# CPPIB Renewables Europe S.à.r.l.

## Final Rating Report / Project Finance

Scope Ratings

## Rating: Senior notes (EUR 510.6m) maturing in April 2032

| Rating | Expected loss | Expected risk horizon[1] | Notional (EUR m) | Payment frequency | Coupon (fixed) | Final maturity |
|---|---|---|---|---|---|---|
| **BBB+** | 0.69% | 6.45 years | 510.6 | 6 months | (●[2]%) | 2032 |

The transaction closed in February 2020. The final rating is based on the information provided as of January 2020 by Amsterdam Capital Partners. Scope's ratings definitions are available at www.scoperatings.com. Notes: [1] The expected risk horizon is equal to the instrument's probability-weighted average duration under all scenarios when assuming a 0% discount rate. [2] Confidential (see section 8.1). For more details please refer to the General Project Finance Rating Methodology.

## Transaction and instrument details

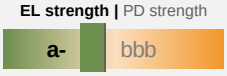
| | |
|---|---|
| Country / Sector / Status | Germany / Power, Renewables / Partial operation |
| Purpose | Funding of construction and operation of two adjacent offshore wind farms (Hohe See and Albatros) |
| Issuer | CPPIB Renewables Europe S.à.r.l. |
| Sponsor | CPP Investments |
| Seniority / Amortisation | Senior secured / Amortising to balloon (●%) |

## Rating rationale (summary)

The BBB+ rating reflects the total expected loss of 0.69% over the notes' life until maturity (equivalent to a 6.45-year constant-exposure expected risk horizon). Key drivers are the low risks during construction and operation, especially with regard to the sponsors and revenue generation. The economic value of cash flows and the extensive experience and strong economic incentives of the sponsors and operators mitigate the risks contributed by the project structure and its financial strength.


**Construction risks** are negligible and account for only two basis points of total expected loss. Construction is well-advanced and progressing in line with expectations. The comprehensive contractual framework mitigates the remaining risks.


**Operational risks** contribute 0.15% to total expected loss. The initial five-year service contract and warranty period by Siemens and the strong operating and maintenance agreement by EnBW mitigate risks from operating expenditure uncertainties. Potential counterparty risks regarding the service providers are low because of their long-standing track records, strong market positions, sound credit standing and solid commitment to the project.




**Revenue risks** account for 0.13% of total expected loss. The priority dispatch of electricity, the absence of price risk due to regulated fixed feed-in tariffs, and the good quality and reliability of the offshore wind resource mitigate the risk of revenue fluctuations. The project's strong economic rationale, negligible risk of retroactive regulatory change in Germany, and high barriers to entry compensate for the project's significant dependence on subsidies.


**Financial strength risks** account for 0.17% of total expected loss. Refinancing risk is low thanks to the relatively small balloon amount (●%). A balloon reserve account, regulated floor prices for seven years after maturity, and the fact that the notes mature at least 10 years before the project life ends further reduce refinancing risk at maturity.


**Project structure and compliance risks** contribute 0.22% of total expected loss and are an important rating driver. The double subordination of the original CPP Investments stake in the project limits the enforceability of the security package. Nevertheless, investors can rely on the economic value of cash flows and the extensive experience and strong economic incentives of the sponsors and operators (EnBW, Enbridge, and Siemens). The project is a key pillar in EnBW's renewable energy strategy and forms an integral part of the newly formed strategic partnership between Enbridge and CPP Investments.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### Related Research

General Project Finance Rating Methodology
November 2019

General Project Finance Analytical Considerations
September 2017


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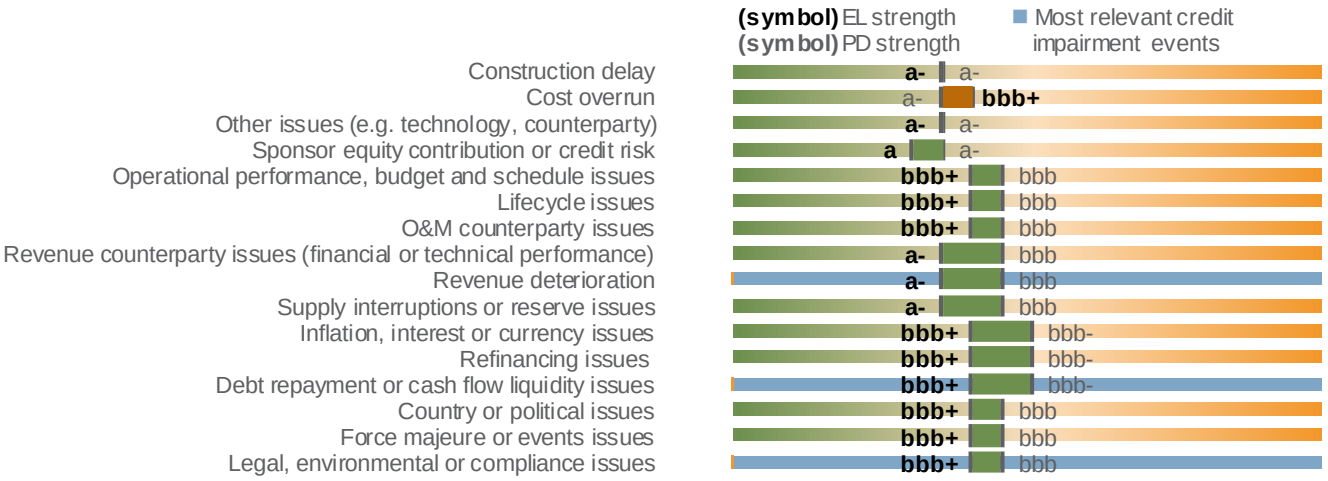
## Rating drivers and mitigants

| Positive rating drivers | Negative rating drivers and mitigants |
|---|---|
| **Low operational risk.** Siemens and EnBW will operate and maintain the project for (●) years, which we consider sufficient to mitigate operational risk during the debt tenor. The project has strong O&M contracts in place, which provide high cost-certainty and mitigate the risks of downtimes and performance issues. | **No step-in rights.** Noteholders are subject to a double-minority subordination in decision rights, which limits their ability to take control of the assets and intervene during a restructuring. The sponsors' strong alignment of incentives with creditors and their proven project management experience partially mitigate this risk. |
| **Limited refinancing risk.** The notes are almost fully amortising to a small balloon (●%) and mature at least 10 years before the project life ends. The regulated electricity floor-price covering almost two-thirds of the remaining project life, the absence of external debt, and a balloon reserve account further reduce refinancing risk. | **No debt service reserve at issuer level.** There is no dedicated cash reserve in a potential credit impairment event, but default risk is mitigated by the six-month debt service deferral mechanism. The project's stable and predictable cash flows and the senior rank of the notes further mitigate potential losses in an event of prolonged liquidity disruptions. |
| **Stable and predictable long-term revenues**. There is no price risk due to fixed feed-in tariffs until operating-year 20. The good quality and reliability of offshore wind yield in the German North Sea mitigate resource risk. | **O&M and maintenance capex risk**. Solid long-term service and warranty agreements with experienced counterparties mitigate budget-related uncertainties regarding operating expenditure. |
| **Experienced sponsors**. All sponsors are well-experienced, pose low counterparty risks and have high technical capabilities and significant economic incentives. | **Significant dependency on subsidies.** Low regulatory risks, the strong project rationale, and high barriers to entry mitigate the risk of retroactive subsidy cuts. |
| **Marginal construction risks.** Construction is well-advanced and progressing in line with expectations. Final takeover for Hohe See and Albatros is expected to occur later this year. The robust contractual framework mitigates remaining construction risks. | |

| Positive rating-change drivers | Negative rating-change drivers |
|---|---|
| A strong operational track record after an initial ramp-up phase in the short term, or faster deleveraging compared to Scope's rating case, could result in rating upgrades. | Lower energy production or significantly lower energy prices after the maturity of the financial instrument than those assumed under Scope's rating case could lead to a rating downgrade. These deviations would have to occur over a long period and be in excess of the significant stresses we have already considered in our analysis. |

## Credit impairment events (summary)




Source: Scope.

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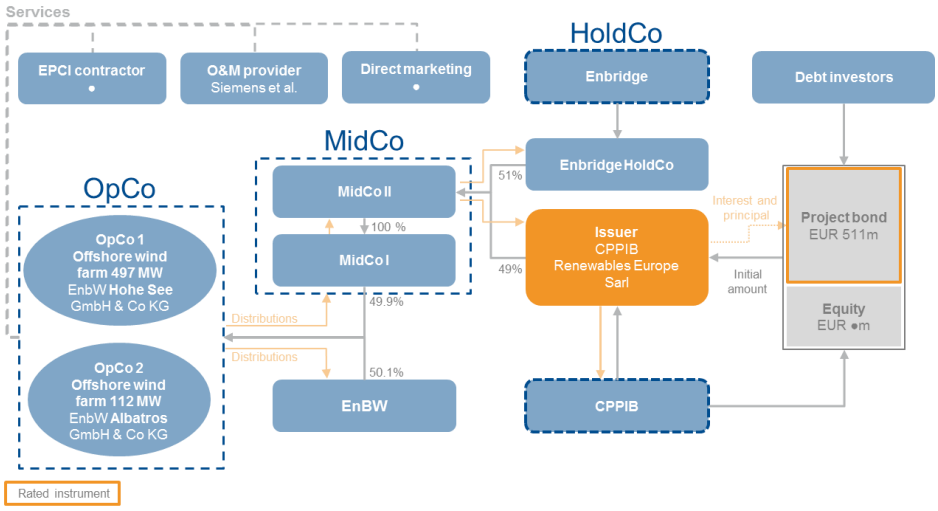
## 1. Transaction summary

**Figure 1: Simplified representation of the transaction structure**




Source: Transaction documents and Scope (chart excludes cash flows from shareholder loan repayments).

The project underlying the senior notes is currently the largest offshore wind farm project in Germany. The project comprises two adjacent offshore wind farms: Hohe See (497MW) and Albatros (112MW) in the German North Sea. The notes will partially refinance CPPIB's share in the construction and operation of the two offshore wind farms.

The project is sponsored by EnBW, which holds the majority stake (50.11%). Enbridge and Canada Pension Plan Investment Board (CPP Investments) own the remaining 49.89%. Enbridge joined the project as a strategic partner to EnBW in 2017. In 2018, Enbridge secured CPP Investments as a 49.0% co-investor in its renewable energy projects in Europe and North America (Figure 1).

The transaction represents the financing of CPP Investments' interest in the project by issuing senior secured notes totalling EUR 510.6m. CPP Investments holds an indirect share of 24.45% in both offshore wind farms. CPP Investments will remain exposed to the project through its subordinated investment.

The partnership and shareholder agreements on both OpCo and MidCo level grant veto rights to minority shareholders and, by extension, to the noteholders on reserved, critical matters. This softens the severity of the noteholders' limited ability to intervene in the resolution of a credit impairment event. The transaction structure does not allow the noteholders to take control of the assets directly.

The interests between the project sponsors, the servicers and noteholders are strongly aligned. Both offshore wind farms will be fully consolidated at EnBW and are expected to contribute EUR 415m to annual group EBITDA from 2020 (17%)[1]. Enbridge and CPP Investments have formed a European joint venture (Maple Power) to create and manage one of the largest portfolios of minority interests in offshore wind assets.

EnBW will manage the construction and operation of the wind farms following project commissioning. All 87 wind turbine generators were commissioned in January 2020 and final takeover is expected to occur this year.

[1] EnBW Presentation Capital Markets Day 2019 (https://www.enbw.com/company/investors/events/capital-markets-day/).

Siemens will provide O&M services for the wind turbine generators for the first five operating years after the completion of the offshore wind farms, followed by EnBW for the following (●) years, which we consider sufficient.

## 2. Rating and project risk

The rating on the notes reflecs the financial and legal structure of the transaction; the value of the security package; the competitive position of the borrower (i.e. alternative energy sources, other renewable energy projects in the area, energy price forecast); the experience and alignment of interests of the sponsors; and the counterparty exposures to key partners in construction and operation.

The total expected loss on the notes is commensurate with a BBB+ rating. We calculated an expected loss (EL) of 0.69% over the lifetime of the notes (equivalent to a constant-exposure expected risk horizon of 6.45 years) under our rating case scenario (Scope's rating case), which is more conservative than the sponsor's base case scenario.

The expected loss reflects: i) the likelihood of several idealised credit impairment events with the potential to reduce the payments originally promised to the investor; and ii) the severity of such credit impairment events. Credit impairment events represent default-like situations that could impair the project's credit performance in relation to the rated notes.

Our analysis focuses on 16 credit impairment events grouped in five areas of risk: i) Construction; ii) Operation; iii) Revenue risk; iv) Financial strength; and v) Project structure and event risk.

Figure 2 shows the probability of default (PD) and EL strengths of the notes in relation to the five risk areas considered in our analysis. Figure 3 shows the relative contribution of each risk area to the total expected loss for the investor in the notes.

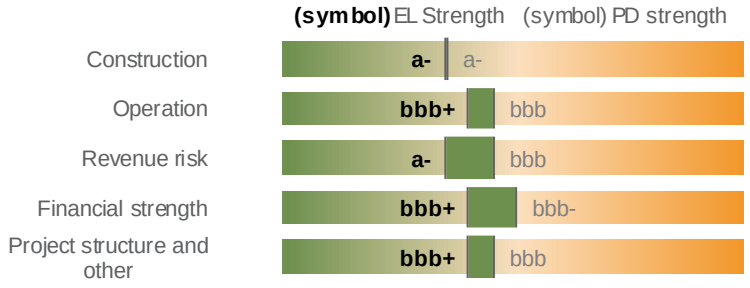
### EL and PD strengths

We use expected loss strength (EL strength or ELS) and probability of default strength (PD strength or PDS) to indicate the relative robustness of the different credit risk dimensions of a project.

The ELS and PDS indicate what the rating of the project would be if all other credit dimensions were as risky as the dimension under analysis. This is expressed with a symbol from our rating scale but written in lowercase to denote that the strength indication is not a rating.

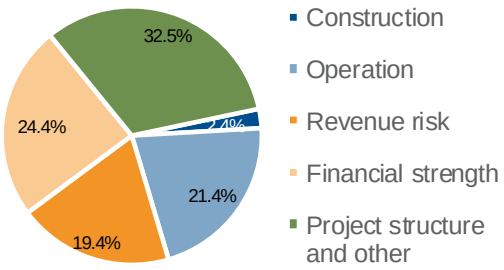
For example, an ELS of aa+ for the 'Supply interruptions' credit impairment event would indicate that the project would be rated AA+ if all dimensions of risk were as safe as the availability of inputs for the project.

**Figure 2: PD and EL strengths of the risk areas**




Source: Scope.

**Figure 3: Share total EL contributions of the risk areas**

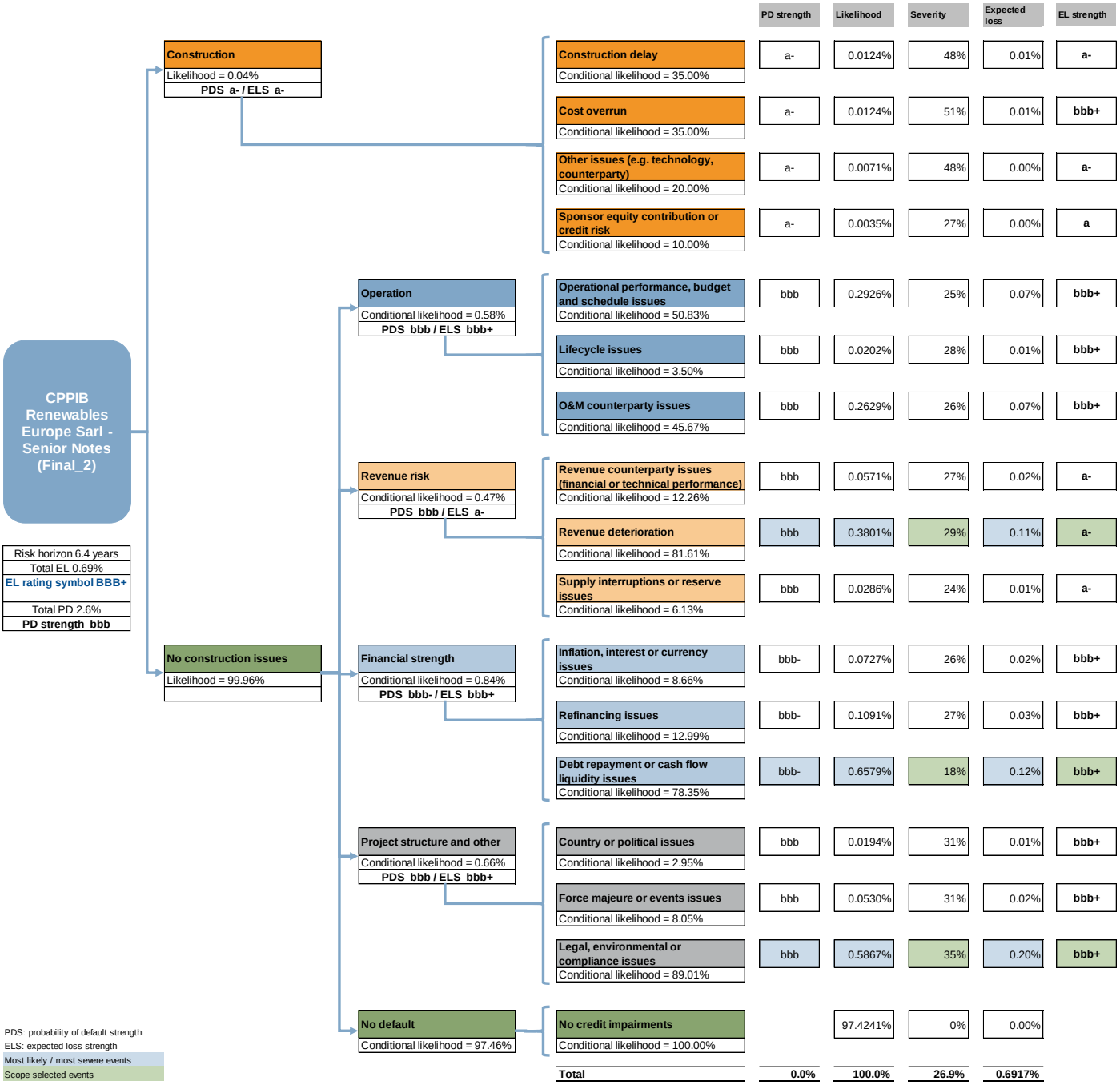



Source: Scope.

Figure 4 shows the idealised credit impairment events that we consider when estimating the expected loss for the investor, expressed as a probability tree. The tree illustrates the expected likelihood of each impairment, as well its expected severity for the investor –

taking into account the leverage of the project. The three most relevant credit impairment events we have selected are highlighted in green. The most relevant events as regards the impairment likelihood and contribution to total expected loss are highlighted in light blue.

**Figure 4: Visual summary of the project's risks, impairment likelihoods and expected loss contributions**




Source: Scope.

## 3. Likelihood of credit impairment events

We have calculated an expected impairment likelihood of 2.58% for this project, which is commensurate with a PD strength of bbb when expressed using levels of our idealised PD curves, part of our methodology. The project's PD strength and expected loss results from the aggregated risk of the construction and operational phases. Figure 2 shows the PD

strengths of the different risk areas of this project. PD strengths determine the likelihood of credit impairments under the scenarios linked to the risk area.

We have considered 23 risk factors that contribute to the project's total credit risk and drive the likelihood of credit impairment events. These risk factors are categorised in the same five risk areas that we use to group credit impairment events, with the risk contribution from sponsors impacting all five areas of risk. We have assessed the risk contribution of each risk factor using a scoring model, in the context of the notes. The likelihood of a given risk area triggering a credit impairment event (PD strength of risk area) is derived from the scores of the different risk factors (see Figure 2).

Our analysis of the risk areas is covered in the following sections of this report: construction (section 0) operation (section 3.3); revenue (section 3.4); financial strength (section 3.5); and project structure and other risks (section 3.6).

## 3.1. Sponsors

**Low sponsor risk…**

There is very limited risk that the sponsors will fail to provide the equity required to complete construction (i.e. EUR (●)m pending of the total EUR (●)m required). All sponsors pose low counterparty risk. Sponsors influence the credit risk of the overall project in all five areas of risk considered in our analytical framework.

**…due to the strategic importance of the project…**

The project is mainly supported by EnBW (rated A- by a reputable CRA[2]), Germany's fourth-largest utility company, owning a 50.11% majority share in the project. EnBW has a good track record in the field of renewable energy, particularly in the development, construction and operation of offshore wind assets. The project is of significant strategic importance for EnBW and is expected to contribute c. EUR 415m p.a. to group EBITDA when fully consolidated[3]. EnBW's responsibility for the operation and maintenance of the project also reflects its strategic importance to the energy supplier.

**…and the strong alignment of interests between creditworthy parties**

CPP Investments (rated AAA by a reputable CRA) and Enbridge (rated BBB+ by a reputable CRA) jointly own the remaining shares in the project, with Enbridge indirectly holding 25.44% and CPP Investments indirectly 24.45%. There is a strong alignment of interests between CPP Investments and Enbridge: CPP Investments acquired 49% of Enbridge's interest in selected North American renewable energy assets and established Maple Power, a 50/50 joint venture with Enbridge, to invest in European offshore wind projects at various stages of development. CPP Investments is a professional investment management organisation that invests the funds not needed by the Canada Pension Plan (CPP) to pay current benefits in the best interests of 20 million contributors and beneficiaries. CPPIB has a track record of supporting transactions, sector expertise via dedicated sector teams, and a global investment portfolio worth approx. USD 409.5bn (30 September 2019).
See Appendix II for further details on our assessment.

[2] Credit rating agency (CRA).
[3] EnBW Presentation Capital Markets Day 2019 (https://www.enbw.com/company/investors/events/capital-markets-day/).

### 3.2. Construction

**Low construction risk**

The risk of credit impairment during the construction phase is low, commensurate with a PD strength of a-, due primarily to the high degree of advancement of construction works and availability of funds required for completion.

**Construction is well-advanced and progressing in line with expectations**

Construction is well-advanced and progressing in line with expectations. Final takeover for Hohe See and Albatros is expected to occur later this year. The robust contractual framework mitigates remaining construction risks. Scope is comfortable that construction will be finalised because the project structure has sufficient funds.

**Low equity contribution risk**

Equity has largely been provided and, consequently, little risk remains from the equity exposure to the sponsors. The successful completion of the construction phase will slightly reduce the overall risk profile of the project. The project is currently the largest offshore wind project in Germany, with a combined capacity of 609MW.

See Appendix II for further details on our assessment.

### 3.3. Operation

**Low operational risk…**

The risk of credit impairment during the operational phase is low, commensurate with a PD strength of bbb. The average level of operational complexity is mainly due to the site conditions specific to offshore wind, which generally have higher technical requirements and more complex processes than onshore wind. Comprehensive service and warranty agreements with highly competent and experienced providers help to mitigate this risk.

**…due to the robust contractual structure…**

For the initial five project years, Siemens Gamesa will be providing O&M for the turbines via a pass-through service availability agreement, which reduces the exposure to cost fluctuations during this period. The subsequent service agreement with an EnBW subsidiary is low risk due to its strong economic incentives and appropriate liability caps for the operator. Another positive aspect of this contract is the robust structure underpinning cost certainty up to operating-year (●). Additional budgets for operating expenses and the provision of an extensive spare-parts portfolio underline the conservative planning assumptions of the O&M budget.

**…availability warranties…**

Despite the availability warranty of (●)% set somewhat below the market norm, we take comfort in the proven track record of the turbines and other technology used with availabilities typically averaging more than the warranted level. The conditions governing the warranty are also above average, including more restrictive bad weather allowances. Our rating case assumes an average availability of 96%.

**…and conservative budgeting**

Variable-cost budgets account for a small portion of total costs and are conservative enough to reduce the potential risks of cost increases, especially if the O&M provider must be replaced. The concept and budgets were validated by independent third-party experts, who found the assumptions to be in line with those of other offshore windfarms. Overall, the budget figures are in line with the market and reflect a low level of risk.

See Appendix II for further details on our assessment.

### 3.4. Revenue risk

**Low revenue risk…**

The absence of price risks during the term of the notes and the excellent average wind speeds result in low revenue risk for the project, commensurate with a PD strength of bbb.

**…due to stable and predictable long-term revenues…**

Resource risks are low, as evidenced by resource data, which shows very low wind uncertainty for the site. Data has good time coverage and quality. The annual gross energy production forecast is based on a historical set of wind data at the FINO1 met mast (correlated with the long-term dataset ERA5), which is located approximately 40-60 km south-southeast of the project. Wind-related uncertainty for the project is very low (10 years: c. 4%) and supported by comparatively high capacity factors (●) compared to other

intermittent energy sources (e.g. onshore wind). The wind-related uncertainties of Hohe See and Albatros are consistent with the projections for other offshore wind farms in this area. We consider it prudent to explicitly include possible blockage effects in the calculation of wake losses as this has been neglected by some simulation models to date. Oersted, one of the world's leading offshore wind farm developers, announced in October 2019 that it had previously underestimated these blockage effects.

**…supported by low resource risk…**

The project will, through a separate power purchase agreement, benefit from priority dispatch for renewable energies, under which grid operators are legally obliged to take all electricity produced during a 20-year period and pay market premiums to arrive at regulated fixed feed-in-tariffs (FiT). Potential spread and balancing risks on the route-to-market will be covered by a counterparty of high credit quality, against a predetermined fee under the Direct Marketing Agreement.

**…the absence of price risk…**

Under the applicable subsidy regime, the project will receive high FiTs for a period of approximately 12 years and six months. Following the high FiT period, a floor price will limit the downside risk until the end of year 20.

**…and low regulatory risks**

We believe that regulatory risks are generally low in respect to the energy targets set by the German government and the established remuneration scheme under the German Renewables Act (EEG). Low regulatory risks, the strong project rationale, and high barriers to entry mitigate the risk of retroactive subsidy cuts.

See Appendix II for further details on our assessment.

### 3.5. Financial strength

**Financial strength with average risk contribution**

Financial strength issues contribute an average level of risk to the project, commensurate with a PD strength of bbb-. Potential credit impairment events in this regard include debt repayment issues, refinancing issues, and exposure to inflation, interest, and currency risks.

**Significant financial leverage mitigated by predictable cash flows…**

The project's stable and predictable cash flows mitigate the significant financial leverage, which is reflected in a modest project life coverage ratio (PLCR) of (●) in the conservative rating case. The fixed FiT granted over 13 years, the priority dispatch, and the low expected wind volatility compensate for the relatively weak PLCR. Our assessment of the project's financial strength incorporates its ongoing debt-servicing ability, financial leverage and repayment profiles, financial flexibility, and exposure to financial counterparties.

**…low sensitivities to cash flow stress scenarios…**

The financial model demonstrates an average risk-bearing potential over the tenor of the senior notes. The minimum debt service coverage ratio of (●) translates into an average debt repayment risk profile in the rating case. This view is underpinned by the good resilience to cash flow stress scenarios with reassuring headroom above default thresholds. We applied single and multi-factor stress scenarios to selected, key input parameters for the financial model and conducted sensitivity analyses. Specifically, we tested the project's ability to service its debts assuming significant declines in revenues or increases in operating costs.

**…and low refinancing risk**

The balloon reserve account gives us substantial comfort that the risk of failure to repay the balloon at maturity is low.

**Conservative rating case assumptions**

We have based our analysis on rating case assumptions that reflect our conservative expectation of the project's future performance. Our rating case assumptions include: P90 estimated electricity production, 96% technical availability of the wind farm, and an annual inflation rate of 1.0%. In addition, we assumed electricity prices to range between the floor price and the low-price secenario produced by an external market consultant (EUR 39/MWh to EUR 43/MWh).

See Appendix II for further details on our assessment.

### 3.6. Project structure and other risks

Project structure and other risks contribute an average level of risk to the project, reflected in a PD strength of bbb. This area of risk covers the project's financing and legal framework, country risk, and event and force majeure risks

**Mitigation of double-minority position**

The well-defined governance structure and the strong alignment of interests with sponsors counterbalance the structural weaknesses inherent in noteholders' double-minority position. Creditor protections include robust financial covenant tests and veto rights on certain key financial decisions.

**Low country risk**

Country risk is very low. Germany's proven record in implementing and maintaining its stated policies give us significant comfort in the stability of the regulatory environment and the renewable energy legislative framework governing the project. Germany's wealthy and diversified economy and exceptional sovereign credit quality (Scope: AAA/Stable) reflect positively on the government's ability to uphold its promises in the long term.

**Strong insurance coverage**

A solid insurance package largely covers force majeure and other event risks. Technical redundancies (e.g. an interconnection cable between Hohe See and Albatros) further reduce the potential impact of such events.

See Appendix II for further details on our assessment.

## 4. Severity of credit impairment events

We have calculated a total expected recovery rate of 73.15% for the project. The total expected recovery rate is the probability-weighted average recovery rate of all 23 credit impairment events considered by our project finance rating methodology (see Figure 4).

**Top three credit impairment events**

We have performed a detailed estimation of the expected severity of the three credit impairment events that are most relevant for investors. These are: i) Revenue deterioration; ii) Debt repayment or cash flow liquidity issues; and iii) Legal, environmental or compliance issues (see Figure 6). These three credit impairment events together contribute 62% of the expected loss for investors.

We have analysed all other credit impairment events using standard recovery assumptions and applied adjustments to reflect the project's specific characteristics. These adjustments consider the notes' seniority, coupon, repayment profile, and project-specific recovery risk factors, which are further detailed in section 4.4.

### 4.1. Equity buffer

**Distributions during the high FiT period will reduce equity buffer**

We have considered the protection to noteholders provided by the subordination of a first-loss piece in the vertical slice of the capital structure that corresponds to the notes. This equity buffer is 20.00% during construction but drops significantly during the early stages of operation in Scope's rating case when the high tariffs result in significant pay-outs for the equity holders. We have considered an equity buffer of 16.70%[4] at the expected time to default and have used this value to calculate the expected recovery rates. This approach results in slightly conservative recovery rates because the equity buffer increases for transaction periods after the expected time of impairment, in particular as expected distributions decrease to fund the balloon reserve account.

### 4.2. Double-minority position

**Double-minority position mitigated by the strong alignment of interests…**

The double-minority position of the noteholders is not a real credit-negative, despite the apparent vulnerability vis-à-vis the majority holders. This is because the interests of the majority holders are well aligned with those of the noteholders, who are further protected by the subordinated equity tranche in the vertical slice they occupy in the capital structure.

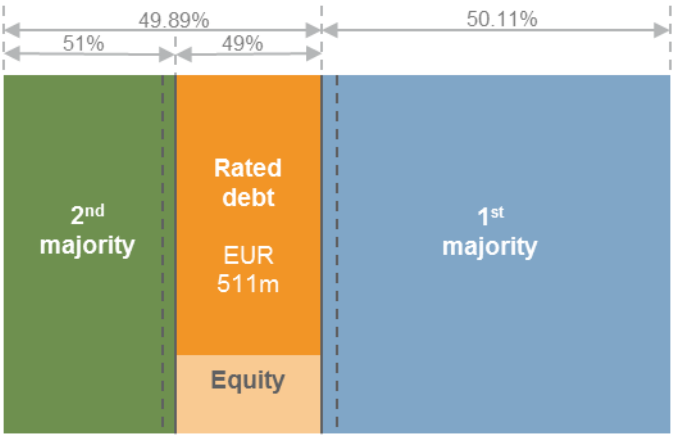
[4] The calculation is based on the average net present value of cash flows between financial closing and the expected time of default in ●years.

Figure 5 shows a simplified representation of the senior, but double-minority, position of the noteholders.

**…and the experience of majority holders**

Furthermore, the inability to step in to control the project in an event of restructuring is unlikely to neglect the best interests of noteholders. The experience of the majority holders provides comfort that the outcome of the restructuring will be sufficient.

**Figure 5: Simplified representation of the double-minority position**




Source: Scope.

## 4.3. Severity analysis of most relevant credit impairment events

We performed a fundamental analysis of the expected recovery rate under the most relevant credit impairment events by stressing the cash flows to investors using the project's financial model.

We stressed the key inputs to the project's financial model based on the conditions implied by the respective credit impairment event. For example, the stresses applied to estimate the expected recovery rate in revenue deterioration events cover two key revenue drivers: expected energy yield and park availability. We derived the expected recovery rate by calculating the net present value of all cash flows available for debt service under the assumptions of the respective most relevant credit impairment event.

**Figure 6: Most relevant credit impairment events**

| | Name | Driver |
|---|---|---|
| Top event 1 | **Revenue deterioration** | This event is driven by risk of lower, more volatile wind yields and higher energy loss factors. |
| Top event 2 | **Debt repayment or cash flow liquidity issues** | This event is driven by potential underperformance of the O&M provider and lower availability. |
| Top event 3 | **Legal, environmental or compliance issues** | This event is driven by potential underperformance of the O&M provider triggering a financial restructuring of the project. |

Source: Scope.

### 4.3.1 Revenue deterioration

**Revenue deterioration events account for 16% of the total expected loss…**

We expect a recovery rate of 70.6% on the notes upon impairment because of Revenue deterioration events. The expected loss contribution from such events is approx. 0.11% (EL strength: a-) over the senior notes' 6.4-year expected risk horizon. Revenue deterioration events represent 16% of the senior notes' total expected loss of 0.69%.

**…and are linked to wind-based uncertainties and energy loss factors**

The projects exposure to wind-based uncertainties as well as to energy loss factors are likely to be the main drivers of revenue deterioration events. The risk drivers include potentially lower and more volatile wind yields, or lower farm availability, than expected. These risks are considerably mitigated by the historical set of wind data collected from met mast FINO1, which was used to estimate wind yields, as well as the proven technology used. The most important O&M contractors further provide comprehensive performance warranties and availability guarantees.

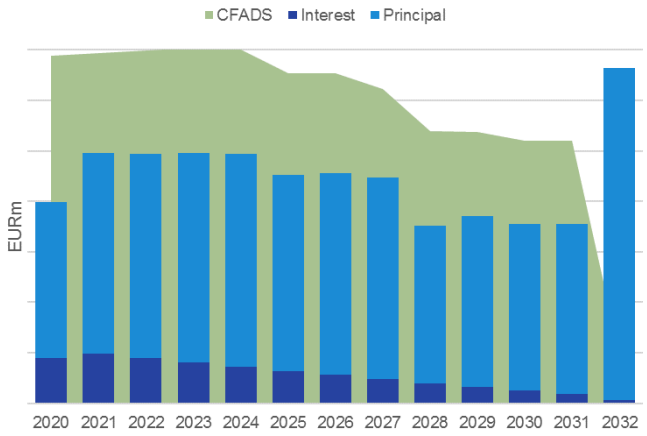
**Significant lower and more volatile wind yields, and lower turbine availability assumed**

To calculate recovery under this credit impairment event, we assumed significantly lower (P99 vs Scope's rating case) and more volatile (+230 basis points vs Scope's rating case) wind yields starting from the first year of operation. At the same time, we assumed turbine availability to be 10 percentage points below Scope's rating case assumption, starting from the sixth year of operation.

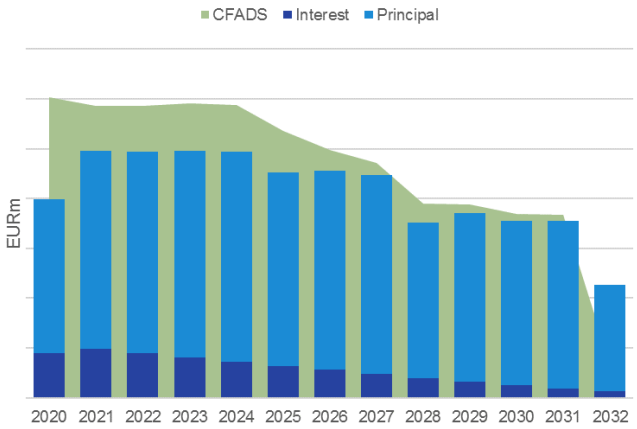
Figure 7 shows the cash flow available for debt service under the three most relevant credit impairment events, compared to the rating case. The recovery rate considered for each of the cases results from a comparison of the debt outstanding with the present value of the cash flows to service the debt.

**Figure 7: Cash flow available for debt service under Scope's rating case and the three most relevant impairment events**

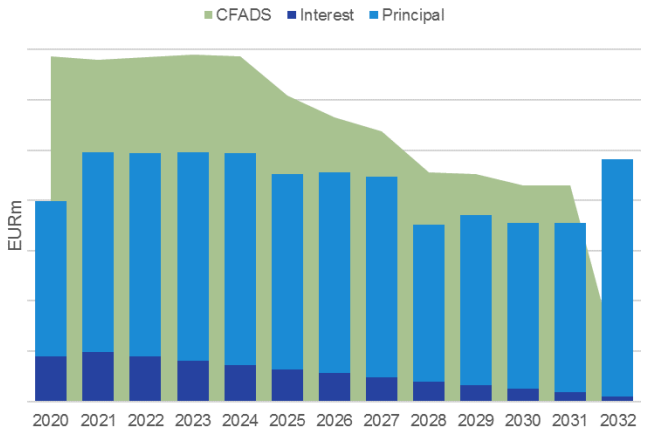
**Under Scope's rating case**



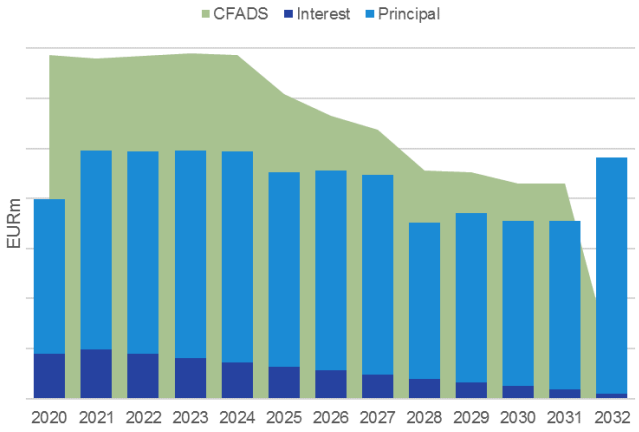

**Under Revenue deterioration event**




**Under Debt repayment or cash flow liquidity issues event**




**Under Legal, environmental or compliance issues**




Source: Project cash-flow model and Scope.

#### 4.3.2 Debt repayment or cash flow liquidity issues

**Debt repayment or cash flow liquidity events contribute 17% of the total expected loss…**

We expect a recovery rate of 81.8% on the notes upon impairment from the Debt repayment or cash flow liquidity issues events. The expected loss contribution from these events is approx. 0.12% (EL strength: bbb+) over the senior notes' 6.4-year expected risk horizon. These events represent 17% of the senior notes' total expected loss of 0.69%.

**…and are linked to energy loss factors and operational complexity**

The project's exposure to energy loss factors and operational complexity are likely to be the main drivers of the debt repayment or cash flow liquidity events. These risks are balanced by the operators' many years of experience, their economic interest in the project, as well as by the contractual availability guarantees. The contractual structure protects the issuer against counterparty risk associated with the initial O&M service provider. Counterparty risk is also low with the subsequent O&M provider since the contractual elements allow for a smooth replacement by an alternative provider.

**Significantly lower turbine availability and 20%-higher operating costs assumed**

Compared to Scope's rating case, we assumed turbine availability from the first year of operation to be 10 percentage points lower and operating costs from November 2024 to be 20% higher due to a replacement of the O&M provider.

#### 4.3.3 Legal, environmental or compliance issues

**Legal, environmental or compliance events account for 29% of the total expected loss…**

We expect a recovery rate of 65.5% on the notes upon impairment caused by Legal, environmental or compliance issues. The expected loss contribution from these events is 0.20% (EL strength: bbb+) over the senior notes' 6.4-year expected risk horizon. This represents 29% of the senior notes' total expected loss of 0.69%.

**…and are linked to revenue or operating expense fluctuations triggering a restructuring**

The double-minority subordination in decision rights is likely to be the main driver of legal, environmental or compliance events. These events could arise if revenue fluctuations, higher energy loss factors, or operating expense increases trigger a financial restructuring. The double-minority position would limit noteholders' ability to take control of the assets and intervene in the restructuring. This risk is substantially mitigated by the strong alignment of incentives between noteholders and sponsors, the sponsors' proven project management capabilities, and the solid contractual structure underpinning the project. Creditors further benefit from a strong contractual framework relating to key financial and corporate decisions.

**Significantly lower turbine availability, 20%-higher operating costs, and a 20% haircut assumed**

We assume significantly lower turbine availabilities (by 10 percentage points vs Scope rating case) from the first year of operation, 20%-higher operating expenses from November 2024, and a 20% haircut due to noteholders' inability to step into the project or replace defaulting counterparties in a restructuring.

### 4.4. Severity analysis of standard credit-impairment events

**Low asset-value resilience**

We have analysed all other credit impairment events using our standard recovery distribution assumption for each type of event. We assigned the project our 'Lower-asset-value resilience' assumptions as defined in our General Project Finance Methodology. The assets of the project have a limited useful life of c. 25 years (decommissioning date). The project is partially exposed to cyclical risks during operating years 13-20 (because of the above-the-base-price of EUR 39/MWh) and operating years 20-25 (because of full market price risk); and is exposed to higher maintenance risks during operating years 13-25

To calculate expected recovery rates specific to the notes (tranche-specific recovery rates), we adjusted the standard recovery rate distribution for each event to capture the project's capital structure (section 4.4.1) and assessed the project's specific recovery strength (section 4.4.2).

#### 4.4.1 Tranche-specific recovery rates

**Recovery rates consider the project's capital structure …**

We adjusted each recovery rate distribution to incorporate the approx. 14.60% average equity buffer ranking junior to the notes in the project's capital structure (20.00% during

construction), producing a tranche-specific recovery rate distribution for each event. We calculated the equity buffer for each period based on the present value of future cash flows.

### 4.4.2 Recovery risk factors

… and specific project characteristics

We applied a haircut of 11.2% to the expected tranche-level recovery rates derived from the previous steps. We assessed the project's specific recovery strength by applying the recovery risk factors shown in Figure 8: Recovery risk factors

While the project's overall recovery strength is average, the haircut reflects the higher risk contribution of the noteholders' double-minority position distance from the cash-producing assets in an enforcement scenario. The certain and well-functioning legal system in Germany, as well as the project's solid fundamental economic value pose negligible risks.

**Figure 8: Recovery risk factors**

| Recovery risk factor | Recovery score | Assessment |
|---|---|---|
| Project security | **High** | The notes are secured by a first-ranking security over all the issuer's assets (i.e. pledging of shares and shareholder loans). However, there is no direct access to the assets and no direct agreements. |
| Collateral enforceability | **Average** | The German legal system is proven, though resolution times are average when compared to those of other western European countries. |
| Recovery enhancements | **Average** | Indemnities and termination provisions are standard. |
| Fundamental economic value of the project | **Average** | The recovery risk from the fundamental economic value of the project is average due to the combination of stable cash flow generation (driven by FiTs and low wind-related uncertainty) and a project life coverage ratio of (●) under the rating case. |

Source: Scope

## 5. Rating stability

The rating is resilient to sizeable changes in assumptions

The rating on the notes is robust, showing limited sensitivity to sizeable changes in analytical assumptions. The model-implied ratings would be BB+, or one rating category lower, if 1) all 23 risk factor scores are reduced by one level or 2) the risk factor scores corresponding to the most relevant risk area are reduced by two levels. A 25% haircut to the expected recovery rate would result in a rating of BBB (i.e. one notch lower).

This analysis has the sole purpose of illustrating the sensitivity of the rating to input assumptions and is not indicative of expected or likely scenarios. Figure 9 shows how the model-implied rating changes for each rating-sensitivity scenario.

**Figure 9: Sensitivity results**

| Analytical assumption tested | Shifts considered to inputs | Result |
|---|---|---|
| Rating case | No shifts | BBB+ |
| General stress to all risk factors in all areas | Scores reduced by one level | BB+ |
| Shock stress to the risk area with the most relevant credit impairment event | Scores driving revenue risk area reduced by two levels | BB+ |
| Haircut to recovery | 25% haircut to recovery assumptions | BBB |

Source: Scope

## 6. Legal framework

The financing documents are subject to German law. Scope believes that these agreements are legal, valid, binding and enforceable. This is also supported by the opinion of the legal counsel of the lenders, a reputable multinational legal firm.

The transaction conforms to international standards and supports the general legal analytical assumptions of Scope (see 'Legal Risks in Structured Finance – Analytical Considerations', dated January 2015 and available in www.scoperatings.com).

## 7. Monitoring

We will monitor the rating over the life of the rated instrument. Our monitoring analysis will be based on the construction reports produced during the construction phase; the payment and performance reports to be provided periodically by the management company during the operational phase; and any other available information such as financial accounts and compliance certificates. The rating will be monitored continuously and will be reviewed on an annual basis, or upon occurrence of any events affecting the project's creditworthiness.

**Scope analysts are available to discuss the rating analysis**

Scope analysts are available to discuss all the details surrounding the rating analysis and are available to discuss the ongoing monitoring of the transaction.

## 8. Applied methodology and data

We applied the analytical framework described in our General Project Finance Rating Methodology, dated November 2019, downloadable from www.scoperatings.com.

The information supporting our preliminary rating analysis was adequate. We used internal and external data sources for the rating of this transaction. CPPIB provided us with information about the project, including the borrower's financial accounts, incorporation documents, material project contracts; as well as due diligence reports; financial and security documents; legal opinions; and the transaction's financial model.

### 8.1. Confidential information

Scope Ratings has had access to confidential information which cannot be disclosed in this public rating report, despite it being incorporated into the ratings analysis and rating outcome. Scope shows a black dot (●) when a certain piece of information cannot be disclosed because of confidentiality restrictions. Additionally, other confidential information is not mentioned in this rating report.

## Appendix I Likelihood and expected recovery of credit impairment events

| Event | Probability | Expected recovery | Expected loss contribution |
|---|---|---|---|
| Construction delay | 0.01% | 52.1% | 0.01% |
| Cost overrun | 0.01% | 48.7% | 0.01% |
| Other issues (e.g. technology, counterparty) | 0.01% | 52.1% | 0.00% |
| Sponsor equity contribution or credit risk | 0.00% | 72.8% | 0.00% |
| Operational performance, budget and schedule issues | 0.29% | 75.0% | 0.07% |
| Lifecycle issues | 0.02% | 72.3% | 0.01% |
| O&M counterparty issues | 0.26% | 73.8% | 0.07% |
| Revenue counterparty issues (fin. or tech. performance) | 0.06% | 73.3% | 0.02% |
| Revenue deterioration | 0.38% | 70.6% | 0.11% |
| Supply interruptions or reserve issues | 0.03% | 75.5% | 0.01% |
| Inflation, interest or currency issues | 0.07% | 73.6% | 0.02% |
| Refinancing issues | 0.11% | 72.8% | 0.03% |
| Debt repayment or cash flow liquidity issues | 0.66% | 81.8% | 0.12% |
| Country or political issues | 0.02% | 69.1% | 0.01% |
| Force majeure or events issues | 0.05% | 69.1% | 0.02% |
| Legal or environmental or compliance issues | 0.59% | 65.5% | 0.20% |
| No credit impairment events | 97.42% | 100% | 0% |
| TOTAL FOR RATED EXPOSURE | 2.58% | 73.15% | 0.69% |

Source: Scope.

## Appendix II Risk factor scores

The following table summarises the scores assigned to each of the risk factors defined in Scope's methodology:

| Risk area | Risk factor | Score | Comment |
|---|---|---|---|
| **Sponsors** | Sponsor's experience, track record and importance of the project | **Low** | Sponsors have a strong credit quality, technical capabilities and right incentives. All have good experience with similar projects. |
| **Construction** PDS a- | Construction complexity, permits, design and technology | **Low** | The construction of both wind farms is already well-advanced – only minor risks remain. The project is currently the largest offshore wind project in Germany. It consists of two offshore wind farms (Hohe See: 497MW; Albatros: 112MW) with a combined capacity of 609MW (87 Siemens SWT-7.0-154 wind turbine generators or WTG). Each WTG will have a capacity of 7.0MW and will be installed on monopile foundations. |
| | Construction contracts, budget and schedule | **Low** | The construction of both wind farms is already well-advanced – only minor risks remain. Construction budget is fixed at EUR (●)m + contingent equity of EUR (●)m (Hohe See) and EUR (●)m + EUR (●)m (Albatros). |
| | Construction funding and liquidity package | **Low** | The construction of both wind farms is already well-advanced – only minor risks remain. Funding sources are highly predictable and of good quality. Contingent sources are sufficiently available (additional equity: EUR (●)m; other contingencies: EUR (●)m). |
| | Counterparty risk | **Low** | The construction of both wind farms is already well-advanced – only minor risks remain. The main counterparties (i.e. Siemens, EnBW) pose low counterparty risk, are well-experienced and have a significant economic interest in the project. |
| | Equity contribution risk | **Low** | The construction of both wind farms is already well-advanced – only minor risks remain. To date, the project has been financed exclusively by equity and shareholder loans (total costs incurred by (●) 2019: EUR (●)m). Outstanding equity contributions (excluding contingencies) are EUR (●)m in total, of which EUR (●)m is to be contributed from a project sponsor (rated investment grade by another reputable CRA) and EUR (●)m from MidCo I. The MicCo I contribution is split between its two shareholders (CPPIB: rated AAA by three reputable CRAs; Enbridge: BBB+ by another reputable CRA). CPPIB's share in MidCo I contribution is EUR (●)m. |
| **Operation** PDS bbb | Operational complexity, technology and standing | **Average** | Operational complexity is average (high technical requirements requiring specialised equipment and operating skills). The Siemens Gamesa 7MW turbines are a modified version of the 6MW version of Gode Wind 1, which has a track record of about five years. Together with the Vestas 8-MW (or 9.5MW) turbine from Borkum Riffgrund II, the model is currently the best-selling turbine on the offshore wind market. |
| | O&M contracts, budget and planning | **Low** | Comprehensive O&M contracts are in place for the first 13 years of the project (covering wind turbines and balance of plant). The initial five-year service contract and warranty period by Siemens and the strong operating and maintenance agreement by EnBW mitigate risks from operating expenditure uncertainties. Potential counterparty risks regarding the service providers are low because of their long-standing track records, strong market positions, sound credit standing and solid commitment to the project. |
| | Lifecycle risk | **Very low** | Most important topics are covered by the O&M agreement. No major capex programme expected. |
| | Counterparty risk | **Low** | The wind turbine manufacturer and the O&M provider are of adequate credit quality and have good track records. EnBW AG is the fourth largest German utility and is rated investment grade by two reputable CRAs. There are sufficient alternatives available in the market (e.g. Deutsche Windtechnik, Oersted) despite the high specialisation required. |

| Risk area | Risk factor | Score | Comment |
|---|---|---|---|
| **Revenue risk** PDS bbb | Revenue contract | **Very low** | No price risk until maturity of the rated notes due to support from German FiT regulation. Under the well-established German subsidy regime, the project will receive statutory revenues for electricity sales to the market consisting of: i) an initial (accelerated) FiT for eight years (operating-years 1-8) of EUR 184/MWh; ii) an extended (regular) FiT of EUR 149/MWh for an additional 4.5 years (operating-years 9-12.5); and iii) a floor price of EUR 39/MWh thereafter (operating-years 12.5-20). The regulatory framework is stable, transparent and supportive, with very low probability of adverse changes. There are no mismatches with other contracts. |
| | Economic fundamentals | **Average** | Economic fundamentals account for an average level of risk contribution. The high dependence on FiT is a significant negative, while high barriers to entry, the priority dispatch and a strong project rationale are positive. |
| | Supply / Reserve risk | **Low** | Uncertainty is low from wind yield (10-year average of (●)%) and regarding the total project (10-year average of (●)% for Hohe See, (●)% for Albatros), especially when compared to other intermittent energy sources (e.g. onshore wind). High-quality wind data measured over 10+ years at FINO 1 provide comfort on assessment of resources. No dependence on feedstock supply. |
| | Supplier risk | **n/a** | No supply risk because wind is a natural phenomenon. |
| | Offtaker risk | **Low** | The direct marketer (rated investment grade by two reputable CRAs) will also provide balance of plant O&M for the operational lifetime. |
| **Financial strength** PDS bbb- | Debt repayment[5] | **Average** | Minimum debt service coverage ratio (ADSCR) of (●) in Scope's rating case (P90 / availability 96% / inflation: 1.0% p.a.); note life coverage ratio (NLCR) acceptable at (●); debt/equity acceptable at 80/20. Scheduled amortisation profile with a (●)% balloon at maturity. No liquidity reserve at the issuer level, but six-month deferral mechanism for total debt service (interest + principal). |
| | Sensitivity to cash flow stress scenarios | **Low** | The project demonstrates good resilience to cash flow stress scenarios (min/avg DSCR = (●)/(●) with a P99 uncertainty yield; (●)/(●) with var. opex +20% etc.). |
| | Inflation, interest rate and FX risk | **Low** | Limited sensitivity to inflation scenarios, mainly related to O&M services (revenues are not indexed to inflation); fixed coupon; no FX risks. |
| | Refinancing risk | **Low** | Refinancing risk is low because the small balloon at maturity ((●)% or EUR (●)m) is mitigated by the set-up of a balloon reserve account within the last three years and the possibility of refinancing based on the state-guaranteed floor value of EUR 39/MWh over seven years as well as the marginal life of the asset. |
| | Counterparty risk | **Low** | The account bank will pose a low risk (rated by Scope to be sufficiently stable to support the assigned rating); required rating of at least (●) according to the common terms agreement (CTA). |
| **Project structure and other** PDS bbb | Financing and legal framework, compliance | **Average** | Structural weakness of the transaction is effectively mitigated by a robust governance and security framework and by highly experienced and well-aligned sponsors and operators with a significant economic interest in the project. Risk from double-minority subordination partly mitigated by a good alignment of incentives. Adequate creditor protection clauses and financial covenants: Default: (●) DSCR / NLCR (historical, projected); lock-up: (●) DSCR / NLCR (historical, projected). |
| | Country risk | **Very low** | Enforcement procedures in Germany are well-established. We rate the German sovereign at AAA, which provides us comfort over its ability to maintain and implement policies. |
| | Events and force majeure risk | **Low** | Force majeure events are unlikely, but the project benefits from good insurance coverage; minor risk reduction through interconnection cable between Albatros and Hohe See. |

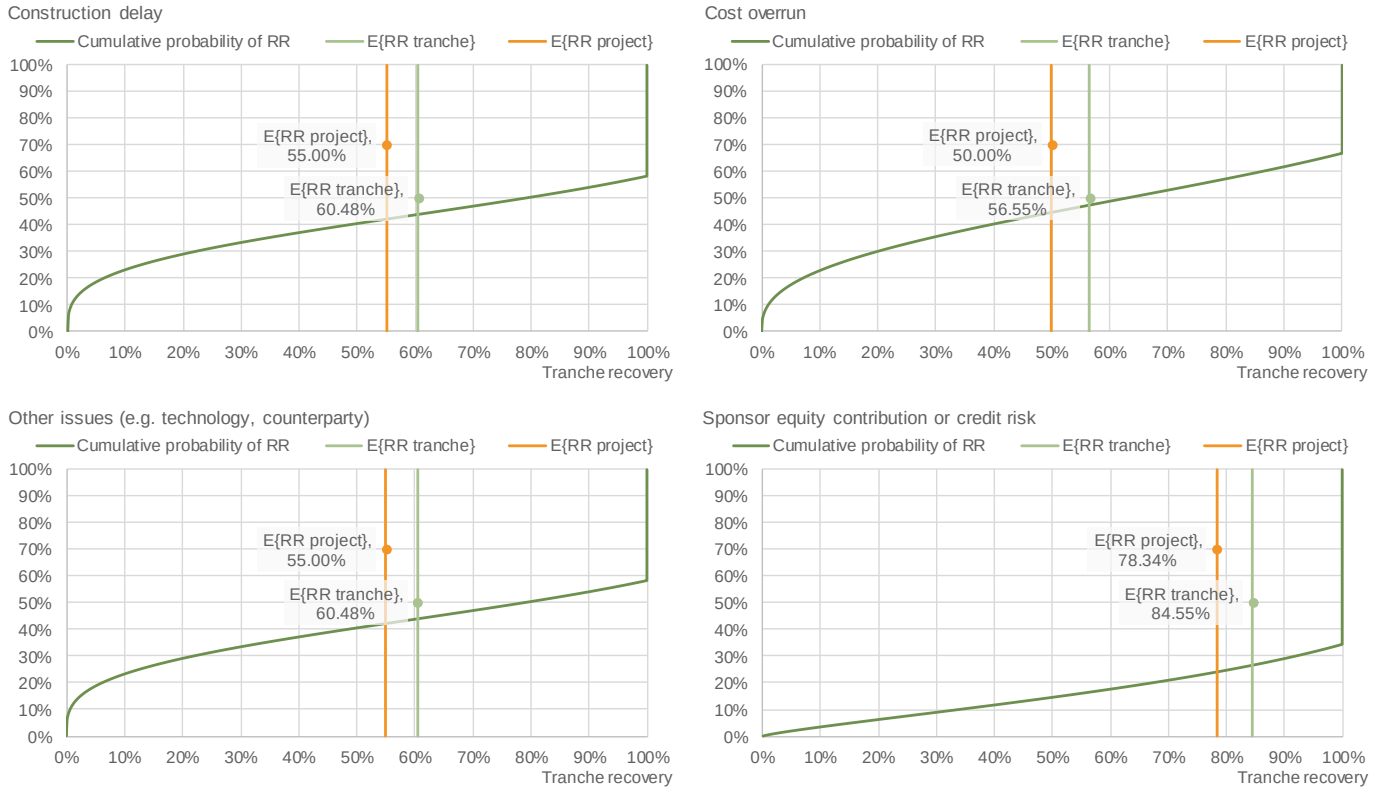
Source: Scope.

[5] Minimum DSCR occurs in 2021 in our rating case. NLCR is equal to the present value of all cash flows available for debt service from January 2020 until maturity, divided by total debt.

## Appendix III Recovery distributions under all impairment events

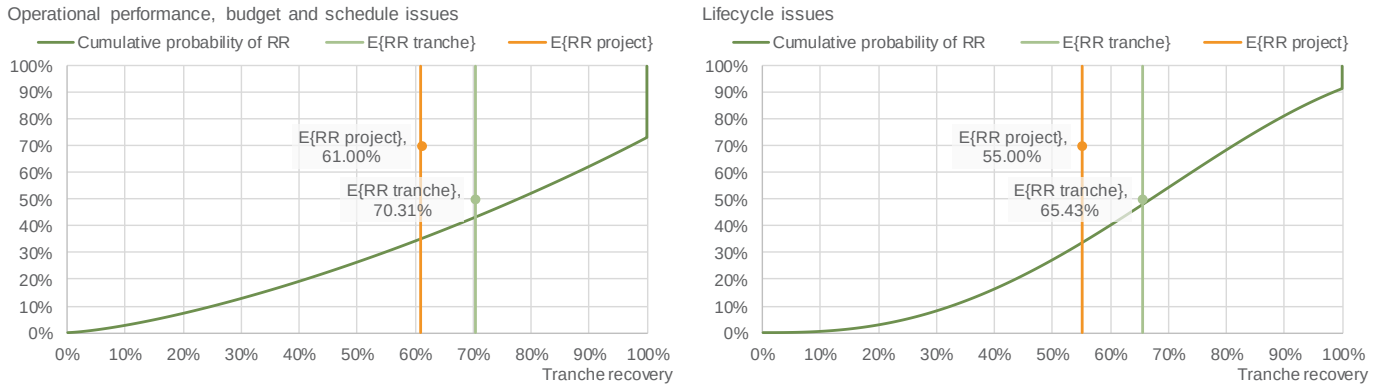
The following charts show the recovery distributions we have assumed for the analysis of the expected recovery of the rated notes under the different credit impairment events considered in Scope's methodology. The charts also show the expected recovery at the project level and rated-tranche level to illustrate how the capital structure influences recovery. The recoveries shown in these charts are before adjustments to consider the recovery characteristics of this project, and before adjustments for time-value of money and credit for amortisation.

**Figure 10: Recovery distributions under construction credit impairment events**

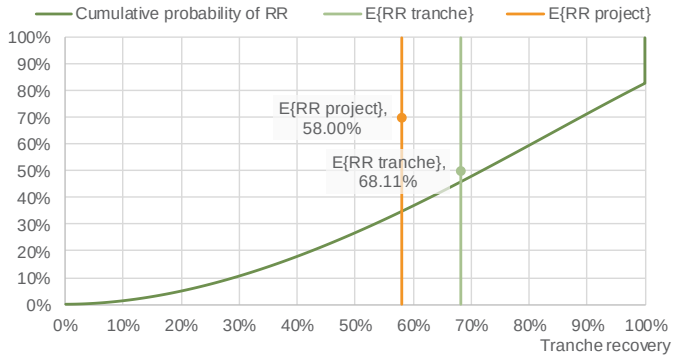



Source: Scope

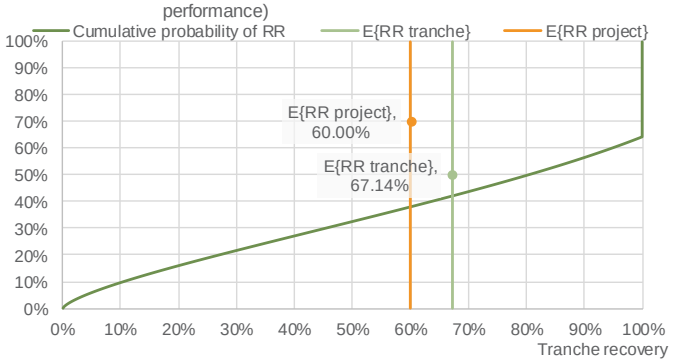
**Figure 11: Recovery distributions under operational credit impairment events**



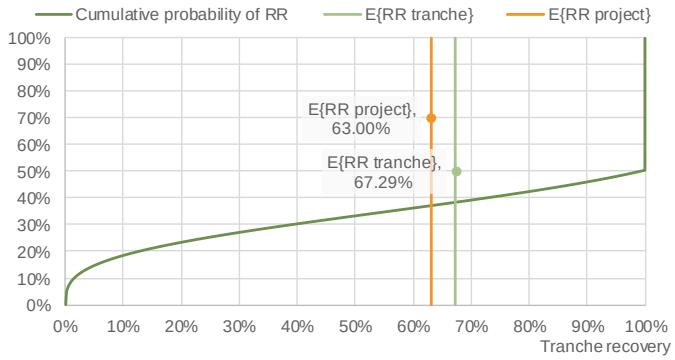
O&M counterparty issues



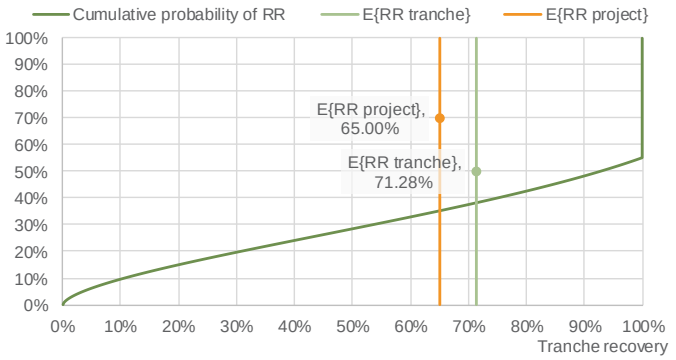

Revenue counterparty issues (financial or technical performance)



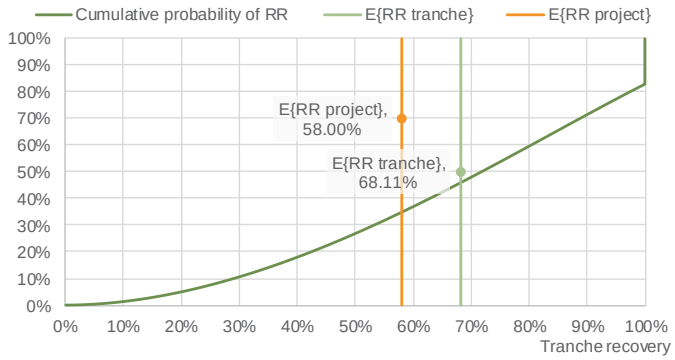

Revenue deterioration



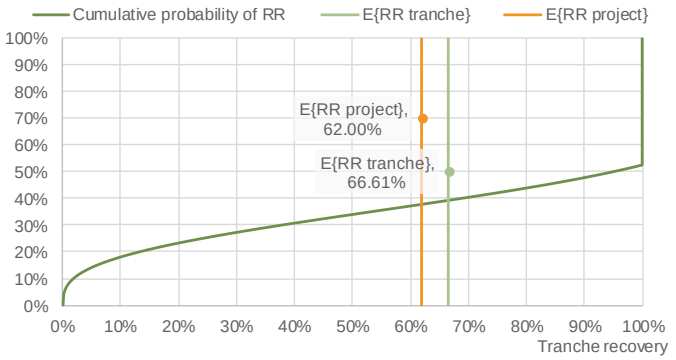

Supply interruptions or reserve issues



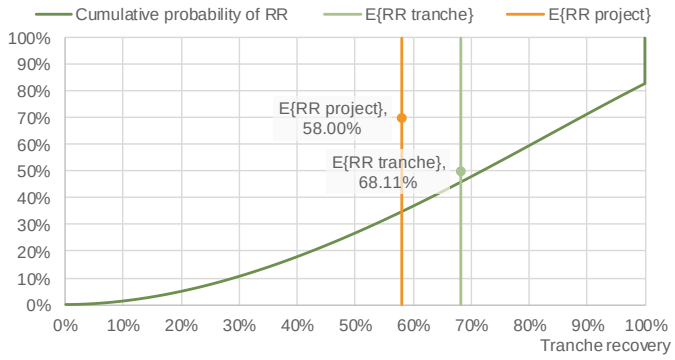

Inflation, interest or currency issues



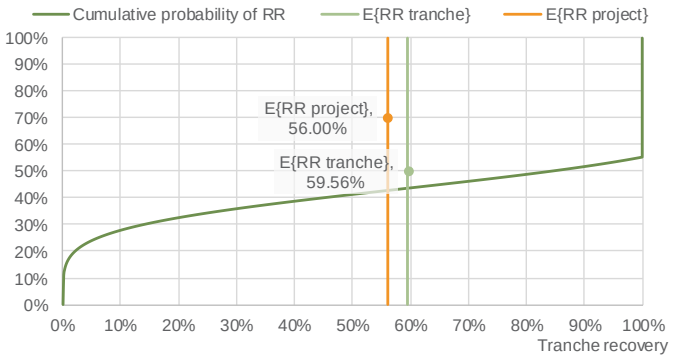

Refinancing issues



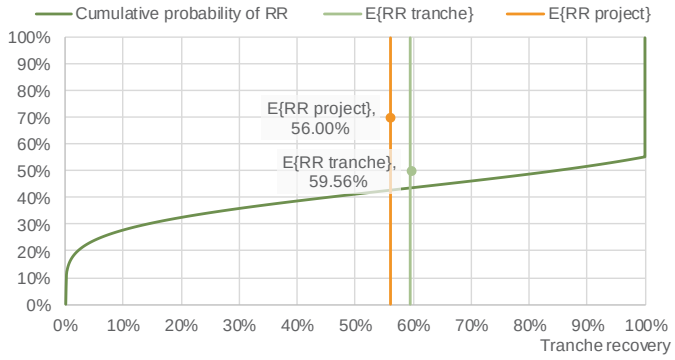

Debt repayment or cash flow liquidity issues



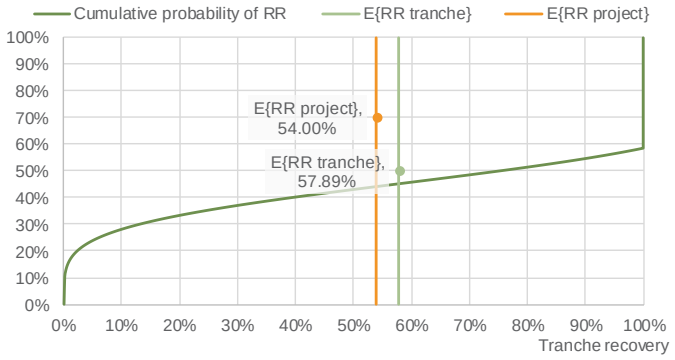

Country or political issues



Force majeure or events issues




Legal, environmental or compliance issues




Source: Scope

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