IN THE MATTER OF AN ARBITRATION UNDER ANNEX 14-C OF THE CANADA-UNITED STATES-MEXICO AGREEMENT ("**CUSMA**"), CHAPTER 11 OF THE NORTH AMERICAN FREE TRADE AGREEMENT ("**NAFTA**"), AND THE 2013 UNCITRAL ARBITRATION RULES-

between

Windstream Energy LLC

(the "**Claimant**")

-and-

Government of Canada

("**Canada**" or the "**Respondent**")

Expert Report of Dr. Jérôme Guillet on Damages Valuation

12 December 2022

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Abbreviations

AOR	Applicant of record
CAD	Canadian dollar
Capex	Capital expenses (construction costs)
COD	Commercial operation date
CUSMA	Canada-United States-Mexico Agreement
CFD	Contract for Difference
Devex	Development expenses
DCF	Discounted cash flow
DE	Germany
DI	Development index
DSCR	Debt service cover ratio
EEZ	Exclusive Economic Zone
EIB	European Investment Bank
EUR	Euro
FC	Financial close
FIT	Feed-in-tariff
FID	Final investment decision
GW	Gigawatt
HVDC	High voltage direct current
IESO	Independent electric system operator
IRA	Inflation Reduction Act of 2022 (US)
IRR	Internal rate of return
MCOD	Milestone commencement operations date
MEUR	Million euro
MW	Megawatt
NAFTA	North American Free Trade Agreement
NDA	Non-disclosure agreement
NNG	Neart na Gaoithe OWF
NPV	Net present value
O&M	Operations & maintenance
OPA	Ontario Power Authority
OWF	Offshore wind farm
PPA	Power purchase agreement
ROC	Renewable obligation certificate
TSO	Transmission system operator
UK	United Kingdom
US	United States
USD	United States dollar
WWIS	Windstream Wolfe Island Shoals Inc.

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1. Preliminaries

1.1 Background

1. I have prepared this report at the request of the Respondent in connection with a claim (the "**Second Claim**") advanced by Windstream against the Respondent under Annex 14-C of the CUSMA and the NAFTA, in relation to the Claimant's investment in an offshore wind power generation facility located off the coast of Wolfe Island, Ontario (the "**Project**"). I refer to the Claimant and the Respondent collectively as the "**Parties**".

2. On 4 May 2010, Windstream Wolfe Island Shoals Inc. ("**WWIS**"), a subsidiary of the Claimant, entered a feed in tariff contract (the "**FIT Contract**") with the Ontario Power Authority ("**OPA**"), now the Independent Electricity System Operator ("**IESO**").[1] The FIT Contract provided for the purchase of the electricity generated by the Project by the Government of Ontario ("**Ontario**" or the "**Province**") at a set price for 20-years, provided that WWIS developed, built and brought the Project into commercial operation within the limited timeframe stipulated in the FIT Contract (the milestone commercial operation date, or "**MCOD**"). If the Project had not become commercially operational on or before the date which is 18 months after the MCOD, it would constitute a "Supplier Event of Default" under the FIT Contract for which the OPA could terminate the FIT Contract.

3. On 10 December 2010, Windstream issued a notice to the OPA, as provided for in its FIT Contract, invoking a force majeure claim commencing as of 22 November 2010 in connection with its inability to obtain Applicant of Record status for the lakebed where it wanted to locate its Project. Applicant of Record status is required to pursue the regulatory approvals necessary for onsite wind measurements. The notice was accepted by the OPA on 9 September 2011 for a valid force majeure event commencing as of 22 November 2010.

4. On 11 February 2011, the Government of Ontario announced that it was deferring the development of offshore wind projects, until further scientific research was conducted (the "**Deferral**" or "**Moratorium**").

5. On 28 January 2013, Windstream filed a Notice of Arbitration against the Respondent under Chapter 11 of the NAFTA with respect to the actions of the Ontario Government and OPA relating to the Project to that point in time ("**First Claim**" or the "**Windstream I arbitration**").

6. I (then acting on behalf of Green Giraffe B.V. ("**Green Giraffe**")) was asked by the Respondent to provide a first report (the "**Green Giraffe Report**") focusing in particular on my views in respect of the Project's valuation, and the assumptions used for the cost of debt and cost of equity in the report prepared by Deloitte LLP (the "**Deloitte Report**") on behalf of the Claimant, which used a discounted cash flow ("**DCF**") methodology. The Green Giraffe Report described how offshore

[1] I also use "transmission system operator" (TSO) in my report, as it is the denomination used in Europe for the grid operator.

wind farms are developed, the tasks and risks that need to be tackled through each phase of development, and how offshore wind farms have been valued at different stages of development in the European market. It then addressed the specifics of the Project and suggested a valuation for the Project, considering a number of relevant precedents, as close to zero and in any case below 0.1 MEUR/MW. Finally, in consideration of the DCF methodology proposed in the Deloitte Report, the Green Giraffe Report discussed a number of the assumptions used therein to reach a valuation of the Project.[2]

7. On 27 September 2016, an arbitral tribunal issued a decision (the "**First NAFTA Award**") that awarded the Recipient approximately CAD 31 M in damages for Canada's breaches of the NAFTA in relation to the Project (including the CAD 6 M letter of credit), using a comparable transactions methodology, explicitly referencing the Green Giraffe Report, and specifically using a valuation of 0.07 MEUR/MW.

8. On 2 November 2020, Windstream submitted another Notice of Arbitration under Annex 14-C of the CUSMA and Chapter 11 of the NAFTA, alleging that measures of Ontario had breached Canada's obligations under the NAFTA (the "**Second Claim**"). I understand that this arbitration arises out of the same measures related to offshore wind development that the Government of Ontario took in 2011 and to the termination of WWIS's FIT Contract by the IESO on 18 February 2020[3] (the "**Alleged Breaches**").

9. Based on an expert report prepared by Chris Milburn, Edward Tobis, and Pierre-Antoine Tetard on behalf of Secretariat (the "**Secretariat Report**"), the Claimant estimates its economic losses in the range of between USD 291 M and USD 333 M on the basis of a DCF methodology, or alternatively, between USD 285 M and USD 299 M on the basis of a comparable transactions methodology.

10. On 12 May 2022, the Government of Canada filed a Request for Bifurcation and Memorial Objecting to Jurisdiction and Admissibility. On 13 September 2022, the Tribunal declined to bifurcate the proceedings.

1.2 Scope of services

11. I have been asked by the Respondent to provide my independent opinion as to the damages sustained by the Claimant, if any, as a result of the Alleged Breaches. I have been asked to prepare my analysis using a valuation date of 18 February 2020 (the "**Valuation Date**"), the effective date of termination of the FIT Contract. This relevant section of this report (chapter 3) is presented as a commented update of the Green Giraffe Report, with a particular focus on how valuation of offshore wind

[2] Monetary amounts are expressed each time with the relevant currency code. EUR is for euros, CAD for Canadian dollars, and USD for United Stated dollars.

[3] I understand that the decision to terminate the Claimant's FIT Contract was taken in February 2018, however that termination only took effect in February 2020.

projects would have changed between the valuation date used in that report (11 February 2011) and the Valuation Date.

12. I have further been asked by the Respondent to comment on the assumptions and conclusions in the Secretariat Report. This relevant section of this report (chapter 4) is presented as a commentary of the Secretariat Report.

1.3 Documents and information provided and reviewed

13. In preparing this report, I have been asked to rely upon the following documents:

- The Green Giraffe Report and documents cited therein;
- The Secretariat Report and documents cited therein.

14. The Green Giraffe Report is attached as an annex to this report and forms an integral part of it, but its content should be read in conjunction with the annotated commentary in chapter 3 which, in particular, includes updated data points up to end-2020. For ease of reference, I will quote the relevant sections of the Green Giraffe Report that I comment upon whenever required, and to avoid any ambiguity, such quotes will be provided in a different font from the original (as it is originally in the same font as this report). Similarly, I will quote the relevant sections of the Secretariat Report that I comment upon, and, such quotes will be provided in the original font of that report.

15. This opinion has been prepared solely to provide my independent and objective opinion on the amount of damages, if any, suffered by the Claimant on their investments in Canada in the context of the Second Claim, and the valuation of the Claimant's investment as of the Valuation Date. In giving this opinion, I do not accept or assume responsibility for any other purpose, or to any other person than to whom this opinion is provided.

16. I confirm that I am not aware of any issue that would constitute a conflict of interest or detract from the provision of a wholly independent opinion in relation to this matter.

17. To prepare this report, I relied upon the documents cited in this report, as well as on my experience. This report is otherwise based on publicly available information, and references to such information are provided when relevant together with certain confidential information available to me through ongoing or past work. Such information is presented in ways to preserve its confidentiality – either the numbers have been rounded or presented as "greater than xxx" or "lower than xxx" or included in a wider pool of data. I indicate when such confidential information is used and would be able to explain the context of such information if requested.

18. Where I refer to publicly available information, I have included the source of this information in an exhibit to this report.

1.4 Biographical information and qualifications

19. After 15 years arranging non-recourse debt for energy projects on the banking side, I created Green Giraffe in early 2010 and was its managing director until June 2021. Green Giraffe is a specialist financial advisory firm focused on renewable energy and offshore wind in particular.

20. It's credentials in 2015 were described in paragraphs 47-64 of the Green Giraffe Report. Between then and end-2020, the company grew from 40 employees to 120, in 7 offices across the world, with offshore wind continuing to represent a majority of the activity of the firm. Updated credentials as of end-2020 are provided as Annex 1 (company profile) and Annex 3 (list of relevant references).

21. As managing director of the company, I supervised all transactions where it was mandated by clients, and had access to all relevant project information. Between 2015 and 2020, in addition to my role in respect of the First Claim, I was involved as expert witness in 3 other arbitration proceedings with regards the valuation of offshore wind farms during the development phase, including 2 instances where I was instructed by the plaintiff seeking damages against a public authority. I used the same data in each case and all of the new data presented in this report is directly retrieved from my most recent report, which was provided for a claimant.

22. I left Green Giraffe in June 2021 due to disagreements within the senior team as to the management of the company, but was specifically and formally transferred the arbitration expert missions then ongoing (including this one), along with the right to keep and use the relevant underlying data.

23. My full CV is available in Annex 2.

2. Executive Summary

24. In this report, I confirm that the methodology to value offshore wind farms ("**OWFs**") proposed in the Green Giraffe Report was still fully applicable to the valuation of OWFs in 2020. That methodology is based on the development stage of offshore wind projects, whereby investors differentiate between early stage development, late stage development, projects under construction and operating projects.

25. My focus, given the situation of the Project, is on the two development phases, prior to financial close ("**FC**") or final investment decision ("**FID**"), the moment when investors take the decision to commit the full funding for the project (respectively including both the debt and equity financing in the case of projects using non-recourse finance (FC), or just the equity commitments in case of balance-sheet financed projects (FID)). The other milestone for projects that will be used in the report is the date when the project becomes fully operational, or the "commercial operations date" ("**COD**").

26. Late development phase projects are projects that are "**fully permitted**," meaning that they benefit from (i) site control, (ii) permits that are no longer subject to any potential appeals process, (iii) a price regime for the sale of electricity (whether under a Feed–in tariff ("**FIT**"), power purchase agreement ("**PPA**") with a fixed price formula, or a contract for differences ("**CFD**") and (iv) a grid access, as further explained in paragraph 47 and subs.

27. I confirm that I continue to consider that a fully permitted project has a value of approximately 0.2 MEUR/MW, and this value has remained stable over the years, as is shown by the history of transactions in the sector, for which I have extensive data, both old and more recent, further presented herein. The summary of that data is included in the table below which shows strong consistency in valuations across the years, (the full data is presented in paragraphs 68-78).

Value[4] (MEUR/MW)	N°	Total GW[5]	Min.	Median	Average (projects)	Average (GW)	Max.
All projects	**24**	**9.1**	**0.08**	**0.22**	**0.46**	**0.30**	**1.25**
All, no windfalls	**20**	**7.8**	**0.08**	**0.18**	**0.17**	**0.19**	**0.48**
(prior to 2015)	15	5.2	0.08	0.18	0.21	0.17	0.48
2015–2020	9	3.9	0.12	0.27	0.92	0.49	1.25
2015–no windfall	5	2.6	0.12	0.15	0.21	0.23	0.27

TABLE 1 – VALUE OF TRANSACTIONS FOR LATE STAGE OWFS

[4] The average values are calculated on the basis of the real numbers I have access to (including those not disclosed in this report) and not the rounded figures. The "no windfall" lines exclude the 4 projects highlighted in TABLE 7 and discussed in paragraphs 74-76.

[5] GW counted are those transacted (i.e. when 50% of a project is sold, 50% of the total MW are included here) and these capacity numbers are then used for the weighted average (column "average (GW)"). The "average (projects)" number is a simple average of the individual valuation multiples of each project without any weighting for capacity or otherwise.

28. Early stage development projects will be worth a certain percentage of this figure, increasing towards 0.2 MEUR/MW as they progress closer towards achieving a permit. The actual percentage will depend on how much progress has been made (or is assessed by investors to have been made) towards each of the milestones required to have a fully permitted project. Early stage projects are generally valued between 0.01 and 0.1 MEUR/MW (see paragraphs 53-67).

Value[6] (MEUR/MW)	N°	Total GW[7]	Min.	Median	Average (projects)	Average (GW)	Max.
All projects	**23**	**18.7**	**0.01**	**0.06**	**0.06**	**0.06**	**0.15**
(prior to 2015)	8	7.1	0.01	≤0.10	0.06	0.03	≥0.10
2015–2020	15	11.5	0.01	0.06	0.06	0.08	0.15

TABLE 2 – VALUE OF TRANSACTIONS FOR EARLY STAGE OWFS

29. A few projects in Europe and the USA have obtained windfall gains (and thus sale prices above the expected range) that can all be explained due to specific factual circumstances and do not change the overall valuation principles and applicable valuation ranges.

- Some European projects with high tariffs previously granted were delayed several years by legal processes (permits appealed or similar) and, when they ultimately prevailed, found themselves in a situation where new projects were obtaining much lower tariffs in auctions. With higher tariffs, they were comparatively more valuable than "new" projects and could command a premium. These projects were mostly at the "fully permitted" stage or close to it so are not relevant precedents for the Project which is much less advanced (see paragraph 0 for more detail).

- US federal lease prices have seen large jumps, due to the multi-tiered nature of the regulatory process in that country, where projects need to deal with federal leases and permits, State tariffs, and specific local grid access rules. Projects with federal offshore wind leases are the only ones that can bid in the State-level auctions for PPAs and will thus be in a situation of very limited competition in such auctions, and can expect to pass on lease costs fully into the PPA prices. This has favoured deep-pocketed investors who can afford to 'park' large sums for several years to gain a quasi-monopolistic position. While these projects are at a relatively early stage (no permits or firm grid access), they are not comparable to the Project as they benefit from a highly favourable regulatory environment in those specific US States, which have put in place multi-year plans to develop not just offshore wind projects but the wider supply chain (see paragraphs 59-64).

30. With respect to the Project, the Green Giraffe Report noted a number of items that would make its financing harder, and its valuation accordingly lower, such as lack of supply chain or lack of financing experience and availability. These factors still apply to the Project even if overall conditions for offshore wind farms have improved in Europe (see paragraphs 81 to 105). In particular, the cliff-like

[6] The average values are calculated on the basis of the real numbers I have access to (including those not disclosed in this report) and not the rounded figures.

[7] GW counted are those transacted (i.e. when 50% of a project is sold, 50% of the total MW are included here) and these capacity numbers are then used for the weighted average (column "average (GW)"). The "average (projects)" number is a simple average of the individual valuation multiples of each project without any weighting for capacity or otherwise.

risk associated with the extremely short timeline required to get the Project operational within 18 months of the MCOD would still be seen as a major risk and an impediment to the Project reaching any material value (see paragraph 96).

31. The Green Giraffe Report then provided my view at the time on the value of the Project. My position today is that the valuation of the Project as of the Valuation Date would not be different than the value articulated in the Green Giraffe Report then:

> 142. A 300 MW project that was fully permitted (i.e. had site control, all permits, a revenue stream and grid access) would be worth something in the EUR 30-60 M range, and one not fully permitted, but with good visibility on getting there, something in the EUR 10-30 M range. Such an amount would be in line with comparable transactions in Europe at that stage of development, (…) However, Windstream was not even at that stage – it did not even know if it would be able to obtain site control and did not have a single permit with the process to obtain both of these entirely untested. (…)
>
> 144. Altogether, Windstream's Project, without any permits confirmed, or even site access, would be worth substantially less than what could be obtained for a fully permitted project – and as noted above, without site control it would likely have no material value. (…)

32. In chapter 4 of this report, I then provide a commentary on the Secretariat Report. Overall, my most material comments apply to (i) the plausibility of certain Project assumptions made in the Secretariat Report, (ii) the applicability of the DCF methodology in general and of certain calculation assumptions, and (iii) the biases introduced by the incomplete samples of comparable projects discussed and errors about some of these projects.

33. As an initial matter, the Secretariat report notes that, one of the Claimant's experts, Pierre–Antoine Tetard, previously worked with Green Giraffe. As a matter of full disclosure, Mr. Tetard worked for Green Giraffe as an external contractor on a mission whereby Green Giraffe was trying to raise a fund to purchase offshore wind projects under development and sell them at FC/FID. As part of that work, which took place under my direct supervision, Mr. Tetard and myself were involved in multiple direct conversations about the valuation of offshore wind farms and the best method to use. We only used the DCF methodology during this mission to value projects at FC/FID (i.e. when we would sell them) and used multiples/comparables for projects under development (i.e. when we would purchase them) (see paragraph 115-116).

34. The Secretariat Report makes a number of aggressive and/or inaccurate assumptions that distort the assessment of the valuation of the Project:

- Given that the FIT Contract had an effective start date of 4 May 2010 and the Project entered *force majeure* status as of 22 November 2010, the 5-year period in the FIT Contract should be reduced by at least that initial 6-month period prior to the pause for *force majeure*. The Secretariat assumption with respect to timing (58 months to commercial operation) is therefore inappropriate – and material given the importance of the MCOD deadline in the potential value of the Project, as discussed further below and extensively covered in paragraphs 36, 125 and 137 of the Green Giraffe Report which remain valid today. More generally, Project timing assumptions are very aggressive (rapid permitting process, record short time to get to FC, 2-year construction timeline starting and ending in winter with no buffer) and would also have an impact on Project valuation (see paragraphs 96-105 and 124 more generally on the timetable).

- The Secretariat Report also makes inaccurate assumptions with respect to grid access, which it says was obtained, while at the same time noting – correctly – that steps to get there had been undertaken but had not been completed (see paragraphs 120-121). My understanding is that grid access was not formally confirmed as of the Valuation Date.

- The Secretariat Report makes several assumptions with respect to the counterfactual scenario that are inappropriate compared to real world experience. In my view, the list of assumptions presented in paragraphs 2.18 and 2.19 of the Secretariat Report can only be described as heroic, and most of them are not linked to the Alleged Breaches, as they relate to the subsequent behavior of regulatory authorities, with the expectation of "best-in-class" support and the assumption of no factual obstacles of any kind for the Project (for a first-of-its-kind project in a sensitive area in terms of water, shipping lanes, fauna, and near the international border). The absence of certain regulatory obstacles (the Alleged Breaches) does not automatically translate into a successful development process. Even in countries with very favorable and established offshore wind regulatory frameworks, not all projects get their permits and not all those that do achieve that acquire them within their hoped-for timetable (see paragraphs 122-123).

35. The Secretariat Report then makes incorrect statements with respect to the DCF methodology in offshore wind financing, saying that it is "appropriate and necessary" when it is neither, and claiming that it is the main valuation tool used in the industry, when it is not, for projects under development (see paragraphs 129-131, 170-175 and 179-187). As noted in the Green Giraffe Report in paragraphs 22-23, this is simply not correct:

    - ***Projects prior to FC/FID are not usually valued on the basis of future cash flows****, as these are still viewed as highly speculative due to the absence of FC/FID, up to the actual date for such event.*

    - *The numbers [included in paragraph 52] show that* ***valuations have been extremely consistent across the sector and very specifically linked to the stage of development of the project****.*

36. Secretariat's DCF methodology is strangely virtual: it requires setting ex-ante the discount rate based not on what the Project has achieved, or what it needs to do, but on notional risks associated with the development phases. De facto, this is done via a qualitative evaluation of the Project, which can only be based on milestones achieved – which brings us back to standardized prices per MW for the early stages.

37. The difference between the DCF calculation at FC/FID and that earlier value at the point where the Project is under development is what allows Secretariat to determine a discount rate for the risk. Using the calculated discount rate to re-calculate the difference in value between the two is circular. Secretariat arbitrarily proposes a 15% discount rate (or internal rate of return, "**IRR**"), which in my view is far from reality (it should be 20-25% – as an expectation, not an exact target).

38. In any case, I am not aware of any project in the world that has received 2/3 of full FC/FID DCF value 2.5 years prior to FC without permits or political support or without highly unusual circumstances, so the number coming out of Secretariat's DCF methodology is not realistic, and is not consistent with standard methodologies used in the industry – indeed it is higher by an order of magnitude (see paragraphs 136-138, 218-225 and 227-229).

39. The Secretariat Report proposes a separate methodology for the discount factor for the development risk using comparables, based on identifying projects at similar stages of development and calculating the proportion of these projects that actually reach FC. The list suffers from two major flaws: (1) it is very incomplete (and skewed towards a selection of successful projects), and (2) several of the projects are very different, from a development stage perspective, to where the Project was as of the Valuation Date, making this method, as it is applied here, completely wrong (see paragraphs 142-143 and 175-177).

40. Other assumptions for their DCF calculation at FC are also very aggressive in my view:

- The Project schedule is very aggressive and beats "best–in–class" recent European projects in mature markets with experienced developers. It does not include the time buffers that lenders would expect to see (see paragraphs 194-196);

- The assumed inflation rate leads to very high tariff – which is something that lenders would actually see as an additional risk rather than a favourable feature of the Project, as the existence of a visible large gap between the tariff and prevailing market prices increases the risk of political intervention to reduce such gap, as has happened in multiple markets over the years (see paragraphs 198-199);

- Construction costs (or capital expenses, "**Capex**") assumptions are low – they are on par with best European practice, which seems unlikely to be achieved for a first project in a new market far away from existing supply chains (see paragraphs 200-203);

- Operations and maintenance ("**O&M**") cost assumptions are similarly low, and so are insurance premium numbers and decommissioning estimates, making all cost assumptions under the Secretariat model very optimistic and aggressive and, in my view, unrealistic for such a project (see paragraphs 204-209);

- Similarly, Secretariat expects an aggressive debt structure, with a "best-in-class" leverage of 80:20 which seems unlikely to be achieved by a first project in a new market with unexperienced lenders and high risks (out of the market tariff, tight schedule, far from supply chains)(see paragraphs 210-212);

- Secretariat also assumes that a large premium would be paid on past development expenses ("**devex**"). They include devex items that would not be recognised by lenders or investors, such as interest on amounts spent, and assume a fixed x2 multiple as premium on amounts spent, when the premium is actually calculated as the difference between a project's valuation at 'fully permitted" stage (based on a value per MW) and the amount spent (see paragraphs 212-217).

41. The Secretariat Report then proposes another estimate for Project valuation based on comparable transactions. In addition to a methodological error in the presentation of the summary results (by incorrectly using the median and mean values as the low and high points of the sample), the comparison is fundamentally flawed as most of the projects selected are not comparable to the Project: all are a lot more advanced in their development, with a majority of the transactions actually taking place at FC/FID. Some of the transaction numbers presented also seem incorrect (see paragraphs 231-247). The comparison to recent US transactions also ignores the very specific features

of these projects and the regulatory context they took place in (see paragraph 161-169 and 248-250). Altogether, the valuation is highly inflated and completely unrealistic.

42. Finally, the Secretariat Report proposes comparisons to onshore wind projects in Ontario, and publicly quoted companies in the renewable energy sector. I fail to see the relevance of either comparison (paragraphs 251-254).

43. Chapter 8 of the Secretariat Report describes preliminary discussions that took place over 2017 with international developers about the Project. These discussions appear to be no more than early stage approaches that quickly show the lack of serious appetite by international investors for the Project, let alone any intent to purchase it (see paragraphs 255-267).

44. Altogether, the various Secretariat attempts to assess the value of the Project, while reaching numbers that are close to each other, cannot be considered as realistic. They all suffer from a combination of overly optimistic assumptions, inappropriate use of methodologies that apply only to other phases of a project's life, and references to supposedly comparable projects that are anything but.

45. The end result, in the CAD 300 M range, is at least an order of magnitude too high, and I confirm my own valuation estimate, as previously stated in the Green Giraffe Report, as close to zero and in any case below 0.1 MEUR/MW (i.e. below EUR 30 M).

3. Update of the Green Giraffe Report

46. This section is structured as an annotated commentary of the Green Giraffe Report, which is attached to this report and forms an integral part of it. I fully stand by the Green Giraffe Report (which I wrote at the time) – the methodology presented therein is still fully valid, and the valuation ranges still apply. In this chapter I present updates of the transaction data that underpin the methodology – which are fully consistent with the older data in the Green Giraffe Report, and provide updated commentary on a few other items.

3.1 Project life cycle

47. Section 4.1 of the Green Giraffe Report, entitled "Project life cycle" remains fully valid:

> 65. Like all large infrastructure and power projects, the development of an offshore wind farm includes several phases which are worth describing in detail to identify the important milestones, as it is these milestones that correspond to increases in the value of the project for its owners.
>
> 66.The broader phases in the life of a project are:
>
> o Development (site identification and control, permits, contract negotiations, financing);
> o Construction (installation of foundations, turbines, internal cabling, grid connection);
> o Operations (power is generated, the facilities are operated and maintained over 25 years)

48. In particular paragraphs 68 and 69 are worth quoting again in full as their content remains at the heart of project valuation:

> 68. This phase [Early permitting phase] requires relatively little capital but is time–consuming – typically taking several years. For an offshore wind farm, it requires obtaining the following:
>
> o *site control* – the right to exclusive use of a defined area at sea (or in a lake), including the right to put an offshore wind farm on that location;
>
> o *permits* –the full suite of permits making it possible to build and operate an offshore wind farm. This will include a licence to operate, the relevant construction permits, environmental reviews and may include more specific requirements in certain locations (approval by military authorities, shipping authorities, fisheries, certification of the proposed design, etc.) as well as the permits required for onshore works (usually the cable landing and connection to the main grid). These permits cannot be considered as obtained until they are no longer subject to any potential appeals process;
>
> o *revenue regime* – access to some form of price support under the relevant regulatory framework that makes offshore wind economical on such site. This can take the form of a FIT, a contract for differences, a PPA with the local utility or another party or "green certificates"/ renewable obligations. For offshore wind, such price support will ideally take the form of a long term regime which provides pricing visibility over 10 to 20 years;
>
> o *grid access* – access to the high voltage grid, whether at the project's location or at an onshore sub-station. Such grid connection may need to be built by the project or by the grid operator and may be subject to a parallel permitting process.

> 69. A project with all 4 items above is usually described as "fully permitted" and accordingly has more value than a project that has only some or none of these items. In some countries, some of these items are relatively easy to obtain and the fact that the corresponding process is not yet complete would not reduce materially the value of the project. For instance, in countries with priority access to grid and feed-in tariffs set by law for renewable energy projects, like Germany or France, the revenue regime is something that comes automatically with the permitting. In countries like Denmark or Netherlands, site control, the main permit and the tariff are auctioned together, reducing significantly the uncertainty once the winner is selected. In general, the value of a non-permitted project needs to be evaluated on a case by case basis in each country, depending on actual regulations and on how such regulations have been implemented or enforced in previous projects.

49. The 4 items defining the "fully permitted" concept remain the core elements that an offshore wind developer must obtain, and they also remain the items that investors look at to assess the value of any project under development. The point about site control remains essential:

> 70. However, not having site control would definitely be seen as a fundamental weakness and would prevent a project from having any material value (see section 5 for a more detailed discussion of the Project's case). Of course, having site control is still no guarantee of ultimate success and project valuation would still be low at that point until a project is fully permitted.

50. The distinction between early stage development (where the developer is focused on the 4 items above), late stage development (where the developer is focused on contracting and financing), construction and operations, as described respectively in paragraphs 68-74, 75-86, 87-90 and 91-93 of the Green Giraffe Report, remain fully valid as of today.

51. The table below provides an update on the UK Round 3 projects which were presented in paragraph 70 of the Green Giraffe Report (the content in italics is the original content of the Green Giraffe Report).

- As of end-2015, no project was operational yet;
- As of end-2020, only 3 of the zones had operating projects, with a further 4 under construction;
- As of end-2022, another 3 projects (Dogger Bank A&B and East Anglia 3) were under construction), with Hornsea 2 having become operational.

Round 3 projects	*Size (MW)*	*Status (Green Giraffe Report)*	Status (end 2020)
Moray Firth	*1,300*	*Consented but no CfD*	950 MW under construction
Firth of Forth	*3,500*	*Under development*	1,075 MW under construction[8]
Dogger Bank	*7,200*	*First 4,800 MW consented, but no CfD yet*	3,600 MW fully permitted[9]
Hornsea	*4,000*	*First 1,200 MW consented and with CfD*	1,200 MW operating[10] 1,400 MW under construction[11]
East Anglia	*7,200*	*First 700 MW consented and with CfD*	714 MW operational[12] 1,400 MW consented[13]
Rampion	*600*	*400 MW project under construction*	400 MW operational
Navitus Bay	*900*	*Consent rejected*	
Atlantic Array		*Project abandoned*	
Celtic Array		*Project abandoned*	
Inch Cape	*1000*	*Consented but no CfD*	1,000 MW fully permitted[14]
Nearth na Gaoithe	*450*	*Consented and with CfD, not contracted/financed yet*	450 MW under construction[15]
Islay		*No active development by lease holder (SSE)*	
Solway Firth		*Deemed unsuitable for development*	
Wigtown Bay		*Deemed unsuitable for development*	
Kintyre		*Cancelled (proximity to local communities and airport)*	
Forth Array		*Cancelled by developer (Fred. Olsen)*	
Bell Rock		*Cancelled due to radar services in the area*	
Argyll Array		*Cancelled (ground conditions / presence of basking sharks)*	

TABLE 3 – UK ROUND 3 PROJECTS – UPDATE ON DEVELOPMENT STATUS

3.2 Offshore wind project valuation

52. Section 4.2 of the Green Giraffe Report, entitled "Offshore wind project valuation" similarly remains fully valid, in particular as regards valuation methodologies presented in paragraphs 94 and 95 of the Green Giraffe Report (tables below are copied as images from the Green Giraffe Report):

> o *Projects prior to FC/FID* are not usually valued on the basis of future cash flows, as these are still viewed as highly speculative due to the absence of FC/FID, up to the actual date for such event. Deals have collapsed days before they were expected to close (Cape Wind in the USA being a recent example), and many more have collapsed along the way (MEG 1 being another example as described

[8] **R-0670**, SSE Renewables, Seagreen Offshore Wind Farm. Available at: https://www.sserenewables.com/offshore-wind/projects/seagreen/

[9] **R-0671**, Dogger Bank Wind Farm, "Our History". Available at: https://doggerbank.com/our-history/

[10] **R-0672**, Ørsted – Hornsea 1 Wind Farm. Available at: https://orsted.co.uk/energy-solutions/offshore-wind/our-wind-farms/hornsea1#document-library-newsletters

[11] **R-0673**, Ørsted – Hornsea 2 Wind Farm. Available at: https://hornseaprojects.co.uk/hornsea-project-two

[12] **R-0674**, Scotish Power Renewable, "East Anglia reaches major milestone with windfarm completion", 27 July 2020. Available at: https://www.scottishpowerrenewables.com/news/pages/east_anglia_reaches_major_milestone_with_windfarm_completion.aspx

[13] **R-0675**, Scottish Power Renewables, "East Anglia THREE". Available at: https://www.scottishpowerrenewables.com/pages/east_anglia_three.aspx

[14] **R-0676**, Inch Cape Offshore Limited, "The Wind Farm". Available at: https://www.inchcapewind.com/about/the-wind-farm/

[15] **R-0677**, NNG Offshore Wind, "About". Available at: https://nngoffshorewind.com/about/

above), and most investors in offshore wind will enforce a rigid discipline to not spend a single euro on projects prior to FC.

Transactions for offshore wind projects – pre FC/FID – early stage

Project	Country[13]	MW	COD	Transaction	MEUR/MW
Sheringham Shoal	UK	315	2012	Q2 2009	<0.1
Nördlicher Grunde	DE	320	>2020	Q2 2011	<0.1
Hornsea Subzone	UK	1,200	<2020	Q4 2011	0.04
Wind Nautilus II	DE	560	>2020	Q4 2011	<0.1
Irish Sea Round 3	UK	4,200	Abandoned	Q1 2012	0.02
PNE portfolio	DE	1,200	>2020	Q3 2013	0.01

o *Projects sold prior to being fully permitted* (meaning that they do not have one of site control, permits that are no longer subject to appeal, a revenue regime and grid access) uniformly have very low valuations, below 0.1 MEUR/MW (i.e. substantially less than EUR 30 M, and typically closer to EUR 10 M for a 300 MW scale project) or may have no material value at all depending on the circumstances.

o *Projects that are fully permitted* (meaning they have each of site control, permits that are no longer subject to appeal, a revenue regime and grid access) do have value, and that value has been typically expressed as a multiple of the project's nameplate capacity, with 0.2 MEUR/MW being a good average figure. Transactions prior to financial close will either take the form of the combination of a very small upfront payment, participation to ongoing and past development expenses ("devex"), and payment of the premium at financial close. It is obviously possible to sell a project in full at any time prior to financial close, but the value will then be substantially lower, and the investors then lose access to any future upside.

Transactions for offshore wind projects – pre FC/FID – late stage

Project	Loc.	MW	COD	Sale	MEUR/MW	Status*
Ormonde	UK	150	2012	Q4 2008	0.4	Y/Y/Y/Y
Thanet	UK	300	2010	Q4 2008	0.1	Y/Y/Y/Y
Sheringham Shoal	UK	315	2012	Q1 2009	0.3	Y/Y/Y/Y
Lincs	UK	270	2013	Q4 2009	0.4	Y/Y/Y/Y
Borkum Riff. I & II	DE	626	2015	Q4 2009	0.2	Y/Y/Y/Y
Walney	UK	367	2012	Q4 2009	0.5	Y/Y/Y/Y
Borkum Riff. West I	DE	400	2015	Q4 2011	0.1	Y/Y/Y/Y
Gode Wind 1-3	DE	900	2015	Q3 2012	0.2	Y/Y/Y/Y
Race Bank	UK	580	2017	Q4 2013	0.1	Y/Y/Y/Y

* Status of site control/permits/grid connection/revenue regime – see all details in Annex 3

95. The numbers above represent a large proportion of the transactions in the sector in Europe (including all of those for which public data is available and some for which confidential data has been rounded). They show that valuations have been extremely consistent across the sector and very specifically linked to the stage of development of the project – they also show that most transactions in that phase take place once a project has already fulfilled the critical steps to be considered fully permitted.

53. I discuss the methodologies used in the Secretariat Report (in particular their use – in my view, inappropriate - of DCF) in paragraphs 172-178.

54. The conclusion above ("**valuations have been extremely consistent across the sector and very specifically linked to the stage of development of the project**") remains entirely and specifically valid. Since 2015, there have been a large number of new transactions – and these confirm that the methodology used at the time was correct and the conclusions remain valid. Updated data (up to late 2020) is presented here, along with a discussion of individual recent cases.

Early development stage

Project	Loc.[16]	MW	Transaction	COD	Seller	Buyer	Stake	Amount (EUR M)	MEUR[17] /MW
Sheringham Shoal[18]	UK	315	Q3 2008	2012	Econcern	Statoil	50%	n.d.	≤0.10
Nördlicher Grund[19]	DE	320	Q2 2011	2016	Eolia	Blackstone	100%	n.d.	≤0.10
Hornsea Subzone[20]	UK	1,200	Q4 2011	2018	MRP / SFS	DONG[21]	33%	18	0.04
Wind Nautilus II[22]	DE	560	Q4 2011	>2020	PNE	Ventizz	100%	n.d.	≤0.10
NOH1 + NOH2[23]	DE	4,310	Q4 2011	Ab.[24]	Etanax	STRABAG	51%	n.d.	≤0.05
Irish Sea Round 3[25]	UK	4,200	Q1 2012	Ab.	Centrica	DONG	50%	51	0.02
Deutsche Bucht[26]	DE	210	Q4 2012	2019	Windreich	Highland	100%	n.d.	≥0.10
PNE Portfolio[27]	DE	1,200	Q3 2013	>2020	BARD	PNE	100%	17	0.01
OWP West[28]	DE	210	Q4 2015	2024	STRABAG	DONG	100%	n.d	≥0.05
Global Tech II[29]	DE	395	Q3 2016	2025	STRABAG	Vattenfall	100%	n.d	≤0.05
Moray Firth[30]	UK	1,116	Q3 2017	2022	EDPR	Engie	23%	24	0.09
Star of the South[31]	AU	2,000	Q4 2017	2025	Offshore En.	CPI	<50%	n.d.	<0.05
Hawaii[32]	US	400	Q1 2018	2023	Progression	n.d.	n.d.	n.d.	<0.02
Castle Wind[33]	US	1,000	Q2 2018	>2025	Trident	EnBW	n.d.	n.d.	<0.02
Baltyk II & III[34]	PL	1,200	Q2 2018	2025	Polenergia	Equinor	50%	44	0.07
Atlantic Shores[35]	US	~2,500	Q4 2018	2025	Toto	EDF / Shell	100%	250	~0.10
Ørsted US assets[36]*	US	>3,000	Q1 2019	>2023	Ørsted	Eversource	50%	200	~0.05
KFWind[37]	KR	500	Q4 2019	2025	EDPR / Aker	WPK / PPI	n.d.	n.d.	<0.05
Blue Gem[38]	UK	400	Q2 2020	>2025	SBE	Total	n.d.	n.d.	<0.05
US Wind[39]*	US	>1,000	Q2 2020	>2024	Toto	Apollo	n.a.	125	~0.15
Hannibal[40]	IT	250	Q3 2020	2025	7Seas	n.d.	n.d.	n.d.	≥0.05
Aqua Ventus[41]	US	12	Q3 2020	2023	uMaine	RWE / DGC	n.a.	85	0.01
Empire+Beacon[42]*	US	>3,600	Q3 2020	>2025	Equinor	BP	50%	500	~0.15

Floating wind projects US outliers discussed below

* This transaction also includes assets at a more advanced stage of development. The price presented here is an estimate of the value allocated to the early development assets only, being 50% of the price of the overall transaction, as explained in the individual footnotes.

TABLE 4 – TRANSACTIONS – EARLY STAGE DEVELOPMENT: KEY TERMS[43]

[16] AU = Australia, DE = Germany, IT = Italy, KR = South Korea, PL = Poland, UK = United Kingdom, US = United States.

[17] "≤0.1" indicates a value below, but close to 0.1. Similarly, "≥0.1" indicates a value above, but close to 0.1.

[18] **R-0678**, StatoilHydro and Statkraft to develop offshore wind farm, 1 April 2009; Green Giraffe employees were involved in that transaction.

[19] **R-0679**, WindMW Announces Financing Completion for Meerwind, Germany's Largest Fully Financed Offshore Wind Farm, 5 August 2011; Green Giraffe assisted Blackstone on the Meerwind transaction and received confidential information about the Nördlicher Grund transaction.

[20] **R-0680**, DONG Energy buys one third of two UK wind projects, 16 December 2011.

[21] DONG later changed its name to Ørsted. I have used the name that was prevailing at the time of the transaction.

[22] **R-0586**, European Wind Energy Association Report 'The European Offshore Wind Industry Key 2011 Trends and Statistics', January 2012.

[23] Information provided by Counsel. This includes Global Tech II and III (395 MW), Albatros (395 MW), OWP West (210 MW) and Seawind I (215 MW) for NOH1 and GAIA I-V (1,740 MW), SeaStorm I-II (680 MW) and SeaWind III-IV (675 MW) for NOH2.

[24] Only OWP West and Albatros were built, with COD in 2021, resp. 2019.

[25] **R-0681**, Dong and Centrica Abandon Irish Sea Round 3 Zone, 31 July 2014.

[26] Green Giraffe acted as advisor to Highland.

[27] **R-0682**, German PNE Wind Buys Three Offshore Projects in North Sea from Bard, 18 September 2013.

[28] Green Giraffe acted as advisor to STRABAG.

[29] Green Giraffe acted as advisor to STRABAG.

[30] **R-0683**, Moray Offshore Wind Project, 10 July 2017.

[31] **R-0684**, Overview Star of the South Offshore Wind Project, accessed 2 December 2020; **R-0685**, ICNGateway – Star of the South, accessed 2 December 2020; Green Giraffe is involved with one of the parties to the transaction on other projects and has confidential information.

[32] Green Giraffe acted as an advisor to the developer Progression.

[33] Green Giraffe acted as an advisor to the developer Trident Winds.

[34] **R-0686**, Polenergia – Offshore Wind Farms, accessed 4 December 2020.

[35] **R-0687**, 'EDF Renewables and Shell Invest in New Jersey Offshore Wind', 19 December 2018; Green Giraffe is involved with one of the parties to the transaction on other projects and has confidential information.

[36] **C-2209**, Ørsted and Eversource Enter 50-50 Partnership Agreement on Key Offshore Wind Assets in the Northeast, 8 February 2019; the transaction mentions a total potential capacity of up to 4,000 MW but includes two projects that already benefit from a long term revenue contract (Revolution Wind, 730 MW and South Fork, ca 130 MW) Conservatively assigning 50% of the value of the transaction to the capacity benefitting from a tariff suggests a value for the rest of the capacity below 0.05 MEUR/MW.

[37] **R-0688**, Renewables and Aker Solutions Buy into South Korean Floating Wind Project, 18 October 2019; Green Giraffe acted as an advisor to the developer KF Wind.

[38] **R-0689**, Oil Giant Total Dives into Offshore Wind with 'World's Biggest' Floating Array, 18 March 2020; **R-0690**, Oil Major Total Buys 80 Percent Stake in Erebus Floating Offshore Wind Project, 19 March 2020; Green Giraffe acted as an advisor to SBE.

[39] **R-0691**, Apollo Infrastructure Funds Announce Strategic Investment in US Offshore Wind Developer US Wind Inc., 14 August 2020; the transaction mentions a total potential capacity of up to 1,300 MW including 270 MW benefitting from an approximately 140 USD/MWh tariff under the Maryland OREC legislation, and another GW of areas under development. Conservatively assigning 50% of the value of the transaction to the capacity benefitting from a (relatively high) tariff suggests a value for the rest of the capacity below 0.05 MEUR/MW.

[40] Green Giraffe acted as adviser to 7Seas.

[41] **R-0692**, Energy Heavyweights Buy into US' Flagship Floating Wind Power Pilot, 5 August 2020.

[42] **R-0693**, BP and Equinor Form Strategic Partnership to Develop Offshore Wind Energy in US, 10 September 2020; the transaction mentions a total potential capacity of up to 4,400 MW but includes 800 MW of capacity that already benefits from a long term revenue contract (Empire Wind). Conservatively assigning 50% of the value of the transaction to the capacity benefitting from a tariff suggests a value for the rest of the capacity below 0.05 MEUR/MW.

[43] n.d. = not disclosed, i.e. the information is available to Green Giraffe but subject to confidentiality undertakings; n.a. = not available to Green Giraffe.

Project	Country	MW	Transaction	Site control	Permits	Revenue regime[44]	Grid access	DI
Sheringham Shoal	UK	315	Q3 2008	Round 2	No	ROC	By project	2.0
Nördlicher Grund	DE	320	Q2 2011	OK	Yes	FiT	Obligation TSO	2.7
Hornsea Subzone	UK	1,200	Q4 2011	Round 3	No	ROC	By project	2.3
Wind Nautilus II	DE	560	Q4 2011	OK	No	FiT	Obligation TSO	1.8
NOH1+NOH2	DE	4,310	Q4 2011	OK	No	FiT	Obligation TSO	1.6
Irish Sea Round 3	UK	4,200	Q1 2012	Round 3	No	ROC	By project	1.7
Deutsche Bucht	DE	210	Q4 2012	OK	Yes	FiT	Obligation TSO	2.6
PNE Portfolio	DE	1,200	Q3 2013	OK	No	FiT	Obligation TSO	1.5
OWP West	DE	210	Q4 2015	OK	Yes	FiT	Obligation TSO	2.8
Global Tech II	DE	395	Q3 2016	OK	No	CfD – auction	Obligation TSO	1.8
Moray Firth	UK	1,116	Q3 2017	OK	Yes	CfD - auction	By project	3.0
Star of the South	AU	2,000	Q4 2017	No	No	tbd	By project	0.9
Progression Hawaii	US	400	Q1 2018	No (auction)	No	PPA with TSO	By project	0.5
Castle Wind	US	1,000	Q2 2018	No (auction)	No	PPA auction	By project	0.6
Baltyk II & III	PL	1,200	Q2 2018	OK	No	Fixed CfD tariff	tbd	2.0
Atlantic Shores	US	>2,500	Q4 2018	OK	No	PPA auction	By project	1.5
Ørsted US assets*	US	>3,000	Q1 2019	OK	No	PPA auction	By project	1.5
KFWind	KR	500	Q4 2019	OK	No	REC	By project	1.2
Blue Gem	UK	400	Q2 2020	OK	No	tbd	By project	1.4
US Wind*	US	>1,000	Q2 2020	OK	No	PPA auction	By project	1.5
Hannibal	IT	250	Q3 2020	OK	No	tbd	By project	1.7
Aqua Ventus[45]	US	12	Q3 2020	OK	No	PPA with TSO	By project	1.8
Empire + Beacon*	US	>3,500	Q3 2020	OK	No	PPA auction	By project	1.5

Floating wind projects

* Data for these projects in this table refers only to the early stage development assets in the portfolio.

TABLE 5 – TRANSACTIONS – EARLY STAGE DEVELOPMENT: PERMITTING STATUS

[44] See paragraph 181 for more information about the UK **ROC** tariff regime that prevailed in that country until the early 2010s. RECs are a similar mechanism used in South Korea. **TSO** is the transmission system operator.

[45] **R-0694**, Aqua Ventus Maine Frequently Asked Questions, accessed 2 December 2020.

55. The conclusion from past data, as shown above, is that early stage projects are valued from 0.01 MEUR/MW for projects with only site control to 0.1 MEUR/MW for projects in an advanced stage of the permitting process, and with less uncertainty on grid access or access to the tariff regime.

Value[46] (MEUR/MW)	N°	Total GW[47]	Min.	Median	Average (projects)	Average (GW)	Max.
All projects	**23**	**18.7**	**0.01**	**0.06**	**0.06**	**0.06**	**0.15**
(prior to 2015)	8	7.1	0.01	≤0.10	0.06	0.03	≥0.10
2015–2020	15	11.5	0.01	0.06	0.06	0.08	0.15

TABLE 6 – VALUE OF TRANSACTIONS FOR EARLY STAGE OWFs

North American specificities

56. Several recent transactions noted in the tables above have taken place in the USA at relatively high values, which are worth discussing specifically. They almost all include a combination of large projects at a very early development stage (essentially a federal offshore lease, which formally allocates site control to the project company – something that the Project does not have) and some more advanced projects that already have additional features, usually a revenue regime in the form of a PPA with the local utility or equivalent.[48]

57. In such multi–project transactions, a total price is usually the only information available, without details as to payment time and often conditionality. Accordingly, it is hard to allocate an exact amount to the different categories of projects. The total price gives an upper bound to the price per MW of the early development assets but I have also tried to provide a reasonable allocation of the value within different assets when possible, and in particular when information is available on individual, more developed assets. Such transactions thus appear in both the early development assets table found above and the late development assets table (presented below in paragraph **Erreur ! Source du renvoi introuvable.**), with different figures in MEUR/MW, which represent my best estimate of the value of the different assets in the portfolio. In the three cases listed above (US Wind, Ørsted assets and Empire+Beacon), a 50/50 split of the transaction amount between early and late stage assets is reasonable in my opinion.

58. In the 2015 Green Giraffe Report, it was noted that the prices for US federal leases were consistent with prices then prevalent in Europe:

> 97. A data point that confirms indirectly the numbers provided here is the value reached by offshore wind leases in the USA in different states. A developer with a lease has site control and some level of predictability in the federal permitting process, but no grid connection and no revenue regime. The

46 The average values are calculated on the basis of the real numbers I have access to (including those not disclosed in this report) and not the rounded figures.

47 GW counted are those transacted (i.e. when 50% of a project is sold, 50% of the total MW are included here) and these capacity numbers are then used for the weighted average (column "average (GW)"). The "average (projects)" number is a simple average of the individual valuation multiples of each project without any weighting for capacity or otherwise.

48 Such as the "OREC" for US Wind projects in Maryland, which for the purpose of this report can be considered to be functionally equivalent to a fixed price PPA as available in other states.

> leases purchased by Blackstone and RES in Massachusetts, a state with no law in place yet to support offshore wind, went for a very low amount (roughly USD 150,000 for areas that can potentially host up to 1,000 MW of capacity), whereas the lease in Maryland, a state with an existing support regime for offshore wind, the OREC, went a few months later for an amount close to USD 9 million (again, for a potential 1,000 MW of offshore wind). The Maryland lease holder, as the party most likely to be able to claim the price regime in that state, has reasonable certainty to have an economically viable price regime for at least 200-250 MW, and obviously also has site control through the lease. This suggests a value for price certainty (like a PPA) of 0.04–0.05 MEUR/MW if there is at least site control. As noted above, not having site control would definitely be seen as a fundamental weakness and would likely prevent a project from having any material value. In fact, we are not aware of transactions for projects without site control.

59. Recent US transactions have seen higher prices than those previously seen (and discussed in the quote above), and also higher than those in Europe due to the specific nature of the project permitting system in that country, spread over multiple regulatory authorities (federal, State and regional grid) which increases the appetite for the sector by oil&gas majors. Such a feature is not apparent in Canada, and thus the arguments leading to higher valuations here would not apply to the Project.

60. Currently, the scarcest resource in the US for offshore wind developers is site control, and more specifically, access to the dedicated federal offshore wind leases. These leases are the only path to build offshore wind farms[49] and are allocated through competitive auctions. They grant the winner only one of the four items of the "fully permitted" project, namely site control, with permits and grid access, subject to parallel processes and tariff regimes subject to separate, State-level auctions for long term PPAs with the local utility. Such tariff auctions are only accessible to parties that have leases in or close to the State organising them, and the States in the Northeast have committed to significant volumes of offshore capacity to be auctioned in the coming years. This means that the competition for PPAs is relatively limited, and prices can accordingly be higher than they would be with full competition for all market entrants.

61. This has made the federal lease auctions the bottleneck for project development and has led recently to substantial prices paid by bidders for such leases. The most recent round led to prices of USD 135 M for leases in Massachusetts,[50] for zones that can notionally allow approximately 1,200 MW of offshore wind capacity. In other words, bidders have accepted to pay upfront approximately 0.10 MEUR/MW for projects that have no permit, no grid access and no tariff, which is substantially above what I would expect for such assets. The reason for such high payments is that the bidders know they will be in competition in the subsequent tariff auctions only against other players that (1) are in a very limited number, and (2) have paid similar amounts for their own leases. Thus, all bidders can include the cost of the lease into their tariff bids without losing any competitive advantage in the auction, and they also know that there will be more auctions in the near future with a similar scarcity of bidders.

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[49] Theoretically it is possible to avoid them by building in State waters (within a 5-km limit from the shoreline in the Atlantic, 16-km limit in the Gulf), but these are areas very close to the coast and very rarely suitable to such projects, notably due to the hostility of beachfront residents.

[50] **R-0695**, Record-Breaking Massachusetts Offshore Wind Auction Reaps USD 405 Million in Winning Bids, 17 December 2018.

62. This has favoured deep-pocketed investors, who can afford to sit on hundred-million-dollar investments while the development work takes place. A key difference with the Project is that these leases do not have hard deadlines for development to take place, and a good part of their value is that they represent long term options on the development of the industry. The Project, with the hard deadline of five years to commercial operation with the possible termination of the FIT Contract 18 months after MCOD, is in a very different position.

63. These auctions have thus been dominated by utilities and, increasingly, oil and gas companies, which have the experience of paying significant upfront fees for exploration blocks and have lately developed an appetite to invest in offshore wind. Such high upfront payments are seen as an acceptable risk because there is strong political momentum in favour of offshore wind in the US currently, something which was not available to the Project over the past decade and still is not available. However, should these projects be delayed or scaled down significantly during the development phase, it is highly likely that such payments would not happen again.

64. It is worth flagging that these specific premia have only appeared in the most recent US transactions (US Wind and Empire+Beacon) for assets with site control, and are not visible in transactions for assets without site control (Castle Wind, Aqua Ventus). Having formal site control is therefore an essential condition, together with the two–stage federal+State regulatory process and the strong political support, for the higher prices, something which the Project did not have as of the Valuation Date.

65. Altogether, the Project is not comparable to the projects that captured windfall amounts, and these do not constitute relevant precedents. The US projects that saw high lease payments are different from the Project in the sense that they are located in areas (States) that have demonstrated strong political support for the sector, through laws, funding for relevant infrastructure like ports and grid access, and explicit commitments for multi–year developments, something which was not present in Ontario in 2016-2020. It took a very favourable political environment, plus a specific multi–tiered regulatory process to explain why certain parties felt comfortable paying large amounts for leases in the United States, in the absence of permits, in the expectation of recovering these through ad hoc tariffs (much) later. The Project did not have a federal bottleneck in front of a favourable State regime, nor did it have the luxury of time to wait for the permits to be granted.

66. The tables above also include several recent floating wind transactions. These tend to be very early stage development projects (typically, some degree of site control and some work on the permitting ongoing) and they are also seen as more risky than traditional fixed-bottom offshore wind such as the Project, as the technology is not yet proven on a large scale and future costs are less well understood. Accordingly, their finance-ability is seen as lower and will require funders with a higher cost of capital, driving down the value of the projects. The value of these projects can thus be seen as a lower bound for the value of development projects at a similar stage.

Note: For early stage transactions, this graph only shows the price paid upfront

FIGURE 1 – VALUATION OF OWFs AT AN EARLY DEVELOPMENT STAGE

67. The figure above summarizes the discussed value range of early stage development projects:

- There is a clear correlation between the development level of the projects (represented by the "**DI**" value allocated by me and shown in the table below) and their value in actual transactions. The DI value is my estimate for each project, taking into account the regulatory framework of the country, the development status of the project at the time of the transaction, and the perception of the market at that time. It does not allocate the same weight to each factor leading to a project being fully permitted, as these may be of differing relevance in different countries. The scale goes from 0 (project idea) to 1 (site control) until 3 (fully permitted);

- Floating projects together with projects at very early stages of development, i.e. having only some degree of site control, constitute the floor of the project value;

- For more advanced projects the value increases up to about 0.1 MEUR/MW as they progress in the permitting process and uncertainties are reduced;

- US projects can reach beyond this value due to the design of the lease system, as explained above.

Late stage development projects

68. Projects that are fully permitted (meaning they have all four of the features identified previously: 1) site control, 2) unappealable permits, 3) grid access, and 4) revenue regime) have a higher value. This value has been typically expressed as a multiple of the project's nameplate capacity, with 0.2 MEUR/MW (including reimbursement of past development costs) being an average figure for that multiple, as shown in the table below.

Project	Loc.[51]	MW	Transaction	COD	Seller	Buyer	Stake	Amount (EUR M)	MEUR /MW
Ormonde[52]	UK	150	Q4 2008	2012	Eclipse Energy	Vattenfall	100%	65	0.43
Thanet[53]	UK	300	Q4 2008	2010	CRC	Vattenfall	100%	43	0.14
Global Tech I[54]	DE	400	Q4 2008	2015	FC/Norderland	SWM et al	84%	126	0.37
Sheringham Shoal[55]	UK	315	Q1 2009	2012	Statoil	Statkraft	50%	53	0.33
Lincs[56]	UK	270	Q4 2009	2013	Centrica	DONG/Siemens	50%	56	0.42
Borkum Riff. I+II[57]	DE	626	Q4 2009	2015	PNE	DONG	50%	56	0.18
Walney[58]	UK	367	Q4 2009	2012	DONG	SSE	25%	44	0.48
Borkum Riff. West[59]	DE	400	Q4 2011	2014	Energiekontor	DONG	100%	30	0.08
Gode Wind 1-3[60]	DE	900	Q3 2012	2017	PNE	DONG	100%	157	0.17
Dudgeon[61]	UK	402	Q4 2012	2017	Warwick	Statoil/Statkraft	100%	n.d.	~0.30
Gemini[62]	NL	600	Q3 2013	2017	Typhoon	NPI, SFS, VO	85%	n.d.	~0.10
Nordergründe[63]	DE	111	Q3 2013	2017	Energiekontor	wpd	100%	n.d.	<0.20
Race Bank[64]	UK	580	Q4 2013	2017	Centrica	DONG	100%	59	0.10
Veja Mate[65]	DE	400	Q3 2014	2017	Unicredit	Highland	100%	n.d.	~0.20
Albatros[66]	DE	395	Q4 2014	2019	STRABAG	EnBW	100%	42	0.11
EMF[67]	FR	1,428	Q2 2016	2019	DONG/EDF	Enbridge	50%	191	0.27
Neart na Gaoithe[68]	UK	450	Q2 2018	2023	Mainstream	EDF	100%	~600	~1.25
Seagreen 1[69]	UK	1,200	Q3 2018	2022	Fluor	SSE	50%	132	0.22
LEM[70]	FR	992	Q4 2018	2023	Engie / EDPR	Sumitomo	29.5%	43	0.15
Ørsted US assets*	US	860	Q1 2019	2023	Orsted	Eversource	50%	~100	~0.12
Saint Brieuc[71]	FR	496	Q1 2020	2023	RES / CDC	Iberdrola	30%	n.d.	>0.50
Seagreen 1[72]	UK	1,200	Q2 2020	2022	SSE	Total	51%	145	0.24
Empire Wind[73]*	US	800	Q3 2020	2024	Equinor	BP	50%	~500	~1.25
Maryland Bay[74]*	US	270	Q3 2020	2024	US Wind	Apollo	n.a.	~125	~0.50

"windfall" outliers discussed below

*Allocating half of the wider transaction value to the late development assets.

TABLE 7 – TRANSACTIONS – LATE STAGE DEVELOPMENT: KEY TERMS

[51] DE = Germany, FR = France, NL = the Netherlands, UK = United Kingdom, US = United States.

[52] **R-0731**, East Midlands Business Angels Case Studies, accessed 2 December 2020.

[53] **R-0732**, Vattenfall Acquires Britain's Largest Offshore Wind Farm, 10 November 2008.

69. Transactions prior to FC will either take the form of the combination of a very small upfront payment, participation to ongoing and/or past devex, and payment of a premium at FC/FID (but which is likely to be lower than the premium which can be achieved for a sale actually taking place at FC/FID). While it is possible to sell a project in full at any time prior to FC, the value will then be substantially lower, and the developer then loses access to any future upside. In general, the more certainty to any payment in this phase, the lower the corresponding amount, all other things being equal.

70. Considering the amounts spent in the development phase (which, in my experience, are typically around 0.1 MEUR/MW but can reach up to 0.2 MEUR/MW), a developer doing its job well in the early development phase can expect to earn a reasonable profit in an acceptable timeframe by bringing it to FC/FID. Not all markets are favourable to small developers: early offshore wind markets like the UK or Denmark explicitly or implicitly favour larger players like utilities by imposing balance sheet requirements or more burdensome – and expensive – development processes.

71. The relatively higher prices for some of the early UK projects (Sheringham Shoals, Lincs and Walney) reflect transactions that took place very shortly prior to FC/FID and were thus largely de-risked at the time of the transaction.

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[54] Information provided by STRABAG.

[55] **R-0733**, Statkraft Annual Report/Sustainability Report 2009, 17 March 2010.

[56] **R-0734**, DONG Energy and Siemens Project Ventures to Join UK Offshore Wind Farm Project, 23 December 2009.

[57] **R-0735**, PNE Wind AG Annual Report 2009, 30 March 2010.

[58] **R-0736**, Airtricity Acquisition of Stake in Walney Offshore Wind Farm in Irish Sea, 23 December 2009.

[59] **R-0737**, Dong Energy to Develop Borkum Riffgrund West for EUR 30 Million, 6 November 2011.

[60] **R-0738**, Dong acquires Gode 1, 2 and 3 in EUR 157 Million Deal, accessed 2 December 2020.

[61] Green Giraffe was involved with the project in another capacity and had access to confidential information about the transaction.

[62] **R-0739**, Van Oord Involved in Gemini Offshore Wind Park, 2 August 2013; Green Giraffe was advisor to the developer Typhoon Offshore for this transaction.

[63] Green Giraffe has acted in several capacities on this project; **R-0740**, Energiekontor AG Sells Offshore Wind Park Nordergründe to WDP *(Energiekontor AG verkauft Offshore-Windpark Nordergründe an WPD),* 6 September 2013.

[64] **R-0741**, Centrica to Sell Race Bank Wind Farm Project to DONG Energy, 11 December 2013.

[65] Green Giraffe acted as advisor to Highland for this transaction.

[66] Information provided by STRABAG.

[67] **R-0742**, Canada's Enbridge to Replace Dong as EDF Offshore Wind Partner, 10 May 2016.

[68] **R-0743**, Mainstream Sells Scottish Project to France's EDF for Over EUR 600 Million, 4 May 2018; Green Giraffe advised another buyer during the sale and has a good view of the final price at which the winning party transacted.

[69] **R-0744**, SSE Acquires Fluor Ltd.'s 50 Percent Share of Seagreen Wind Energy Limited, 25 September 2018.

[70] **C-2186**, EDPR Press Release entitled "EDPR sells 13.5% stake in French offshore wind projects" (December 18, 2018); Green Giraffe advised Sumitomo in this transaction.

[71] **R-0745**, Iberdrola Takes Over 496 MW Saint Brieuc, 9 March 2020.

[72] **R-0746**, SSE Awards Seagreen 1 Contracts as Total Buys Project Stake, 4 June 2020.

[73] **R-0747**, Equinor's Beacon Wind, accessed 2 December 2020; **C-2204**, Equinor News Releases entitled "Equinor offshore wind bid wins in New York State" (2019); **C-2318**, Equinor Press Release entitled "Equinor partners with BP in US offshore wind to capture value and create platform for growth" (September 10, 2020).

[74] **R-0748**, Maryland Offshore Wind Project, accessed 2 December 2012.

72. The following table shows the permitting status of the project at the moment of transaction and, hence, provides background for the valuation of the individual projects:

Project	Country	MW	Transaction	Site control	Permits	Revenue regime	Grid access
Ormonde[75]	UK	150	Q4 2008	Round 1	Consented	ROC	Secured
Thanet[76]	UK	300	Q4 2008	Round 2	Consented	ROC	Secured
Global Tech I[77]	DE	400	Q4 2008	OK	Consented	FiT	Secured
Sheringham Shoals[78]	UK	315	Q1 2009	Round 2	Consented	ROC	Secured
Lincs[79]	UK	270	Q4 2009	Round 2	Consented	ROC	Secured
Borkum Riff. I&II[80]	DE	626	Q4 2009	OK	Yes (BR I)	FiT	Secured
Walney[81]	UK	367	Q4 2009	Round 2	Consented	ROC	Secured
Borkum Riff. West[82]	DE	400	Q4 2011	OK	Yes	FiT	Secured
Gode Wind 1-3	DE	900	Q3 2012	OK	Yes (GW 1-2)	FiT	Secured
Dudgeon[83]	UK	402	Q4 2012	OK	No	ROC	Secured
Gemini[84]	NL	600	Q3 2013	OK	No	CfD	Secured
Nordergründe	DE	111	Q3 2013	OK	Consented*	FiT	Secured
Race Bank[85]	UK	580	Q4 2013	Round 2	Consented	ROC	Secured
Veja Mate	DE	400	Q3 2014	OK	Yes	FiT	Secured
Albatros[86]	DE	395	Q4 2014	OK	Yes	FiT	Secured
EMF[87]	FR	1428	Q2 2016	OK	Under appeal	FiT	Secured
Neart na Gaoithe[88]	UK	450	Q2 2018	Round 1	Consented	CfD - auction	Secured
Seagreen 1	UK	1,200	Q3 2018	Round 3	Consented	CfD - auction	Secured
LEM	FR	992	Q4 2018	OK	Under appeal	FiT	Secured
Ørsted US assets	US	860	Q1 2019	OK	No	PPA with TSO	By project
Saint Brieuc	FR	496	Q1 2020	OK	Under appeal	FiT	Secured
Seagreen 1	UK	1,100	Q2 2020	OK	Consented	CfD + PPA	Secured
Empire Wind[89]	US	800	Q3 2020	OK	No	PPA with TSO	By project
Maryland Bay	US	270	Q3 2020	OK	No	PPA with TSO	By project

*Nordergründe, being quite close to shore, was permitted (and its grid access was managed) under a specific regime according to the Federal Control of Pollution Act run by the factory inspectorate on behalf of the relevant Bundesland rather than by BSH.

TABLE 8 – TRANSACTIONS – LATE DEVELOPMENT: PERMITTING STATUS

[75] **R-0749**, Ormonde Offshore Wind Farm 2010 Construction Environmental Monitoring Report, accessed 3 December 2020 and **R-0750**, Ormonde Decisions on Application since 2005, accessed 7 December 2020. *See* also **R-0618**, Renewables Obligation: Guidance for Generators Report (April 13, 2015).

[76] **R-0751**, Vattenfall Acquires the Thanet Project, 10 November 2008 and **R-0752**, Thanet Decisions on Applications since 2005, accessed 7 December 2020.

[77] Information provided by STRABAG.

73. The following figure summarizes the valuation range of late stage development projects, illustrating the aforementioned windfall effect. Late development stage projects are continuously valued around 0.1 MEUR/MW to 0.2 MEUR/MW.

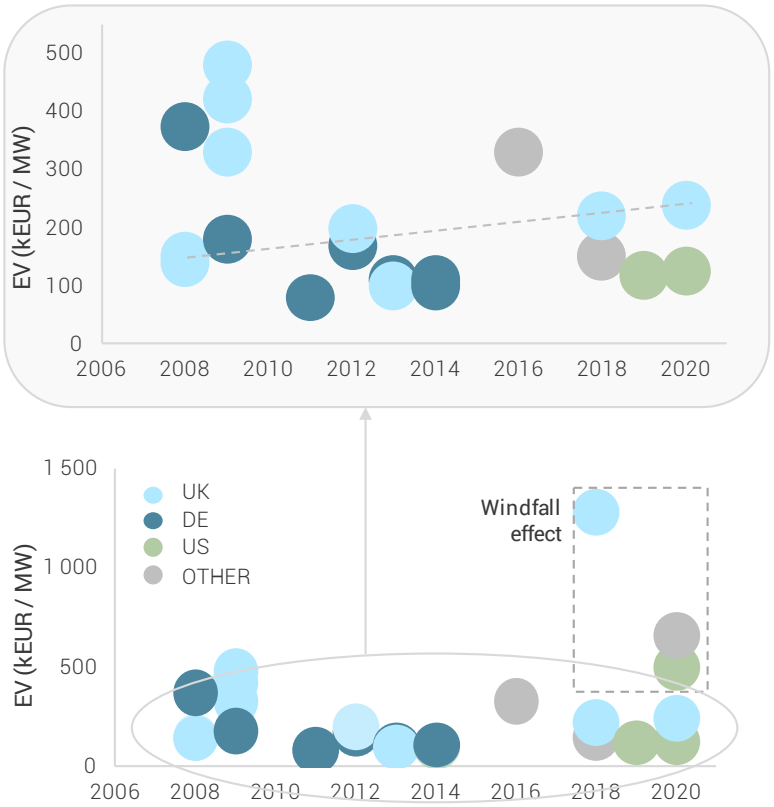

FIGURE 2 – VALUATION OF OWFs AT A LATE DEVELOPMENT STAGE

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[78] **R-0753**, Sheringham Shoal – Consenting Documents, accessed 3 December 2020 and **R-0754**, Sheringham Shoal Decisions on Applications, accessed 7 December 2020.

[79] **R-0755**, Welcome to Lincs, 2019 and **R-0756**, Lincs Decisions on Applications since 2005, accessed 7 December 2020.

[80] **R-0757**, Dong Loses Out on Deep-Water Offshore Connections, 1 January 2010.

[81] **R-0758**, UK Opens Tender for Grid Connection for Nine Offshore Wind Farms, 22 July 2009; **R-0759**, UK Consent for Walney Wind Farm, 21 February 2008; **R-0760**, Walney Decisions on Applications since 2005, accessed 7 December 2020.

[82] **R-0761**, Green Light for Offshore Wind Park on High Sea – Energiekontor AG receives Construction Permit for Offshore Wind Park Borkum Riffgrund West *(Grünes Licht für Offshore-Windpark auf Hoher See – Energiekontor AG erhält Errichtungsgenehmigung für Offshore-Windpark Borkum Riffgrund West)*, 25 February 2004.

[83] **R-0762**, Statoil & Statkraft Buy 560 MW Dudgeon Project, 17 October 2012.

[84] **R-0763**, Permits for Gemini Offshore Wind Farm Irrevocable, 10 December 2013.

[85] **R-0764**, UK: Achieving Government's Consent Important Milestone for Race Bank Project, 6 July 2012; **R-0765**, Race Bank Offshore Wind Farm, 2019; **R-0766**, Race Bank Decisions on Applications since 2005, accessed 7 December 2020.

[86] Information provided by STRABAG.

[87] **R-0767**, Final Approvals for French Offshore Trio, 14 July 2016.

[88] **R-0768**, Neart Na Gaoithe Offshore Wind Project, accessed 2 December 2020.

[89] **R-0747**, Equinor's Beacon Wind, accessed 2 December 2020; **C-2204**, Equinor News Releases entitled "Equinor offshore wind bid wins in New York State" (2019); **C-2318**, Equinor Press Release entitled "Equinor partners with BP in US offshore wind to capture value and create platform for growth" (September 10, 2020).

Value[90] (MEUR/MW)	N°	Total GW[91]	Min.	Median	Average (projects)	Average (GW)	Max.
All projects	**24**	**9.1**	**0.08**	**0.22**	**0.46**	**0.30**	**1.25**
All, no windfalls	**20**	**7.8**	**0.08**	**0.18**	**0.17**	**0.19**	**0.48**
(prior to 2015)	15	5.2	0.08	0.18	0.21	0.17	0.48
2015–2020	9	3.9	0.12	0.27	0.92	0.49	1.25
2015–no windfall	5	2.6	0.12	0.15	0.21	0.23	0.27

TABLE 9 – VALUE OF TRANSACTIONS FOR LATE STAGE OWFS

Windfall projects

74. In the past two to three years, a small number of projects have benefitted from substantially higher "windfall" prices. This includes US projects with a long term PPA in place (at an attractive price) in addition to site control, and a handful of European projects that have benefitted from a unique, and temporary, set of circumstances, being the combination of having an old (i.e. high) tariff and having been delayed due to permitting reasons:

- Neart na Gaoithe ("**NNG**") won a tariff of 114 GBP/MWh in 2015 (indexed from 2012) but was delayed by legal procedures which were cleared only in 2018;

- St Brieuc, like all first-generation French offshore wind projects, was granted a high tariff (close to 200 EUR/MWh[92]) in 2012-13 but was delayed several years due to appeals against its permits.

75. When the permitting situation was cleared, or about to be cleared, these projects still benefitted from a high tariff, but found themselves competing for the attention of investors against newer projects that had obtained substantially lower tariffs in more recent auctions (50-70 EUR/MWh). Projects expected to benefit from a predicable revenue stream two or three times larger, all other things being equal, were suddenly a lot more valuable, relatively speaking, than their more recently developed siblings. That translated into a one-off windfall payment to their owners, corresponding to the expected long term NPV of these additional revenue flows, discounted to take into account how close these projects were to FC/FID. Such windfalls are not expected to be repeated, and the use of NPV methodology for these unusual circumstances does not signal a change in approach in the valuation of late development projects, as other recent transactions confirm.

76. The Project is even less comparable to these windfall projects than it was to the early stage projects that received windfall amounts (as noted in paragraph 65). The European projects that earned windfalls (like NNG and the French projects) were sold as "fully permitted" or very close to that

[90] The average values are calculated on the basis of the real numbers I have access to (including those not disclosed in this report) and not the rounded figures. The "no windfall lines exclude the 4 projects highlighted in TABLE 7 and discussed in paragraphs 74-76.

[91] GW counted are those transacted (i.e. when 50% of a project is sold, 50% of the total MW are included here) and these capacity numbers are then used for the weighted average (column "average (GW)"). The "average (projects)" number is a simple average of the individual valuation multiples of each project without any weighting for capacity or otherwise.

[92] The exact figures are not public. This was negotiated down to a level in the 150 EUR/MWh range (exact number also not made public) in 2018 after the French government complained about the high prices and threatened to revoke the tariff award. **C-2158,** Offshorewind.biz article entitled "France Reduces Feed-In Tariffs for 6 Offshore Wind Projects" (June 20, 2018).

stage, in countries with tested regulatory frameworks and solid political support for offshore wind (as demonstrated by multiple auctions having taken place or planned in these countries). The US projects discussed here were similarly at an advanced stage of development – while they did not have all their permits, they were already a long way into the process, in States with supportive policy frameworks and favourable outlooks for the industry. None of these conditions were applicable to the Project.

77. The approach to valuation, which I have described here, also means that (barring very specific circumstances that cannot be anticipated) there is a "cap" on the value of fully permitted projects, and developers that have spent more than expected on development prior to FC/FID will find it hard to get a full repayment of expenses incurred, let alone earn any return on their investment. In other words, the value of projects is not linked to the money spent on developing them, but on the actual results of such development efforts. This point is discussed in more detail in the section on methodology (paragraphs 213-214 further below).

78. One essential point to note is that barring the handful of well identified "windfall" transactions, the valuation of late development projects has remained consistent even as the industry evolved and overall construction and financing costs came down.

79. In conclusion, it is my opinion that the value of projects under development (i.e. which are seen as not having reached the fully permitted stage) can reach, at best (and barring unusual circumstances) a value of up to 0.1 MEUR/MW, while a fully permitted project will be typically worth close to 0.2 MEUR/MW or sometimes more, depending on how advanced the contracting and financing work streams are at the time.

80. The Green Giraffe Report (paragraphs 98-105) also discussed the valuation of projects under construction or in operation. As this is not relevant to the Project given its early stage of development, I have not provided an update on these sections of the Green Giraffe Report (but as a general point the methodology presented therein remains valid as well).

3.3 Challenges to financing offshore wind projects

81. Section 4.3 of the Green Giraffe Report, entitled "Challenges to financing offshore wind projects" requires some minor updates, as conditions for the financing of offshore wind farms have improved in Europe in the meantime, and new data points have become available, but most of the challenges noted for the Project in that report remain as of the Valuation Date. The following paragraphs address each of the challenges identified in the Green Giraffe Report and provide updates as needed. Generally, both the substance and the conclusions of that section of the Green Giraffe Report remain valid.

82. The two challenges discussed at paragraphs 109 and 110 of the Green Giraffe Report remain true:

> [109] The sector stands at the intersection of several very different industries
>
> [110] This is one of the few industrial sectors with complex construction risk where lenders are expected to take such construction risk on a non-recourse basis

83. Offshore wind farms will always be riskier to build than other projects because (1) much of the construction takes place at sea, which is an inherently hostile environment, and (2) no party has the ability or capacity to take responsibility of the full construction as it involves multiple industrial sectors that still have little overlap. Obviously developers and contractors have learned to do this better today than 5 or 10 years ago, and understand how to mitigate risks, but the risks have not gone away.

84. Since the Green Giraffe Report was written, there is a larger universe of lenders for offshore wind projects, and the challenges identified in paragraphs 111-114 of the Green Giraffe Report have been reduced to some extent:

> [111] The number of lenders with experience in the sector remains relatively limited

85. However, funding of offshore wind remains a highly specialised competence, and there is a learning curve each time for projects in new geographies. The early financings in Taiwan or the USA were not easy (the first financing in Taiwan was done with completion guarantees from Ørsted[93]) and took a lot of time (more than 3 years for Vineyard Wind[94]) as lenders need to find ways to match local financing practices with the specificities of offshore wind. As of the Valuation Date, there has been no financing activity for offshore wind in Canada – even including transactions for early stage projects.

86. Issues identified at paragraphs 115 and 116 of the Green Giraffe Report surrounding the supply chain in North America remain true to this date:

> [115] The supply chain in North America is under developed
>
> [116] The supply chain in North America is not competitive

87. Financing for offshore wind projects is still at a stage today where there is a need to build the first projects, with partly limited visibility on future demand (or at least the timing of such demand), and various requirements by State or federal legislators as regards the localization of factories or other parts of the supply chain within their jurisdiction. These issues make offshore projects more

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93 **R-0696**, Ørsted, "Financial close achieved for Taiwan's Formosa 1 offshore wind farm", 7 June 2019. Available at: https://orsted.tw/en/news/2018/06/fow1-financial-close

94 See **R-0697**, PFI, "Vineyard starts the offshore decade", PFI Yearbook, 16 December 2021. Available at: https://www.pfie.com/story/3179174/vineyard-starts-the-offshore-decade-0xtdcqvqnm and **R-0698**, S&P Global Market Intelligence, "Vineyard Wind moving to secure financing despite regulatory uncertainty", 13 December 2018. Available at: https://www.spglobal.com/marketintelligence/en/news-insights/trending/Mpjql7z_u-9vpTQXF4U1CQ2 - Santander was mandated as financial advisort to the debt more than 3 years before financial close took place.

expensive and difficult to build as contractors are reluctant to invest in factories in areas with no experience and unknown demand potential.

88. Supply chain issues remain stark even today in the US, in a context where a first project is already under construction, and several are progressing in their development (leases obtained, tariffs obtained for some of them, ongoing progress on permits) and there are highly supportive policies in place in several States:

> *Availability of equipment is a growing challenge for the industry — a problem being exacerbated by some states' insistence on the use of local parts and labour as a condition of winning power sales contracts.*
>
> *"There are only so many resources that are available that can support the size of the turbines that we're going to be installing here in the US," said Amy McGinty, head of offshore construction at turbine manufacturer Vestas. "Whether it's vessels, cranes, transport capacity, factory capacity — we are having to make commitments now . . . for projects that we're going to be building in '25, '26, '27 and beyond."* [95]

89. The issues identified in paragraphs 117-119 of the Green Giraffe report with respect to project financing in North American remain true, and were even more true at the Valuation Date:

> [117] The North American project finance market for offshore wind is not mature

90. At that time, and until the recent **IRA**[96] legislation was approved in 2022 in the United States, there was serious doubt about the availability of tax equity at the scale required to do more than a handful of projects, threatening the ability of the market to finance such projects.[97] Canadian projects would not follow the same tax-equity-driven structure but would rely on the US market absorbing offshore wind expertise to provide the requisite lending capacity. Any transaction in North America in 2020 took – and would take – a lot more time than the same in Europe at that time, as noted with respect to the Vineyard Wind project above which took more than 3 years to be financed. Comparable transactions in the UK, Moray East[98] and Triton Knoll[99] took around a year from the time their CfD was granted in 2017 until financial close in 2018.

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[95] **R-0699**, Financial Times, "Renewable energy Wind power executives worry over US offshore ambitions", 24 October 2022. Available at: https://www.ft.com/content/c8187263-7039-4cc9-805a-6e453c011a5d

[96] Inflation Reduction Act of 2022 – among many other decisions, it significantly simplified and widened the criteria to qualify for tax credits for renewable energy projects in the US.

[97] "The tax credit changes in the IRA have the potential to significantly change the funding for and financing of offshore wind projects. The provisions allowing for the transfer of tax credits mean developers will no longer need to find tax equity investors to take an ownership stake in their projects and enter into complex "flip" and "inverted lease" structures to get the benefits of those credits." See **R-0700**, Day Pitney Advisory, "THE INFLATION REDUCTION ACT: HOW WILL ITS PROVISIONS IMPACT OFFSHORE WIND DEVELOPMENT?", 20 August 2022. Available at: https://www.daypitney.com/insights/publications/2022/08/30-the-inflation-reduction-act-impact-offshore-wind-development/

[98] **R-0701**, Moray East Wind Farm confirms financial close, 6 December 2018. Available at: https://www.morayeast.com/news/moray-east-windfarm-confirms-financial-close

[99] **R-0702**, "Triton Knoll confirms Financial Close with major turbine deal and east coast ports plans", 31 August 2018 by Mark Fleming. Available at: https://www.tritonknoll.co.uk/triton-knoll-confirms-financial-close-with-major-turbine-deal-and-east-coast-ports-plans/

[120] Equity funding

91. Since the Green Giraffe Report, equity funding has become more widely available, but remains subject to the discipline of the sector and the valuation principles noted and reiterated above, even for a non-mature project in Canada.

92. I discuss this point in respect of the Project later in chapter 4.7 (paragraphs 255 and subs.) where I comment on the equity process run by KeyBanc on behalf of the Claimant.

[123] Debt funding

93. Similarly, non-recourse debt finance is also more widely available, and has been procured in new markets like the USA and Taiwan, but it remains subject to high standards of due diligence and follows consistent structures and contractual requirements.[100]

94. While it is quite likely that debt finance for a project like Windstream could be produced if it ever became fully permitted, the time required to reach financial close would likely be longer than for a comparable transaction in Europe.

95. Raising equity and debt in parallel remains a complex endeavour, and a rare one. Most projects tend to first structure their equity and then seek debt, and the transactions that do bring in new shareholders at FC tend to have a group of core shareholders that drives the process and the new entrants usually enter the transaction "as is". The Green Giraffe Report mentioned (paragraph 122) one example of simultaneous debt and equity closings (Butendiek, 2013). Since that, I am aware only of a single similar case, Deutsche Bucht (Germany, 2017), where the original developer raised both debt and equity at the same time.

96. Moreover, the point about project cliffs raised in paragraphs 123-126 of the Green Giraffe Report remains fundamentally true. Specifically:

> 125. In particular, it is important to note that lenders are extremely wary of project "cliffs", i.e. events with catastrophic consequences, such as a contract or permit cancellation. As a result, they will always focus on the backstop dates linked to particular project milestones (start of construction at sea, first MWh produced, full completion) which, if not met, can threaten the very existence of the project. The risk of termination of the FIT Contract if the Project is not substantially complete by a certain date would definitely be considered as one such cliff, and banks will typically require a substantial time buffer between the planned completion date and the date when the adverse event could happen. For an offshore wind project, such a buffer will typically be at least one year, or ideally a year plus a few months of good construction season. Multiple projects have had to suffer delays of more than a year in recent years (see table below) and banks want to make sure that such scenarios are unlikely to happen in a project that they finance.

[100] "The standards to which projects have been held have been remarkably consistent over the years, and have led to fairly recognisable features that continue to exist to this day, such as pre-agreed contingency budgets and delay mechanisms, long-term O&M agreements with availability warranties provided by the turbine manufacturers, comprehensive insurance policies, and a specific focus on guaranteeing the readiness and availability of critical installation vessels well in advance." See **R-0703**, PFI, "Offshore wind debt 15 years on", PFI Yearbook, 16 December 2021. Available at: https://www.pfie.com/story/3151364/offshore-wind-debt-15-years-on-cqwp8mbjh8

Project	FC/FID	Expected completion	Actual completion
Borkum West 2	Q2 2011	Q3 2012	Q4 2015
Global Tech 1	Q3 2011	Q3 2013	Q4 2015
Meerwind	Q3 2011	Q3 2013	Q4 2014

126. What is essential to recognize here is that while banks will accept that the proposed completion date is reasonable, they still want to be protected against less likely but plausible scenarios. Thus, they will require that the project financing be designed from the start so as to survive such downside scenarios, and that the construction period start early enough to allow for such a buffer. For a project in a new country – indeed a new continent – lenders will worry that the supply chain is not mature or experienced enough, and will probably expect to see additional protection against potential problems, both in terms of contingent budgets and time buffers.

97. Such requirements are as true today (or at the Valuation Date) as they were in 2015. The hard deadline included in the FIT Contract, with the corresponding risk of termination, is simply not a risk that project finance lenders will accept without a large time buffer.

98. With respect to the timing to reach financial close, the Green Giraffe conclusions remain true:

Timing to reach FC

127. Investors looking to come in at financial close expect to see a project at an advanced stage of development, including clear timelines to obtain the missing permits, a contractual package at an advanced stage of negotiations, a corpus of due diligence reports providing sufficient comfort to them as investors, and enough visibility as to the likelihood that the final overall due diligence reports package will be acceptable to lenders.

128. In practice, and looking backwards, it is appropriate to plan 6-9 months from the approach to the banking market to financial close. Such an approach requires a deal structure approved by the future equity investors, and thus largely settled investment and shareholder agreements. This can be expected to take 6-9 months from the approach to the equity market. This in turn requires well advanced heads of terms for the key contracts to be negotiated, and the corresponding due diligence review, which itself can take anywhere from 6 to 18 months.

129. Therefore, the whole process up to FC/FID, from the moment the site is known well enough to be able to go to contractors with a precise enough invitation to tender, will take at the very least 18months, and more likely 2to3years, with longer times expected for more inexperienced developers. That comes in addition to the early development and permitting period, which also requires years – as noted above, we are aware of only one project (Belwind) that has managed to fulfil the permitting + development/contracting phases in less than 5 years and that included the bankruptcy of the developer.

99. The timelines described above have not changed significantly since the original Green Giraffe Report. All of these tasks are complex and time-consuming. Even if the industry has more experience with such contracts and processes, each project is unique and complex and differs from others in small but meaningful ways that require detailed negotiations between parties (applicable laws, wind and weather conditions imposing different requirements for equipment, risk, financing and accounting preferences of parties, market conditions for the supply chain or the debt financing, etc.).

100. The only projects that have managed to achieve shorter timelines are those that benefit from the new "all-inclusive" auction regimes like in the Netherlands, Germany and Denmark, where the

winner of the auction is essentially granted a "fully permitted" project in one go and can then move to FC/FID on an accelerated basis.

101. For these projects, it still takes at least 1 year, and more typically 18 months, to reach FC/FID, and then around 3 more years to final completion. If one takes into account the preparation time for the bid (where bidders did a lot of the traditional late development work like contracting and financing, in order to be in a position to firm up their bids), one adds at least one more year[101], and if one looks at the preparatory work done by the government, it adds another 2 years (the first studies for the zone in Borssele 1-2 were started in 2014, for instance).[102]

102. The fastest overall cycle from "fully permitted" to COD was 4.5 years for Ørsted's Borssele 1-2 – that's the most experienced offshore wind developer in one of the most mature and well known markets, from the point where the project was "fully permitted".

Project	Country	Winner	Auction result	FC/FID	COD
Kriegers Flak	DK	Vattenfall	Q4 2016[103]	Q4 2018[104]	Q3 2021[105]
He Dreiht	DE	EnBW	Q2 2017[106]	Q2 2022[107]	exp. 2025[108]
Borssele 1–2	NL	Ørsted	Q3 2016[109]	Q3 2017[110]	Q4 2020[111]
Borselle 3–4	NL	Blauwwind	Q4 2016[112]	Q2 2018[113]	Q4 2021[114]

TABLE 10 – TIMETABLE TO COD OF RECENT CONTINENTAL EUROPEAN OWFS

[101] Green Giraffe was mandated by one of the groups competing in the auction in April 2015.

[102] **R-0704**, Netherlands Enterprise Agency, "Borssele Wind Farm Zone Wind Farm Sites I and II", Project and Site Description, Version 3, April 2016. Available at: https://offshorewind.rvo.nl/file/download/353b66fe-c952-4dd3-89fa-8c8f50de52ec/1459840994sdb_20160401_rvo_project%20and%20site%20description%20bwfs%20i%20and%20ii%20version%203_april%202016_f.pdf (see section 8 for the studies prepared and their date.)

[103] **R-0705**, SW&W, International, "Offshore Wind Industry". Available at: https://www.offshorewindindustry.com/news/vattenfall-wins-tender-to-build-kriegers-flak

[104] **R-0706**, Vattenfall, "Vattenfall gives go-ahead for Kriegers Flak offshore wind farm", 20 December 2018. Available at: https://group.vattenfall.com/press-and-media/pressreleases/2018/vattenfall-gives-go-ahead-for-kriegers-flak-offshore-wind-farm

[105] **R-0707**, Vattenfall, "Power plants_ Kriegers Flak". Available at: https://powerplants.vattenfall.com/kriegers-flak/

[106] **R-0708**, Modern Power Systems, "EnBW wins offshore tender with zero-subsidy bid", 23 April 2017. Available at: https://www.modernpowersystems.com/news/newsenbw-wins-offshore-tender-with-zero-subsidy-bid-5793724/

[107] **R-0709**, News release from Vestas Northern & Central Europe, "Vestas and EnBW sign conditional order agreement for the 900 MW He Dreiht offshore project in Germany", Hamburg, 7 June 2022. Available at: https://www.vestas.com/en/media/company-news/2022/vestas-and-enbw-sign-conditional-order-agreement-for-th-c3581445

[108] *Ibid.*

[109] **R-0710**, Reuters, "Tender design, output gains key to DONG's record-low Borssele 1&2 offshore bid price", 17 August 2016. Available at: https://www.reutersevents.com/renewables/wind-energy-update/tender-design-output-gains-key-dongs-record-low-borssele-12-offshore-bid-price

[110] **R-0711**, Power Technology, "Borssele Windfarms 1 and 2", 24 November 2017. Available at: https://www.power-technology.com/projects/borssele-windfarms-1-2/

[111] **R-0712**, Energy Northern Perspective, "Ørsted brings in Norges Bank Investment Management as a partner in Borssele 1 & 2", 7 April 2021. Available at: https://energynorthern.com/2021/04/08/orsted-brings-in-norges-bank-investment-management-as-a-partner-in-borssele-1-2/

103. Similar timelines can be observed for recent UK projects, from the moment they obtain their CfD:

Project	CfD granted	FC/FID	COD
Moray Firth	Q3 2017	Q4 2018	Q4 2022[115]
Triton Knoll	Q3 2017	Q3 2018	Q1 2022[116]
Dogger Bank A&B	Q3 2019	Q4 2020	Exp. 2025[117]
Seagreen	Q3 2019	Q2 2020	Exp. 2023[118]

TABLE 11 – TIMETABLE TO COD OF RECENT UK OWFS

104. Note that these projects are all "Round 3" projects and started their development process in 2009, i.e. 8 to 10 years earlier (see paragraph 51 for the full list of projects from that round of permitting, which, as its name indicates, was the third round of permitting in what was, and still is, the most advanced country for offshore wind).

105. Altogether, this means that 5 years is a "best-in-class" case for the timeline from fully permitted to COD, and lenders will in any case require an additional year of buffer. Add the time to get to "fully permitted" from the circumstances of the project in 2016 or 2020, and it is highly unlikely that a 5-year timeline could be achieved by the Project given its situation, where it is still far from being "fully permitted" and in an immature market.

3.4 Windstream as a development project

106. Section 5.1 of the Green Giraffe Report, entitled "Windstream as a development project" provided Green Giraffe's view on the value of the Project. In my view, the valuation of the Project as of the Valuation Date would not be different than the value articulated in that report. The conclusions drawn at the end of section 5.1 of the Green Giraffe Report (copied below in paragraph 110), remain fully valid today.

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112 **R-0713**, IJ Global, "Borssele III_IV offshore wind, Netherlands", Case Studies, 05 July 2018. Available at: https://www.ijglobal.com/articles/134142/borssele-iii-iv-offshore-wind-netherlands

113 **R-0714**, Power Technology, "Borssele III and IV Offshore Wind Farm, the Netherlands", 24 December 2021. Available at: https://www.power-technology.com/projects/borssele-iii-iv-offshore-wind-farm/

114 **R-0715**, Shell Global, "Offshore windfarm Borssele III&IV now fully operational", 18 February 2021. Available at: https://www.shell.com/energy-and-innovation/new-energies/new-energies-media-releases/offshore-windfarm-borssele-iii-iv-now-fully-operational.html

115 **R-0716**, OffShore WindFarm, "Moray East Celebrates Installation of Last Turbine", 15 September 21. Available at: https://www.morayeast.com/news/moray-east-celebrates-installation-last-turbine

116 **R-0717**, Triton Knoll, "Triton Knoll Offshore Wind Farm reaches further milestone completing turbine commissioning", 13 January 2022. Available at: https://www.tritonknoll.co.uk/triton-knoll-offshore-wind-farm-reaches-further-milestone-completing-turbine-commissioning/

117 **R-0718**, Dogger Bank Wind Farm, "Dogger Bank Wind Farm A and B reaches financial close", 26 November 2020. Available at: https://doggerbank.com/press-releases/dogger-bank-wind-farm-a-and-b-reaches-financial-close/

118 **R-0719**, Seagreen Offshore Wind Farm, 3 June 2020. Available at: https://markets.ft.com/data/announce/full?dockey=1323-14564169-01RUIJR7C3TIFAH1N7SMCJJPB1

107. Paragraph 131 of the Green Giraffe Report describes the methodology Green Giraffe would have used to value the Project in 2015, and paragraph 132 describes the likely sources of equity (i.e. potential buyers). I confirm that I would use the same methodology to value the Project today:

> 131. If Green Giraffe had been hired to advise either Windstream or a potential purchaser with respect to the value of the Project in a market transaction in 2011/2012, in the absence of the Deferral, the process would have included the following:
>
> – a DCF calculation to assess the potential value of the Project at FC and, de facto, the maximum value that might be claimed by the developer;
>
> – a detailed evaluation of the development process to understand the risk that the permitting process may not be completed, or may be delayed;
>
> – a discussion with the developer as to its preferences in terms of payment structure (full or partial payment upfront, contribution to past or ongoing development expenses, payment of premium at FC or COD, etc.) as well as approach to FC/FID.
>
> • *Sources of financing for Windstream*
>
> 132.The number of parties that would have actually considered investing in a project at the stage Windstream was in 2011 is not more than a handful today (and that may be optimistic considering the lack of site control). It was even smaller at the time. In any case, such parties would not be interested in any kind of joint endeavour with the Windstream investors but would only be willing to pay them a small lump sum (as described in chapter 4.1 above) to take over project rights, with no or very limited upside for the original investors). Moreover, they most likely would not have been willing to do so until at least site control was established as prior to that the Project likely had no material value. Further, the only way for Windstream to have a chance to materialise any value from the Project before FC would likely have been to relinquish control over the process – and abandon a substantial portion, if not all, of the upside.

108. The above remains true today (or as of the Valuation Date).

3.5 Timing and Project value

109. Paragraphs 136-142 of the Green Giraffe Report describes in detail the issue about the "cliff" created by the right to terminate the FIT Contract 18 months after the MCOD (as mentioned also in paragraph 96 above) and the impact on the valuation of the Project. The statements made there remain true as of the Valuation Date.

110. The conclusions drawn at the end of section 5.1 of the Green Giraffe Report, copied below, also remain fully valid today:

> 142. This means that a 5-year period is typically insufficient to manage the whole late development and financing cycle and complete construction. In short, even a project with all its permits (which Windstream does not have) and being developed by an experienced developer facing such a deadline would still face a discount compared to other projects at that stage without such a deadline looming. A 300 MW project that was fully permitted (i.e. had site control, all permits, a revenue stream and grid access) would be worth something in the EUR 30-60 M range, and one not fully permitted, but with good visibility on getting there, something in the EUR 10-30 M range. Such an amount would be in line with comparable transactions in Europe at that stage of development, and with the amount paid for

> the Maryland lease by US Wind last year. However, Windstream was not even at that stage – it did not even know if it would be able to obtain site control and did not have a single permit with the process to obtain both of these entirely untested.
>
> 143. Having being involved recently in attempts to raise equity for projects in North America at the stage where Windstream stood in 2011/2012, we should note that it is an extremely difficult task, with a very limited number of investors interested. The few investors that could be interested would only be willing to consider transaction where full ownership was transferred, and minimal upside allowed for the original party, if at all.
>
> 144. Altogether, Windstream's Project, without any permits confirmed, or even site access, would be worth substantially less than what could be obtained for a fully permitted project – and as noted above, without site control it would likely have no material value. Further, if a transaction could be negotiated (which we think unlikely) that would entail in any case a full transfer of control (and all of the upside) to that new party, so the existing owners would never have access the potential full value of the project. As mentioned above, if Windstream's approach was to stay in charge to FC/FID by financing the Project themselves, the project would be worth nothing until financial close is actually reached.

111. The valuation granted to the Project under the First NAFTA Award, at CAD 31 M (corresponding to EUR 21 M, calculated using a valuation of 0.07 MEUR/MW), is consistent with a project "not fully permitted, but with good visibility on getting there". As suggested in the Green Giraffe Report, this is a relatively optimistic view of the progress actually made by the Project, within the range that can be considered to apply to the Project.

4. Discussion of the Secretariat Report

112. In the sections that follow, I provide quotes from the Secretariat Report, with their original numbering. In an effort to respond to the Secretariat Report in the most efficient manner, I then respond directly to their arguments in the paragraphs following the quote. Titles in this section refer to the chapters of the Secretariat Report.

113. As the Secretariat Report duplicates a lot of content between its extensive executive summary (chapter 2) and the full content of the report, I have also had to duplicate certain comments. To the extent practical, I have tried to provide substantive comments in response to the more detailed section of the Secretariat Report, and only comment on the executive summary section through short arguments and references to the more detailed comment which appear later in my text.

114. Overall, my most material comments apply to (1) the plausibility of certain Project assumptions made in the Secretariat Report, (2) the applicability of the DCF methodology in general and of certain calculation assumptions, and (3) the biases introduced by the incomplete samples of comparable projects discussed and errors about some of these projects.

4.1 Introduction

115. As an initial matter, the Secretariat report notes that, one of the Claimant's experts, Pierre-Antoine Tetard, previously worked with Green Giraffe:

> 1.22 From 2014 onwards, I specialized in offshore wind, successively working with Green Giraffe (equity investments/fundraising), Ørsted (business development initiatives, including mergers & acquisitions, project financing, partnerships / joint ventures, globally) and my current firm, BlueFloat Energy (leading the company's international expansion into new markets, setting up partnerships with local partners and initiating offshore wind project development strategies). Blue Float Energy was founded in 2020, and has a presence in 4 continents (Europe, North America, South America, Asia-Pacific).

116. As a matter of full disclosure, Mr. Tetard worked for Green Giraffe as an external contractor on a mission whereby Green Giraffe was trying to raise a fund to purchase offshore wind projects under development and sell them at FC/FID. As part of that work, which took place under my direct supervision, we were jointly involved in multiple conversations about the valuation of offshore wind farms and the best method to use. We only used the DCF methodology during this mission to value projects at FC/FID (i.e. when we would sell them) and used multiples/comparables for projects under development. In models directly prepared by him, value was assessed for that phase based on a combination of devex spending (assumed linear), and premium based on milestones - and I note in particular that the fund was expected to purchase early–stage projects at a fixed price per MW. I believe this is consistent with the position expressed in the Green Giraffe Report and reiterated throughout this report that comparables, and standard values per MW are the primary valuation principle, but is not in line with the position taken by Mr. Tetard in the Secretariat Report.

4.2 Chapter 2 – Executive Summary of the Secretariat Report

117. The executive summary of the Secretariat Report is quite extensive. I have tried to provide summary comments on the key items while bringing up the more detailed arguments in the relevant section. These are referenced by their paragraph number in each case.

118. The Secretariat Report makes an inaccurate assumption about the essential MCOD deadline which is worth commenting upon:

> 2.8 Under the FIT Contract, a Milestone Date for Commercial Operation ("MCOD") was set at 5 years from the FIT Contract date, which resulted in a date of May 4, 2015 (the "Original MCOD"). However, if an event of Force Majeure caused WWIS to be unable to achieve Commercial Operation by the Original MCOD, the milestone date was to be extended "for such reasonable period of delay directly resulting from such Force Majeure event," (the "Revised MCOD"). We have been instructed to assume that the Revised MCOD for purposes of this case is January 2025.

119. Given that the FIT Contract was signed in August 2010 with an effective date of 4 May 2010 and the Project entered *force majeure* status as of 22 November 2010, the 5-year period in the FIT Contract should be reduced by at least that initial 6-month period prior to the pause for *force majeure*. The Secretariat assumption with respect to timing is therefore inappropriate – and given the importance of the MCOD deadline in the potential value of the Project, as extensively covered in paragraphs 36, 125 and 137 of the Green Giraffe Report (and reiterated in paragraphs 96 and subs. of this report), which remain valid today, it is important to flag this.

120. The Secretariat Report also makes inaccurate assumptions with respect to grid access:

> 2.11As of the Valuation Date, absent the Alleged Breaches, the Project would have been a development stage project as it had the FIT Contract, had grid access[23], and had an exclusive and priority position secured on the site the Project would be built on, but still required complete site control, and also required the following approvals from the Government of Ontario and the Government of Canada to advance to a Construction Stage Project: [...]

121. The Project did not have grid access, as footnote 23 of the Secretariat itself notes. The Claimant states that "*we had taken the steps required with the Independent Electricity System Operator and Hydro One to confirm that we would be able to connect the WWIS project to the electrical grid at the Lennox location.*" This is an indication that while some preliminary development work was done to determine and confirm grid availability, this work had not yet been completed. Secretariat's assumption that grid access was confirmed therefore is inappropriate. As noted above in paragraphs 48-49 and 95, and as explained in the Green Giraffe Report at paragraphs 16, 23, 37, 68, and 94, the lack of final formal approval of grid access has a direct impact on project valuation. This remains true today.

122. The Secretariat Report goes on to make inappropriate assumptions with respect to the counterfactual scenario based on real world experience. They note:

> 2.18 The "but-for" or counterfactual case (i.e., the case that would have prevailed absent the Alleged Breaches) that we have been instructed to assume is that the IESO would not have terminated the FIT contract on February 18, 2020, the Moratorium which had prevented Windstream from proceeding through its approvals process for the Project would have been lifted, and that the following would have occurred by February 18, 2020:

[…]

2.19 In addition to the above noted events that would have occurred by February 2020, the following additional events would have occurred from February 2020 onwards:

– Windstream and WWIS would have obtained environmental and other permits and approvals for the Project by February 20, 2023;

– Windstream and WWIS would have reached the FC stage by February 20, 2023; and,

– The Project would have completed construction and reached Commercial Operation by December 20, 2024 (the "Commercial Operation Date" or "COD"). Thus, under the counterfactual case we have been asked to assume, absent the Alleged Breaches, the Project would have reached COD prior to the Revised MCOD due to the Force Majeure of January 2025.

123. In my view, the list of assumptions presented in 2.18 and 2.19 can only be described as heroic, and most of them are not related to the Alleged Breaches, as they relate to the subsequent behavior of regulatory authorities, with the expectation of "best-in-class" support (despite the absence of any political support for that in Ontario at the time), and the assumption of no factual obstacles of any kind within the project (for a first of its kind project in a sensitive area in terms of water, shipping lanes, fauna, and near the international border). The absence of certain regulatory obstacles (the Alleged Breaches) does not automatically translate into a successful development process. Even in countries with very favorable and established offshore wind regulatory frameworks, not all projects get their permits and not all those that do get them achieve that in their hoped-for timetable.

124. More importantly, the assumed schedule only includes 2 constructions seasons, with no period for fabrication before that, and almost no time buffer for unforeseen events. There is only a gap of 2 months between assumed COD - in what can only be described as an optimistic equity case - and the MCOD, in the middle of winter (which is not a favorable season for construction activities in the middle of a large lake). The MCOD deadline, as noted previously (see paragraph 95) triggers a "cliff effect" as FIT Contract termination is possible if COD has not occurred on or before the date which is 18 months after the MCOD at the sole discretion of IESO, i.e. beyond the control of the Project or its lenders. This is a totally unrealistic assumption as far as any debt funding (or even any equity funding by financial investors) is concerned: this is not something that would ever be acceptable to lenders, even in the more experienced period of today.

125. Accordingly, the Project timetable assumptions presented in the Secretariat Report require discussion:

Figure 2-1: Key Milestone Dates per Wood Report Development Programme

Milestone	Date
Finalise Layout – Number and Location	Aug 27, 2020
Permits to Operate Wind Farm	May 2, 2022
Permits to Build Substation / Onshore Cabling	Dec 2, 2022
Permits to Build Fabrication Facility	Oct 24, 2022
Permits to Build Offshore Facilities	Feb 15, 2023
Financial Close (FC)	Feb 20, 2023
Commercial Operations Date (COD)	Dec 20, 2024

Figure 2-2: Summary of Tasks per Wood Report Development Programme

Task	Start Date	End Date
Renewable Energy Approval	Feb 18, 2020	Feb 20, 2023
Impact Assessment Act (Federal)	Feb 18, 2020	Jan 1, 2022
Other Permits and Approvals	Feb 18, 2020	Aug 7, 2023
Connection Studies and Agreements	Jan 14, 2021	Feb 28, 2023
Operational Approvals	May 3, 2022	Mar 4, 2024
Legal/Land	Feb 18, 2020	Feb 20, 2023
Design, Procurement and Construction	Feb 18, 2020	Aug 6, 2024
Installation	Dec 25, 2022	Mar 31, 2025
Commissioning	Jan 9, 2024	Dec 20, 2024
Commercial Operations Date (COD)	Dec 20, 2024	Dec 20, 2024

126. The tables in paragraph 2.20 of the Secretariat Report (copied above) indicate that installation starts in 2022, 2 months prior to FC. As already discussed in paragraphs 134-135 of the Green Giraffe Report, any spending on construction work prior to FC is much riskier and requires extremely expensive equity funding for such spending. Finding such equity financing is difficult even today and the likely high remuneration required to procure such equity would have a direct impact on the value of the Project at of the Valuation Date, and afterwards.

127. In this case, the schedule above further indicates that it's not just financing that would not yet be in place prior to installation, but some of the permits (as the "Permits to Build Offshore Facilities" are indicated to be available only in February 2023), which makes the Project even riskier. Leaving aside the question as to whether installation is even possible prior to all permits being obtained, funding such work prior to FC and to being "fully permitted" is not impossible but is seen as very risky and correspondingly requires extremely expensive, and hard to procure, equity. This is very rarely done in my experience. I am only aware of two projects where this was done: (1) Gemini, where Northland Power agreed to fund the purchase of cables a couple of months prior to FC in order to safeguard the construction schedule for that item (and required daily updates on the progress of the financing: this was followed by their board on an ongoing basis as a subject of the highest priority

until FC), and (2) Block Island, where DE Shaw purchased the turbine blades a few months prior to FC in order to secure an investment tax credit – that investment was similarly followed very closely, and was selected as these blades were not project-specific and could be sold back to the manufacturer if the project failed to reach FC.

128. Further, as a practical matter, putting together "Design, Procurement and Construction" as a single task in the table above is misleading, as these tasks are largely separate, and successive, and each step is dependent on other items having being achieved (in particular FC for Construction). I also note that the proposed timetable is not internally consistent as it has installation lasting until March 2025 and COD taking place in December 2024, whereas it seems impossible to have COD before the end of installation.

129. The Secretariat Report also makes incorrect statements with respect to the DCF methodology in offshore wind financing. They note:

> 2.22 It is our view that the DCF method is an appropriate and necessary valuation methodology for the Project at the Valuation Date due to the following:
>
> i. The Project's expected future cash flows can be reliably forecast given the revenue clarity provided by the FIT Contract over a 20-year period, onsite wind measurements, and available actual capital and operating cost data for wind power generation projects located across the world that use similar equipment and technologies. The Project's risks of advancing to the commercial operation stage and executing on its operating plan over its expected operating life can be appropriately reflected in the cash flows themselves, in the risk-adjusted discount rate applied to discount future expected project cash flows to a present value as of the Valuation Date, and/or through a project stage risk adjustment factor;
>
> ii In order to meet the definition of FMV, which contemplates the price that would be negotiated by prudent and informed arm's length notional buyers and sellers, it is necessary to use the same methodology (or methodologies) that market participants would use to value the Project given its stage of development at the Valuation Date (i.e., absent the Alleged breaches). Based on Mr. Tetard's experience with transactions for similar staged projects in the wind power sector, market participants would use a DCF methodology as the primary methodology to value the Project at the Valuation Date and would use comparable market transaction benchmarks to assess the reasonableness of their DCF conclusion.

130. This paragraph is in contradiction with my experience that projects under development are valued on the basis of multiples, and as noted in paragraph 116, this was not Mr. Tetard's practice when we worked together on that topic.

131. I comment again on the different methodologies to value projects in paragraphs 170 and subs., which discuss Section 5.F of the Secretariat Report (paragraphs 5.20 and subs.) and presents their full take on valuation methodology. In particular, I indicate why I do not see the DCF methodology as appropriate in paragraphs 172-178.

132. In this executive summary, Secretariat brings forward a two-step payment structure which inverts the way valuation calculation are made:

> 2.25 In Mr. Tetard's experience, since the Project had a number of remaining steps to complete before reaching FC, including obtaining certain permitting and environmental approvals, and financing, a notional purchaser would typically structure a transaction for a project at the Project's stage of development at the Valuation Date into two payments: i) an upfront payment on the Valuation Date based on a multiple of the costs incurred to date, and ii) a contingent payment that would be due on the date of FC, based on the amount that would enable the buyer to earn a return, commensurate with the risk of the Project at the Valuation Date.

133. While the proposed payment structure with two payments as proposed above is indeed something that I have seen in the market, the formula proposed above to determine the value of these two payments is not correct.

134. The first payment (at valuation date) would be linked to the stage of development, and calculated as a multiple, on the basis of a value per MW (as discussed in more detail in paragraph 172 below), Such amount (as further underlined in paragraph 213-214) would be, contrary to what Secretariat proposes incorrectly, largely unrelated to costs-to-date[119] as buyers pay for milestones or tangible progress towards milestones, and not for the effort it took to get there. Development models can sometimes assume a linear profile for devex spending, and in that case the amount spent becomes a proxy for the stage of development, but that's only due to that initial modelling assumption.

135. The second payment would then be the difference between the value of a project at the valuation date, and the value of the project at FC/FID, which is calculated by DCF/NPV. The determination is in that direction, and not the opposite way proposed by Secretariat: there are no pre--set returns on investment at early valuation dates - they are an outcome, not an input to the pricing process.

136. This particular valuation methodology proposed by Mr. Tétard ("*based on the amount that would enable the buyer to earn a return, commensurate with the risk of the Project at the Valuation Date*") is strangely virtual. It requires an ex-ante assessment of the return based not on what a project has achieved, or it needs to do, but on theoretical risks associated with the development phases. If the return is to be determined more finely than that, it therefore requires qualitatively assessing the status of the project, and giving it a value (both as it stands, and as it will stand as of FC/FID) that allows to then identify the right return for the residual risk between the two situations – and this brings them back to a valuation based on milestones and standardized prices per MW for the first one, and a NPV for the valuation at FC/FID. The measured difference between the two is what allows to determine the risk level and thus the right discount rate for the risk. Then using the calculated discount rate to recalculate the difference in value between the two is completely circular – but what is important is that the discount rate is an outcome of other value assessments, and not a driver of valuation.

[119] Except to the extent that costs can be identified as paying for compulsory tasks linked to future milestones, at the "normal rate", in which case it is spending that would be necessary later on, and can be included in the valuation. This usually applies only to very specific and well identified items, that will be different in each market.

137. The Secretariat Report's proposed discount rate under this methodology requires further comment beyond the above. They note:

> 2.27 In Mr. Tetard's experience, in the market conditions prevailing as of the Valuation Date (early 2020), market participants would have expected a levered equity Internal Rate of Return ("**IRR**") in the range of 14% to 16% for projects similar to Windstream, as a development stage project. This expected IRR takes into account the additional risks given the Project's stage of development at the Valuation Date.

138. In my experience, and based on the data for projects during the development phase, the expectation by developers and other market players is that investment during the development phase will yield a x2 multiple (i.e. for $x spent on a project in that period, the developer hopes to ultimately sell the project for $2x). Over a typical period of 4 years, this loosely translates into an IRR above 20% - but again, this is an expectation, not a hard number which is used to derive value calculations (and that resulting number is quite sensitive to the expected duration of the development period). In other words, if you spend x, you target that you will sell the project for 2x, but what you sell it for depends on the market and is determined by the results of the development activity: the actual milestones reached (site control, permits, grid access, revenue regime, or any demonstrable, material step towards these) which are valued based on a per MW basis. This is discussed again in more detail in paragraph 218 and subsequent.

139. Figure 2-3 of the Secretariat Report summarizes the result of the calculations made by the Secretariat team. These numbers, as well as all the detailed assumptions, are discussed in more detail in section 4.5, which discusses chapter 6 of the Secretariat Report.

Figure 2-3: Valuation of the Project using a Transaction Structuring Analysis ($ Millions)

			FIT-Contract	Post FIT-Contract	Total
Equity IRR required by a hypothetical buyer	15.0%				
Upfront cash consideration	***[A]***		**$ 46.1**		**$ 46.1**
Contingent consideration	*[B]*		$ 364.0	$ 12.4	$ 376.4
Expected payout date of contingent consideration (at Financial Close)			20-Feb-23	20-Feb-23	20-Feb-23
PV factor for Contingent Consideration	*[C]*	15.0%	*0.66*	*0.66*	*0.66*
Value of Contingent Consideration	***[E = B * C]***		**$ 239.0**	**$ 8.2**	**$ 247.2**
FMV of the Project at February 18, 2020	***[F = A + E]***		**$ 285.2**	**$ 8.2**	**$ 293.4**

140. The value Secretariat reaches for the upfront cash consideration (CAD 46 M) is not consistent with my assessment for a project at that stage of development. As noted earlier in paragraph 111, the valuation granted to the Project under the First NAFTA Award at CAD 31 M (corresponding to EUR 21 M), consistent with a project "not fully permitted, but with good visibility on getting there", is already a relatively optimistic view of the progress actually made by the Project.

141. The value for the contingent consideration (CAD 364 M) appears even more arbitrary. This number is derived from the DCF value calculated at FC/FID (CAD 360 M – I discuss that particular

number in more detail in section 4.5 below) with a 0.66 factor which is determined by using a 15% discount rate over the period from Valuation Date to FC, corresponding to the supposed IRR requirement for development risk. I discuss this discount factor more specifically in paragraphs 218-225 but I would like to underline that this is not a method used in the industry, and the result is absurd on its face. I don't know of any project in the world that has received 2/3 of full FC/FID DCF value 2.5 years prior to FC without permits or political support or without highly unusual circumstances, and the number is not consistent (indeed – an order of magnitude higher) with standard methodologies used in the industry as described in the Green Giraffe Report and reiterated in chapter 3 previously.

142. The Secretariat Report then proposes a separate methodology for the discount factor for the development risk based on comparables, based on identifying projects at alleged similar stages of development and counting those that actually reach FC to determine a probability of success in the development phase:

> 2.29 As of the Valuation Date, we identified 14 offshore wind projects that had reached a similar stage of development as the Project between 2010 and 2017 (i.e., had achieved revenue clarity but did not have all necessary permits, and had not yet reached FC). Of those 14 projects, 8 (or 57% of these projects) successfully reached FC by the Valuation Date, 1 had been cancelled, and 5 were still in the process of obtaining the permits necessary to reach FC. Thus, we have estimated the probability adjustment factor for the Project reaching FC by 2023, absent the Alleged Breaches to be in the range of 55% to 60% and applied this to the NPV calculated in our DCF analysis to obtain the FMV (based on the expected NPV) of the Project as of the Valuation Date.

143. That methodology would make sense as a tool if an exhaustive list of projects at a similar stage of development (including all those that were abandoned afterwards) was used to identify the real percentage of success. As it stands, and as shown more specifically in the full discussion of this methodology in paragraphs 227-230, the list proposed by Secretariat suffers from two major flaws: (1) it is very incomplete (and skewed towards a selection of successful projects), and (2) several of the projects are very different, from a development stage perspective, to where the Project was as of the Valuation Date.

144. I discuss both the DCF value presented in figure 2-4 of the Secretariat Report (shown below), and the 60% probability in section 4.5 below: I consider the numbers wildly overestimated.

Figure 2-4: Valuation of the Project using the Project Stage Risk Adjustment Factor *Approach* ($ Millions)

		FIT-Contract	Post FIT-Contract	Total
DCF equity value as of the Valuation Date, assuming the Project reaches Financial Close	*[A]*	$ 556.2	$ 19.0	$ 575.2
Probability of Financial Close	*[B]*	*55%*	*55%*	*55%*
FMV of the Project at February 18, 2020: Low	***C = A * B***	**$ 305.9**	**$ 10.5**	**$ 316.4**
Probability of Financial Close	*[D]*	*60%*	*60%*	*60%*
FMV of the Project at February 18, 2020: High	***E = A * D***	**$ 333.7**	**$ 11.4**	**$ 345.1**
FMV of the Project at February 18, 2020: Mid	**[(C+E)/2]**	**$ 319.8**	**$ 10.9**	**$ 330.7**

E. FMV of the Project under a Market Approach to Value

145. The Secretariat Report then proposes another estimate based on comparable transactions. The detailed numbers are discussed in section 4.6 but the resulting valuation summary presented in Figure 2-5 of the Secretariat Report (copied below) suffers from an additional material methodology flaw:

Figure 2-5: Comparable Transactions Method Conclusion

Description		Low		High
Project planned capacity (MW)		297		297
Transaction value per MW (Median and Average)	$	0.96	$	1.01
Implied Value, millions	**$**	**284.7**	**$**	**299.1**

146. This table uses the median and average values of the sample to represent "low" and "high" points of the sample (which are actually 0.34 CAD/MW and 2.00 CAD/MW, as presented in Figure 7-1 of the Secretariat Report). This is inappropriate and without justification, and deeply misleading, as also discussed in paragraph 247.

147. In addition to this presentational issue, I explain in detail in section 4.6 (paragraphs 232 and subs.) why most of the projects selected are not comparable to the Project, and how some of the valuations used seem incorrect, thus rendering the numbers obtained under this methodology deeply flawed (and highly inflated).

4.3 Chapter 4 – Overview of the Claimant, the Project, and the Dispute

148. Chapter 4 of the Secretariat Report provides an overview of the dispute and the contractual and regulatory elements of the Project. A handful of items are worth flagging here.

149. Paragraphs 4.11 and 4.12 of the Secretariat Report summarize the terms of the FIT Contract. Item 4.12iii covers the MCOD. As noted already in paragraph 119, the revised MCOD should logically be 6 months earlier than January 2025.

150. Paragraphs 4.13 of the Secretariat Report usefully defines how that MCOD may be reached:

> 4.13 The facility would be deemed to have achieved Commercial Operation when confirmed in writing by the OPA/IESO following the receipt of certain documents including a certificate from the independent engineer stating that the facility "*has been constructed, connected, commissioned and synchronized to the IESO-Controlled Grid, a Distribution System or a Host Facility such that at least 90% of the Contract Capacity is available to Deliver Electricity…*"

151. The Commercial Operation requirement, at 90% of the Contract Capacity available, is a high threshold to reach and allows for little to no leeway in commissioning of the turbines. In my experience, this means that the full project needs to be fully built and most turbines commissioned in order for that number to be achieved.

152. Paragraphs 4.14 of the Secretariat Report discusses the context after the First NAFTA Award:

> 4.14 Subsequent to the First NAFTA Award, WWIS made efforts to move the Project forward, which included completing research studies to address the concerns raised in relation to the Moratorium and attempted to arrange discussions with the Ministry of Energy ("MEI") and the IESO to discuss the path forward for the Project, including renegotiating the FIT Contract to adjust it to the terms of the Moratorium. In February 2017, WWIS submitted a package of information to the MOECC, which included technical and environmental studies that concluded that the Project could meet the sound level requirements, would not pose a threat to drinking water, and had low likelihood of disrupting "species at risk" habitats, among other things. Windstream followed up on this application several times throughout 2017 and eventually received a reply in August of 2017 that the MOECC was not able "to confirm whether or when Ontario will be revisiting the February 2011 decision [i.e., the Moratorium]".

153. Paragraph 4.14 above helpfully summarises the fundamental reality of the Project, i.e. that the Moratorium had prevented all development for the project for several years. Even in a scenario where the Moratorium was lifted, this would still have been a first–of–a–kind project with an untested regulatory process that would necessarily drive (and bring down) the valuation of an offshore wind project at that stage of advancement.

4.4 Chapter 5 – Approach to damages

154. Paragraphs 5.5 and 5.6 of the Secretariat Report list once again the assumptions made (as referred to in my paragraphs 122 and 148). I can only reiterate that I find these assumptions extraordinarily extensive and unrealistic. Essentially Secretariat are saying that they are asked to value the Project as not a "project under development", but as a "project that would have ultimately been spectacularly successful at developing." Project development is a risky activity and the approach in the Secretariat Report essentially amounts to ignoring all development risks. While I cannot comment specifically on each of the individual assumptions, the assumption that no issues would come out of the normal permitting processes and technical studies (environmental impact assessment, detailed subsea soil conditions, wind studies, spatial planning, discussions with all stakeholders, including indigenous stakeholders) is hugely optimistic. As noted before in paragraph 51 and discussed again further in paragraph 228 – even in a highly favourable jurisdiction, more than half of the projects identified in UK Round 3 (after more than a few preliminary studies to identify suitable sites) had to be abandoned due to issues discovered during the development phase.

155. Along with ignoring the Moratorium and normal development risks, the most unrealistic assumption is that they could reach FC just 40 months before the cliff-like milestone for successful operations (at >90% capacity) of the Project. As noted in paragraphs 95 and 124 above, this is an aggressive assumption from a project development, financing, and ultimately valuation perspective, as banks would simply not accept that risk.

156. Paragraph 5.7 replicates the schedule assumptions in figures 2-1 and 2-2 of the Secretariat Report. My comments in my paragraph 125 apply *mutatis mutandis*.

157. Paragraph 5.10 conflates the presence of a regulatory framework with the absence of regulatory risk:

> 5.10 For example, as at the Valuation Date, a potential purchaser of the Project may have considered the risk that the Government of Ontario would not have dealt with Windstream in good faith and would have subjected the Project to unreasonable regulatory delays. However, since this issue is one of the actions being complained of by the Claimant in these proceedings, these risks are properly excluded in 'but for' valuation analysis under a full reparation standard of compensation.

158. The above seems like a rather extraordinary claim - even if one assumes that the Moratorium was ended, the absence of a moratorium would not automatically translate into "all permits and regulatory processes are successful", and delays of various kinds would have been likely for the first-of-a-kind project – a number of issues need to be tackled to develop an offshore wind project, and each country will have differing processes, administrative practices and practical context to deal with these.

159. In some countries, navigation issues may be the most sensitive; in others, it will be the environmental impact (whether because of the preferences of its population, or the fauna present on the sites selected) or military questions (like radars or reserves maritime areas). The first project(s) in each country have often been used as test case to resolve how these issues would be tackled, and which administrative body would take the lead in dealing with offshore wind projects, and such processes inevitably take time. Whether the time needed to bring about a resolution of such issues would be described as "unreasonable regulatory delays" is an open question but it seems highly unlikely that it would have matched the highly accelerated schedule proposed as an assumption in the Secretariat Report, as referenced in paragraph 156 above.

160. More generally, having a regulator that allows offshore wind projects to proceed under applicable rules does not mean that each project will automatically get all permits in the shortest conceivable time. In other words, regulatory risk cannot be assumed away even if we assume there is no longer a Moratorium. Even in regulations with a thriving offshore wind industry, not all projects successfully navigate the permitting phase, and those that do often require more time than desired or expected.

US offshore wind market examples

161. The Secretariat Report then brings up progress made in the US offshore wind market:

> 5.17i In December of 2016, Statoil, now called Equinor, paid USD 42.5 million to acquire leasing rights for approximately 79,350 acres of the shore of New York (approximately $717/acre, based on a $56.9 million purchase price). This transaction allowed Statoil to explore the potential development of an offshore wind farm. At the time of this transaction, the lease area acquired by Statoil did not have revenue clarity or a PPA agreement, had not completed the permitting process, had not completed studies to evaluate the seabed conditions, did not have security on grid connection options, and did not have on-site wind resources measured in the lease site;

162. It is not quite correct to say that there was no revenue clarity for the New York lease. There were specific regulatory processes under way in the state of New York to ensure that offshore wind projects would get access to PPAs under competitive auctions, with competition to be limited to those participants that had a lease in sites in or near NY waters. There was massive political support

in the State for more offshore wind projects (as noted for instance in the 2016 "State of the State" speech[120] mandating NYSERDA to prepare a "master plan" for the sector, which was duly completed not long afterwards).[121] The explicit policy, following recommendation from the industry, was to plan a "pipeline" of projects in order to attract not just individual projects, but also the supply chain. NYSERDA even took the unprecedented step (well announced in advance) to participate in the federal lease auction with the open intent to then 'bundle' the site and the tariff (as they were running the auction for that). Equinor opportunistically trumped that effort but it certainly signalled the strong intent of New York authorities to provide a stable tariff regime to future offshore wind projects.

163. So while it is correct that Equinor did not formally have revenue clarity, the appreciation by investors was that revenue clarity was highly likely, and would happen via a process that structurally favoured those projects that have a lease close to New York, limiting competition for the tariff. As with later lease auctions in the US (discussed previously in paragraph 58-61), there is an opportunistic behaviour by some deep-pocketed parties to grab a scarce resource in a political context where there was a high probability that it would always be possible to recoup the funds much later due to the structure of the auctions.

164. Altogether, that meant that this Equinor project was in a much more favorable position than the Project as regards moving to become fully permitted, and had a natural hedge for these initial lease payments.

165. The Secretariat Report then mentions the purchase of Deepwater Wind:

> 5.17ii In October of 2018, Ørsted, one of the largest renewable energy companies in the world, paid USD 510 million to acquire a 100% equity interest in Deepwater Wind, which was a leading US offshore wind developer.

166. That transaction is discussed in paragraph 57 above. This applies also to 5.17v–vi. (the sale by Ørsted of 50% of its US assets to Eversource, and the Empire-Beacon sale by Equinor to BP).

167. Paragraphs 5.17iii–iv (the 2018 Massachusets lease auction, and the sale of US Wind assets to EDF) are discussed in my paragraphs 56-61 which explain why the lease prices in the US reached relatively high levels.

168. From these examples, the Secretariat Report reaches a conclusion that I dispute:

> 5.18 Considering the growth in the North American offshore wind industry since the date of NAFTA 1, the improvement in the technology used to construct and operate offshore windfarms since NAFTA 1, and the general trend towards renewable energy in Canada and around the world, in our view, in the absence of the Alleged Breaches, all else equal, the value of the Project would have been higher as at February 2020 than it would have been as at the time of NAFTA 1.

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120 **R-0720**, "2016 State of the State" speech by New York Governor Andrew M. Cuomo. Available at: https://www.governor.ny.gov/sites/default/files/atoms/files/2016_State_of_the_State_Book.pdf

121 **R-0721**, NYSERDA, "Offshore Wind Master Plan". Available at: https://www.nyserda.ny.gov/All-Programs/Offshore-Wind/About-Offshore-Wind/Master-Plan

169. That statement is directly contradicted by other precedents. The data on recent precedents presented in paragraphs 54-subs. and 69-subs. (including all deals until end 2020 for which I have public or private information), shows that the valuation numbers used in 2015 were still fully valid as of 2020: there has not been any major move in the valuation of projects under development. The few outliers discussed above do not contradict the general trend and the multiple other transactions (including for floating wind projects).

Discussion of valuation methodologies

170. From paragraph 5.20 onwards, the Secretariat Report present the various valuation methodologies they propose to use. Some of that content has already been commented upon in paragraphs 129 and subs. as I reacted to the extracts on this topic included in the executive summary of the Secretariat Report. For the sake of completeness, I have included further commentary here:

> 5.26 Each offshore wind project is unique. Accordingly, in Mr. Tetard's experience, market participants favour the use of a DCF methodology for offshore wind projects where a reliable forecast can be made (as opposed to a comparable transaction approach) since it is the only approach that is able to capture the specificities of each project, including the following (among other variables):

171. That statement is only correct for projects that are no longer under development but have reached FC/FID or later.

172. DCF is one element of background which is taken into account as it provides an outer limit to the possible value but it does not drive valuation.[122] This was already explained in detail in paragraph 94 of the Green Giraffe Report, quoted in paragraph 52 of this report, with the key extracts copied again here for reference:

- ***Projects prior to FC/FID are not usually valued on the basis of future cash flows****, as these are still viewed as highly speculative due to the absence of FC/FID, up to the actual date for such event. Deals have collapsed days before they were expected to close (Cape Wind in the USA being a recent example), and many more have collapsed along the way (MEG 1 being another example as described above), and most investors in offshore wind will enforce a rigid discipline to not spend a single euro on projects prior to FC.*

- *The numbers [included in paragraph 52] show that* ***valuations have been extremely consistent across the sector and very specifically linked to the stage of development of the project*** *– they also show that most transactions in that phase take place once a project has already fulfilled the critical steps to be considered fully permitted.*

173. One reason why DCF is not used prior to FC/FID is that it is very difficult to identify the right discount factor to take into account the risks prior to FID/FC. In my experience, the discount factor tends to be determined ex–post as a result of identifying the value via other means and then

[122] As also already underlined in paragraph 131 of the Green Giraffe Report.

calculating the relevant corresponding return on capital. With the high discount rate numbers that are typical of the pre–FC period, and even more so of the early development phase, and somewhat long periods, even small changes to the discount factor tend to cause very large variations in valuation (due to the exponential nature of the calculations), making this methodology too imprecise.[123]

174. The Secretariat Report then erroneously claims that the DCF methodology is more precise than the comparables approach:

> 5.27 Thus, whereas a DCF methodology reflects the unique characteristics of a given offshore wind project, a comparable transaction approach (and other market approaches) can only provide an approximation of the value of an offshore wind project based on value benchmarks from sufficiently similar projects, if available.

175. DCF calculations done before FC/FIC, and especially those done long before that milestone, by their very nature approximations, as they are driven by factors that are beyond the control of the developer (future interest rates, future prices of steel, future charter rates for vessels, etc.) or that cannot yet be negotiated in detail beyond rough estimates (turbine prices, O&M contract terms, etc). Most importantly, and as already noted just above, the discount rate to be used is itself a major source of volatility in valuation numbers, as even a small change in the underlying assumption can lead to major movements in the estimated value.

176. Conversely, while it is fair to say that comparables provide only an approximation, it is still the most relevant and precise starting point for a project under development, as (1) the economic and financial information available about a project under development is largely going to be qualitative or broad-brush estimates, and (2) the main element influencing valuation at that stage is the likelihood of reaching the key development milestones (site control, grid access, permits, revenue regime).

177. While any second order adjustments will be different for each investor based on their perception of risk or the probability of risk, the multiple approach provides common ground for everybody and a good anchor for more detailed discussion on specific key risks for a given project.

178. Ultimately, revenue flows and cost assumptions that are fully conditional on events that are to some extent outside the control of the developer (decisions by regulators and other stakeholders, and the timing thereof) cannot have a very precise value, and cannot have a universally agreed value. This is a case where being "roughly right" (appropriate comparables) is better than being "exactly wrong" (with overly precise but inadequate DCF calculations).

179. The Secretariat Report then claims that the DCF methodology is more relevant for projects which have visibility on future revenue levels:

> 5.28 In Mr. Tetard's experience, in practice, the only situation when an offshore wind project would not be valued using a DCF methodology is when no information is available to evaluate the potential cash flow generated by a project, such as in situations where a project has not yet achieved revenue clarity

[123] For instance, over just 5 years, a 15% IRR implies a doubling of the value (x2 multiple), a 20% IRR means a 2.5x multiple, and a 25% IRR means a x3 multiple. That's a 50% difference, presuming a fixed duration (which is the element with the most uncertainty).

through a PPA or similar type of arrangement. This does not apply to the Project, particularly since the Project had revenue clarity through the FIT Contract.

180. This is plainly incorrect as pretty much all early generation projects under development in Europe had known revenue streams by law and were not valued on the basis of DCF, but on multiples:

- Germany had a feed–in tariff between 2009 and 2017;

- The UK initially had the ROC regime, which provided a top up to wholesale power merchant prices, in the form of "renewable obligation certificates" (**ROCs**) (which traditional generators were obliged to buy on the basis of the carbon intensity of their technology, and renewable energy generators created if they produced electricity; ROCs were traded but government guaranteed a minimum price via the ROC buyout price[124]). Afterwards they switched to a CfD mechanism whereby projects effectively received a fixed price (allocated via auctions). In both cases offshore wind projects had good or excellent visibility on their expected revenues;

- Belgian offshore wind projects had a mechanism whereby they received the wholesale power price plus a large fixed premium. That fixed premium offered good revenue certainty;

All the transactions noted in in paragraphs 54-subs. and 69-subs. for these countries throughout the 2010s are based on multiples and not on DCF calculations.

181. Even today, where offshore wind projects are transacted in many countries without firm revenue regimes, transactions have consistent pricing based on multiples and DCF is only a secondary tool.

182. The Secretariat Report then notes that most projects prepare financial models:

5.29 Moreover, in a real-world market transaction, a qualified investor, (i.e., a specialist investor in infrastructure investments including offshore power generation, such as utility companies, infrastructure investors or private equity investors) will prepare a financial model of the project's future cash flows. Project specific risks or uncertainties with respect to future expected cash flows are reflected in the cash flow estimates themselves (estimated revenues and costs) and in the discount rate (or target investment return) applied to convert the future cash flows into a present value as of the Valuation Date.

183. It is obviously correct to note that most projects use financial modelling. What matters is how that information is actually used. In my experience, financial models are only used as an ancillary valuation tool for projects in early development. As noted above, there is wide uncertainty as to many key project assumptions at that point in time, and in particular, the discount rate is a blunt tool in the development phase and not very informative. It only reflects qualitative evaluations made by parties that are usually translated into multiples. Using valuation derived from multiples can help calculate a discount rate ex-post, as an additional check that the result is not absurd, and fall in the expected

[124] **R-0722**, TimesMojo, "What are ROC payments", 7 July 2022. Available at: https://www.timesmojo.com/what-are-roc-payments/

range for the risk taken (20-25%, as discussed in more detail in paragraphs 218-221 where I comment on Secretariat's IRR assumptions).

184. Secretariat uses the fact that DCF methodology generally applies for infrastructure projects to claim that it applies to the Project as of Valuation Date:

> 5.30 In infrastructure projects investments, including offshore wind power generation projects, investors generally value projects based on a targeted investment return. This target investment return is effectively the return on investment which the investor is aiming to achieve when deciding to execute on the acquisition of a project.

185. In my experience, the above sentence is only true when qualified by the fact that this only applies only to projects as of FC/FID, and not to projects under development.

186. Secretariat then *de facto* confirms this qualification in their subsequent paragraph by claiming that the Project was almost equivalent to a project at FC:

> 5.31 Since the Claimant had obtained the FIT Contract which provided for a fixed revenue stream over a 20 year period, had performed onsite wind measurements, had grid access, and had an exclusive and priority position secured on the site the Project would be built on, and the Project's capital and operating expenses can be estimated with a reasonable degree of certainty based on similar projects around the world, in our view, the Project's cash flows, and the risk of transitioning the Project from a development stage into an operational stage could be reliably forecast as of the Valuation Date. Accordingly, based on established industry practice, hypothetical buyers and sellers for the Project at the Valuation Date would perform a valuation based on a DCF methodology.

187. The "risk of transitioning the Project from a development stage into an operational stage" has been taken for granted through a list of assumptions which I earlier described as "heroic" (see paragraphs 122-123). In reality, it cannot be "reliably forecast" in the case of the Project, absent these unrealistic assumptions, so the Project cannot be considered anywhere near FC/FID and the DCF methodology cannot apply.

188. Secretariat then moves to a comparables approach, but introduces such method as inadequate and only an add-on to the DCF method:

> 5.34 As noted above, a market approach to value the Project on the Valuation Date cannot reflect the Project's specific characteristics and therefore it would not, in our view, be the primary or only method that market participants would use to value the Project in a real world transaction at the Valuation Date (absent the Alleged Breaches). However, in our view, a market approach can provide an additional analysis that would be considered in a valuation of the Project and can also be used to assess the reasonableness of the conclusions derived from the income approach. Accordingly, we have also applied a market approach to value in our damages assessment based on objective market data relating to sufficiently similar projects and companies proximate to the Valuation Date (see Section 7 below).

189. As noted previously, this is at odds with actual market practice, as experienced by me and my teams across many transactions in the sector. Portfolios of projects under development are routinely assessed on the basis of standardized multiples, without the buyers digging further into the characteristics of individual projects (taking advantage of the statistical effect of a portfolio). Individual projects are evaluated with the standardised multiple value used as a starting point, and qualitative criteria used to move from that number (but usually within a limited range) if required.

190. Secretariat then dismisses a cost-based approach:

> 5.37 Thus, we have not included a cost approach to value in our damages analysis for the Claimants since, in our view, it will not restore the Claimant to the economic position it would have occupied absent the Alleged Breaches. However, we do present the amounts invested by the Claimant to date for informational purposes, and in our consideration of the structuring and timing of the consideration that would be paid in transaction for the Project as at the Valuation Date. See Section 6K and Schedule 3 for details.

191. The penultimate sentence of paragraph 5.37 contradicts the (correct) assertion that cost approaches are not used. This is discussed again in paragraph 213 below.

4.5 Chapter 6 – Income approach

192. The next chapter of the Secretariat Report goes on to present in detail the DCF approach they have used for the Project, including a list of detailed assumptions and calculations, which I discuss in similar detail below, as a number of questionable choices have been made by Secretariat.

193. That I comment on those assumptions does not mean that I accept the DCF valuation methodology. As discussed in the previous chapter, I do not believe that it is relevant for the Project – to the contrary, my notes below underline the uncertainty over a number of assumptions and the resulting large range of values that can be extracted from an early stage DCF calculation shows the uselessness and worthlessness of the approach.

Project schedule

> 6.6 According to Wood's analysis, after FC, the Project would have progressed to the construction stage. During the construction stage, 66 WTGs, their foundations, inter-array cables, and other components would have been procured, manufactured, and installed. Wood concluded that it would have taken 22 months from FC to fully implement the Project, which reflected the time required to complete all required processes in the construction stage and making an allowance for the winter months wherein some of the construction activities may not be possible.
>
> 6.7 Wood also concluded that it would have taken 58 months from a re-commencement date of February 18, 2020, until the Project would have reached Commercial Operation, at a Commercial Operation Date (COD) of December 20, 2024. We have incorporated the Project Schedule set out in the Wood Report into our analysis.

194. In my view, that 22-month schedule is very aggressive, as it includes manufacturing and installation of all components. The overall schedule would also be "best–in–class" for a project that is "fully permitted" in a mature market with a developer supply chain and experienced players. It appears extremely aggressive for a project that still needs to procure formal site control, grid access and all permits, in an untested regulatory environment. In paragraphs 100-102, I discussed the timing of recent European projects built by highly experienced parties – each of them took more than 2.5 years and usually 3 years to get built from FC/FID, and typically 5 years or more to go from "fully permitted" (a stage the Project has not yet reached, by far) to COD.

195. Given that some items need to be installed in a specific order (for instance towers before turbines) and some items have significant lead times (such as cables), the schedule can only be called

optimistic, even from the perspective of the equity investors, who are generally more bullish than lenders. Banks would only provide funding on the basis of a more conservative base case, and would then look at downside case as sensitivities. Given the cliff-edge nature of the FIT Contract MCOD, banks would definitely not be able to finance a project where even the conservative base case fails to meet the deadline, and would be highly unlikely to agree to finance a project where some downside scenarios fail to meet the hard deadline and they stand to lose everything.

196. It should be noted in particular that the schedule from FC to MCOD goes from winter to winter, meaning that any flexibility on either side falls in the middle of the least favourable period for any construction activity (specifically on site, but more generally), and any delays in that period are likely to take longer to be solved as there are fewer weather windows available for work, whether onshore or offshore. This was already noted by URS in their report for the First NAFTA arbitration.[125]

197. Altogether, the Project's schedule can only be described as highly optimistic, probably unrealistic and definitely unacceptable to project finance lenders.

Inflation rate

198. Secretariat discusses their inflation assumptions:

> 6.14 Therefore, in our analysis, we have applied inflation on the entire amount of the Contract Price from September 30, 2009, to the anticipated COD of December 20, 2024. We applied the actual changes in the Consumer Price Index ("CPI") for Ontario published by Statistics Canada from September 30, 2009 to January 31, 2020, and the estimated inflation rate from February 1, 2020, to the COD in December of 2024 of 2% per year to calculate the applicable indexed-price that the Project would have received at COD, absent the Alleged Breaches, of $253.8 per MWh.

199. The assumption that inflation would apply for the full period since the original date of the FIT Contract would result in a price level which is completely "out of the market" and would be seen as an additional risk by lenders and investors. Multiple countries have stepped in to reduce tariffs that they felt were out of the market, whether by retroactive decisions (to give examples only amongst top tier markets: Spain[126] or France for solar[127]) or through bilateral negotiations (France again, for offshore wind[128]). Even if investors have managed to recoup some of the losses resulting from such decisions in court, that takes time, and lenders consider that the risk that they have to bear in the meantime is too high, and are actually reluctant to lend to projects which have too favourable a tariff. The Project would definitely fall in that category, and it would seem unlikely that it could raise funding

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[125] See for example, RER-URS-1, paragraph 351(e).

[126] **R-0723**, Renewable Energy, "Pain in Spain: New Retroactive Changes Hinder Renewable Energy", 19, April 2013. Available at: https://www.renewableenergyworld.com/baseload/pain-in-spain-new-retroactive-changes-hinders-renewable-energy/

[127] **R-0724**, Dentons, "Retroactive cuts for French solar feed-in tariffs", 26 November 2020. Available at: https://www.dentons.com/en/insights/alerts/2020/november/26/retroactive-cuts-for-solar-feed-in-tariffs

[128] **R-0725**, Offshore Energy, "France Reduces Feed-In Tariffs for 6 Offshore Wind Projects" 20 June 2018. Available at: https://www.offshore-energy.biz/france-reduces-feed-in-tariffs-for-6-offshore-wind-projects/

unless there was explicit political support for the regulatory regime (including price levels) that would allow the Project to go forward. This is a much higher standard than just repealing the Deferral.

Capex budget

200. The Secretariat Report then presents its capex assumptions:

> 6.31 Based on the Project schedule set out in the Wood Report, Mr. Irvine estimated the timing of the CAPEX spending over the construction period. The schedule of CAPEX spending for the Project, including expected inflation, is summarized as follows:
>
> **Figure 6-5: Summary of CAPEX Schedule (Nominal, $ Millions)** [156]

CAPEX	2020	2021	2022	2023	2024	Total
Foundation or Gravity Based Foundation (GBF)	$ 6.6	$ 11.7	$ 63.0	$ 160.7	$ 101.3	$ 343.2
Wind Turbine (WTG)	-	-	-	98.3	196.8	295.1
Offshore high voltage substation (OVHS)	-	1.2	1.3	26.5	23.2	52.2
Array and export cables	-	1.0	0.6	40.2	26.6	68.4
Installation costs	-	-	-	38.7	158.6	197.3
Onshore interconnection	-	1.1	1.2	22.4	25.5	50.2
Insurance	-	-	-	12.3	15.0	27.3
Management costs	-	-	-	6.5	7.9	14.4
Contingency (10%)	-	-	-	47.3	57.8	105.1
Total CAPEX	**$ 6.6**	**$ 14.9**	**$ 66.2**	**$ 452.7**	**$ 612.8**	**$ 1,153.2**

201. The table above (in figure 6-5) indicates total Capex (excluding financing costs) of CAD 1,150 M for 300 MW, which I find rather aggressive here. That corresponds to 2.5 MEUR/MW, which is a realistic figure for Europe in this period but seems optimistic for a first-of-its-kind project in an isolated location (from the perspective of the industry) with no prospects of immediate neighbours.

202. Vineyard Wind reached the level of approximately 3.4 MUSD/MW[129] for the first North American project financing, in the relevant time frame (FC took place in late 2021), with a much large project (i.e. benefiting from economies of scale). Vineyard Wind further benefitted from highly experienced developers, and is located at the heart of a region where several more projects are in the process of being built and a supply chain is accordingly being developed specifically for offshore wind. Despite these advantages compared to the Project, it achieved a cost level approximately 40% higher than a comparable European project. There is no reason to believe the Project's costs would not suffer from the same kind of premium compared to European projects, and given its "first–of–a–kind" nature, it would probably be even higher.

[129] **R-0726**, Vineyard Wind, "Vineyard Wind 1 Becomes the First Commercial Scale Offshore Wind Farm in the US to Achieve Financial Close", 15 September 2021. Available at: https://www.vineyardwind.com/press-releases/2021/9/15/vineyard-wind-1-becomes-the-first-commercial-scale-offshore-wind-farm-in-the-us-to-achieve-financial-close. The press release refers to USD 2.3 billion in debt. From information available to me, I understand the debt–equity ratio to be 85:15, leading to total capex of USD 2.7 billion and a cost per MW of 3.4 MUSD/MW (including financing costs). Note that this debt:equity ratio is not directly comparable to transactions in other jurisdictions as part of the debt is short term debt used to finance tax equity which comes in at COD.

203. Additionally, a project with a high tariff would get more expensive offers from contractors as they know that the construction costs would be a small proportion of revenues and they would try to get some of the premium for themselves. As a marginal project in a market with limited prospects for offshore wind, the competition between suppliers would not be sufficient to prevent that phenomenon, which was prevalent in the industry prior to the introduction of competitive tenders for tariffs.

204. Secretariat also proposes low O&M assumptions:

> 6.40 Mr. Irvine calculated the annual O&M costs to be in the range of $25.8 million to $32.2 million with a central estimate of $28.8 million (in real 2020 dollars). We note that Mr. Irvine's calculation of the O&M expenses includes a $3 million per annum premium to the range of O&M costs observed for other offshore wind projects, given that "*WIS is remote from the locus of offshore wind development activities in the USA*".

205. The proposed estimate for O&M costs is below 0.1 MCAD/MW which I find similarly optimistic. That's a level in line with best-in-class European practice and thus again unrealistic for a first-of-its-kind project "remote from the locus of offshore wind development activities in the USA" as Secretariat describes it. The comment above in paragraph 203 about the pricing expectations of the turbine suppliers would apply here as well and makes achieving such price levels even less likely.

206. Secretariat also assumes low insurance costs:

> 6.42 In addition to the wind land rental charges and operating costs, the Project would also incur annual insurance costs. We relied on the insurance cost estimates (in real 2020 dollar terms) provided to Mr. Tetard by reputable offshore wind insurance brokers for the first 20 years of operations for a project value of $1.0 billion. We adjusted the insurance costs for a project value of $1.04 billion164 and for inflation, the annual insurance expense for the first 20 years ranged between $4.3 million and $8.7 million (in nominal terms).

207. The proposed pricing for insurance premiums, at CAD 5 M/y seems extremely optimistic to me, in particular for a debt-financed project. It is also lower than the CAD 13.5 M/y proposed in the First Claim (see paragraph 4.21 of the Deloitte Report). Lenders require a much more complete insurance package than what utilities typically procure (including for instance contingent damages liability, i.e. coverage for delays caused by damage to third party assets like the grid access or vessels used during construction). My rule of thumb for a debt-financed project is to expect an insurance budget equal to approximately 50% of O&M costs, i.e. in that case at the very least CAD 15 M/y if using their optimistic numbers, and more likely an even higher number depending on what O&M budget could be achieved.

208. Secretariat proposes back–ended decommissioning costs:

> In our model, we adopted the URS estimate of decommissioning cost of $271,500 per day for 260 days (in October 2014 prices), and inflated this amount into 2054 dollars, which is when the decommissioning costs would be incurred after the 30-year economic life of the Project. This results in total decommissioning costs of $141.1 million when reflected in 2054 dollars.
>
> (…)

> As noted above, we have assumed that absent the Alleged Breaches, Windstream would have funded the decommissioning costs in equal amounts over the last 3 years of the FIT contract (i.e., 2042 to 2044), at which point the Project would have been generating sufficient and stable cash flows to provide for the decommissioning costs.

209. The assumption for decommissioning costs does not seem unreasonable, but the expectation that such costs will be funded only in the later years of the Project operation is rather more optimistic. Governments have varied in their requirements, from upfront funding to funding throughout the tariff period. The proposal here is definitely at the more favourable end of the spectrum and thus quite optimistic.

210. Secretariat makes aggressive assumptions about the debt quantum:

> 6.66 Based on Mr. Tetard's experience and discussions with lenders active in project financing of offshore wind projects, lenders typically require at least 15% to 20% of the total project construction and development cost to be funded by the equity. In addition, we understand that the lenders use the metric of Debt Service Coverage Ratio ("**DSCR**") to calculate the maximum amount of financing made available through debt.

211. While it is correct that the DSCR metric is used by lenders, the requirement for equity at the Valuation Date was at the very least 20%, and that was not achieved by all projects for the period considered. In my view, 25% or even 30% would be a more adequate assumption for an idiosyncratic project like this one. Ultimately it would depend on who the investors actually are, the market context at the time of FC and the political context, all of which remain unknown. In 2020, Ontario 25% equity would likely not have been seen as sufficient by lenders for a project with such an "out-of-market" tariff.

212. As noted in the footnote to paragraph 202, Vineyard Wind achieved a level of equity of only 15% but that was linked to the specificities of the US regulatory regime, which included tax equity, disbursed only at completion. Some of the debt is repaid by such tax equity at completion and the long term debt is thus substantially less than 85% (and even below 70%).

Past devex

> 6.80 In Mr. Tetard's experience, for a project like Windstream, a market participant would typically pay 1x to 2x the amount of historically incurred costs relating to the Project as upfront consideration at the time of entering into the transaction (i.e., as at the Valuation Date) with the remaining value being paid as contingent consideration, as discussed below. In Mr. Tetard's experience, the costs which have been incurred but not yet paid would attract a multiple of 1x, the amount of letter of credit extended by the Project would also attract a multiple of 1x, while all other costs that had already been paid would attract a multiple of 2x.

213. As briefly noted in paragraphs 77 and 134, using past costs to determine valuation is almost never used, because buyers care about results rather than means. The only costs that might be given credit, as noted previously, are those that would need to be incurred in any case, if already spent and the corresponding milestone has not been reached. This means that any upfront payment relative to the purchase of an offshore wind project under development is almost only based on milestones, comparables, and assessment of actual progress on the different development fronts.

214. The multiples mentioned above (in particular x2 on historically incurred costs) are targets for the developers. If they achieve these numbers, they have a done a good job developing the project, but that's an ex-post calculation, as the price they will receive is not driven by the costs but by the results.

215. Secretariat applies these multiples to various costs incurred, leading to a result which, in my view, is highly unrealistic:

Figure 6-8: Summary of Costs Incurred ($ Millions)

Cost Item	Costs Incurred Before NAFTA 1	Costs Incurred After NAFTA 1	Total as of Valuation Date
Project costs capitalized by WWIS	$ 4.34	$ 0.45	$ 4.78
Management fees, White Owl Capital	0.90	1.08	1.98
Management fees, 905085 Ontario Inc.	1.77	1.82	3.59
Letter of credit, with bank fees	6.00	0.12	6.12
Interest paid, net of interest earned	5.27	3.92	9.18
Legal fees incurred between NAFTA 1 and NAFTA 2 to advance the Project	N/A	0.75	0.75
Public relations fees to Navigator Ltd	N/A	0.08	0.08
Data room services costs to Donelly Financial Solutions	N/A	0.04	0.04
Government relations fees to Rubicon Strategy	N/A	0.27	0.27
IESO costs reimbursement relating to 2018/2019 proceedings	N/A	0.75	0.75
Accounting fees to Andersen Tax	N/A	0.18	0.18
Equityholder expenses reimbursed by Windstream	N/A	0.04	0.04
Total Costs Incurred as of Valuation Date	**$ 18.27**	**$ 9.48**	**$ 27.75**

216. Figure 6-8 in paragraph 6.82 of the Secretariat Report lists the development costs incurred by the Claimant, and it appears that the majority of these would not qualify as valid devex in the eye of any reasonable buyer. Items like "management fees" (unless paid to genuine third parties remunerated on an arm's length basis), letter of credit and interest paid would most likely not qualify. For example, management fees and interest are considered to be part of the remuneration of the developer, and would therefore be deducted from the costs and would end up wrapped into the premium that materialises (or not) between the valuation agreed by the buyer and the "real" development costs).

217. Given this, the genuine devex from the above table would in my view be CAD 10.34 M before NAFTA 1 and CAD 2.62 M after, for a total of CAD 12.96 M. This is reasonable if compared to a possible range of CAD 20-30 M for the value of the Project.

Discount rate

218. Secretariat then discusses equity remuneration and discount rates:

> 6.85 Based on Mr. Tetard's experience, in market conditions as of the Valuation Date (early 2020), market participants would have expected a levered equity IRR in the range of 14% to 16% for projects similar to Windstream as a development stage project. This expected IRR is higher than the CoE for a project at FC (Appendix 3) due to the Project's stage of development.

219. As briefly mentioned in my update of the Green Giraffe Report (see paragraph 91), the expected return during development phase remains in the 20-25% range at the Valuation Date – but this is the outcome of a return calculation based on valuations driven by standardised multiple per MW. By

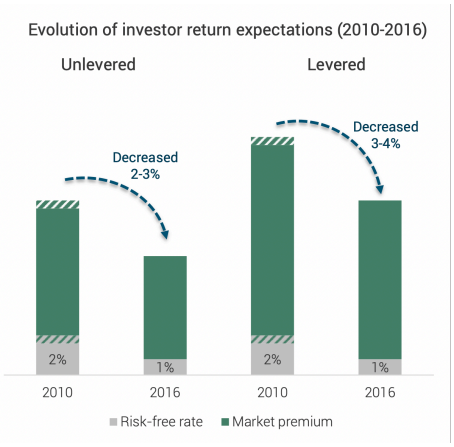
looking at the price received and the amounts spent previously, it is possible to calculate ex-post a rate of return on the capital invested in the development phase. As discussed in paragraphs 170-175 where I comment on the DCF methodology, and in particular in paragraph 173, ex-ante assumptions of discount rates during the development phase of a project lead to rather inaccurate valuations and are thus not useful to get any meaningful valuation numbers.

220. Additionally, if the proposed IRR is meant to be the overall IRR of the Project over its life, this is not relevant to the development period.

221. Secretariat specifically comments on numbers I have provided elsewhere about IRRs:

> 6.86 We note that in the NAFTA 1 Green Giraffe Report, Green Giraffe opined that as at 2011- 2012, the blended IRR requirement for all equity in the Project (pre-and post FC) would be in excess of 18-20%.189 We further note that in a Green Giraffe presentation given by Mr. Jerome Guillet in April 2019, Mr. Guillet opined that there has been a decreasing trend in the cost of capital in the relatively liquid renewable energy and offshore wind market, and as a result, that the levered IRR expected by equity investors in offshore wind decreased by 3% to 4% between 2010 and 2016. This decrease was due to several factors, including that:
>
> – *"Renewable energy assets are trading at high prices as investors competitively chase yield, pushing down IRRs*
>
> – *Continued high transaction volume in OW (Offshore Wind)…*
>
> – *Transactions for assets under development, at FC…or operating…*
>
> – *Emergence of Chinese buyers…and continued active presence of Japanese and Canadian investors, in addition to traditional European players….*
>
> – *Decent, if regularly shrinking, premium for construction risk and early development (permitting) risk.*
>
> – *Prices are relatively insensitive to technology or tariff and regulatory regime".*

222. I copied below the graph from the quoted presentation[130], which also includes the text above.



[130] **R-0727**, Green Giraffe, "Recent trends in offshore wind finance" WindEurope conference, Bilbao, 4 April 2019. Available at: https://green-giraffe.eu/wp-content/uploads/2019/04/190411_green_giraffe_bilbao_-_trends_in_ow_finance_final.pdf

223. There are no "levered" returns prior to FC/FID as there is no non-recourse lending before that point, and thus I believe it is clear that the numbers in the graph apply to projects at or after FC/FID, not for projects under development, like the Project.

224. As the text quoted above shows, I indicated that premiums for projects under development also decreased, but did not quantify that. In my view, the IRR expectations for the development phase would still be 20-25% (probably closer to the top of the ranger in 2015 and nearer 20% in 2020), but I reiterate that using that number (let alone a blended rate for the whole project life) is not appropriate to calculate the project value during the development phase.

225. Essentially, using the 15% number that Secretariat suggests and the highly optimistic development schedule they propose (with less than 3 years to get to FC), the Secretariat Report argues that a project which has no formal site control, none of its permits and no confirmed grid access is worth 66% of its value as a fully permitted, fully contracted and fully funded project at FC, and that's just not realistic.

Reaching FC

> 6.98ii Financing risk: The risk that the Claimant would not be able to obtain sufficient debt financing to complete the construction of the Project. As noted above, while the Claimant had several discussions with interest parties and banks regarding the financing of the Project since NAFTA 1, no third-party debt financing agreement had been reached for the Project by the Valuation Date, which we understand was due to the Moratorium and the other Alleged Breaches.

226. The absence of financing at the Valuation Date was not due to the Alleged Breaches, as the Claimant alleges. Rather, it was due to the fact the project was not "fully permitted", which is not something that happens automatically to any project even when regulatory frameworks are favourable.

Comparables

227. The next methodology uses supposedly comparable projects to assess the probability for a project under development at a similar stage of advancement as the Project to reach FC, where it could be valued using DCF methodology. While the principle of that methodology is plausible, Secretariat applies it in a very incomplete way:

> 6.103 To estimate the probability of Windstream reaching FC, we analyzed other offshore wind energy projects worldwide which we considered to be sufficiently comparable to Windstream for purposes of assessing this probability factor. We compared the number of projects that had obtained revenue clarity around the time of the Windstream Project, which were able to reach FC by the Valuation Date, against the ones which did not. We relied on the 4C database to filter the wind energy projects based on the following criteria:
>
> – Geography: We selected projects located in Asia, Europe, and North America;
>
> – Revenue Clarity: We selected projects which obtained revenue clarity during the period between January 1, 2010, to February 18, 2017 (i.e., had a PPA or other revenue mechanism in place); and,
>
> – Permits: We selected projects which did not have permits at the time that the PPA was obtained.

6.104 Based on the above analysis, we note that out of 14 projects considered sufficiently comparable to Windstream for this purpose, 8 reached FC by the Valuation Date, 1 had been cancelled, and 5 were still in the process of obtaining the permits necessary to reach FC as at the Valuation Date.195 This implies a probability of 57% (i.e., 8 out 14) that, as of the Valuation Date, Windstream would have successfully reached FC with sufficient time to achieve commercial operations by the Revised MCOD.

Figure 6-11: Comparable Projects Reaching Financial Close by the Valuation Date

Name	Country	Capacity (MW)	PPA Date	FC Date	Commissioning Date (Actual / Expected)	FC as of the Valuation Date
Projet de parc éolien en mer de Saint-Nazaire	France	480.0	6-Apr-12	19-Sep-19	31-Dec-22	Yes
Block Island	United States	30.0	11-Aug-10	2-Mar-15	7-Feb-17	Yes
Hornsea Project One	United Kingdom	1,218.0	23-Apr-14	3-Feb-16	31-Dec-19	Yes
Walney Extension	United Kingdom	659.0	23-Apr-14	28-Oct-15	6-Sep-18	Yes
Eneco Luchterduinen	Netherlands	129.0	5-Nov-11	1-Apr-13	21-Sep-15	Yes
Tahkoluoto Offshore Wind Power Project	Finland	42.0	19-Nov-14	27-Jan-16	31-Aug-17	Yes
Burbo Bank Extension	United Kingdom	254.2	23-Apr-14	19-Dec-14	1-Apr-17	Yes
Nissum Bredning Vind	Denmark	28.0	10-Feb-16	20-Sep-16	26-Mar-18	Yes
Cape Wind	United States	468.0	11-May-10	NA	NA	No, cancelled
Eoliennes Offshore du Calvados project	France	450.0	6-Apr-12	22-Feb-21	1-Jan-24	No
Parc éolien en mer de Fécamp	France	498.0	6-Apr-12	2-Jun-20	31-Dec-23	No
Projet éolien en mer de la Baie de Saint-Brieuc	France	496.0	6-Apr-12	9-Mar-20	31-Dec-23	No
Parc éolien en mer de Dieppe - Le Tréport	France	496.0	7-May-14	N/A	N/A	No
Parc des Iles d'Yeu et de Noirmoutier	France	496.0	7-May-14	N/A	N/A	No
					Total Project Count	**14**
					Count of 'Yes'	**8**
					Count of 'No'	**6**

228. The core problem is that the list of projects above seems highly arbitrary to me, and does not meet the criteria set by Secretariat and quoted above the table:

- All of the UK Round 3 projects fit the list of criteria, yet only one (Hornsea One) appears in the table used by the Claimant (the full list of 18 projects is presented in paragraph 51 of this report). At the time period proposed, these projects had revenue certainty under the ROC regime then in place.[131] As discussed in paragraphs 70-71 of the Green Giraffe Report, only one out of 18 had managed to get to the construction stage in the timelines considered for the Project to get to MCOD. As shown in the updated table under paragraph 51 above, even after 12 years, more than half will never get built, only a handful have operational turbines and most are still only partly developed. These were projects that had a development stage similar to (or even better than) the Project, with actual site control and a guaranteed revenue regime (at the time in the form of ROCs, which provided

[131] The tariff regime was later switched to the CFD auction mechanism, which some of the projects complained bitterly about as it modified their right to price certainty.

a significant floor price in addition to the market price for electricity). Using the 2015 date, which gives a 7-year period from the date of site allocation, the probability of having reached FC/FID (i.e. being under construction or operational) is 5% (1 in 18) and would be even lower if weighted by project size;

- All of the German projects under development in that time period also benefitted from revenue certainty (as well as grid access certainty). After the reform to the EEG in 2014, about 100 projects under development lost all their rights to development. Only a handful have progressed since then under the new auction regime.[132]

229. It is therefore obvious that an exhaustive search for projects meeting the conditions stated above brings about a much larger number of projects, and a significantly lower success rate than the 57% claimed by Secretariat. The numbers from the two largest offshore markets, the UK and Germany, suggest a success rate of 5% rather than 55-60%. That in turn would make the relevant value calculated under this methodology considerably lower by an order of magnitude, and presumably in the low double-digit millions of dollars, more in line with my own valuation.

230. Further, a number of first generation offshore wind projects in the USA had a situation not very different from the Project (site identified and with some advantage to get site control, permitting under way). Some, like Bluewater in Maryland, even had a lease and a PPA. Considering that Block Island only got built 7 years after its PPA contract was signed, the 3 most advanced North American projects of that generation (Block Island, Cape Wind and Bluewater) all failed to be built within the 5-year deadline of the FIT Contract MOCD. 0 for 3 gives a 0% probability of success and a 0 valuation according to that methodology.

[132] The new government, in its planned overhaul of the renewable energy law (EEG) has capped offshore wind power growth to 6.5GW by 2020, and to 15GW by 2030. The decision has been widely viewed as realistic, with 2.6GW of offshore wind power under construction, and around 600MW on line. But there is concern that government support may end earlier than expected should the sector be unable to reduce its costs significantly, thereby **terminating most of the approximately 100 offshore projects in development**.

4.6 Chapter 7 – Market approach

231. Chapter 7 of the Secretariat Report proposes a "market approach" via comparison to two groups of projects: (1) a European list of transactions selected on unclear grounds, and (2) the most recent US lease auctions. Both suffer from major flaws as to the relevance of the projects selected.

Figure 7-1: Comparable Transactions Summary[200]

Project Acquired	Buyer	Seller	Project Country	Transaction Announcement Date	Transaction Value ($ millions)	% Acquired	Project MWs	MW Acquired	Value / MW ($ millions)
					A	B	C	D = B x C	E = A / D
Deutsche Bucht	Northland Power	Highland	Germany	3-Mar-17	$ 310.2	100.0%	252	252	$ 1.23
Borssele III & IV	Partners Group	Blauwwind Consortium	Netherlands	8-Jan-18	446.4	45.0%	732	329	1.36
Moray East	Diamond Generation Europe Limited	EDPR	United Kingdom	23-Mar-18	65.1	20.0%	950	190	0.34
Neart na Gaoithe	EDF	Mainstream	United Kingdom	3-May-18	770.2	100.0%	450	450	1.71
Triton Knoll	J Power, Kansai Electric Power	Innogy SE	United Kingdom	13-Aug-18	706.9	41.0%	860	353	2.00
Moray East	Diamond Generation Europe Limited	EDPR	United Kingdom	16-Nov-18	91.2	13.4%	950	127	0.72
Dieppe-Le Treport & Yeu-Noirmoutier	Sumitomo	EDPR	France	18-Dec-18	121.3	13.5%	992	134	0.91
Revolution Wind & South Fork	Eversource	Orsted	United States	8-Feb-19	183.0	50.0%	834	417	0.44
Formosa 1	Orsted, Macquarie	Swancor Renewable	Taiwan	25-Jan-17	38.2	85.0%	128	109	0.35
Formosa 2	Stonepeak	Swancor	Taiwan	31-Jul-19	90.4	23.8%	376	89	1.01
								Average	$ 1.01
								Median	$ 0.96

232. Paragraph 7.7 first presents a list of supposedly comparable European transactions (table copied above). The reality is that most of these were at very different stages of development compared to the Project and thus their valuation gives no relevant information as to the Valuation of the Project:

- **Deutsche Bucht** was at transaction at FC/FID (Green Giraffe was advisor to both the sale and the financing) and was not only a fully permitted project, but also one where the late stage development risks were fully mitigated;

- **Blauwwind (Borselle 3-4)** was a transaction at FC/FID (Green Giraffe was advisor to the tender bid and the debt financing and was involved in the sales process). It was therefore also a fully permitted project where the late stage development risks were fully mitigated;

- **Triton Knoll** was a transaction at FC as well (FC was just days after the equity announcement[133]). In any case, it was fully permitted and late development risks mitigated;

- Two transactions with respect to **Moray East** are presented: the first one was at the fully permitted stage, and the second was at FC (the two transactions show the difference in value between these two stages);

- **Neart na Gaoithe (NNG)** was fully permitted - and benefitted from a specific windfall effect due to the delays caused by litigation, as discussed in paragraph 0;

- **Dieppe- le Tréport & Yeu–Noirmoutier** was a transaction not far from FC, as the tariff had been renegotiated and there was visibility on the timing of the legal appeals process, so it was almost fully permitted and contractual structure was essentially agreed. Green Giraffe was an advisor to the purchaser so was well aware of the permitting and appeals situation and the evaluation made by the buyer of their impact on pricing;

- **Revolution and South Fork** are discussed in paragraph 57. They include projects at very different stages of development – some substantially more advanced than the Project;

- **Formosa 2** was a transaction very close to FC[134] and most of the payment mentioned in the table above is effectively conditioned by FC (or later), so the value in the table above corresponds to a FC value, i.e. for a fully permitted projects with no residual late development risk.[135]

233. Altogether, none of the projects listed remotely compare to the Project in terms of development progress, and the corresponding transactions provide no relevant information as to the Valuation of the Project.

234. Paragraphs 7.9 to 7.13 of the Secretariat Report discuss second order factors, such as the size of turbines, the majority/minority nature of the stake sold, the PPA price level or the date of the transactions and create confusion by making it as if the absence of permits and the level of the PPA price have similar (somewhat minor) influences on the price. This is simply not true. Projects that are not "fully permitted" are simply not valued the same way, so these are by no means comparable.

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[133] **R-0728**, NS Energy, "Innogy reaches financial close for €2bn Triton Knoll offshore wind project in UK", 03 September 2018. Available at: https://www.nsenergybusiness.com/news/innogy-financial-close-triton-knoll-offshore-wind/#

[134] **R-0729**, Offshore Wind, "Formosa 2 Reaches Financial Close", 29 October 2019, Adnan Durakovic. Available at: https://www.offshorewind.biz/2019/10/29/formosa-2-reaches-financial-close/

[135] **R-0730**, "Taiwan's Swancor sells offshore wind developer to Stonepeak", 31 July 2019. Available at: https://info.inframationgroup.com/taiwans-swancor-sells-offshore-wind-developer-stonepeak/
In particular, "The sale will have a deal consideration between USD 25.98m and USD 101m and will translate into an estimated net gain between USD 9.14m-USD 84.63m. The transaction will be completed through three installments pending on the progress of share transfer, as well as on the financing and construction of the Formosa 2 project. The financial close for Formosa 2 will reach by the third quarter of this year, while the share transfer is likely to complete in three to six months, a company spokesperson told at a press conference today. Once the key milestones of share transfer, financing and construction of Formosa 2 are complete, the net gain for Swancor from the sale could reach up to USD 84.63m", he said.

235. For instance, paragraph 7.9 of the Secretariat Report creates such confusion:

> 7.9 We note that many of the comparable transactions identified above had permits in place at the transaction date, while the Project did not. We also note that the size of the turbines used by the windfarms in these comparable transactions were larger than the turbines that would have been used by the Project as at the Valuation Date and that the winds speeds at these windfarms were higher than the windspeed at the Project. **All else equal, a windfarm with permits in place would command a higher transaction value per MW than a project without permits in place due to the additional risk associated with obtaining the remaining permits. Further, all else equal, a windfarm with larger turbines and higher windspeed would command a higher transaction value than a windfarm with smaller turbines.**

236. The two sentences bolded put on the same level differences between projects that are of completely different orders of magnitude. A fully permitted project has value an order of magnitude higher than a project with only one of the milestones reached. Different turbines (even much larger ones) will change the value of a project by a few % (and that in turn will depend on how the different turbines are priced.).

237. Paragraph 7.10 of the Secretariat Report overemphasises the value of the high price under the FIT Contract:

> 7.10 However, we also note that most of the comparable transactions identified above had a PPA price that was significantly lower than the PPA price that Windstream would have obtained from the Project but for the Alleged Breaches per the FIT Contract. This is consistent with the general downward trend in offshore wind PPA prices since 2010, as we discuss in Appendix 1, Section B. We also note that most of the comparable transactions had a PPA that was for a shorter duration than Windstream. In this regard, all else equal, we would expect that an offshore windfarm with a higher PPA price, or a longer PPA term (such as Windstream) would command a higher transaction value per MW than a project with a lower PPA price or a shorter PPA term.

238. The price level of the PPA is relevant for the value at FC/FID and later, but has little relevance prior to that (or only for projects close enough to FC that it can be assessed with reasonable certainty. A handful of projects like NNG benefitted from windfall effects. As noted in paragraph 199, lenders would also see a PPA too far "out of the money" as a risk that they would want to mitigate (likely by offering a smaller amount of debt), no matter what the price level of the PPA.

239. Paragraph 7.11 of the Secretariat Report overemphasises the importance of the value of a 100% sale compared to the sale of a minority stake:

> 7.11 Further, nearly all of the transactions identified above related to the sale of a non-controlling interest (i.e., 50% or less) in an offshore windfarm.202 All else equal, transactions for a controlling interest (i.e., greater than 50% of the subject company or project) typically command a higher value, to reflect the additional consideration that an investor would pay in order to own a controlling interest in the company or Project. In other words, a 20% interest in a project would be worth less than 20% of the value of 100% of the company, given that this 20% ownership interest might be limited in terms of the scope of control it could exercise over critical aspects of the business operations. Therefore, all else equal, using transactions involving the sale of non controlling interests in offshore wind projects as a basis to derive the value of a 100% interest in the Project would understate the value of the Project as at the Valuation Date.

240. In my experience that factor is not material to valuation.

241. Paragraph 7.12 of the Secretariat Report overemphasises the importance of the difference in dates between the transactions they selected and the Project:

> 7.12 Lastly, nearly all the comparable transactions identified were carried out one to three years before the Valuation Date. In the period leading up to the Valuation Date, the offshore wind industry continued to grow and expand around the world, with increasing appetite from international investors for North American offshore wind assets in particular. Capital and operating costs also continued to decrease significantly, and there was increased public pressure to reduce dependence on fossil fuels globally due to the acceleration of the impacts of climate change. Therefore, given the growth in the industry in the period leading up to the Valuation Date, the valuation range based on transactions that pre-date the Valuation Date by one to three years will also tend to understate the FMV of the Project at the Valuation Date.

242. In my experience, the value of projects under development has remained stable over the last 15 years, as shown in the tables presented previously in paragraphs 54 and subs.

243. Paragraph 7.13 of the Secretariat Report notes the relevance of comparables but emphasises the group of projects they have selected, which I do not see as an appropriate group:

> 7.13 Despite the differences between offshore wind projects, market participants often consider value benchmarks obtained from comparable transactions, such as these, in order to inform their decisions in an arm's length negotiation for the purchase or sale of an offshore wind project. Therefore, while none of these transactions are 'perfectly' comparable to the Project in all respects, in our view, after the application of the criteria filters noted above, as a group, these transactions provide a relevant benchmark range of values that market participants would consider in the negotiation of a transaction involving the Project as at the Valuation Date, absent the Alleged Breaches.

244. Benchmarks are highly relevant and are the primary tool for the valuation of projects under development – as a starting point for a finer analysis by the buyer of the progress under the various development milestones, where credit can be given to progress made towards a milestone, if the probability of reaching it is deemed better than if no effort had been expanded. But the projects relied on by Secretariat and presented in Secretariat's Figure 7-1 are simply not comparable to the Project.

245. It is possible to find more relevant comparables – indeed, a large sample (the full list of projects at that stage of development that I am aware of) is presented in paragraph 54 in detail. Some of the numbers in those tables do not match those presented in Secretariat's Figure 7-1. My numbers are more reliable as they are based on direct transaction information and are standardised to a similar methodology (in particular taking into account only payments that are due with certainty and not conditioned by factors outside the project's control).

246. Finally, the summary table of the Secretariat Report (Figure 7-3) presents an in my view very misleading summary of the project sample.

Figure 7-3: Comparable Transactions Method Conclusion

Description		Low		High
Project planned capacity (MW)		297		297
Transaction value per MW (Median and Average)	$	0.96	$	1.01
Implied Value, millions	**$**	**284.7**	**$**	**299.1**

247. The median and average values are used to define the "low" and high" values from that sample. I must express my surprise as that selection. As can be seen in the table itself, the underlying numbers in the table (while not relevant as they apply to projects at other stages of development than the Project) are quite variable (from 0.34 to 2.00 MCAD/MW), and there appears to be no methodological argument as to why the mean and the median would represent "low" and "high" values from that sample.

248. The Secretariat Report then moves on to a discussion of the recent offshore lease auctions in the USA:

> 7.18 In the figure below, we summarize the price paid per acre in offshore wind lease transactions carried out in North America over the three-year period prior to the Valuation Date:

Buyer	Project	Transaction Date	Transaction Value ($ millions)	Acres Leased	Value / Acre
Equinor Wind US LLC	Beacon Wind	13-Dec-18	180.38	128,811	$ 1,400.33
Mayflower Wind Energy, LLC	Mayflower Wind	13-Dec-18	180.38	127,388	1,415.97
Vineyard Wind LLC	Liberty Wind	13-Dec-18	180.51	132,370	1,363.69
EDF Renewables	Atlantic Shores	20-Dec-18	290.65	183,353	1,585.19
Average $ 1,441.29 Median $ 1,408.15					

> 7.19 In our view, the Project would have commanded a higher value than the assets acquired in these lease transactions given it was significantly more advanced, primarily since the Project already had a FIT Contract in place which provided it with revenue clarity at a relatively high price compared to the prices that were obtained on other offshore wind projects proximate to the Valuation Date. At a minimum, the Claimant would have in all likelihood been able to sell the Project for an amount greater than the values implied in the lease transactions noted above.

249. I have discussed the US leases and associated transactions in paragraphs 57 and subs. The factors that explain the high prices for such leases (strongly favourable policy, oligopolistic access to future PPA tenders, ability to win linked to the depth of investor pockets to the exclusion of any other factor) are absolutely not applicable to the Project.

250. In particular, the Project was not "more advanced" as, even in a "but for" scenario, it had to progress development in an untested regulatory environment. The states of NY and Massachusetts have sophisticated policies to explicitly develop the offshore wind sector and make the states attractive to the supply chain investors in addition to the developers. These states understand that this requires long term consistent policies to develop not just a regulatory framework but also a

predictable development pipeline. This was described also in paragraph 162 and subs. Again, none of this is present in Ontario.

251. Secretariat then proposes to compare the Project to onshore wind developments in Ontario:

> 7.25 We were not able to identify any transactions involving offshore wind projects in Canada prior to the Valuation Date.217 Therefore, in addition to the above, we have also considered transactions in Ontario involving onshore wind energy projects under the FIT Program of the Ontario Government. Although the Ontario onshore wind energy projects provide relevant proxies for the value of Ontario wind generation projects, they differ from the offshore wind energy projects in certain respects, including the different technologies involved in construction of onshore wind projects compared to offshore wind projects,218 generally lower capital costs with onshore projects, generally lower wind speeds associated with onshore wind projects compared to offshore wind projects, and the lower PPA prices generally available for onshore wind compared to offshore wind under the Ontario FIT program. Accordingly, we have used the valuation multiples from this analysis to assess the order of magnitude for the value ascribed by the market participants to the onshore wind energy projects in Ontario prior to the Valuation Date.

252. Onshore projects are irrelevant for the valuation of offshore wind. No correlation can be stablished between the value of the two categories of projects, given the differences in permitting processes, development costs and risks.

253. Secretariat finally proposes some metrics derived from a selection of publicly–quoted companies:

> 7.32 Under the public company trading multiples method, valuation metrics are derived from the share prices of publicly traded companies that hold similar assets to the Project.

254. It is also hard to understand how the value of publicly traded companies relates to that of an individual, highly unique, asset. It is impossible to find relevant information from very disparate portfolios with widely differing characteristics. The method might have some merit if one were trying to evaluate a diverse portfolio (across technologies, and maybe across development stages) but here it brings zero useful information about a specific project, which was the only one of its kind in Ontario.

4.7 Chapter 8 – Windstream's discussions with interested parties in 2017

255. Chapter 8 of the Secretariat Report describes preliminary discussions that took place over 2017 with international developers about the Project. These discussions, from the Secretariat report itself, appear to be no more than early stage approaches that quickly show the lack of appetite by international investors for the Project, let alone any intent to purchase it.

256. It is worth parsing some of the language proposed as it actually is quite revealing of the lack of appetite for the Project:

> 8.5 In May of 2017, prior to commencing the formal engagement with KeyBanc, Windstream was contacted by [redacted] whereby [redacted] ndicated that they were [redacted]

257. This is standard commercial wording to express curiosity about a project but has no relation whatsoever with any intent to purchase, let alone provide a valuation. Bankers and investors tend to over-use expressions like "exciting opportunity" or "unique opportunity" to the point that these words have almost lost all meaning.

258. The marketing updates provided by KeyBanc are highly revealing by the absence of certain content:

> 8.6 In June of 2017, KeyBanc began to reach out to companies that would potentially invest in or acquire the Project, with a presentation about the Project, and a non-disclosure agreement to allow the parties who expressed interest to have an opportunity to review more detailed information. By July of 2017, Windstream had reached out to, held initial meetings with, and shared preliminary documents about the Project with the following parties:
>
> **Figure 8-1: WWIS Marketing Update per KeyBanc – July 2017**

Buyer	Contact	Teaser & NDA Sent	NDA In Process	NDA Fully Executed	Initial Meeting Completed	Preliminary Docs Sent
[redacted]		✓	✓			✓
		✓	✓	✓	✓	✓
		✓	✓	✓	✓	✓
		✓	✓	✓	✓	✓
		✓				
		✓	✓	✓	✓	✓
		✓	✓	✓	✓	✓
		✓	✓		✓	✓
		✓	✓			

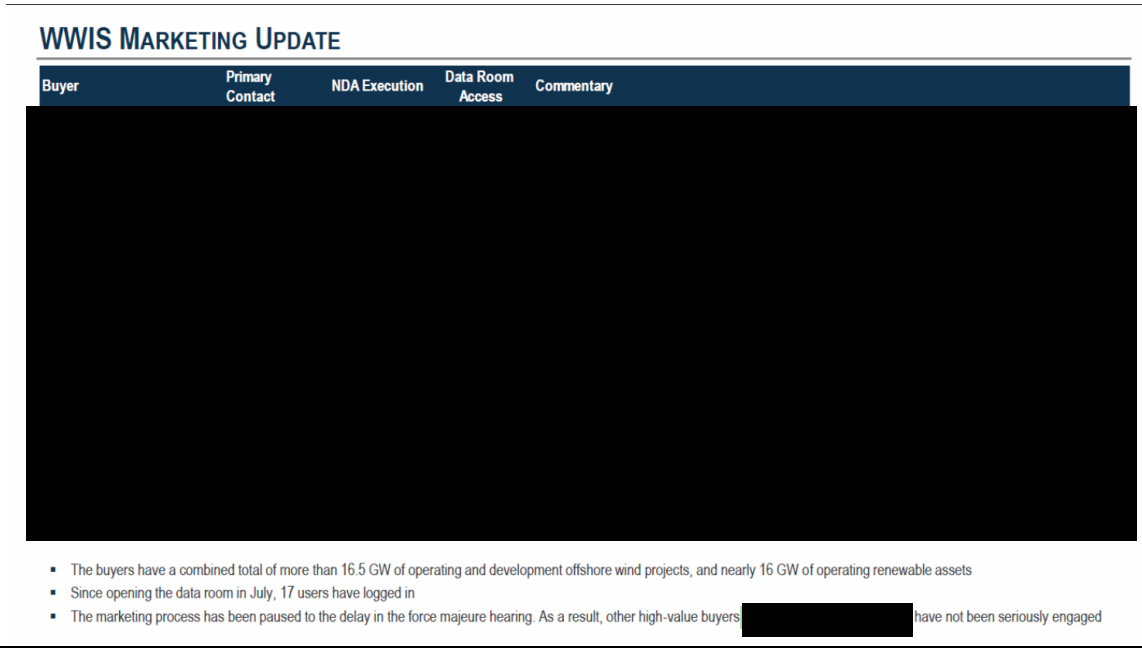
259. It should be noted that approaching 9 parties only, even back in 2017, is a very limited process. A typical market approach for a project under development (and I have supervised such processes multiple times) will typically involve a first list of 100-150 investors (pre-selected from a larger pool) that are considered as plausible candidates. A first informal approach will usually help eliminate those parties that have no interest for the potential transaction (based on simple criteria like development stage, expected timing to COD, country, currency, size of the project, stake on offer), leaving a sample of 20-50 parties that will then be offered more information. That requires the signing of a non-disclosure agreement ("**NDA**"). If the pre–selection has been done competently, almost all parties at this stage will sign the NDA in order to have a look at the available information. At that point in time, depending on the level of interest, conversations can continue from anywhere to a very small number of parties to a still large number

260. Figure 8-1 above show that only 5 entities out of 9 (which were presumably pre-selected for potential interest for the Project) signed an NDA, which is the pre-requisite to getting any information. If the pre-NDA information given to people was bullish enough, people would sign, if only to see what was going on, and if there was any reality to it. The fact that 4 out of 9 did not even deem it interesting enough to warrant looking at the information is already a significant data point as

to the lack of attractiveness of the Project or Ontario as a potential offshore wind market at the time. The parallel fact that the available information ('Preliminary Docs Sent", last column of the table above) was sent to two parties that had not signed the NDA suggests that (1) there was not a lot of information available (and not very confidential at that, as developers are usually particularly careful in my experience about sharing information about early stage projects), and (2) the Project was desperate to attract a little bit more interest.

261. The table summarising the interactions with the 7 parties that received the information presents a similarly dismal picture:

8.9 At the end of September 2017, KeyBanc prepared the following summary of the potentially interested parties, who had been granted access to the Windstream data room:



WWIS MARKETING UPDATE

Buyer	Primary Contact	NDA Execution	Data Room Access	Commentary
[redacted]				

- The buyers have a combined total of more than 16.5 GW of operating and development offshore wind projects, and nearly 16 GW of operating renewable assets
- Since opening the data room in July, 17 users have logged in
- The marketing process has been paused to the delay in the force majeure hearing. As a result, other high-value buyers [redacted] have not been seriously engaged

262. As a first comment, it should be noted that this was an extremely relaxed timetable for an equity process – the data room was prepared in February 2017, opened in July 2017, with limited feedback by KeyBanc only provided 2 months later. 6 months just to let people look at the data (when the typically period in my experience would be a few weeks at most). That says there was no transaction on the table and both sides knew it.

263. The next item to note is the rather limited information about feedback from the parties approached mostly describes the parties. Only 2 or 3 comments vaguely relate to the Project itself [redacted] to say they believe it to be constructible, which is not disputed by anyone, nor very useful, and [redacted] and [redacted] to request updates) while the rest is simply information about the parties that have been contacted. Reading that, and having done multiple processes of this nature, I can only conclude that KeyBanc was trying to put a vaguely positive spin on a complete lack of any interest for a transaction for the Project as it stood then.

264. Secretariat then reports on the conversations with [redacted]

> 8.11 Throughout October of 2017, Windstream engaged in discussions and meetings with members of [redacted] with respect to their interest in the Project. In an email sent by [redacted] to KeyBanc on October 9, 2017 [redacted] asked KeyBanc to ask Windstream:
>
> [redacted]

265. The only two things the paragraph above indicates are (1) that [redacted] was interested in getting an exclusivity position (i.e. avoid the competition, allowing them to pay less for the asset than in a process with other parties) and (2) that this was fully subject to *force majeure* being resolved (as underlined by Secretariat itself). With *force majeure*, as noted previously (paragraph 3), not even linked to the Moratorium. Essentially, this says that the Project had no material value at that stage.

266. Secretariat presents a bullish, and in my view completely unrealistic conclusion from the above information:

> 8.15 Based on our review of the contemporaneous correspondence in 2017 summarized above, many market participants in the North American renewable and wind power sector were interested in investing in or acquiring the Project which generally supports our conclusions that, absent the Alleged Breaches, the Project: i) would likely have obtained financing and proceeded to construction, and ii) would have had a positive valuation as at the Valuation Date.

267. The data presented does not lead that these conclusions at all. All they say is that if there hadn't been a moratorium, industry players would have looked at how to develop projects in Ontario, and would have talked to Windstream as an existing actor. It says nothing about the fact that the asset had any meaningful value nor that it would have successfully concluded the development process.

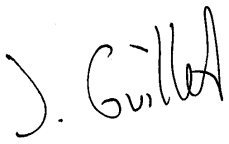
4.8 Conclusions

268. Altogether, while the Secretariat brings forward several different methods that suggest that the Project Valuation is in the CAD 300 M range, none of these stand up to scrutiny. Either the method itself is not used the industry for projects at that stage of development (DCF methodologies, comparisons to onshore projects or to quoted companies), or Secretariat uses it with inappropriate data (comparables method applied to projects that are much more advanced than the Project, probabilistic assessment of success based on a flawed and incomplete sample). The actual approach to the market conducted in the course of 2017 reveals a total lack of appetite from leading investors in the sector at the time, underlining either the absence of value of the Project or the unrealistic expectations of the Claimants.

I confirm that, at the time of providing this written opinion, I consider it to be complete and accurate and constitute my true, professional opinion.

12 December 2022

Dr. Jérôme Guillet



Annex 1 – Green Giraffe Profile (as of end-2020)

General presentation

Green Giraffe is a financial advisory boutique established in 2010 by experienced finance specialists with an exclusive focus on the renewable energy sector and offshore wind in particular. Green Giraffe offers specialised services with regard to the raising of debt and equity for renewable energy projects, the valuation of such projects, and strategic advice for investors and contractors in the sector, including business case assessment, transaction structuring, project development and support in contracting negotiations.

With a staff of more than 100 professionals in Paris (France), London (United Kingdom), Hamburg (Germany) and Utrecht (the Netherlands), as well as Boston (USA), Cape Town (South Africa) and Singapore, Green Giraffe has one of the strongest teams in renewable energy financial advisory worldwide. Green Giraffe's team is recognised for its financial structuring skills and market conditions knowledge. One of its managing directors and the main author of the Green Giraffe Report, Jérôme Guillet (see CV in Annex 2), is regularly ranked amongst the "top people in wind power" by specialised publications like Wind Power Monthly and A Word about Wind.

Since its creation 10 years ago, Green Giraffe has completed equity and debt advisory missions in respect of over 30 GW of offshore wind capacity across more than 75 projects and has been involved in the financing of approximately half of all the offshore wind projects that have used non-recourse debt to date.

Major transactions closed in offshore wind with Green Giraffe active involvement include:

- Global Tech 1 (October 2020, Germany, 400 MW), debt refinancing
- Norther (May 2020, Belgium, 370 MW): EUR 960 M debt refinancing
- Blue Gem (March 2020, UK, 100 MW), sale of a floating offshore wind project under development
- KFWind (Q4 2019, Korea, 500 MW), sale of a floating offshore wind project under development
- Fryslan (October 2019, the Netherlands, 383 MW), EUR 700 M debt financing
- FEW Baltic (August 2019, Poland, 1,500 MW), sale of a development pipeline
- BARD1 (August 2019, Germany, 400 MW), acquisition and refinancing of the project
- Veja Mate (February 2019, Germany, 402 MW): sale of 80% of the project
- LEM (November 2018, France, 992 MW), acquisition of 29.5% of two projects under development
- Support to the bid into the 2018 offshore wind auction submitted by Quadran Energies
- Veja Mate (June 2018, Germany, 402 MW): EUR 1.3 bn debt refinancing
- Progression (2018, US, 500 MW) sale of a floating project in Hawaii
- Trident (2018, US, 1,000 MW), sale of a project in California

- Nordsee One (December 2017, Germany, 332 MW): EUR 900 million debt refinancing
- TWB II (May 2017, Germany, 200 MW): EUR 590 M debt financing
- Norther (December 2016, Belgium, 370 MW): EUR 870 M debt financing
- Rentel (October 2016, Belgium, 309 MW): EUR 850 million debt financing
- Veja Mate (June 2015, Germany, 402 MW): EUR 1.9 bn debt & equity financing
- Nordsee One (March 2015, Germany, 332 MW): EUR 900 million debt financing
- Block Island (March 2015, US, 30 MW): USD 290 million debt financing
- Veja Mate (September 2014, Germany, 402 MW): acquisition of development rights
- Gemini (May 2014, the Netherlands, 600 MW): EUR 2.8 bn debt & equity financing
- Walney (December 2012, UK, 367 MW): GBP 224 million debt financing of a 24.8% stake

Green Giraffe was [as of end-2020] mandated on more than 40 renewable energy missions across Europe and North America in various capacities, including buy-side and sell-side advisory, debt arranging, modelling and contracting work (see references in Annex 3).

Green Giraffe's work typically includes designing the most appropriate financing structure, taking into account project characteristics and market conditions, ensuring that it is attractive to (at least some of the) known investor classes and that commercial contracts are acceptable to investors and banks, and modelling the project cash flows to ensure that the economics work and risk scenarios are properly identified and quantified. Green Giraffe usually also manages the approach to the investor and banking markets, including the preparation of the full due diligence packages up to the relevant equity or debt standards, drafting of the information memorandum and associated documents, and preparation of the financial model to be transmitted to potential funders. Green Giraffe takes care of the Q&A process with individual investors or banks during their approval process, and upon selection of the funding group, usually provides support in the final negotiations towards financial close and associated work streams (model updates, fulfilment of conditions precedent, etc.).

Green Giraffe is never a lender to or investor in any project and therefore does not have any conflict of interest in its role as pure financial advisor – when advising developers, the objective is to obtain the highest valuation for the development work and the earliest payments terms and to find the lowest cost equity and debt to fund the project.

Annex 2 – Resume Jérôme Guillet

Jérôme Guillet is a founder of Green Giraffe and was a Managing Director of the company until June 2021 and has a long track record of bringing complex transactions to financial close across different markets. He is currently acting in independent capacity in the offshore wind market, and is a Board Member of airborne wind technology developer Kitemill (Norway) and offshore wind project developer Enterprize Energy (Singapore).

He was instrumental in closing in previous capacities all the early non-recourse offshore wind financings done: Q7, C Power, and Belwind, and ran, within Green Giraffe, the teams which closed the financings for C-Power (2010, 325 MW, Belgium), Meerwind (2011, 288 MW, Germany), Northwind (2012, 216 MW, Belgium), Walney (2012, 82 MW, UK), Gemini (2014, 600 MW, the Netherlands), Nordsee One (2015, 332 MW, Germany), Veja Mate (2015, 402 MW, Germany) and Rentel (2016, 309 MW, Belgium). Until 2021, he managed the growth of Green Giraffe from ten people in two offices to nearly over 100 people in seven offices while managing multiple assignments in the offshore wind sector, including strategic intelligence and arbitration expertise assignments. For the past eight years, he has been recognised amongst the "most influential people in the wind industry" by Wind Power Monthly or A Word About Wind.

Before creating Green Giraffe, Jérôme Guillet headed the Energy team in Dexia's Project Finance department. He was responsible for the oil & gas, power and renewable energy sectors. Under his leadership, Dexia financed more than 10,000 MW of wind projects.

After playing an instrumental role in defining Dexia's strategy in the renewable energy sector (which has been rewarded with several titles of "Renewable Arranger of the Year" by Infrastructure Journal in 2003-2005 & 2007), he was involved as team leader in a number of transactions where the bank acted in a lead arranging position over the years, including SEC (Spain, 2003), Olivento (Spain, 2004, first cross-border acquisition finance deal in the wind sector), the Q7 offshore project (the Netherlands, 2006, first non-recourse financing ever for the offshore wind sector), the C-Power offshore wind farm (Belgium, 2007) the BBWP global refinancing (worldwide, 2007, EUR 1.7 billion), the Vader Piet wind farm (Aruba, 2008, USD 60 million) and finally, Belwind (Belgium, 165 MW wind offshore, 2009). Several of these transactions won "deal of the year" awards.

He was also active in the oil and gas sector, leading Dexia's participation in transactions such as the Baku-Tbilisi-Ceyhan pipeline (2004), Egyptian LNG (2004 and 2005) or Yemen LNG (2007).

Before joining Dexia in 2002, Jérôme worked for 6 years in the oil and gas project finance team of Crédit Lyonnais where he was involved in originating, structuring, arranging and syndicating several large transactions in Russia and participated in many others.

Jérôme graduated from the Ecole Polytechnique ParisTech and holds a Ph.D. in economics from the Ecole des Hautes Etudes en Sciences Sociales in Paris.

Annex 3 – Green Giraffe - Relevant Experience and Transactions

Debt Transactions – Offshore Wind

Global Tech I (refinancing) (2020) – *debt*

Green Giraffe was mandated to assist in the refinancing of the offshore wind farm Global Tech I. The initial EUR 1 bn project financing with financial close in 2011 was provided by 16 commercial banks as well as KfW and EIB. The EUR 500 M refinancing was closed on 2 November 2020.

Norther (refinancing) (2020) – *debt*

Green Giraffe was mandated by Norther to negotiate a repricing and extension of the existing debt facilities. The restructuring closed in May 2020 with a EUR 960 M debt package provided by a consortium of the EIB, the Danish export credit agency EKF and 9 commercial lenders.

Windpark Fryslân (2019) – *equity sell side & debt*

Green Giraffe was mandated by Windpark Fryslân (WPF) for the development of the 383 MW nearshore wind farm in the IJselmeer. The project reached financial close on 1 October 2019. Senior debt of around EUR 700 M was provided by a lenders group of 10 banks.

BARD1 (2019) – *equity buy side & debt*

Green Giraffe was mandated by Macquarie Infrastructure and Real Assets (MIRA) on the acquisition and financing of Ocean Breeze Energy (OBE), the owner and operator of the 400 MW BARD offshore wind farm in Germany.

Blauwwind (2018) – *debt*

Green Giraffe was mandated as financial advisor to the 730 MW Blauwwind offshore wind farm (Borssele III & IV) project in the summer of 2016 supporting the client from bid preparation to financial close, which happened in June 2018. The total investment is of EUR 1.3 bn.

Two Towers (2018) – *equity sell side & debt*

Green Giraffe was mandated to support in the project management and financing of the innovative two turbines, 19 MW offshore wind farm on the Dutch Borssele V plot. The project reached FID in November 2018.

Veja Mate (refinancing) (2018) – *debt*

Green Giraffe was mandated by the 402 MW Veja Mate offshore wind farm in Germany, owned by a consortium of Siemens, CIP and Highland, on the restructuring of its EUR 1,277 M senior debt facilities.

Deutsche Bucht (2017) – *debt & equity*

Green Giraffe was mandated by Highland, a family office, on the development of 252 MW Deutsche Bucht project in Germany. The mission included advice on equity raising for the project as well as contracting and debt raising. Both the equity and debt transactions (in an amount of EUR 988 M provided by 10 commercial banks), closed in August 2017.

Trianel Windpark Borkum II (2017*) – debt & equity*

Green Giraffe was mandated as sole advisor by EWE and Trianel on raising equity and debt for the 200 MW Trianel Windpark Borkum II wind farm, constructed 45 km from the German North Sea island Borkum. Financial close was reached in May 2017 for a total amount of debt of EUR 591 M and the transaction saw ewz, the Zurich municipal utility, join the equity group with a 25% stake

Nordsee One (refinancing) (2017*) – debt*

Green Giraffe was mandated by the 332 MW Nordsee One offshore wind farm located in Germany to improve financing conditions of its non-recourse financing initially raised back in March 2015. The restructuring closed in December 2017 for a non-recourse term loan facility totalling EUR 840 M.

Gemini (refinancing) (2017*) – debt*

Green Giraffe was mandated as exclusive financial advisor to support the 600MW Gemini offshore project and the sponsors in assessing refinancing options as well as executing the restructuring of the EUR 2 bn senior debt. The restructuring closed in April 2017 at the same time as formal completion.

Norther (2016*) – debt*

Green Giraffe was mandated as sole advisor by a consortium comprising Elicio, ENECO and Mitsubishi on raising debt for the 370 MW Norther wind farm, to be built off the coast of Belgium. Financial close was reached in December 2016 for a total amount of debt of EUR 900 million.

Rentel (2016*) – debt*

Green Giraffe was mandated as sole advisor by a consortium of 8 parties on raising debt for the 309 MW Rentel wind farm, to be built off the coast of Belgium. Financial close was reached in October 2016 for a total amount of debt of EUR 850 million.

Walney (refinancing) (2016) – *debt*

Green Giraffe was mandated in 2016 by OPW to assist in the refinancing of the 2012 non-recourse financing of PGGM and Ampere's 24.8% stake in the 367 MW Walney wind farms. The refinancing extended the maturity of the debt and brought down pricing in line with then current market conditions.

Veja Mate (2015) – *equity sell side & debt*

Green Giraffe was mandated as sole advisor by Highland, a family office, to manage both the debt and equity raising processes for the 402 MW Veja Mate project in Germany. Financial close was reached in June 2015 for a total amount of EUR 1.9 billion, including EUR 1,350 million of debt.

Block Island (2015) – *debt*

Green Giraffe was mandated by Deepwaterwind to assist then in the structuring of the financing for the 30MW Block Island offshore wind farm off Rhode Island, USA. Financial close was reached in March 2014 for a debt amount of USD 290 million.

Nordsee 1 (2015) – *debt*

Green Giraffe was mandated as sole financial advisor to manage the debt raising process for the 332 MW Nordsee 1 offshore wind farm in Germany. Financial close was reached in March 2015 for a total amount of EUR 1.2 billion.

Westermeerwind (2014) – *debt*

Green Giraffe was mandated to assist in the final stages of the financing and contracting process for the 144 MW nearshore Westermeerwind wind farm in the Netherlands. Financial close was reached in July 2014 for a debt amount of EUR 320 million.

Gemini (2014) – *debt*

Green Giraffe was mandated as sole financial advisor to manage both the debt and equity raising processes for the 600 MW Gemini project in the Netherlands. Financial close was reached in May 2014 for a total amount of EUR 2.8 billion, including a record-breaking debt amount of EUR 2.1 billion. The transaction was the PFI's Europe Power Deal of the Year, IJ Global's Europe Wind Deal of the Year and Europe & Africa Deal of the Year and Environmental Finance's Wind Deal of the Year.

Walney (2012) – *debt*

Green Giraffe was mandated by OPW, the joint venture between Dutch pension fund PGGM and infrastructure fund Ampère Equity Fund to assist them in procuring non-recourse refinancing for the purchase of their 24.8% stake in the 367 MW Walney project in the Irish Sea. Financial close was reached in December 2012 for a debt amount of GBP 224 million.

Northwind (2012) – *debt*

Green Giraffe was mandated by the project company to assist in the creation of a bankable corporate, commercial and technical structure for the Northwind (formerly Eldepasco) project in Belgium. Financial close was reached in June 2012 for a debt amount of EUR 595 million. The transaction was Euromoney's Offshore Wind Deal of the Year, PFI's EMEA Renewables Deal of the Year and Infrastructure Journal's Renewables Deal of the Year.

Meerwind (2011) – *debt*

Green Giraffe was mandated by WindMW, controlled by Blackstone, to assist in the negotiation of the financing structure for Meerwind, one of the first large scale (80 turbines) German offshore projects. Financial close was reached in August 2011 for a debt amount of EUR 863 million. The transaction was Euromoney's 2011 Offshore Wind Deal of the Year.

C-Power (2010) – *debt*

Green Giraffe advised C-Power on non-recourse construction debt funding for the 325 MW offshore wind farm. Financial close was reached in November 2010 for a debt amount of EUR 913 million. The transaction received various distinctions like Euromoney's Offshore Wind Deal of the Year, PFI's EMEA Renewables Deal of the Year and Infrastructure Journal's Renewables Deal of the Year.

Equity Transactions – Offshore Wind

Saint-Brieuc (2020) – *equity sell side*

Green Giraffe was mandated by RES as its exclusive financial advisor for the divestment of their minority stake in the 496 MW Saint-Brieuc offshore wind project in France. The transaction was closed in early March 2020.

Simply Blue Energy (2020) – *equity sell side*

Green Giraffe was mandated as sole financial advisor by blue economy energy developer Simply Blue Energy, to raise equity to develop floating offshore wind projects in UK Celtic Sea. In Q1 2020, Total New Energies entered into a joint venture with Simply Blue Energy.

Borkum Riffgrund 2 (2020) – *equity buy-side*

Green Giraffe provided buy-side advisory services in relation to the proposed acquisition of a 50% stake in the 456 MW offshore wind farm Borkum Riffgrund 2, located in the German North Sea.

Windpark Fryslân (2019) – *equity sell side & debt*

Green Giraffe was manadated by Windpark Fryslân (WPF) for the development of the 383 MW nearshore wind farm in the IJselmeer. The project reached financial close on 1 October 2019. Senior debt of around EUR 700 M was provided by a lenders group of 10 banks.

BARD1 (2019) – *equity buy side & debt*

Green Giraffe acted as joint financial advisor to Macquarie Infrastructure and Real Assets (MIRA) on the acquisition and financing of Ocean Breeze Energy (OBE), the owner and operator of the 400 MW BARD offshore wind farm in Germany.

F.E.W. Baltic II & pipeline (2019) – *equity sell side*

Green Giraffe advised Baltic Trade and Invest in the development and 100% sale to RWE of the F.E.W. Baltic II offshore wind project and associated development pipeline, totalling more than 1.5GW in the Polish Baltic Sea.

KFWind (2019) – *equity sell side*

Green Giraffe was mandated by developer KFWind, to raise equity to develop a 500 MW floating offshore wind project in the region of Ulsan City, South Korea. In Q4 2019, a consortium formed by EDP Renewables and Aker Solutions entered into a joint venture Korea Floating Wind Power (KFWind) alongside the founding shareholder WindPower Korea.

Formosa 2 & 3 (2019) – *equity buy side*

Green Giraffe provided buy-side advisory services in relation to the proposed acquisition of Formosa 2, a 376 MW offshore wind project in Taiwan that started in late 2019 and Formosa 3, an offshore project with a potential capacity of 2,000 MW in Taiwan.

Arkona (2019) – *equity buy side*

Green Giraffe advised an undisclosed US investor in the acquisition process of a 25% stake in the 378 MW offshore project Arkona in the German Baltic Sea.

Veja Mate (2019) – *equity sell side*

Green Giraffe advised Highland Group Holdings, Siemens Project Ventures, and Copenhagen Infrastructure Partners on the divestment of an 80% stake in the 402 MW Veja Mate offshore wind farm.

Les Eoliennes en Mer (2018) – *equity buy side*

Green Giraffe was mandated by Sumitomo Corporation to assist them in the valuation and negotiation for the acquisition of a 29.5% stake in two offshore wind projects in France under development, Dieppe et le Tréport (496 MW) and Iles d'Yeu et de Noirmourtier (496 MW). The projects are expected to be among the first offshore wind projects to be built in France.

Progression Energy (2018) – *equity sell side*

Green Giraffe was mandated to advise on the sale of a 100% stake in a 400 MW floating offshore wind project in Hawaii (US).

UK R3 OW project (2018) – *equity buy side*

Green Giraffe supported Legal & General Capital in their bid for an equity stake in an early stage UK offshore wind project.

Trident Winds (2018) – *equity sell side*

Green Giraffe was mandated in 2016 by developer Trident Winds, alongside Bostonia Partners, to raise development equity for the Morro Bay floating offshore wind project in California. In June 2018, EnBW Energie Baden-Württemberg AG (EnBW) entered into a joint venture with Trident Winds for the development of offshore wind, starting in California.

Two Towers (2018) – *equity sell side & debt*

Green Giraffe was mandated to support in the project management and financing of the innovative two turbines, 19 MW offshore wind farm on the Dutch Borssele V plot. The project reached FID in November 2018.

NL offshore wind farm (2017) – *equity buy side*

Green Giraffe was mandated by EWE Offshore Service & Solutions to support in the preparation of a bid to acquire a stake in an operational offshore wind farm in the Dutch North Sea.

Dudgeon (2017) – *equity buy side*

Green Giraffe was mandated in 2017 by PGGM to assist in the preparation of a bid to acquire a 30% stake in the recently commissioned 402 MW Dudgeon offshore wind farm, sold by Statkraft.

Trianel Windpark Borkum II (2017) – *debt & equity, offshore wind*

Green Giraffe was mandated as sole advisor by EWE and Trianel on raising equity and debt for the 200 MW Trianel Windpark Borkum II wind farm, constructed 45 km from the German North Sea island Borkum. Financial close was reached in May 2017 for a total amount of debt of EUR 591 M and the transaction saw ewz, the Zurich municipal utility, join the equity group with a 25% stake

Deutsche Bucht (2017) – *equity sell side & debt*

Green Giraffe advised Highland, a family office, on the development of 252 MW Deutsche Bucht project in Germany. The missionincluded advice on equity raising for the project as well as contracting and debt raising. Both, the equity and debt transactions (in an amount of EUR 988 M provided by 10 commercial banks), closed in August 2017.

Nordergründe (2016*) – equity buy side, offshore wind*

Green Giraffe was mandated by John Laing to advise in the acquisition of a 30% stake in the 111 MW nearshore project Nordergründe in the German North Sea. The acquisition, John Laing's first investment in an offshore wind farm, was announced in August 2016.

Galloper (2016*) – equity buy side, offshore wind*

Green Giraffe was mandated by an undisclosed party to advise in the acquisition of a 12.5% stake in the 332 MW offshore wind project Galloper in the UK. Green Giraffe's client was shortlisted but ultimately not selected.

French offshore wind project (2015) – *equity buy side*

Green Giraffe has been mandated by an undisclosed industrial investor, to support them in the acquisition of a stake in the 1,428 MW portfolio of French offshore wind projects put up for sale by EDF, the French utility.

Veja Mate (2015) – *equity sell side & debt*

Green Giraffe was mandated as sole advisor by Highland, a family office, to manage both the debt and equity raising processes for the 402 MW Veja Mate project in Germany. Financial close was reached in June 2015 for a total amount of EUR 1.9 billion, including EUR 550 million of equity.

Veja Mate (2014) – *equity buy side*

Green Giraffe was mandated as sole advisor by Highland, a family office, to manage the acquisition of the 402 MW Veja Mate project in Germany from the bankruptcy administrator. The transaction closed in September 2014 for an undisclosed amount.

Gemini (May 2014) – *equity sell side*

Green Giraffe was mandated as sole financial advisor to manage both the debt and equity raising processes for the 600 MW Gemini project in the Netherlands. Financial close was reached in May 2014 for a total amount of EUR 2.8 billion, including EUR 450 million of equity and EUR 200 million of subordinated loans.

Portfolio of German projects (2012) – *equity buy side*

Green Giraffe was mandated as sole advisor by Highland, a family office, to evaluate 3 offshore wind projects in Germany put for sale by Windreich, a German developer: Global Tech 1 (400 MW, then in construction), Deutsche Bucht (210 MW, then in early development) and MEG1 (400 MW, then in late development). A transaction with respect to the acquisition of the Deutsche Bucht closed in late 2012 for an undisclosed amount.

UK project (2012) – *equity sell side*

Green Giraffe was embedded in the team of a utility running a market approach to sell a stake in a UK project under development. The sales process was abandoned in late 2012.

Dudgeon (2012) – *equity buy side*

Green Giraffe advised Santander Equity and Cobra on the acquisition of the Dudgeon offshore wind farm (560 MW, UK) from Warwick Energy. Green Giraffe's advice included a valuation of the project,

a comparative review of risk and opportunities, and review of the proposed construction contracts. Warwick Energy did not accept Santander and Cobra's offer and eventually sold the project to Statkraft/Statoil.

Belwind (2012) – *equity buy side*

Green Giraffe advised one of the current shareholders in valuing their share in the project for the purpose of (i) determining the shareholders' enterprise value and (ii) determining the acquisition price of additional equity tranches (different risk profiles). An additional stake was successfully acquired.

German offshore wind farm (2012) – *equity buy side*

Green Giraffe advised Areva in their negotiations with a developer, in respect of contractual terms as well as the potential terms of a vendor financing. Green Giraffe's advice included a valuation of the project, evaluation of the financing structure and support in the various discussions with the developer.

Gunfleet Sands (2011) – *equity buy side*

Green Giraffe advised a consortium comprised of Ampere Equity Fund and Rabo Equity on a bid for the 49% stake then offered by DONG. The consortium provided a competitive offer but decided to exit the process for internal reasons unrelated to the project or its valuation.

US offshore wind farm (2011) – *equity buy side*

Green Giraffe advised a European turbine manufacturer contemplating an investment in an offshore wind farm under development. Upon Green Giraffe's review, they decided not to proceed with the acquisition.

Belwind (2011) – *equity sell side*

Green Giraffe was mandated in 2011 by Dutch renewable energy fund Meewind to assist them in valuing a stake in the operational 165 MW Belwind offshore wind project off the coast of Belgium.

German offshore wind farm (2011) – *equity buy side*

Green Giraffe advised Highland, a family office, contemplating the acquisition of a German offshore wind farm under development, on the value of such project. Upon Green Giraffe's review, Highland decided at the time not to proceed with the acquisition.

Gwynty Mor (2010) – *equity buy side*

Green Giraffe advised Siemens on potential exit options for their 10% stake in the Gwynty Mor offshore wind project, as part of the evaluation process of their investment in that project.