

## Island's elemental efficiency

*Mike Eng, IRL*

Wellington Harbour's Matiu/Somes Island will soon be a step closer to becoming a showcase for sustainable energy, with IRL playing a key role in the project.

Tenders were recently announced for the supply and installation of a renewable energy system on the island.

The project, which will see diesel generation replaced with a system harnessing energy from wind, water and the sun, is a partnership between the Department of Conservation (DOC), the Port Nicholson Block Settlement Trust, the Energy Efficiency and Conservation Authority (EECA) and IRL. It is being led by the kaitiaki (governance board) for Matiu/Somes.

"This project will significantly reduce our diesel requirements and corresponding costs, freeing up resources for delivering more conservation work on the ground," says DOC's Poneke area manager Rob Stone.

Mr Stone says a renewable power supply, which could include solar panels and a small wind turbine, would complement the measures already underway to reduce energy requirements on the island.

The project will include groundbreaking technology designed by IRL in the form of the 'HyLink' distributed hydrogen energy system. The system works by capturing renewable energy from a wind turbine or photovoltaic solar cells. This energy then powers an electrolyser that extracts hydrogen from water by separating it into hydrogen and oxygen molecules.

The low-pressure hydrogen fuel gas is delivered by pipeline to a fuel cell to produce electricity. As well as transporting the energy, the system also stores hydrogen in the pipeline so that a supply of energy can be maintained even when the wind is not blowing.

IRL's distributed and hydrogen energy team manager Alister Gardiner said technological advances are making renewable energy more attractive.

"Being energy efficient and investing in renewable energy is better for the environment we live in and good value for money as the system pays for itself over time."

Mr Gardiner said the energy efficient and renewable energy systems to be showcased on Matiu/Somes Island are a good example of an energy solution for sites that are not connected to the electricity grid.

Such a system can also be advantageous for businesses that are connected to the grid as excess energy generated can be fed into the grid with power utilities remunerating the business accordingly.

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