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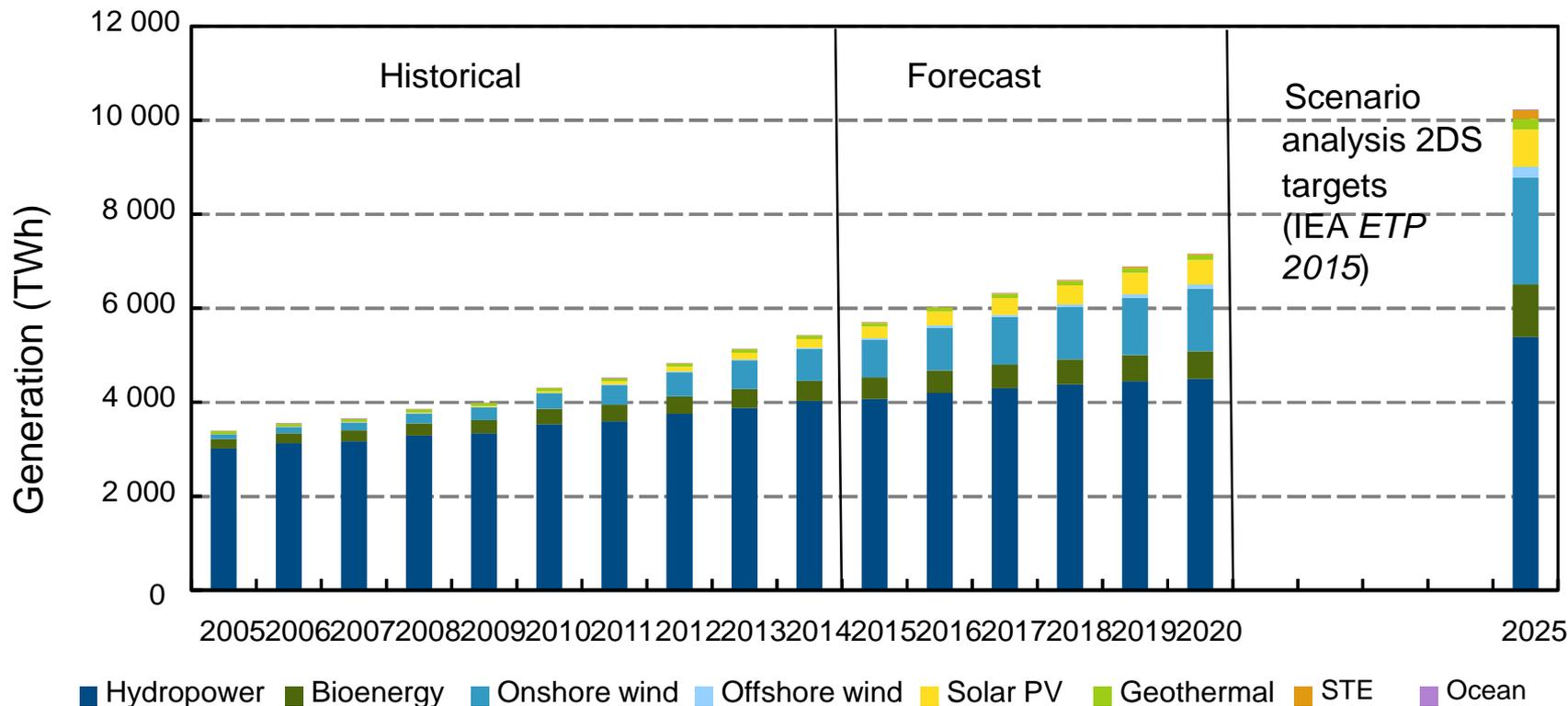
Renewable energy towards 2030: markets vs subsidies?

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Nordic-Baltic Energy Conference, Tallinn, 12 May 2016

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Globally, renewable electricity has grown rapidly over the past decade

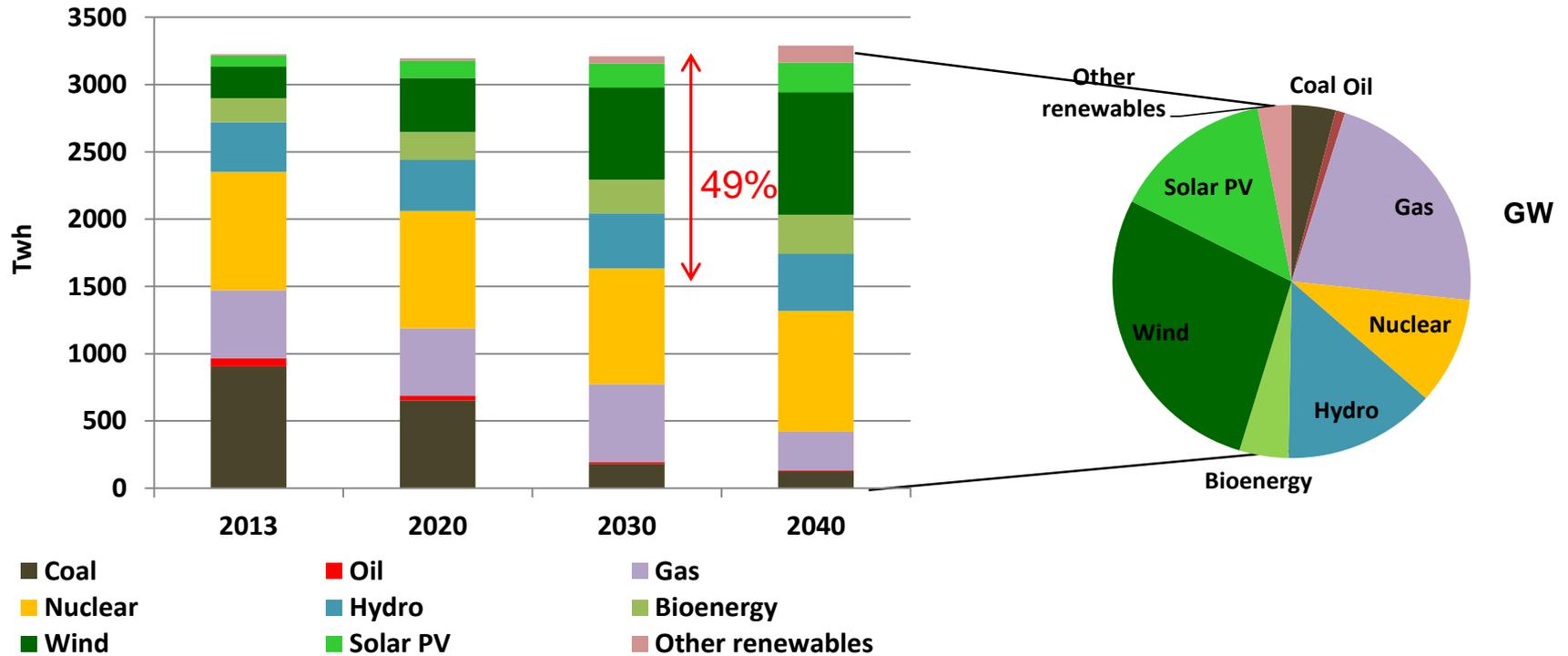


Most of this growth due to renewable support policies (FiTs, obligations etc), **not competitive markets.**

But there is a long way to go

EU power generation in WEO 450 Scenario

EU capacity mix in 2040 WEO 450 Scenario

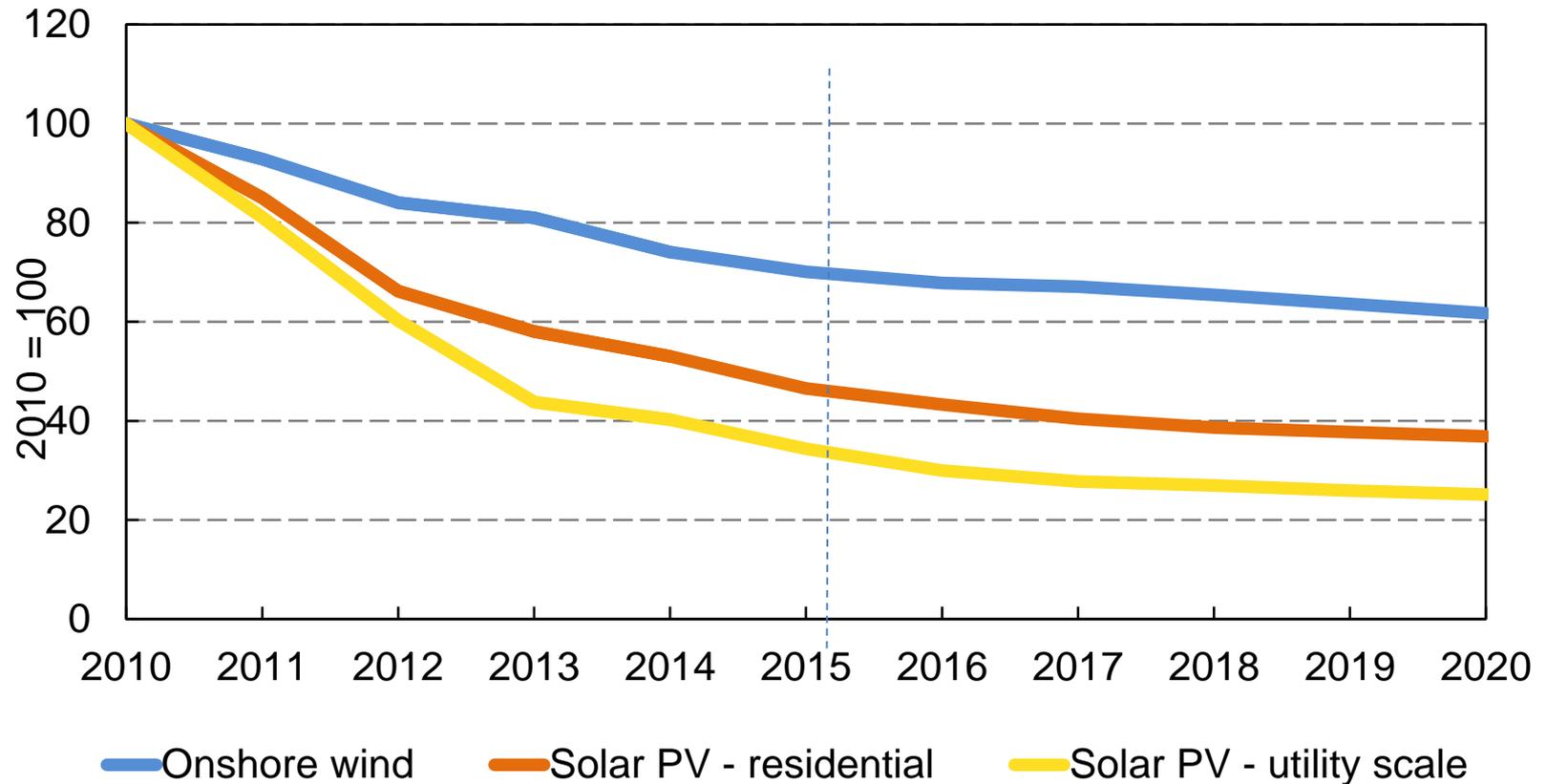


Source: WEO, 2015

Renewable power capacity in the EU needs to double by 2040

Rapid cost reductions mean high levels of incentives are no longer needed for solar PV and onshore wind

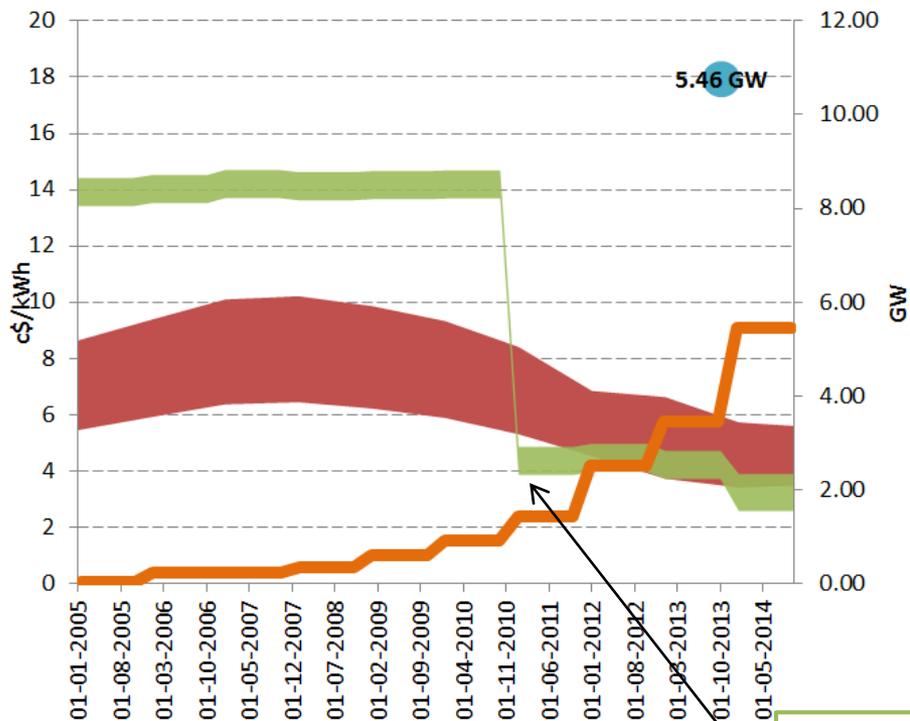
Indexed generation costs



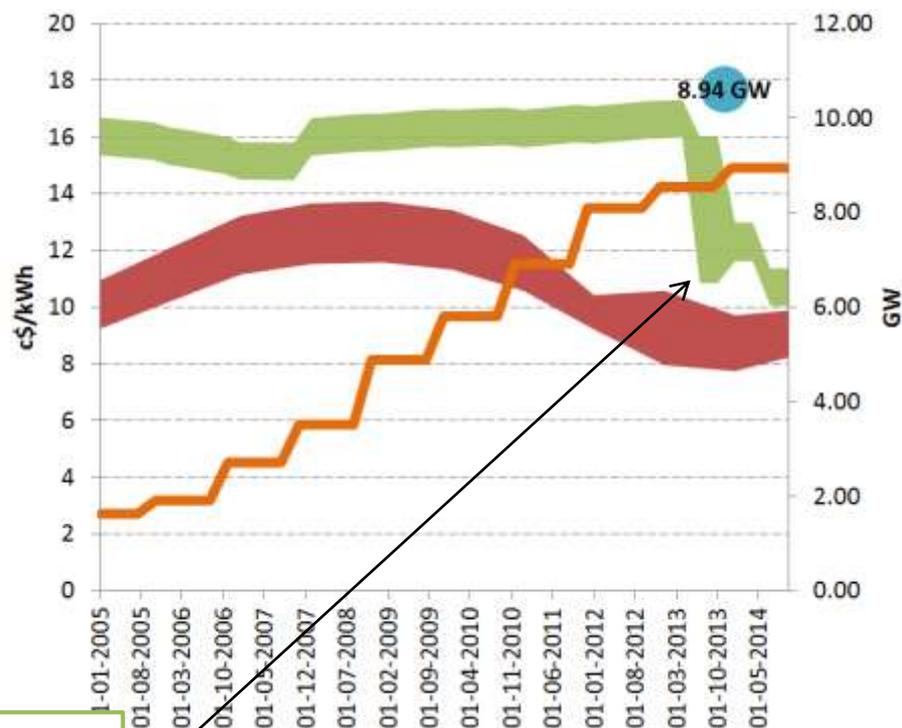
However, economic attractiveness still depends on regulatory framework and market design

Competitive procurement can reduce policy cost and stimulate further cost reductions

Onshore wind >25 MW in Brazil



Onshore wind >25 MW in Italy

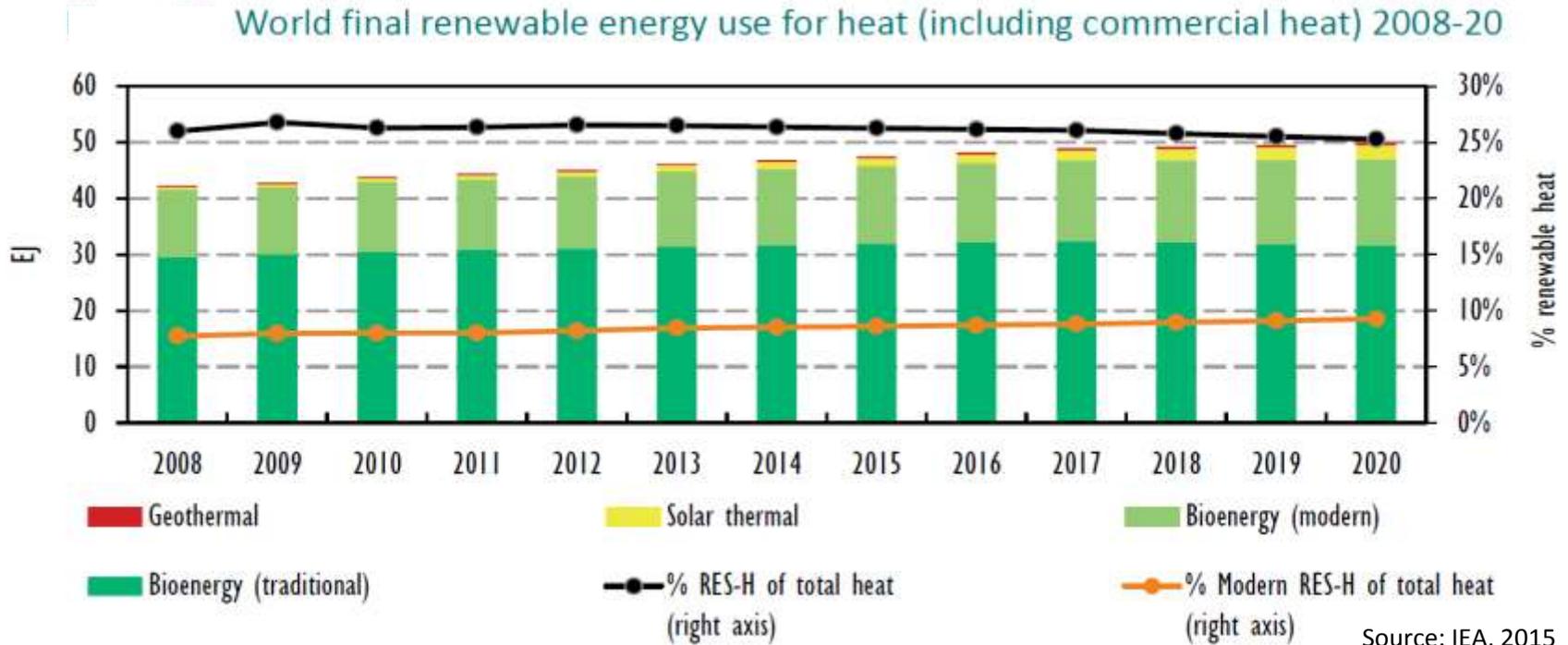


Auction introduced

- LCOE (indicative)
- Revenues
- Capacity

■ But still need policy support

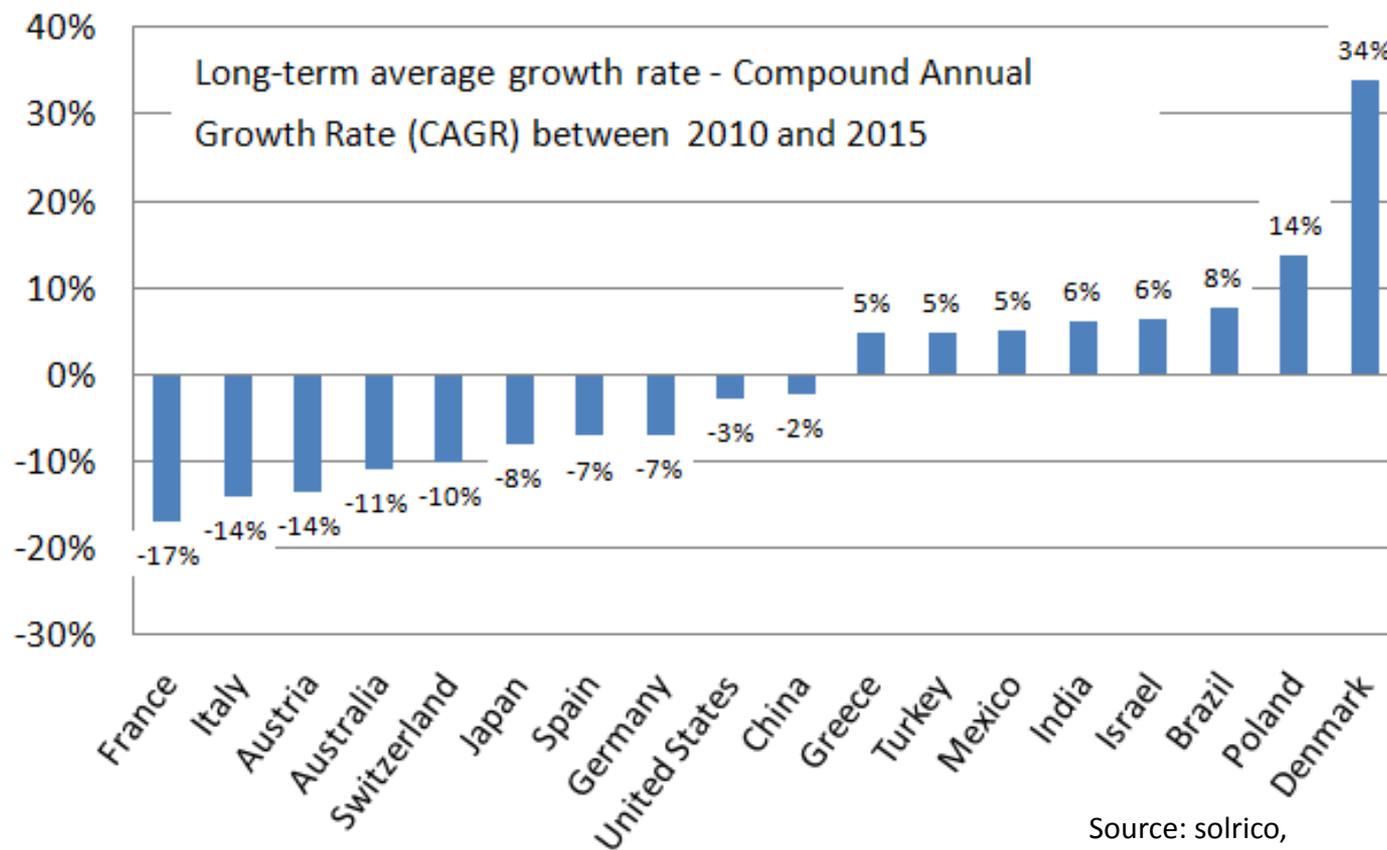
But it is not just about electricity - renewable heat and transport are lagging behind



- Fewer countries have renewable heat targets and support policies than for electricity
- Challenge of current low heating oil price & high capital costs
- Similar picture for transport

Many heat markets declining rather than growing

Solar thermal – 18 largest markets



Total: 14% reduction 2014-15

Source: solrico, solarthermalworld.org

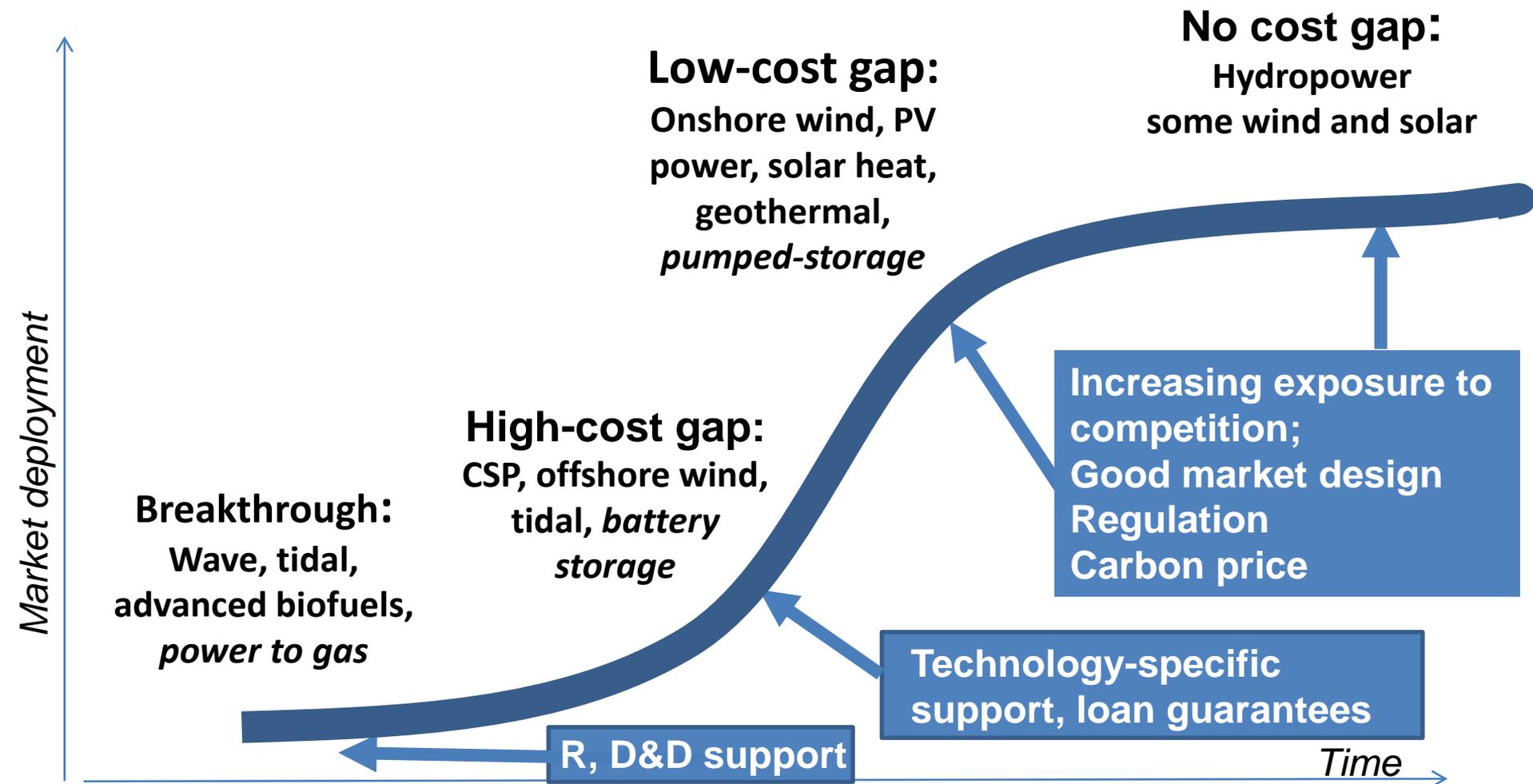
- Several countries falls despite availability of incentives
- Some useful lessons from the Nordic and Baltic countries

Challenges still exist for renewables

- **Lack of level playing field**
 - No or low carbon price
 - Fossil fuel subsidies
- **Current low fossil fuel prices**
- **Capital-intensive investments (especially power sector), including infrastructure**
 - Cost structure doesn't fit short-run marginal pricing
 - Difficult to finance without long-term contracts
- **Variable generation**
- **Distributed renewables**
- **Multiple non-economic barriers (e.g. heat)**

Competitive markets can play a role but only within a strong regulatory and policy framework

Sound policies needed at all stages, including some financial support



Achieving climate goals will require financing a portfolio of technologies which stand at various levels of maturity

Conclusions



- Acceleration of renewables deployment needs a different approach.
- It's not about markets versus subsidies.
- Markets and CO₂ price are part of the solution but a lot more is needed.
- Complex market/regulatory framework is required + some financial incentives, depending on the technology.
- No one size fits all.

Aitäh – thank you

