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Ireland's Future Power System and the Climate Action Plan

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Institution : University College Cork

HOST INSTITUTION



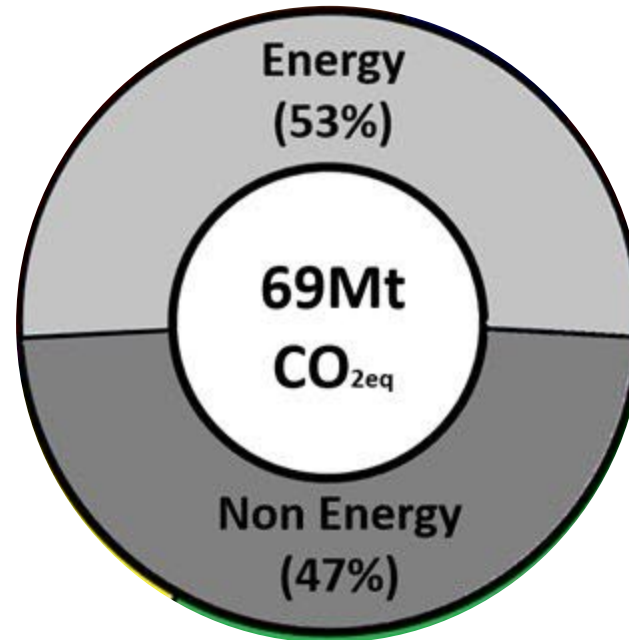
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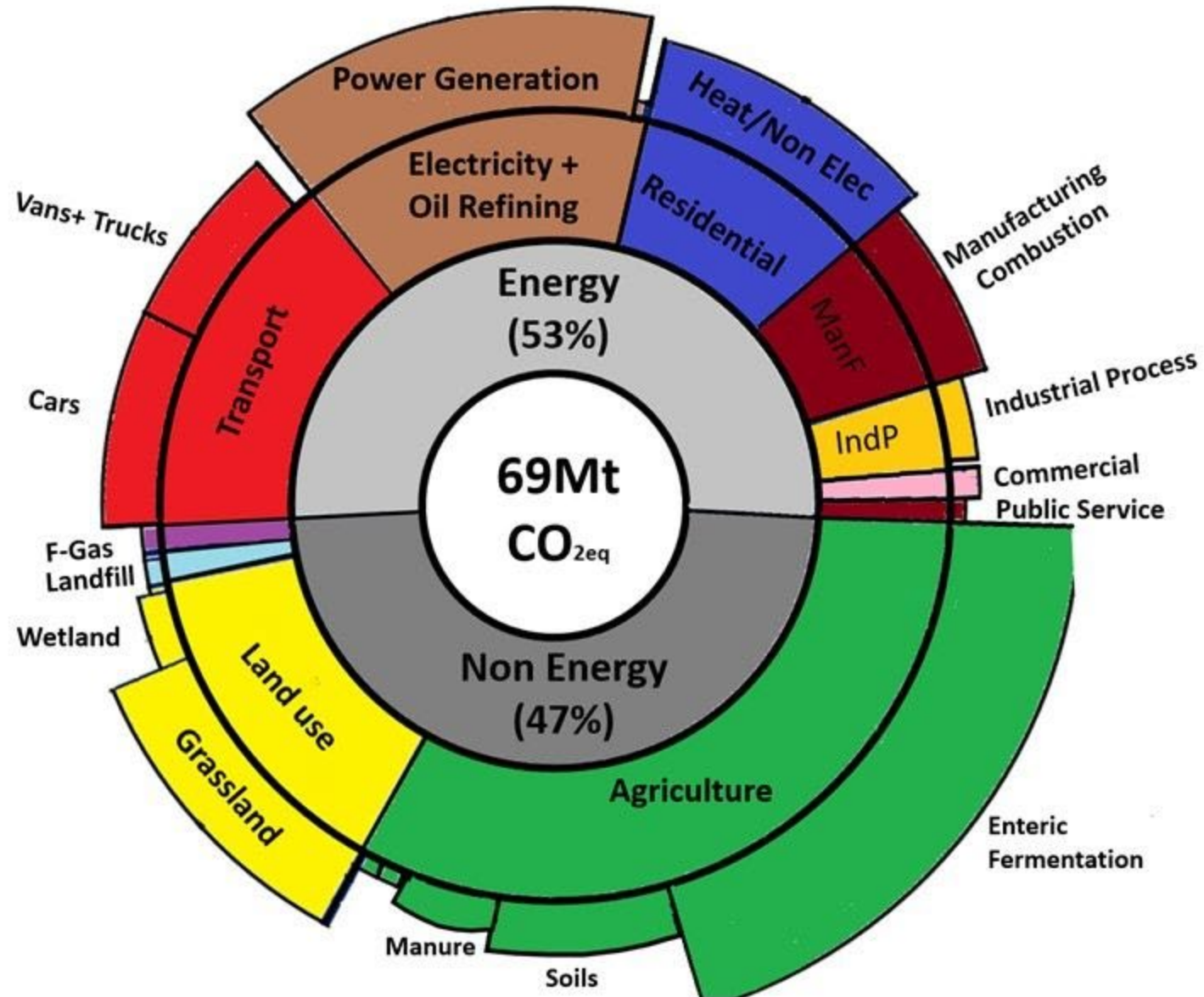
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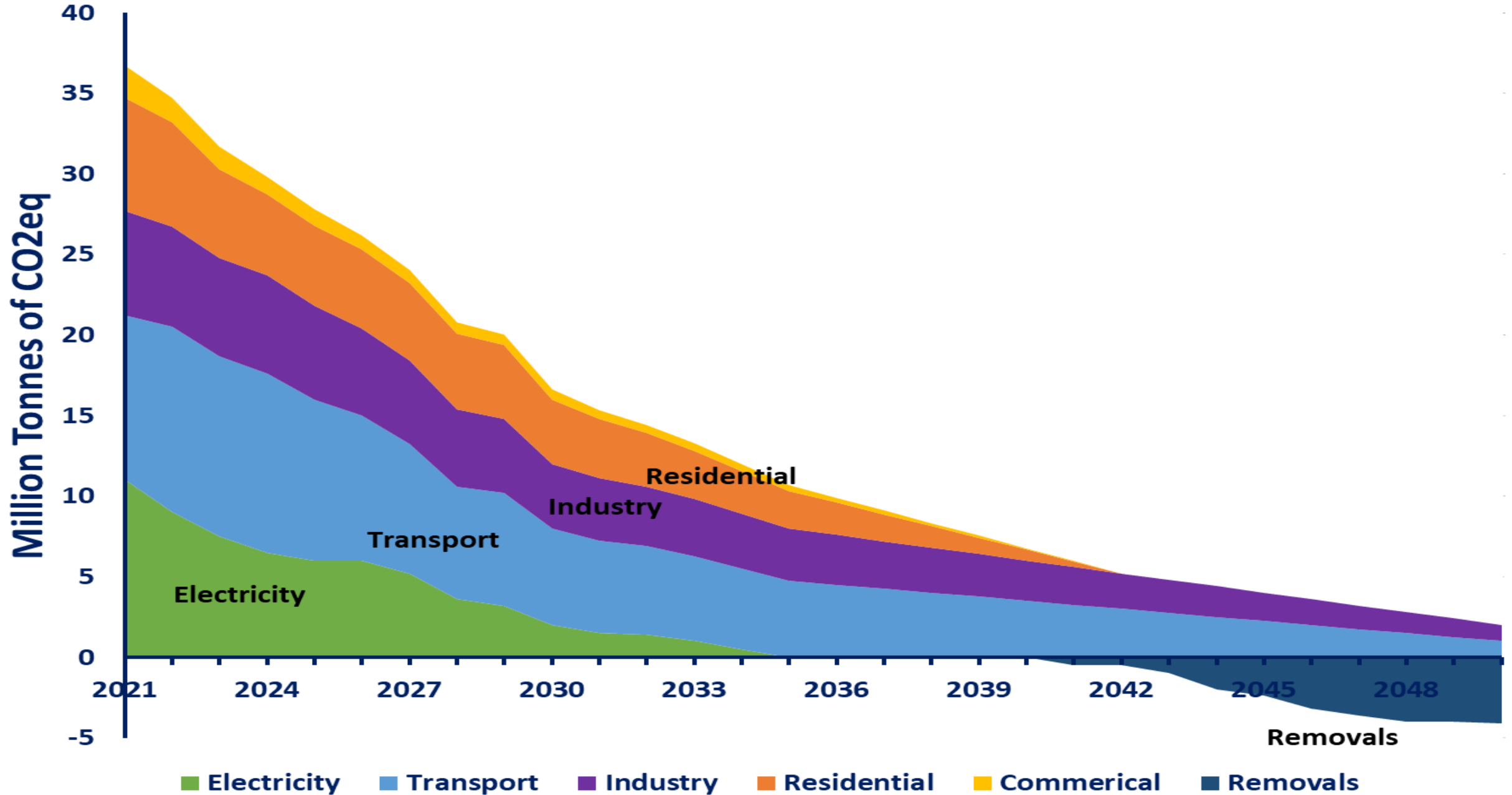
Ireland's Greenhouses Gas Pollution 2021



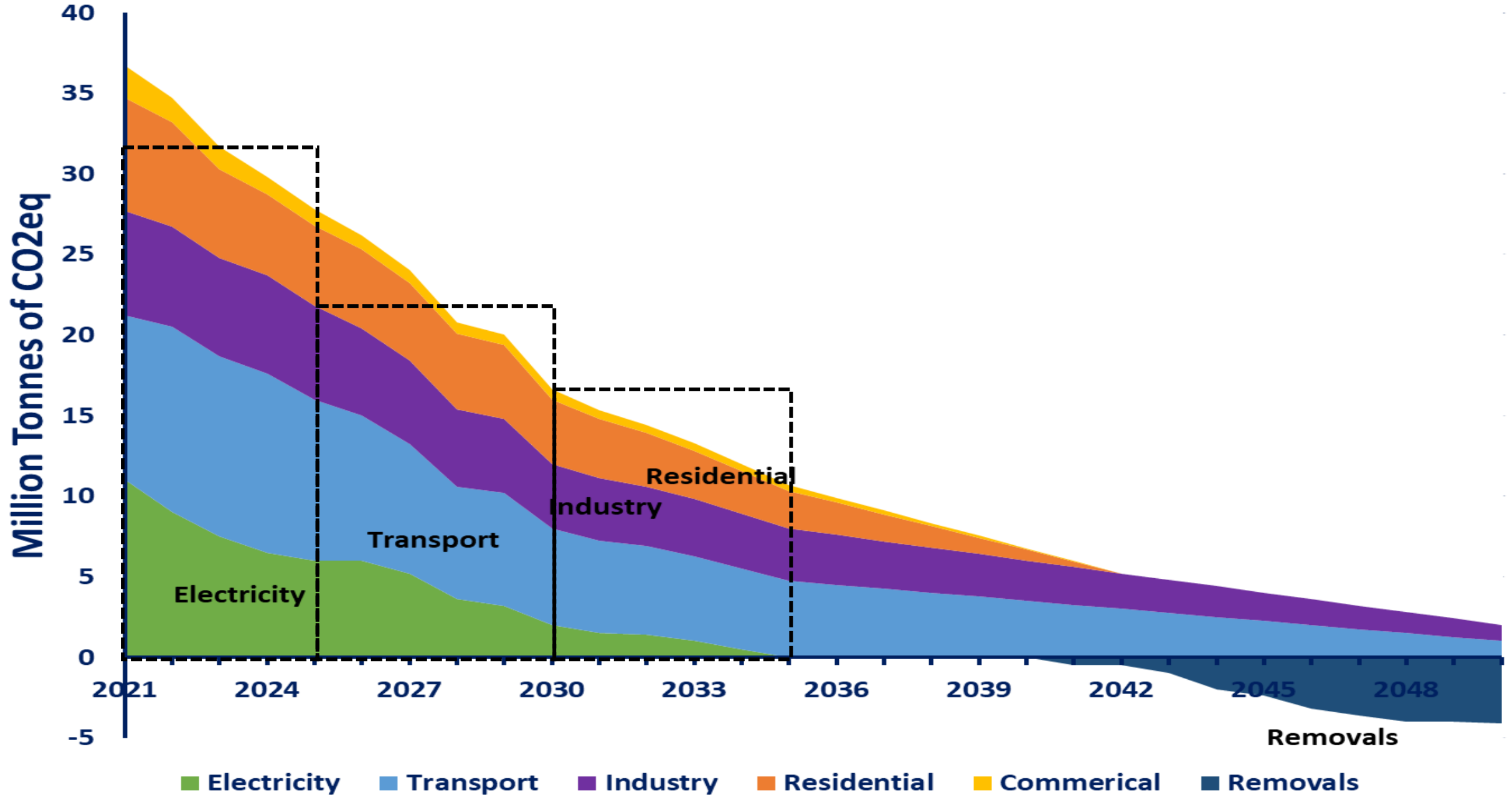
Ireland's Greenhouses Gas Pollution 2021



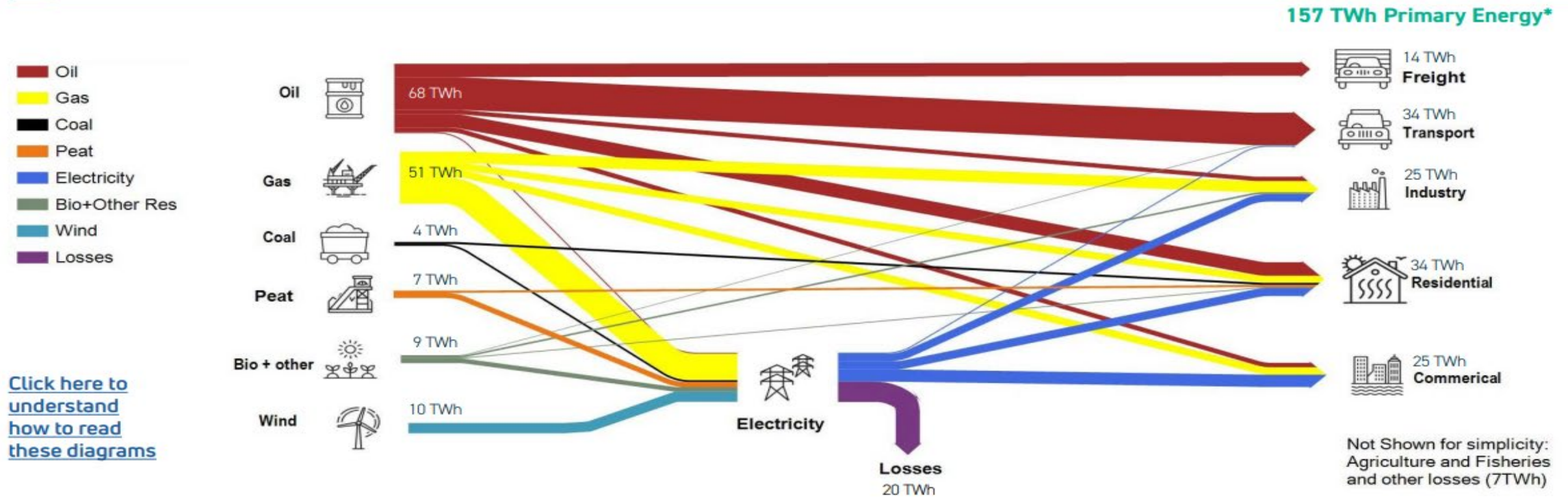
'Net Zero' Energy System Emissions Reduction Profile



'Net Zero' Energy System Emissions Reduction Profile



Ireland's Energy System 2019



Our Energy system is dominated by imported fossil fuels with strong end use demand from Transport



Primary Energy*
32 MWh/capita



Energy Emissions
37 Million tonnes



Renewable Energy
12%



Renewable Electricity
37%



Import Dependence
70%

Figure 2: Ireland's energy system in 2019 * Excludes international aviation and shipping

- ❖ Ireland's CAP targets are based on cumulative emissions across time rather than absolute emissions at some point in time
- ❖ Climate policy is based on averages, but **energy security is influenced by extremes**
- ❖ Delivering a reliable decarbonized power system is key
- ❖ Renewables replace the **use** but not the **need** for conventional generation.
- ❖ Over the next decade, being able to operate the Irish power system during times with **100% renewable generation is key to reducing emissions**, beyond that being able to operate the system at times with close to **0% renewable generation is essential for reliability**.
- ❖ **Strategic Storage** as well as **Seasonal Storage** of zero carbon energy is needed in Ireland to deliver a reliable decarbonized energy system.

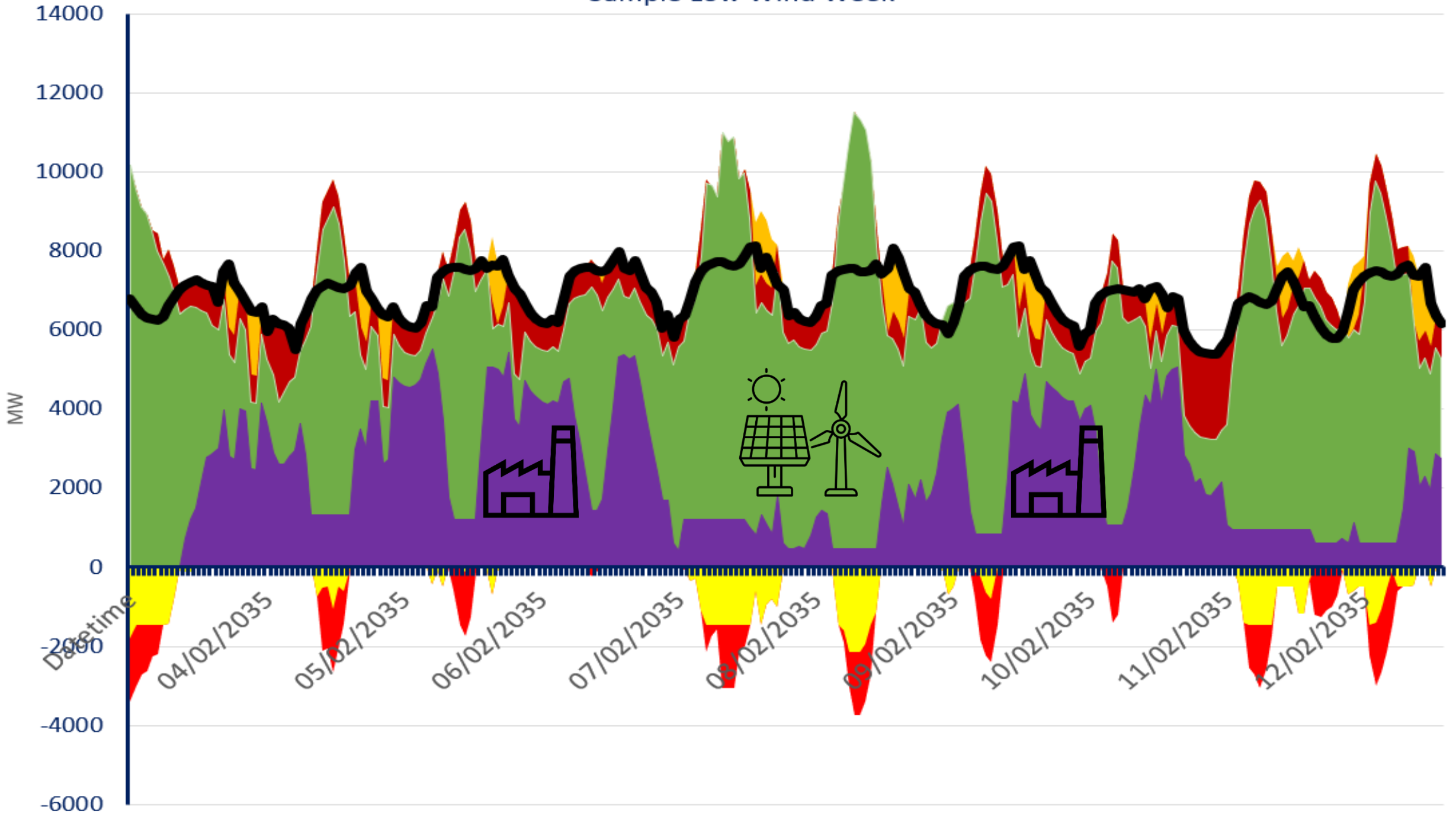
Key Actions

- ❖ Limit and **Eliminate** the use of Peat, Coal and Oil in the period to 2025
- ❖ Delivering on new renewable capacity **in parallel** with **conventional gas capacity**
- ❖ Growth in new electricity demand must be **moderated or managed**
- ❖ We must **Build Grid**
- ❖ We must have a **Skilled Energy Workforce**
- ❖ We must deliver **Demand Side Flexibility** to manage supply variations
- ❖ Being able to operate the power system at times with **100% renewable generation** is key.
- ❖ We need to understand future power system requirements and **put in place markets to deliver it today**
- ❖ We must reduce emissions, but we also need to **remove emissions**

Wind Droughts/Dunkleflaute/Aimsir shuaimhneach

- Extended periods of low-wind conditions already occur today
- Europe experienced a long period of dry conditions and low wind speeds, through summer and early autumn 2021
- April to September 2021 was the **least windy period for most of the UK and parts of Ireland in the last 60 years.**
- January 2021 in the UK saw the lowest wind speeds for at least 20 years and as a result offshore wind generation was 16% lower than the same period a year before
- The possibility of more frequent and severe wind droughts due to **global climate change cannot be ruled out**
- **Future systems thinking must therefore plan for these, and other climate risks**

Sample Low Wind Week



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Thank you

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