overcharge to BritNed (albeit one that would not necessarily benefit ABB[536]).

446. Before me, there was no expert evaluation of the (in)efficiencies of ABB's technical solution in relation to the BritNed Interconnector; there was no consideration of whether the same (or better) solution might have been achieved more efficiently – that is to say, at lower cost.

447. I am not prepared to assume, without more, that the technical solution put forward by ABB in relation to the BritNed Interconnector was inefficient. That, as it seems to me, would be to make a presumption of an overcharge unsupported by the evidence. But I am prepared to take account of inefficiencies in ABB's design, which might result in a competitor being able to do the same job for less, where such inefficiencies emerged out of the evidence (even if there was no expert to speak to this).

448. There was some evidence that ABB's technical solutions, at least in relation to some projects, involved the use of more copper than another supplier would use (i.e. ABB's cable was thicker).[537] That suggests more copper being used, greater processing costs, and more materials required for the outer layers of the cable.[538] Thus:

(1) In a document dated 3 February 2015, entitled *BU Business Review HVC*, ABB noted that its Mass Impregnated DC cable technology operated wasting less energy (temperature was 8ºC, rather than 12ºC) and thus reducing operating costs, but was significantly thicker, the copper element in the cable having a diameter of [X]mm^2 in ABB's cables, but competitors having a diameter of [X - 20%]mm^2, thus reducing purchase costs.[539]

(2) An earlier document, dated 14 April 2014, entitled *Pricing for NSN project SEPOW-RR746 & 748 High Voltage Cables* made a similar point, suggested that ABB's cables were thicker. When evaluating potential rival bids, the paper assumed that rivals' production costs were 75% of ABB's "due to design".

(3) There is some evidence that in the case of the BritNed project, ABB's technical solution for 1,000MW involved thicker cabling than that proposed by ABB's rivals.[540]

(4) The BritNed project was a HVDC MI turnkey project. In Mr Biro's margin analysis, there were 10 such post-Cartel projects listed. The margin for these projects was 17.6%, significantly lower than the all-projects post-Cartel figure of 21.1%, implying higher direct costs. What is more, ABB's performance in relation

[536] They are inefficiencies within ABB that ABB would pass on to the customer. ABB's benefit would not be by way of an overcharge, but by retaining business which – in a competitive market – it might not win.
[537] See Day 11/pp.84*ff* (cross-examination of Dr Jenkins).
[538] Day 12/p.52 (cross-examination of Mr Biro).
[539] The figures in this sub-paragraph and the next sub-paragraph were confidential to ABB. I have substituted for some of the actual figures a formula, which preserves a degree of confidentiality. However, this information forms a material part of my reasoning, and balancing the importance of open justice with the protection of confidence, I am satisfied that it is in the interests of justice for this material to be disclosed.
[540] Day 12/pp.75 to 76 (cross-examination of Mr Biro). I consider that I must treat these figures with a degree of care, since they emanated from a cartelist (Nexans) submitting a bid that was not intended to win.

to post-Cartel cable projects like BritNed was quite poor.[541] Although I appreciate that the sample is small, there is at least some probative value in the fact that, as regards this class, ABB did poorly: nine out of these ten bids were lost. The bid that won – Nordlink – specified a minimum cross-section of 2,000mm^2, which was ABB's favoured cable diameter. It is significant, I find, that in relation to this winning project, a cable playing to ABB's strengths was actually specified by the client.[542]

449. In my judgment, the effect of the Cartel was to insulate ABB from inefficiencies in its own product. Had there been a properly competitive environment, ABB would have faced technical solutions from others involving less copper and perhaps less insulation. As a result, one of two things might have occurred:

(1) ABB would have lost the contract to one of its rivals; or

(2) ABB would have been forced to cut its costs still further. I doubt very much whether ABB would have been capable of instantly re-engineering its solution to use less copper: instead, in this scenario, I anticipate ABB would have had to absorb the additional costs of its less efficient solution.

450. I find that there was an overcharge to BritNed arising out of this baked-in inefficiency. As I have noted,[543] this is not something that would be picked up by Mr Biro's margin analysis, nor either of his other two methods of assessment. This is because the technical issue was one that would not have ended with the cessation of ABB's participation in the Cartel. It would have persisted into the post-Cartel period. This finding is confirmed by the fact that, post-Cartel, most of these projects were lost by ABB.[544]

451. Assessing the level of this overcharge is not straightforward:

(1) The nature of the technical solution that ABB offered to BritNed was not the subject of detailed cross-examination of the factual witnesses. Nor was it a matter on which the experts could properly opine and – to be clear – they did not seek to do so. Mr Biro was shown, in the course of cross-examination, a number of documents suggesting this inefficiency, but (as an economist) Mr Biro was able to do no more than note what the documents said.

(2) Still less was the likely cost of a rival, competitive, bid for the BritNed project the subject of any assessment or evidence. I place no weight on the rival bids that were actually submitted:

(a) First, there was no disclosure from third party Cartel members. It would, therefore, be extremely difficult (without such things as PPMs or their

[541] See Day 12/pp.30, 32 (cross-examination of Mr Biro).
[542] Day 12/pp.67-69 (cross-examination of Mr Biro).
[543] See paragraphs 365 to 368 above.
[544] See Table 10 in paragraph 443 above. The BritNed-comparable projects are identified in this table: post-Cartel, ABB lost nine out of ten bids in relation to this class of project.

equivalent) to work out what sort of competitive bid would be put forward.[545]

(b) Secondly, and relatedly, a lot of the (limited) material regarding third party bids that was before the court related to bids that were not competitive bids. They were, for the most part, cover bids, not intended to result in a successful bid.

(3) I consider that, applying a broad brush, what I can safely do is assess the "overcharge" as the cost of the additional copper which I find that ABB would have absorbed in order to retain the bid. I do not consider that I can realistically assess what a rival bid would have been, and I have found the ABB bid to be – essentially – the best starting point for assessing the true contract value. My reasoning is as follows:

(a) I proceed on the basis – for the reasons I have given – that ABB's tender bid was a competitive bid, save where I have identified an overcharge, howsoever arising.

(b) I shall assume, however, that a competitor to ABB would have been able to match the efficient parts of ABB's bid and undercut ABB in relation to those elements of overcharge that I have identified.

(c) In this case, I have identified a baked-in inefficiency relating to ABB's cable thickness. The evidence shows that ABB's competitors were able to deliver a 1,000MW cable that was materially thinner than ABB's specification. That would have involved lower cost, which would have enabled ABB's competitors (all other things being equal) to undercut ABB's bid.

(d) I assess the overcharge by inferring that, in order to retain the BritNed tender, ABB would itself have absorbed the baked-in inefficiency. In this case, a direct cost (the cost of the inefficient cable thickness) would be reduced and would transfer to the common costs. (The other way of reaching the same conclusion would be to infer that the contract would have been awarded to the efficient competitor at ABB's price less the cost of the inefficiency.)

(4) I consider a 15% saving in relation to the copper content in the cable to be the appropriate measure of the overcharge. In the 24 August 2018 Response, Dr Jenkins suggested:

(a) That 15% might be unduly conservative and favour ABB;

(b) That the adjustment ought to extend to all raw materials – not just copper – and production costs.

(5) I do not consider it to be appropriate to move upwards from 15%, which is a figure based on the limited documents adduced in evidence and which seeks to avoid

[545] As was described in paragraph 18 above, I do not have before me the evidence to determine what would have been a third party competitive bid for the BritNed Interconnector.

over-compensation to BritNed. Dr Jenkins leaves out of account factors going the other way,[546] and I am very conscious that the evidential basis for these baked-in inefficiencies is quite exiguous, based as it is on a few internal ABB documents and the proportion of projects similar to BritNed lost by ABB. I consider that this evidence enables me to conclude that there were baked-in inefficiencies, but absent expert evidence going clearly to the point that the savings would have extended beyond the copper and to above 15%, I decline to do so. I am, after all, engaged in a broad assessment of quantum, and what I am assessing (I stress) is not the actual baked-in inefficiency, but the sort of concession on price that ABB would have had to make in order to secure the contract in light of the efficiencies of its competitors. I find the extent of that concession to be a 15% saving on the amount of copper used.

452. Before assessing the monetary extent of this overcharge, it is necessary that I resolve one technical difference between the experts regarding the treatment of interest. This point, although really a question of accounting, makes a material difference to the calculations. The point arises in the following way:

(1) As with most major infrastructure projects, the amount paid by the customer will be paid in a series of instalments, spread over time. At, generally, the same time, the contractor will incur the costs of providing the supply. The former – the payment of the sales price – will generate interest to the benefit of the contractor. The latter – the incurring of project costs – will generate an interest cost to the detriment of the contractor. Obviously, the amounts can be set off against one another.

(2) It was common ground between the experts that interest needed to be factored into the experts' models in terms of how the margin of a project was calculated. The difference in approach between the experts was as follows:

Dr Jenkins' approach

$$\text{Gross Margin} = \frac{(\text{Sales Price} + \text{Interest Income}) - (\text{Project Costs} + \text{Interest Costs})}{\text{Sales Price}}$$

Mr Biro's approach

$$\text{Gross Margin} = \frac{(\text{Sales Price} + \text{Interest Income}) - (\text{Project Costs} + \text{Interest Costs})}{(\text{Sales Price} + \text{Interest Income})}$$

(3) The difference – in practical terms – is that Mr Biro's approach has the effect of reducing the gross margin in contrast to Dr Jenkins' approach. For example, suppose two contracts ("Project 1" and "Project 2"), each with the sales price of €50 million and project costs of €35m, but with very different provisions as to payment. In Project 1, the customer pays 100% up front, but in Project 2 the customer pays 100% in arrears, resulting in a difference in interest income of €10 million. Interest costs are the same at €10 million. The gross margin in each case is as follows:

[546] For instance, the fact that whilst CapEx costs would be higher, the OpEx costs of a thicker-cable Interconnector would be lower.

	Dr. Jenkins' position	Mr. Biro's position
Project 1		
Sales Price	€50m	€50m
Interest Income	€10m	€10m
Project Costs	€35m	€35m
Interest Costs	€10m	€10m
Gross Margin calculation	(€50m+€10m)-(€35m+€10m) / €50m	(€50m+€10m)-(€35m+€10m) / (€50m+€10m)
Gross Margin	30%	25%
Project 2		
Sales Price	€50m	€50m
Interest Income	€0m	€0m
Project Costs	€35m	€35m
Interest Costs	€10m	€10m
Gross Margin calculation	(€50m+€0m)-(€35m+€10m) / €50m	(€50m+€0m)-(€35m+€10m) / (€50m+€0m)
Gross Margin	10%	10%

Table 12: Effect of interest on gross margin

(4) It is unsurprising that Mr Biro's approach results in a lower gross margin calculation. The two experts each define the numerator in the same way: Mr Biro's denominator will generally be higher (and certainly not be lower) than Dr Jenkins', resulting in (as I say) a lower gross margin.

(5) The question is, whose approach is the correct one. The question is whether interest income should be regarded as part of the sale price. It seems to me clear that it should be. The timing of payments by the client can obviously increase the supplier's revenue, and it seems idiosyncratic to ignore an income stream that is coming from the customer. Put the point another way: suppose a customer agreed a deal that contained within it an element of loan by the supplier, so that payment would only occur 10 years after the project's completion. It would be extremely curious for that loan element not be reflected in a reduction in the sale price.

(6) Furthermore, I am persuaded that this is the proper basis for comparing between projects and represents the common basis on which the gross margins in Table 6 at paragraph 331 have been calculated by Mr Biro. In the Joint Statement, Mr Biro said this:[547]

> "Given the extended production and installation schedules associated with many power cables projects, the total amount paid by the customer was typically broken down in a series of instalments which were spread over a number of months or years. For example, the payment schedule for the BritNed project involved payments being spread over a period of approximately three years. For project costs and prices to be made comparable from an economic point of view, it is essential therefore that the timing of the revenues and costs be taken into account. The standard economic approach for adjusting differences

[547] See Mr Biro's remarks in Joint Statement/Issue 31.

> in the timing of costs and revenues is to include interest in both items so that they are put on a common basis. Once this is done, gross margins can be calculated in the standard manner, i.e. by deducting from sales revenue (including interest income) the cost of supply (including the associated interest cost) and then dividing by sales revenue (including interest income). Only if margins are calculated in this manner will they be comparable across projects where the time profiles of the revenues and costs differ. This is the approach that I have followed in my analysis."[548]

Accordingly, I prefer Mr Biro's approach on this point.

453. The 24 August 2018 Response helpfully recalculated the margin for the BritNed project using Mr Biro's approach[549] on the basis that 15% of the cost of copper was absorbed by ABB. This was done by recalculating the gross margin for the project so as to transfer that amount from direct costs to gross margin,[550] resulting in an adjusted margin of 20.7%, up from 18.6%, a difference of 2.1%. I translate this overcharge into a monetary amount as follows:

(1) It is appropriate to take the price concluded in May 2007 – €263,072,231 (see paragraph 169 above) – rather than the re-negotiated price of €280,749,582.72 (see paragraph 170 above). It seems to me to be highly unlikely that this re-negotiated price would have been affected by the Cartel. The overcharge that I have found to exist would have been baked-in at the earlier stage and, equally, negotiated away at that earlier stage.

(2) There was a dispute between the parties as to whether interest revenue (as described in paragraph 452 above) should be included.[551] In my judgment, it is necessary to add such interest revenuue. Whilst, for the reasons I have given, it is appropriate to compute relative margins according to Mr Biro's methodology, so as to ensure proper comparisons between projects, interest revenue will have been earned from a price that has been inflated by baked-in inefficiencies in the manner I have described. It is appropriate, therefore, to factor in interest revenue at this stage, because the interest derives from an inflated price. The interest revenue, converted into Euro, was agreed by the parties to be €26,029,281. Added to the price identified in paragraph 453(1) above, this gives €289,101,512.

(3) Applying the percentage overcharge to the value of commerce – which was common ground between the parties is done using the following formula:

$$\frac{\text{(cartel margin – competitive margin)}}{\text{(1 – competitive margin)}}$$

(4) On this basis, the overcharge arising from baked-in inefficiencies is as follows:

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[548] Apart from emphasising that her approach was the "standard" way of taking interest into account, Dr Jenkins did not advance a strong case for her approach, and I prefer Mr Biro's: Day 11/pp.50*ff* (cross-examination of Dr Jenkins).

[549] To be clear, the 24 August 2018 Response helpfully set out a variety of different agreed calculations, using different assumptions and methods. I have selected the calculation that meshes with my findings.

[550] Margin equating to common costs plus profit.

[551] This was one of the matters considered in an exchange of letters between the parties and to me on 4, 5 and 8 October 2018.

Price	[A}	€289,101,512
Cartel margin	[B]	20.7%
Competitive margin	[C]	18.6%
Overcharge (%)	[D]=([B]-[C])/(1-[C])	2.6%
Overcharge (€)	[E]=[A]x[D]	**€7,516,639**

Table 13: Overcharge arising from baked-in inefficiencies

I find that the overcharge due to baked-in inefficiency to amount to €7,516,639.

(d) Cartel savings

454. The nature of cartel savings was described in paragraphs 369 to 371 above. They are closely related to baked-in inefficiencies. The term was not used at trial. I have found that – for certain types of overcharge – the use of the term "inefficiency" is potentially misleading; and that the term "saving" is to be preferred.[552]

455. The evidence suggested one form of cartel saving did arise in the present case. In order to understand its nature, it is necessary to return to the evidence regarding Dr Jenkins' order backlog variable. This variable was considered in paragraphs 402 to 413 above, where I gave my reasons for rejecting Dr Jenkins' variable as too unreliable to be useable, both in terms of the (unclear) relationship between order backlog, appetite for work and price and in terms of the disproportionate and counter-intuitive effects on Dr Jenkins' model.

456. In principle Mr Biro accepted that there would be a relationship between demand/capacity and price. However, I accept his evidence that – at least on the data before the court – this is a matter that he could not measure for. I am not prepared to use Mr Biro's own measure, in circumstances where he himself did not consider it to be reliable.

457. The question of demand/capacity and price would – in this case – have to be approached at a granular level. Taking the specific BritNed project – a submarine HVDC MI turnkey interconnector – to what extent did ABB (both during and after the Cartel) have capacity for that sort of interconnector? As to this:

(1) It is to be inferred that ABB had such capacity during the Cartel period. The point of the Cartel was to allocate projects between cartelists: almost by definition, a member of the Cartel seeking to be allocated a given project would have the capacity to supply that project.

(2) Equally, however, those not allocated the project – whilst they might "cover" bid – would appreciate that they would not be awarded the project and that capacity (which otherwise might have to be earmarked for the project being tendered for) would be free.

(3) It was this allocation of demand that enabled higher prices than normal to be charged, even in periods when overall demand in the market was slack. I anticipate

[552] See paragraph 369 above.

– although there was little evidence on this – that this process of allocation would enable members of the Cartel to operate with a lower maximal capacity than in a competitive market.

(4) In other words, although the Cartel was highly inefficient in terms of depriving the market of competition, between cartelists it brought efficiencies. Mr Ekman mentioned the significance of future production planning in his witness statement and this was explored with Mr Ekman in cross-examination:[553]

Q (Mr Leith)	So, this last point you make here about future production planning, by this do you mean that if the business already has a large order or orders which it is planning to produce, it may have to turn away other work?
A (Mr Ekman)	Yes, because the production in a project is normally agreed with the customer so that the delivery date is firm, and you can't move out an existing project and replace it with another one.
Q (Mr Leith)	Yes.
A (Mr Ekman)	So, it is blocking production on a given time.
Q (Mr Leith)	And because it is the customer that, by and large, sets the time at which the cable has to be produced?
A (Mr Ekman)	Yes, yes.
Q (Mr Leith)	So, in that kind of situation, work is being turned away, the work would end up with a competitor who wasn't already loaded up?
A (Mr Ekman)	Could be.
Q (Mr Leith)	That could be, in a sense, a shame for the business, because – had it more time to space the projects out – it could have done both?
A (Mr Ekman)	Yes.
Q (Mr Leith)	So, equally, not having any large projects for a period of several months or more is also undesirable: I think you would accept that?
A (Mr Ekman)	Yes
Q (Mr Leith)	And during such a period where there are no large projects, business will have a very strong appetite to obtain such a project?
A (Mr Ekman)	Correct?
Q (Mr Leith)	Now, in a competitive market, the uncertainty for the business over whether new work will be obtained creates a commercial incentive for the business to lower the prices it offers to potential customers: do you agree with that?

[553] Day 8/pp.53*ff* (cross-examination of Mr Ekman).

A (Mr Ekman)	Yes, yes, I agree.
Q (Mr Leith)	And so, the business in those circumstances of uncertainty may offer a materially lower price, trying to win new work?
A (Mr Ekman)	Yes.
Q (Mr Leith)	So, perhaps the ideal position for a business would be just to have a steady load of large projects, one after the other?
A (Mr Ekman)	That would be the best, yes.
Q (Mr Leith)	And predictability as to when orders will come in?
A (Mr Ekman)	Yes.

(5) This was a very revealing exchange. It shows that even if I had reliable data comparing ABB's Cartel-period demand and capacity and ABB's post-Cartel-period demand and capacity, these would not be comparable figures. This is because the flow of work into ABB during the Cartel period is "allocated", whereas in the post-Cartel period the work comes in as a result of competitive forces.

(6) That has an immediate effect on capacity utilisation: in the Cartel period, a supplier will know far earlier and with far greater certainty what work will come in, and what work will not. In the post-Cartel period, the cartelist will not know, because the cartelist will actually be competing.

(7) This goes to two points:

(a) First, it underlines the correctness of Mr Biro's view that whilst differences in demand over time may cause changes in price, these differences are fundamentally very difficult to model, and could not be modelled before me (even if they existed, which I do not consider was established).

(b) Secondly, however, the efficiencies that accrue to a cartelist as a result of not having to compete are one reason the cartelists make a greater margin through the Cartel than in the competitive world. In other words, one factor comprising the difference of 5.6% between Cartel period margin and post-Cartel period margin is this, entirely illegitimate, saving in cost due to the control and management, by the Cartel, of supply to the market. This, unlike the baked-in inefficiency I have considered,[554] arises through the operation of the Cartel generally and affects the Cartel's common costs. Essentially, it represents the saving to the cartelist of not having to compete.

(8) In closing, BritNed emphasised the effect of the Cartel's control over supply,[555] although the point was put in terms of an increase in prices to customers, rather than a saving of costs to the cartelists. In terms of overcharge, there is no difference between the two, and I do not consider that it would be right to exclude BritNed

[554] Which affected, as I have described, direct costs.
[555] See paragraphs 163*ff* of BritNed's written closing submissions.

from recovering an overcharge simply because I do not agree with BritNed's description of that overcharge.

(9) I find that ABB – and the other cartelists – derived cartel savings from their control of the allocation and supply of cable business in the market. My approach to assessing the monetary benefits of not competing is as follows:

(a) Clearly, the cartel saving derived by all of the cartelists was a general one, not related to any particular project. This saving would not feature in the direct costs: it would form a general reduction in the common costs of the cartelists, such that their profit was larger. That would be as true of ABB as of any other cartelist.

(b) So far as ABB was concerned, the effect of the Cartel (as between all post-Cartel projects and the successfully won Cartel projects) was 5.6% in terms of gross margin.[556] I accept that this effect was not perceived in the case of the BritNed Interconnector, where this difference was – essentially because of BritNed's ability to negotiate and the fact that not all of ABB's officers were cartelists – competed down.

(c) But this does not mean that the cartel savings I find existed should not be taken into account in every ABB project during the Cartel period. The cartel savings were common to ABB's entire business, and a portion of them must be attributed to the BritNed project.

(d) In the case of common costs, this is a question of allocation:

(i) Generally – and with the exception of BritNed – the effect of the Cartel perceived across the 14 successful cartelised bids comprising the data that is before me amounts to 5.6%. That overcharge occurred in relation to a sample where each and every bid was successful.

(ii) The question is, how much of this overcharge can be attributed to the cartel savings that I have identified (as opposed to other forms of overcharge).

(iii) Table 11 in paragraph 443(2) above shows that of the 53 post-Cartel bids identified, 35 (or 66%) were winning bids and 18 (or 34%) were losing bids. Applying this ratio to the 14 successful cartelised bids suggests that 14 successful bids would be accompanied by 7 unsuccessful bids.[557]

(iv) The 5.6% margin attributable to the Cartel would have been spread across a larger number of projects, because the losing projects would not have generated any margin, only the cost of tendering and of allocating factory space (in case the bid won). Spreading the margin

[556] The difference between gross margin of 21.1% and 26.7%: see Table 11 at paragraph 443(2) above.
[557] 7/21 = 33%; 14/21 = 67%. Of course, in the competitive world, these particular 14 bids would not necessarily have been won; but, equally, the 7 losing bids I am hypothesising would not all necessarily have lost.

in this way, suggests that 1.9% of the overcharge is attributable to the cartel savings I have identified.[558]

(e) I appreciate that this is a broad-brush allocation, but it is based on a cartel overcharge that I find existed and represents a fair and not excessive allocation of the savings that ABB made to its common costs. These savings were competed away – in the case of the BritNed Interconnector – by ABB: but all that means is that ABB chose to allocate some common costs to other projects. That does not mean that BritNed is not entitled to a share of these cartel savings.

458. Applying this percentage (1.9%) to the overall sale price plus interest revenue of €289,101,512[559] results in an overcharge of €5,492,929. I have not calculated the monetary amount of this overcharge by reference to the formula at paragraph 453(2). It would be inappropriate to do so: this overcharge does not arise in relation to and should not be calculated by reference to a comparison of cartel margin and competitive margin. The "cost savings" overcharge is one attributable to the general operation of the Cartel, having an effect on ABB's common costs. It is necessary to attribute a portion of this saving to an individual project, and I have done so. But that is a process involving altogether different considerations than in the case of the baked-in inefficiency considered above.

(e) Was there an indirect influence on ABB to be uncompetitive?

459. The final question is whether indirect influence – of the sort described in paragraph 284(3) above – might also have caused ABB's bid for the BritNed Interconnector to contain an overcharge.

460. For the reasons I have given I have concluded that:

(1) Apart from baked-in inefficiency I have found to exist in the case of the BritNed Interconnector direct costs, those direct costs contained no overcharge.

(2) There was no direct influence causing an increase in the BritNed Interconnector common costs. However, there were savings that ABB made to its common costs which were cartel savings.

461. The question is whether there was an additional overcharge because Mr Jönsson simply did not press the tender team hard enough to produce the lowest possible bid and force the costs down still further. What I am postulating is a failure, on the part of Mr Jönsson, to do this. Of course, Mr Leupp would have wished costs to be as low as possible, but he was not the man to do the day-to-day pressing on costs, as he readily accepted in cross-examination. Mr Leupp operated at an altogether higher level of abstraction.[560] It would

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[558] (5.6% ÷ 21) x 14 = 3.7%. 5.6% - 3.7% = 1.9%.

[559] It seems to me to be appropriate to take the price concluded in May 2007 – €263,072,231 (see paragraph 169 above) – rather than the re-negotiated price of €280,749,582.72 (see paragraph 170 above). It seems to me to be highly unlikely that this re-negotiated price was affected by the Cartel. However, as above, I do consider that interest revenue should be added.

[560] Day 7/pp.168 to 169 (cross-examination of Mr Leupp).

have been Mr Jönsson's responsibility, and he was compromised by virtue of his appreciation of the lack of competition faced by ABB.

462. I can therefore see that there was a risk that a degree of complacency might result in a price that might not be as low as that achievable in a competitive environment. However, the data indicates no such effect. The table below (Table 13) sets out a revised margin analysis, based upon Table 11, but incorporating the effect of the baked-in inefficiency that I have found to exist. It is pointless to seek to factor in the cartel saving: for the reason given in paragraph 457(9)(b) the cartel saving will not be apparent. The results are as follows:

	Margin	**No. of bids**	**Direct cost**
All post-Cartel projects	**21.1%**	53	**78.9%**
Post-Cartel projects most comparable to BritNed[561]	17.6%	10	82.3%
Post-Cartel projects ignoring those most comparable to BritNed	21.9%	43	78.1%
Revised BritNed margin adjusted to take account of the baked in inefficiency[562]	**20.7%**	1	**79.3%**
All other successful Cartel projects, apart from BritNed	26.7%	14	73.3%

Table 14: Further margin and direct cost analysis

The "direct cost" in the final column is simply the difference between total price and margin (i.e. 100% less margin).

463. I discount the post-Cartel projects most comparable to BritNed as a comparator, because these are likely to contain precisely the same baked-in inefficiencies. The BritNed percentage margin and percentage direct costs are almost exactly in line with the equivalent figures for all post-Cartel projects, and singularly out of line with the Cartel projects excluding BritNed. There is no evidence to support a finding of an overcharge arising because of indirect influence.

(3) Conclusion

464. I find that the final price in the contract between BritNed and ABB, which was relevantly €263,072,231 plus interest revenue, was inflated by an overcharge in the total amount of €13,009,568. The overcharge arose through:

(1) A baked-in inefficiency arising due to the excessive width of the cabling used by ABB for 1,000MW cables in the amount of €7,516,639.[563]

[561] I.e. "submarine interconnectors HVDC MI turnkey".
[562] Adjusted to take account of the baked-in inefficiency described in paragraphs 445 to 453 above.
[563] See paragraphs 445 to 453 above.

(2) A cartel saving in ABB's common costs due to the saving attributable to cartelists not having to compete due to the Cartel in the amount of €5,492,929.[564]

465. If I am wrong in my articulation of what constitutes actionable damage or harm for the purposes of BritNed's cause of action,[565] then in light of the findings I have made in Section I(2) I find that, on the balance of probabilities, BritNed did sustain a monetary loss by reason of the operation of the Cartel, although I am unable to say (on the balance of probabilities) what the extent of that loss is.

J. THE LOST PROFIT CLAIM

(1) Introduction

466. Paragraph 7(c) of the Particulars of Claim provides as follows:

> "As a result of the activities carried out by [ABB] through [its] participation in the Cartel from 1 April 2000 to 17 October 2008, [BritNed]:
>
> …
>
> (c) incurred a further loss of profit by virtue of the (cartelised) bid price affecting the ultimate decision on the level of transmission capacity. In particular, the inflated prices proposed by [ABB] in Phase One of the procurement process resulted in the premature and unnecessary elimination of consideration for procurement of a higher transmission capacity interconnector than the 1,000 megawatt capacity that was eventually procured. The 1,000 megawatt lower capacity option selected resulted in a loss of profits due to the lost opportunity to auction additional units of capacity."

467. According to the Lost Profit Claim, BritNed contends that the Cartel distorted its choice as between the 1,000MW capacity Interconnector it in fact chose (Base Case 2) and the 1,320MW capacity Interconnector (Base Case 3) that it was considering as an alternative to Base Case 2, and that as a result it suffered loss. I approach the Lost Profit Claim in the following way:

(1) I consider (in Section J(2)) the relevant legal principles.

(2) In Section J(3), I set out the relevant facts regarding BritNed's actual choice in favour of Base Case 2.

(3) In Section J(4), I consider whether that choice was distorted by the Cartel and, if so, what losses BritNed sustained as a result.

My conclusions are stated in Section J(5).

(2) The law

468. I have already found that the breach of statutory duty alleged by BritNed has been established.[566] The question before me, I consider, is one of quantification.[567] Indeed, I

[564] See paragraphs 454 to 463 above.
[565] See paragraphs 422 to 429 above.
[566] See paragraphs 422 to 429 above.
[567] The basic principles of which are outlined in paragraph 12 above.

see the resolution of this issue as entwined with the assessment I have made of the overcharge.

469. Both parties, in their opening and closing submissions, submitted that it was necessary for me to determine, on the balance of probabilities, whether BritNed would have decided to purchase a higher capacity Interconnector.[568] I do not accept those submissions. I consider that the entirety of this exercise – including questions of what BritNed would or would not have done – are part of an exercise of quantification, where I move away from the balance of probabilities to an assessment or quantification of damages taking account of all risks and probabilities:[569]

(1) The assessment can only be done in light of the findings that I have made in relation to the overcharge. In determining the amount of the overcharge, I have determined the amount that BritNed overpaid for the Interconnector.

(2) Self-evidently, this is a material factor in considering what BritNed would or would not have done when choosing between the 1,000MW capacity and the 1,320MW capacity Interconnector. Equally self-evidently, I have determined the amount of the overcharge not on the balance of probabilities but using the principles of quantification. Similarly, I am going to have to consider how the pricing for the 1,320MW capacity Interconnector would have changed had there been no Cartel. Again, I see this as a process of quantification, not causation.

(3) Having reached conclusions as to how – in the counterfactual, no-Cartel, world – these two options would have presented to BritNed, I must decide what BritNed would have done. For me, at this point, to revert to a balance of probabilities test is impossible to justify rationally: I cannot determine what BritNed would have done without a detailed assessment of anterior possibilities.

(4) Both parties considered that a balance of probabilities approach was mandated by the approach arising out of the Court of Appeal's decision in *Allied Maples Group Ltd v. Simmons & Simmons* [1995] 1 WLR 1602. The law was stated by Stuart-Smith LJ as follows:[570]

> "In these circumstances, where the plaintiffs' loss depends upon the actions of an independent third party, it is necessary to consider as a matter of law what it is necessary to establish as a matter of causation, and where causation ends and quantification of damage begins.
>
> (1) What has to be proved to establish a causal link between the negligence of the defendants and the loss sustained by the plaintiffs depends in the first instance on whether the negligence consists of some positive act or misfeasance, or an omission or non-feasance. In the former case, the question of causation is one of historical fact. The court has to determine on the balance of probability whether the defendant's act, for example the careless driving, caused the plaintiffs loss consisting of his broken leg. Once established on balance of probability, that fact is taken as true and the plaintiff recovers his damage in full. There is no discount because the judge considers that the balance is only

[568] See BritNed's written opening submissions at paragraphs *289ff*; and ABB's written opening submissions at paragraphs 184*ff*.
[569] See paragraph 12(6) above.
[570] At 1609 to 1610.

> just tipped in favour of the plaintiff; and the plaintiff gets nothing if he fails to establish that it is more likely than not that the accident resulted in the injury.
>
> Questions of quantification of the plaintiff's loss, however, may depend upon future uncertain events. For example, whether and to what extent he will suffer osteoarthritis, whether he will continue to earn at the same rate until retirement, whether, but for the accident, he might have been promoted. It is trite law that these questions are not decided on a balance of probability, but rather on the court's assessment, often expressed in percentage terms, of the risk eventuating or the prospect of promotion, which it should be noted depends in part at least on the hypothetical acts of a third party, namely the plaintiff's employer.
>
> (2) If the defendant's negligence consists of an omission, for example to provide proper equipment, given proper instructions or advice, causation depends, not upon a question of historical fact, but on the answer to the hypothetical question, what would the plaintiff have done if the equipment had been provided or the instruction or advice given? This can only be a matter of inference to be determined from all the circumstances. The plaintiff's own evidence that he would have acted to obtain the benefit or avoid the risk, while important, may not be believed by the judge, especially if there is compelling evidence that he would not. In the ordinary way, where the action required of the plaintiff is clearly for his benefit, the court has little difficulty in concluding that he would have taken it. But in many cases the risk is not obvious and the precaution may be tedious or uncomfortable, for example the need to use ear defenders in noisy surroundings or breathing apparatus in dusty ones. It is unfortunately not unknown for workmen persistently not to wear them even if they are available and known to be so. A striking example of this is *McWilliams v. Sir William Arrol & Co Ltd* [1962] 1 WLR. 295; the employers failed in breach of their statutory duty to provide a safety belt for the deceased steel erector. But his widow failed in her claim under the Factories Act 1937, because there was compelling evidence that, even if it had been provided, he would not have worn it.
>
> Although the question is a hypothetical one, it is well established that the plaintiff must prove on balance of probability that he would have taken action to obtain the benefit or avoid the risk. But again, if he does establish that, there is no discount because the balance is only just tipped in his favour. In the present case the plaintiffs had to prove that if they had been given the right advice, they would have sought to negotiate with Gillow to obtain protection."

Where the cause of action is based on an omission by the defendant – a failure to do something – clearly the claimant must show that, had the defendant acted properly, the claimant's loss would (on the balance of probabilities) occurred. That is a hypothetical question, but one that arises as part of the claimant's burden to make good his cause of action. As I have noted, that is not this case.

(3) The facts

(a) Introduction

470. In terms of decision-making process, it was the joint venture board of BritNed – having regard to the interests of the two shareholders whose joint venture this really was – that made the key strategic decisions, including in relation to capacity.[571]

[571] Day 4/p.86 (cross-examination of Mr Rose).

471. As has been described, BritNed sought bids in relation to three Lots, but at three different capacity levels or Base Cases – 650MW, 1,000MW and 1320MW.[572] As has been described, BritNed ultimately opted for the 1,000MW Base Case 2. The question is whether, absent the Cartel, matters would have been different.

(b) BritNed's "default" position

472. Although BritNed was interested in these three different capacities, and I consider would have been open – depending on the material factors – to any of the three, BritNed's internal position was that the 1,000MW option was the most likely to meet its case. That is reflected in the fact that a number of BritNed's working documents used the 1,000MW capacity as the default choice. Thus:

(1) A briefing note – dated around April 2004 – suggested that whilst the potential size of the link might maximally be 1,320MW, the most likely size of link was less than this maximum.[573]

(2) An agenda for a BritNed board meeting on 19 January 2006 attached various documents for the attention of the participants, including various financial model assumptions. For purposes of modelling, capital cost or "capex" assumed a 1,000MW capacity.[574] This was consistent with the revenue assumptions made by ILEX, which were (for obvious consistency reasons) based on the same capacity.[575]

(3) An email dated 6 April 2006 assessed the liquidated damages provisions to be incorporated into any contract. This assessment was based upon an assumption of 1,000MW capacity.[576]

473. Equally, when tenders came to be sought, bidders were asked to provide more detail in relation to the 1,000MW option than in the case of the other two options. This was clear from BritNed's Phase One Procedure Paper. Mr Rose was asked about this:[577]

Q (Ms Ford, QC)	You have got there the tender evaluation procedure for phase 1…there you can see the various Lots set out and within the Lots the various bids that are being requested? Do you see those?
A (Mr Rose)	Yes.
Q (Ms Ford, QC)	And what is being asked for is that in relation to the 650MW option and the 1,320MW option, bidders are being asked to provide a comprehensive budget price. That's right, isn't it?
A (Mr Rose)	Yes.
Q (Ms Ford, QC)	And in relation to the 1,000MW option, under each lot they are being asked to provide a fixed price?

[572] See Section F(2) above as regards the three Lots and Section F(3) above as regards the Base Cases.
[573] Day 4/pp.87-88 (cross-examination of Mr Rose).
[574] Day 4/pp.88-90.
[575] Day 4/pp.90 and 112 (cross-examination of Mr Rose).
[576] Day 4/pp.96-97 (cross-examination of Mr Rose).
[577] Day 4/pp.97-99 (cross-examination of Mr Rose).

A (Mr Rose)	Yes.
Q (Ms Ford, QC)	It is right, isn't it, that a comprehensive budget price is a less precise estimate of price than a fixed price?
A (Mr Rose)	Yes, it is.
Q (Ms Ford, QC)	Again, that is a further indication that BritNed was prioritising the 1,000MW cable, isn't it?
A (Mr Rose)	This demonstrates that we had to choose something to focus attention on, but we didn't want to close down options. So the other options, price A and price C, remain of great interest to us, but we have to – given the complexity for both sides – we have to coalesce around something to start with, so what came back from the bidding community and then take it from there.
Q (Marcus Smith J)	So there is a significant amount of difference in terms of the amount of work a tenderer must do between a fixed price and a comprehensive budget price?
A (Mr Rose)	It is quite a material difference in my opinion, yes.
Q (Marcus Smith J)	So, in a case where one has got, let us say as here, three options, would it ever be the case that one would ask for a fixed price for all three?
A (Mr Rose)	In my experience, for a project of this complexity, it would be a very onerous ask. You could ask in a deep, flexible, market-place, I think you could. We were faced with a difficult procurement landscape and so we chose to be as efficient as we could, recognising that. So that was an element at play here.

474. I conclude that the 1,000MW capacity was BritNed's default. By that, I do not mean to suggest that the other options were anything other than real. As Mr Rose pointed out, BritNed had to base its calculations on some capacity, and 1,000MW was the "mid-point".[578] But I consider that there was more to the default than this, for the reasons I consider next.

(c) Non-price factors affecting capacity choice

475. There were a number of non-price factors that would have had a bearing on BritNed's thinking. I set these out in the following paragraphs.

(i) Unproven technology

476. A cable at 1,320MW capacity was unproven technology. Cables of up to 1,000MW capacity had been used in other submarine projects previously:[579]

Q (Ms Ford, QC)	It is right, at the time, isn't it, that 1,000MW was the highest capacity of any interconnector project of

[578] Day 4/p.90 (cross-examination of Mr Rose).
[579] Day 4/pp105-108 (cross-examination of Mr Rose).

comparable length that had actually been executed in the market?

A (Mr Rose) I believe that to have been the case, yes.

Q (Ms Ford, QC) And that makes it unlikely, doesn't it, that BritNed would have chosen to gamble on an untested 1,320MW capacity cable?

A (Mr Rose) BritNed was never going to gamble, so I don't accept that. I think BritNed was – I know BritNed was very keen to explore what would generate the best investment opportunity in the context of the regulatory environment as well. So we didn't know what would come back from the market, the quality of the technical submission, whether the market would highlight any issues above 1,000MW. But that is what we were there to find out. That is what we sought from the market.

…

Q (Ms Ford, QC) And what Metoc is referring to is a BritNed policy not to use unproven technology?

A (Mr Rose) That's correct. But that does not mean that you cannot have new developments that are subsequently tested. So, for example, marine cables are what is called "type-tested", so what may start off as unproven, if it is attractive to the client then the contractor would be asked to go through whatever testing is required to demonstrate its suitability and that it can pass all standard industry tests.

Q (Ms Ford, QC) BritNed's policy not to use unproven technology means it is unlikely that BritNed would have chosen to use an unproven 1,320MW capacity, isn't it?

A (Mr Rose) At the end of the day, no-one – I don't believe BritNed would have chosen an unproven technology. But it wouldn't have been in that position. It would have worked to – it could have worked to see what was possible by the time of making that decision. But up to that point it wasn't.

Q (Marcus Smith J) What does type-testing involve?

A (Mr Rose) That is beyond my technical knowledge. However, if, for example, a cable company comes up with a new design, maybe a particularly high voltage which hasn't been used before, my understanding broadly is it is taken away to an organisation that will test it under certain conditions and then bring it to a body such as – it is called CIGRE in Paris, who would then assess whether it did meet suitable standards for safe operation and so on and so forth, broadly speaking. And that can take a little time, but that is what companies like the supply chain we were involved with have to go through.

Q (Marcus Smith J) So it is very much a third party involvement?

A (Mr Rose)	It is a sort of accreditation, perhaps. It is important for customers like us, it is important for insurance companies as well, as we have perhaps to insure and consider warranties and so on.
Q (Marcus Smith J)	Yes. And I think it is implicit in your answers, but I will ask anyway: the 1,000MW cable would not require type-testing, because it would already have had it?
A (Mr Rose)	That was my understanding.

(ii) Bigger is not necessarily better

477. There is a clear, but not necessarily linear, relationship between an interconnector's capacity and the revenue that it will generate. This was explained in ILEX's report to BritNed dated May 2006:

> "As the size of the interconnector is increased, its impact on market prices also increases. At a certain size (above 1,320MW), the annual revenues start to fall, and theoretically, if the link is sufficiently large, there is complete price convergence between the Netherlands and Britain. Our analysis shows that the link would have to be very large for this to occur: using our price elasticity values, link revenues peak at a capacity of around 2GW, then decline gradually. At 4GW, annual revenues would be similar to those for the 1GW link. Even at a capacity of 10GW, there is some residual value (around €10m per annum) and utilisation."

478. It is this, non-linear, relationship between capacity and total revenue that interested the European Commission. Assuming the operator of an interconnector controls access, and can price according to supply and demand, it may be in the interests of the operator to restrict capacity, rather than expand it. Certainly, in the case postulated by ILEX, of a 1GW interconnector generating as much revenue as a 4GW interconnector, and assuming a binary choice between the two, the interests of the operator and the consumer would be opposed. The operator would spend less for the same revenue, by opting for the 1GW interconnector. The consumer would want a higher capacity, because that would result in easier movement of cheaper electricity from the Netherlands to the UK and *vice versa*.[580]

479. I do not consider that the difference between 1,000MW and 1,320MW capacities would have been enormous in terms of the marginal revenue/MW generated, but it is a factor that BritNed clearly had in mind.

(iii) A limit of 1,320MW

480. At the time of the tendering for the BritNed Interconnector, a 1,320MW capacity was, in fact, the maximum capacity possible:[581]

Q (Marcus Smith J)	Sorry, just so I can understand, you referred to a system limitation that capped the capacity at 1,320MW. I wonder if you could just, for my understanding, expand on that a little?

[580] Day 4/pp.115-117 (cross-examination of Mr Rose).
[581] Day 4/pp.118-119 (cross-examination of Mr Rose).

A (Mr Rose) Certainly, my Lord.

1,320MW then was the maximum in-feed loss – I think it is "MIL", maximum in-feed loss, that the system operator in the UK specifies to anyone who connects to the grid. Which means, in the event that that amount of capacity is lost, up to that point the grid can still survive and still provide power to the nation. Above that, there is a risk that you end up with blackouts or brownouts.

The 1,320MW, as I understand it, was selected back then by the regulating business on the basis of the two largest generators in the country simultaneously failing, hence 660MW times two is 1,320MW. My understanding is now that figure is up to 1,800MW. The system has been invested in, things have changed. But that is the essence.

So our connection agreement prohibits going above 1,320MW, so we asked for the maximum that we could to build in the flexibility for our project.

(iv) A flexible capacity

481. The 1,000MW option had a dynamic rating, in that it had the ability to flex its capacity up to 1,320MW for short periods. Thus, the 1,000MW option had an ability to cater for peaks of high-level demand. The 1,320MW option could also have flexed its capacity, but (as I have described) its maximum capacity was limited for other reasons.

(v) Conclusion

482. None of these four factors is in any way determinative. However, they all point in favour of the 1,000MW (Base Case 2) option, rather than the greater capacity 1,320MW (Base Case 3) option. Base Case 3 was, technically speaking, the riskier option, and type-testing may have caused complications in the tender process. There was no guarantee that greater capacity would result in a linear increase in revenue. Moreover, the fact that there was a capacity ceiling of 1,320MW (which had nothing to do with the technical operation of the cable) meant that the benefit of a flexible capacity (i.e. to flex that capacity upwards) was lost to Base Case 3 (i.e. it could not, for regulatory reasons, have a capacity beyond 1,320MW).

(d) The need to make a choice between Base Cases

483. Asking potential suppliers to bid in relation to three difference capacity levels inevitably involved those suppliers in considerable expense. There was – as BritNed recognised – a trade-off between the flexibility of having options against the cost (both for bidders in making multiple tenders and for BritNed in evaluating these) that this entailed.[582]

484. Accordingly, BritNed recognised the need to delete certain capacity options at an early stage. The agenda for the BritNed board meeting on 19 January 2006 attached (as item

[582] Day 4/p.91 (cross-examination of Mr Rose).

8) an outline of the main procurement process. This stated (under the heading "Capacity Options"):

"In order to maintain maximum flexibility in the total business case for BritNed, three capacity options will be tendered:

- Capacity option A: 1320MW (being the maximum capacity at the English side)
- Capacity option B: 1000MW (being the capacity of NSI)
- Capacity option C: 700MW (being the NorNed capacity)

The advantage to tender three capacity options is that optimal flexibility is introduced to the business case. The disadvantage is that the bidders have to price more bids, which could lead to less price competitiveness per capacity option and more bids will have to be negotiated and evaluated.

The project shall strive to delete certain capacity options at an early stage, when it becomes clear that a certain option is no longer viable."

485. Mr Rose put the point thus:[583]

"We take a view from both our side as well that the burden on the internal team is considerable to run a procurement process which was very complex with many options and also keen to avoid fatiguing the supply chain, because we appreciated that it takes quite a lot of resource."

486. In the end, however, whether an option was dropped or not would depend on the overall business case. Cost and revenue projections would obviously be key; but there would also be the other factors that I have set out above.[584] Equally, if an option showed potential or promise, it would be persisted with and not simply dropped.[585]

(e) The choice actually made by BritNed

487. In an internal email within BritNed dated 25 May 2006, a Mr McLelland (who was a technical manager in the team) said this:

"Question…knowing what we now know from ILEX would it be advisable to drop the 1,320MW option and allow the contractors time to concentrate on their 1,000MW bid?

BritNed Board asked this question yesterday – my view is that we seem to be coming into a focus somewhere near 1,000MW plus a short-term overload capacity.

The only reason I can see for continuing with prices for the 1,320MW option is for the sake of information for modelling/regulator purposes.

We need the answer today, if possible, for the Board to consider – I suspect every day saved will help the contractors."

488. This was, of course, well before the date for submission of bids for the purpose of the Phase 1 process in June 2006. Obviously, the decision to ditch the 1,320MW option

[583] Day 4/p.92 (cross-examination of Mr Rose).
[584] Day 4/pp.92-93 (cross-examination of Mr Rose).
[585] Day 4/p.100 (cross-examination of Mr Rose).

before the end of Phase 1 was not taken.[586] Nevertheless, I regard the board's question, and Mr McLelland's email, as a useful indication of BritNed's thinking before tender prices were received.

489. In an email dated 29 June 2006, Ms Negus forwarded to Mr Kuijpers a copy of a presentation to the BritNed board. The first slide of the presentation stated:

"This presentation is intended to provide an update on the first stage of the Tender process for the BritNed Interconnector and present to the joint venture board members the recommendations from the Project Team, to approve these recommendations and therefore progress to Stage 2."

The presentation does not have a date, but it must be dated around the time of Ms Negus' email.

490. The presentation made clear that BritNed had two options:

(1) Lot 3 – where ABB would have the entire procurement contract; or

(2) Lot 1 plus Lot 2 – where Siemens would be awarded Lot 1 and ABB Lot 2.

491. The prices, both in global terms and per MW, were as follows:

	650MW	**1,000MW**	**1,320MW**
ABB Lot 3			
Total price	€471,481,112	€462,173,000	€601,667,682
Price per MW	€725,356	€462,173	€455,809
ABB (Lot 2) + Siemens (Lot 1)			
Total price	€467,717,555	€469,715,434	€567,161,225
Price per MW	€719,565	€469,715	€429,668

Table 15: Per MW prices

492. As the presentation noted, the two-contract approach was in cost terms better for BritNed. In purely cost terms, the entire procurement contract approach only worked at 1,000MW. Equally, as the per/MW prices showed, the 650MW option was clearly not competitive.

493. The presentation recommended that the 1,000MW capacity option be proceeded with, dropping both the 650MW and 1,320MW capacities. The reasoning, although not completely explicit, seems clear from the presentation:

(1) The 650MW option was the most expensive and provided least capacity. Thus, both in cost and revenue terms it was unattractive.

(2) The 1,320MW option was the most competitive per MW but "significantly more expensive on overall capex compares to the other two options, with no potential for short term optimisation on capacity". It is quite clear from the presentation that the ability of the 1,000MW cable to "flex" above the 1,000MW capacity if required,

[586] Ms Negus' response to Mr McLelland's email was essentially negative. Mr Rose's evidence was that this was Mr McLelland's view as a technical manager, which would have been taken into account: Day 4/pp.120-123 (cross-examination of Mr Rose).

on occasion, was valuable to BritNed. Clearly, BritNed did not consider that a 1,320MW capacity would be required at all times, but that an ability to "flex" to that capacity was an advantage to cope with peaks in demand.

(3) The 1,000MW option was regarded as having a "cost per megawatt comparable with 1,320MW but with the possibility of short term optimisation".

494. The recommendation was that the preferred solution was 1,000MW. The implication, although the presentation is not very express, is that both other capacities were to be dropped. It is significant that this paper did not consider revenue at all. It only considered relative cost, even though (given the ILEX assessment) the 1,320MW option (if operated to capacity) would generate more revenue. It is to be inferred that BritNed did not consider that the 1,320MW capacity would continually be used, and that therefore the ability to flex the 1,000MW cable upwards was a significant advantage. Matters might have been different if it had been possible to flex upwards the 1,320MW cable. Technically, that was possible: but for the regulatory reasons given in paragraph 480 above, this was not permitted.

495. This presentation appears to have been followed by a further presentation, dated 30 June 2006, providing a "Summary update and recommendations to the JV Board". This presentation considered only the 1,000MW option, which strongly suggests the other two options were not seriously being proceeded with. The cost of ABB's Lot 3 offer for the 1,000MW link was put at "€525m up from €480m". These figures do not reconcile to the first presentation, and I do not understand the reason for the mismatch. On the basis of these, higher, cost figures the presentation noted that "Project still viable – but subject to successful negotiations with a very "thin" supplier market". Viability, of course, meant that the Interconnector would generate sufficient revenue to justify proceeding, and the presentation contains data supporting this conclusion on viability.

496. In the end, the board decided to proceed only with the 1,000MW option, as has been described in paragraphs 150 to 152 above. That decision was made in June 2006.

(4) The counterfactual assessment

(a) Dr Jenkins' approach

497. In her first report, Dr Jenkins sought to provide a framework to assist the court in determining whether, absent the Cartel, the BritNed project team would have made a different decision in relation to cable capacity, and specifically whether BritNed would have opted for the 1,320MW Interconnector.[587]

498. Clearly, the question of what decision BritNed would have made in the counterfactual situation turns in large part on whether, and if so how, the key financial inputs used by the BritNed project team would have changed. These inputs were described by Dr Jenkins as follows:[588]

(1) The total project costs.

[587] Jenkins 1/Section 5.
[588] Jenkins 1/para. 5.4.

(2) The costs per MW.

(3) The expected revenues.

(4) The net present value of the project over its lifetime.

(5) The internal rate of return of the project.

499. Dr Jenkins calculated her counterfactual assessment of the total project costs for Base Case 3 (i.e. the 1,320MW cable option) in the following way:

(1) *First stage.* Dr Jenkins' starting point was the Base Case 2 (1,000MW cable) bid put forward by ABB, which she then adjusted by the overcharge that she had found to exist.[589]

(2) *Second stage.* Dr Jenkins then scaled up her Base Case 2 bid to a Base Case 3 1,320 MW capacity using the relative prices between the various Base Cases in the Nexans bid.

500. It is necessary to consider both elements of this approach:

(1) *The first stage: adjusting Base Case 2 by Dr Jenkins' overcharge assessment.* In light of the findings that I have made earlier on in this judgment, it is clear that I must reject Dr Jenkins' first stage, for the same reasons that I have rejected her assessment of the overcharge. I can see no basis for an overcharge of the sort identified by Dr Jenkins. I have concluded that the Cartel resulted in an overcharge of €11,838,250 in relation to the final price agreed between BritNed and ABB of €263,072,231.[590]

(2) *The second stage: increasing the adjusted Base Case 2 tender in accordance with the Nexans bid.* I do not consider – whatever view I had reached in relation to Dr Jenkins' first stage – that it would have been appropriate to scale up her Base Case 2 price by reference to the Nexans bid:

(a) For the reasons I have given,[591] I do not consider that it is appropriate, in this case, to rely – even for scaling purposes – on the bid of a third party, particularly when that bid came from a cartelist, and without material disclosure from that bidder. No doubt there will be cases where – in order to assess damages – a court will be forced to have regard to such unsatisfactory material in order to quantify loss. This is not, however, such a case. Having heard the evidence, I am satisfied that I can assess the price at which Base Case 3 would have been offered by ABB had there been no Cartel without extrapolating from a third party bid.

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[589] Jenkins 1/paras. 5.6, 5.48 and 5.49.
[590] See Table 1 in paragraph 169 above as regards the contract price agreed; and paragraph 464 above regarding the extent of the overcharge.
[591] See paragraph 451(2) above.

(b) Dr Jenkins' first report contains a number of assertions apparently justifying the use of Nexans' bid for this purpose:

(i) It was suggested that ABB deliberately structured its bids so as to encourage BritNed to opt for ABB's own preferred option, Base Case 2.[592]

(ii) In contrast, Dr Jenkins noted, Nexans "submitted a bid above the price presented by ABB for the 1,000 and 1,320MW cables, and slightly below for the smaller cable. However, the bid profile of Nexans' bid reflects a lower cost for the lower-rated Base Case 1, and a higher cost for the higher-rated Base Case 3. The profile reveals a more monotonic relationship between cable capacity and costs."[593] Dr Jenkins considered that "[t]he proportionate change in total costs (or reduction in unit costs) as the scale of the cable increases is the most reliable information available to me of how these bids would have been likely to vary in a competitive bidding environment."[594]

I reject the notion that it is possible to mix-and-match between bids in the way Dr Jenkins has done. I do not consider that either of these points are ones that Dr Jenkins could properly make as an expert economist. She could only do so on the basis of evidence. The first point is essentially a factual one, and although the point was put to ABB's witnesses, it was not accepted by them. For the reasons I have given, I reject the suggestion that ABB's bid was structured in a manner calculated to force BritNed to opt for Base Case 2. The second point is a technical one: I do not consider that there is evidence before me to justify the conclusion that the relationship between cable capacities is monotonic.

501. Accordingly, I reject Dr Jenkins' approach to assessing the price that would have been offered by ABB for Base Case 3 had there been no Cartel. I proceed to make my own assessment of what the Base Case 3 bid would have been, had there been no Cartel.

(b) At what price would ABB have tendered for Base Case 3?

502. For the reasons that I have given in Section I above, I have concluded that ABB's bid was, subject to "pockets" of overcharge, properly put together – that is to say, it largely represented an honest and competent bid. I have found overcharges in two respects, as I have described in paragraph 464 above.

503. That goes as much for Base Case 3 as for Base Case 2. I appreciate, of course, that Base Case 3 was not so exhaustive a tender as Base Case 2: but that is not a reason to doubt that it was essentially a proper bid. I accept that Base Case 3 would have been inflated – in just the same way as Base Case 2 – by the cartel savings that I have described, but this would not have altered the relative merits, in terms of price, between the ABB's bid for Base Case 2 and its bid for Base Case 3.

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[592] Jenkins 1/para. 5.26.
[593] Jenkins 1/para. 5.28.
[594] Jenkins 1/para. 5.30.

504. There remains the question of whether the baked-in inefficiency that I have found to exist in ABB's Base Case 2 tender – the inefficient use of copper for the manufacture of the cable – would also have existed in the case of the Base Case 3 cable. Given that cable thickness is a function of capacity,[595] the higher 1,320MW capacity cable might have required the additional thickness. This was not a matter on which there was any evidence to justify me in concluding that ABB's Base Case 3 was over-specified in terms of the amount of copper used in the cable, and I conclude that this particular overcharge was not present in ABB's Base Case 3 bid.

505. In these circumstances, so far as BritNed's choice between Base Case 2 and Base Case 3 is concerned, the bidding process in the counterfactual world would have proceeded much as it did in fact. I find that BritNed would have chosen the capacity that it actually chose: 1,000MW (Base Case 2). Both Base Case 2 and Base Case 3 would, in the counterfactual world, have been affected in exactly the same way by the absence of cartel savings. In addition, Base Case 2 would have been lower because of the baked-in inefficiency that I have found to exist. Thus, if anything,[596] the advantages of Base Case 2 relative to Base Case 3 would have increased and not diminished in the counterfactual world. Certainly, the attractiveness of Base Case 3 as an option would not have increased as against Base Case 2.

506. In these circumstances, I find that BritNed would have made exactly the same choice as regards cable capacity as it in fact did. I do not consider that BritNed has sustained any loss in relation to its Lost Profit Claim.

(5) Conclusion

507. It follows that the Lost Profit Claim must fail. As I have noted,[597] my conclusion in relation to the Lost Profit Claim is substantially driven by the conclusions I reached in relation to the Overcharge Claim. Essentially, had the Cartel not existed, the relative advantages as between Base Case 2 and Base Case 3 would not have changed: in these circumstances, BritNed would not have made a different decision. In the counterfactual world, just as in the real world, BritNed would have opted for Base Case 2. I conclude that Base Case 3 would have been dropped – as it was – in June 2006.

508. If I am wrong in failing to apply the balance of probabilities test to the question of what BritNed would have done in the counterfactual situation,[598] I should state that I consider that BritNed falls far short of showing on the balance of probabilities that it would have opted for Base Case 3.

THE REGULATORY CAP ISSUE

(1) The pleaded case

509. Paragraph 17 of the Defence alleges that such loss, if any, as has been sustained by BritNed is abated or extinguished by virtue of a cap imposed on ABB's internal rate of

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[595] See paragraph 108 to 110 above.
[596] It is unnecessary for me to determine when, exactly, the baked-in inefficiency would have been competed away as a price concession to BritNed. This could – and probably would – have happened during Phase Two, after Base Case 3 had been dropped.
[597] See paragraph 468 above.
[598] See paragraphs 468 to 469 above.

return (the "IRR Cap"), such that any profit associated with returns generated in excess of the IRR Cap cannot be retained by BritNed.

510. As a result of these conditions, so ABB contended, "any Cartel overcharge incurred by BritNed may have served to increase the maximum allowed revenues that BritNed can generate before having to take the specified measures to reduce its investment returns to the level of the IRR Cap".[599]

511. In order properly to understand this point, it is necessary first to understand the provisions relating to the IRR Cap.

(2) The relevant provisions

(a) Regulation 1228/2003

512. Regulation (EC) No. 1228/2003 of the European Parliament and of the Council of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity ("Regulation 1228/2003") provides in Article 1:

> "This Regulation aims at setting fair rules for cross-border exchanges in electricity, thus enhancing competition within the internal electricity market, taking into account the specificities of national and regional markets. This will involve the establishment of a compensation mechanism for cross-border flows of electricity and the setting of harmonised principles on cross-border transmission charges and the allocation of available capacities of interconnections between national transmission systems."

513. Article 6(6) of Regulation 1228/2003 provides:

> "Any revenues resulting from the allocation of interconnection shall be used for one or more of the following purposes:
>
> (a) guaranteeing the actual availability of the allocated capacity;
>
> (b) network investments maintaining or increasing interconnection capacities;
>
> (c) as an income to be taken into account by regulatory authorities when approving the methodology for calculating network tariffs, and/or in assessing wither tariffs should be modified."

514. Article 7 provides for the possibility of an exemption from Article 6(6) for new interconnectors:

> "(1) New direct current interconnectors may, upon request, be exempted from the provisions of Article 6(6) of this Regulation and Articles 20 and 23(2), (3) and (4) of Directive 2003/54/EC[600] under the following conditions:
>
> (a) the investment must enhance competition in electricity supply;
>
> (b) the level of risk attached to the investment is such that the investment would not take place unless an exemption is granted;

[599] To quote from Defence/para. 17(b)(iii).
[600] The provisions of which are considered further below.

(c) the interconnector must be owned by a natural or legal person which is separate at least in terms of its legal form from the system operators in whose systems that interconnector will be built;

(d) charges are levied on users of that interconnector;

(e) since the partial market opening referred to in Article 19 of Directive 96/92/EC, no part of the capital or operating costs of the interconnector has been recovered from any component of charges made for the use of transmission or distribution systems linked by the interconnector;

(f) the exemption is not to the detriment of competition or the effective functioning of the internal electricity market, or the efficient functioning of the regulated system to which the interconnector is linked.

…

(4)

(a) The regulatory authority may, on a case by case basis, decide on the exemption referred to in paragraphs (1) and (2). However, Member States may provide that the regulatory authorities shall submit, for formal decision, to the relevant body in the Member State its opinion on the request for an exemption. This opinion shall be published together with the decision.

…

(5) The exemption decision shall be notified, without delay, by the competent authority to the Commission, together with all the information relevant to the decision. This information may be submitted to the Commission in aggregate form, enabling the Commission to reach a well-founded decision.

…

Within two months after receiving a notification, the Commission may request that the regulatory authority or the Member State concerned amend or withdraw the decision to grant an exemption. The two months period may be extended by one additional month where additional information is sought by the Commission.

If the regulatory authority or Member State concerned does not comply with the request within a period of four weeks, a final decision shall be taken in accordance with the procedure referred to in Article 13(3)."

515. Article 13(3) refers to certain provisions in Decision 1999/468/EC of the Council of 28 June 1999 laying down the procedures for the exercise of implementing powers on the Commission ("Decision 1999/468/EC").[601] It is unnecessary, for present purposes, to go into the details of Decision 1999/468/EC.

[601] This Decision has been repealed with effect from 28 February 2011, but was in force at the material times.

(b) Directive 2003/54/EC

516. Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market and repealing Directive 96/92/EC ("Directive 2003/54/EC")[602] provides in Article 1:

> "This Directive establishes common rules for the generation, transmission, distribution and supply of electricity. It lays down the rules relating to the organisation and functioning of the electricity sector, access to the market, the criteria and procedures applicable to calls for tenders and the granting of authorisations and the operation of systems."

517. Article 20(1) of Directive 2003/54/EC provides for third party access to transmission and distribution systems:

> "Member States shall ensure the implementation of a system of third party access to the transmission and distribution systems based on published tariffs, applicable to all eligible customers and applied objectively and without discrimination between system users. Member States shall ensure that these tariffs, or the methodologies underlying their calculation, are approved prior to their entry into force in accordance with Article 23 and that these tariffs, and the methodologies – where only methodologies are approved – are published prior to their entry into force."

518. Article 23 of Directive 2003/54/EC provides for the designation of competent regulatory authorities with responsibility *inter alia* for the approval of tariffs or methodologies:

> "(1) Member States shall designate one or more competent bodies with the function of regulatory authorities. These authorities shall be wholly independent from the interests of the electricity industry. They shall, through the application of this Article, at least be responsible for ensuring non-discrimination, effective competition and the efficient functioning of the market…
>
> (2) The regulatory authorities shall be responsible for fixing or approving, prior to their entry into force, at least the methodologies used to calculate or establish the terms and conditions for:
>
> (a) connection and access to national networks, including transmission and distribution tariffs. These tariffs, or methodologies, shall allow the necessary investments in the networks to be carried out in a manner allowing these investments to ensure the viability of the networks;
>
> …"

(c) Domestic provisions

519. The relevant provisions of Articles 20 and 23 of Directive 2003/54/EC were implemented into English law by Standard Licence Conditions 9, 10, 11 and 12 of the Electricity Interconnector Licence (for Great Britain) under section 6(1)(e) of the Electricity Act 1989 and in Dutch law by Articles 24 to 42 of the Dutch Electricity Act 1998.

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[602] Repealing Directive 96/92/EC.

(d) BritNed's application for an exemption

520. On 12 June 2006, BritNed applied to the UK Office of Gas and Electricity Markets ("Ofgem") and the Dutch Minister of Economic Affairs for a 25-year exemption from Article 6(6) of Regulation 1228/2003 and the relevant provisions in English and Dutch law implementing Articles 20 and 23 of Directive 2003/54/EC.

521. In June and July 2007, the Dutch Minister of Economic Affairs and Ofgem respectively granted the exemption. Essentially, what both regulatory authorities did was grant an electricity interconnector licence to BritNed and an exemption from certain of the regulations for a period of 25 years.

522. Pursuant to Article 7(5) of Regulation 1228/2003, these exemption decisions were notified to the European Commission. On 18 October 2007, the Commission requested the modification of the exemption decisions to include the following condition (the "Exemption Condition"):

> "(a) BritNed has to present to the national regulators within ten years after start of operations (as defined in the exemption decisions) a report that contains all the details necessary to scrutinise the total costs and revenues of the project and the rate of return on the investment with 2007 as the base year allowing for comparison with data provided for the exemption request.
>
> (b) If, calculated on the basis of the first 10 years, the estimated internal rate of return for the entire project is more than one percentage point above the internal rate of return estimated when filing the exemption request, BritNed shall have two options:
>
> (i) It shall either increase the interconnector capacity to such an extent that the initially estimated rate of return is met. The additional capacity would not automatically be covered by the scope of the present exemption; or
>
> (ii) Alternatively, BritNed shall accept the profits (discounted to 2007) figures exceeding the initially estimated rate of return by more than one percentage point are capped and used, at equal parts, to finance the regulated asset base in the UK and in the Netherlands."

523. On 13 November 2007 and 15 November 2007 respectively, the Dutch Minister of Economic Affairs and Ofgem amended their exemption decisions (the "Amended Exemption Orders"). It will be necessary to consider these decisions in some detail, because the parties were not *ad idem* as to their effect. However, before I do so, it is appropriate to summarise the arguments of the parties.

(3) The arguments

(a) ABB's contentions

524. ABB contended that:

> **(1)** The Exemption Condition was incorporated into the amended exemption decisions of the Dutch Minister of Economic Affairs and Ofgem.[603]

[603] ABB's opening submissions at paragraph 213.

(2) That, by reason of the Exemption Condition:

(a) BritNed would be subject to a cap on its internal rate of return at one percentage point above the projected internal rate of return at the time of the exemption request. This is the IRR Cap referred to in paragraph 509 above.

(b) Any profit associated with returns generated in excess of the IRR Cap must be used either to create further capacity expansion or to fund the regulated transmission networks in the UK and the Netherlands.

(3) It would appear – although this was not articulated expressly in the course of submissions – that ABB was contending that the IRR Cap applied after a period of 10 years. Certainly, that is how BritNed read ABB's argument,[604] and it is certainly true that ABB referred to the "incorporation" of the Exemption Condition,[605] which *pace* BritNed is not what happened.

525. As a result of the IRR Cap and the manner in which profits associated with returns generated in excess of that Cap (the "Excess Profits") were to be dealt with, ABB contended:

(1) Any overcharge would have the effect of increasing the level of the IRR Cap. Essentially, because the costs of the BritNed project were higher by reason of the overcharge, this would adversely affect the IRR of the project and so increase the level at which profits would become Excess Profits.

(2) Thus, depending on the extent to which BritNed would exceed the IRR Cap, the overcharge actually caused BritNed no loss. The point can be illustrated in the following way:

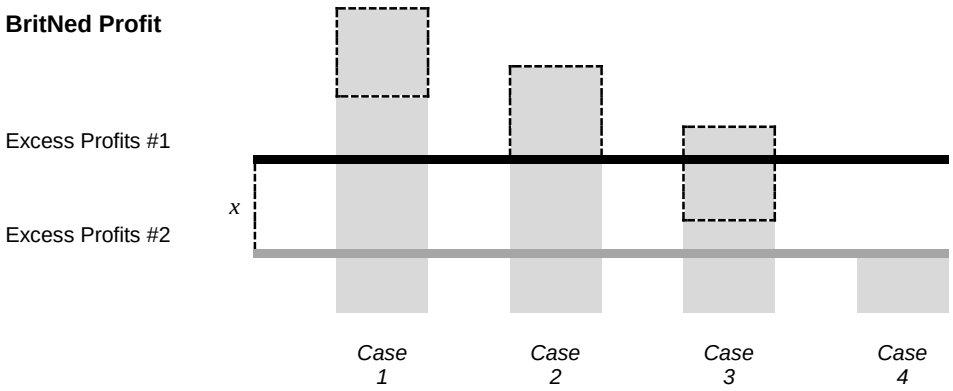

Figure 2: Illustration of ABB's IRR regulatory cap argument

In this illustration:

(a) Four different cases are represented, indicating four different (hypothetical) levels of BritNed profit from the Interconnector.

[604] See paragraph 371 of BritNed's closing submissions.
[605] See paragraph 213 of ABB's opening submissions. ABB's closing submissions did not repeat, but also did not alter, the description of the regulatory background contained in its opening submissions.

(b) There are two lines, labelled "Excess Profits #1" and "Excess Profits #2". The line Excess Profits #1 represents the point at which BritNed's profits become Excess Profits taking account of the effect of an assumed overcharge. The line Excess Profits #2 represents the point at which BritNed's profits would become Excess Profits if there were no overcharge. This, second, line thus represents the counter-factual position.

(c) The difference between these two lines ("*x*") is the effect in monetary terms of the overcharge on the IRR Cap in terms of the amount of profit that BritNed can earn before the IRR Cap is breached.

(d) ABB's point is that *x* represents an amount which BritNed should not be entitled to recover in damages:

(i) Profits exceeding Excess Profits #1 are subject to the IRR Cap on any view.

(ii) The effect of the overcharge was to enable BritNed to recover profits in the amount of *x* unaffected by the IRR Cap. But for the overcharge, profits in the amount of *x* would have been subject to the IRR Cap and recovery by BritNed of the overcharge would, to this extent, be double-compensation.

(iii) It is only if BritNed's profits stay below the Excess Profits #2 line that the overcharge is wholly recoverable. This is Case 4. So far as Cases 1, 2 and 3 are concerned, the blocks surrounded by dotted lines (representing the value of *x*) would be irrecoverable, according to ABB.

526. The legal basis for ABB's contention that *x* was irrecoverable was that damages are intended to be compensatory, and that the measure of BritNed's loss should be its net loss taking into account any benefits attributable to the event which caused the loss.[606]

(b) BritNed's response

527. ABB's argument was resisted by BritNed on a number of grounds:

(1) ABB's interpretation of the effect of the IRR Cap was disputed by BritNed.

(2) ABB's contentions regarding the legal basis for the irrecoverability of *x* were disputed.

(3) It was contended that, in any event, it was not accepted that either the actual IRR Cap (represented by the Excess Profits #1 line) or the counterfactual IRR Cap (represented by the Excess Profits #2 line) would actually be breached by BritNed.

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[606] See paragraphs 217*ff* of ABB's written opening submissions and paragraphs 448*ff* of ABB's written closing submissions.

In short, BritNed contended that – even if the rules remained the same[607] – the IRR Cap was irrelevant on the facts.

528. BritNed also contended that – in the counterfactual world – had it opted for the 1,320MW capacity cable, that might have had a bearing on the level of the IRR Cap. Given my conclusion in relation to the lost profits claim (as it came to be known), it is unnecessary for me to consider this contention.

(4) The proper construction of the IRR Cap

529. As has been described,[608] the European Commission requested certain modifications to the exemption decision pursuant to Article 7(5) of Regulation 1228/2003. This request resulted in amendments to the exemption decisions made by the Dutch Minister of Economic Affairs and Ofgem. The nature of these amendments are described by Ofgem in its letter of 15 November 2007:[609]

(1) Ofgem's letter summarised the Commission's request, setting out in full the Exemption Condition quoted in paragraph 522 above. The letter then stated:[610]

> "…Ofgem has amended the exemption order issued to BritNed consistent with the Commission's request and based on further clarification by the Commission of the intent of its request. BritNed provided its consent to the amendment of the exemption order on 15 November 2007."

(2) It is to be inferred from the emphasised words that Ofgem had a clear understanding of what the Commission intended, and that the Amended Exemption Order was in accordance with the Commission's intention. That inference is further strengthened by the fact that the Commission took no steps, after the issue of the Amended Exemption Order, to force compliance with its requested amendments.[611]

(3) Accordingly, I turn to the Amended Exemption Order, in order to ascertain its true construction:

(a) The Amended Exemption Order clearly operates for a period of 25 years from the date of first commercial operation of the BritNed interconnector.[612]

(b) However, BritNed must, as soon as reasonably practicable after 10 years, provide the regulators with a "Financial Report".[613] This is a defined

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[607] The point was made that the rules remaining the same over a long period of time was inevitably an assumption that might be proved wrong, particularly in the context of "Brexit".
[608] See paragraph 521 above.
[609] The Dutch amendment was to similar effect: however, I have only been able to read this document in translation from the original Dutch. Accordingly, I refer primarily to the Ofgem document.
[610] Emphasis added.
[611] See the provisions described in Section K(2) above. It is clear that if the relevant regulatory authority or Member State fails to comply with the Commission's request, the Commission must take further steps to enforce compliance. The Commission did not do so in this case.
[612] Section C of the Schedule to the Amended Exemption Order.
[613] Section D(6) of the Schedule to the Amended Exemption Order.

term:[614] one of the matters on which BritNed is obliged to provide as part of the Financial Report is "a revised forecast of the internal rate of return".

(c) "Additional Profits" is also a defined term.[615] Essentially, it represents the profits above the IRR Cap as calculated at the 25 year date.

(d) The Amended Exemption Order says this about the deployment of the Additional Profits:[616]

"BritNed must either:

(a) use any Additional Profits as a contribution towards the financing of an increase in the capacity of the Interconnector; or

(b) pay any Additional Profits, in equal parts, to each transmission system operator to whose system the Interconnector is connected in order that each transmission system operator can use such sums to finance the regulated asset base in Great Britain and the Netherlands."

(e) It is obvious from the definition of Additional Profits, that this deployment of the Additional Profits occurs after 25 years. However, any increase in Interconnector capacity must be commissioned and made available for physical flow of electricity on the market by the 25 year date.[617] This, I anticipate, is the purpose of the Financial Report: to give both BritNed and the regulators a clear idea in advance of the 25 year deadline as to whether the IRR Cap will be exceeded in such a way as to render it appropriate to consider an expansion of interconnector capacity.

530. Accordingly, I conclude that the IRR Cap only bites after 25 years: the 10 year Financial Report is no more than advisory. I appreciate that this sits uneasily with the terms of the Exemption Condition, but for the reasons given in paragraphs 528(1) and (2) above, I consider that the Amended Exemption Order is the relevant document to construe in order to understand the operation of the IRR Cap.

(5) The law

(a) A brief statement of the relevant principles

531. The applicable principles are as follow:

(1) In a tortious claim, the aim of an award of damages is to put the claimant in the position, so far as damages can do so, as if the tort had never been committed.[618]

(2) The purpose of damages is compensatory. Where the event giving rise to the loss simultaneously both causes loss and confers a benefit on the claimant, the general

[614] Section A of the Schedule to the Amended Exemption Order.
[615] Section A of the Schedule to the Amended Exemption Order.
[616] Section D(7) of the Schedule to the Amended Exemption Order.
[617] Section D(8) of the Schedule to the Amended Exemption Order.
[618] See paragraph 12(5) above.

rule is that a netting off must occur, and the claimant is only entitled to recovery his, her or its net loss.[619]

(3) The exception is where the benefit to the claimant is treated in law as "collateral": collateral benefits are those whose receipt arises independent of the circumstances giving rise to the loss.[620] Collateral benefits are therefore disregarded for the purposes of assessing a claimant's (net) loss.

(4) When quantifying loss, at least in cases of personal injury, "[t]here is today universal acceptance of the sensible and realistic rule that trial courts must look at the position at the time of their judgments and take account of any changes of circumstances which may have taken place since the injury was inflicted".[621] Where future events may affect the level of a claimant's loss – up or down – it is necessary to factor this in. Often that will require an assessment of probabilities, since future events are uncertain: but a court will not, for quantification purposes, guess when it knows.[622] BritNed contended that where a loss had already occurred – which had "crystallised" with the overcharge in 2007 – there was no basis for making any deduction.[623] This contention, as it seems to me, begs the question: if it is the case that a loss has "crystallised", in the sense that no future event can cause the quantum of that loss to change, then – of course – future events are irrelevant. But, *per contra*, if that loss – having occurred – is affected by future events then, it seems to me, the law is clear: those future events must be factored in.

532. BritNed's cause of action was complete in May 2007, when it entered in the contract for the supply of the Interconnector with ABB, and incurred the overcharge. It was some months after this that the IRR Cap was imposed, although that had been the subject of negotiation with the authorities for some months, at least.

533. Clearly, the question of the future effect of the IRR Cap – in many years time – is a matter that is itself surrounded by factual uncertainty. Two such uncertainties are whether the regulatory regime will remain unchanged; and whether – assuming an unchanged regulatory regime – BritNed will actually breach the IRR Cap so as to generate Excess Profits. These factual uncertainties are considered in Section K(6) below. Before turning to these, however, it is necessary to consider whether – as a matter of law – there is, in fact, a benefit to BritNed that needs to be taken into account for the purpose of assessing BritNed's net loss. For the purposes of this assessment, I shall assume without deciding

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[619] *Parry v. Cleaver* [1970] 1 AC 1 at 13 (*per* Lord Reid); *Hussain v. New Taplow Paper Mills* [1988] 1 AC 514 at 527 (*per* Lord Bridge); *Hodgson v. Trapp* [1989] 1 AC 807 at 819 (*per* Lord Bridge); *Tiuta International Ltd v. De Villiers Surveyors Ltd* [2017] UKSC 77 at [12] to [13] (*per* Lord Sumption).

[620] *Swynson Ltd v. Lowich Rose LLP* [2017] UK SC 32 at [11] (*per* Lord Sumption); *Tiuta International Ltd v. De Villiers Surveyors Ltd* [2017] UKSC 77 at [12] to [13] (*per* Lord Sumption).

[621] McGregor at [40-037]. The position is more complicated where the case is one of supervening causation (e.g. *Performance Cars v. Abraham* [1962] 1 QB 33; *Baker v. Willoughby* [1970] 1 AC 467; *Jobling v. Associated Dairies* [1982] 1 AC 794), but that is not this case, which is purely concerned with quantification.

[622] See the very clear statement of the principle in *Jobling v. Associated Dairies* [1982] 1 AC 794 at 802 (*per* Lord Wilberforce). See also, in contract, *Golden Strait Corporation v. Nippon Yusen Kubishika Kaisha* [2007] 1 AC 353, where a similar approach was adopted.

[623] See paragraph 377 of BritNed's closing submissions.

that BritNed would – at the time for the application of the IRR Cap – earn Excess Profits exceeding the Excess Profits #1 line: I shall assume Case 2 in Figure 2 above.[624]

(b) Has BritNed suffered any loss at all?

534. ABB put its case on this basis: BritNed had suffered no loss. ABB's written closing submissions stated:

> "509. The submissions which have been set out above address the first question, namely whether BritNed has suffered any loss for which it should be compensated by an award of damages. For the reasons set out above, it is submitted that the effect of the IRR Cap is that BritNed would be no worse off absent the overcharge and consequently has not suffered any loss.
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> 510. To be clear, it is not a necessary part of ABB's argument that an award of damages would not be subject to the IRR Cap. It is not suggested that overcompensation arises by reason of the fact that the IRR Cap applies to BritNed's revenues but not to any recovery by way of damages. Rather, overcompensation would arise if BritNed receives an award of damages in circumstances in which it is no worse off by reason of any overcharge. The effect of any overcharge is simply to permit BritNed to retain correspondingly greater revenues before being obliged to take steps to reduce its IRR. This means that BritNed has suffered no loss and no award of compensatory damages is necessary. This is the case *irrespective* of the regulatory treatment of any award of damages."

535. ABB's point is that the effect of the overcharge is to shift the Excess Profits that BritNed is permitted to retain upwards from the Excess Profits #2 line to the Excess Profits #1 line. But for the overcharge, Excess Profits would have arisen after the Excess Profits #2 line: as a result, BritNed retains *x*, which it otherwise would not be permitted to retain. On this basis, assuming (as I am) that it is a certainty that the Excess Profits #1 line will be exceeded, then one can see that if BritNed retains that Excess Profit it obtains a benefit for which BritNed must give credit. The upshot, if the argument is right, is that the party causing the overcharge nevertheless retains it.

536. Were it to be the case that Excess Profits were to be returned to ABB by BritNed, I would see some force in this point. However, that is not the case. Excess Profits are neither returned to ABB nor retained by BritNed. Excess Profits must either be used either to create further capacity expansion or to fund the regulated transmission networks in the UK and the Netherlands. There is, in other words, a beneficiary of the Excess Profts.

537. In my judgment, ABB's contention that BritNed has suffered no loss fails for three related reasons:

(1) First, the case is analogous to the situation considered by the House of Lords in *The Albazero* [1977] 1 AC 774 and subsequent case-law.[625] The rule in *The Albazero* applies in those cases where one person has a right of action against another, but has suffered no loss, in circumstances where another person has suffered the loss, but has no claim. The analogy in the present case is clear: Excess Profits must be used by BritNed either to expand capacity or to fund the UK and the Netherlands regulated transmission networks. Because the existence or otherwise of Excess

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[624] See paragraph 524(2) above.

[625] Notably, *GUS Property Management Ltd v. Littlewoods Mail Order Stores Ltd* 1982 SLT 533; *Linden Gardens Ltd v. Lenesta Sludge Disposals Ltd* [1994] 1 AC 85; *Darlington Borough Council v. Wiltshier Northern Ltd*[1995] 1 WLR 68; *Offer-Hoar v. Larkstone Ltd* [2006] 1 WLR 2926.

Profits is speculative and lies some way in the future, and the interests of the UK and the Netherlands networks are contingent upon BritNed choosing not to expand capacity, it is very difficult to see how these networks could claim for the money that might come to them should the IRR Cap be breached. Yet that interest is disregarded – or, to use the language of Lord Keith, vanishes into "some legal black hole"[626] – if BritNed's damages are reduced in the manner suggested by ABB.

(2) Secondly, this is a case where an income stream, if it reaches a certain level, is earmarked for a particular use. Damages awarded to BritNed will[627] affect the amounts so earmarked. Generally speaking, a court does not inquire into the use to which a successful claimant will put damages he, she or it has been awarded. The fact that BritNed will or may be obliged to pay money to certain uses or certain persons in the future is, in my judgment, not a matter that ought to feature in an assessment of damages.

(3) Thirdly, unless BritNed retains Excess Profit without the obligation to deal with it by creating further capacity expansion or funding the regulated transmission networks in the UK and the Netherlands, it cannot really be said that BritNed benefits from damages which would constitute Excess Profits. On that basis, the term "collateral benefit" is also a misnomer. But in a very real sense, the IRR Cap is collateral. There are two reasons why it should not be taken into account for the purposes of an assessment of damages:

(a) Were the IRR Cap and the question of Excess Profits to be relevant to an assessment of damages, this would give rise to potentially perverse and uneconomic incentives. For instance, the incentive on BritNed to minimise its costs would be reduced.

(b) Equally, the effect of the Regulatory Cap Issue is to enable a cartelist to retain the overcharge it made by reason of the Cartel. There are obvious reasons of justice, fairness and public policy why this outcome should not be sanctioned.[628]

(c) British Transport Commission v. Gourley

538. My conclusion at paragraph 537 above assumes that any damages awarded to BritNed are taken into account for the purposes of calculating BritNed's IRR and the level of the IRR Cap. That appears to be the position on the face of the Amended Exemption Order, but neither party addressed me on this point. ABB's solicitors have inquired of BritNed as to what the position is under the Amended Exemption Order and obtained no clarity as to what the position is.[629]

539. Ever since the decision in *British Transport Commission v. Gourley* [1956] 1 AC 185, English courts have been sensitive to ensuring that claimants are neither over-compensated nor under-compensated because of the effects of taxation. Analagously

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[626] *GUS Property Management Ltd v. Littlewoods Mail Order Stores Ltd* 1982 SLT 533 at 538.

[627] It is assumed, for the present, that any damages awarded to BritNed will form part of the calculations to see whether the IRR Cap is breached. I consider further below whether this is in fact the case.

[628] Questions of public policy can be relevant: see *Palatine Graphic Arts Co Ltd v. Liverpool City Council* [1986] 1 QB 335 at 343 to 344

[629] See paragraphs 515 to 516 of ABB's written closing submissions.

with *Gourley*, my reasoning in paragraphs 534 to 537 is based upon an assumption that any damages awarded to BritNed in this action will be taken into account when calculating BritNed's IRR and the level of the IRR Cap pursuant to the Amended Exemption Order.

540. I do not consider – since the regulators are not party to the proceedings – that it would be right to seek to determine the true effect of the Amended Exemption Order. The better course is for BritNed to undertake, whatever the effect of the Amended Exemption Order, when performing its obligations thereunder:

(1) To calculate what the IRR Cap would be including any damages awarded pursuant to this Judgment; and

(2) If and to the extent that any Excess Profits due to these damages are not payable according to the terms of the Amended Exemption Order to voluntarily use such monies according to the terms of the Amended Exemption Order or to return them to ABB.

(d) Conclusion

541. Subject to the point in paragraph 540 above, I conclude that even if, in the future, BritNed breaches the IRR Cap and earns Excess Profits that it would not have done but for the overcharge, it is still entitled to recover the full amount of the overcharge.

(6) Assessing the future effect of the IRR Cap

542. In light of my conclusion in paragraph 541 above, it is unnecessary for me to assess the extent to which BritNed will exceed the IRR Cap. However, I should briefly explain why – had I determined the Regulatory Cap Issue in ABB's favour – I would have made only a nominal deduction to BritNed's damages:

(1) The question of whether the IRR Cap would apply is one to be determined according to the principles of quantification and not on the balance of probabilities.[630]

(2) Clearly, in this case, assessing future costs and revenue flows is a matter of enormous uncertainty, given the time frames involved, even assuming a constant regulatory regime. It is very difficult – even applying the broadest of brushes – to reach a conclusion as to whether and if so to what extent the IRR Cap would be exceeded.

(3) The overcharge that I have found to exist is small relative to the costs and revenues that would go to calculate the IRR Cap over the period of the Amended Exemption Order. A relatively small change in assumptions regarding the costs and revenues relevant to assessing the IRR Cap would have a disproportionate effect on the amount of damages. In these circumstances, given the amount of the overcharge, to make any deduction would be inappropriate. Had BritNed established an overcharge of the size contended for by it (i.e. in excess of 20% of the price), I

[630] The application of the IRR Cap is a part of the process of quantification and is governed by the same principles as apply to the assessment of the Overcharge and the Lost Profit Claim.

would have made a reduction of around 10% to the monetary amount, to reflect the risk of the IRR Cap being breached due to the damages being awarded.

L. THE COMPOUND INTEREST CLAIM

543. Paragraph 7(b) of the Particulars of Claim provides that:

> "…given that the principal capital cost on [BritNed's] balance sheet is the cost it incurred in commissioning the BritNed Interconnector Project, the inflated price it had to pay to [ABB] for the Works, by virtue of the unlawful actions of [ABB] and its fellow cartelists, led [BritNed] to incur higher capital costs than it would have incurred under competitive conditions."

544. It is on the basis of this plea that BritNed seeks an award of compound interest.[631]

545. At common law, the position for a long time was that interest was not payable on damages: *London, Chatham and Dover Ry Co v South Eastern Ry Co* [1893] 1 AC 429. Although, over time, various exceptions were created to this rule, and equity (in respect of purely equitable claims) always took a different view, the law on this point remained substantially unchanged until the decision of the House of Lords in *Sempra Metals Ltd v Inland Revenue Commissioners* [2007] UKHL 34, [2008] 1 AC 561. In *Sempra Metals*, the House of Lords limited the effect of the London Chatham rule to those cases where the claimant does not plead or prove any losses arising as a result of the late payment. Thus, in a case such as this, whilst there can (apart from an award of simple interest under section 35A of the Senior Courts Act 1981) be no award of damages for an unparticularised or unproved claim for interest losses, a claimant may recover his actual interest losses, including a loss of compound interest, provided the claim is particularised and proved. The point about the decision in *Sempra Metals* is that a claim for interest is a loss like any other – recoverable according to the usual rules: there is not any "special" rule for interest. Precisely what must be pleaded and proved in order for a claim to interest to succeed must depend upon the facts of the individual case.

546. ABB contends that the claim for compound interest is essentially misconceived by BritNed, because BritNed is seeking claim for a loss that is not its own, but that of its two owners, National Grid and TenneT. BritNed, it is said, is 100% financed through equity from its shareholders, and has sustained no loss. In ABB's written closing submissions, the point is put in the following way:

> "319. **Pleaded claim** …BritNed's pleaded claim for compound interest is that it bore *higher capital costs* than would have been the case absent the overcharge.
>
> 320. However, it is evident from BritNed's financial accounts that it did not incur *any* higher capital costs, as it had not raised any debt funding since the start of the project in 2007…BritNed was in fact fully funded by its shareholders. BritNed has therefore not incurred any capital funding costs at all, let alone increased costs as a result of any overcharge.
>
> …
>
> 322. **Shareholders' losses** At [Joint Statement/Issue 58], Dr Jenkins explains the basis of her analysis as follows:

[631] Particulars of Claim/para. 8(b).

> "To see this more clearly, without the overcharge, the *equity investors* would have invested a smaller amount in BritNed (as the required investment would have been smaller). As a result, *the equity investors* would have been able to invest the savings (which equals to the overcharge amount) in other projects to earn returns from them. As a result, the overcharge reduced the profits of the *equity investors* (or shareholders)." (emphasis added)
>
> 323. However, as a matter of law, BritNed is not entitled to claim for any losses that may have been suffered by its shareholders as a result of any overcharge. BritNed may only claim for losses suffered by it. This is an "elementary principle" of law.
>
> 324. As such, insofar as there was any loss of this nature, it could only be claimed by BritNed's shareholders themselves. However, BritNed's parent companies are neither a party to this claim, nor is there any pleaded claim in respect of them."

547. For its part, BritNed accepted that it did not incur any capital costs by way of debt funding. Rather, the interest loss arose in the following way:[632]

(1) Payment of the overcharge necessitated BritNed to raise additional capital that it would not otherwise have required. That capital was provided by BritNed's parent companies by way of equity.

(2) The equity invested by National Grid and TenneT was provided on a clear commercial expectation that a certain minimum return was required. Mr Rose gave evidence in this regard – quoted in paragraph 113 above – which I accept.[633] It is not necessary to state the IRR that National Grid and TenneT sought, and I refer to it as [X].

(3) BritNed contended that the additional equity raised by National Grid and TenneT by reason of the overcharge and injected into BritNed represented a loss to BritNed that should be calculated by reference to its Weighted Average Cost of Capital (or "WACC").

548. Dr Jenkins put the point in the following way:[634]

> "It is agreed that the shareholders have funded the BritNed project; the treatment of the funding costs with respect to interest compensation is a matter for the Court.
>
> …
>
> From an economic point of view, the interests of BritNed cannot be easily separated from those of its shareholders. BritNed (as is the case for any corporate entity) has been constituted to represent the interests of its shareholders. Mr Biro's logic for why BritNed could not claim costs relating to the costs of equity funding would imply that BritNed could claim the overcharge itself, which is clearly incorrect.
>
> Mr Biro's argument is that the capital funding costs are fully borne by the shareholders, and therefore, could not be part of the damages claim of BritNed. However, were the project to have been fully or partially funded by debt from a third party, Mr Biro would agree that the interest costs associated with the debt should be part of the damages claim. The distinction between the cost of debt and cost of equity that Mr Biro makes is artificial. Cost of debt in the hypothetical

[632] I am summarising the argument as set out in paragraph 461 of BritNed's written closing submissions.
[633] See Rose 1/para. 15, which is set out in this paragraph.
[634] Joint Statement/Issue 58. Emphasis added.

arrangement with debt financing is equivalent to cost of equity in the actual scenario without debt. Both debt and equity investors expected to be rewarded for their investment. Therefore, if Mr Biro considers the cost of debt to be a reasonable part of the damages claim for the hypothetical arrangement with debt, the cost of equity in the actual scenario should be included in the claim as well."

549. This is argument, and I very much doubt whether it can properly be characterised as expert opinion. Whilst it may be that to an economist this argument is compelling, as a matter of law it is misconceived:

(1) BritNed was a joint venture between National Grid and TenneT. I accept that National Grid and TenneT only funded BritNed on the basis that the Interconnector would be profitable. I accept that National Grid and TenneT would not have funded BritNed unless they were satisfied – amongst other things – that the BritNed Interconnector was capable of generating an IRR of at least [X].

(2) Of course, such assessments are no guarantee that an IRR of [X] would be achieved. The IRR was relatively high because – as Mr Rose explained[635] - of the risks inherent in the project.

(3) To calculate interest damages by reference to the hoped-for profit of National Grid and TenneT is fundamentally wrong. Even leaving on one side that the compensation is not being paid to National Grid or TenneT, payment on this basis would involve clear over-compensation: damages would be calculated by reference to a projected rate of return on a risky project without any reference to the risks to that profit being achieved. This serves to underline that fact that the IRR is a calculation of potential profit to National Grid and TenneT and not in any sense an assessment of BritNed's loss.

(4) Dr Jenkins asserts, in the passage emphasised in paragraph 548 above, that the overcharge is not properly recoverable by BritNed. That is wrong. The overcharge is recoverable by BritNed and will feed into the IRR of BritNed and the Interconnector. The shareholders in BritNed will benefit by BritNed's recovery, but to suggest that the overcharge is simply to be passed on to the shareholder in BritNed misstates the true position. There are all kinds of other costs (and, indeed, income streams) that need to be taken into account before the return to BritNed's shareholders can be determined.

(5) Had BritNed incurred additional costs by reason of the overcharge – had it, for instance, been required to borrow additional money from a bank – that would have been a cost recoverable in these proceedings. The cost would have been BritNed's to recover albeit that the ultimate improvement to BritNed's bottom line would have been for the benefit of its shareholders.

(6) That is why there is, in this case, an essential distinction between debt finance arranged by BritNed (which did not occur and represents Dr Jenkins' hypothetical case) and an equity injection by BritNed's shareholders. The equity stake of National Grid and TenneT involves no cost to BritNed, save in an obligation to account for its profits to its shareholders. The cost of the equity injection is one borne by the shareholders, and one which, in principle, ought to be recoverable by

[635] See paragraph 113 above, setting out the relevant parts of Mr Rose's evidence.

them. But they are not party to these proceedings, and there is no evidence of what the additional finance provided to BritNed and caused by the overcharge actually cost them.

I regard the Compound Interest Claim as unarguable and I reject it.

M. DISPOSITION

550. For the reasons given in this Judgment:

(1) The Overcharge Claim succeeds and I find that there was an overcharge in the amount of €13,009,568 (i.e. €7,516,639 + €5,492,929).[636]

(2) The Lost Profit Claim fails.[637]

(3) ABB's contention that BritNed's damages fall to be reduced by reason of the Regulatory Cap Issue fails.[638]

(4) BritNed's Compound Interest Claim fails. BritNed is, however, entitled to simple interest.[639]

551. It remains for me to express my gratitude for the outstanding way in which this case was presented before me by both legal teams. There will be a number of consequential matters to be addressed, and I trust the parties will assist in drawing up an appropriate form of order.

[636] Paragraph 464 above.
[637] Paragraph 507 above.
[638] Paragraph 541 above.
[639] Paragraph 549 above.

ANNEX 1

TERMS AND ABBREVIATIONS USED IN THE JUDGMENT

(footnote 1 in the Judgment)

TERM/ABBRECIATION	FIRST REFERENCE OF TERM/ABBREVIATION IN THE JUDGMENT
ABB	Para. 2
AC	Para. 103 (quotation)
Amended Exemption Order	Para. 523
Areva	Para. 120(2)
BAFO	Para. 158
baked-in inefficiency	Para. 215(1)
Base Cases	Paea. 115
Biro 1	Para. 74(2)
Biro 2	Para. 74(4)
BritNed	Para. 4
Cable	Para. 5
CapEx	Para. 107
CAR insurance	Para. 264
Cartel	Para. 1
cartel savings	Para. 215(2)
common costs	Para. 253
Compound Interest Claim	Para. 7
Converter	Para. 5
Damages Directive	Para. 19
DC	Para. 103 (quotation)
decision	Para. 67(5)(b)
Decision	Para. 1
Decision 1999/468/EC	Para. 514
direct costs	Para. 253
direct influence	Para. 214(3)(a)
Directive 2003/54/EC	Para. 515
dummy	Para. 301(2)
EEA Agreement	Para. 6
Ekman 1	Para. 54
EPC	Para. 114(1)

Excess Profits	Para. 524
Exemption Condition	Para. 521
HVAC	Para. 331 (footnote 392)
HVDC	Para. 103
ILEX Study	Para. 142
indirect influence	Para. 214(3)(b)
instrument	Para. 67(5)(b)
interaction terms	Para. 301(1)
Interconnector	Para. 4
IRR	Para. 113 (quotation)
IRR Cap	Para. 508
Jackson 1	Para. 37
Jenkins 1	Para. 74(1)
Jenkins 2	Para. 74(3)
Joint Statement	Para. 74(5)
Jönsson 1	Para. 42(1)
Jönsson 2	Para. 42(2)
Jönsson 3	Para. 42(3)
Jönsson 4	Para. 42(4)
LAFO	Para. 160
Larsson-Hoffstein 1	Para. 58
Larsson-Hoffstein 2	Para. 60
Leupp 1	Para. 50
Lost Profit Claim	Para. 7
Lot 1	Para. 114(1)
Lot 2	Para. 114(2)
Lot 3	Para. 114(3)
McGregor	Para. 12(2) (footnote 6)
MI	Para. 331 (footnote 389)
MW	Para. 4
Nexans	Para. 120(3)
NPV	Para. 113 (quotation)
Ofgem	Para. 519
OJEU Notice	Para. 117
OpEx	Para. 107
Overcharge Claim	Para. 7

p-value	Para. 303 (quotation)
Phase One Procedure Paper	Para. 138
Phase Two Procedure Paper	Para. 152
PPM	Para. 135
Practical Guide on Quantifying Harm	Para. 12(8)(d)
Procurement & Contracting Strategy Paper	Para. 149 (quotation)
Prysmian	Para. 120(4)
Regulation 1/2003	Para. 67(6)(a) (footnote 40)
Regulation 1228/2003	Para. 511
Regulatory Cap Issue	Para. 8(4)
Rose 1	Para. 34(1)
Rose 2	Para. 34(2)
Rose 3	Para. 34(3)
Röstlund 1	Para. 62
Röstlund 2	Para. 62
SGA costs	Para. 267
Siemens	Para. 120(1)
t-statistic	Para. 306
teach-in	Para. 75
TFEU	Para. 6
V1	Para. 295
V2	Para. 295
WACC	Para. 547(3)
XLPE	Para. 331 (footnote 390)
24 August 2018 Response	Para. 74