



International  
Energy Agency

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## **Delivering on the clean energy agenda: prospects and the role for policy**

**6th Asian Ministerial Energy Roundtable**  
9 November 2015

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# Climate pledges shift the energy sector

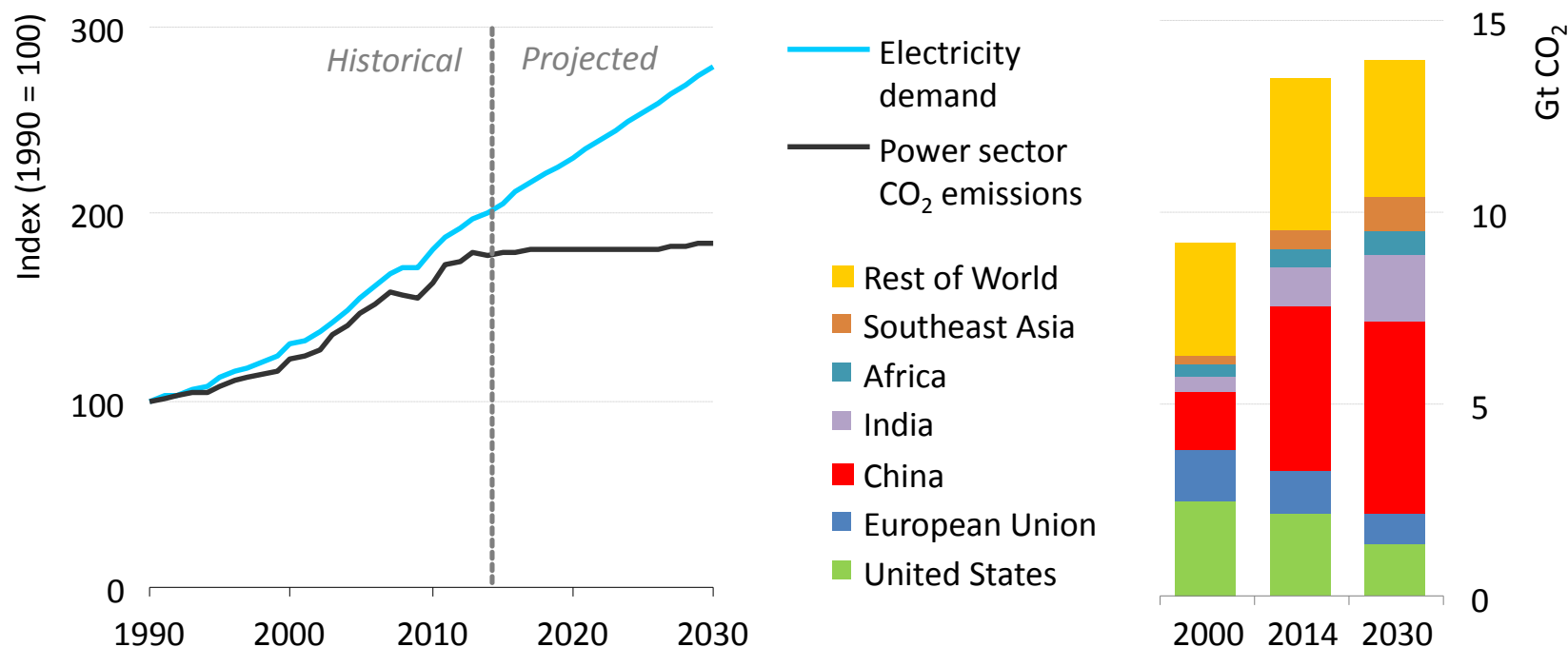
- One-quarter of the world's energy supply is low carbon in 2030; energy intensity improves three-times faster than the last decade
- Renewables reach nearly 60% of new capacity additions in the power sector; two-thirds of additions are in China, EU, US & India
- Natural gas is the only fossil-fuel that increases its share of the global energy mix
- Total coal demand in the US, Europe & Japan contracts by 45%, while the growth in India's coal use slows by one-quarter
- Climate pledges for COP21 are the right first step towards meeting the climate goal

# Demand and emissions growth decouple in the power sector

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Growth in world electricity demand and related CO<sub>2</sub> emissions since 1990 (left) and related CO<sub>2</sub> emissions by region (right)



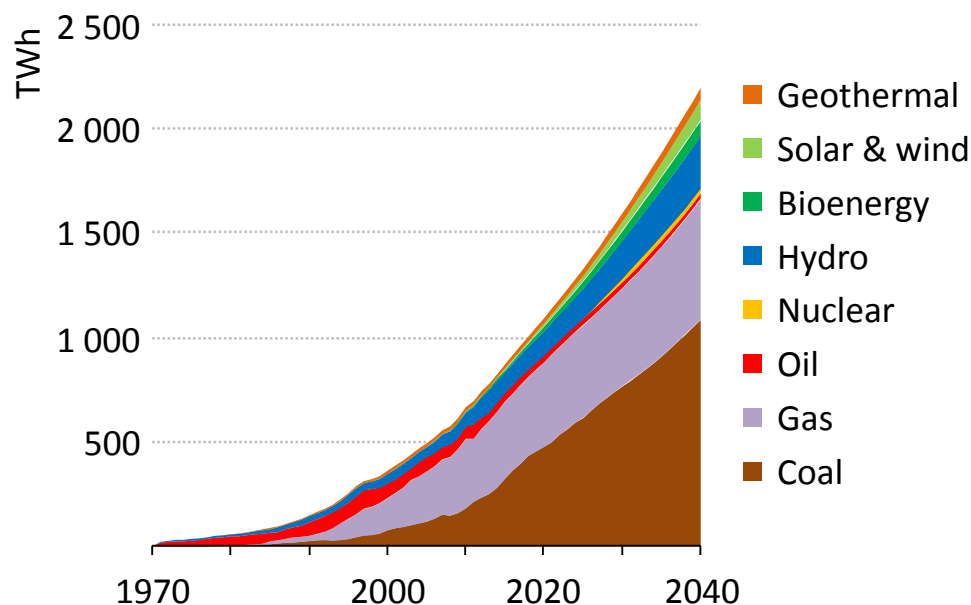
**Power sector emissions stay broadly flat as the share of low-carbon generation grows to almost 45% in 2030, while electricity demand rises by more than 40%**

# Electricity demand triples, with shift towards coal set to continue

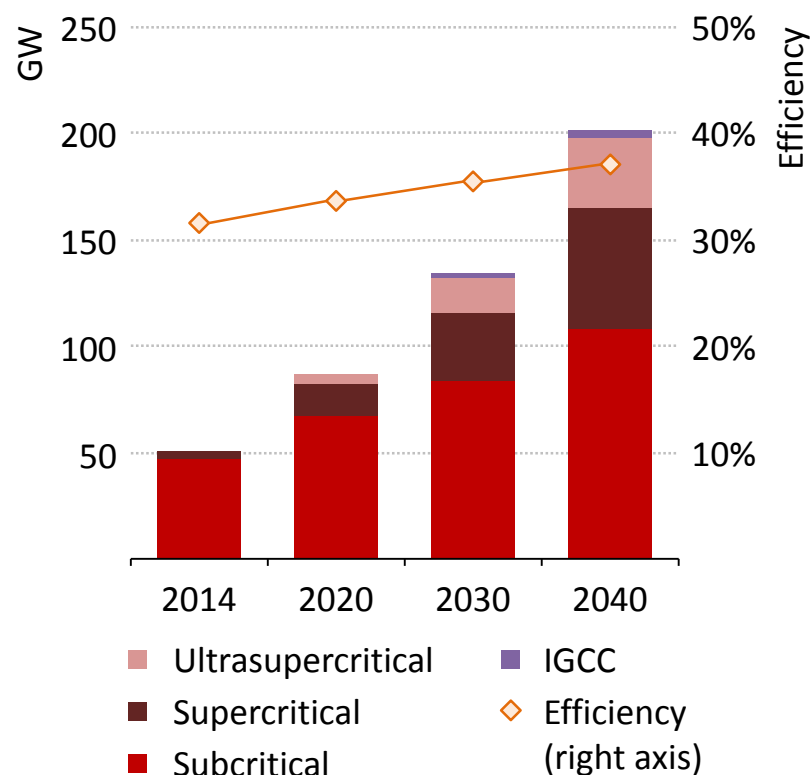
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## Electricity generation by fuel



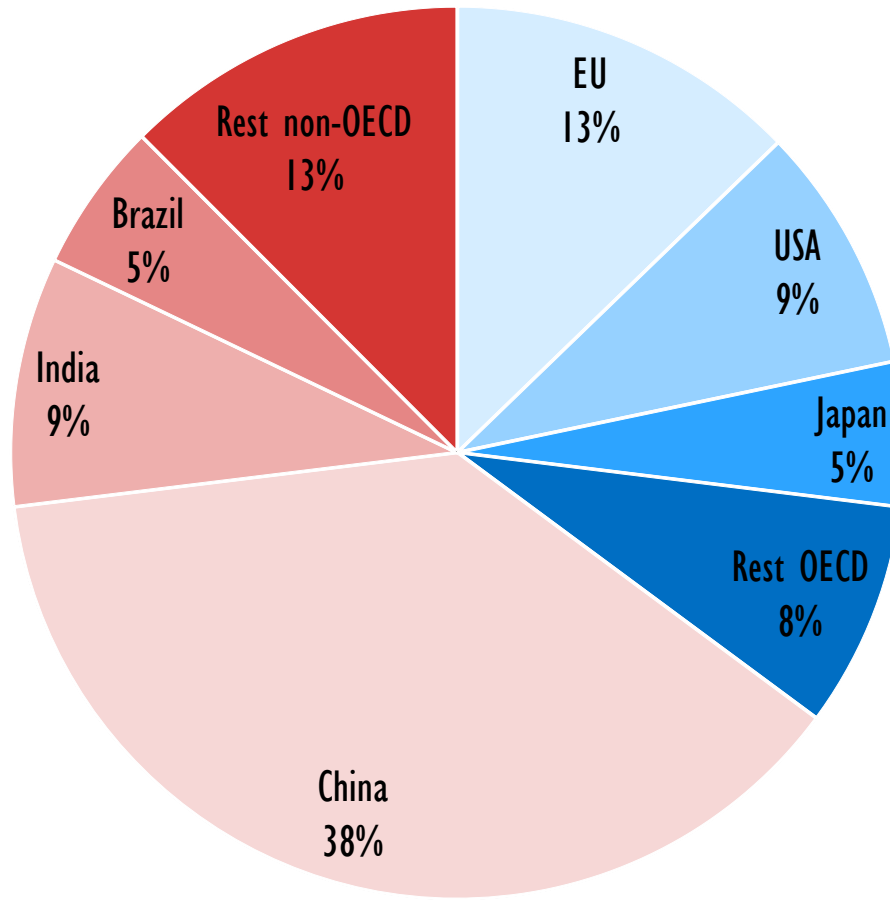
## Installed coal-fired capacity & efficiency



***Power capacity expands by 400 GW, equal to current size of Japan and Korea power systems, with increasingly deployment of more efficient coal-fired plants***

# Growth shifting to emerging markets and developing countries

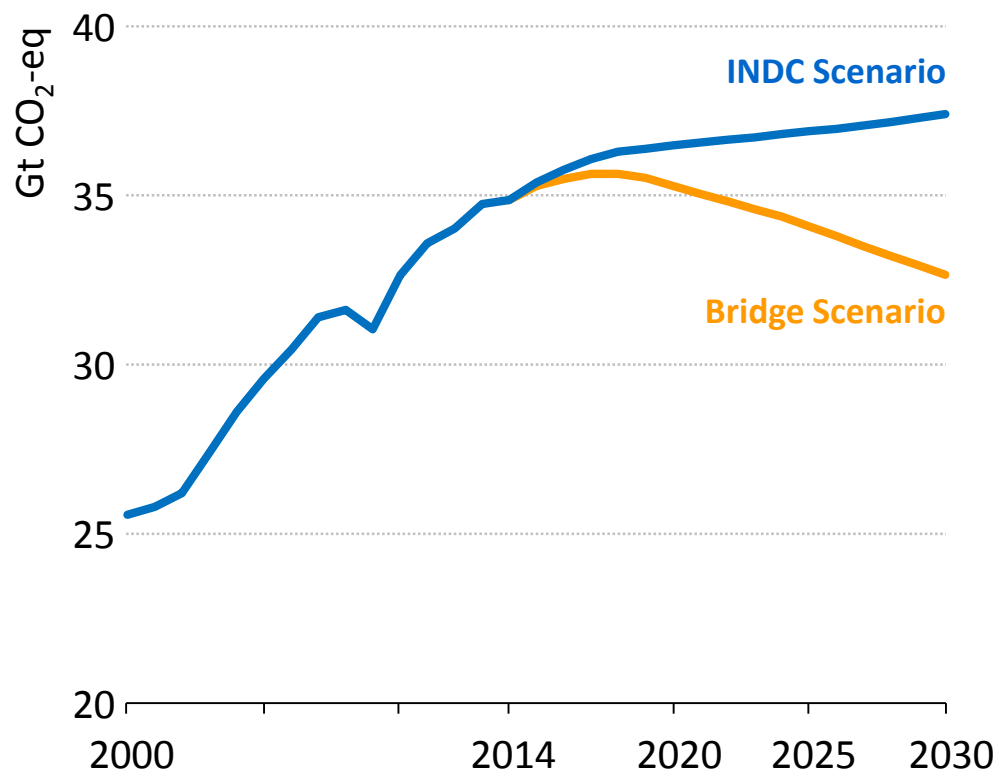
## Shares of net additional renewable capacity, 2014-20



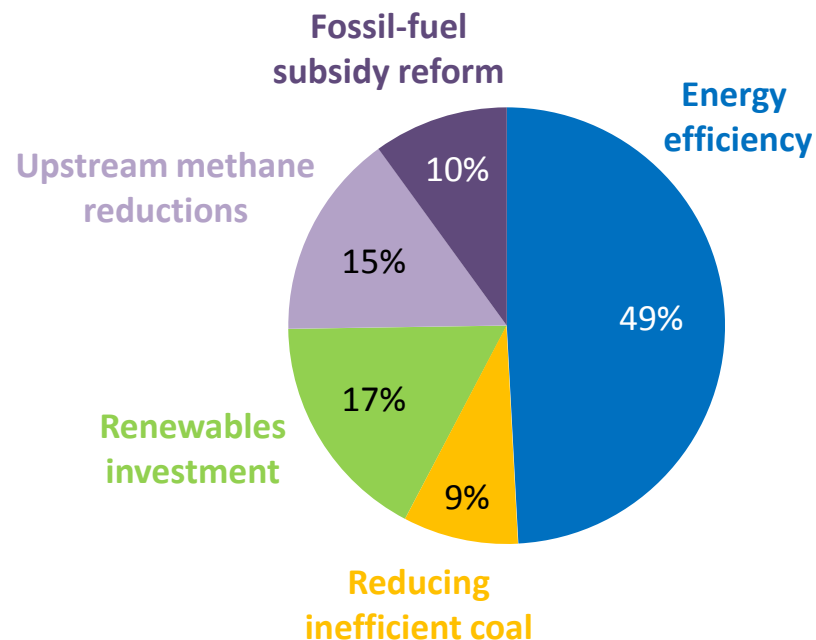
***As the OECD slows, non-OECD countries account for two-thirds of renewable growth, driven by fast-growing power demand, diversification needs and local pollution concerns***

# Peak in emissions: IEA strategy to raise climate ambition

Global energy-related GHG emissions



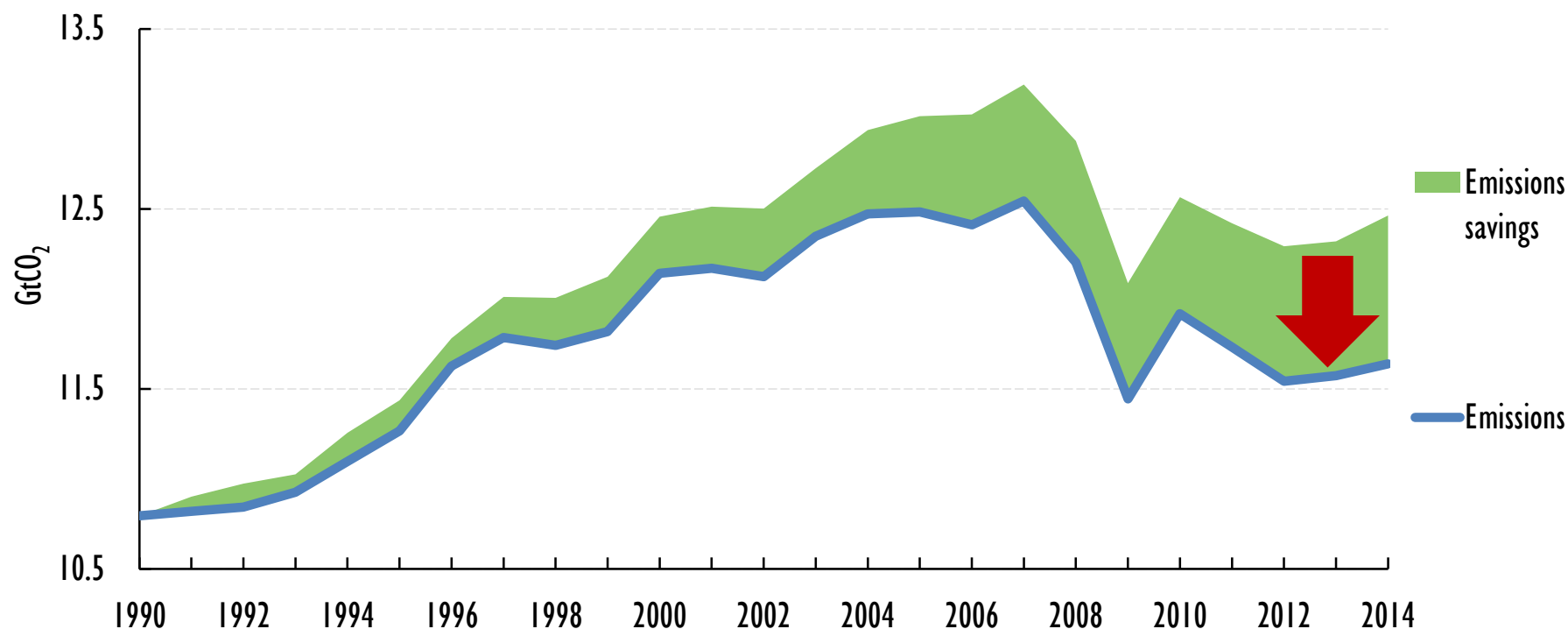
Savings by measure, 2030



**Five measures – shown in a “Bridge Scenario” – achieve a peak in emissions around 2020, using only proven technologies & without harming economic growth**

# Efficiency is the most important tool for decoupling economic growth from CO<sub>2</sub> emissions

- Since 1990, energy efficiency improvements in IEA countries avoided 10.2 billion tonnes of CO<sub>2</sub> emissions



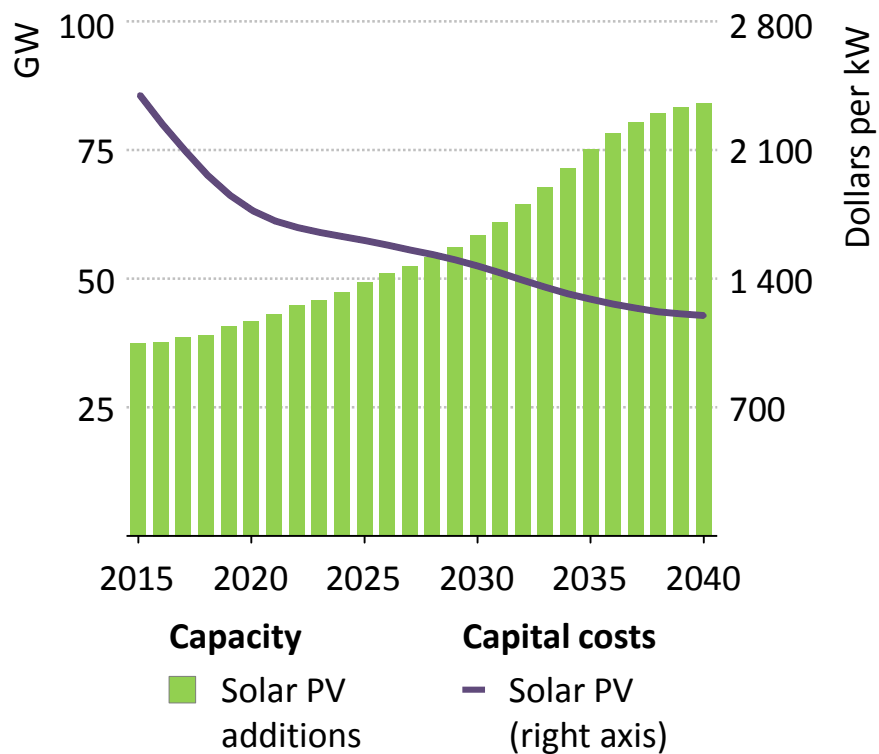
*These emissions savings equal almost one year's worth of energy-related emissions in IEA countries, helping to make 2 degrees achievable*



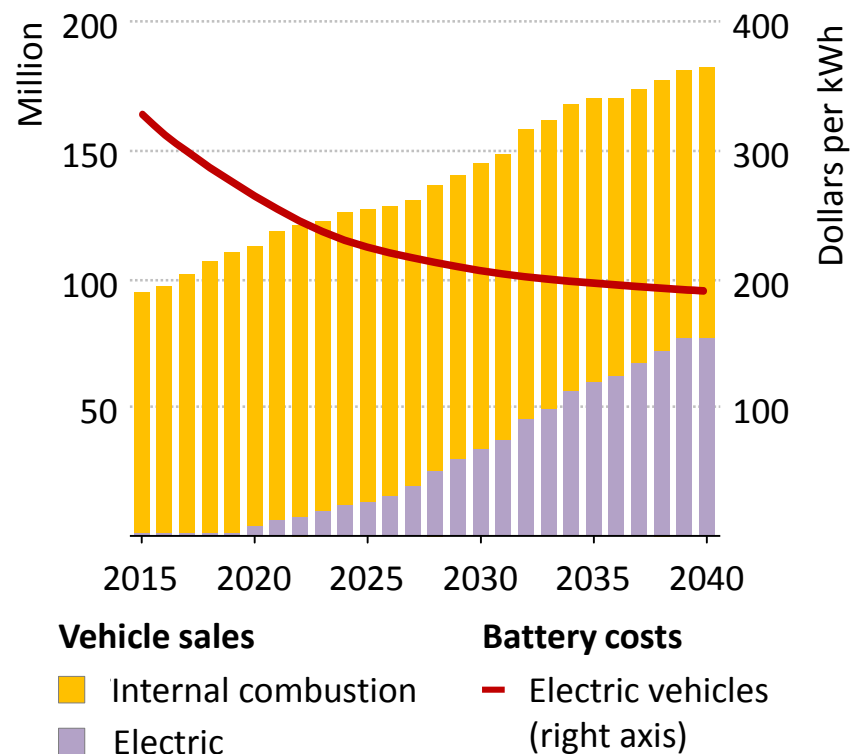
# Lock in the vision:

## What more does it take for 2 °C?

### Cost reductions & deployment of all solar PV



### Cost reductions & deployment of electric vehicles



***An emissions goal would give greater clarity & certainty to the energy sector, strengthening the case for RD&D investment & technology transfer***

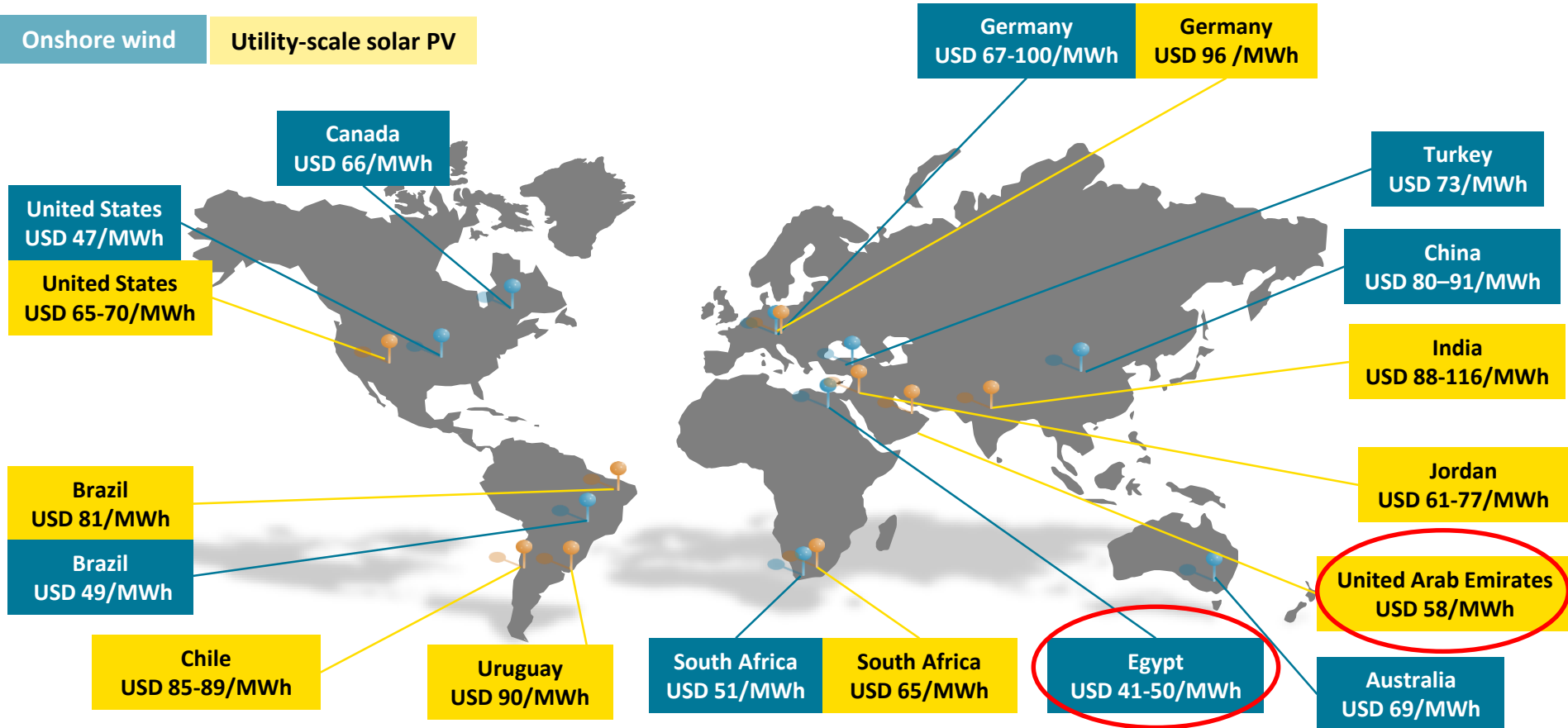


# Evidence of lower costs on the horizon

## Recent announced long-term contract prices for new renewable power

Onshore wind

Utility-scale solar PV

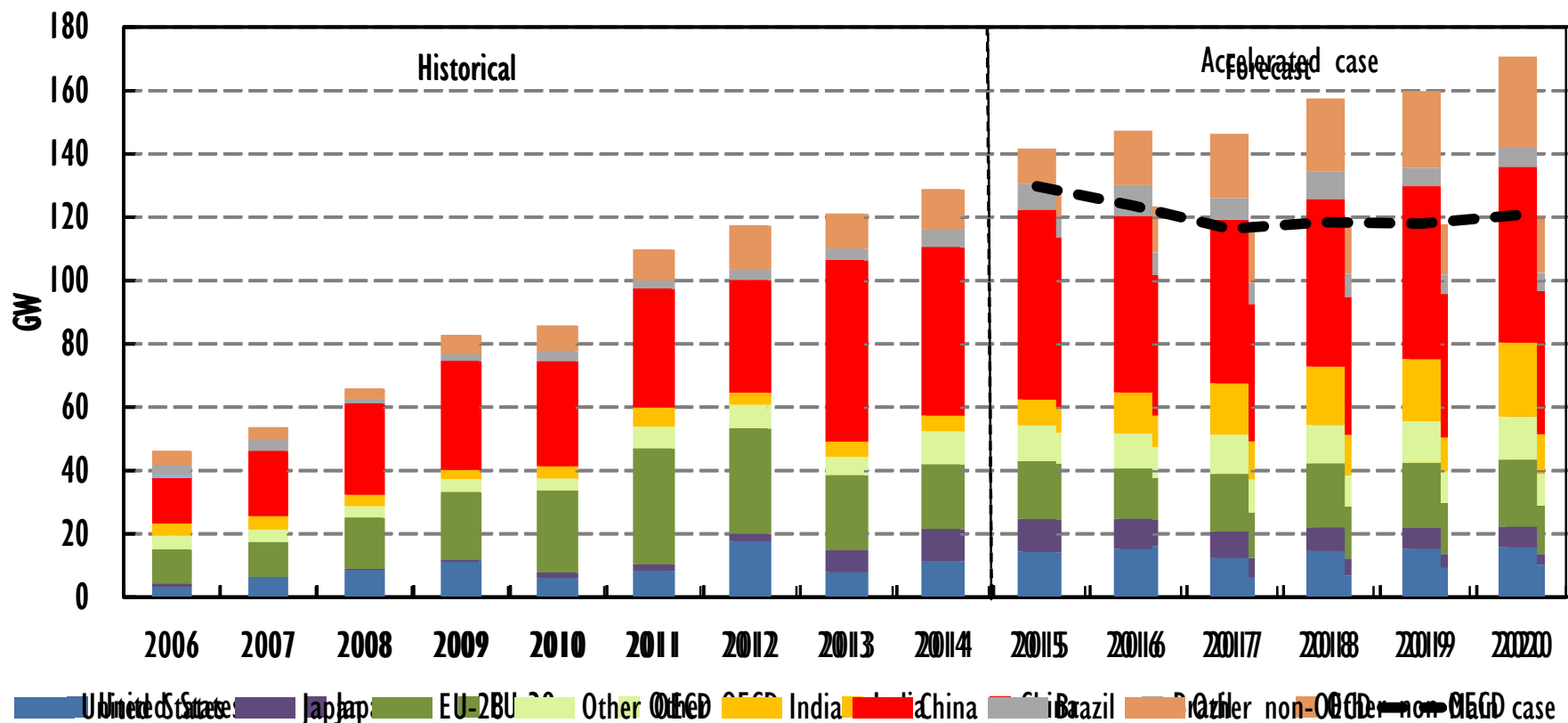


This map is without prejudice to the status or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area

***A combination of price competition, long-term contracts, good resources and financial de-risking measures is creating deployment opportunities in newer markets and at lower costs***

# Renewable growth can be accelerated back on track to meet climate goals

## World renewable power capacity growth, main versus accelerated case



**Renewable energy can be brought back rising annual installation growth, through enhanced domestic policies, e.g. grid integration of variable renewables**

# Conclusions

- Pledges are not yet enough to achieve our climate goal, but are a basis from which to build ambition
- Companies that do not anticipate stronger energy & climate policies risk being at a competitive disadvantage
- For COP21, the IEA proposes four key energy sector outcomes:
  1. Target a near-term peak in emissions
  2. Five-year revision, to test the scope for raising ambition
  3. Lock in the vision by setting a long-term emissions goal
  4. Track the transition in the energy sector
- Climate change will lead the agenda at the IEA's Ministerial meeting on 17-18 November 2015