Stewart Island Wind Power

Projects overview

Name of the project	Stewart Island Wind Power
Region	Southland
Tier and type	Tier 3: Infrastructure (Energy)
Applicant	Southland District Council (SDC)
Estimated total project cost	$Commercial Information
Amount of funding sought from the PGF	$Commercial Information
Financial instrument requested	Grant
PDU recommendation	**Approve**

1. SDC has applied for a $Commercial Information grant from the PGF towards the Stewart Island Wind Power project. PGF funding is required for the SDC to:

   a. Commission independent consultants to undertake pre-development activity including an economic analysis, the procurement of resource consents, further geotechnical work, and securing land access agreements.

   b. Construct and install two wind turbines initially on Stewart Island upon completion of the development activity.

2. The generation of electricity on Stewart Island is currently delivered via five diesel generators. There is no power supply link with the mainland. With the cost of diesel increasing, it is not sustainable for Stewart Island to keep operating diesel generators which consume approximately 360,000 litres of diesel per annum.

3. SDC is proposing to introduce two wind turbines through this application. There is an anticipated decrease in diesel consumption of 150,000 litres per annum, providing both economic and environmental benefits (402,000 kilograms of emission reduction). The project should result in a reduction of carbon emissions by 1 metric tonne per resident (the average New Zealander generates 7.7 metric tonnes of carbon footprint per year).

4. There is also currently a moderate risk of oil spill from the diesel generators. This would considerably impact the main industries of tourism and oyster harvesting. As a result, economic resilience of Stewart Island will be considerably improved through this investment.

5. Maintaining electricity at an affordable price is essential to ensuring current productivity levels in Stewart Island, and to enable increased productivity. The current approach to providing electricity is not sustainable, as outlined below.

Who uses the power?

6. Rakiura/Stewart Island has about 460 electricity connections to its network and 380 permanent residents living in 150 households. With the permanent population of 380 people and, as of June 2018, annual visitor numbers of approximately 45,000, there is a visitor to resident ratio close to 117:1.

How much do locals pay for power?

7. The current kWh (unit) cost is $[redacted] c/kWh which is about [redacted] more than power on the mainland. Of the $[redacted] c/kWh, the cost of the diesel only portion of the electricity cost is $[redacted] c/kWh. The remaining $[redacted] c/kWh covers the operations and maintenance costs of running the diesel gensets and distribution network.

8. The high unit cost for power on the island is currently being kept at a more affordable rate of $[redacted] c/kWh through a subsidy. The Stewart Island Electricity Supply Authority (SEISA) is using its current cash reserves to keep the unit cost at $[redacted] c/kWh. SIESA is owned and operated by the Southland District Council on behalf of Stewart Island/Rakiura electricity consumers and is governed by the Stewart Island Community Board. SEISA is using its current cash reserves to keep the unit cost at $[redacted] c/kWh, however, even at this level it is still roughly three times the cost of electricity on the mainland.

9. Though the unit cost is currently reduced through the SIESA subsidy, this is not able to be maintained indefinitely. These reserves are forecast to be depleted in the next 3-5 years as a result of both the subsidy and required renewals of aging infrastructure associated with SIESA.

10. Data provided to MBIE from SDC (sourced from the 2013 census) showed that 64 per cent of permanent resident's household income was less than $70,000. Therefore further unit cost increases would be detrimental to the community.

11. With the cost of power becoming unaffordable for a number of households on the island, there is also the risk that households may go off the grid to generate their own power which in turn will further increase the unit rate to the remaining customers who cannot afford the capital investment required to do so.

What has been done to investigate reducing electricity costs?

12. In 2016, SDC commissioned a report to assess the different power supply options for the island, including local wind, local hydro, and cables to connect to the mainland power supply. Each of the options explored had varying degrees of benefits and costs, including capital costs to implement, and logistical constraints on physically establishing the infrastructure, for example a hydro site in the national park.

13. MBIE commissioned Roaring40's to further investigate wind power options on the island and to provide a report outlining the impacts of wind power on electricity costs. An initial Roaring40's report has identified wind as the least worst alternative source of energy economically.

Policy considerations

14. The PGF position paper on "Energy and the Provincial Growth Fund" states that we would not typically fund wind power projects as there are there are existing commercial avenues to

fund this. However, this is not a commercially viable opportunity. The two key industries on Stewart Island are aquaculture and tourism. We note that in the aquaculture space oyster farming is no longer viable, and the island is relying on oyster harvesting. This change has impacted the economic development on the island. Diesel generation is a further inhibitor of economic development. The current proposal is the most viable in the view of the PDU. This is a unique situation as it has to deal with the constraints of geographic isolation and the inability of any project to generate real economies of scale.

15. The PDU also notes the importance of maintaining an affordable electricity price to ensure current, as well as an increase in productivity. We further note the environmental benefits and sustainability benefits from the proposal.

PDU recommendation

16. The PDU recommends that you approve SDC's application for a $3.36 million grant from the PGF, in the form of four tranches with payment on completion and agreement to progress at the following milestones:

    a. Land agreements obtained ($Commercial Informa)

    b. DOC concession and required consents obtained ($Commercial Informatio)

    c. Final investment decision ($Commercial Informatio)

    d. Construction phase ($Commercial Information).

17. The PGF position paper on "Energy and the Provincial Growth Fund" states that we would not typically fund wind power projects as there are existing commercial avenues of funding. However, this is not a commercially viable opportunity. The two key industries on Stewart Island are aquaculture and tourism, both of which are negatively impacted upon by the reliance on diesel generation.

18. The current proposal is the most viable option in the view of the PDU. This is a unique situation as it has to deal with the constraints of geographic isolation and the inability of any project to generate real economies of scale.

Costs and funding sources

19. The PDU's analysis of the applicant's financials shows that while the applicant may be able to support an element of the wind power project with some form of debt funding, the overall electrification of Stewart Island, by SEISA requires a subsidy from Council. As a result, any debt funding would provide an additional cost to the council.

20. Further clarification of the cost of the project would occur in the design phase (Stage 1, 2 & 3) and potential additional cost savings would be investigated. As such, the PDU recommends approval of grant funding for the design phase in the first instance, as a milestone to explore further funding options for the construction phase. The later tranches would be paid on completion and agreement related to the previous and upcoming milestones.

21. Commercial Information

22. Further financial analysis of the project will be undertaken post the planning stage.

PDU assessment of the project

23. This section provides an overview of PDU's assessment against the PGF eligibility and assessment criteria.

Assessment against PGF criteria

Criteria	Rating (1✓ to 5✓)	Comment
Link with fund and government outcomes		
Creates permanent jobs	✓✓✓	The project will not directly create jobs, but is critical to maintaining the economy on Stewart Island including retaining the strong aquaculture and tourism sectors.
Delivers benefit to the community	✓✓✓	As noted above, the project is a key priority for the community to remain economically viable.
Increased utilisation and returns of Māori asset base	N/A	
Enhanced sustainability of natural assets	✓✓✓	The proposal is sustainable in that it will utilise wind.
Mitigation of climate change	✓✓✓✓✓	Will shift from 100% carbon emitting derived electricity to predominantly zero carbon emission electricity.
Additionality		
Adding value by building on what is already there	✓✓✓	The construction of the wind turbines will add an alternative source of energy that provides positive environmental benefits.
Acts as a catalyst for productivity potential in the region	✓✓✓	The project has potential (subject to further clarification from the design phase) to attract new businesses to Stewart Island as given the current electricity price trajectory this is expected to become a significant impediment.

Criteria	Rating (1✓ to 5✓)	Comment
Connected to regional stakeholders and framework		
Alignment with regional priorities	✓✓✓✓	In March 2018, a Rakiura/Stewart Island community development plan was established by SDC in consultation with the Stewart Island community. The report outlined that sustainable, affordable electricity was a top priority for the community.
Support from local governance groups	✓✓✓✓	The applicant is the local council. We understand there is community support for the initiative. Commercial Information
Governance, risk management and project execution		
Robust project management and governance systems	✓✓✓	SDC will oversee the project and utilise existing project management, governance and risk management systems.
Risk management approach	✓✓✓	This will be further expanded at the design phase. The PDU will set milestones to minimise risk.
Future ownership / operational management		Future ownership and operational management will be considered as part of the next stage of the project.

Agency comments

MBIE Energy Resource Markets

24. MBIE Energy Resource Markets (ERM) is strongly supportive of this application. From an energy policy perspective, it strongly aligns with two primary policy objectives; achieving 100% renewable electricity by 2035, and net zero carbon emissions by 2050.

25. Free and frank opinions The purpose of putting Roarin40s on the ground on the Island was to do a practical field assessment, talk to the community and convey to the community what was possible both in a financial sense but also from a political and technical perspective.

26. This was necessary because some of the most favoured schemes, which have one or two ardent advocates were never practical and will never happen, namely:

- Commercial Information
- Commercial Information

27. Representatives from MBIE ERM were present at the community board meeting which supported the investigation when it was being carried out, and reports that there was strong support from the community board for an investigation of viable options.

28. Free and frank opinions

Te Puni Kōkiri

29. TPK supports the application in principle. The move from diesel-generated to wind-generated energy would benefit the island economically, culturally and environmentally. However, while TPK understands the broader benefits to Rakiura/Stewart Island, Commercial Information

Risk assessment

30. The applicant is a local authority. The PDU has therefore used due diligence information prepared by the Department of Internal Affairs.

31. The following risks have been identified:

Type of risk	Risk description	Mitigations	Risk Rating L/M/H
Cost Risk	If the cost estimate is inaccurate, then the applicant	Ensure the quote from Commercial Information is accurate before release of	Low (post mitigation)

	may seek further funding, or be unable to complete the project in the agreed manner.	funding. Commercial Information However, there will be investigation into an infrastructure partner during the development of the project to reduce PGF investment.	
Land access	Access rights are for required land are not able to be secured, or are only able to be secured for land that has other attendant risks and costs that compromise project viability	Securing land access is the first milestone. PGF exposure is therefore limited. Commercial Information	Low
Department of conservation land	Some of the identified land sites include DOC land. Sufficient access rights for the DOC land may be difficult or impossible to obtain in a timely manner.	Securing DOC land access rights is the second milestone. The DOC land is stewardship land not conservation land. Not all identified sites include DOC land. DOC will be involved during the development process as appropriate.	Low