

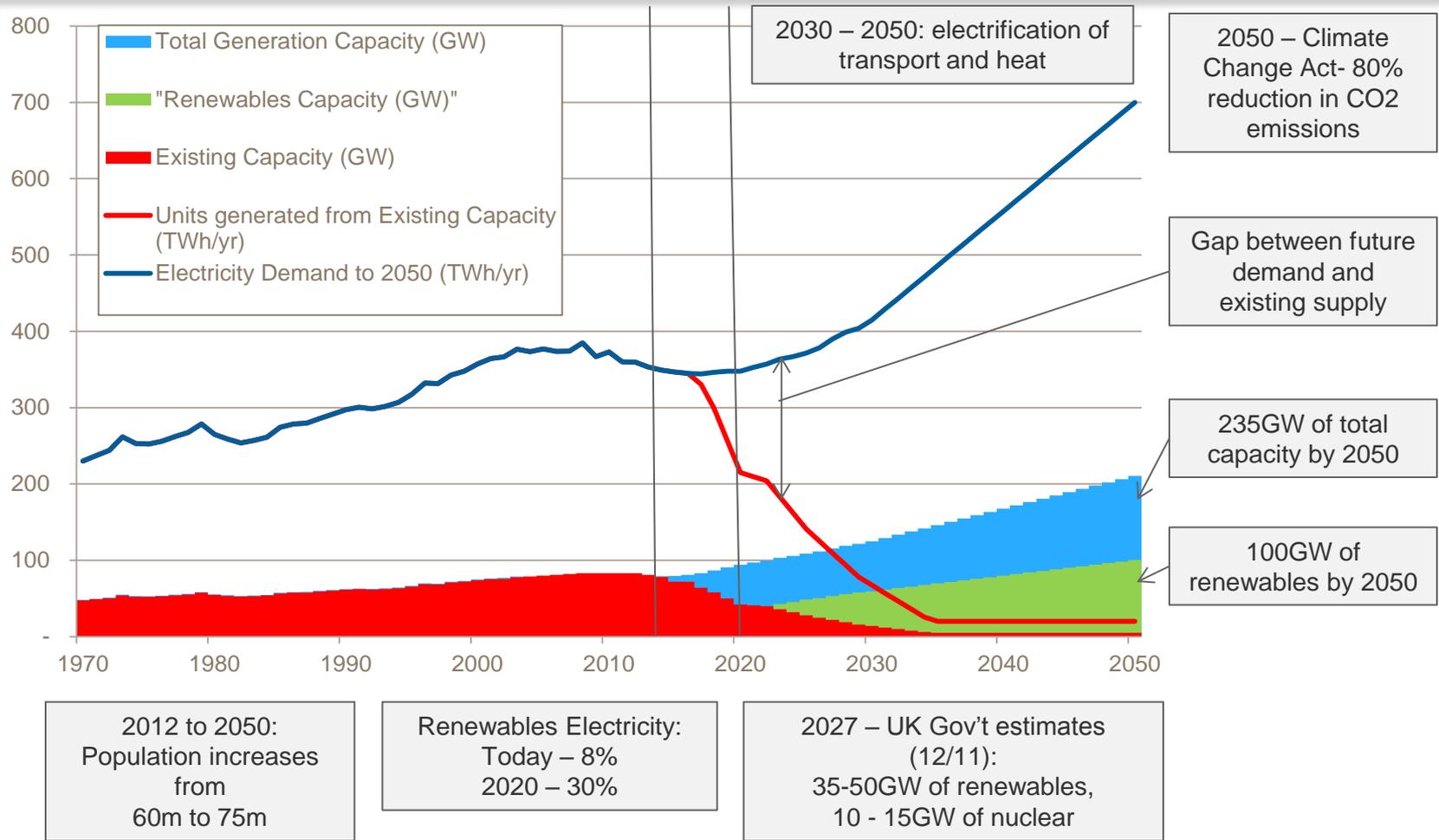
An Insight into Engineering in the Energy Sector

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Electricity demand and infrastructure set to soar beyond 2020

The Electricity Sector 1970 to 2050



What's driving the change?

- **Long standing under-investment in infrastructure**
 - Critical status of power assets
 - Increased costs of asset management and asset replacement, particularly low carbon options
- **Global increase in population growth**
 - ONS* estimates trend in the UK from 60m in 2010 to 74m by 2035 (eg 65.2m in 2020).
 - Impact on infrastructure capacity in UK and global connectivity
- **Increasing climate change impacts**
 - 2% increase in carbon emissions per year since 1971- 2010 total is 117% increase on 1971 total (OECD**)
 - Mitigation – low carbon infrastructure eg nuclear, renewables, electric vehicles and trains

*ONS – UK Office of National Statistics

**OECD – Organisation for Economic Co-operation and Development

But do the politicians see things the same way ?

“If we win the election 2015 the next Labour government will freeze gas and electricity prices until the start of 2017”

Ed Miliband September 2013

“I don't want UK to be at forefront of tackling climate change”

George Osborne September 2013

“Look at the go-early contracts for difference with electricity market reform. We had 57 applications, much more than we anticipated. If they all came to fruition that'd be 18GW of electricity”

Ed Davey September 2017

A very interesting industry to work in

- The future requirements of the markets suggest:
 - Growth
 - Opportunity
 - Diversity
- The politicians suggest:
 - Ever changing market dynamics
 - High sector visibility
 - And more opportunity
- All of which equals:
 - Lots of problems to solve
 - Never a dull moment!

The Electricity Sector **Diverse Opportunity**

- As an engineer in the power sector , you can get involved in everything.....
 - Policy
 - Strategy
 - Planning
 - Finance and Economics
 - Analysis
 - Design
 - Construction
 - Manufacture
 - Project Management
 - Commissioning and decommissioning
 - Operations and Maintenance

The most interesting project I've worked on

Severn Tidal Power Feasibility Study (2008 - 2010)

- Led a consortium of 10 firms
- Client – 7 Gov't Departments
- 1,000's of stakeholders
- Ministerial Briefings
- Press and TV
- Lots of science and engineering
- Project and financial management
- Stakeholder Engagement
- New research, new uncertainties, new technologies
- Difficult problems to solve – balancing cost, environmental and commercial impacts to deliver low carbon energy
- Still working on follow-on opportunities today

