

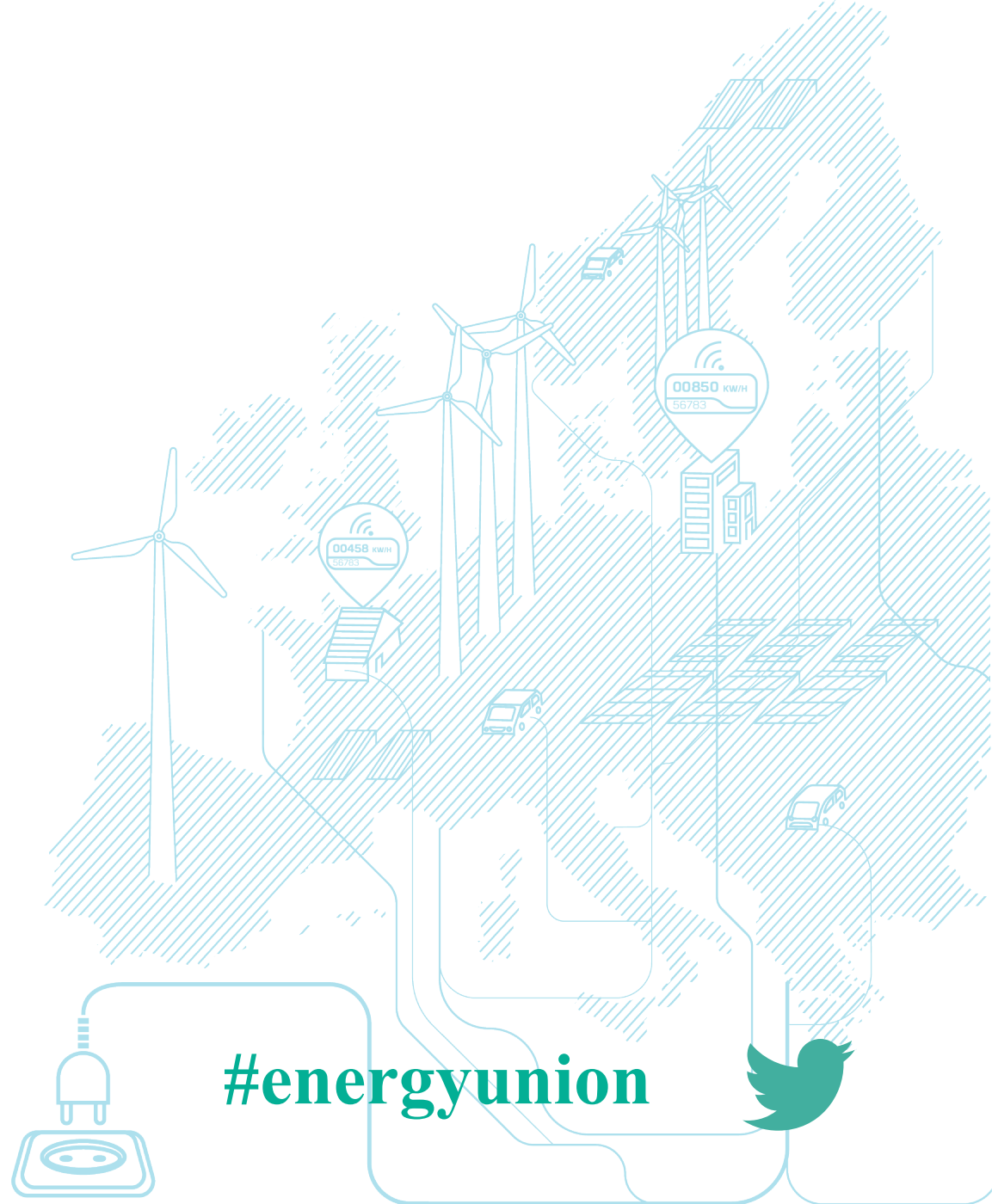


Energy Union Choices

CLEANER, SMARTER, CHEAPER

Responding to
opportunities in
Europe's changing
energy system

21st of November, 2017





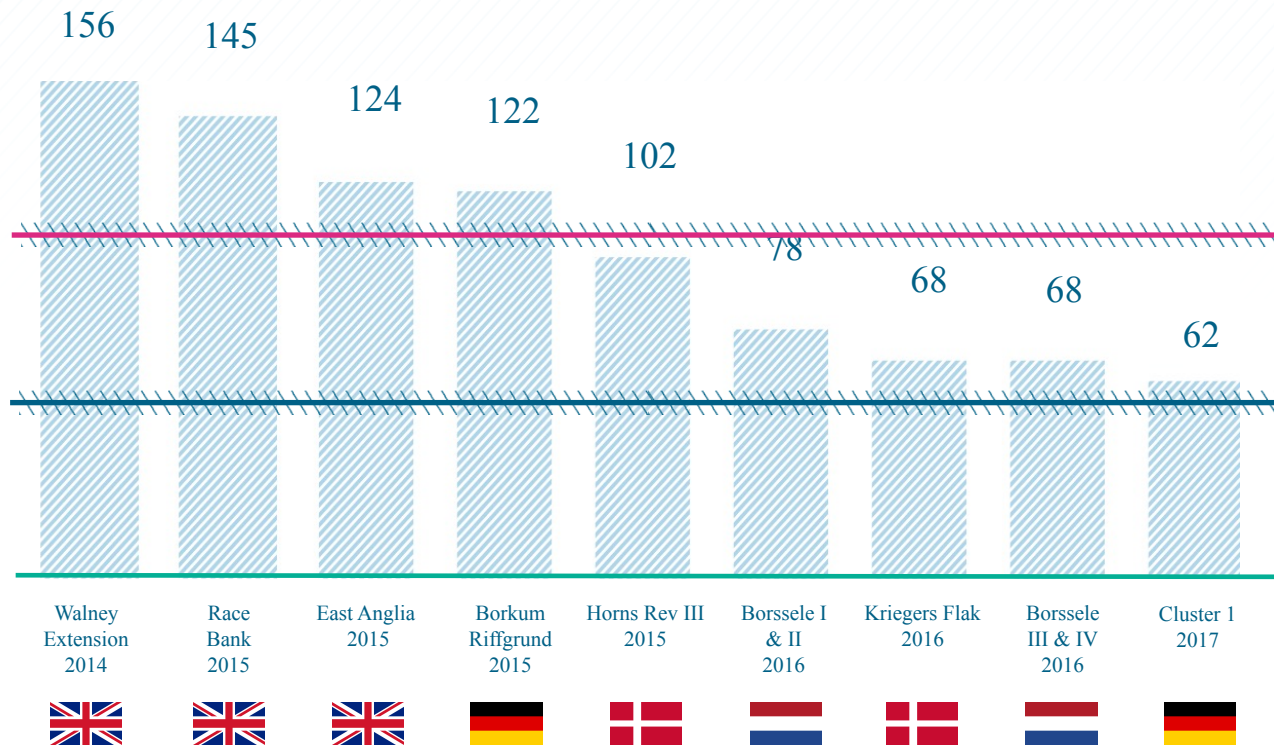
Let's celebrate...
but not too hard

Current ambitions do not reflect the opportunities of the new energy reality

1

Cost of renewable energy sources have come down drastically

EUR/MWh



COM: 105EUR/MWh

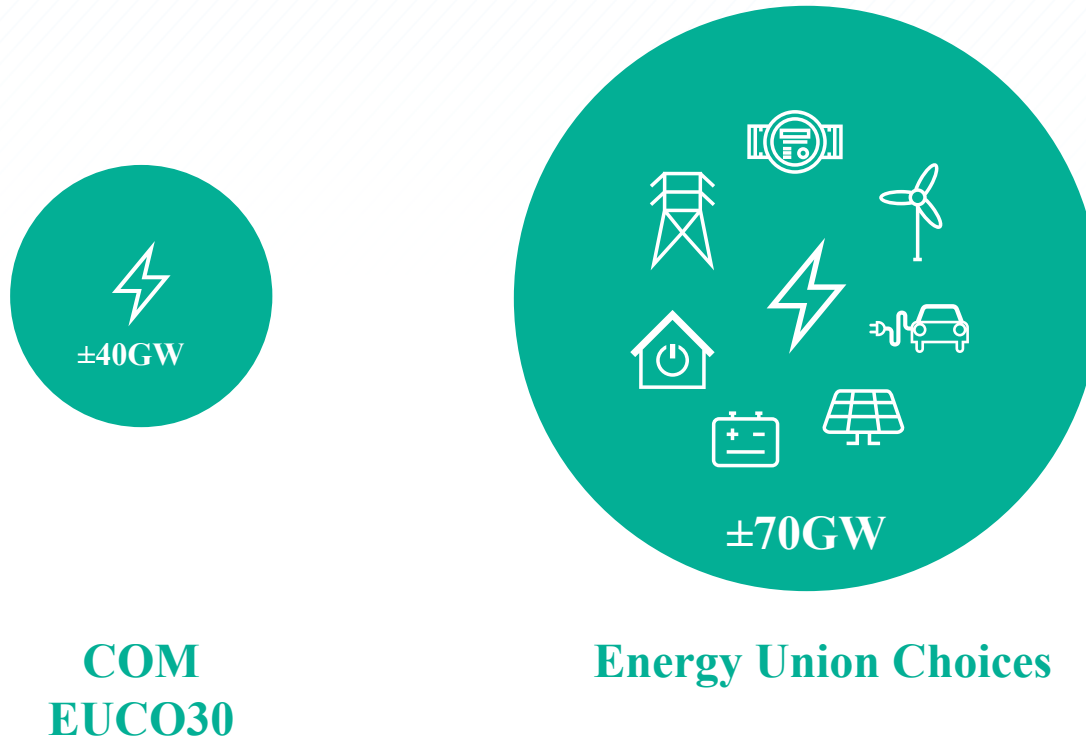
Energy Union Choices:
50-60 EUR/MWh



Current ambitions do not reflect the opportunities of the new energy reality

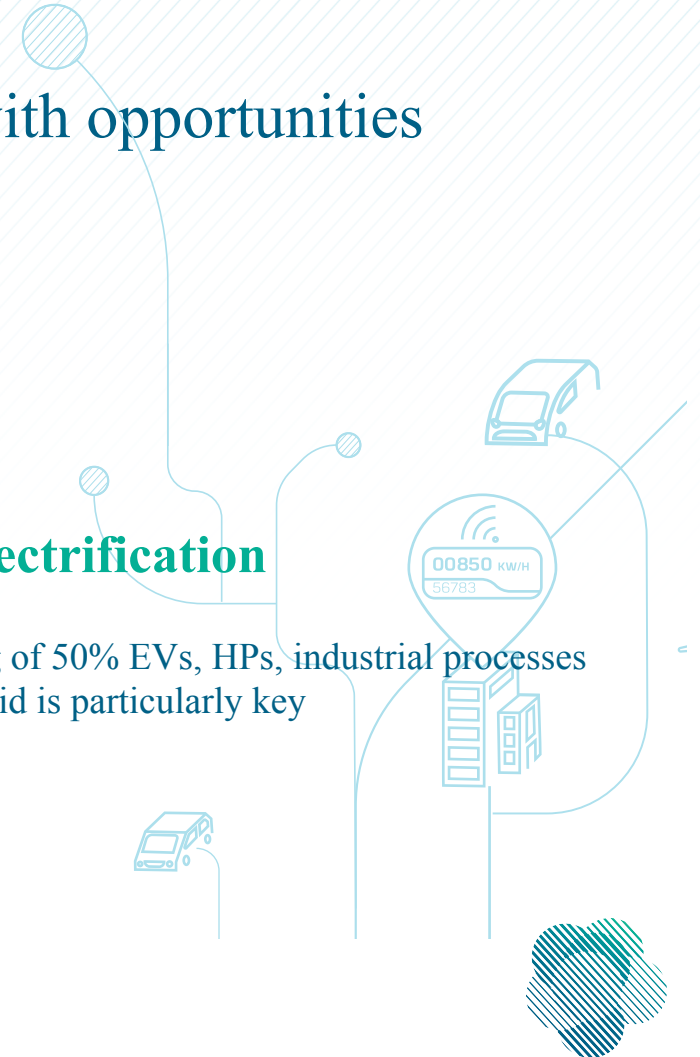
2

Trends in electrification and digitisation come with opportunities for demand side flexibility



Smart electrification

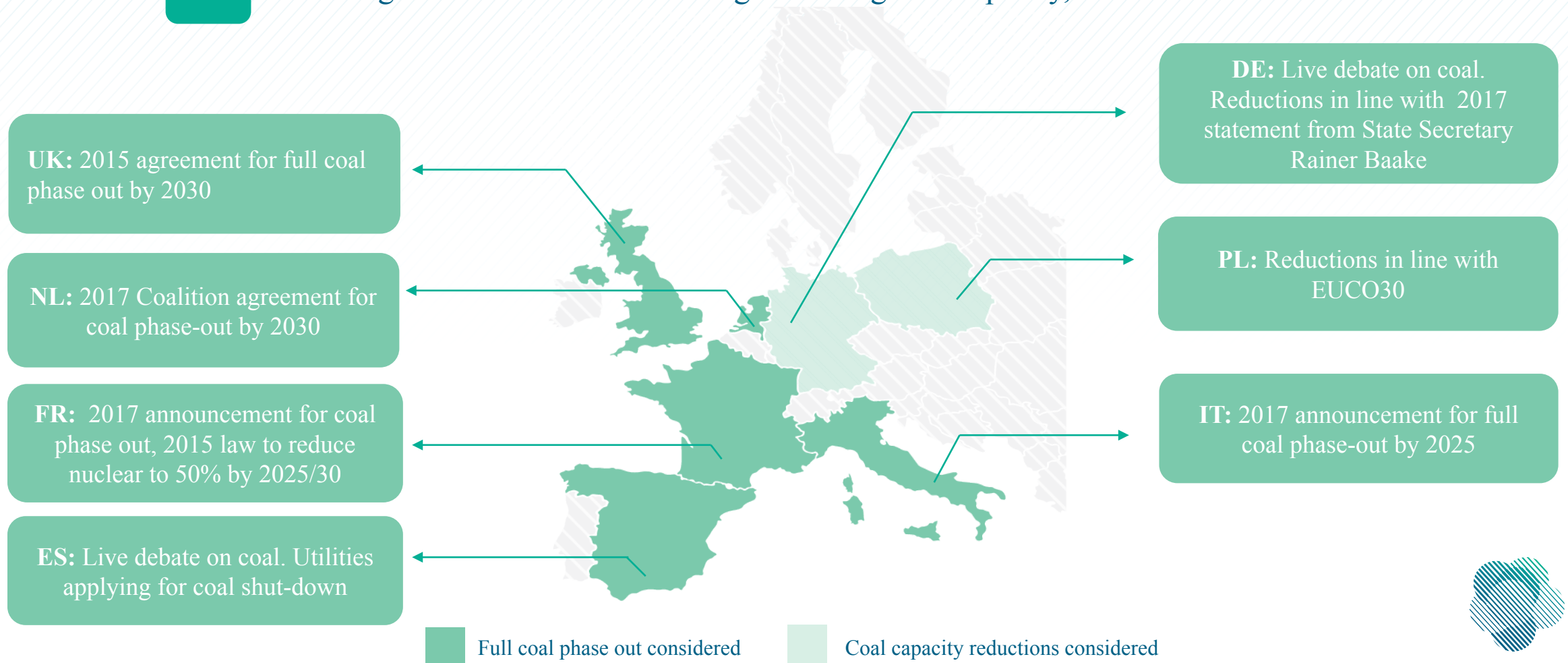
- Load shifting of 50% EVs, HPs, industrial processes
- Vehicle-to-grid is particularly key



Current ambitions do not reflect the opportunities of the new energy reality

3

Several governments are committing to retiring coal capacity, “**smart retirement**”



Acknowledgements

Consultant



Project partners



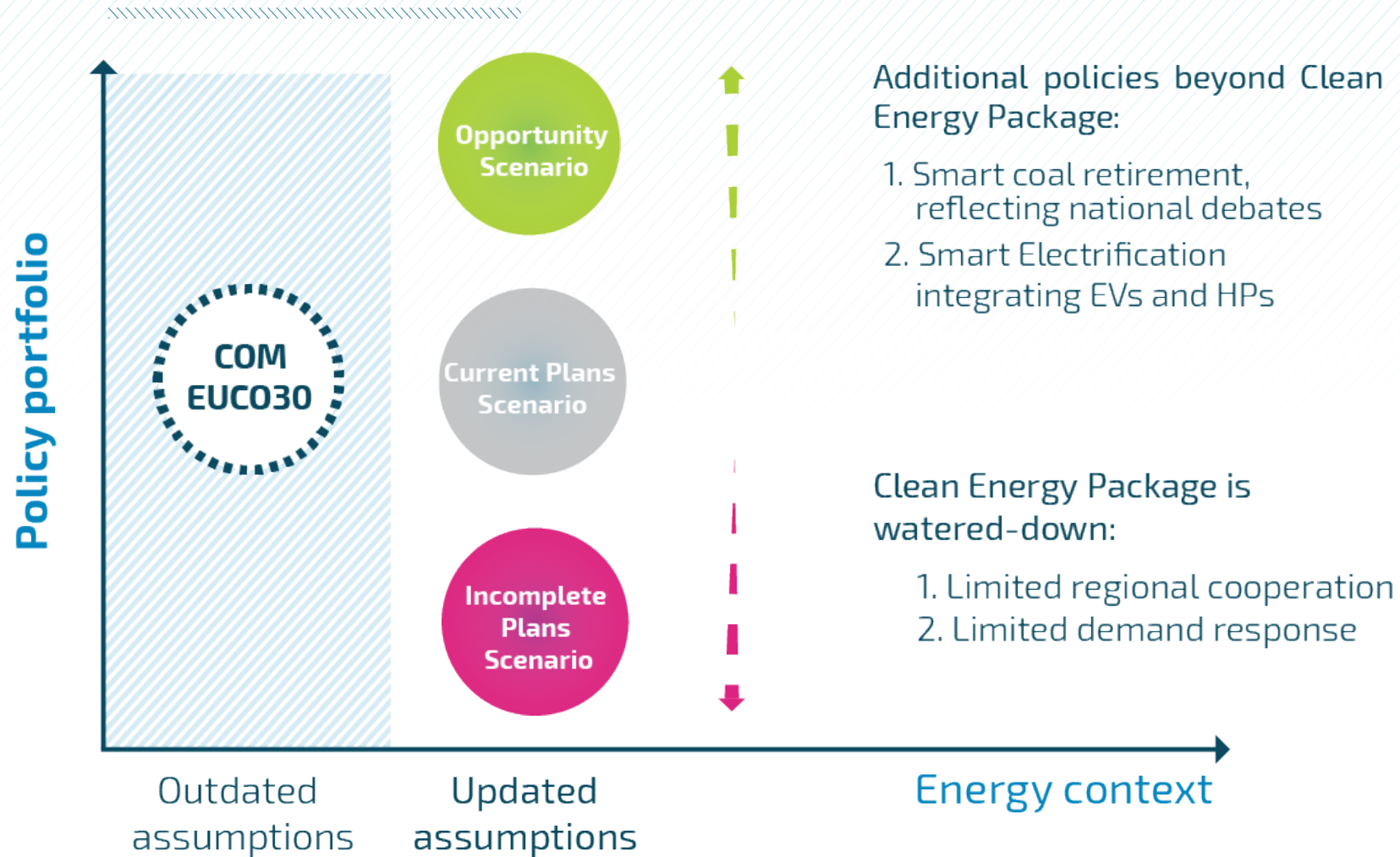
E3G



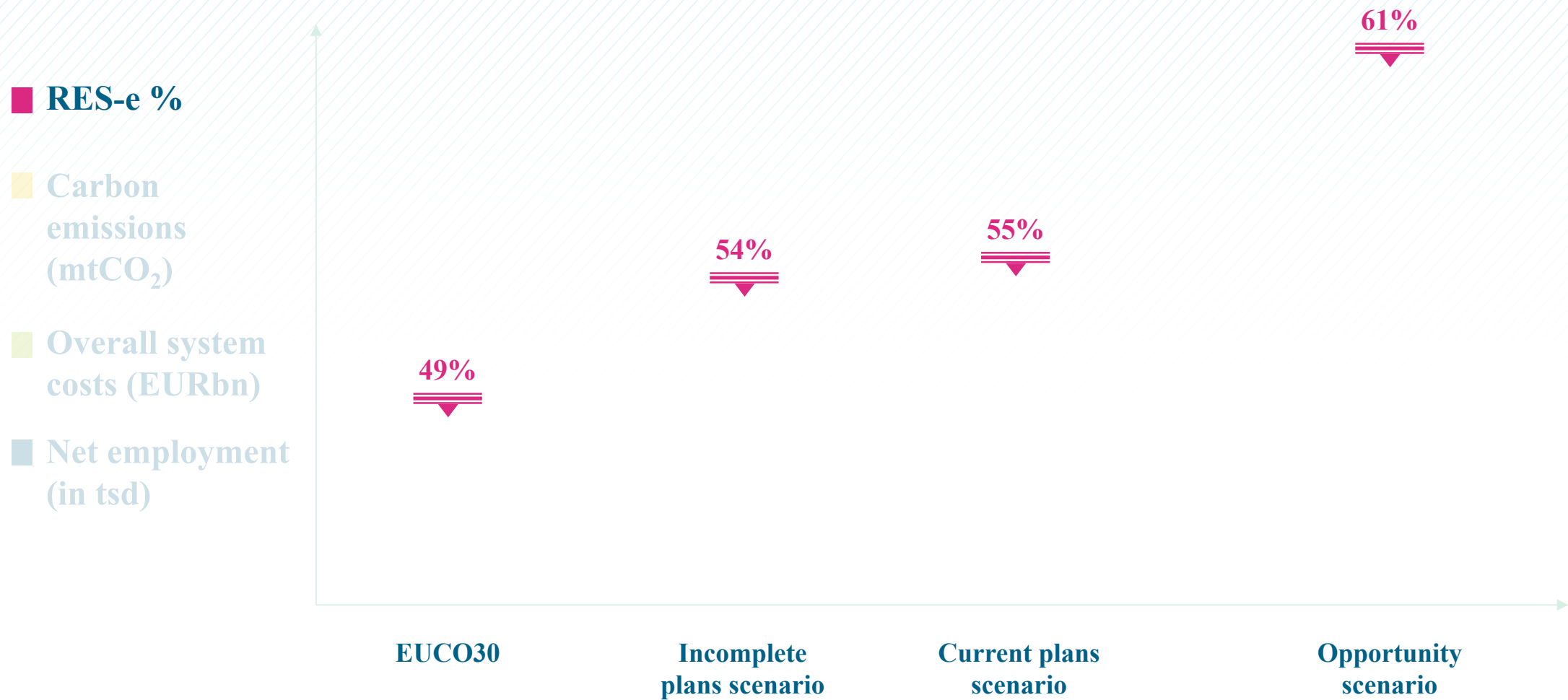
Advisory group



Scenario configuration



Overview of Results



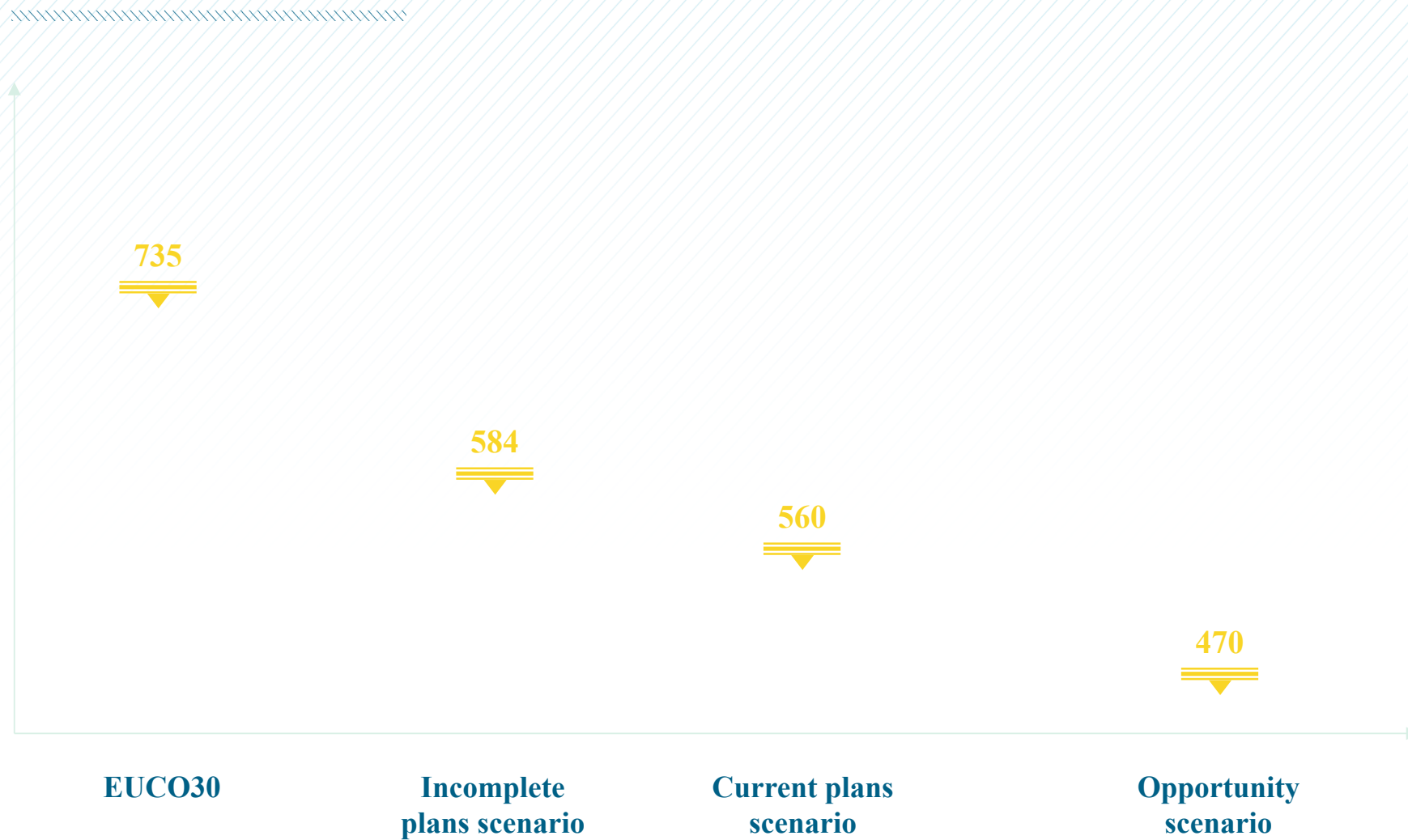
Overview of Results

RES %

Carbon emissions (mtCO₂)

Overall system costs (EURbn)

Net employment (in tsd)



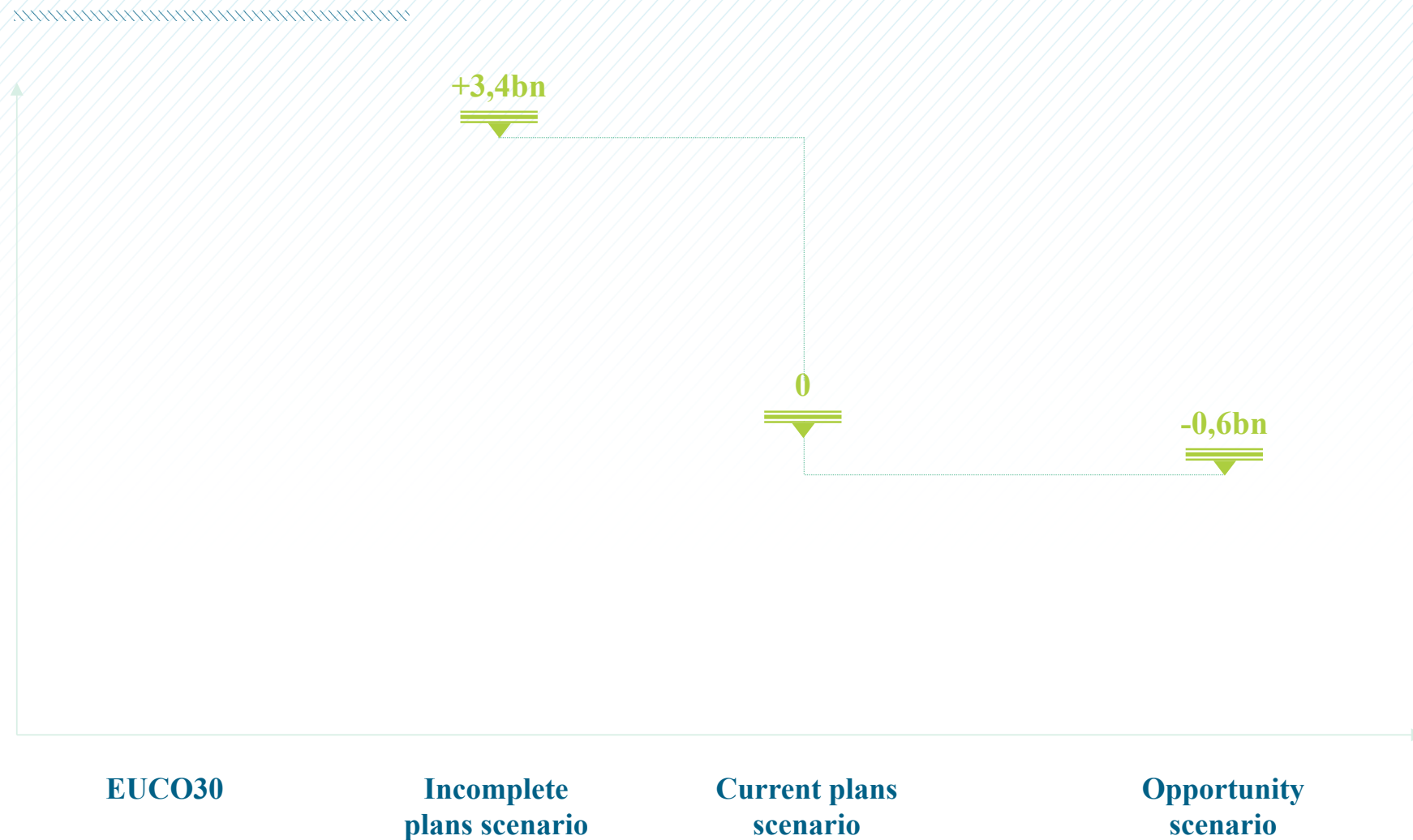
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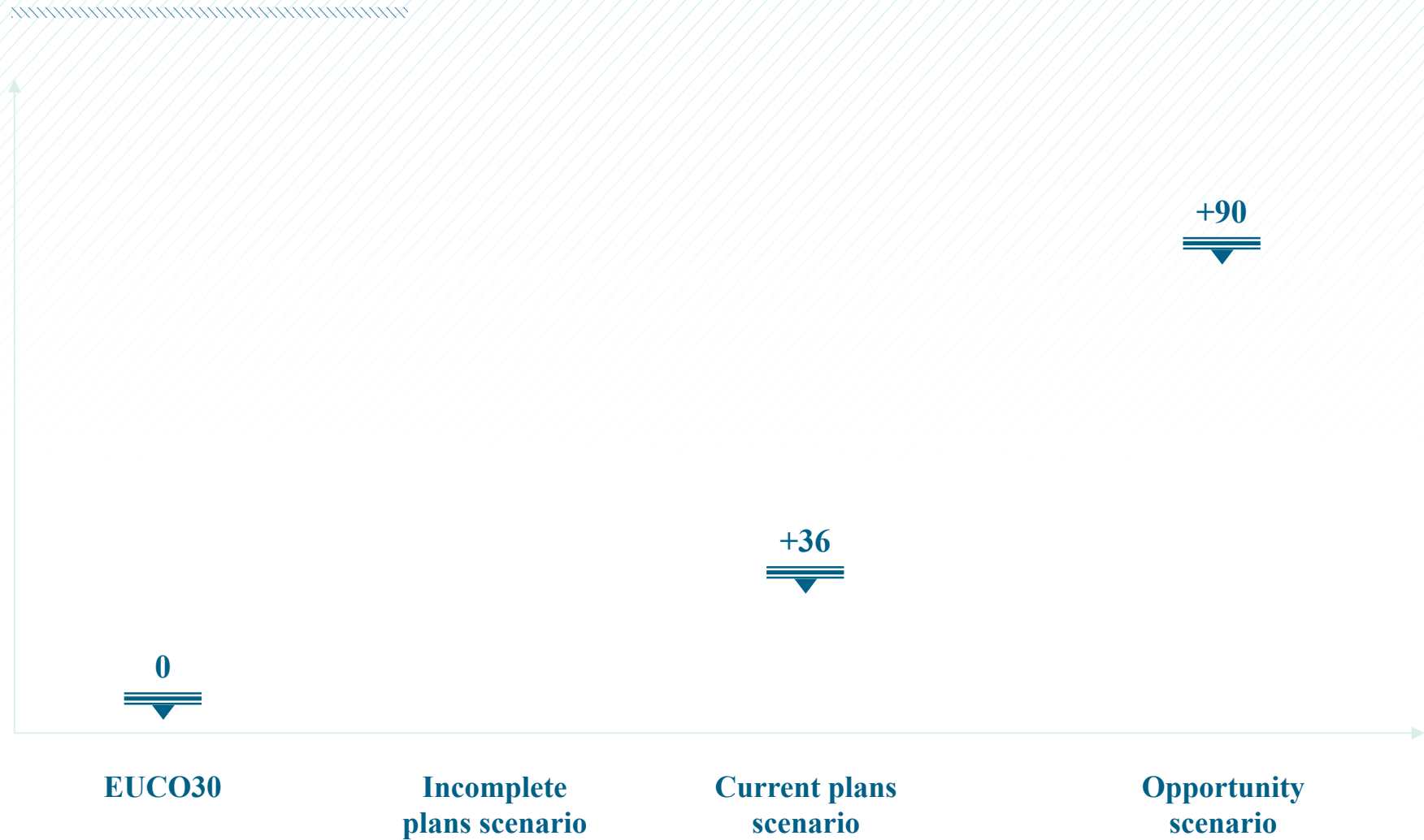
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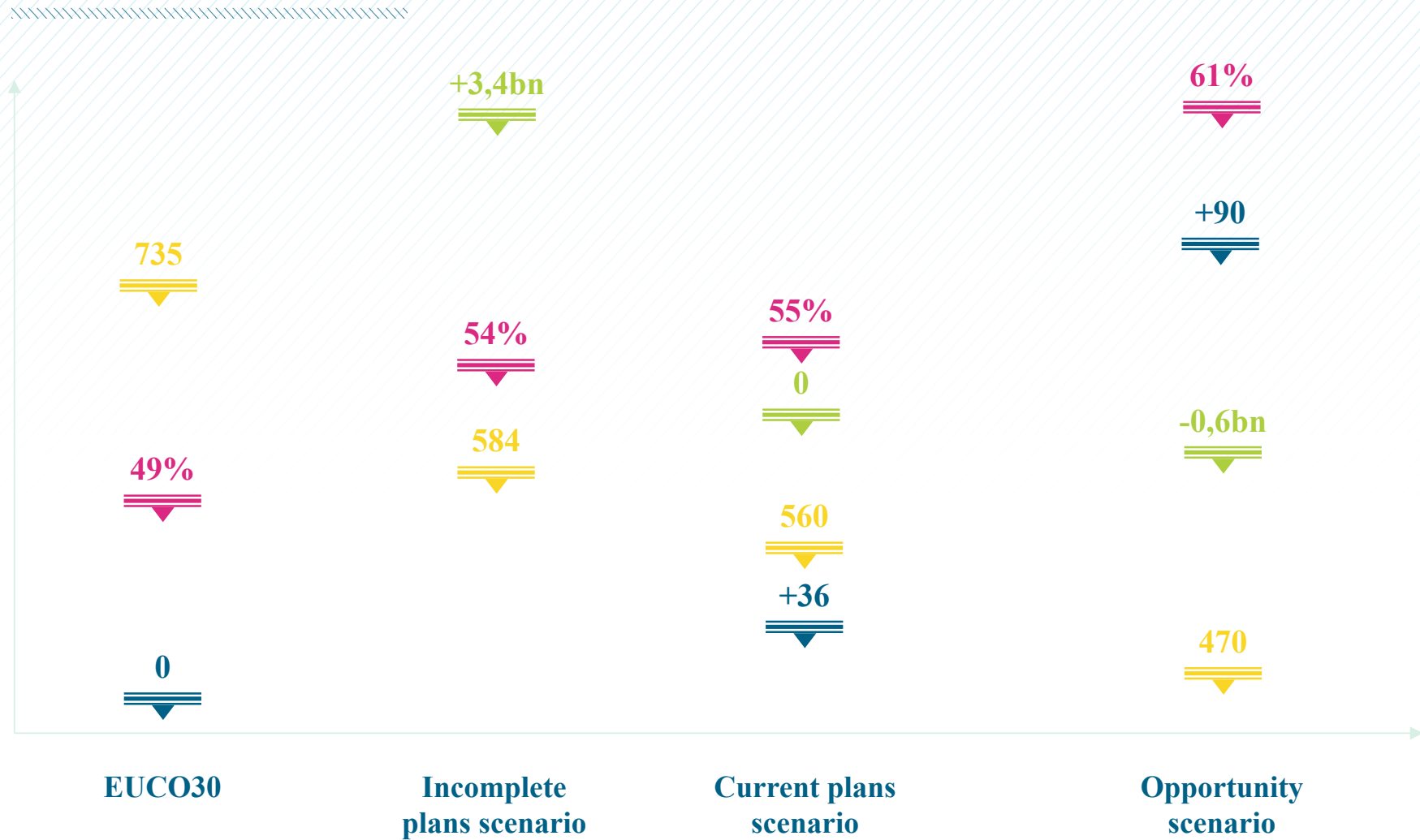
Net employment (in tsd)



Overview of Results

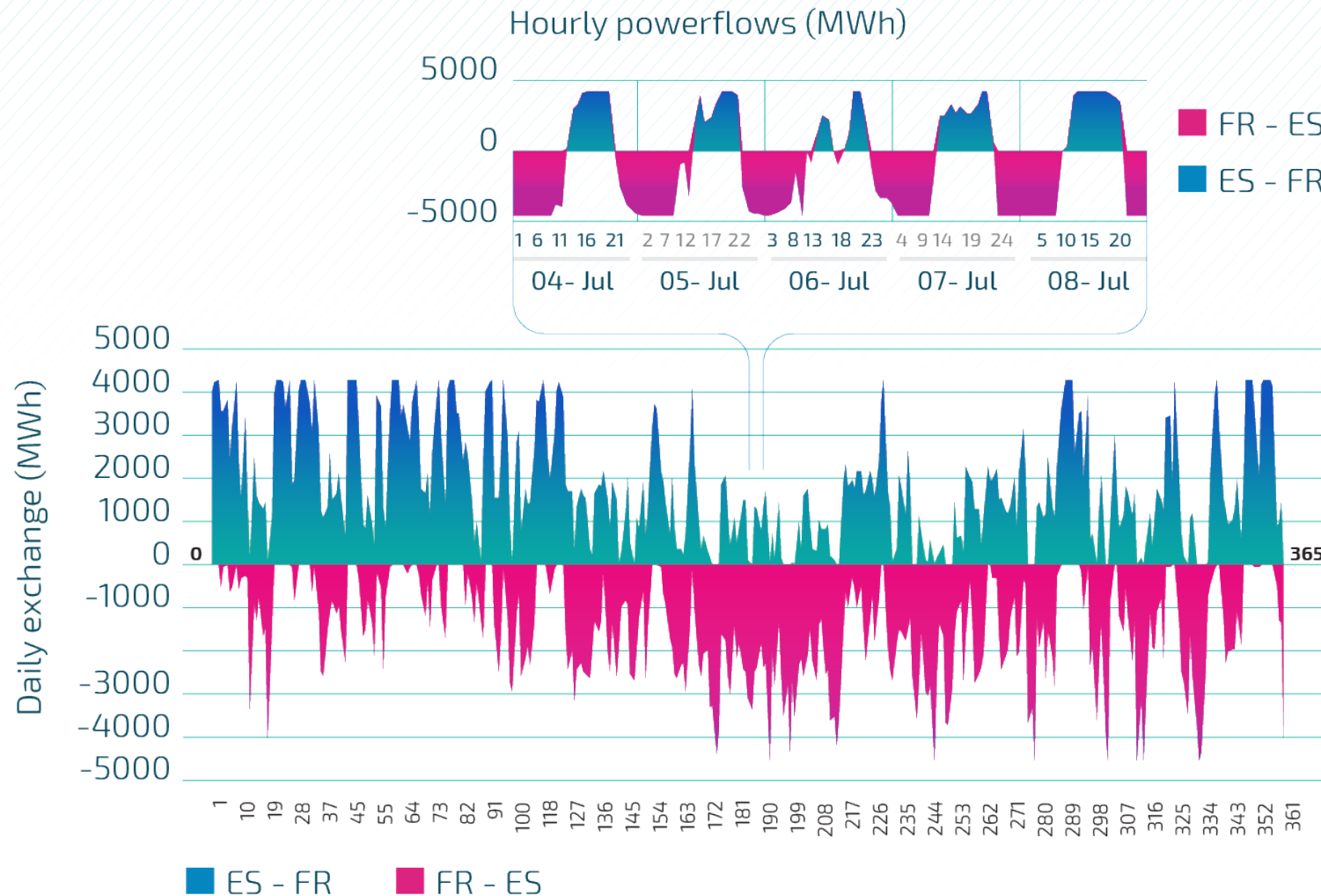
In Summary

- RES-e %
- Carbon emissions (mtCO₂)
- Overall system costs (EURbn)
- Net employment (in tsd)



1

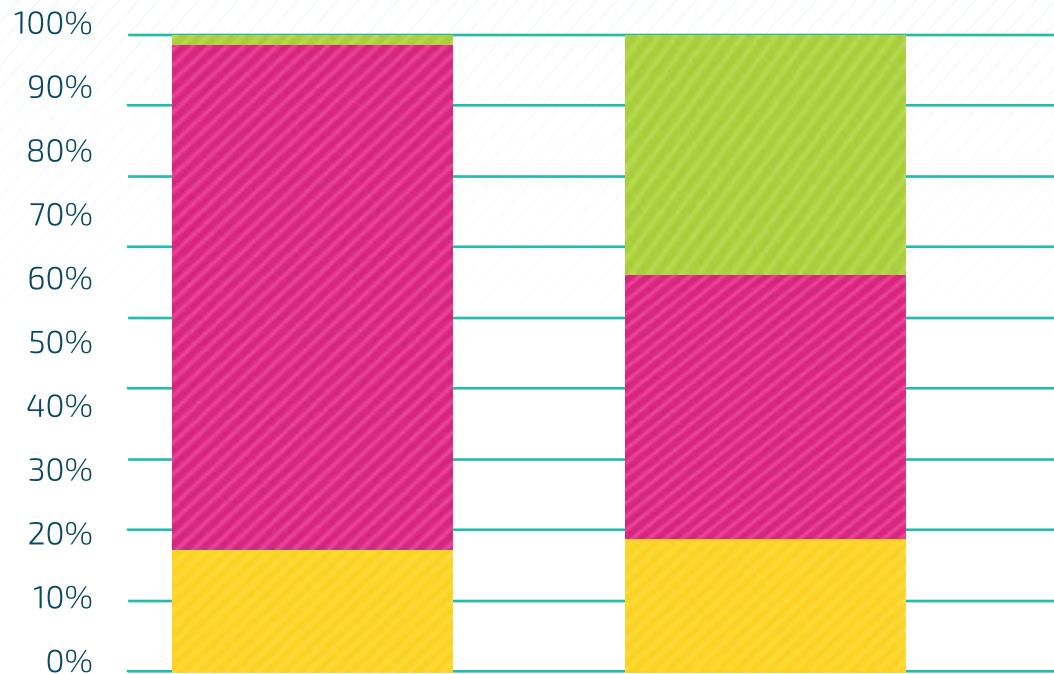
System balancing: grids and interdependency



2

System balancing: demand side becomes a key source of flexibility

Daily
flexibility
needs



Current Plan Scenarios

Opportunity Scenarios

Grids Supply Demand

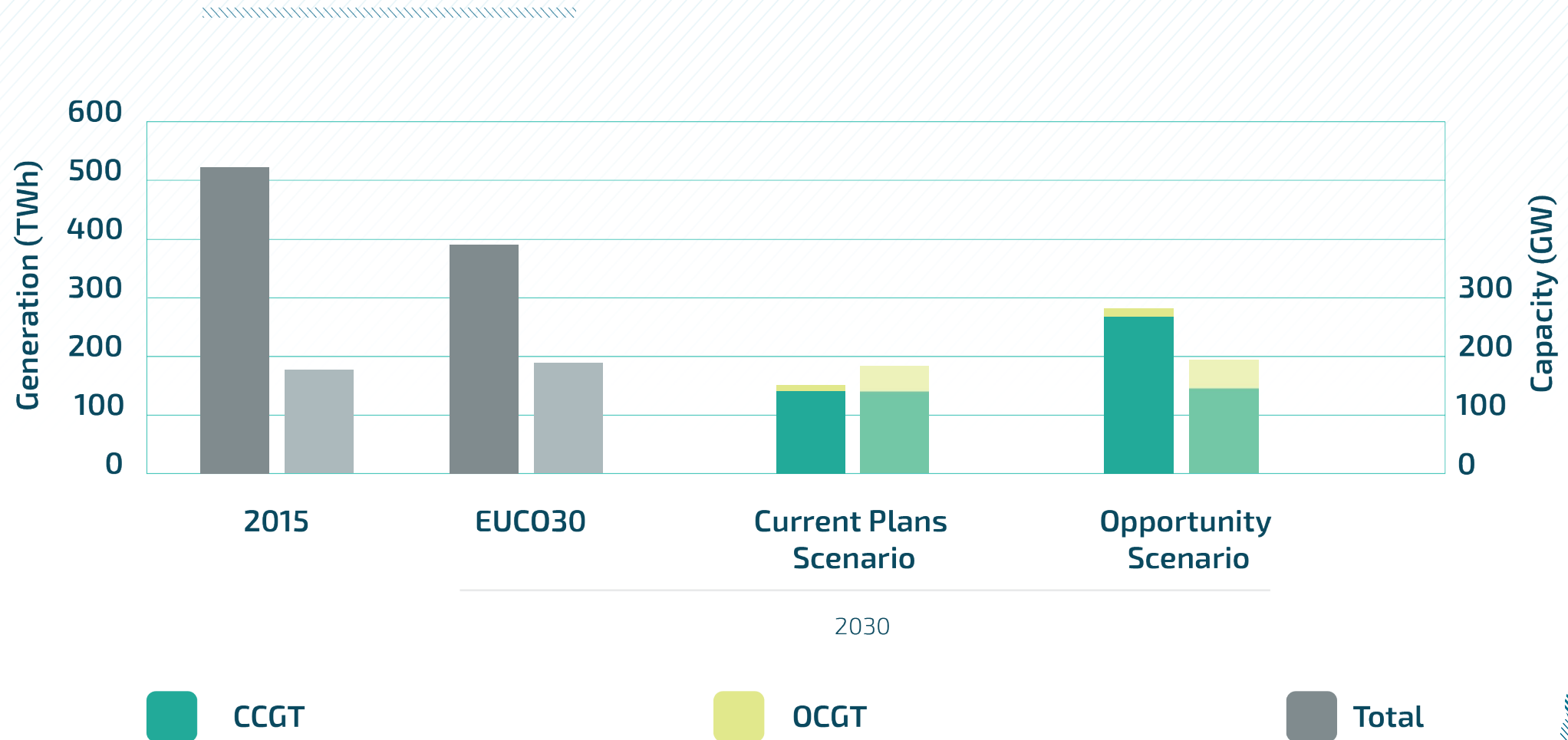
Smart electrification brings cost-effective demand side flexibility

Role of flexible generation reduces, impacting thermal generation

Grids play slightly bigger role



The role and outlook for gas in the power sector



Summary of findings

1. Faster decarbonisation of the power sector is technically feasible and can be economically more attractive than current 2030 ambition levels.
2. The power system can integrate substantially higher shares of renewable electricity, 61% or more, than currently projected for 2030, and at lower cost.
3. A smart and swift transition out of coal is indispensable in order to tap into the opportunities presented by cheaper renewables.
4. Gas generation declines considerably compared to today, even with large shares of coal retiring, as flexible demand and smart electrification picks up
5. Interdependency between national electricity systems should deepen, with benefits shared by all.



Policy Implications

1. Falling costs mean more renewables and lower emissions.
2. Member states can phase out coal with confidence.
3. It's not coal-to-gas, it's fossil-to-RES+flexibility.
4. The new markets for smart electrification and demand-side flexibility must be built.
5. This is just the beginning.





Thank You

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