

# UK Future Energy Scenarios 2014

The future of energy for the UK has never been so important.

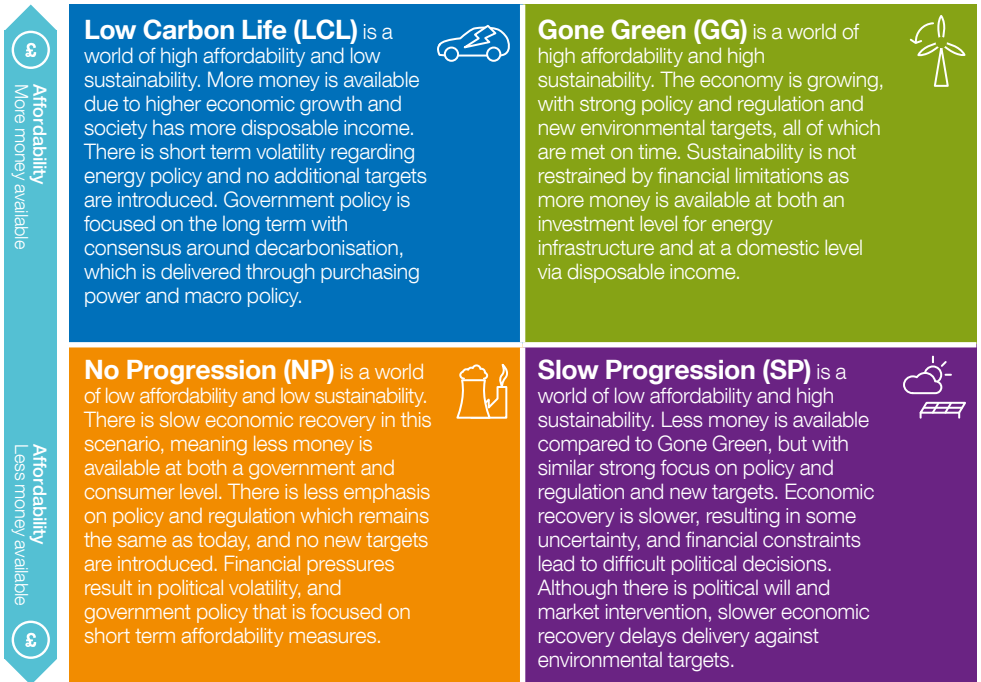
Energy has become front page news; Electricity Market Reform, the General Election in 2015, environmental legislation, energy costs and developments in the economy will all have a major impact on the future energy landscape. No one can be certain how the energy future will evolve and this uncertainty may continue for decades.

Our Future Energy Scenarios (FES) represent transparent, holistic paths through that uncertain landscape to help Government, our customers and other stakeholders make informed decisions.

The views of our stakeholders are essential in shaping the direction and content of our new future energy scenarios. Our goal is for everyone who has an interest in the UK's energy future to engage with us so that we can develop the most rich, robust and plausible range of scenarios possible.

## Our Future Energy Scenarios for 2014

This year we have broadened the range of our scenarios from two to four, which flex the axes of sustainability and affordability.

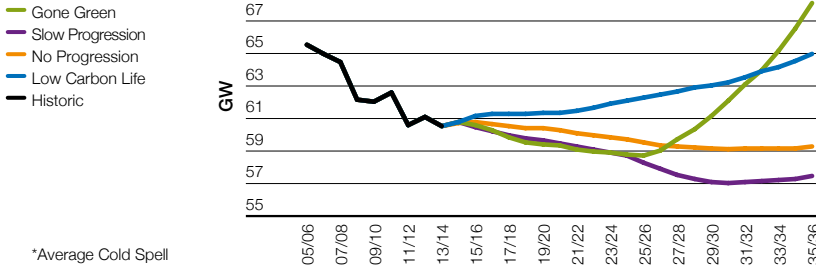




## Power Demand

- Initial declines in peak demand are seen in **SP** and **GG** driven mainly by energy efficiency.
- Initial increases in demand in **LCL** are driven by increased consumer spending, economic growth and comparably less energy efficiency.
- The adoption of electric vehicles and heat pumps will drive the changes in demand post 2025.
- Growth in the later period is driven by increased numbers of houses in all scenarios.

Peak ACS Demands \*



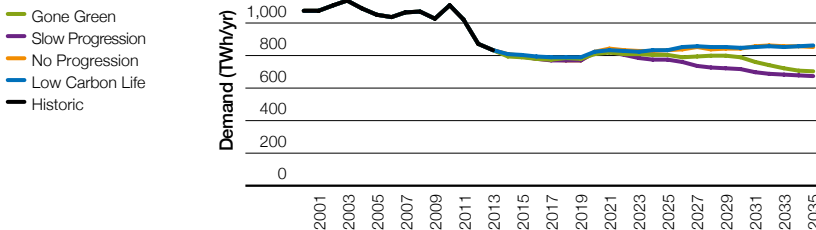
\*Average Cold Spell



## Gas Demand

- By the mid 2020s, **GG** deviates from the other scenarios with fuel switching from gas in the residential and commercial sectors.
- Demand in the commercial sector is variable reflecting the potential for efficiency savings, new developments and power and gas prices.
- All our scenarios reflect the underlying demand reductions across the industrial sectors.
- There is an increasing requirement for gas fired power generation to act as a backup for renewable generation in **SP**, **GG** and **LCL**.

Total Gas Demand



## Flexible Power Sources

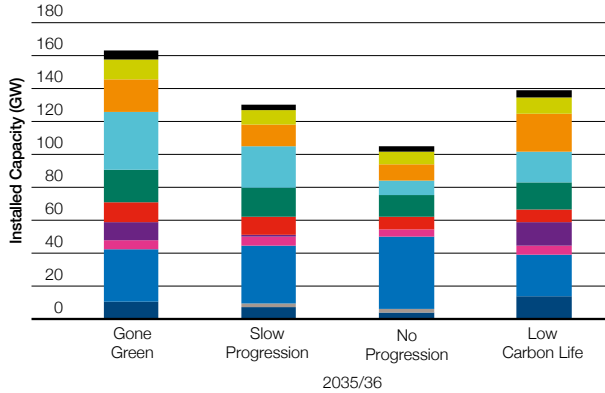
- The stronger regulatory and policy environment in **GG** and **SP** drives higher levels of interconnection. Weaker policy and regulatory approach in **LCL** and **NP** leads to lower levels of capacity.
- Electricity storage has the potential to provide flexibility in balancing the system with increased levels of intermittent supply sources in the future. However, significant cost reductions and access to multiple revenue streams are required to make storage a commercially viable solution.



## Power Supply

- The **GG** generation background has adequate installed capacity to generate enough renewable electricity to meet the government renewable energy targets and sufficient low carbon generation to comply with the carbon budgets.
- The focus on environmental targets within our **SP** scenario ensures continued support for the deployment of renewable generation but at a slower rate than Gone Green due to the less favourable economic conditions.
- **NP** has adequate installed capacity to ensure security of supply with particular emphasis placed on cheaper forms of generation.
- In **LCL** the long term decarbonisation strategy places increased emphasis on low carbon technologies, over renewables.

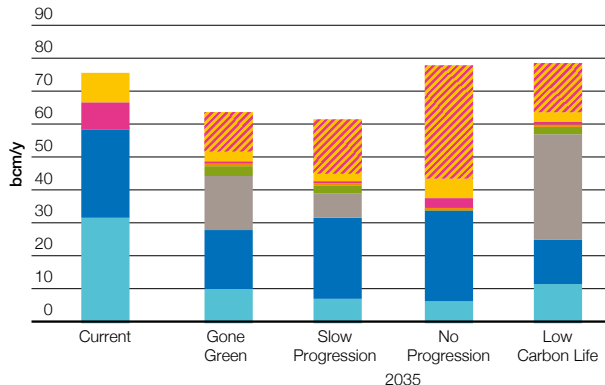
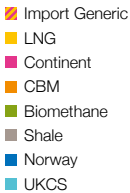
### Power Supply Installed Capacity



## Gas Supply

- UK Continental Shelf production has a brief renaissance in the period up to 2020.
- Norwegian gas continues to make up a significant part of the total supply to the market.
- Import requirements vary significantly and uncertainty in the global gas market makes it difficult to predict whether the requirement for imported gas will be met by LNG or continental gas.
- Our shale gas projections cover a wide range, reflecting Government support and interest from producers, but also the currently unproven nature of the UK reserves.

### Annual Gas Supply Mix





## Heat

- Heat is a major proportion of energy use in our scenarios.
- Savings from new A rated boiler replacements are considerable and further savings are expected over the next decade.
- New houses will be increasingly energy efficient as a result of incremental changes in building regulations.
- There remains further efficiency savings from industrial and commercial sectors.
- Heat pumps are assumed to initially be deployed in houses not connected to the gas grid, resulting in a net reduction in electricity demand.



## Consumer

- Lighting and appliances are the predominant consumers of electricity in the home.
- The largest change in recent years and the near term in the residential electricity sector is around lighting and efficiency improvements instigated by European policy.
- Increases in the number and size of some appliances will be offset by their efficiency improvements.
- Consumer affordability combined with government incentives will determine the adoption of electric vehicles and heat pumps, which will drive the changes in demand in the future.
- The impact of smart meters is small in comparison to the above changes and is bound by the speed of the roll-out and the adoption of time of use tariffs.



## Transport

- Range extended and plug-in hybrids are expected to dominate the electric vehicle market.
- Users in London, second car and fleet buyers are likely to make up the bulk of the early adopters.
- Market saturation of electric vehicles is not reached in any scenario.
- Trial results showing the impact of Time Of Use Tariffs on electric vehicle charging have been incorporated in our modelling. This has reduced potential peak demands.



## 2035–2050

- The changing supply mix for electricity generation increasingly enables low carbon and renewable electricity to be used to meet electricity demand.
- As well as meeting traditional demand, this electricity creates opportunity for heat and transport to be electrified in a sustainable way to realise environmental ambition.
- Whilst heat can be electrified, it still needs gas for times of high demand, to constrain costs.

**We want to hear from you!**  
**Join the debate...**

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- Low Carbon Life
- Gone
- No Progress-
- Slow Progress-

# UK FES 2014 Key Data (2020)

