

## 2. Creating flexibility with battery storage



### Situation

The Integrated Single Electricity Market (I-SEM), which went live in October 2018, re-defined the electricity market in Ireland and Northern Ireland and has changed the way that energy is traded on the island of Ireland. NI Water has a distributed range of assets and sizeable network connections, which will facilitate management of demand and supply as the smart grid of the future develops. Energy storage provides NI Water with an opportunity to create flexibility and increase renewable energy availability, while establishing more resilient energy infrastructure.



### Action

Potential storage opportunities have been identified across NI Water sites, including at Dunore Point, where there are large solar generation assets with grid export capacity. Renewable energy in excess of the site's demand could be stored for future use, rather than exported to the grid. Different revenue streams available for battery storage in NI could also be accessed now and in the future, considering Transmission System Operator (TSO) and Distribution Network Operator (DNO) changes.

The battery system would provide benefit through optimising the energy generated by the PV. This includes the storing of energy generated by the PV and the grid to be used on site at high energy price hours. With a 5.2MWh system option, the energy would also be sold to the grid where this is the most optimal system size.

NIW is planning to implement a battery storage system at Dunore Point, with a revenue stack optimised through a licensed aggregator. At this moment, NIW are considering the options available to them with shortlisting also underway.

### Results

The PC21 investment of £5.5million, is currently profiled to deliver an annual recurring benefit greater than £560k, through additional revenue generation, whilst bringing greater resilience to the electricity supply of critical infrastructure. NI Water currently exports 730MWh/year of electricity from Dunore solar farm, which if stored, could reduce the company's carbon emissions by 224tCO<sub>2</sub>e/yr.