European Commission

Clean energy for EU islands: Financial Analysis Cape Clear Wind Farm

Clean energy
for EU islands

Financial Analysis
Cape Clear Wind Farm

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Glossary

Term	Definition
AEP (Annual Energy Production)	The expected net annual energy output of the wind farm, expressed in MWh.
CAPEX (Capital Expenditure)	Total upfront investment costs required to build the project, including turbine purchase, installation, shipping, foundations, and grid connection.
Contingency	A budget allowance added to CAPEX to cover unforeseen costs during construction.
CFADS (Cash Flow Available for Debt Service)	Cash flow from operations, after operating expenses and taxes, available to pay interest and principal.
Corporate Tax	Tax rate applied on EBIT. In Ireland, the corporate income tax rate is 12.5%.
Debt Service Coverage Ratio (DSCR)	Ratio measuring the project's ability to service its debt. Defined as CFADS ÷ Debt Service (principal + interest). A DSCR > 1.0x means cash flow is sufficient to cover debt obligations.
Equity IRR	Internal Rate of Return based on equity investor cash flows (after debt service and equity injections).
ESDF+	European Fund for Sustainable Development Plus
Grant	Public financial support used to cover part of CAPEX, reducing the amount of equity and debt needed.
IRR (Internal Rate of Return)	The discount rate at which the net present value (NPV) of a series of cash flows equals zero.
LCOE (Levelized Cost of Energy)	The minimum price per MWh required to cover all project costs over its lifetime, discounted to present value.
NPV (Net Present Value)	The present value of future cash flows minus initial investments, discounted at the project's WACC.
OPEX (Operating Expenditure)	Recurring yearly costs for operating, maintaining, and administering the project.
Project IRR (Unlevered IRR)	Internal Rate of Return based on project free cash flows before financing (unlevered). Independent of debt structure.
Reinvestment CAPEX	Additional capital expenditure required during the project lifetime (e.g., major turbine component replacement).
WACC (Weighted Average Cost of Capital)	The average cost of capital (equity, debt, and grants if included), weighted by their share in the financing structure.

Executive Summary

This financial analysis assesses the Cape Clear Wind Project, a small-scale community wind installation designed to provide clean and affordable energy to Cape Clear Island, Ireland. The project feasibility was evaluated through a financial model based on three distinct scenarios reflecting different levels of technical and financial performance: P75 (best case), P90 (base case), and P95 (worst case).

The analysis considers a single wind turbine with an installed capacity of 0.25 MW and a project lifetime of twenty years. In the base case, total capital expenditure (CAPEX) is estimated at €720,000, financed through a combination of 45% equity, 35% grant, and 20% debt. Under these assumptions, the project achieves an Internal Rate of Return (IRR) of 6% and a Net Present Value (NPV) of -€39,854, with a minimum Debit Service Coverage Ratio (DSCR) of 1.13 and an average DSCR of 1.28. This means that the project manages to cover debt obligations while still not being a worthwhile investment due to the negative NPV. The levelized cost of electricity (LCOE) is calculated at €144.54/MWh, compared to a regulated electricity tariff of €90/MWh, which means the electricity tariff is too low to cover project expenses. These results indicate that while the project can cover its debt obligations, the financial benefits for the community are insufficient, and the project would benefit from either additional grant support or an improved sales price for electricity.

In the best-case scenario, assuming slightly lower CAPEX and stronger operational performance, the financial metrics improve considerably. The project achieves an IRR of 10%, and the debt coverage ratio strengthens significantly, confirming the project’s bankability under favourable conditions. Conversely, in the worst-case scenario, higher construction costs and lower yield reduce the project IRR to 3% and the minimum DSCR to 0.83, resulting in financial stress during the early years of operation.

The results highlight the strong sensitivity of small community projects to capital cost management, interest rates, and market price fluctuations. In all cases, community involvement remains central to the project’s structure, ensuring that residents directly benefit from long-term returns on investment.

Introduction

The purpose of this section is to present the financial modelling framework developed for the Cape Clear Wind Project and to assess the project's economic feasibility under varying technical and market conditions. Building on the findings of the technical feasibility study, the analysis tests a range of assumptions regarding capital costs, financing structure, and energy production to determine the project's capacity to generate stable returns and service its debt obligations.

1. Case Scenarios and Assumptions

The financial model[1] is built to observe the impact of different scenarios on the project's financial viability. In the model, three scenarios are proposed: base case scenario, best case scenario and worst-case scenario. The inputs and assumptions are provided by the technical advisor 3E, and the financial feasibility is tested by exploring the boundaries of financing while trying to keep the community investment to a minimum by adding as much debt as possible and exploring grant opportunities. A sensitivity analysis is also run on the base case scenario to stress test the financial feasibility of the project based on varying factors in terms of costs and financing options.

1.1. Base-case scenario

In the base case scenario, the technical assumptions and inputs, especially those related to the energy production, are taken from the feasibility wind study performed by 3E, while the cost assumptions are provided by 3E directly. The remaining data are assumptions or market information.

Table 1. Inputs of the Base-Case Scenario

Category	Assumption	Notes
Technical	Turbine capacity: 250 kWp Annual Energy Production (AEP): 618 MWh/year	
	Project lifetime: 20 years	Consistent with the turbine design life
Annual electricity tariff	90 €/MWh	Under the SRESS scheme, a Renewable Energy Community is obliged to sell its electricity to the grid at a fixed price of 90 €/MWh.
CAPEX & Contingency	Equipment cost: €605,000 10 % Contingency added cost	A 10% contingency has been added to have a more conservative estimate and take into account potential unforeseen additional construction costs.
	Total CAPEX: €720,000 (including installation, foundation and shipping)	Provided by 3E.

[1] See Appendix the Dashboard of the financial model

OPEX	Operations: 20% of revenues	Based on 3E assumptions and discussion with the supplier. OPEX includes maintenance costs.
	Administrative: 7.5% of revenues	Potentially annual cost of an accountant, a consultant and a awyer
Financing	Inflation: 1.9% p.a.	Central Bank of Ireland Assumption for 2026
	Debt: 20%	% of total CAPEX costs
	Interest rate: 5%	Base case assumption
	Tenor: 5 years + 1 year grace period	Given the small scale of the project, a 5-7 year tenor is more adequate for the business case
	Arrangement fee: 0.5% of debt	Amortised over tenor
	Equity: 45%	With injections in deficit years, it is recommended to have an investment from the community or the project sponsor as a commitment to the project
	Grant: 35%	Remaining funding potentially covered by grants
Tax & Accounting	Corporate tax: Irish rate (12.5%)	Losses carried forward
	Depreciation	Straight line depreciation
	VAT on CAPEX	Since the 25% VAT on CAPEX is recoverable within the year (typically in less than six months), it has been excluded from the financial model when assessing financial viability. As a best practice, a separate short-term VAT facility with the bank should be established to cover the VAT outlay until it is refunded. This assumption must be further verified through discussions with local institutions.

In addition to the previous inputs, the following assumptions have been added:

- **Required Equity Return = Equity IRR**, the objective of the project is mainly to provide affordable and clean energy to the inhabitants of the island, hence the return is set to the return equal to breakeven. This could vary depending on whether a developer or equity investor outside of the community is willing to invest in an adequate return.
- **Minimum DSCR allowed for equity distributions = 1.6**; the first years of operation are the most sensitive financially, hence an obligation to maintain a 1.6 DSCR is set before shareholders are allowed to distribute free cash flow. This also allows to keep a cash buffer for replacement CAPEX in year 10. It is advisable to keep an amount of cash equal to the expected replacement CAPEX before distributing it to shareholders.
- **% of distributions allowed = 100%**, in addition to the minimum DSCR rule, we assume equity shareholders can distribute the entirety of the cash flows. However, it is recommended to leave an additional buffer for unexpected maintenance or future reinvestment (5-10% each year).
- **Capitalised interest rate,** the project cannot sustain the interest payments during the grace period, hence interest rates are capitalised.

- **Arrangement fees,** these must be paid by the developer or the community but represent a very small expense (720 EUR in the model), hence they are modelled as an additional equity injection.

1.2. Best- and Worst-Case Scenario

For the best- and worst-case scenarios, differences are based on three parameters: Net annual energy production, CAPEX contingency, and the interest rate on the debt. Here, the different assumptions taken for each scenario can be seen.

Table 2. Inputs Differences Between Scenarios

Assumption	Base-Case Scenario (P90)	Worst-Case Scenario (P95)	Best-Case Scenario (P75)	Notes
Net Annual Energy Production (MWh)	618	563	709	P90, P95 and P75 estimates from the wind measurement study
CAPEX Contingency (%)	10%	15%	5%	CAPEX costs will be more precise at later stages of the development phase, but we keep a conservative approach by adding a contingency
Annual debt interest rate (%)	5%	6%	4%	At the moment of receipt of the banks' term sheet, financing costs will be defined
Annual electricity tariff	90	90	90	SRESS scheme fixed tariff
Administrative costs (% of revenue)	7.5%	10%	5%	Administrative costs that could include accounting, consultancy and/or lawyers costs

2. Output

This section highlights the results of each of the three scenarios and draws conclusions and recommendations regarding the financial feasibility of the project. The first section presents the base-case scenario as the most probable scenario, while the second section presents the results from the most negative and most promising scenario.

2.1. Base-Case Scenario

Here below are the results captured from the "Dashboard" tab of the financial model, summarising the key figures and assumptions of the model, including project capacity (MW), CAPEX, financing sources and financial outputs, which include financial return metrics, debt repayment capability (DSCR) and costing (community investment and LCOE).

Figure 1. Base Case Scenario Outputs

Scenario	**P90**		
Project Capacity MW	0.25		
CAPEX	€ 720,000		
CAPEX Financing		Share (%)	Amounts
Equity		45%	€ 324,000
Grant		35%	€ 252,000
Debt		20%	€ 144,000
Outputs			
Project IRR			5%
Net Present Value (NPV)			€ (73,553)
Lifetime minimum DSCR			1.05
Average DSCR			1.19
Equity IRR			5%
Equity NPV			€ (183,555)
Levelized cost of electricity (LCOE)	*€/MWh*		€ 152.01
Electricity tariff €/MWh	*€/MWh*		90
Number of people	*Number*		150
Initial Investment by community member	*€*		€ 2,160
Return by community member (20 year period)	*€*		€ 2,102

According to the financial model, the project achieves the following key performance indicators:

- Project IRR (Unlevered): 5%, which is lower than the cost of capital of 8%
- Equity IRR (Levered): 5%, the project does not deliver at these conditions, and the financial savings expected
- Net Present Value (NPV): at 8% WACC, is negative, reflecting the insufficient returns of the project
- Levelized Cost of Energy (LCOE): €152/MWh with grant support, which is higher than the current fixed tariff
- Debt Service Coverage Ratio (DSCR): the cash flows are sufficient to cover debt obligations.

These results indicate that the Cape Clear project is feasible from a debt servicing perspective but not sufficient to generate enough financial returns. Therefore, the following suggestions can be made:

1. **Secure Favourable Financing Terms**
    a. Lock in a **fixed or hedged interest rate** to avoid exposure to increases in interest rates above 5%
    b. Negotiate with lenders for a longer tenor (if possible) to smooth debt repayment in the first years.
    c. Due to limited upward gains because of the fixed electricity tariff, the project does not tolerate over 20% of debt funding.

2. **Mitigate Revenue Risk**
   a. Explore the possibility of negotiating a higher electricity tariff, as the current fixed tariff is not sufficient under the P90 scenario to achieve significant energy and financial savings for the community
   b. Use conservative wind yield assumptions (P75 and P90 scenarios) when stress-testing the financial model, as market prices may be low during high-wind periods.
3. **Control CAPEX Costs**
   a. Limit contingency allowances to ≤10% and ensure strong EPC (Engineering, Procurement, Construction) contracts with cost overrun protections.
4. **Build a Liquidity Buffer**
   a. Establish a Debt Service Reserve Account (DSRA) or limit equity distributions to protect against short-term revenue dips. This reassures lenders and reduces the risk of covenant breaches in the first years.

2.2. Best-Case and Worst-case Scenario

Here below are the results captured from the "Dashboard" tab of the financial model, summarising the key figures and assumptions of the model for the best-case and worst-case scenarios.

Figure 2. Best-Case Scenario Outputs

Scenario	P75	
Project Capacity MW	0.25	
CAPEX	€ 692,500	
CAPEX Financing	Share (%)	Amounts
Equity	45%	€ 311,625
Grant	35%	€ 242,375
Debt	20%	€ 138,500
Outputs		
Project IRR		8%
Net Present Value (NPV)		€ 20,405
Lifetime minimum DSCR		1.34
Average DSCR		1.48
Equity IRR		8%
Equity NPV		€ (140,267)
Levelized cost of electricity (LCOE)	€/MWh	€ 128.21
Electricity tariff €/MWh	€/MWh	90
Number of people	Number	150
Initial Investment by community member	€	€ 2,078
Return by community member (20 year period)	€	€ 3,267

Figure 3. Worst-Case Scenario Outputs

Scenario	**P95**		
Project Capacity MW	0.25		
CAPEX	€ 747,500		
CAPEX Financing		Share (%)	Amounts
Equity		45%	€ 336,375
Grant		35%	€ 261,625
Debt		20%	€ 149,500
Outputs			
Project IRR			**4%**
Net Present Value (NPV)			**€ (140,380)**
Lifetime minimum DSCR			**0.86**
Average DSCR			**0.99**
Equity IRR			**3%**
Equity NPV			**€ (217,739)**
Levelized cost of electricity (LCOE)	*€/MWh*		**€ 173.55**
Electricity tariff €/MWh	*€/MWh*		90
Number of people	*Number*		150
Initial Investment by community member	€		€ 2,243
Return by community member (20 year period)	€		**€ 1,263**

While the base case scenario is at the limits of financial feasibility, the best-case scenario presents better conditions and better results. However, for the community to make sufficient returns from their investment in a 20 year period, the tariff should be at least 164 €/MWh (to reach NPV Equity of 0).

Regarding the worst-case scenario, cash flow is insufficient in the first three years of operations, underlying both the impact of decreased revenue, higher fixed costs, higher interest rate and higher CAPEX costs. Nonetheless, 15% additional CAPEX costs combined with a decrease of annual revenue (driven by lower energy production and higher administrative costs) is quite conservative, suggesting that with additional mitigation measures and strict CAPEX control, the project can withstand more difficult circumstances and still manage to repay the debt. However, the project illustrates that if the project is not carefully managed, it will result in an additional financial burden for the community, investing more than what they would get back as a return.

3. Sensitivity Analysis

The sensitivity analysis focuses on identifying the financial limitations of the wind project. The focus here is on debt repayment and financial return; hence, the impact on DSCR levels and NPV Equity was investigated, based on interest rate, debt share in financing, revenue changes, changes in tariff and CAPEX contingency (total equipment costs) while keeping all other assumptions constant.

Figure 4. Minimum DSCR Sensitivity based on CAPEX and interest rate

Min DSCR		Interest rate %				
		4.0%	4.5%	5.0%	5.5%	6.0%
Contingency CAPEX %	5%	1.29	1.26	1.24	1.21	1.18
	6%	1.28	1.25	1.23	1.20	1.17
	7%	1.27	1.24	1.22	1.19	1.17
	8%	1.26	1.24	1.21	1.18	1.16
	9%	1.25	1.23	1.20	1.17	1.15
	10%	1.25	1.22	1.19	1.17	1.14
	11%	1.24	1.21	1.18	1.16	1.13
	12%	1.23	1.20	1.17	1.15	1.13
	13%	1.22	1.19	1.17	1.14	1.12
	14%	1.21	1.18	1.16	1.13	1.11
	15%	1.20	1.18	1.15	1.13	1.10

Figure 5. Minimum DSCR Sensitivity based on CAPEX and Administration costs (fixed costs)

Min DSCR		Yearly Adminstration Costs (% of revenue)					
		5%	6%	7%	8%	9%	10%
Contingency CAPEX %	5%	1.12	1.11	1.10	1.08	1.07	1.05
	6%	1.12	1.10	1.09	1.07	1.06	1.05
	7%	1.11	1.09	1.08	1.07	1.05	1.04
	8%	1.10	1.09	1.07	1.06	1.05	1.03
	9%	1.09	1.08	1.07	1.05	1.04	1.02
	10%	1.08	1.07	1.06	1.04	1.03	1.02
	11%	1.08	1.06	1.05	1.04	1.02	1.01
	12%	1.07	1.06	1.04	1.03	1.02	1.00
	13%	1.06	1.05	1.04	1.02	1.01	1.00
	14%	1.05	1.04	1.03	1.02	1.00	0.99
	15%	1.05	1.03	1.02	1.01	1.00	0.98

Figure 6. NPV Equity sensitivity based on CAPEX and Tariff

NPV Equity		Tariff								
		€90	€100	€110	€120	€130	€140	€150	€160	€170
Contingency CAPEX %	5%	-€170,992	-€155,730	-€136,420	-€104,326	-€75,300	-€41,549	-€17,978	€5,594	€29,166
	6%	-€173,505	-€157,824	-€138,606	-€115,349	-€78,113	-€44,500	-€20,929	€2,643	€26,215
	7%	-€176,017	-€159,918	-€140,792	-€117,645	-€80,925	-€47,451	-€23,880	-€308	€23,264
	8%	-€178,530	-€162,379	-€142,977	-€119,941	-€92,756	-€50,402	-€26,831	-€3,259	€20,313
	9%	-€181,043	-€164,891	-€145,163	-€122,237	-€95,461	-€53,353	-€29,782	-€6,210	€17,362
	10%	-€183,555	-€167,404	-€147,348	-€124,533	-€98,166	-€67,914	-€32,733	-€9,161	€14,411
	11%	-€186,068	-€169,916	-€157,501	-€126,964	-€100,870	-€70,726	-€35,684	-€12,112	€11,460
	12%	-€188,580	-€172,429	-€159,595	-€129,586	-€103,575	-€73,539	-€38,634	-€15,063	€8,509
	13%	-€191,093	-€174,941	-€161,689	-€132,207	-€106,279	-€76,352	-€41,585	-€18,014	€5,558
	14%	-€193,605	-€177,454	-€163,783	-€143,476	-€108,984	-€79,165	-€44,536	-€20,965	€2,607
	15%	-€196,118	-€179,967	-€165,877	-€145,661	-€111,689	-€81,977	-€47,487	-€23,916	-€344

Figure 7. Minimum DSCR sensitivity based on CAPEX and Debt Share Ratio

Min DSCR		Debt Share %						
		20%	25%	30%	35%	40%	45%	50%
Contingency CAPEX %	5%	1.24	0.99	0.83	0.72	0.63	0.56	0.51
	6%	1.23	0.99	0.83	0.71	0.63	0.56	0.51
	7%	1.22	0.98	0.82	0.71	0.62	0.55	0.50
	8%	1.21	0.97	0.81	0.70	0.62	0.55	0.50
	9%	1.20	0.96	0.81	0.70	0.61	0.55	0.49
	10%	1.19	0.96	0.80	0.69	0.61	0.54	0.49
	11%	1.18	0.95	0.80	0.69	0.60	0.54	0.49
	12%	1.17	0.94	0.79	0.68	0.60	0.54	0.48
	13%	1.17	0.94	0.79	0.68	0.60	0.53	0.48
	14%	1.16	0.93	0.78	0.67	0.59	0.53	0.48
	15%	1.15	0.93	0.78	0.67	0.59	0.53	0.48

The sensitivity analysis indicates that the Cape Clear Wind Project performs within acceptable bankability thresholds under most reasonable assumptions. The project's minimum DSCR remains above 1.10x in the base case, with moderate sensitivity to financing conditions, leverage, and operating costs.

When varying interest rates and CAPEX contingencies, DSCR remains stable between 1.10x and 1.29x across the tested range (4–6% interest rate and 5–15% contingency). This means that the project can absorb moderate changes in borrowing costs or investment overruns without threatening debt service capacity. Financial performance, therefore, appears relatively resilient to cost and interest rate fluctuations.

In contrast, debt share has a far stronger influence on bankability. With 20–25% debt, the project maintains healthy coverage ratios around 1.2x–1.0x, but as leverage increases, DSCR quickly deteriorates — dropping below 1.0x at 30% debt and reaching as low as 0.5x at 50% debt. This clearly shows that the project cannot sustain high leverage and must rely on a predominantly equity-based or grant-supported structure to remain viable.

The sensitivity to operating and administrative costs is milder but still notable. Increasing yearly administration costs from 5% to 10% of revenues reduces DSCR from about 1.12x to 0.98x, suggesting that controlling OPEX will be important to preserve lender comfort and investor returns.

The NPV equity analysis confirms that the most decisive variable is the electricity tariff. At prices of €90–€150/MWh, the project produces negative equity returns, turning positive only from around €160/MWh upward. At €160–€170/MWh, equity value becomes meaningfully positive, highlighting that the project would benefit tremendously from a higher fixed electricity tariff or a substantial grant increase.

To ensure continued bankability, developers should:

- Target a low debt share (≤25%), complemented by grants or community investment.
- Keep CAPEX and OPEX tightly controlled through fixed-price EPC contracts and efficient operations.
- Negotiate a much higher fixed tariff for the REC or increase the grant portion of the investment.

3.1. 500 kWp Scenario

A model was developed for a 500 kWp project to evaluate potential improvements in funding flexibility and financial returns. Under the base-case scenario (P90), the higher capacity offers a slightly better return profile than the 250 kWp plant. A fixed tariff of €110/MWh, with a 25% debt share, would be sufficient to generate community savings.

However, without a tariff increase, the project's profitability remains weak, with an Equity IRR of 7% providing a low margin over the 4% cost of capital. The primary drawback is the high investment per participant, estimated at €6,000, or €9,000 if capped at 100 participants. This is three times the investment required for the 250 kWp project. The total CAPEX for the project would be € 2 million.

4. Financing sources

The financing of the Cape Clear Wind Project requires a balanced mix of equity, debt, and potential public support to ensure both bankability and local acceptance. Small- and medium-scale wind projects in Ireland often face tighter financing conditions than utility-scale projects, as their revenues depend on variable wholesale market prices and their debt capacity is limited by conservative lender requirements. For this reason, it is essential to consider multiple financing avenues combining commercial lending, grant funding, and potentially community participation to establish a financially robust structure. The following subsections outline the main financing sources available to the project.

4.1. Debt Instruments

4.1.1. Commercial Bank Loans

Local and national Irish banks with experience in renewable energy financing are the most likely debt providers for a project of this scale. Institutions such as Allied Irish Banks (AIB), Bank of Ireland, and Permanent TSB have established green lending frameworks and have financed similar community and small-scale renewable projects. Specialised lenders such as Triodos Bank (operating across Europe) could also be approached for loans with social and environmental impact mandates.
Given the size of the project, a loan tenor of 5–7 years appears most realistic, with interest rates typically linked to EURIBOR plus a margin depending on the borrower’s risk profile and the level of equity contribution. It is recommended to seek longer tenors and a fixed interest rate.

4.1.2. Loan Guarantees

Before exploring loan guarantees, other project financial risk mitigation tools should be explored. These include cash buffers (Debt Service Reserve Account, Sweep Accounts) or lending schemes with back-ended structures with partial bullet repayments, since the project seems to sustain well after the first years of operation. These mechanisms can help stabilise cash flows during the early years of operation. European Fund for Sustainable Development Plus (EFSD+) could be a potential guarantee instrument to pursue in the case it is needed.

4.2. Grant funding

As of today, grants represent a crucial component of the project's financing structure, given its limited capacity to generate strong returns under a fixed electricity tariff. This constraint reduces the potential share of debt financing to a maximum of 20% in the base case scenario. Grant funding can significantly lower upfront capital requirements and enhance the project's overall financial viability.

Although the exact funding sources remain to be confirmed, several national and EU-level programmes could be explored to support the project.

- The County of Cork could support Renewable Energy Community projects, discussions should take place with the administration.
- A Community Benefit Fund could be pursued together with SEAI for utility-scale projects under development near Cape Clear.
- INTERREG may potentially support cross-border or island community energy projects.

These grants would typically be applied to reduce CAPEX, thereby lowering the need for debt and improving project bankability. Without grants, the community could be facing very high upfront costs.

4.3. Equity

The community should pursue a Company Limited by Shares (LTD) structure rather than a co-operative or Company Limited by Guarantee (CLG). In the Irish context, a co-operative structure, while well-aligned with community ownership principles, is often administratively burdensome and less flexible for investment and governance. Co-operatives require detailed compliance with specific legislation, democratic decision-making on all major actions, and complex distribution rules that can slow down decision-making and deter institutional or private investors.

By contrast, a Company Limited by Shares is the standard vehicle for commercial renewable energy projects in Ireland. It allows for clear shareholding arrangements, limited liability for investors, and ease of bringing in new partners or equity injections. It also enables the payment of dividends based on shareholding proportion, which is straightforward for both community and private investors. A Company Limited by Guarantee, on the other hand, is a non-profit entity and therefore unsuitable for commercial energy generation. It cannot distribute profits to members, making it incompatible with an investment-based ownership model.

For these reasons, a Company Limited by Shares offers the best balance between community participation and commercial viability. It is the preferred structure for project financing, acceptable to lenders and public funding bodies, and provides a simple governance framework while still allowing local ownership through a defined shareholding portion.

According to the base case scenario, the investment expected for each community participants should be between €2,000 and €3,000.

CONCLUSION

The financial analysis of the Cape Clear Wind Project demonstrates that, while the initiative is technically feasible and capable of servicing its debt under conservative assumptions, it faces significant financial challenges under the current tariff and cost structure. In the base-case (P90) scenario, the project achieves debt coverage but yields a negative NPV and a Project IRR of 6%, indicating limited financial returns for the community. The best-case (P75) scenario confirms the project's bankability under favourable conditions, whereas the worst-case (P95) highlights its exposure to higher CAPEX, reduced energy yields, and increased financing costs.

Overall, the project's economic viability is highly sensitive to CAPEX management, interest rates, and the fixed electricity tariff of €90/MWh. Even moderate deviations in these parameters can substantially alter outcomes. Sensitivity analysis shows that financial performance remains resilient to modest changes in borrowing costs or contingency levels but quickly deteriorates under higher leverage or administrative expenses. Improving project feasibility will therefore depend on tighter cost control, conservative debt levels (≤25%), and enhanced revenue support through a higher tariff or additional grant funding.

The assessment of an alternative 500 kWp configuration indicates that scaling up generation capacity could improve efficiency and reduce the levelized cost of electricity through economies of scale. Under the same base-case assumptions, a larger system could achieve a slightly higher return profile, with positive equity value emerging at tariffs around €110/MWh. However, the increased total CAPEX (estimated at €2 million) would require a much larger community investment (up to €9,000 per participant or more), potentially challenging participation and financing capacity on the island. This suggests that while upscaling can strengthen financial metrics, it must be balanced against community affordability and investment appetite.

To ensure long-term sustainability, the project should prioritise strict CAPEX control, secure favourable financing terms, and establish a liquidity buffer (such as a Debt Service Reserve Account) to safeguard against early operational volatility. From a governance perspective, adopting a Company Limited by Shares (LTD) model remains the most suitable structure, offering both flexibility for investors and continued community ownership.

In conclusion, while the Cape Clear Wind Project aligns strongly with Ireland's community energy and sustainability objectives, its financial success hinges on achieving an improved revenue framework, additional public support, or a carefully scaled-up configuration.

APPENDIX

Figure 8. Dashboard of the financial model

Scenario	P90		
Project Capacity MW			0.25
CAPEX		€	720,000
CAPEX Financing	Share (%)		Amounts
Equity	45%	€	324,000
Grant	35%	€	252,000
Debt	20%	€	144,000
Outputs			
Project IRR			5%
Net Present Value (NPV)		€	(73,553)
Lifetime minimum DSCR			1.05
Average DSCR			1.19
Equity IRR			5%
Equity NPV		€	(183,555)
Levelized cost of electricity (LCOE)	€/MWh	€	152.01
Electricity tariff €/MWh	€/MWh		90
Number of people	Number		150
Initial Investment by community member	€	€	2,160
Return by community member (20 year period)	€	€	2,102