Electricity Demand in the Clean Power by 2030 World

phil.hewitt@montel.energy

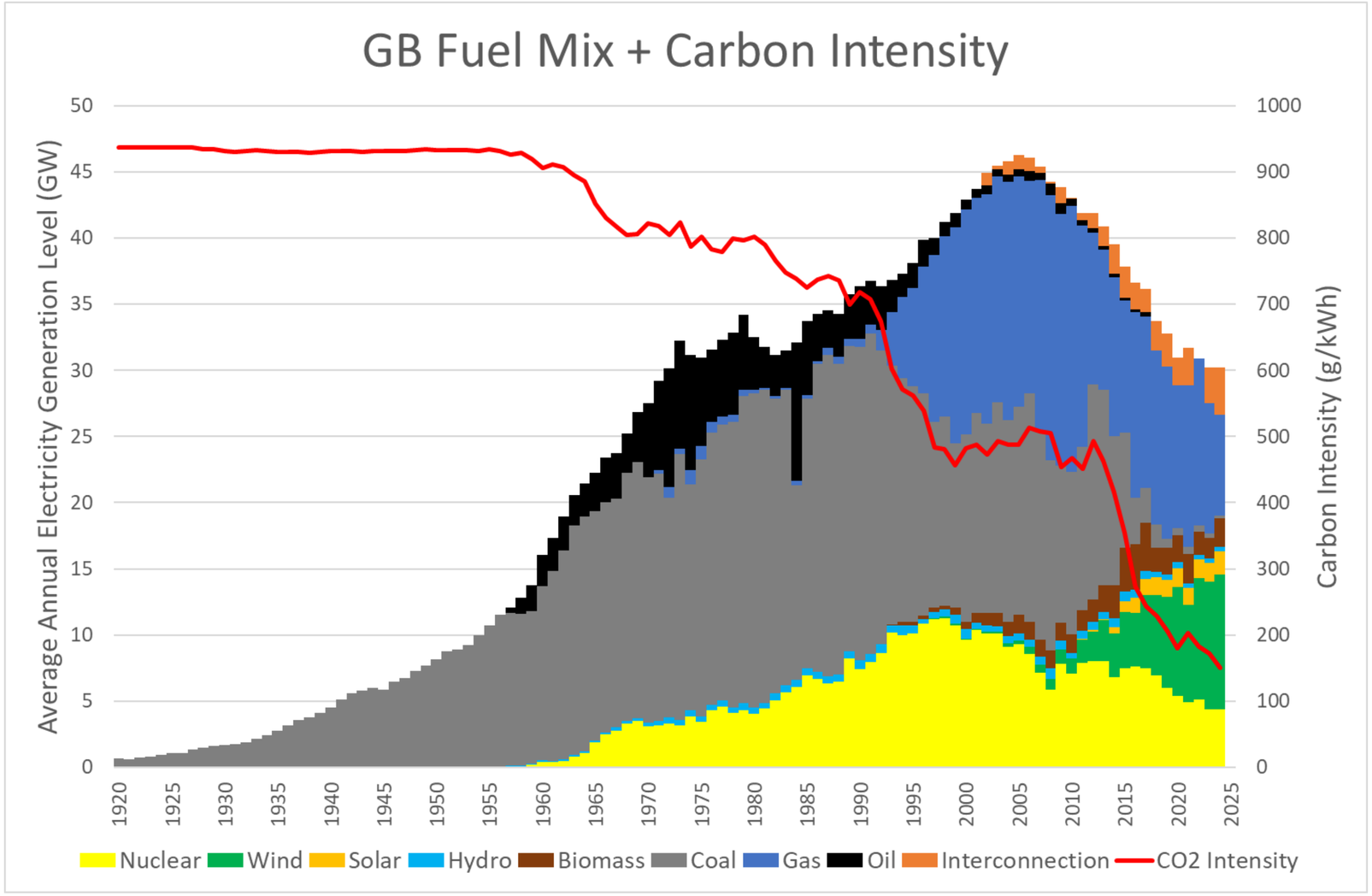
MONTEL

What is Clean Power by 2030?

The UK government has committed to delivering “Clean Power by 2030” which is a statement that whilst ambitious is open to interpretation.

NESO : Clean power sector is one which, by 2030, meets the following quantitative criteria:

- EFW and CHP excluded
- Clean sources produce more power than Great Britain consumes in total.
- Unabated gas (i.e. without CCS) provides less than 5% of Great Britain’s generation in a typical weather year (currently 33%).
- 20g/kWh average intensity



What is Clean Power by 2030?

The UK government has committed to delivering “Clean Power by 2030” which is a statement that whilst ambitious is open to interpretation.

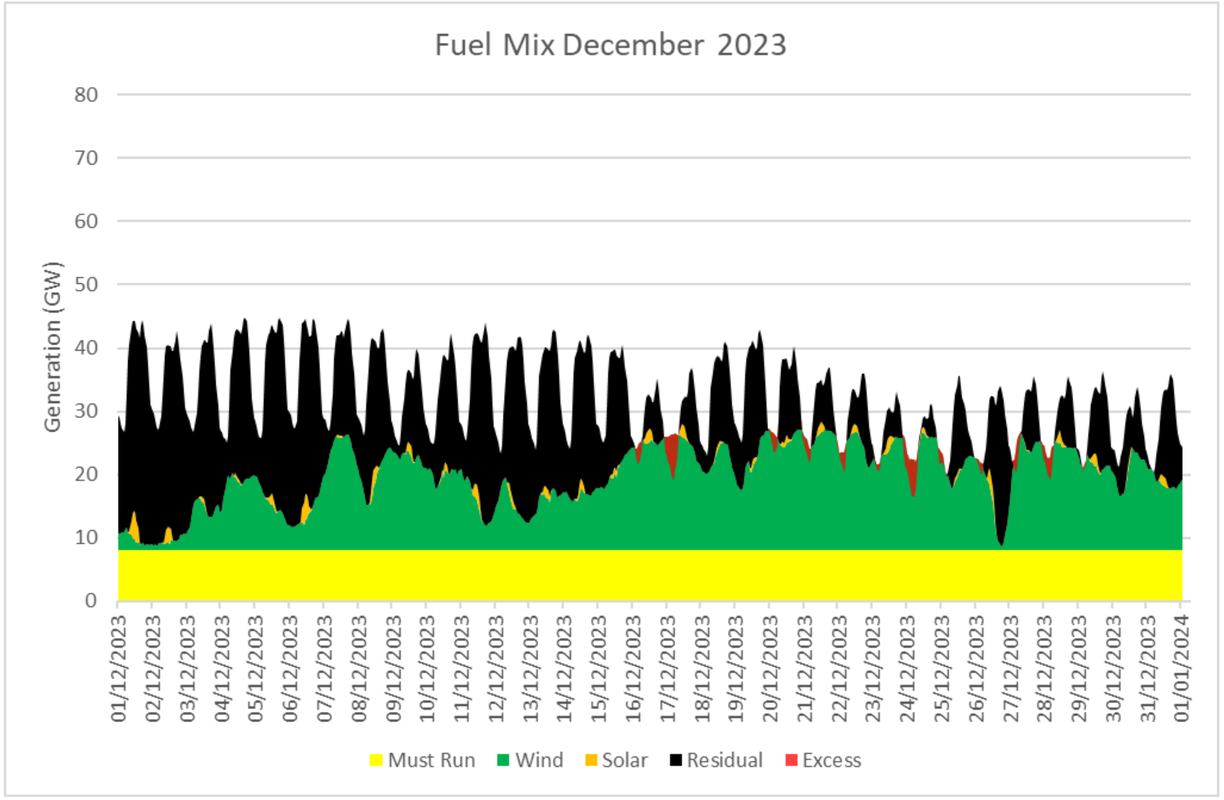
NESO : Clean power sector is one which, by 2030, meets the following quantitative criteria:

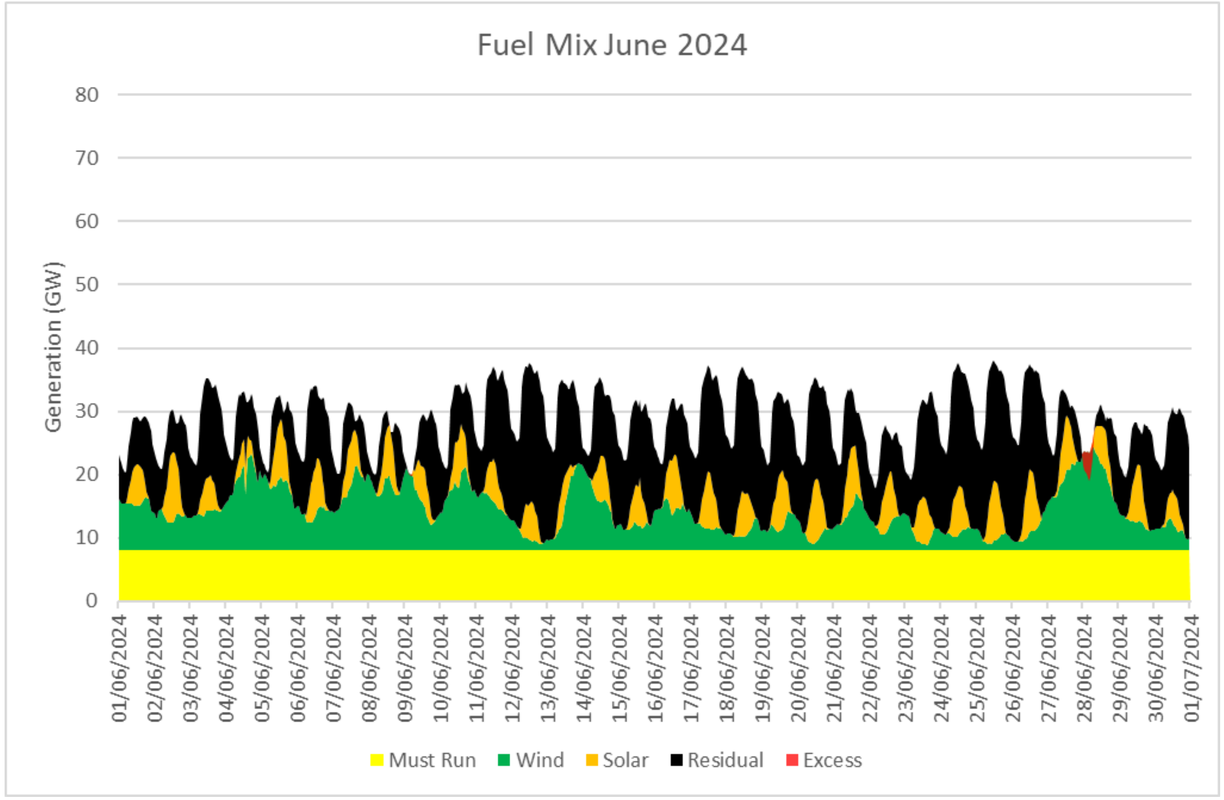
- EFW and CHP excluded
- Clean sources produce more power than Great Britain consumes in total.
- Unabated gas (i.e. without CCS) provides less than 5% of Great Britain’s generation in a typical weather year (currently 33%).
- 20g/kWh average intensity

Fuel / technology type (GW)		2023	2030 Further Flex and Renewables	2030 New Dispatch
Variable	Offshore Wind	14.7	50.6	43.1
	Onshore Wind	13.7	27.3	27.3
	Solar	15.1	47.4	47.4
Firm	Nuclear	6.1	3.5	4.1
Dispatchable	Biomass/BECCS	4.3	4.0	3.8
	Gas CCS/Hydrogen	0	0.3	2.7
	Unabated gas	37.4	35.0	35.0
Flexibility	LDES	2.8	7.9	4.6
	Batteries	4.7	27.4	22.6
	Interconnectors	8.4	12.5	12.5
	Demand-side flexibility (excl. storage heaters)	2.5	11.7	10.4
Annual demand (TWh)		**258**	**287**	**287**

Renewable Energy Penetration 2023/24

How does the generation mix change 2023 and 2030?

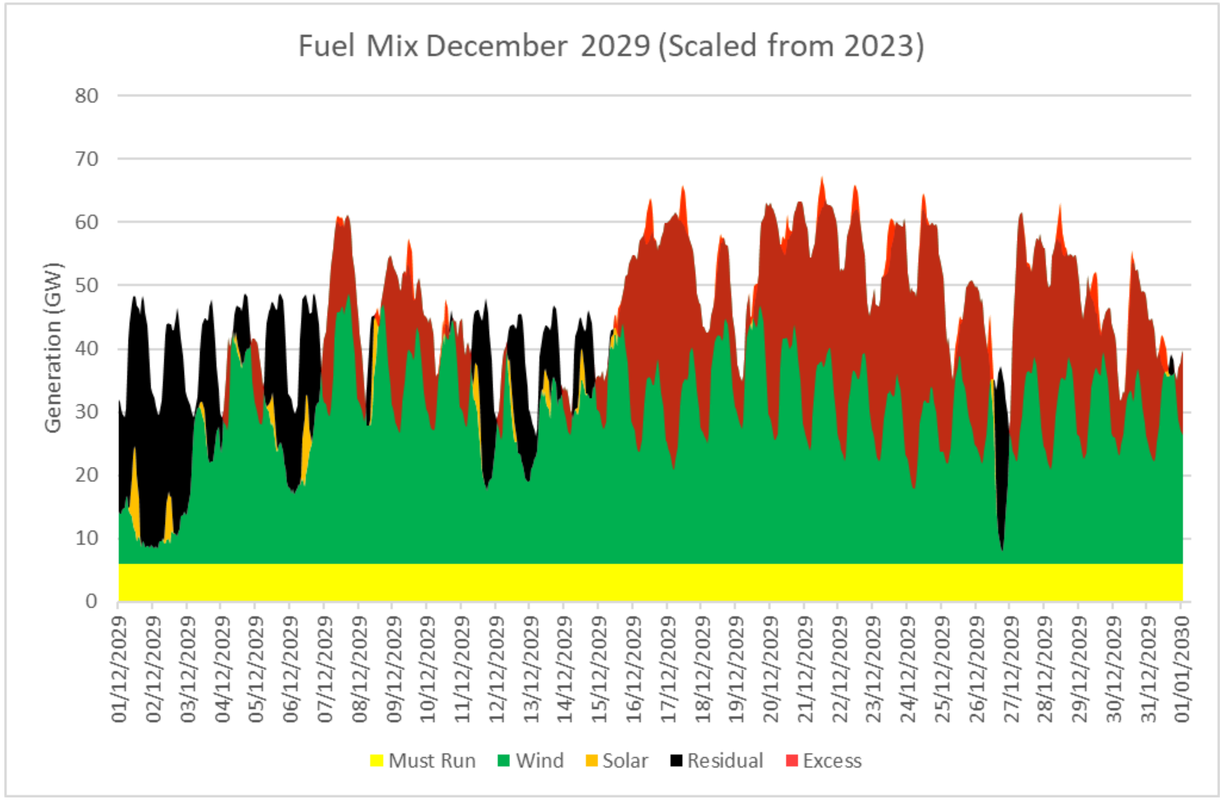


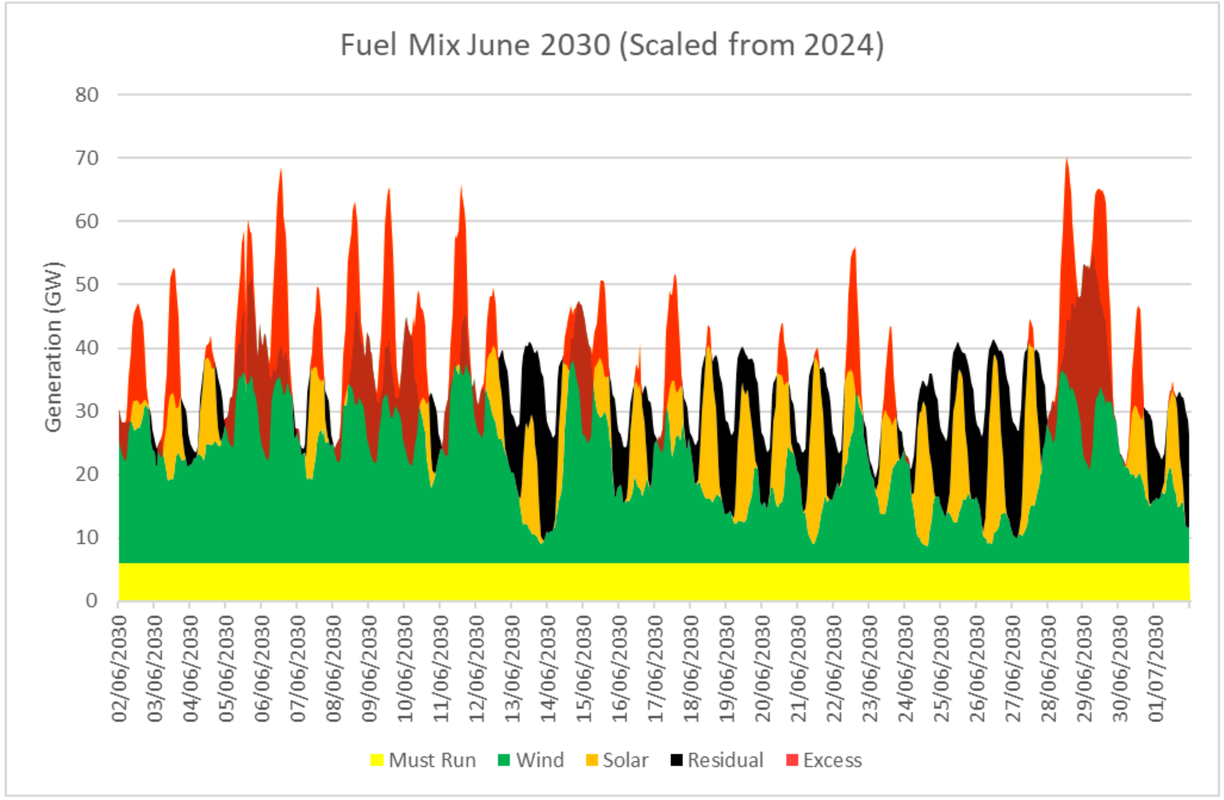


Source : Montel Analytics

Renewable Energy Penetration 2029/30

How does the generation mix change 2023 and 2030?



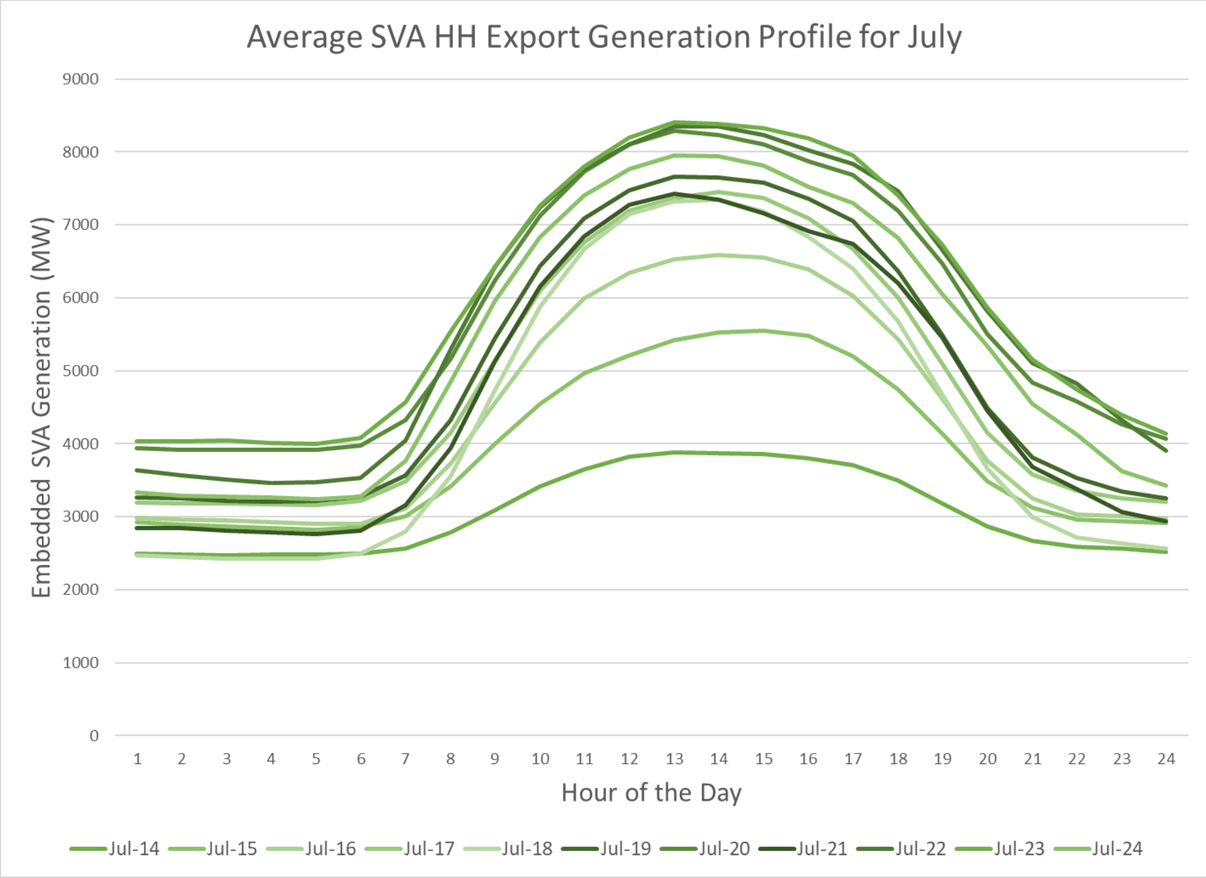


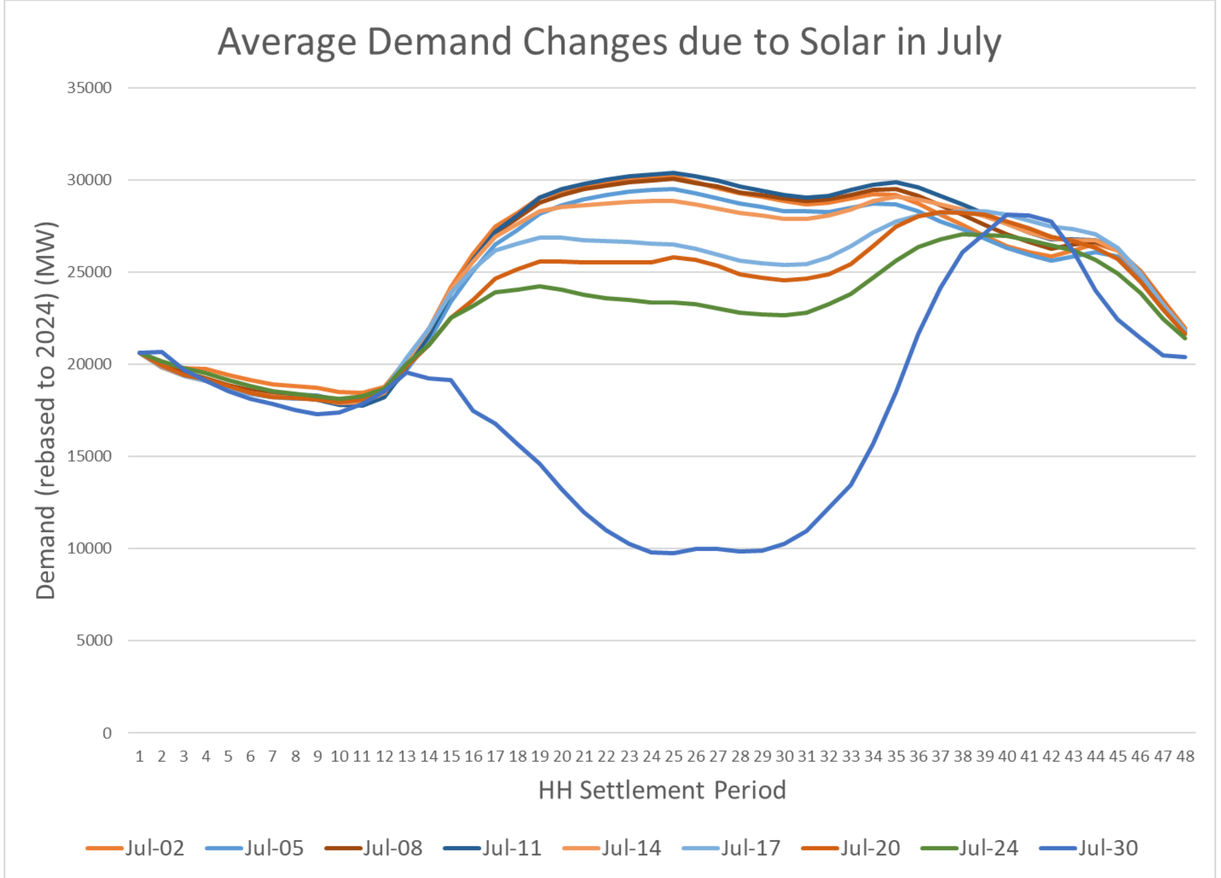
Source : Montel Analytics

Generation is Moving Deeper into the Network

Using SVA settlement data we can see how generation is moving down in the network.

Extrapolating demand we can see the impact of tripling solar by 2030





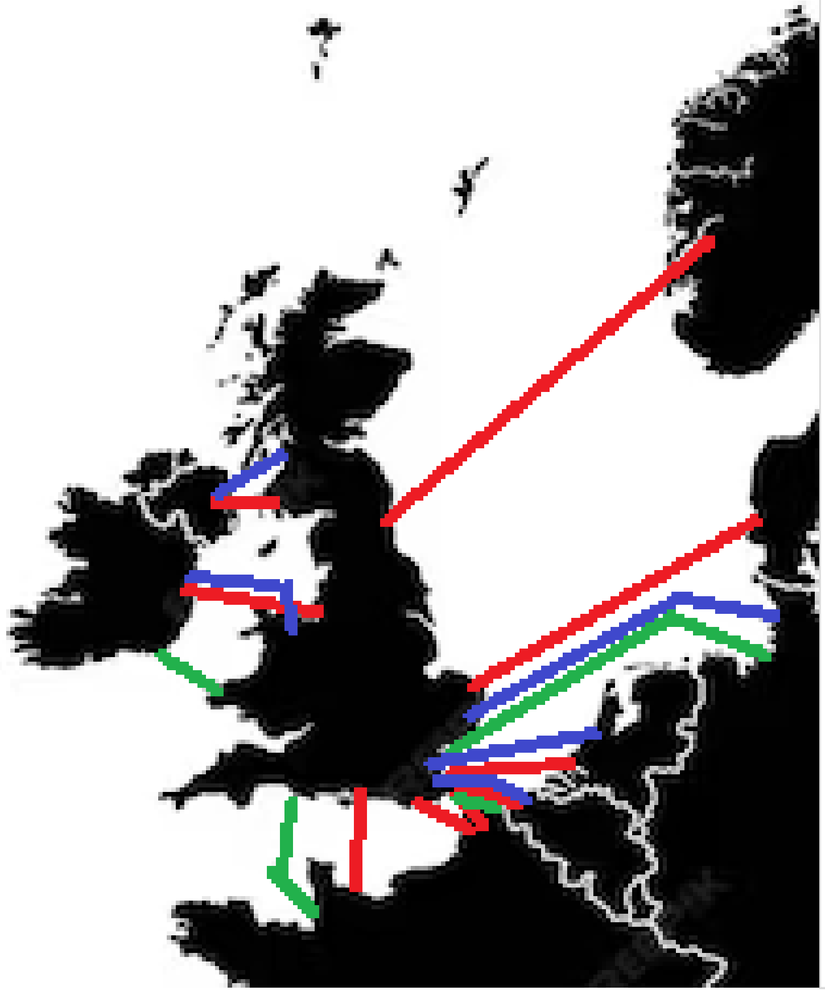
Source : Montel Analytics

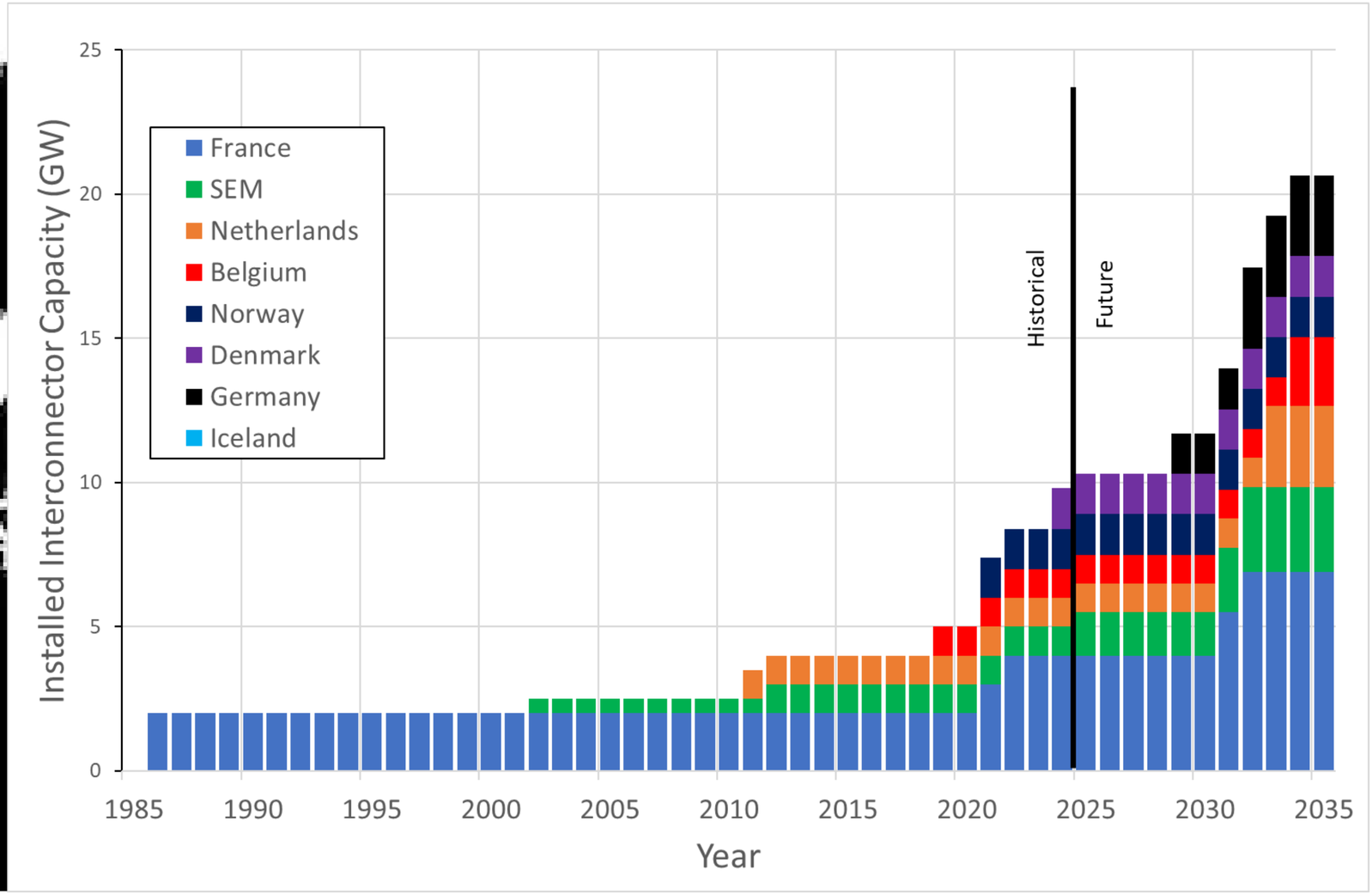
Current and Planned Interconnector Build Out into the GB Electricity Market

GB currently has 9.8GW of interconnection

Planned build out of Greenlink and Neuconnect to bring it to 11.7GW

Outstanding window 2 and 3 cap and floor takes it to 20.7GW by 2035

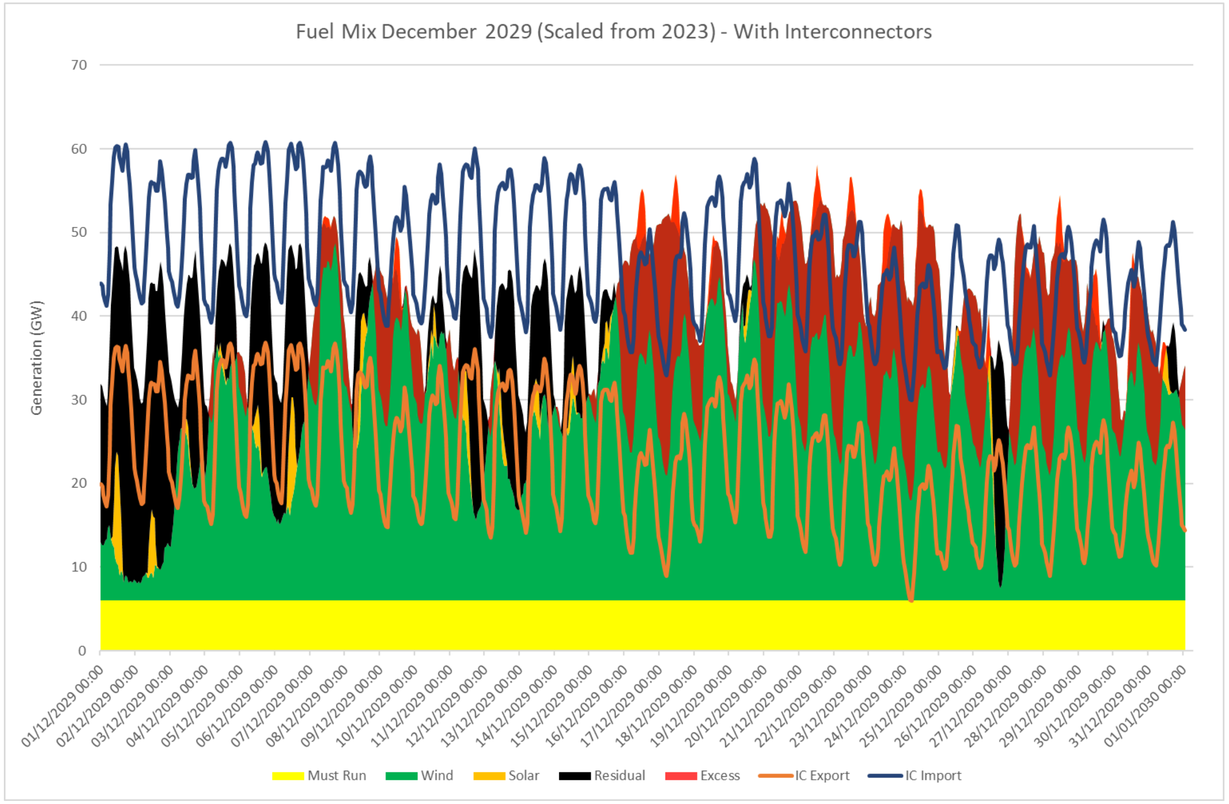


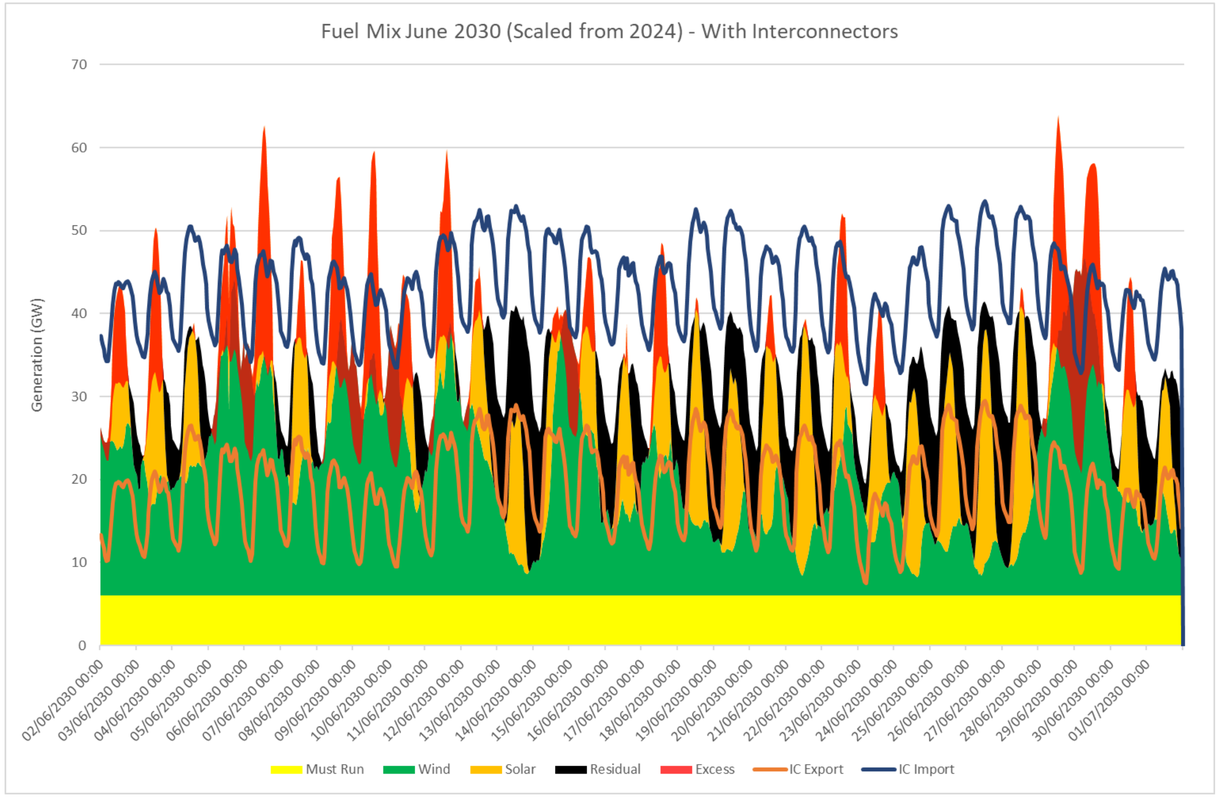


Electricity Demand in the Clean Power by 2030 World

Renewable Energy Penetration 2029/30

How does gross demand change between 2023 and 2030 but now let us add in interconnection.



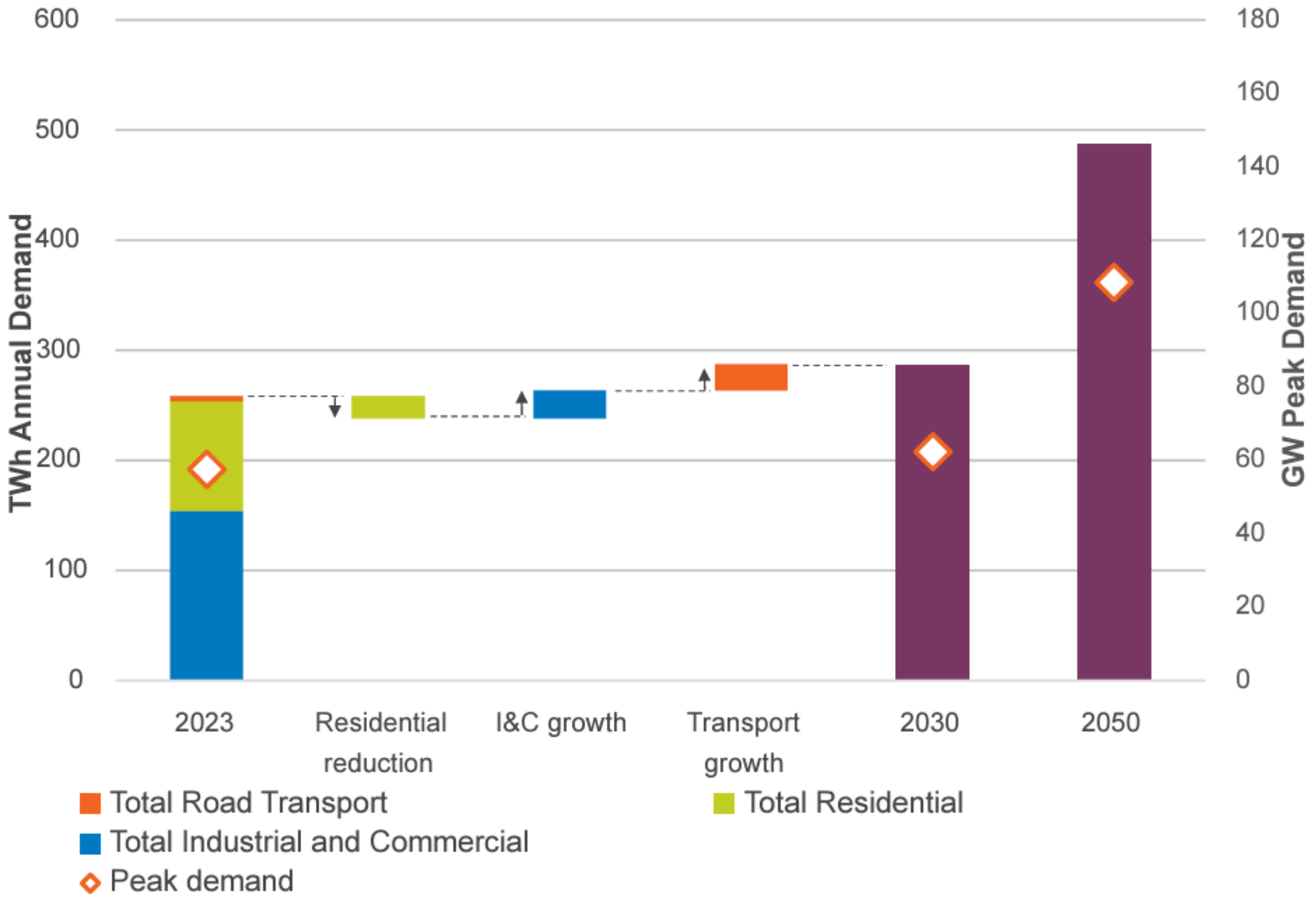


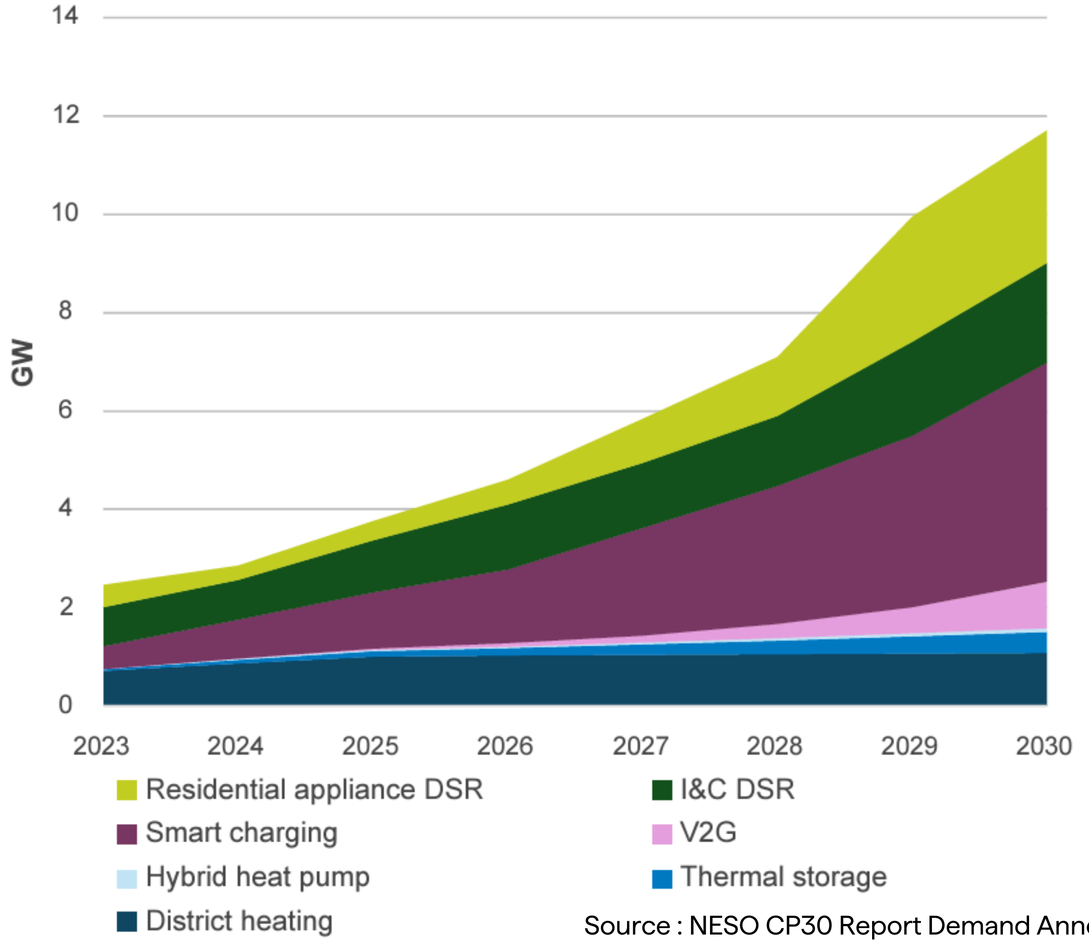
Source : Montel Analytics

Changes in consumer electricity demand from 2023 to 2030

How does gross demand change between 2023 and 2030?

How can DSR at the I&C and domestic level influence this



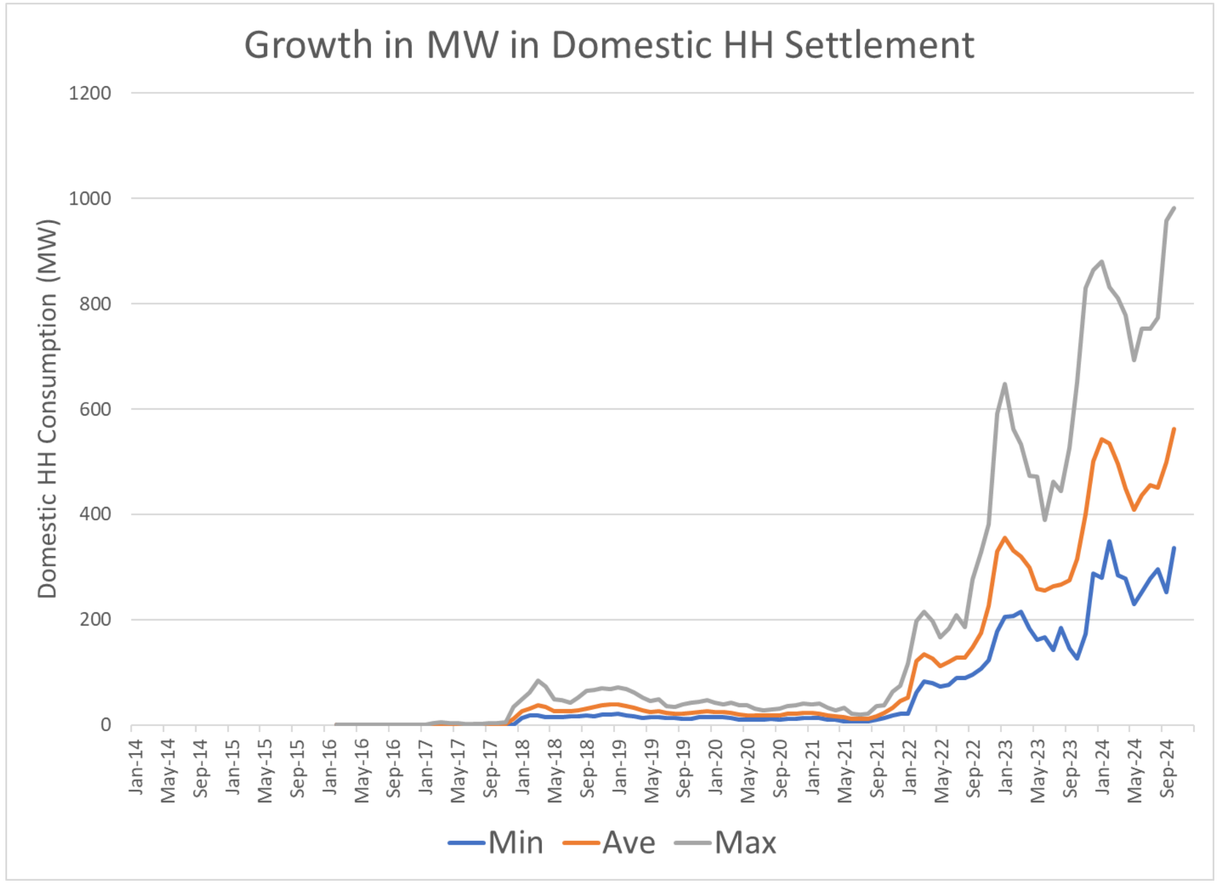


Source : NESO CP30 Report Demand Annex

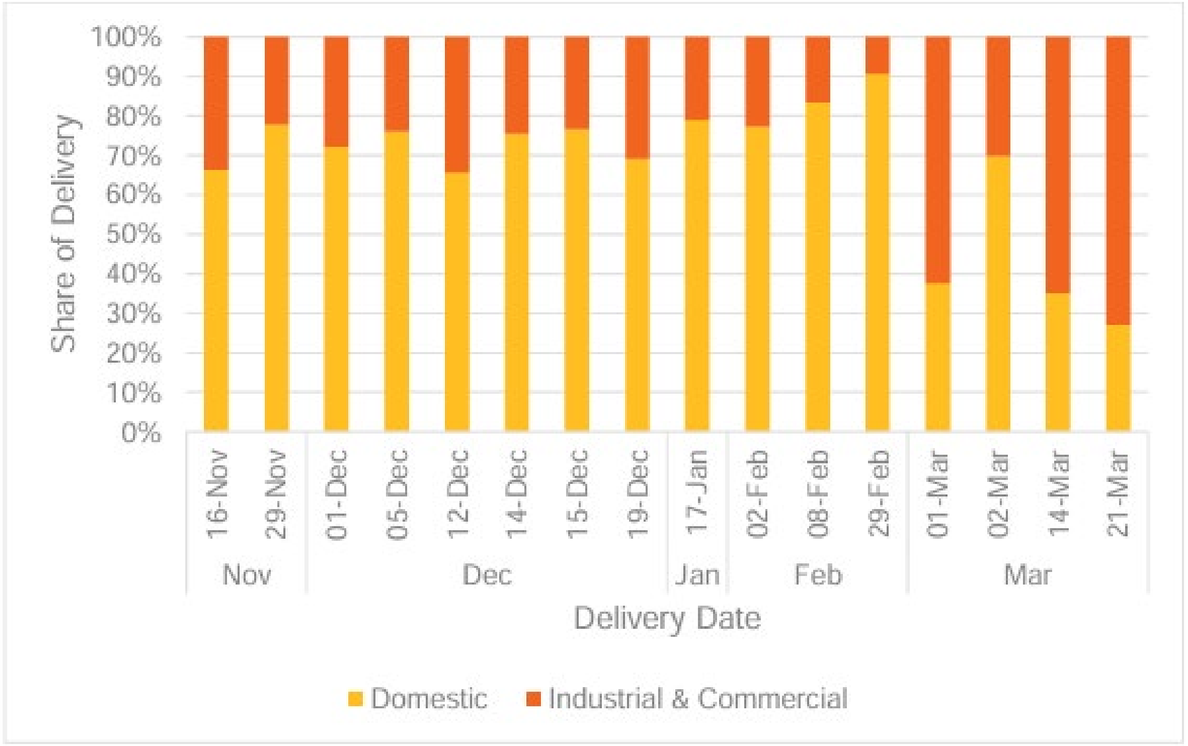
GB Innovations in DSR

HH Settlement is growing but still is a niche area and only for early adopters but it leads to the ability to deliver demand flexibility.

DFS launched in winter 2022/23, embedded in 2023/24 and now moving to be a service that compete with other dispatch sources



DFS Participation in 2023/24

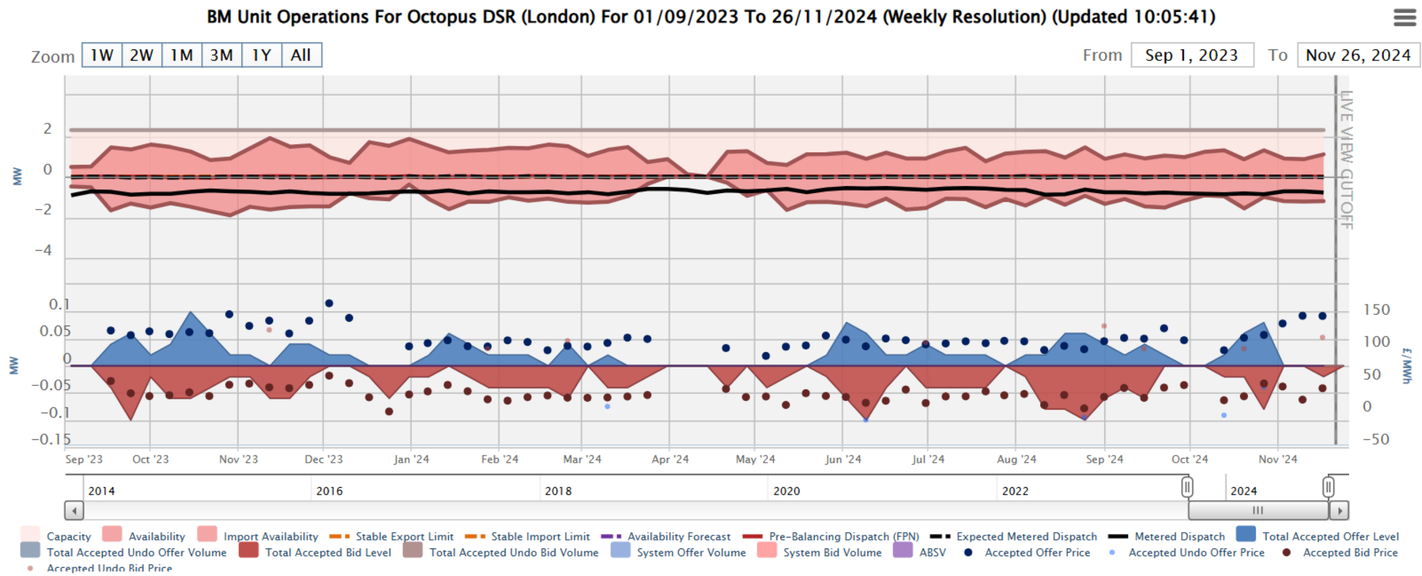


230MW dispatch in last event

Electricity Demand in the Clean Power by 2030 World

GB Innovations in DSR

As part of the Gendrive, LeasyV2X and Heat Pump Ready project our partners Gengame developed gamification approaches to dispatch of assets in the home like V1G scheduled charging



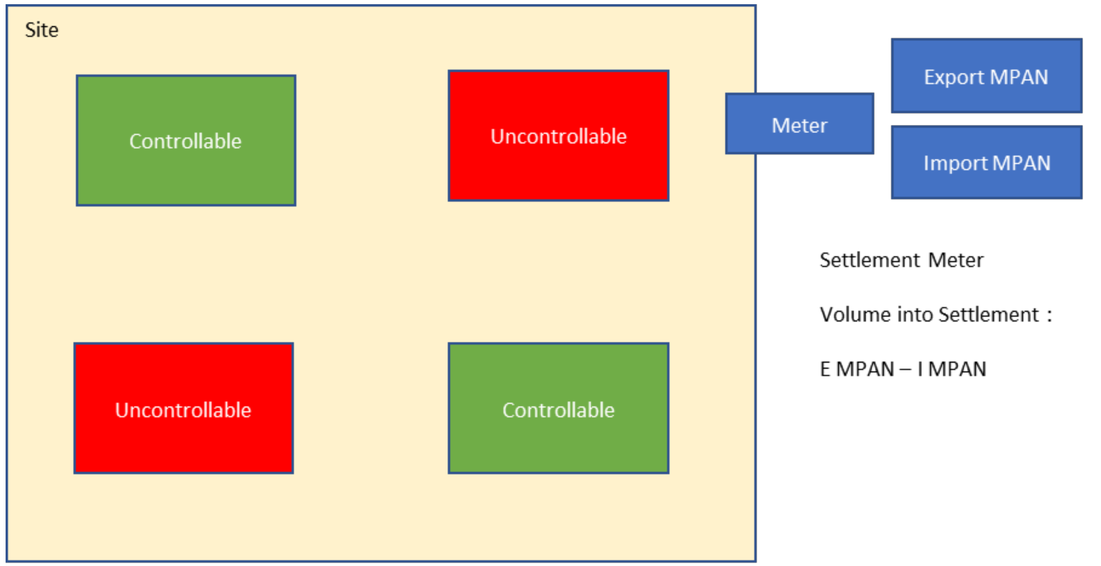
GB Innovations in DSR

How does gross demand change between 2023 and 2030?

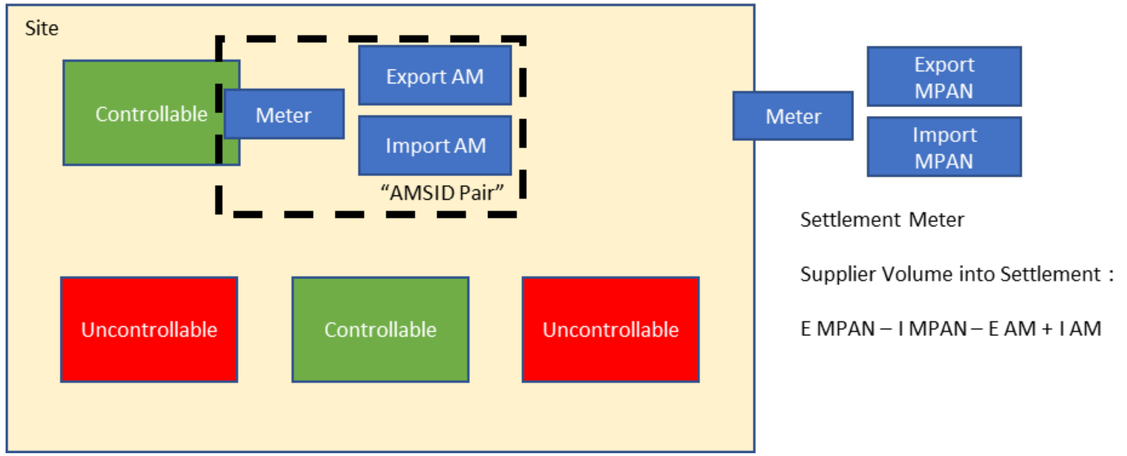
Driving Flexibility down to the lowest point

- P344 – Virtual Lead Parties
- P375 – Asset Metering
- P376 – Baselining
- P415 – VLPs in the wholesale markets
- P444 – Properly accounting for wholesale charges and benefits from VLP actions

EV Charger/ Domestic Battery / Heating all managed and traded by different parties

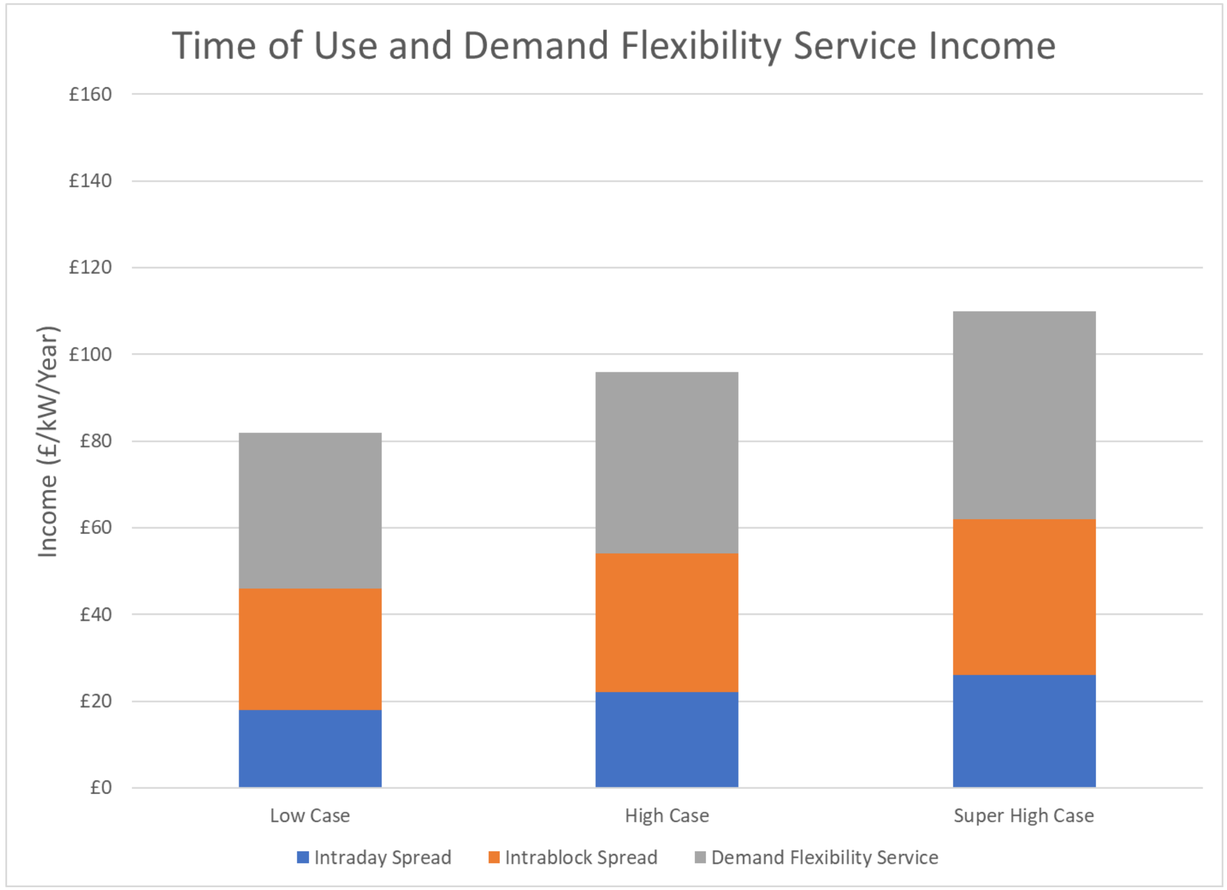


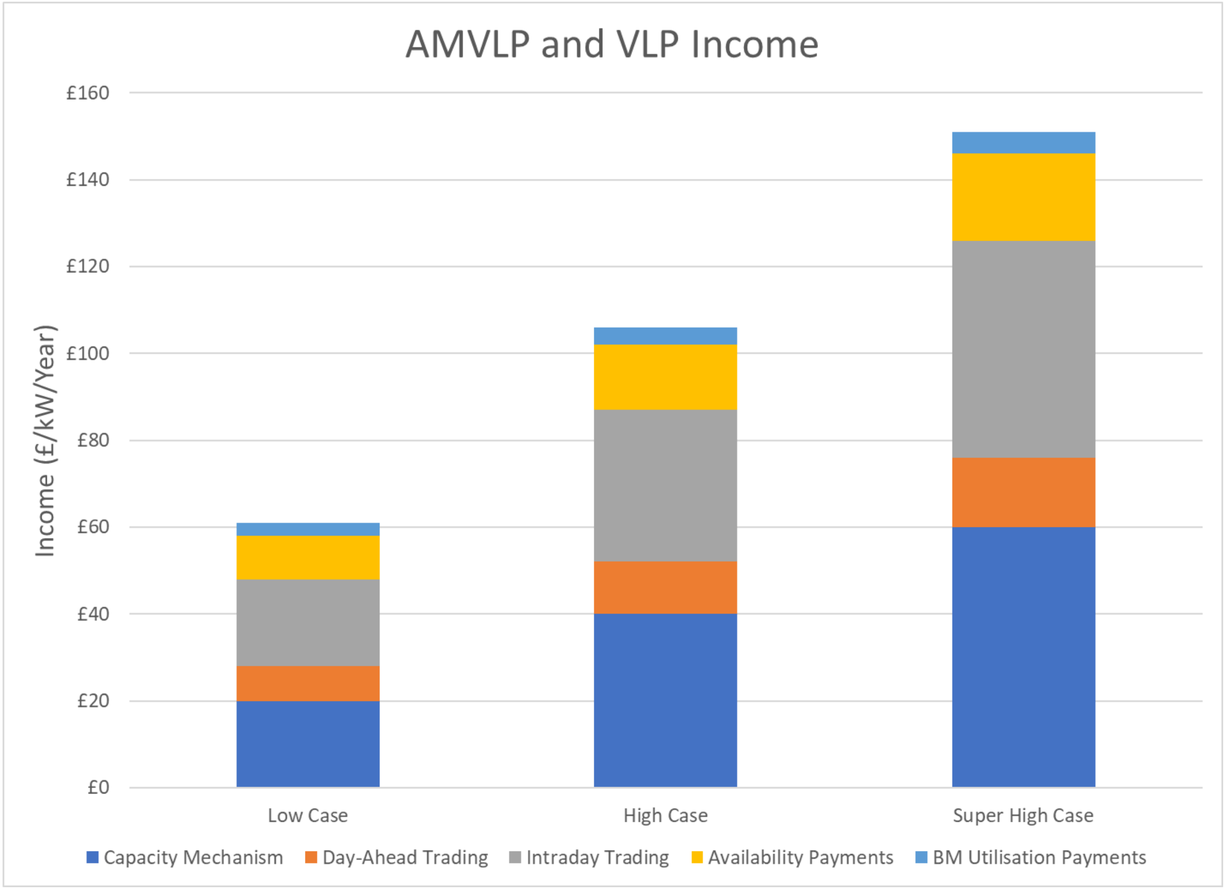
AMVLP Volume into Settlement : E AM - I AM



GB Innovations in DSR Domestic Income Streams

As part of the LeasyV2X and Heat Pump Ready project Montel Group UK did some analysis on the potential revenue streams from domestic flexibility for load shifting on smart tariffs and load shifting as a VLP





Thank You!

phil.hewitt@montel.energy

MONTEL