

The Changing Energy Context

As Northern Ireland decarbonises, most of our future energy requirement will be for green electricity.

In the next ten years we will need to double our renewable generating capacity. Most of that could come from wind generation to take advantage of Northern Ireland's position as one of the windiest locations in Europe.

That, however, means we must find new ways both to store the surplus energy wind farms produce when demand, as at night-time, is low, and to cope with the lack of available energy when the wind doesn't blow.

Already 15% of generating capacity must be turned off, and is therefore wasted, and that figure is only going to grow as we move from 50% of our electricity coming from renewable sources to 70%.

It is that need for flexibility both to maintain security of supply and make full use of our generating capacity that is the defining challenge as we enter the renewable energy era.

In the fossil fuel age that flexibility came on the 'supply side'. To make sure supply always matched demand fossil fuel power stations increased or decreased their output according to need. As we move towards Net Zero, that safety net will disappear, so we need to find new ways to create the resilience the system needs.

And, fortunately, new ways of creating that flexibility are emerging to help us both deliver against our carbon commitments whilst ensuring we maintain a reliable and secure supply at an affordable cost.

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of our electricity coming from renewable sources.



Northern Ireland needs to double its renewable generation by

2030



Demand side response and energy storage are two key components of this new flexible energy:

Demand side response -

Consumers will be rewarded by paying less for changing how and when they use electricity, using more at off peak times and less at peak times.

Energy Storage -

New methods need to be deployed to store energy when it is plentiful for use at times when it is needed.

In combination these two components will help spread the load on the network creating short-term flexibility during periods of peak demand, or for even longer stretches when there is an imbalance in demand and supply caused by variations in the weather or unplanned outages.

The more we develop our capability both to manage demand and support supply through storage, the more we will be able to integrate sustainable energy sources into our supply

system. NI Water can use its experience and assets to help do both and to do so affordably.

For years large energy users in Northern Ireland such as NI Water have bought electricity linked to the price of gas which is the main fossil fuel used to generate power. As we move towards a decarbonised society, we have identified the ability to buy electricity linked directly to the price of indigenous renewables in Northern Ireland. This brings price visibility and cost certainty as well as enabling the local electricity system to decarbonise in a cost-efficient way for all.

The key is to use each of these different elements in a coherent, strategic way.

