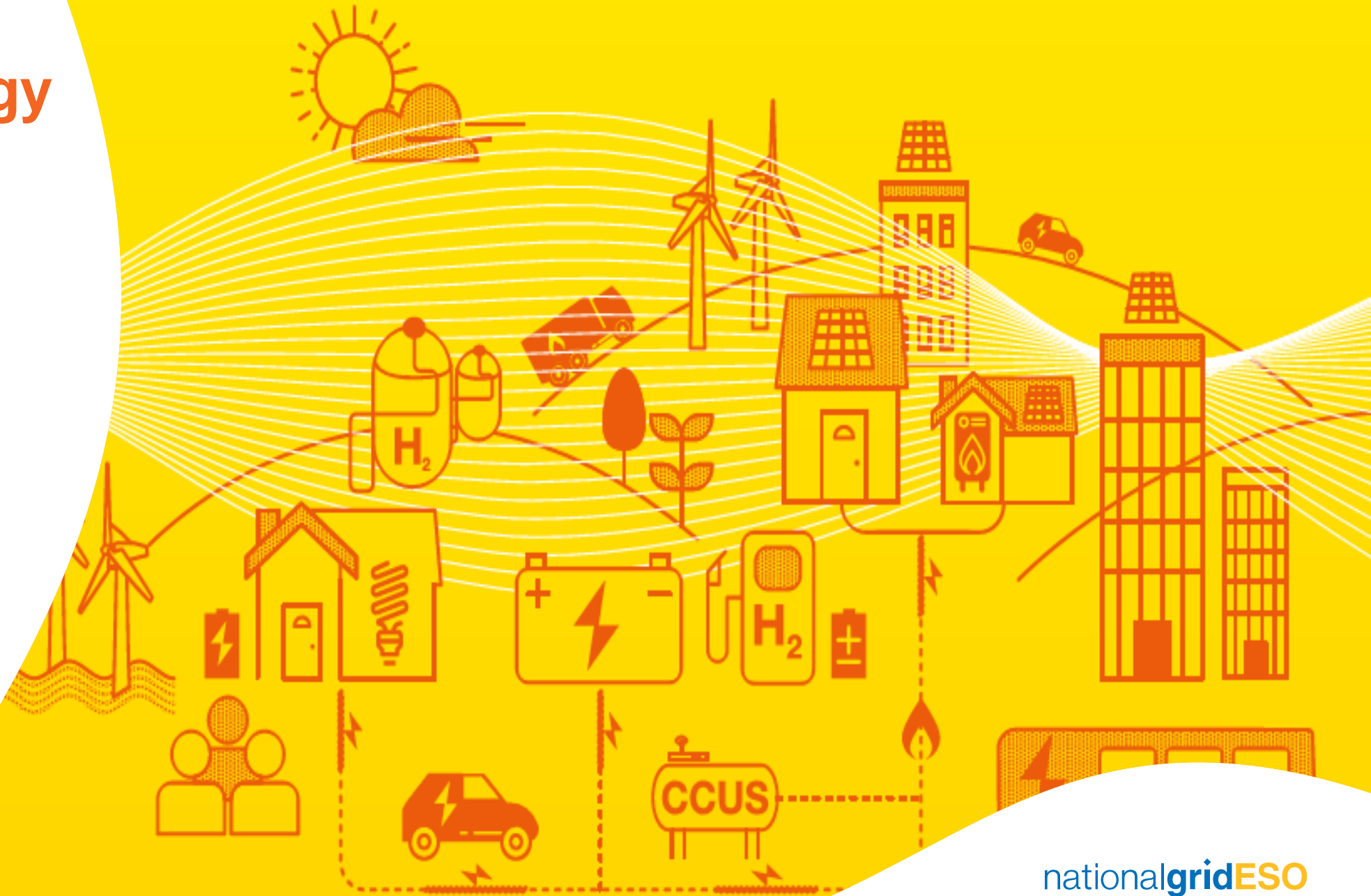


2019 Future Energy Scenarios

July 2019



2019 Future Energy Scenarios

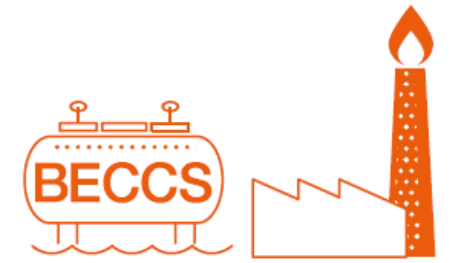
FES 2019 Key messages



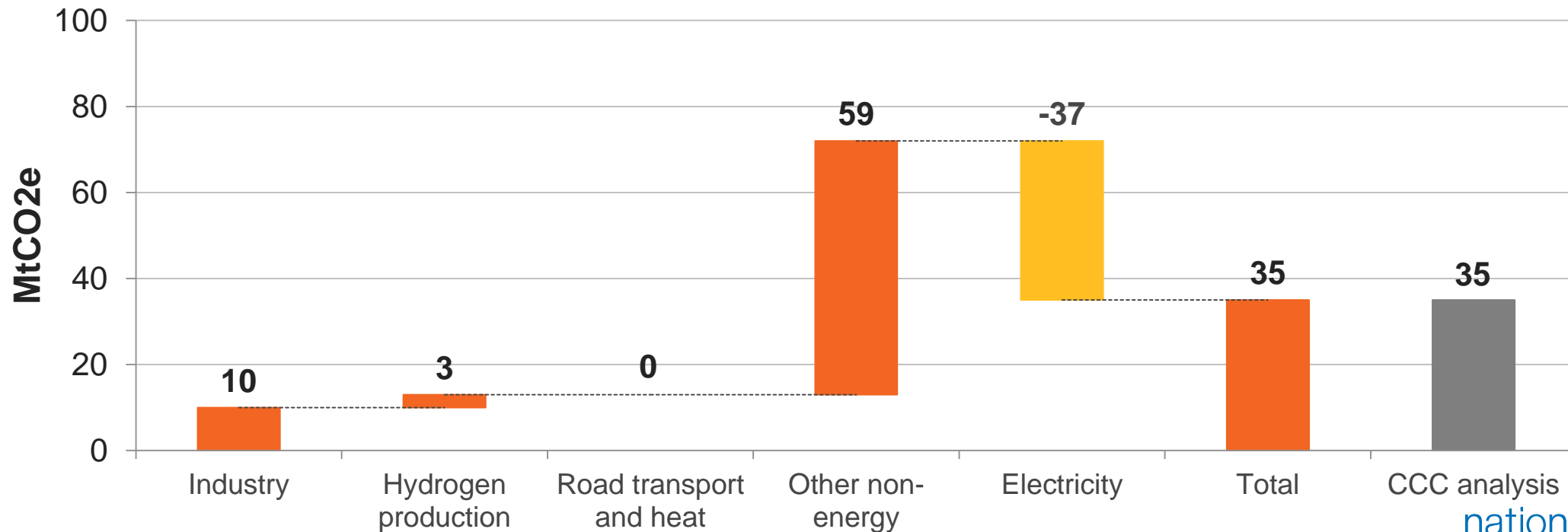
Key messages

Net zero is achievable

Reaching net zero carbon emissions by 2050 is achievable. However, this requires immediate action across all key technologies and policy areas.



37 million tonnes of CO₂ removed from atmosphere. Residual emissions will be offset by negative emissions from biomass power generation paired with carbon capture and storage.



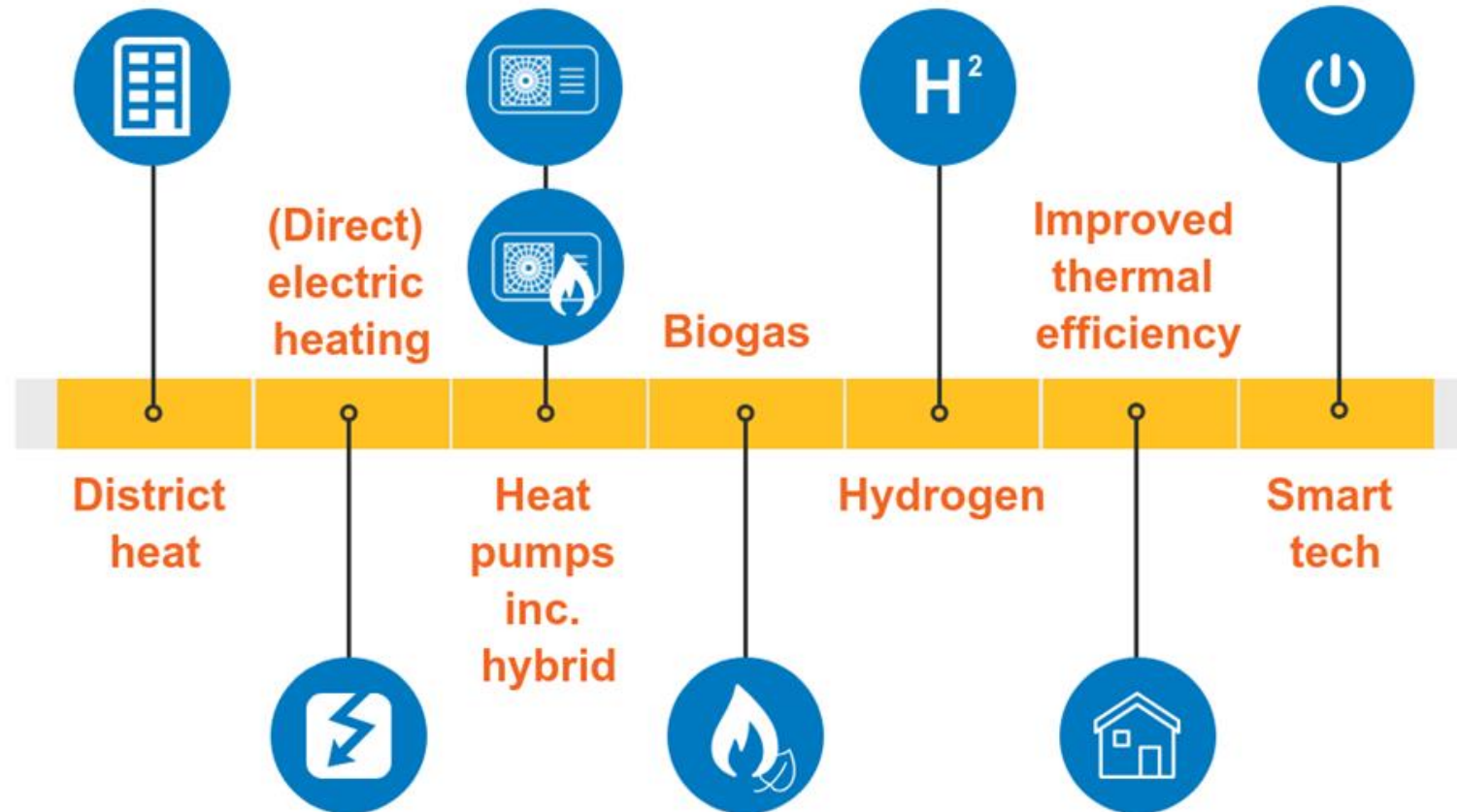
Key messages

Decarbonising heat

Heat decarbonisation pathways are uncertain and vary by region. However, there are clear, urgent no regret actions that can remove barriers to deploying solutions at scale.



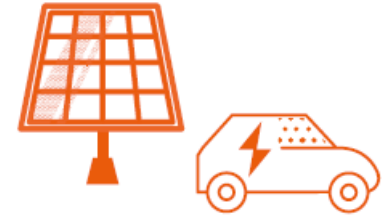
By 2050², up to 85% of homes need to be very thermally efficient (at EPC class C or higher).



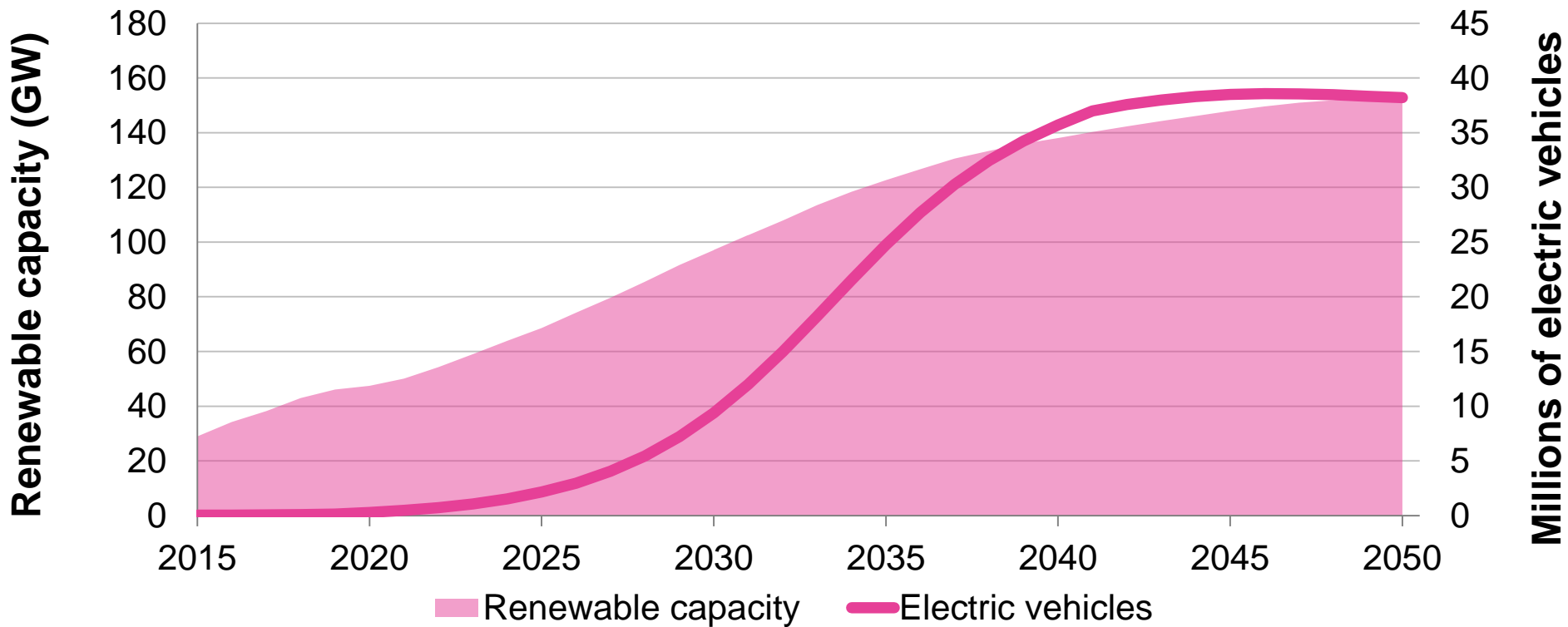
Key messages

Electric Vehicles enabling renewable power

Electric vehicles can help decarbonise both transport and electricity supply for Great Britain. The market needs to align vehicle charging behaviour to complement renewable generation and meet system needs.



Smart charging vehicles could enable the storage of roughly one fifth of GB's solar generation for when this energy is needed.



Key messages

Whole system digitalisation

A whole system view across electricity, gas, heat and transport underpins a sustainable energy transformation. Widespread digitalisation and sharing of data is fundamental to harnessing the interactions between these changing systems.



Well over 2.8 trillion data points will be collected in 2050 to understand where EVs are charging on the electricity system.



2019 Future Energy Scenarios

Overview of analysis



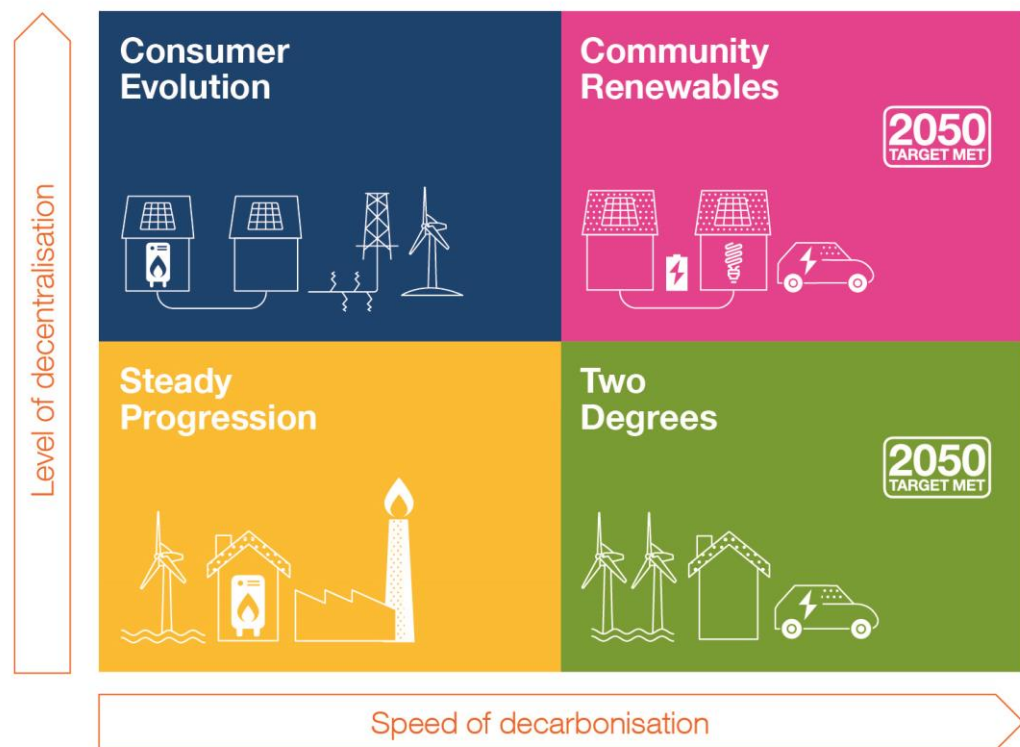
Analysis Overview

The scenario framework

The scenario framework for FES 2019 is unchanged from 2018.

There are four scenarios which explore the speed of decarbonisation and the level of decentralisation.

FES 2019 will also explore net zero in 2050 using sensitivity analysis.



Community Renewables (CR) explores how the 80:50 decarbonisation target can be achieved in a more decentralised energy landscape

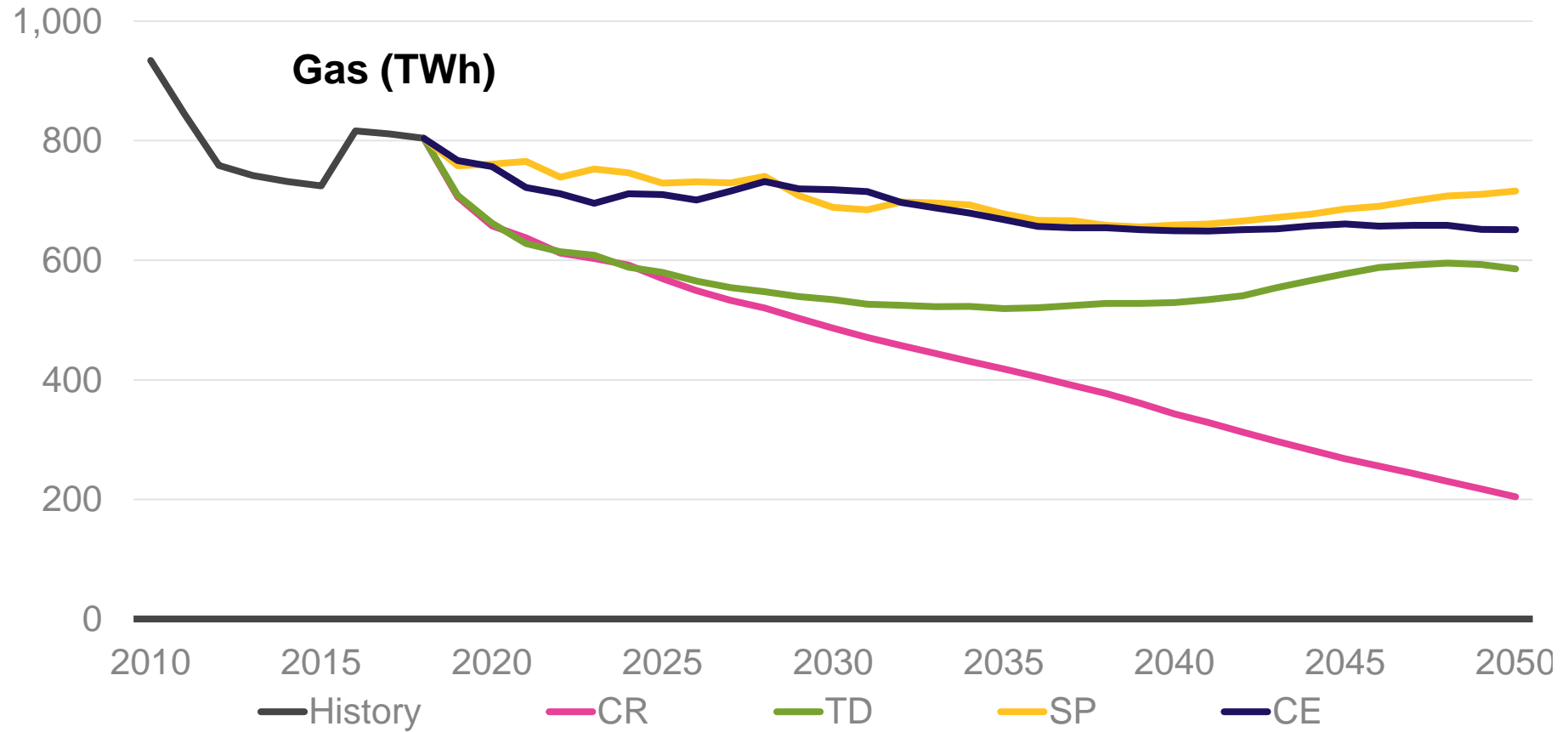
Two Degrees (TD) explores how the 80:50 decarbonisation target can be achieved in a more centralised energy landscape

Steady Progression (SP) – considers a more centralised pathway that makes progress toward, but does not achieve the 80:50 decarbonisation target

Consumer Evolution (CE) considers a decentralised pathway that makes progress toward, but does not achieve the 80:50 decarbonisation target

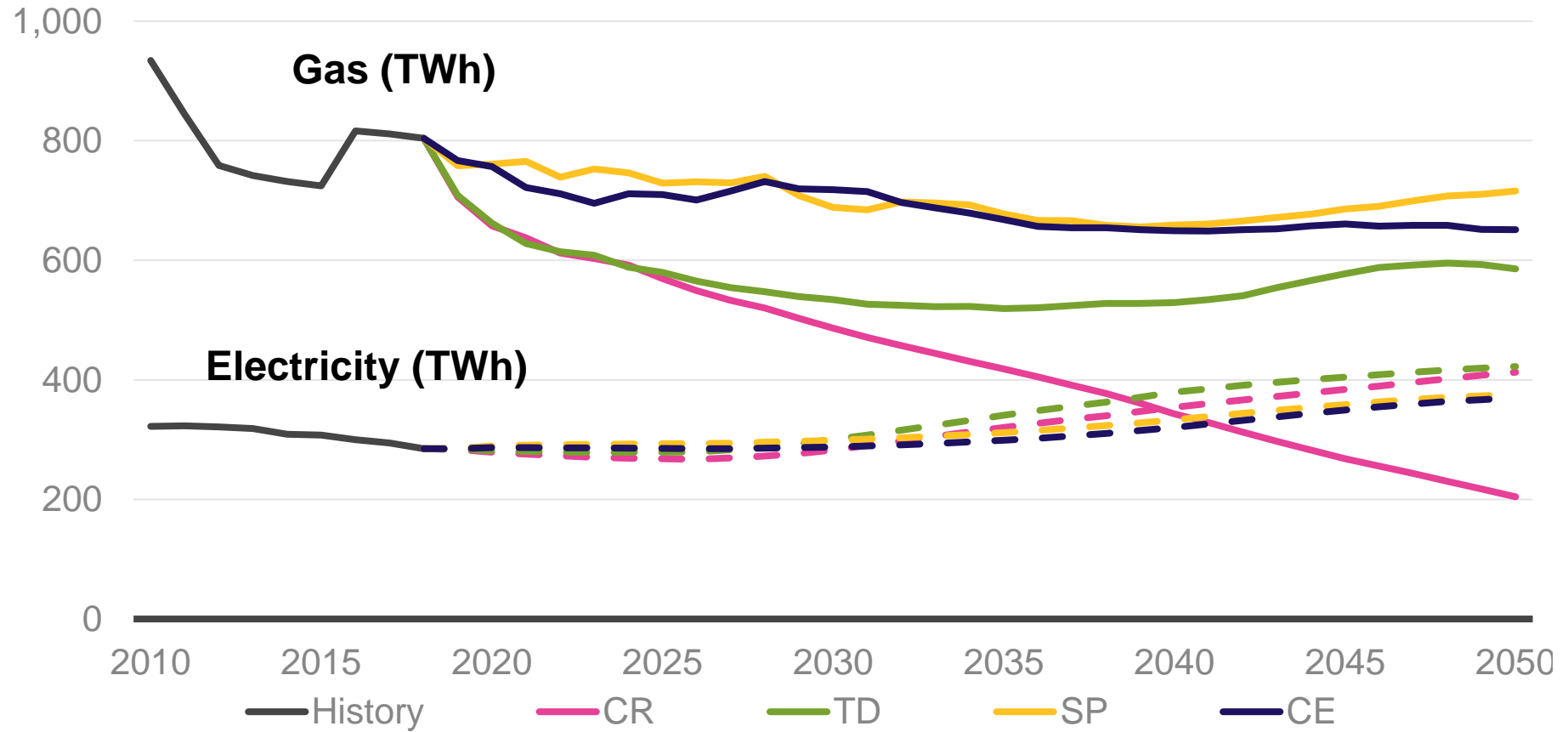
Analysis overview

Energy demand



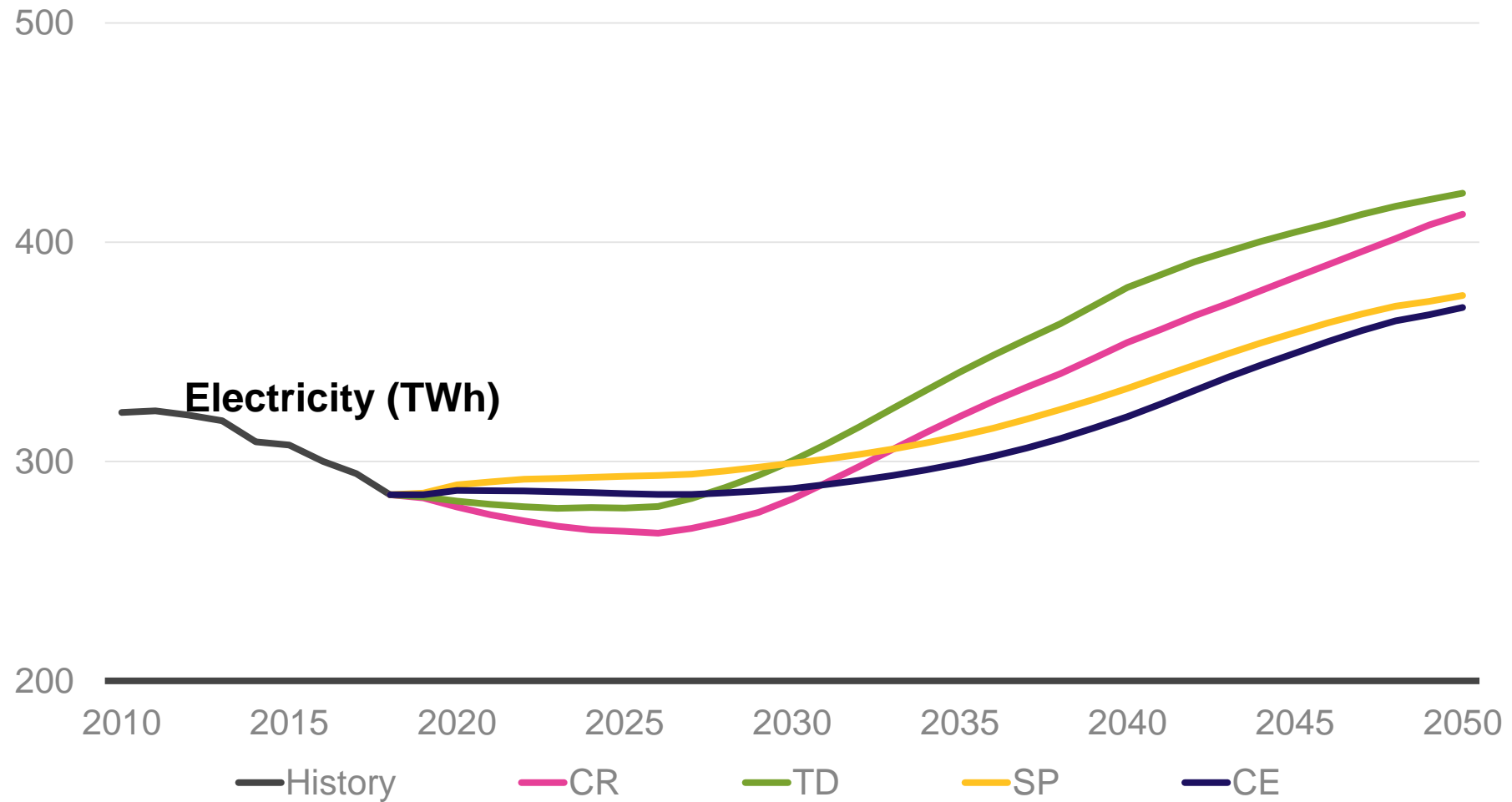
Analysis overview

Energy demand



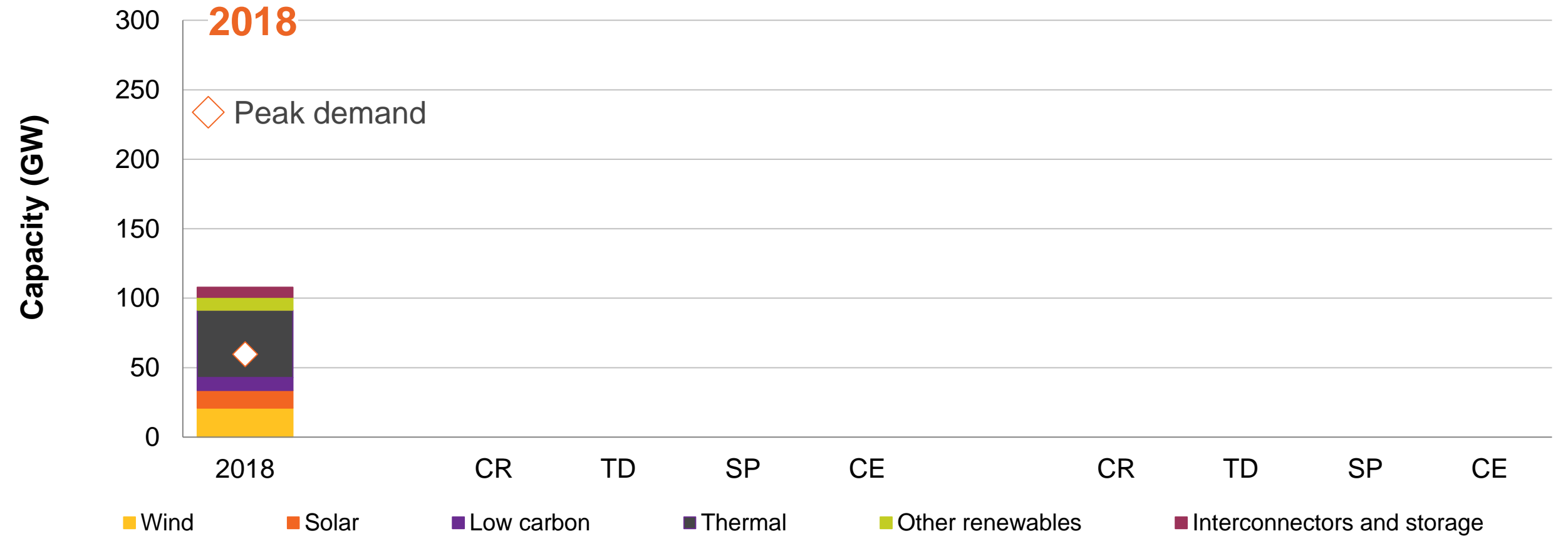
Analysis overview

Energy demand



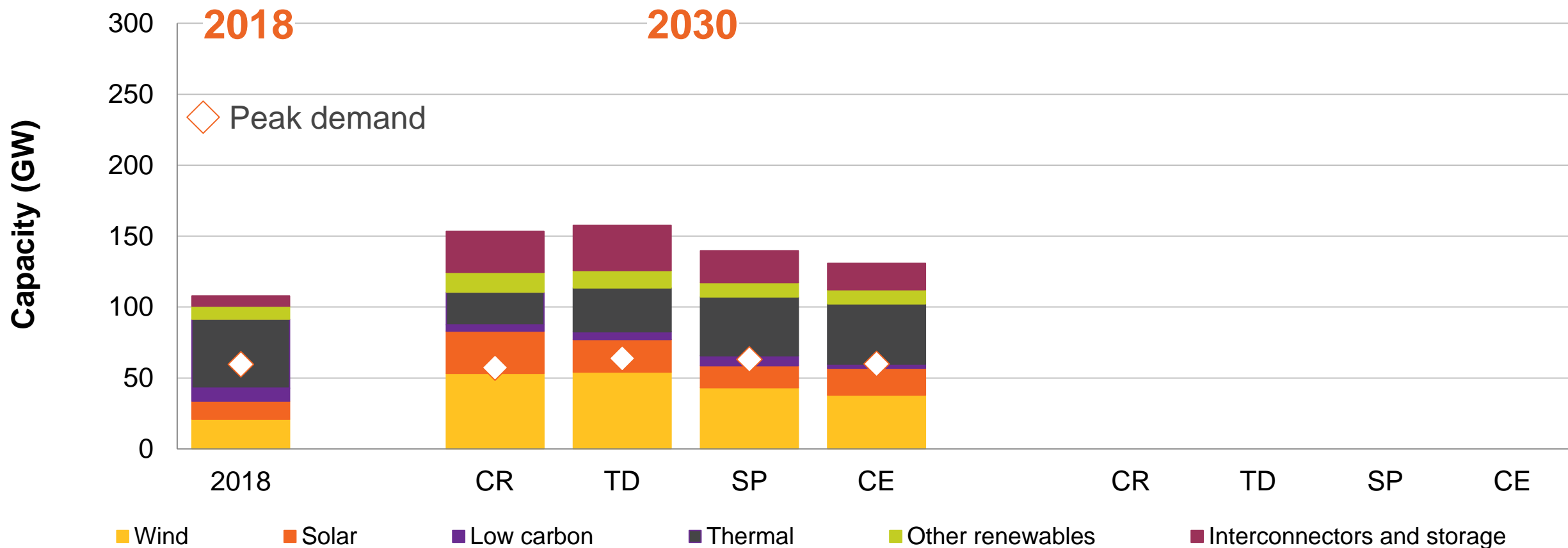
Analysis overview

Electricity supply



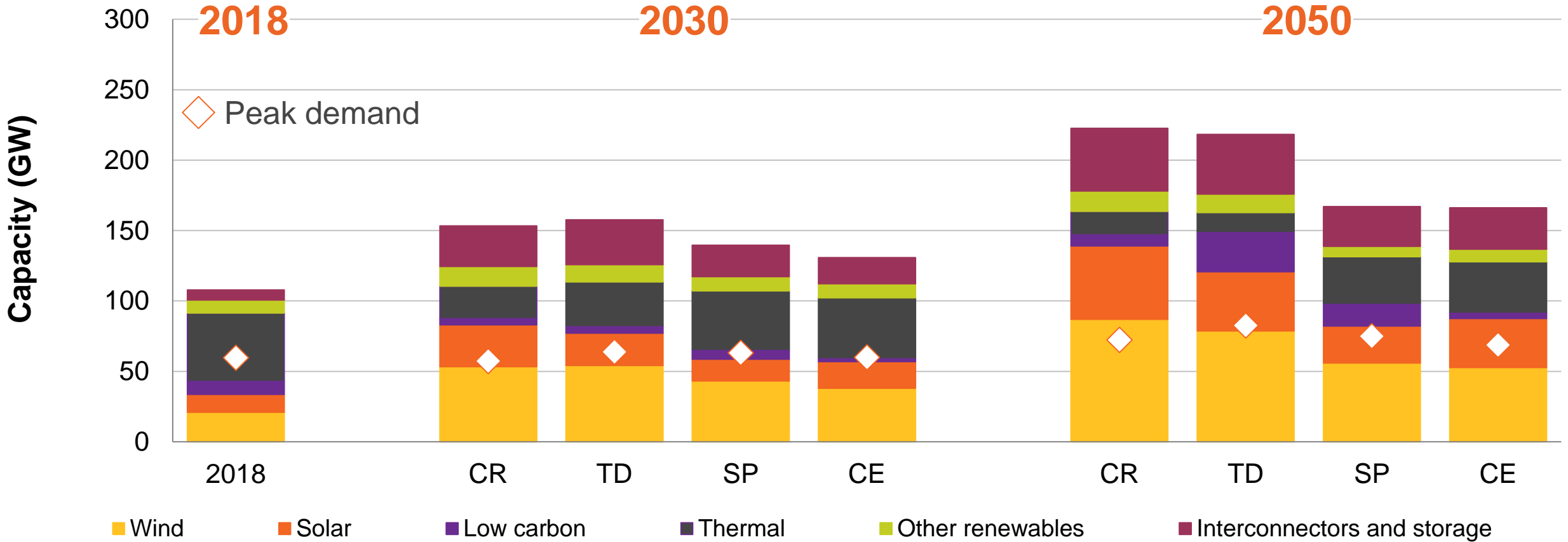
Analysis overview

Electricity supply



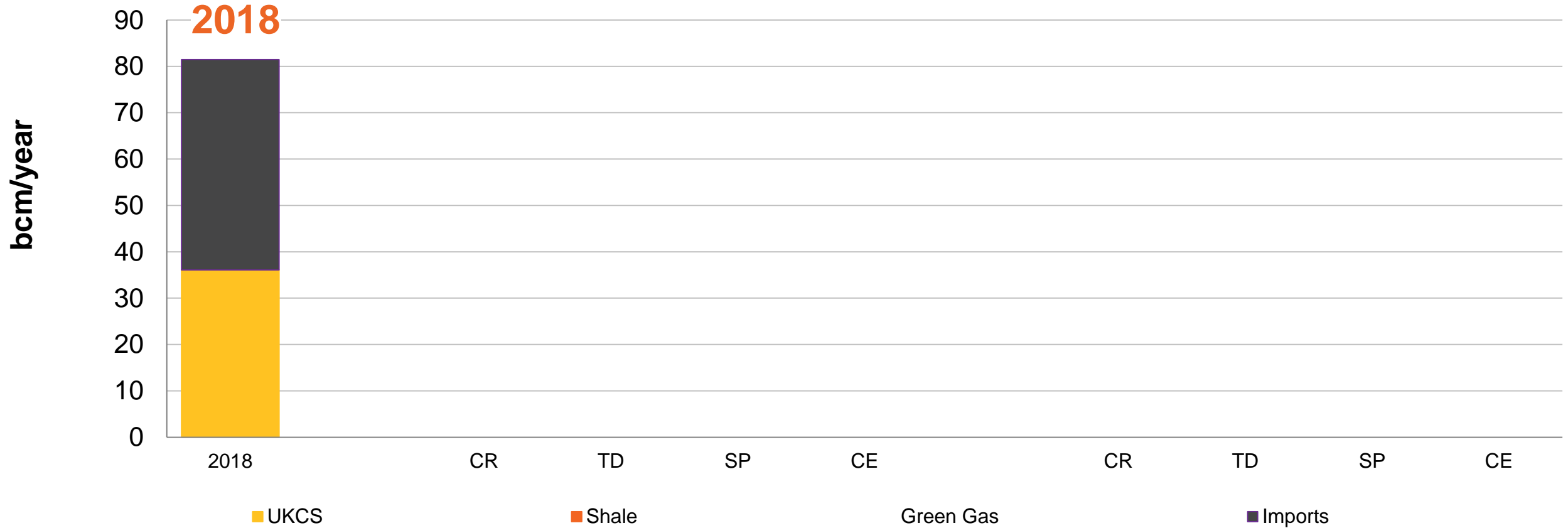
Analysis overview

Electricity supply



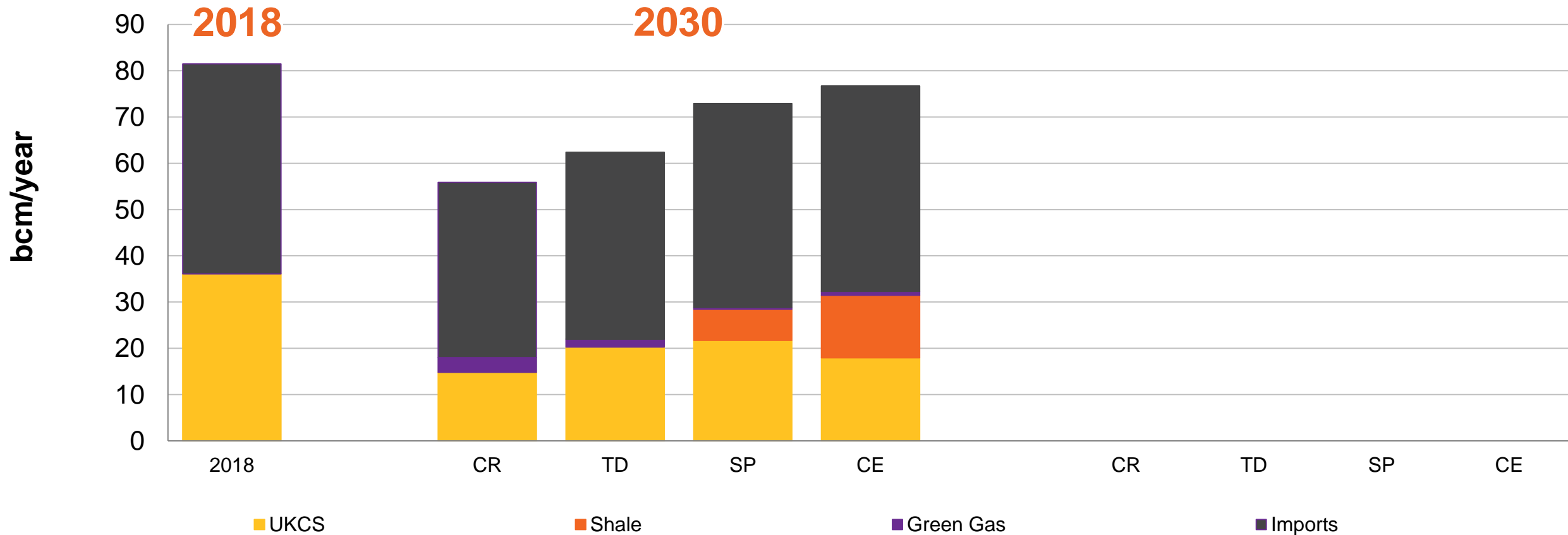
Analysis overview

Gas supply



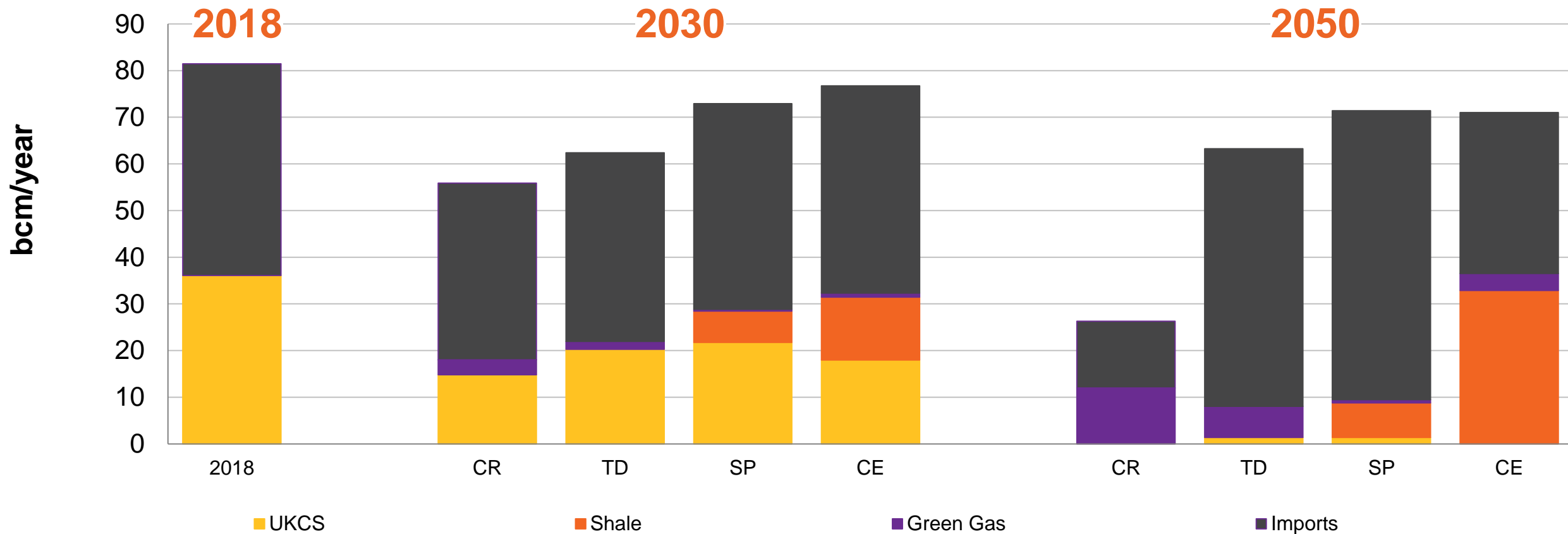
Analysis overview

Gas supply



Analysis overview

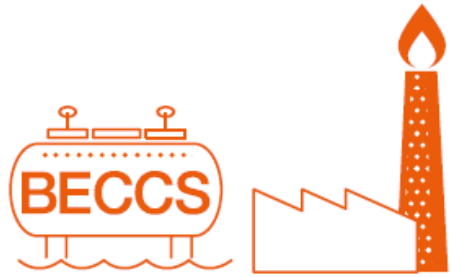
Gas supply



Key messages

Summary of FES 2019 key messages

Net zero is achievable



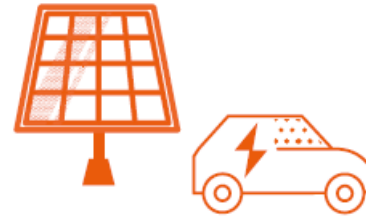
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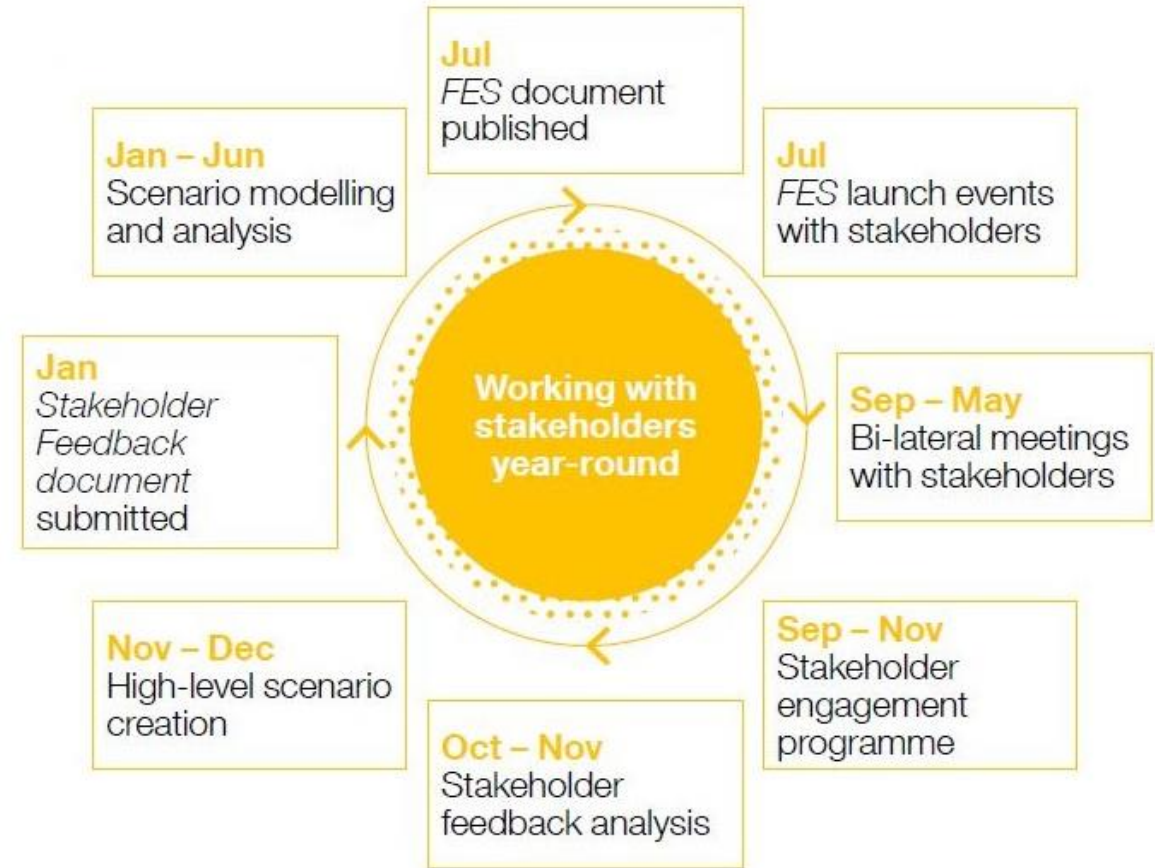
Whole system digitalisation



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Next steps

- Presentations to be shared FES website
- FAQ document to be published August
- Newsletter August to include information on our autumn engagement programme
- ‘So what of FES’ published late 2019/2020
- Launch event just one part of our annual engagement cycle, to stay involved join our mailing list: FES@nationalgrid.com



2019 Future Energy Scenarios

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