

Demand Data

TYNDP 2017 Transparency Process

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A green L-shaped graphic consisting of two thick bars meeting at a right angle.

Demand Data Content

- *EU Level Scenario Data*
- *Demand Data Comparison*
- *Country Level Demand Progression*
- *Sectoral Demand*
- *Emissions*



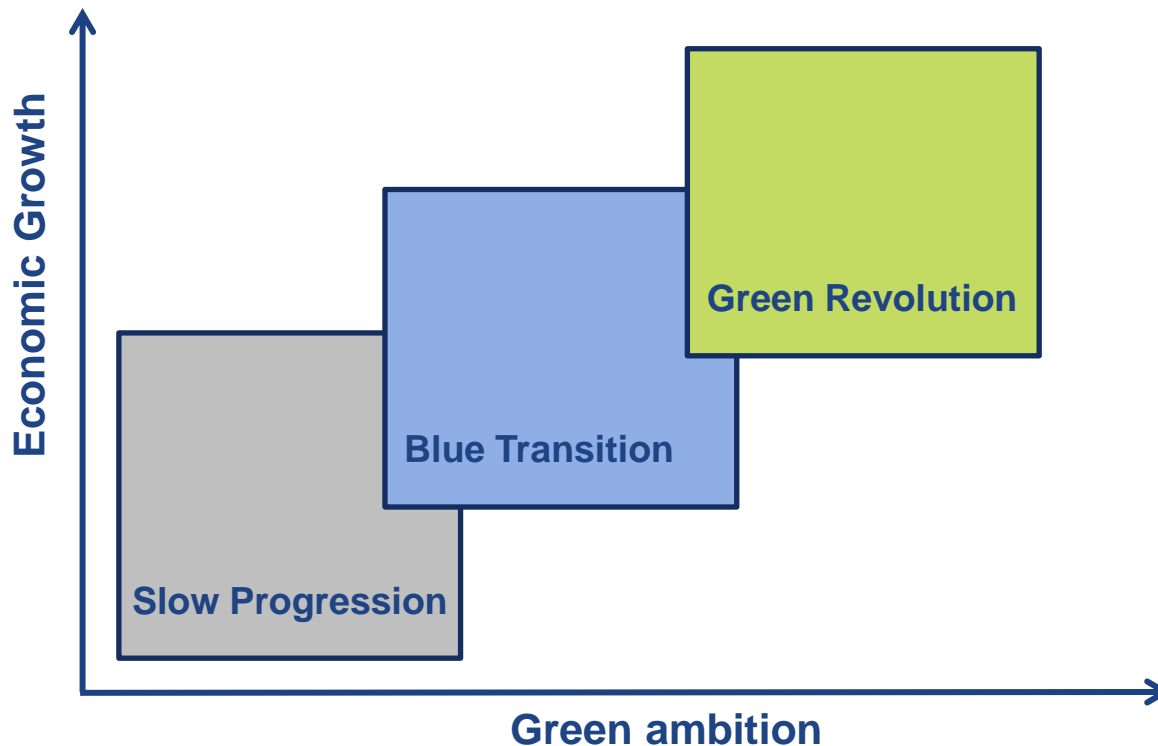
EU Level Scenario Data



Demand Scenarios

Scenarios are possible story lines for the EU energy sector in the future

- > ENTSOG developed **3 scenarios**, no probability is attached to any scenario, they are not forecasts
- > These scenarios are designed to give ENTSOG the reasonable extremes within which to assess the European gas system infrastructure and development



Demand Scenarios: the story lines

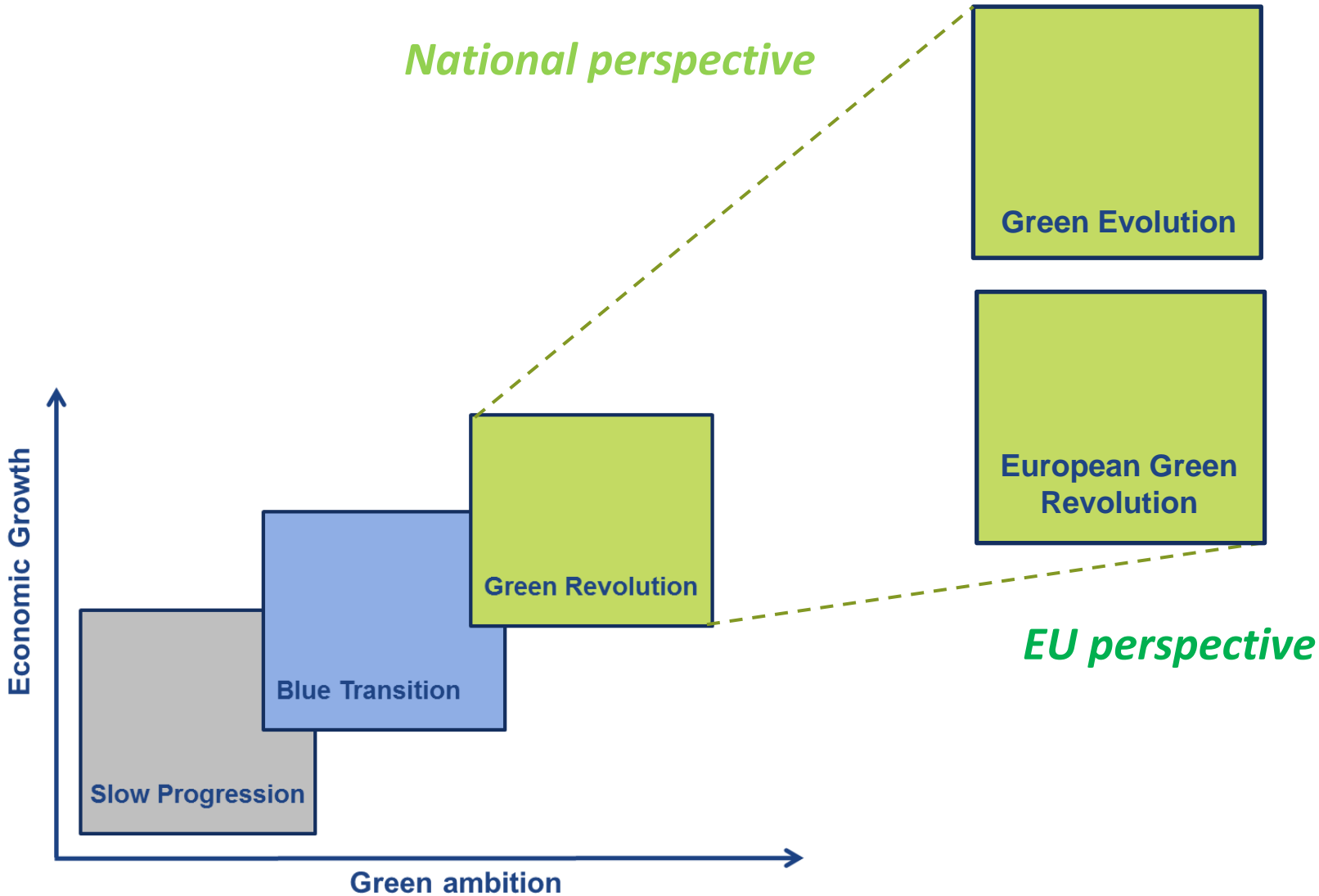


TYNDP 2017 Scenarios	Slow Progression	Blue Transition	Green Revolution
Energy Policies/ Regulation	2050 targets not realistically reachable	Mainly on track with 2050 targets [closure of coal-fired power plants (regulation)]	On track with 2050 targets
Economic conditions	Limited growth	Moderate growth	Strong growth
Green ambitions	Lowest	Moderate	Highest
CO2 price	Lowest CO2 price (limited spread of carbon taxes)	Moderate CO2 price (carbon taxes mainly spread)	Highest CO2 price (carbon taxes well spread)
Fuel prices	Highest fuel prices [expected gas price > coal price]	Moderate fuel prices [expected gas price > coal price]	Lowest fuel prices [expected gas price > coal price]
Internal energy market	Well functioning, low MS cooperation	Well functioning, moderate MS cooperation	Well functioning, strong MS cooperation
Renewables develop.	Lowest	Moderate	Highest
Gas in heating sector			
Energy Efficiency	Slowest improvement	Moderate improvement	Fastest improvement
Competition with electricity	Limited gas displacement by elec. (new buildings)	Limited gas displacement by elec. (new buildings)	Gas displaced by electricity (district heating, heat pumps)
Electrific. of heating	Lowest	Moderate	Highest
Gas in power sector			
Gas vs Coal	Coal before Gas	Gas before Coal (on regulatory basis)	Gas before Coal (on regulatory basis)
Gas in transport			
Gas in transport	Lowest penetration	Highest penetration	Moderate penetration
Electricity in transport	Lowest penetration	Moderate penetration	Highest penetration
Expectations regarding EU overall gas demand	Expected to remain stable	Expected to increase	Expected to decrease



Green Scenarios

National perspective

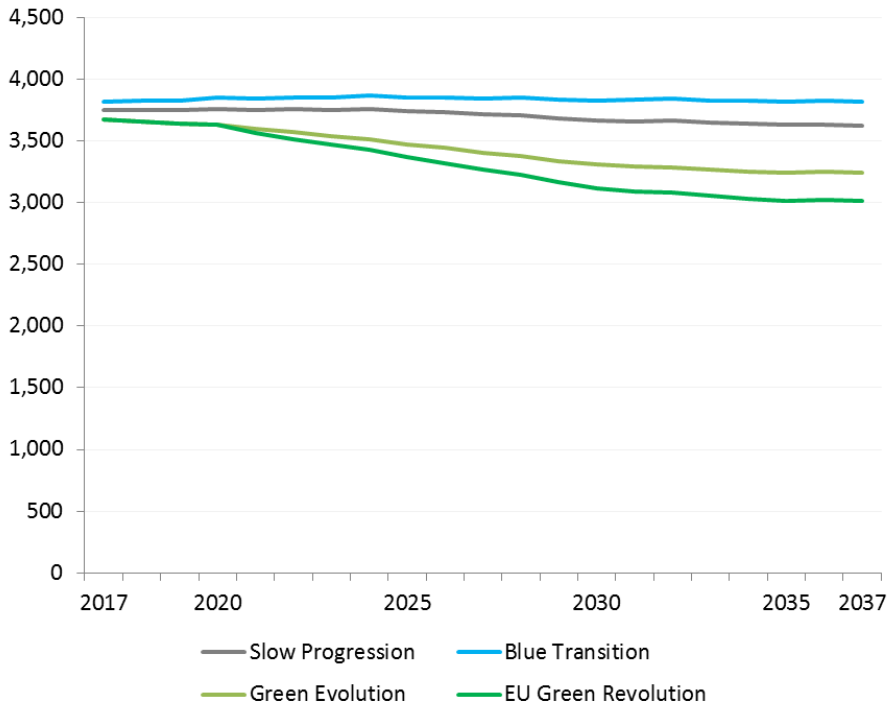




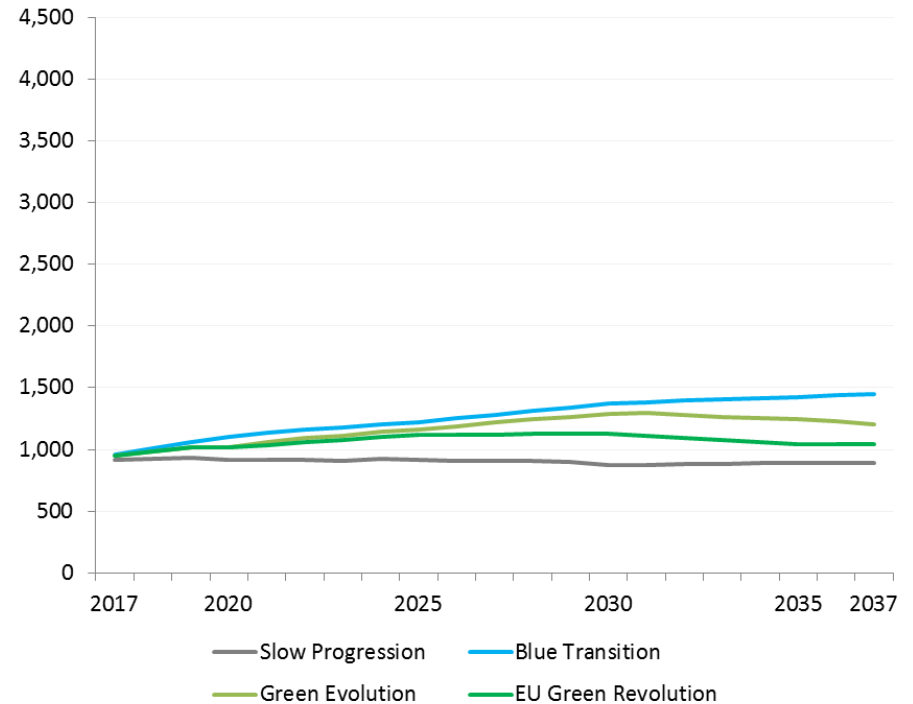
Data Collection Results

EU Level demand, yearly (TWh)

> Final demand



> Gas demand for power

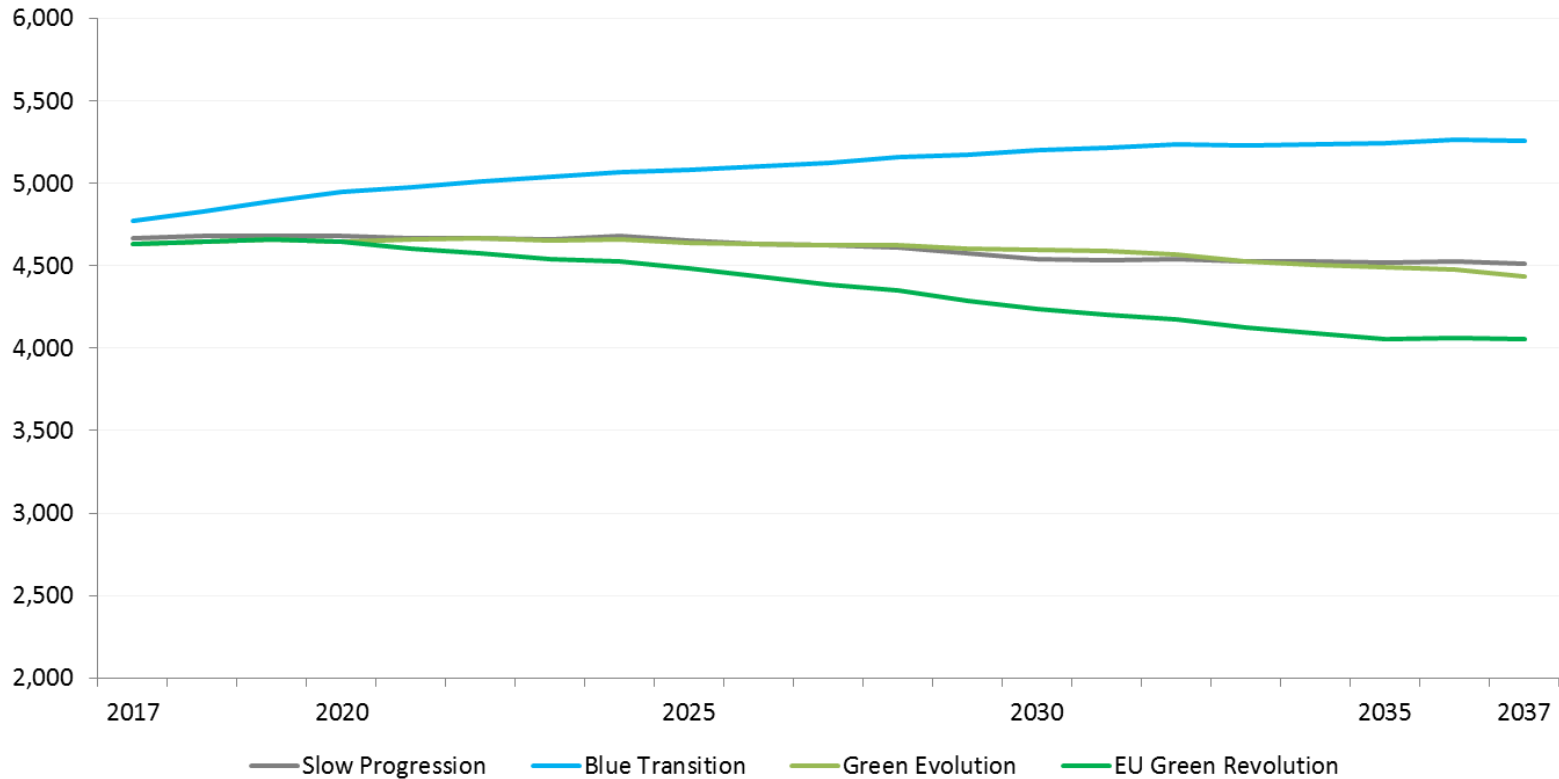




Data Collection Results

EU Level demand, yearly (TWh)

> Total demand (final demand + gas demand for power generation)

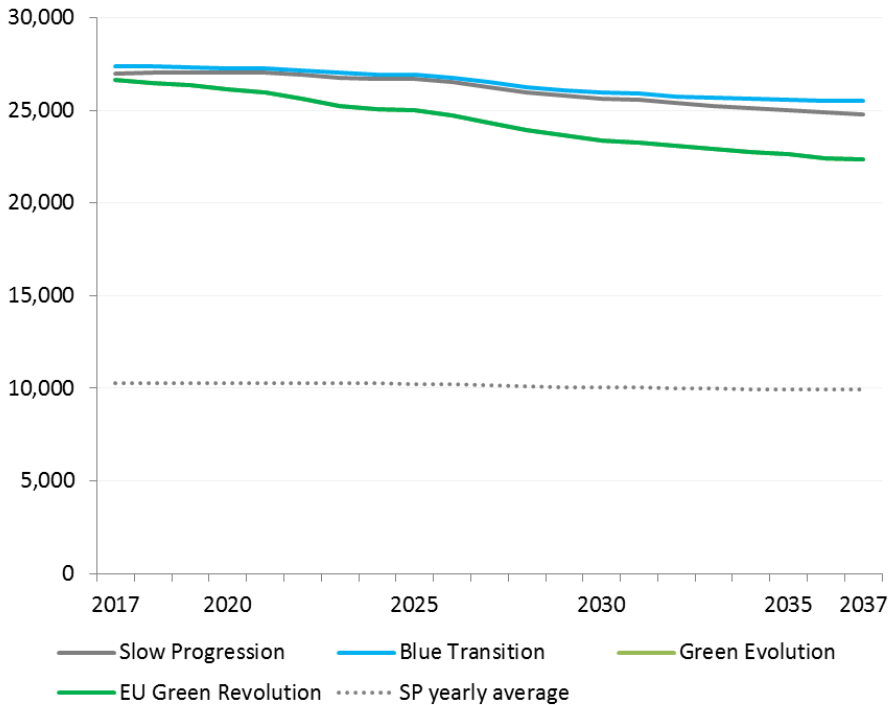




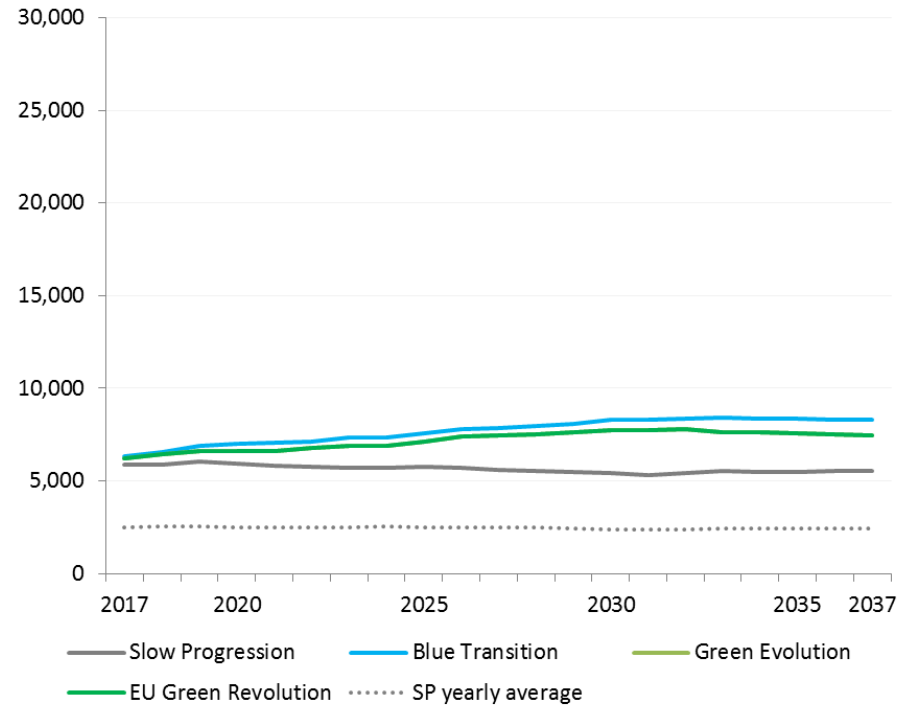
Data Collection Results

EU Level demand, peak day (GWh/d)

> Final demand



> Gas demand for power

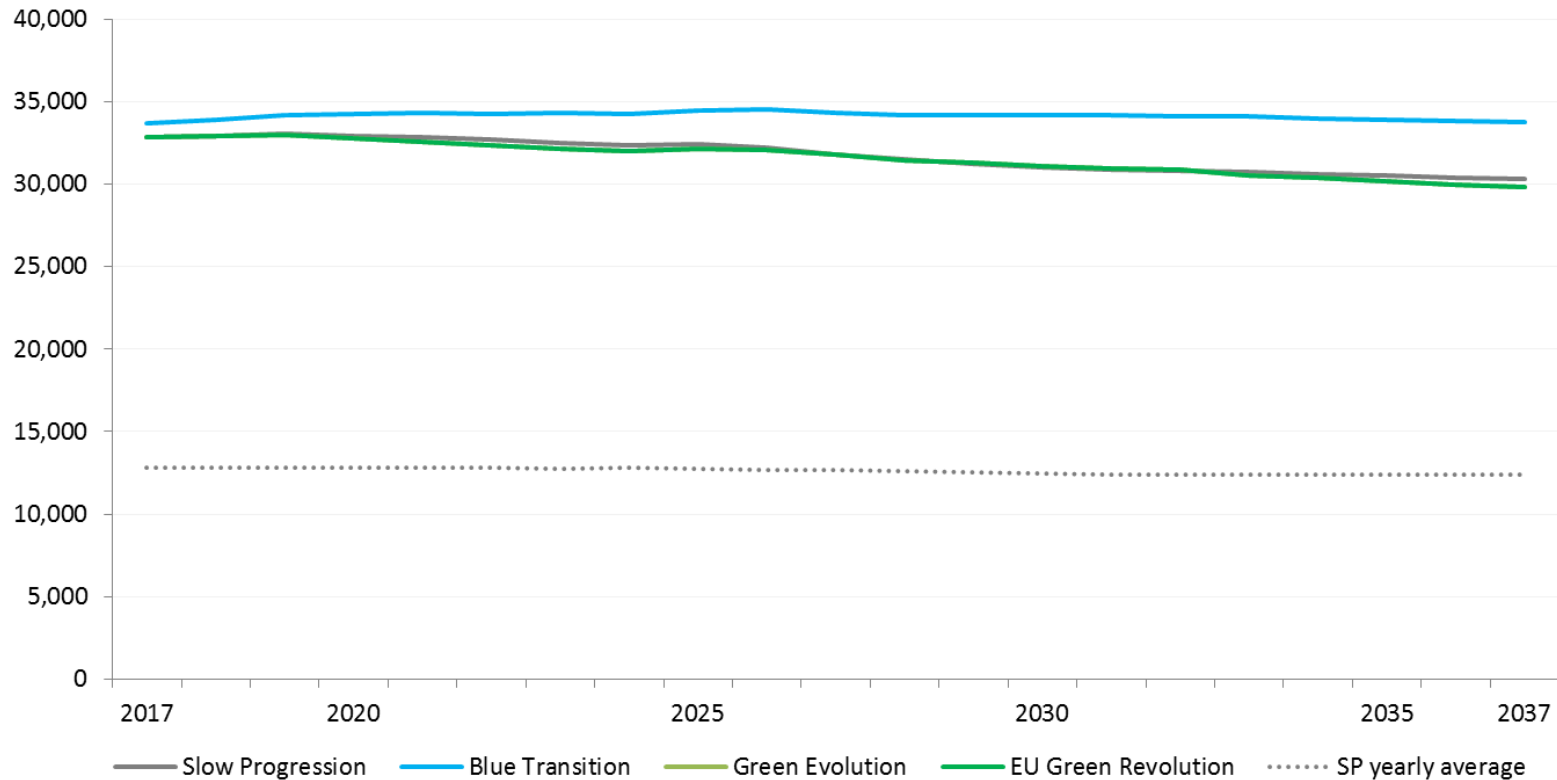




Data Collection Results

EU Level demand, peak day (GWh/d)

> Total demand (final demand + gas demand for power generation)



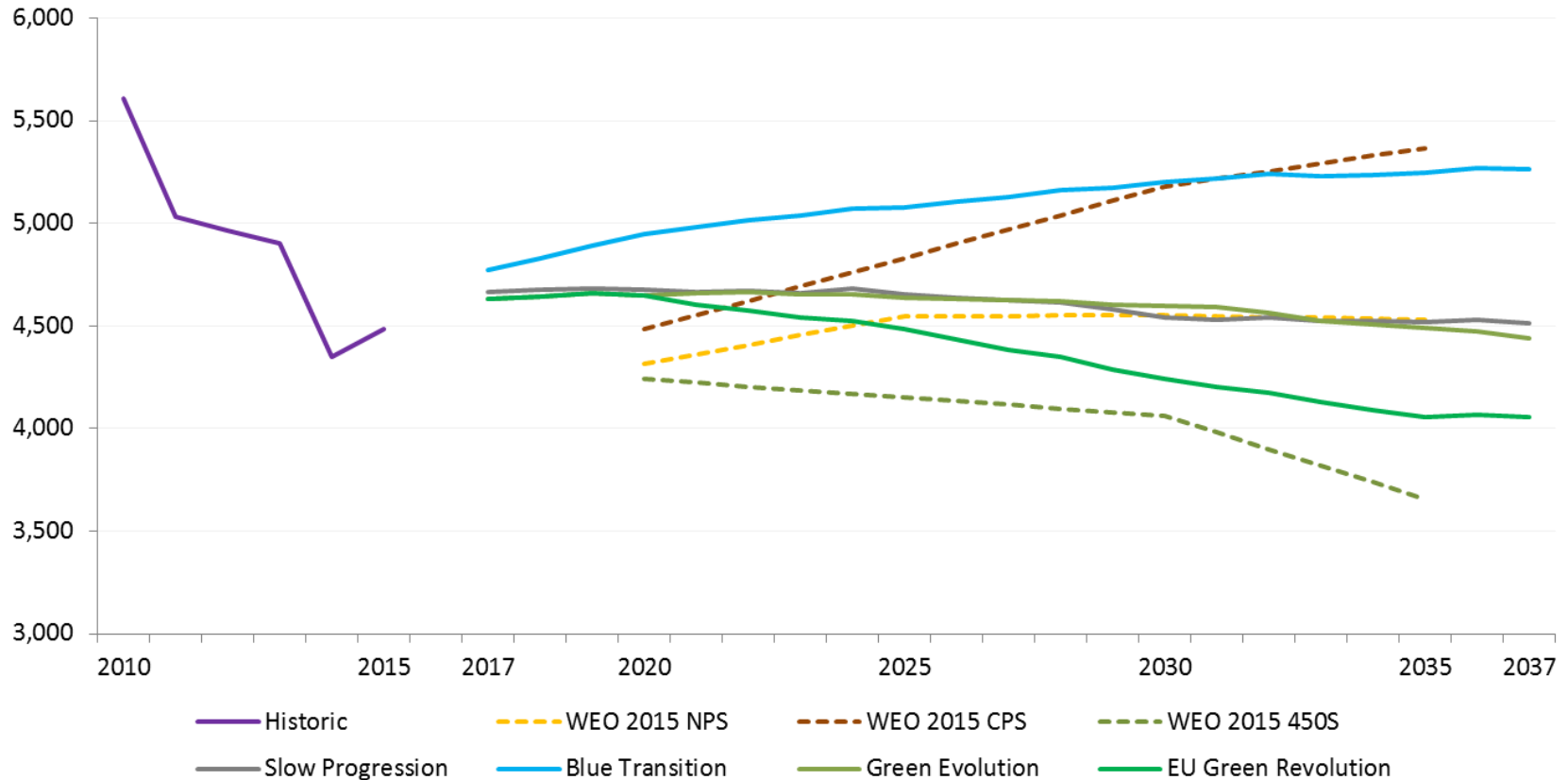


Demand Data Comparison



Demand Data Comparisons

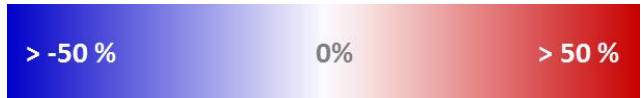
Scenario data: TYNDP 2017 and World Energy Outlook 2015 (TWh/y)



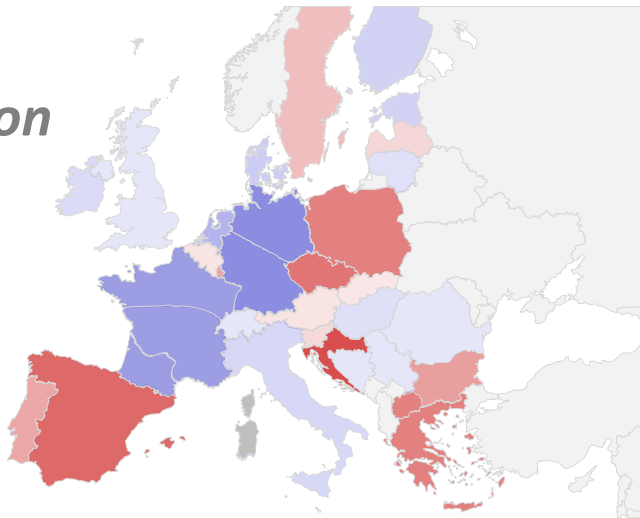


Country Level Demand Progression

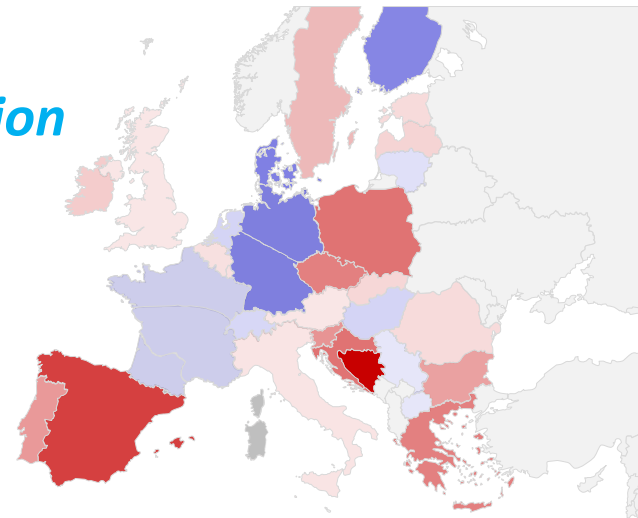
Final demand



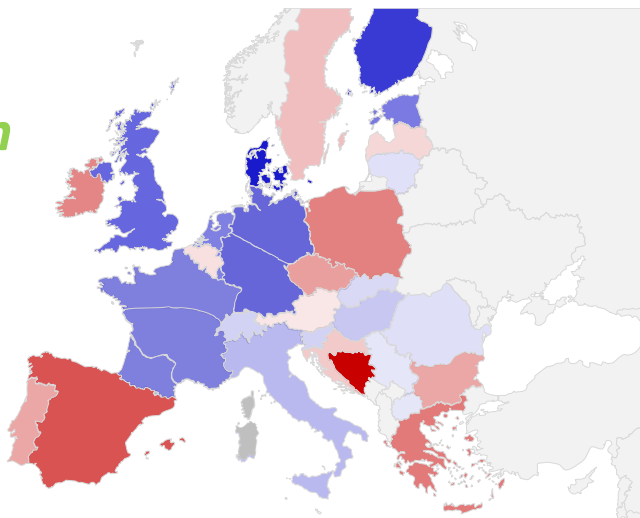
Slow Progression



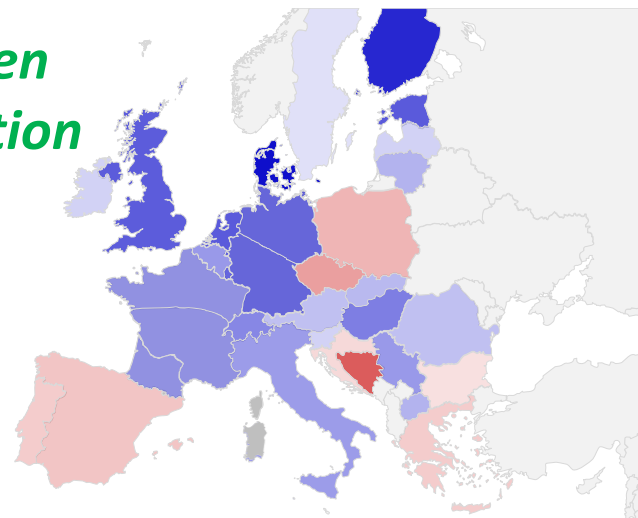
Blue Transition



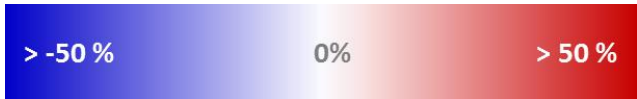
Green Evolution



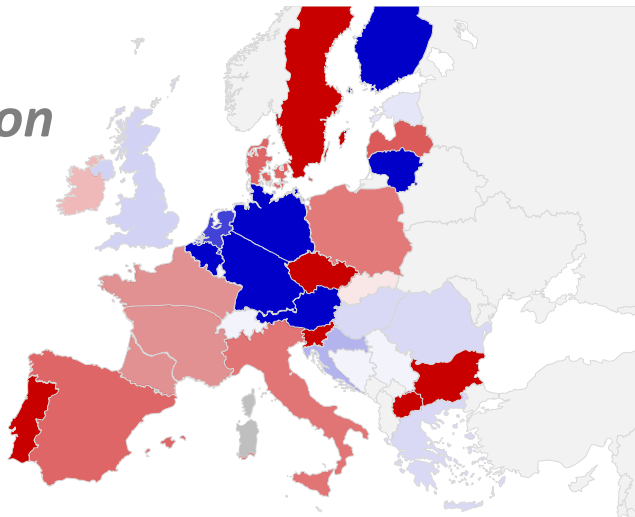
EU Green Revolution



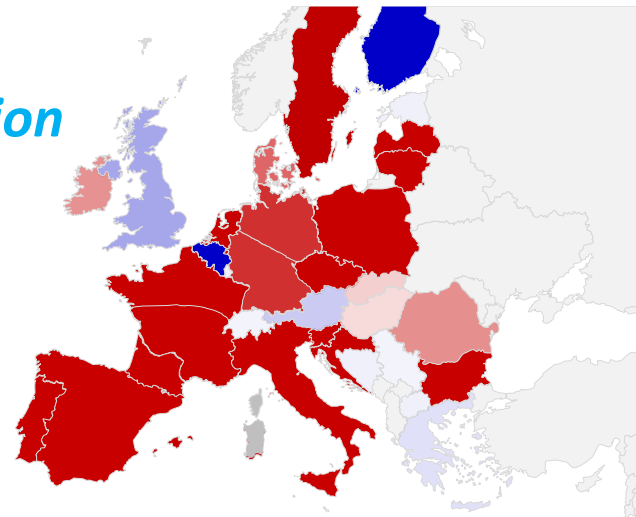
Gas for power



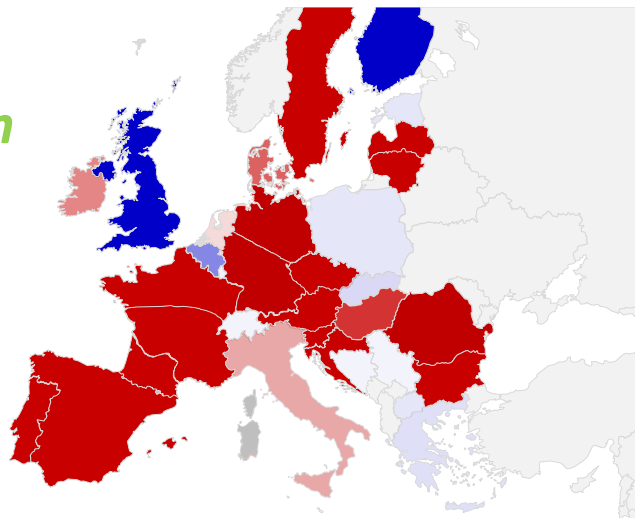
Slow Progression



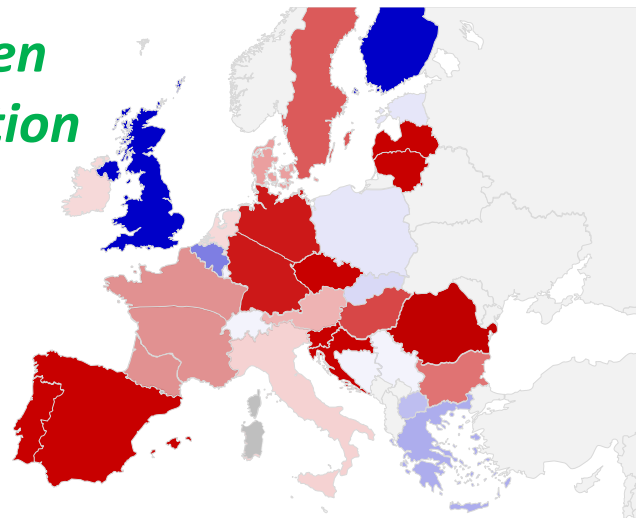
Blue Transition



Green Evolution



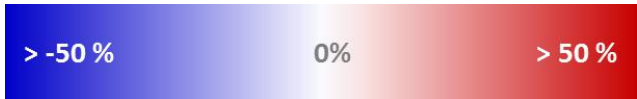
EU Green Revolution



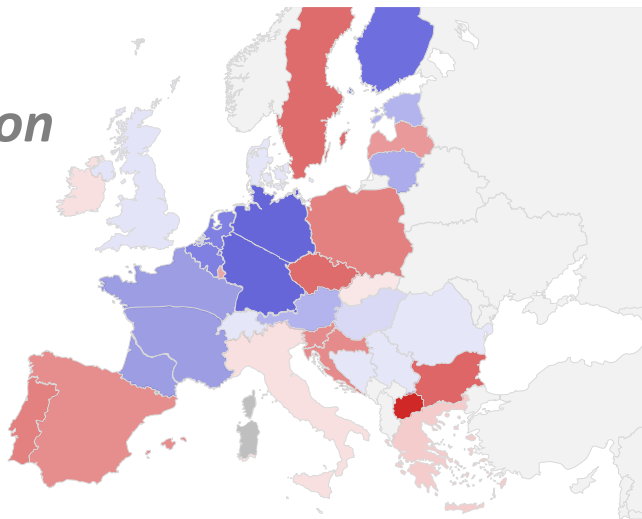
Demand change between 2017 and 2035



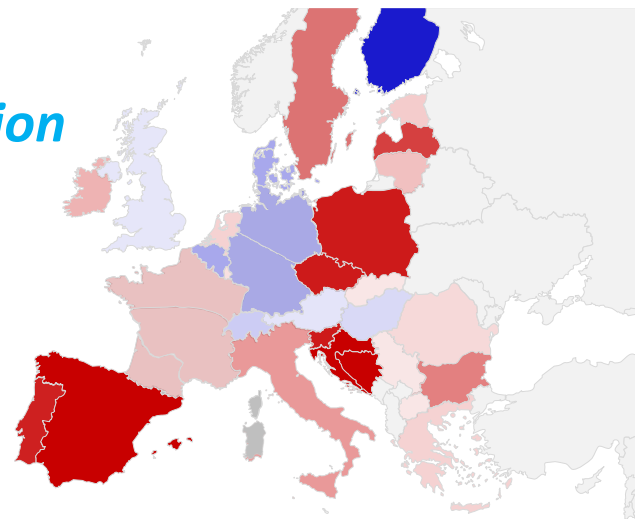
Total demand



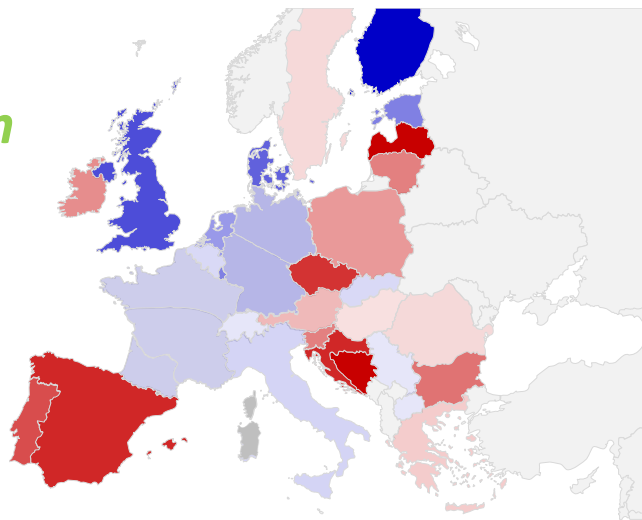
Slow Progression



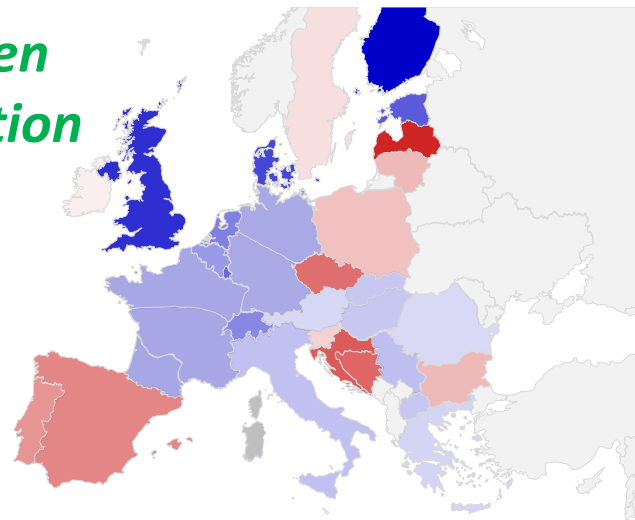
Blue Transition



Green Evolution



EU Green Revolution

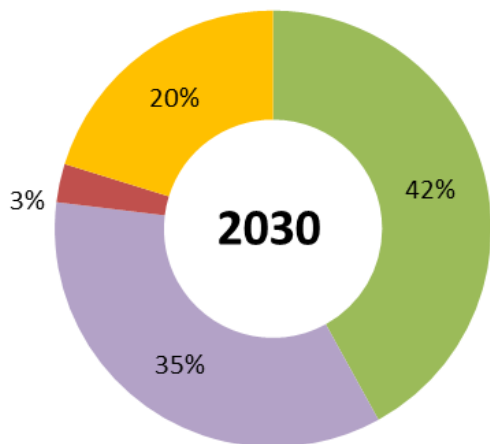




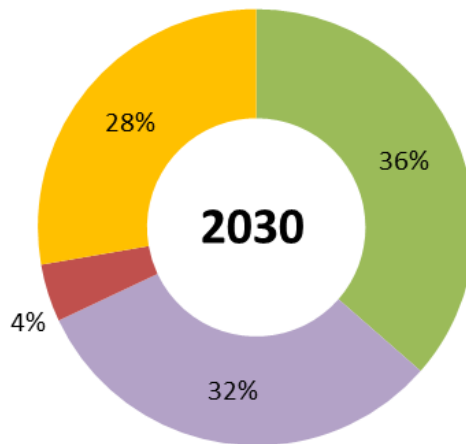
Sectoral Demand

Sectoral Percentages 2030

Slow Progression

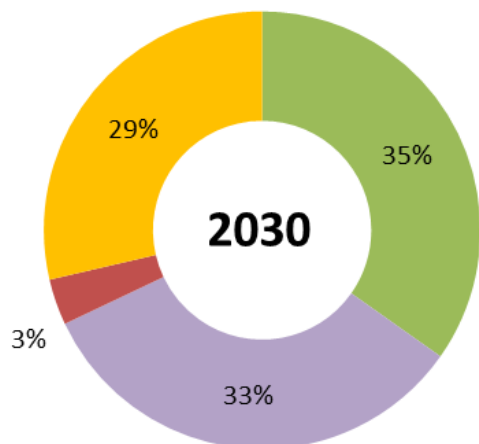


Blue Transition

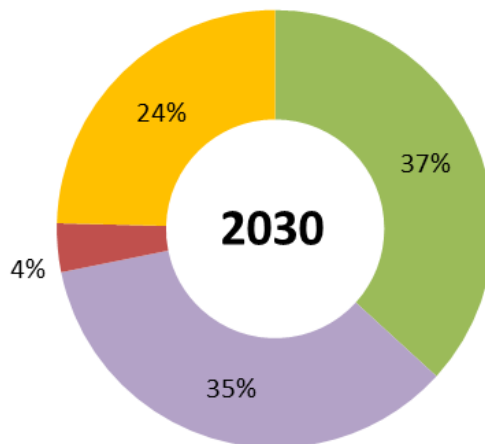


- Residential & Commercial
- Industrial
- Transport
- Power

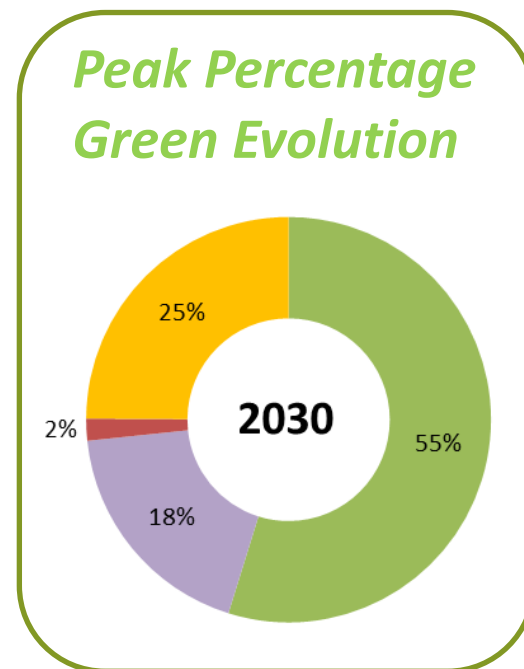
Green Evolution



EU Green Revolution



Peak Percentage Green Evolution



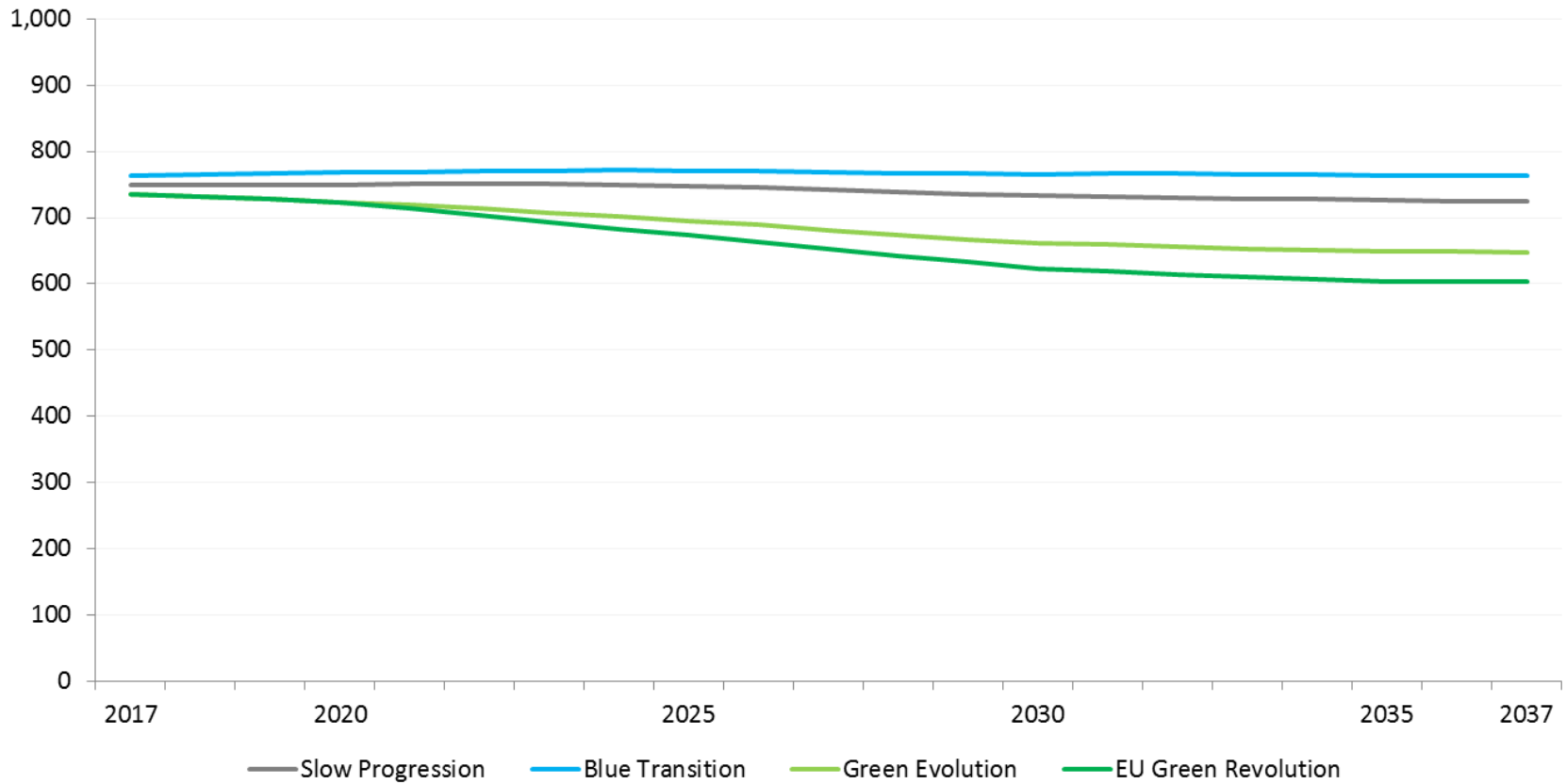


Emissions



Final gas demand

CO2 emissions (m tonnes/y) – biomethane not considered

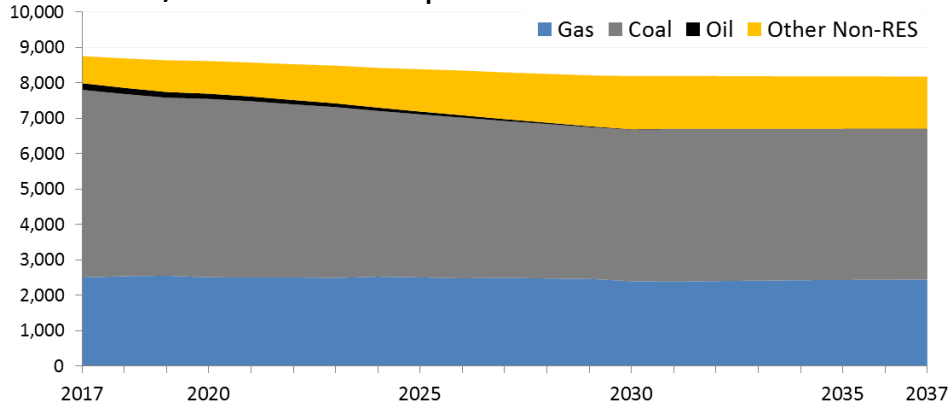


Power Generation

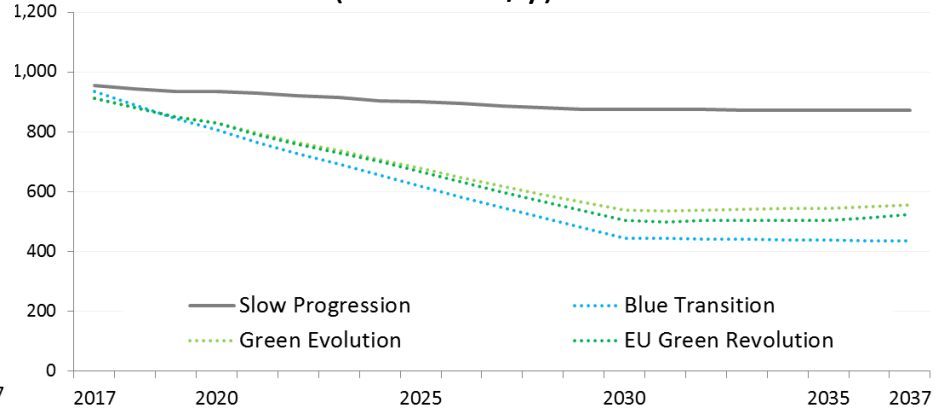


Slow Progression

> GWh/d fuel consumption

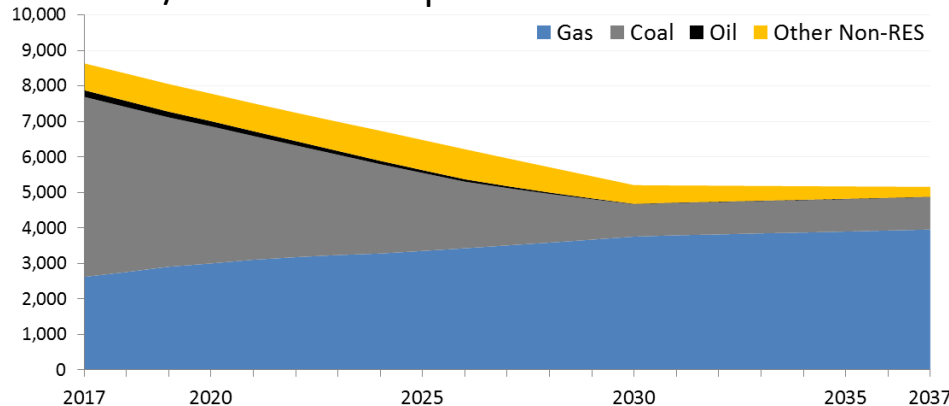


> CO2 Emissions (m tonnes/y)

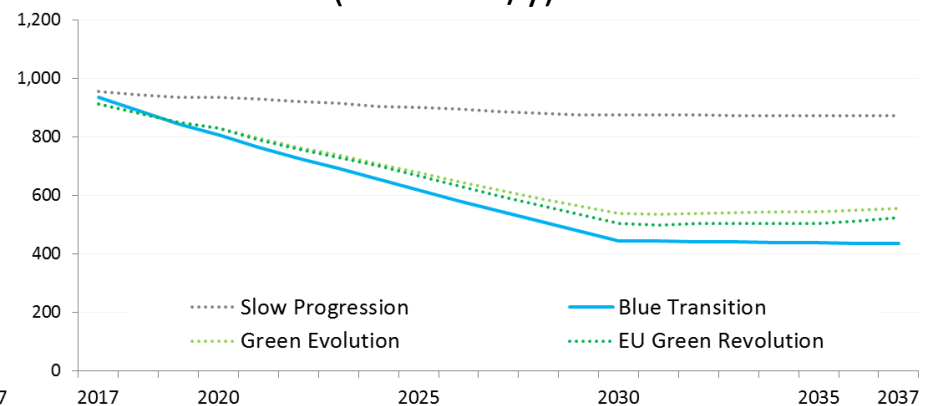


Blue Transition

> GWh/d fuel consumption



> CO2 Emissions (m tonnes/y)



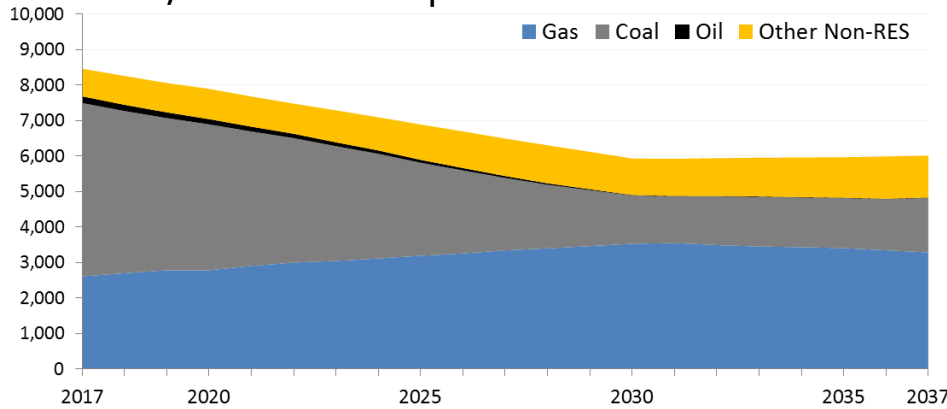
Average efficiency / CO2 Emission: Gas 50% / 200 kg/MWh, Coal 35% / 350 kg/MWh, Oil 35% / 280 kg/MWh, Other Non-RES 40% / 277 kg/MWh
 No bio-methane taken into account for gas for power emission calculations
 Generation data for non-gas sources derived from ENTSO-E TYNDP 2016 Vision data

Power Generation

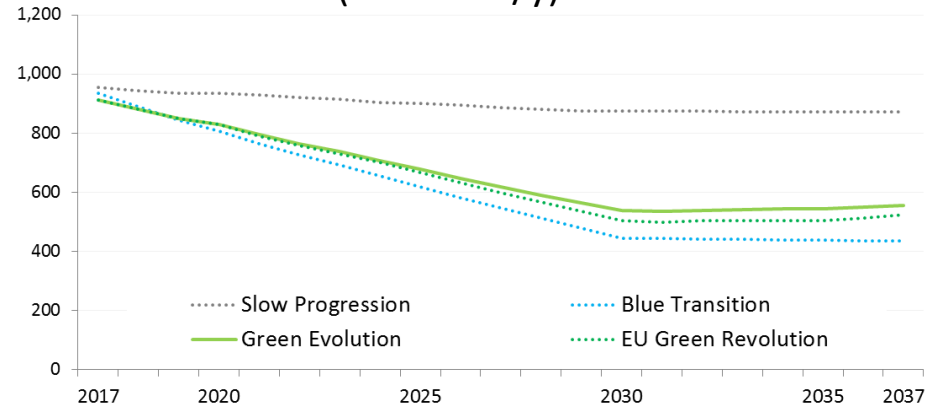


Green Evolution

> GWh/d fuel consumption

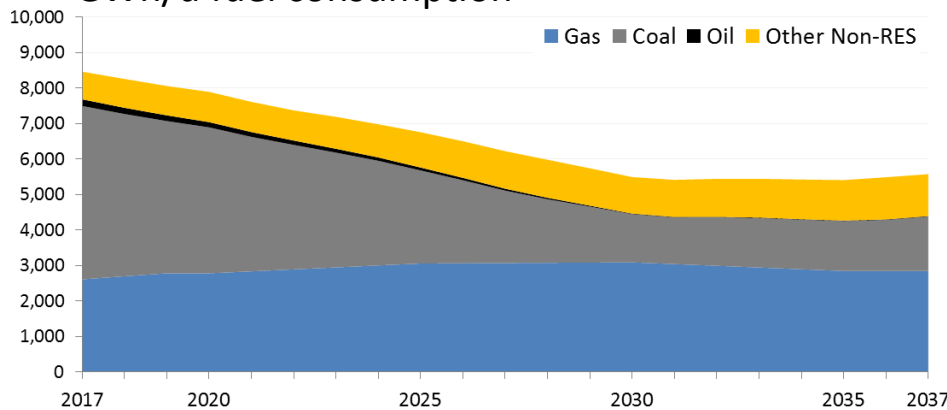


> CO2 Emissions (m tonnes/y)

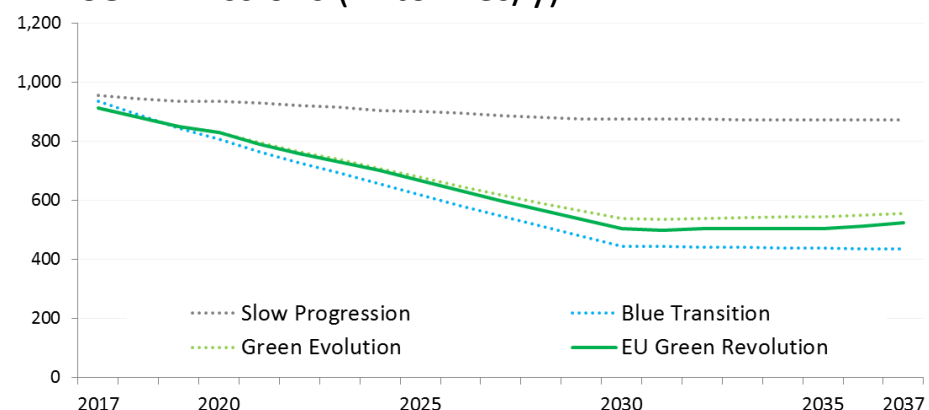


EU Green Revolution

> GWh/d fuel consumption



> CO2 Emissions (m tonnes/y)

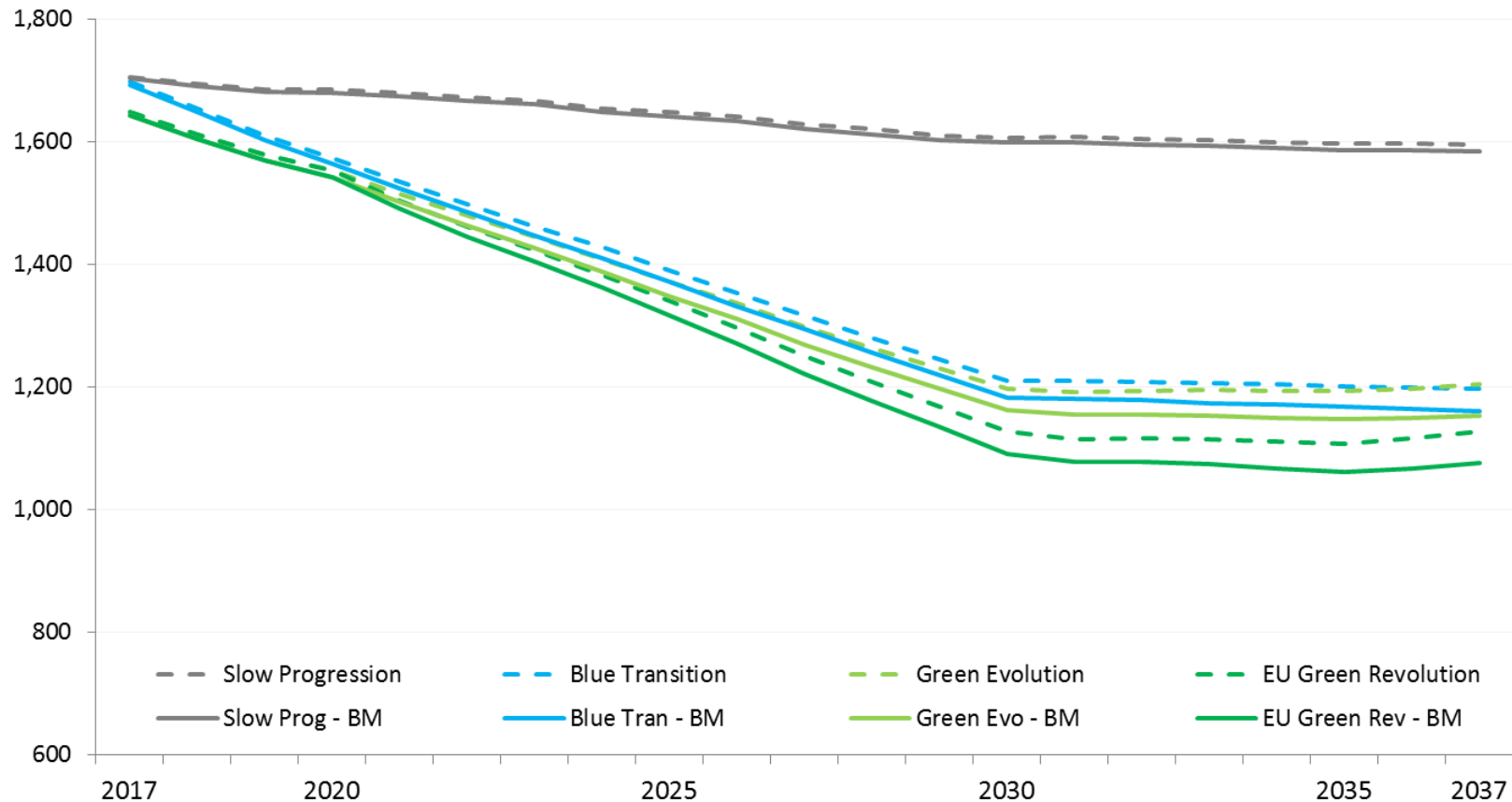


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 No bio-methane taken into account for gas for power emission calculations
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Final gas demand and Power generation

CO2 emissions (m tonnes/y)



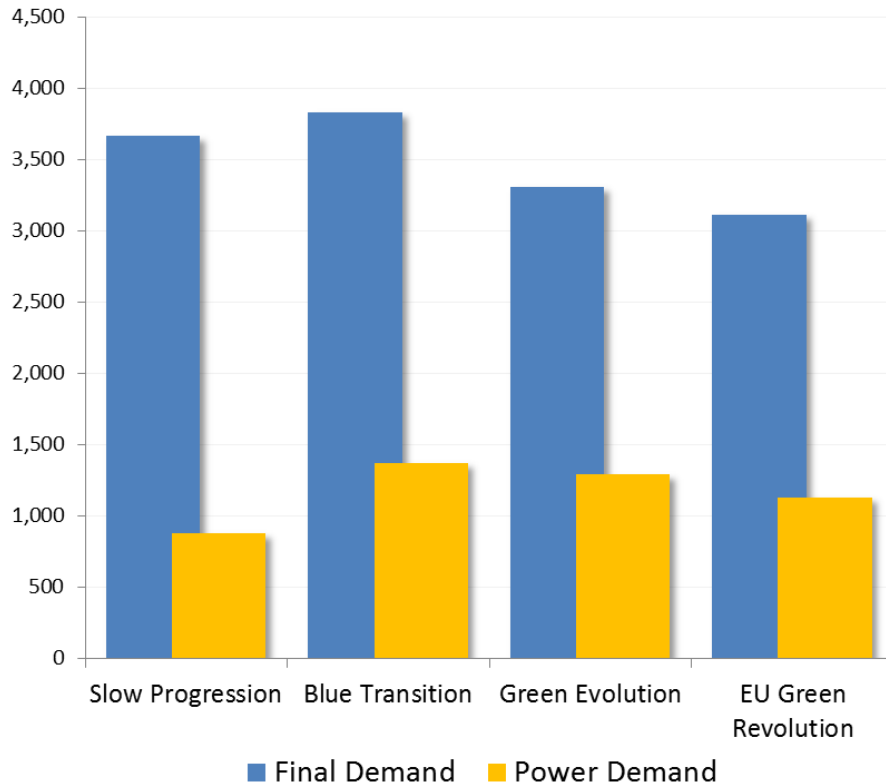
- Solid lines include bio-methane production assumptions per scenario for final demand and gas power generation
- Dashed lines represent emissions based on conventional gas supply only



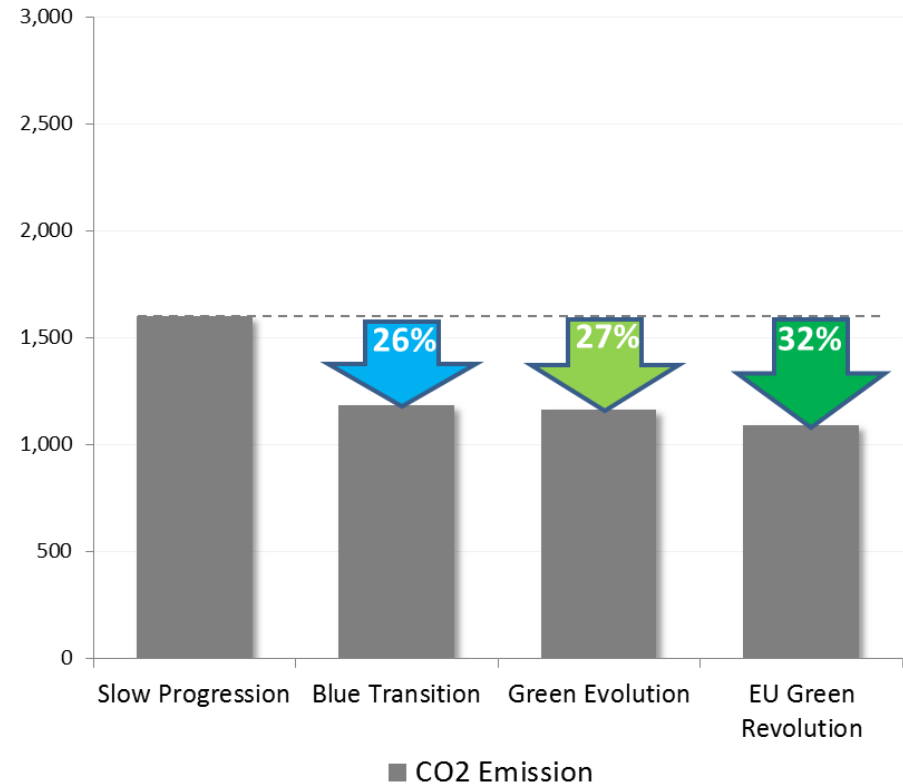
CO2 Reduction Comparison

Comparison between scenarios in 2030

> Gas final and gas power demand (TWh/y)



> CO2 emissions for gas final and ALL power demand (m tonnes/y)



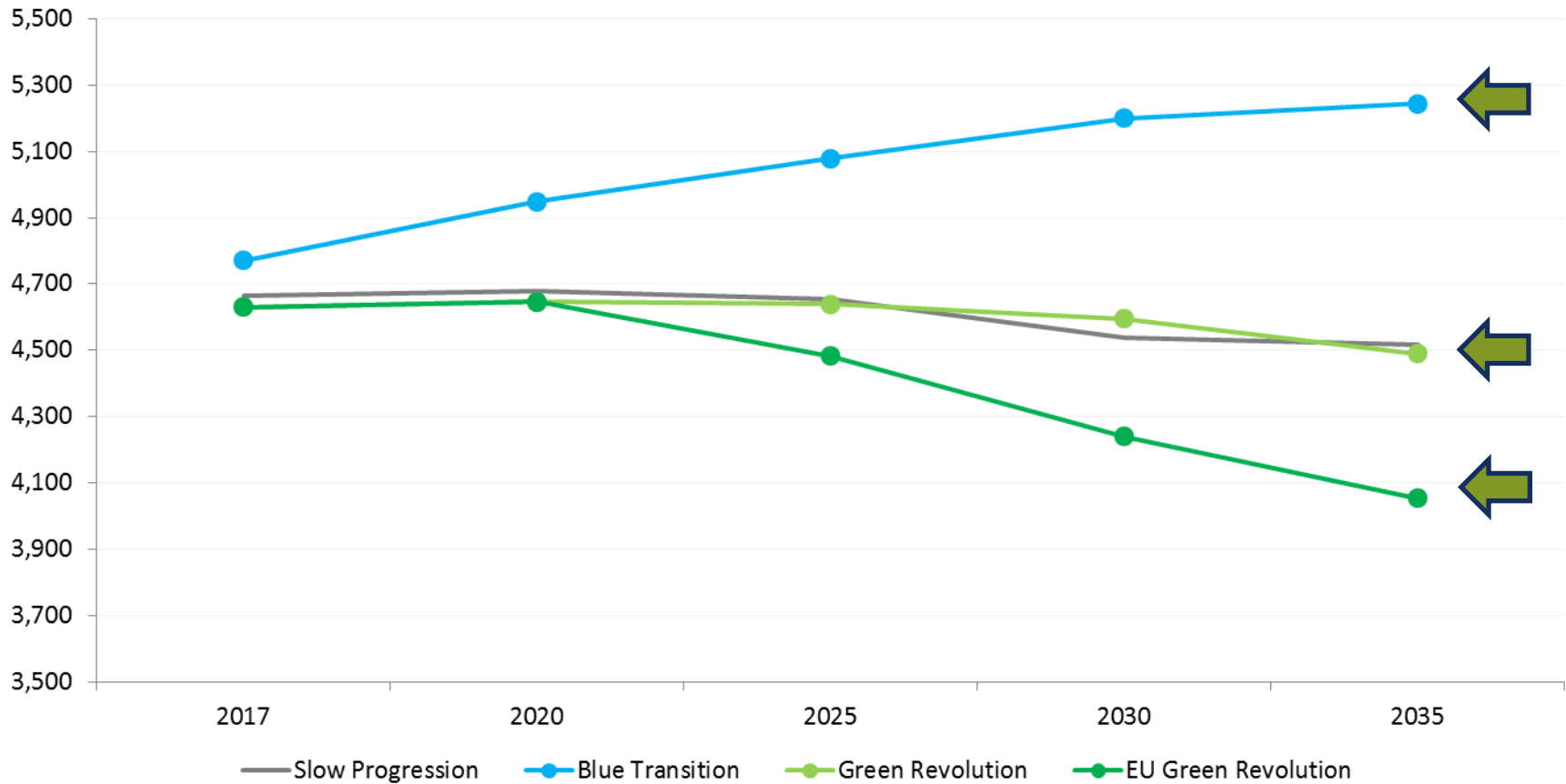


Conclusion



TYNDP 2017

EU Level demand, yearly average (TWh/y)



Three demand scenarios will be assessed in TYNDP 2017



Thank You for Your Attention

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