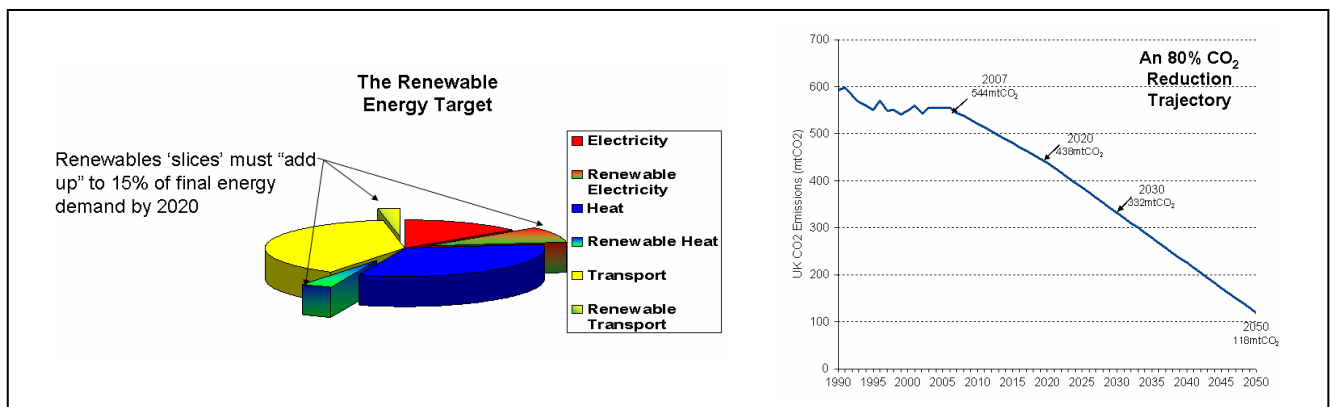


‘Gone Green’ a Scenario for 2020

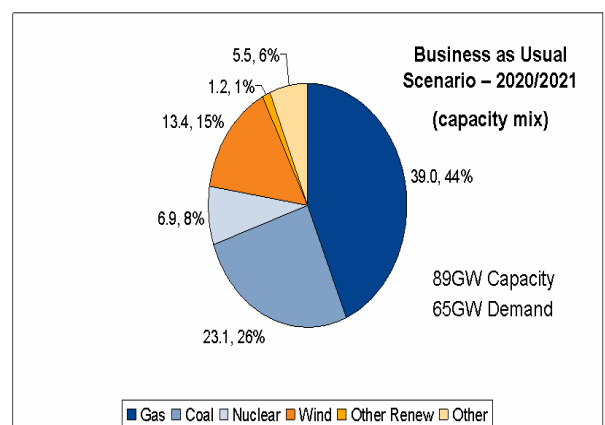
National Grid owns and operates the high voltage electricity transmission system in England and Wales and we operate the Scottish high voltage transmission system. We also own and operate the gas transmission system throughout Great Britain and we distribute gas in the heart of England, to approximately 11 million offices, factories, schools and homes. Our position at the heart of the UK’s energy infrastructure gives us insight into the challenge that climate change brings to the energy industry.

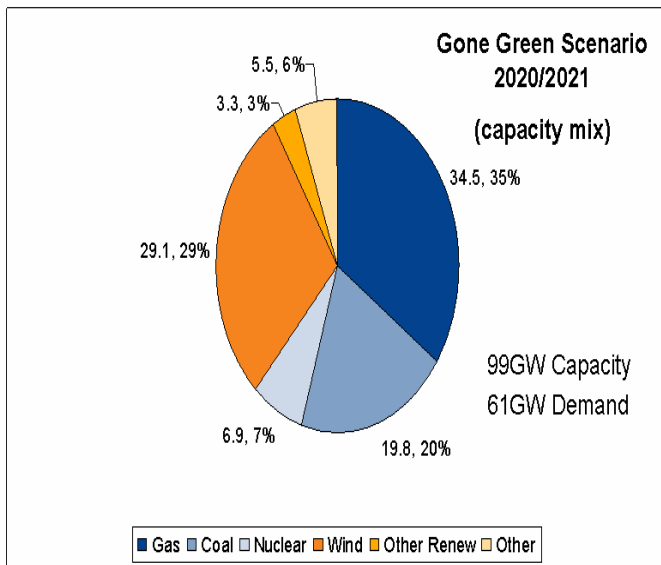
We work closely with, and support, the Government in meeting its climate change objectives. Consequently, we are developing a number of scenarios that describe both an energy future which *will* meet the challenges of climate change, and a ‘business as usual’ scenario which would not. A scenario is a plausible and self-consistent picture of a chosen future, which can be used to inform forward planning. Specifically, our scenarios contain judgements and views that would be inappropriate to include in the Seven Year Statement, which is based on the contracted view of generation.

We have analysed a scenario which we call ‘business as usual’ and which is based on only incremental changes to the current markets and frameworks. In this scenario, we fall substantially short of the EU target of 15% of energy to be obtained from renewable sources. Moreover, our carbon reduction trajectory will not be well positioned to meet a potential 80% reduction in carbon emissions from 1990 levels by 2050. Whilst a figure of 60% is currently drafted into the Climate Change Bill, we have used an 80%, rather than a 60% figure in this scenario. This is to test the robustness of our thinking to a potentially even more challenging target which could be written into future legislation.



This potential ‘business as usual’ future scenario (depicted right) sees the closure of 12 GW of oil and coal fired-plant under the Large Combustion Plant Directive and the closure of 7.5 GW of nuclear capacity. The market may ‘fill the gap’ with some renewables; potentially 13 GW of transmission connected, combined onshore and offshore wind could be achieved. However, the dominant energy source will be from about 15 GW of new gas-fired generation. We believe that this energy mix may fall substantially short of the 15% target and we support the Government’s consultation on measures which could address this issue.





Whilst this is still work in progress, we are formulating a view of a potential energy mix for 2020 which meets the Government's climate change targets. We call this scenario 'Gone Green'. In this scenario (depicted left), the mix of power stations that connect to the electricity system is very different to our scenario 'business as usual'. In this scenario, we assume that the correct economic incentives are in place to make this world a reality. Renewable wind plays a much larger role with about 19 GW of total transmission connected offshore wind and 11 GW of total onshore wind. We think that a further approximately 3 GW in total of other transmission connected renewables is also plausible. Examples of these energy sources could be; biomass, wave and tidal energy.

And what of the other contributors to the energy mix? In the world of the 'Gone Green' scenario, similar levels and timing of plant closure to that which is in 'Business As Usual' are anticipated, albeit with some additional incremental coal plant closures and slightly less new gas CCGT construction. This would result in 35% of our electricity sourced from renewables compared with about 5% today. We believe that this energy mix, if combined with *relatively* modest contributions from the domestic heat sector and from the transport sector respectively, could meet the 15% EU target and also place us on the glide path towards the 80% carbon reduction target.

We also see a role for Bio-methane as a renewable energy source. This has similar properties to natural gas with significant potential to supply renewable heat. Injecting biogas into the gas network effectively reduces the carbon intensity of gas as well as adding to the diversity of fuel sources - thus improving security of energy supply for the UK. The biogas method of dealing with waste is a significantly more environmentally friendly method than most incineration or landfill schemes as it captures the methane that would otherwise be released to the atmosphere and converts it to carbon dioxide and water. As a greenhouse gas, methane is twenty three times as potent as carbon dioxide. Consequently, whilst these volumes may appear modest, there would be a disproportionate and favourable impact.

So what needs to change? In achieving such challenging targets for renewable generation, we will still require the delivery of significant additional transmission capacity, both onshore and offshore. We believe that a regulatory regime needs to be put in place, in order to facilitate more strategic investment ahead of firm commitments from customers. This is to ensure that network investment and growth in new renewables can happen 'in parallel' and not 'in series'. This will ensure that there is sufficient transmission capacity when new renewable generation wants to connect to the system.

We are developing arrangements to improve access to the transmission system for renewables. We are playing a pivotal role in driving this forward with BERR and Ofgem within an industry wide discussion on reform of these arrangements. Such improvements to the access regime against the background of future high renewable energy volumes would allow the existing transmission system to be used efficiently, and facilitate the connection of additional renewable generation. It follows also, that we must coordinate our onshore and offshore investment.

In summary, we believe that Gone Green represents a potential and plausible way forward to meet the climate change challenge for 2020. In preparation, we are helping to reform the arrangements of accessing the transmission system, but the challenging timescales require us, and the other transmission owners to invest ahead of firm customer commitment so that we can proceed to a low carbon future 'in parallel', and not wait for projects to enter a contractual arrangement with us, thus making the developments happen in series.