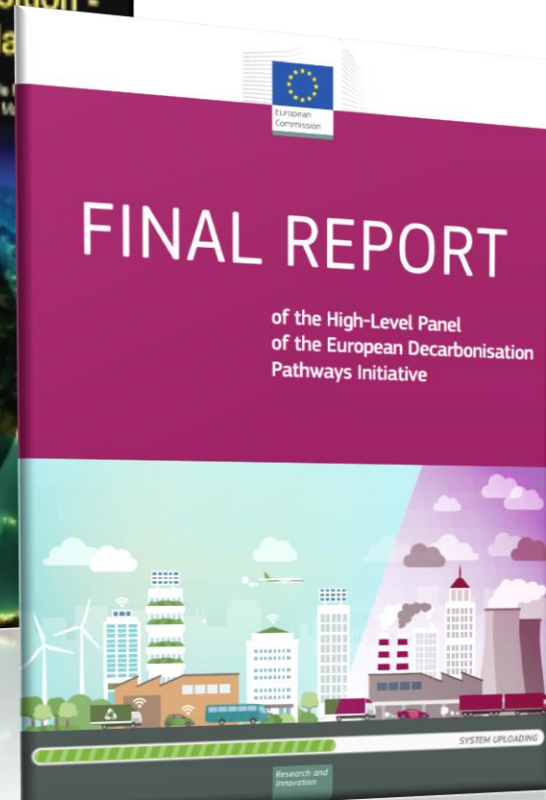
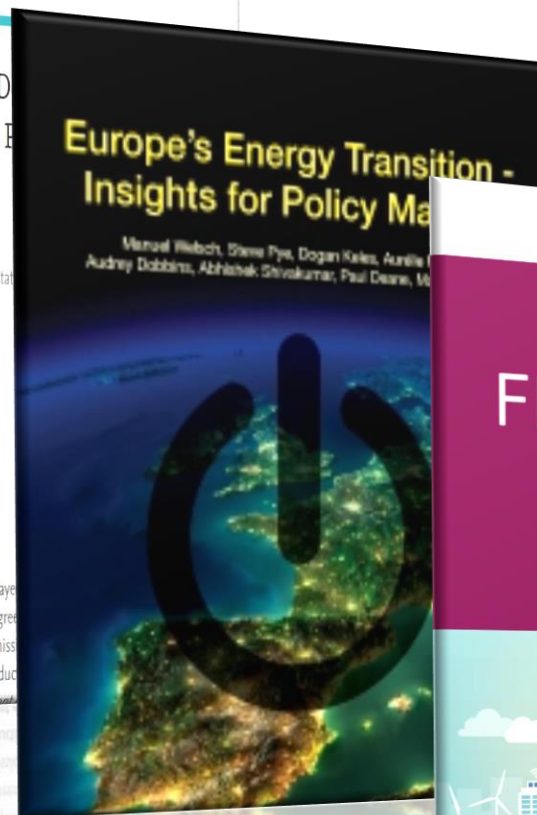
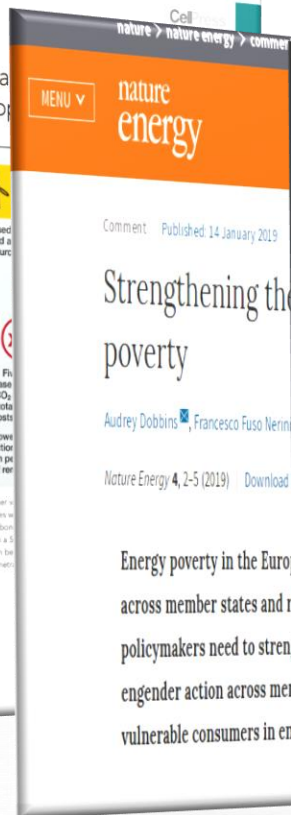
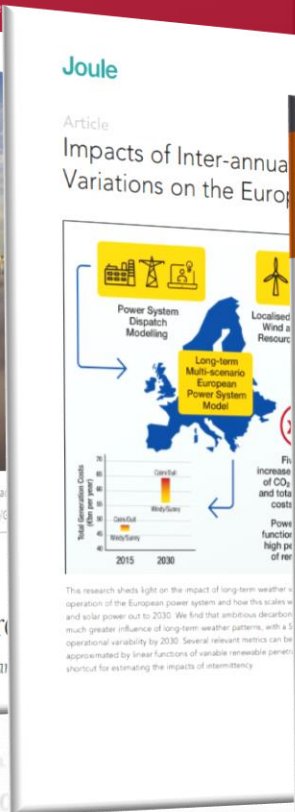




Delivering a climate neutral Europe by 2050

Paul Deane

A World Leading SFI Research Centre



Key Messages

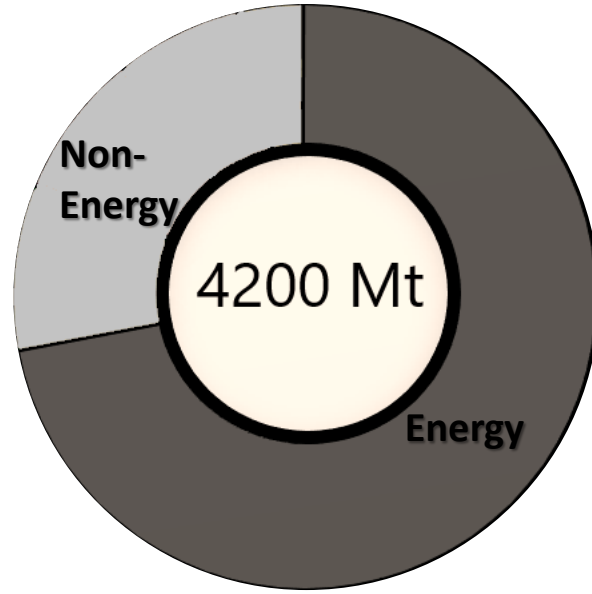
- Current Policy is not enough
- Paris alignment will require radical changes in
 - Energy efficient
 - Electrification
 - Enhancement of renewables
 - Action across all sectors is required
- Costs are significant, particularly in short term

Starting point

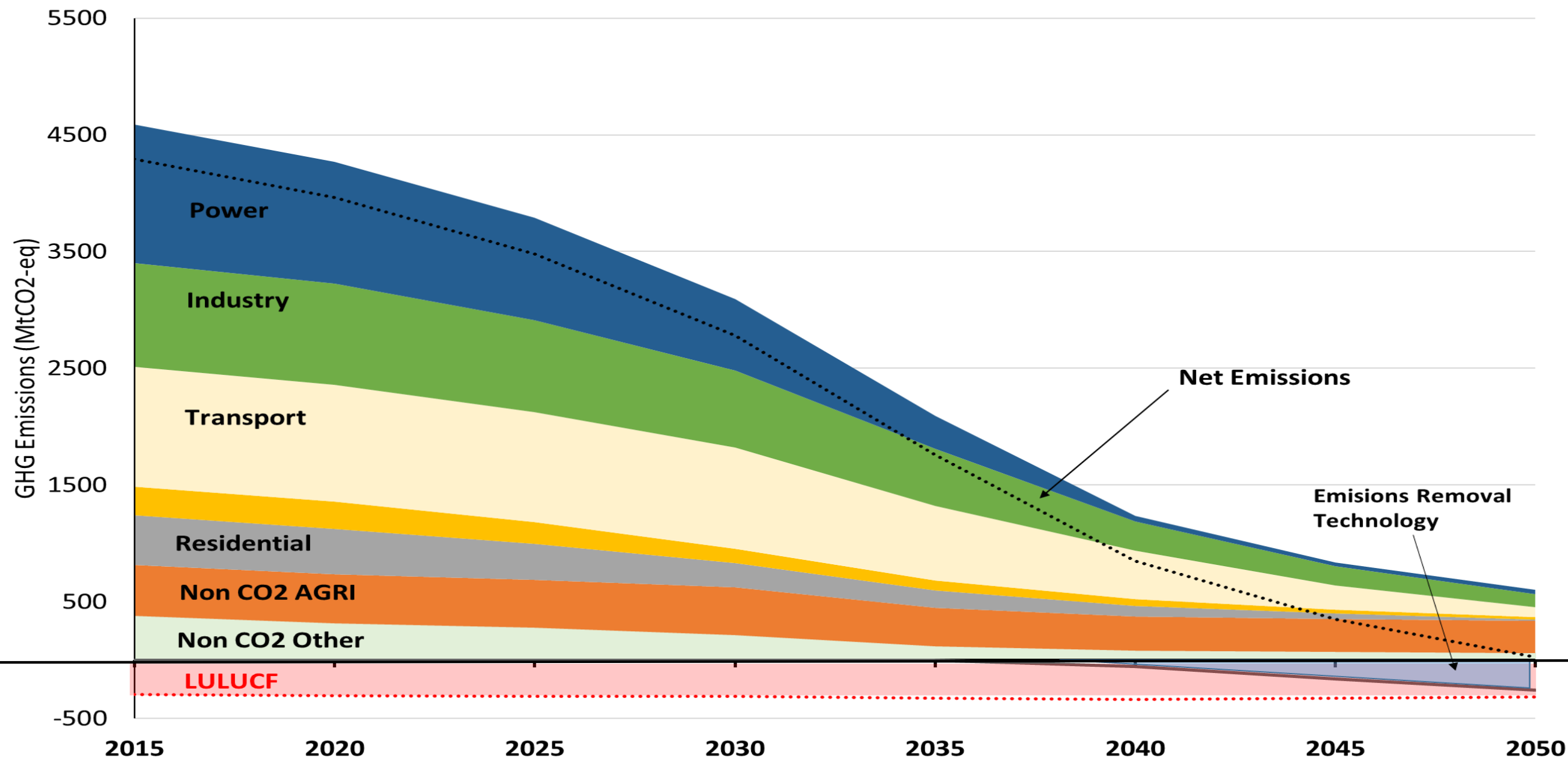
Destination?



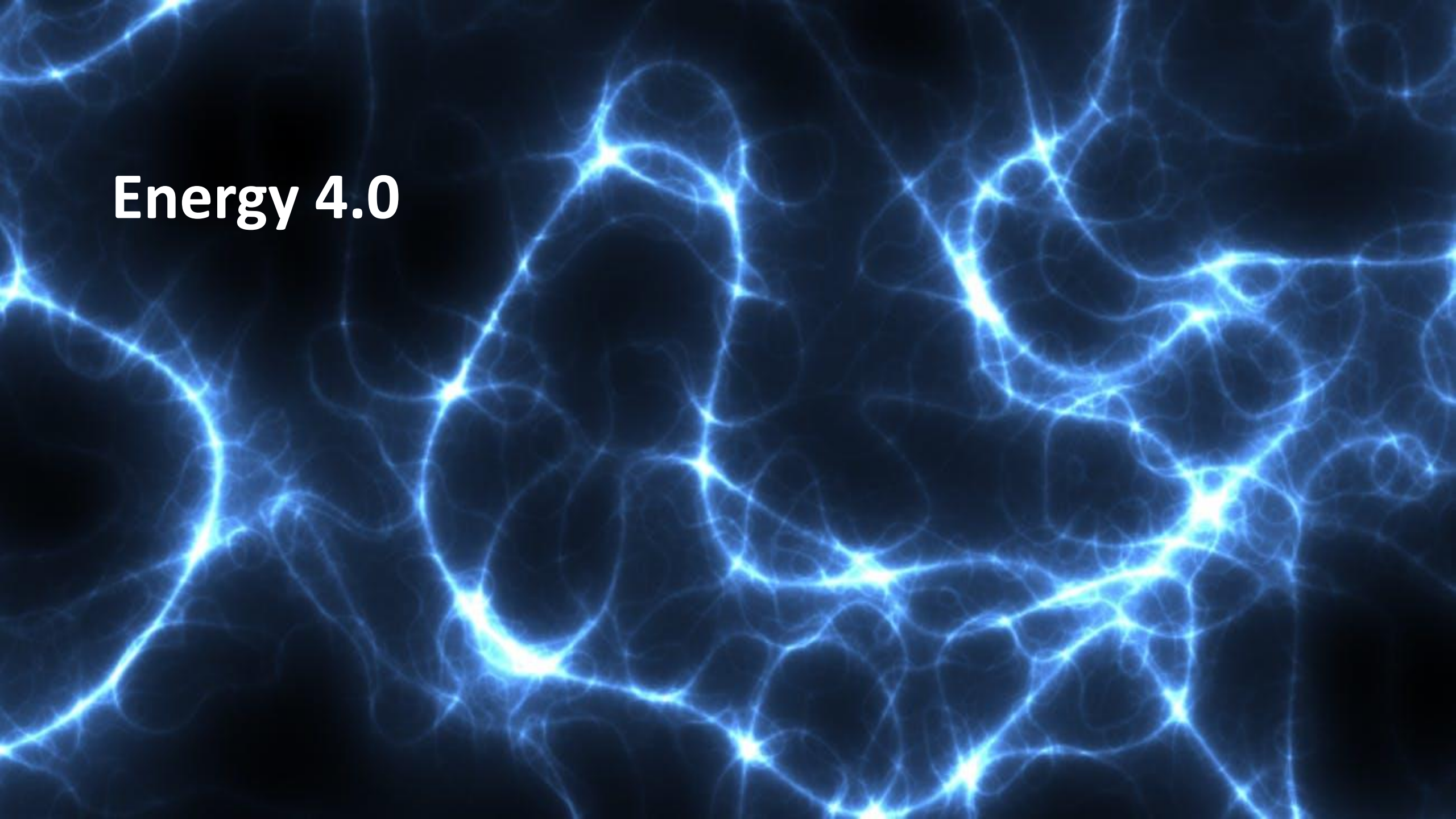
ALL Greenhouse Gas Sources in Europe (Millions of tonnes of CO₂ eq)



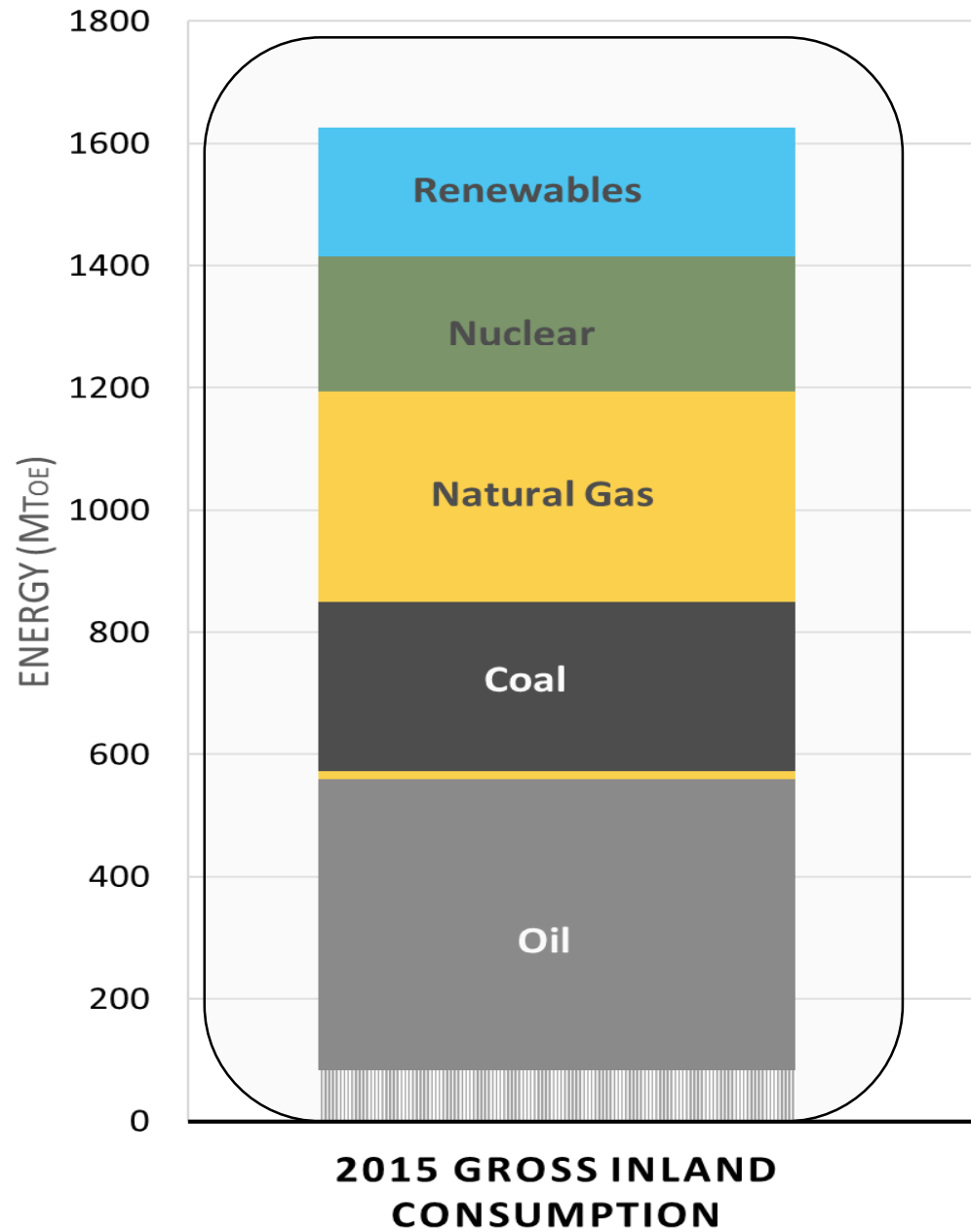
GHG Emissions in 1.5 Degree Scenario



Energy 4.0

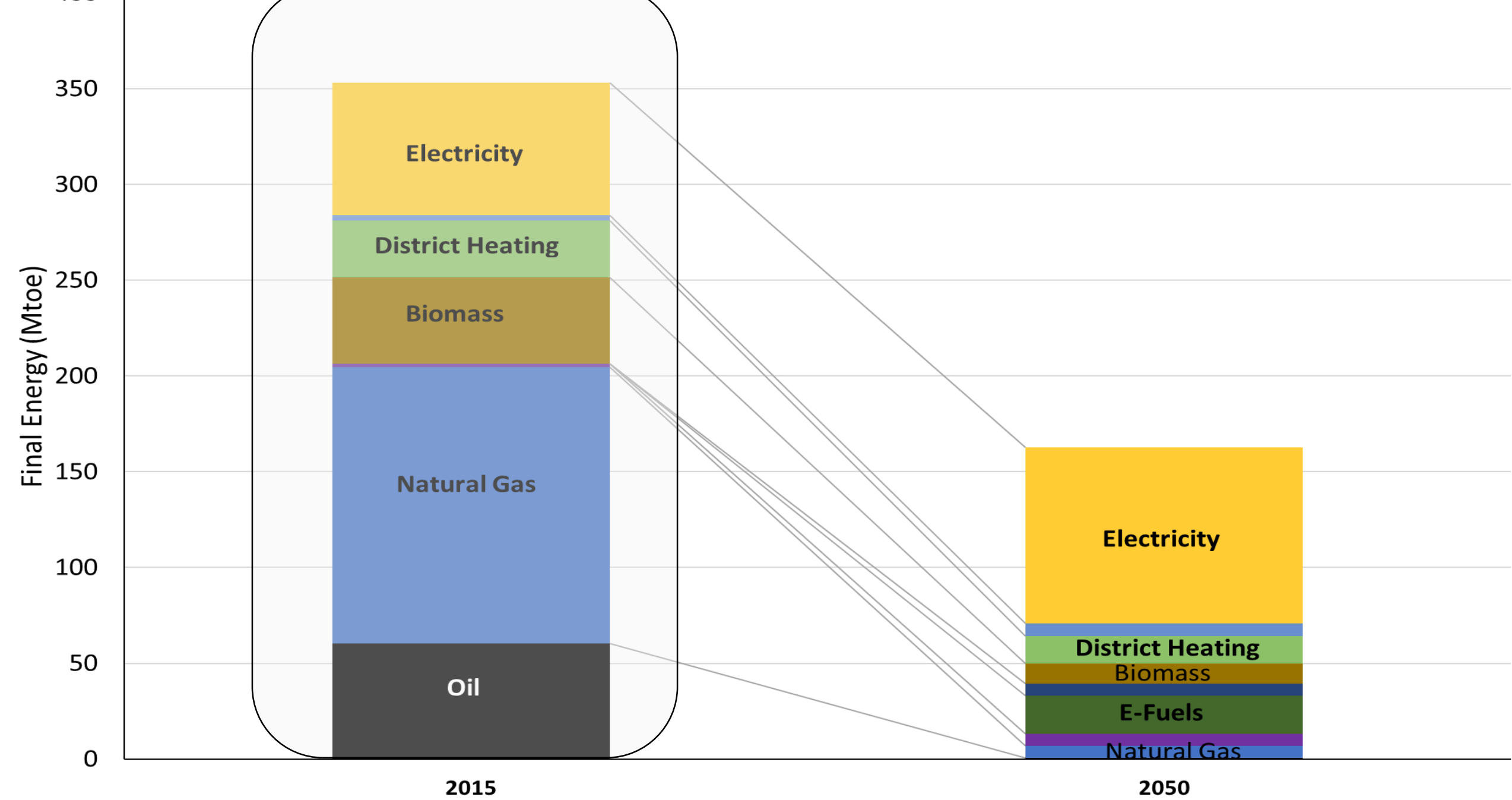


ENERGY OVERVIEW-GROSS AND FINAL ENERGY



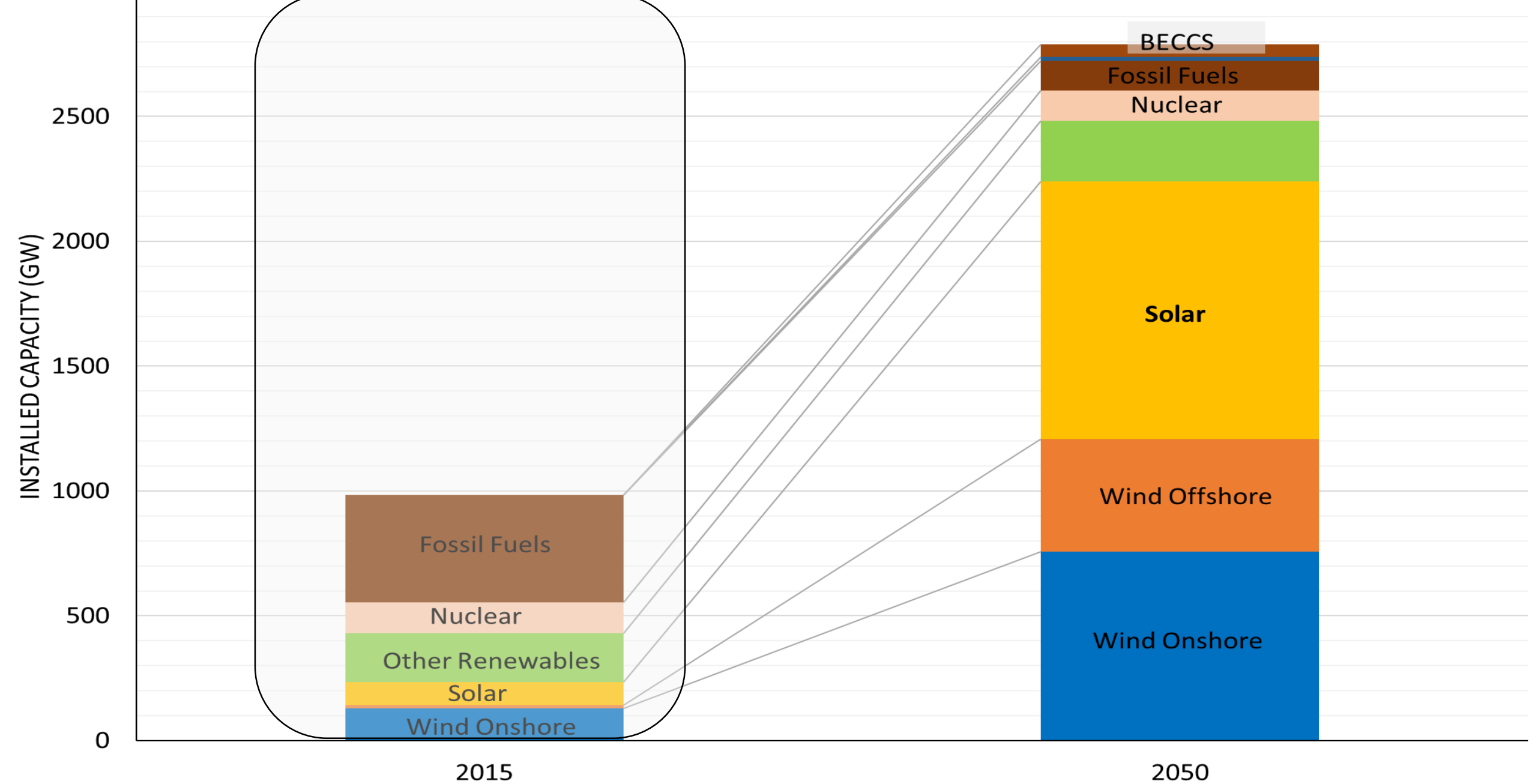


Buildings



Electricity and Grids

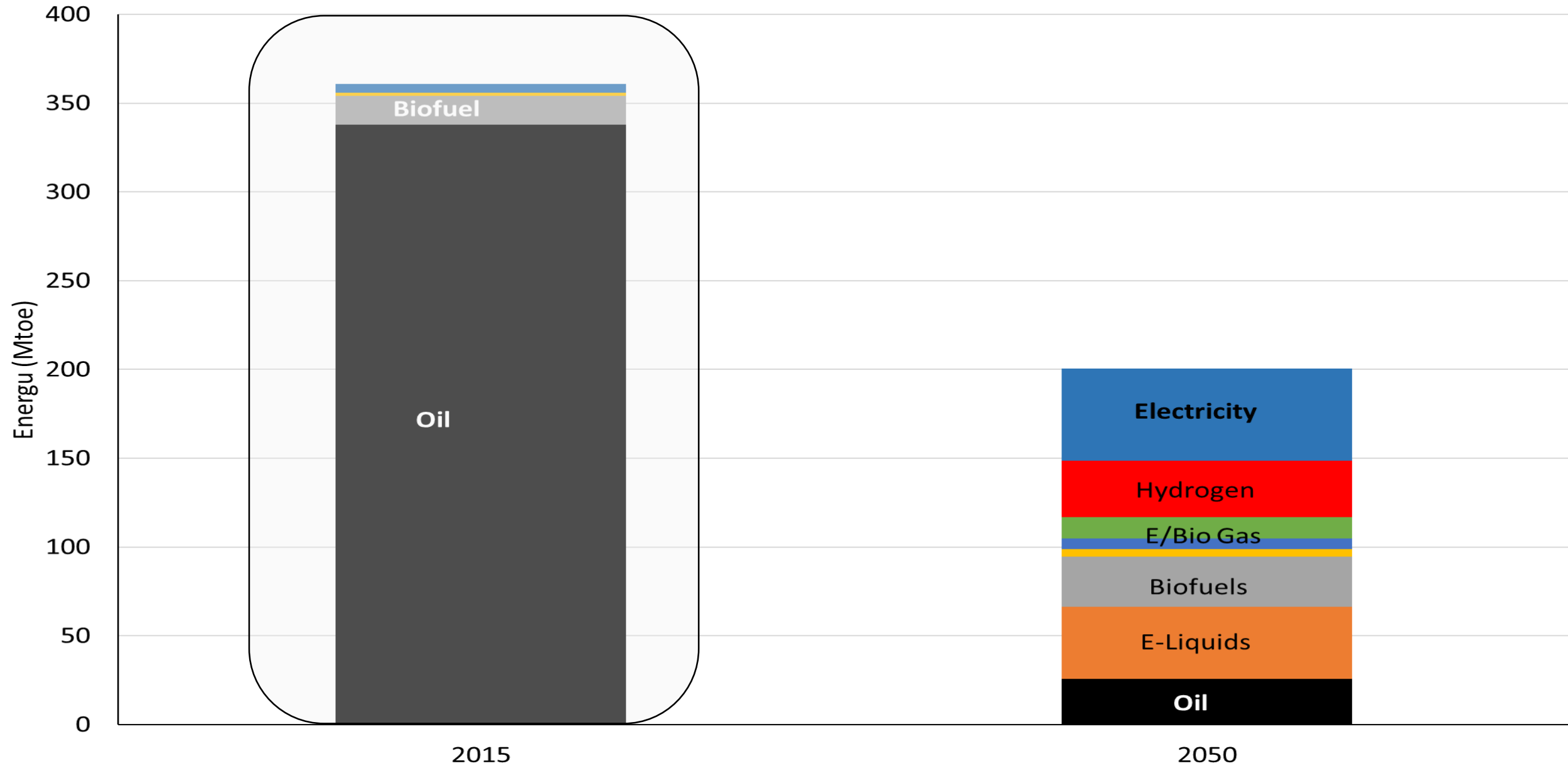




Transport and Mobility



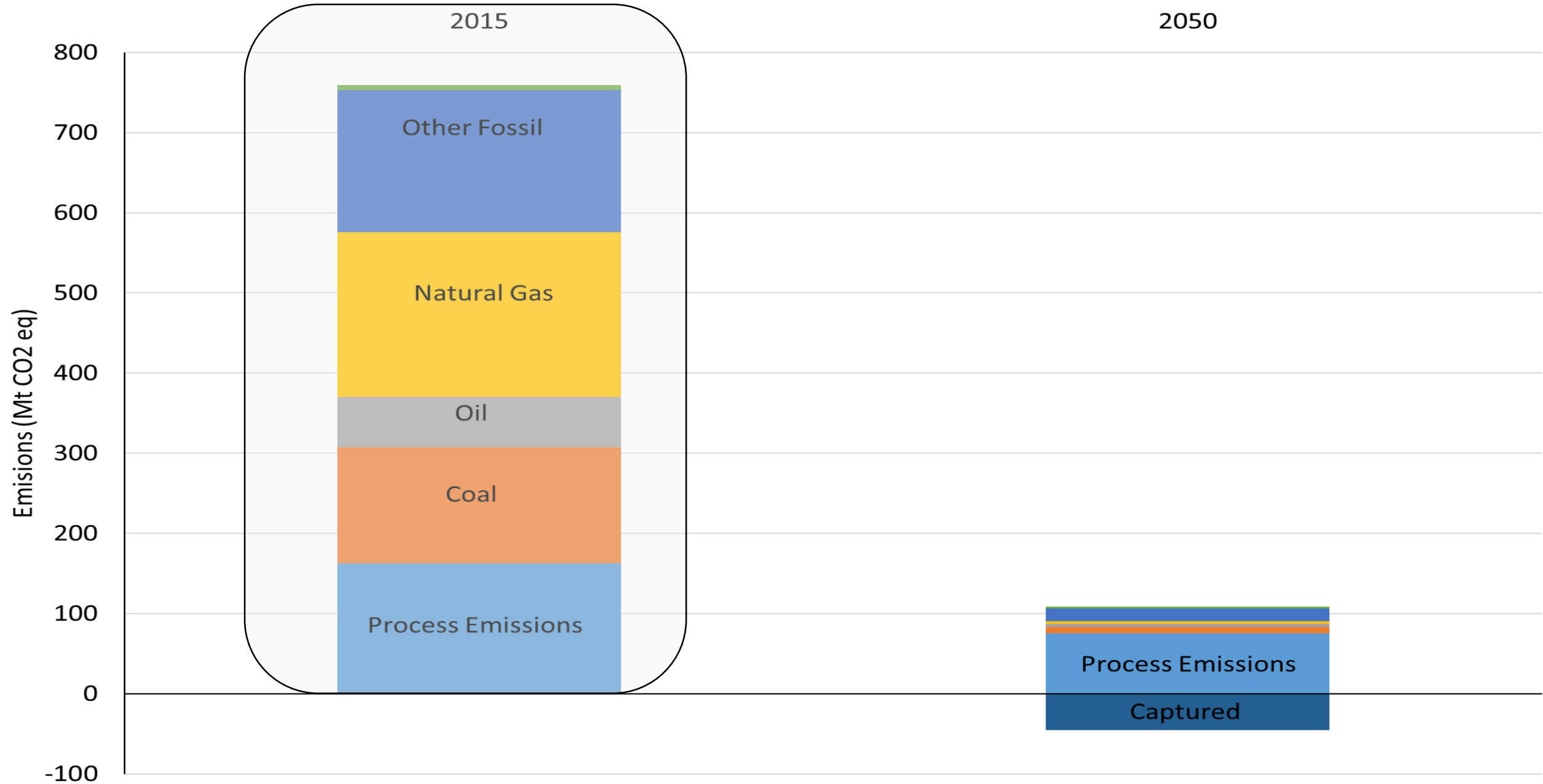
Energy in Transport



Industry



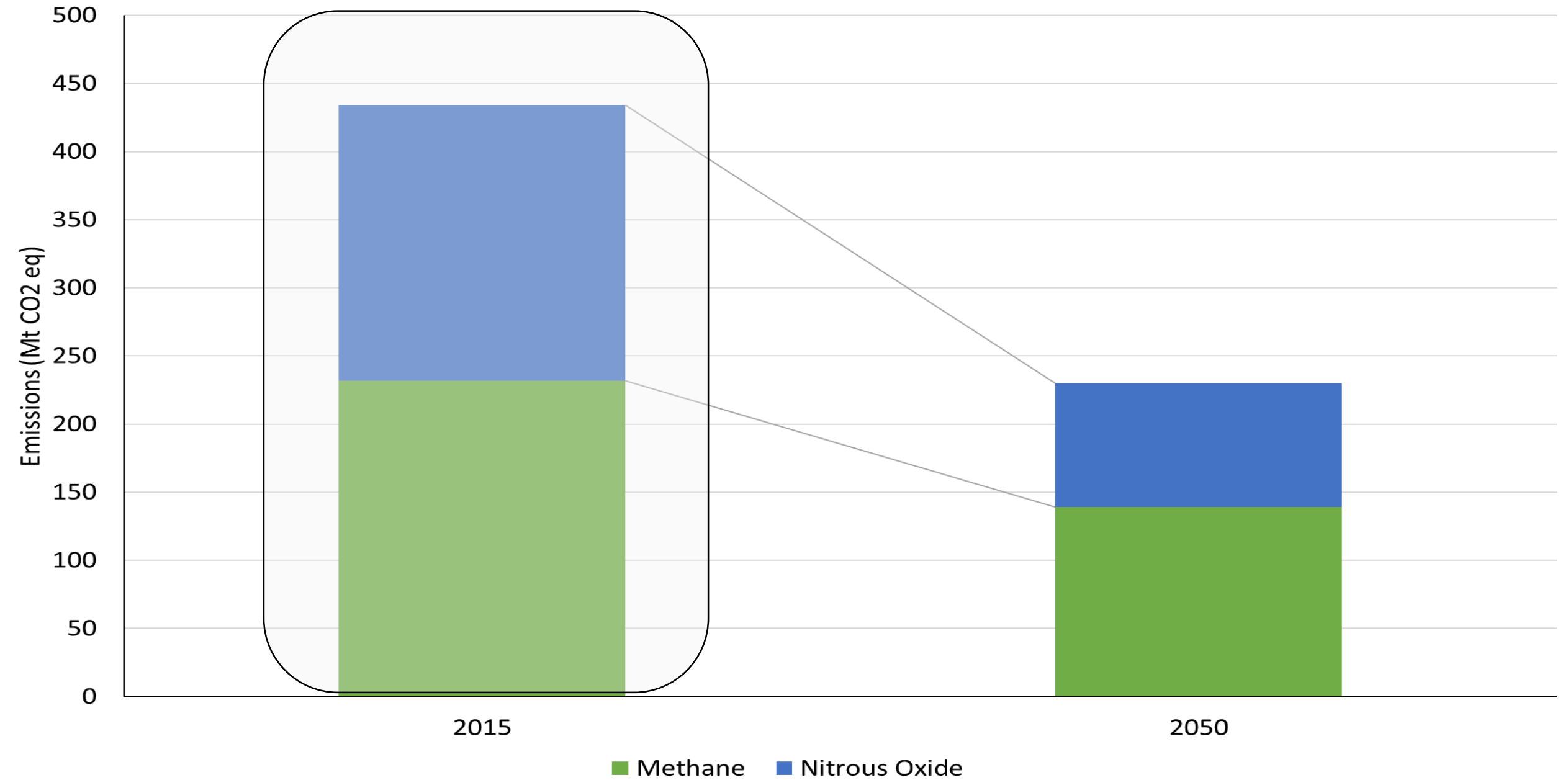
Sources of Industrial Emissions




Agriculture/Food/Land use



Agriculture Emissions

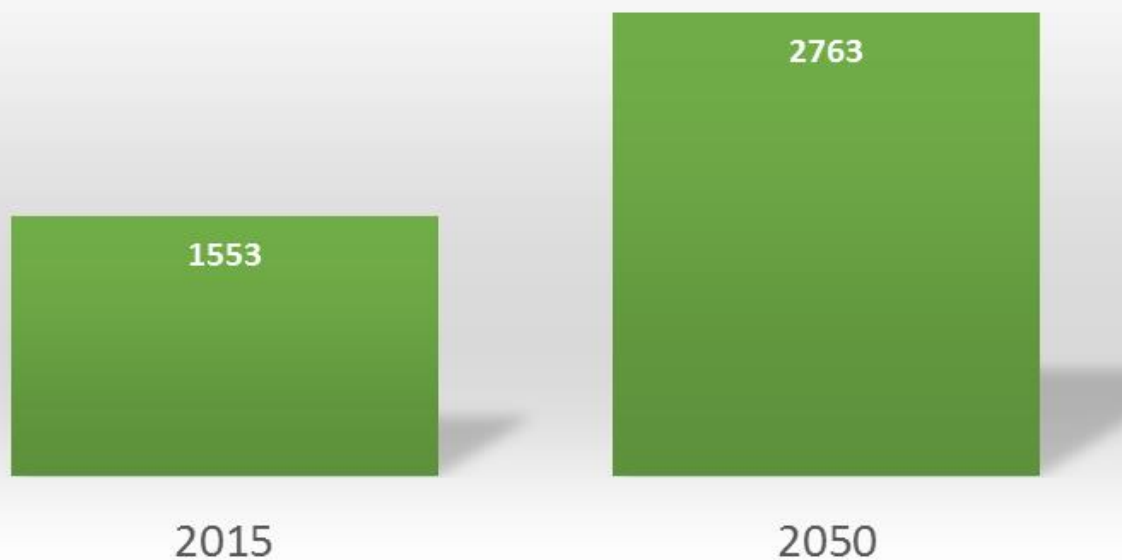


A tall, slightly wobbly stack of Indian Rupee coins, primarily 50p and 10p denominations, is the central focus on the left side of the image. The coins are silver-colored with some showing signs of wear and discoloration. In the background, a large, round, wooden clock face is visible but heavily blurred, showing only the general shape and some indistinct markings. The overall lighting is warm, and the composition suggests a theme of finance, time, and investment.

Investment and Costs

Additional Average Annual Investment of 290€billion

Total System Costs (€Billion)



Average electricity prices for final users (€/MWh)



Key Messages

- Current Policy is not enough
- Paris alignment will require radical changes in
 - Energy efficient
 - Electrification
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Open Questions

- How will EU Policy impact Ireland
 - Ireland is different
 - Power system challenges
 - Agriculture
 - ETS and Non-ETS