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Climate Change and Energy Sector Transformation: Implications for Asia-Pacific Including Japan

Aligning Policies for the Transition to a Low-carbon Economy: OECD Recommendations and Implications for Asia-Pacific Including Japan

ISAP 2015
Yokohama, 29 July 2015

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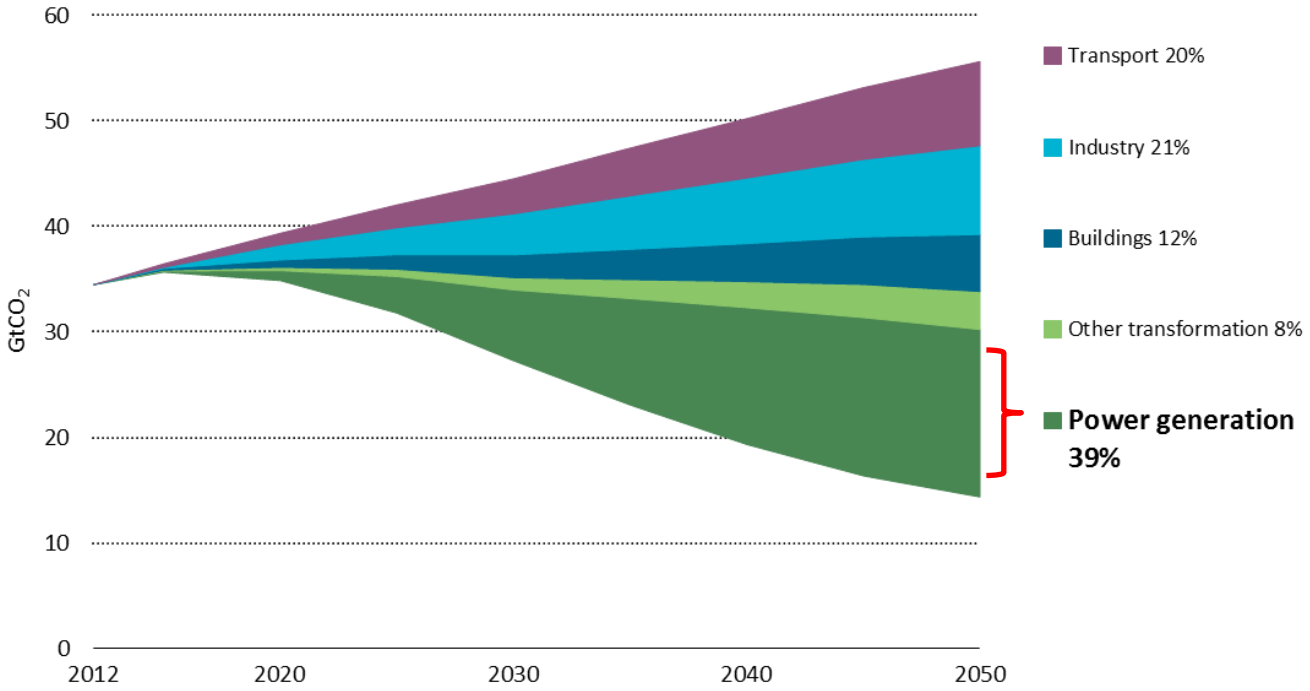
Aligning Policies for a Low-carbon Economy

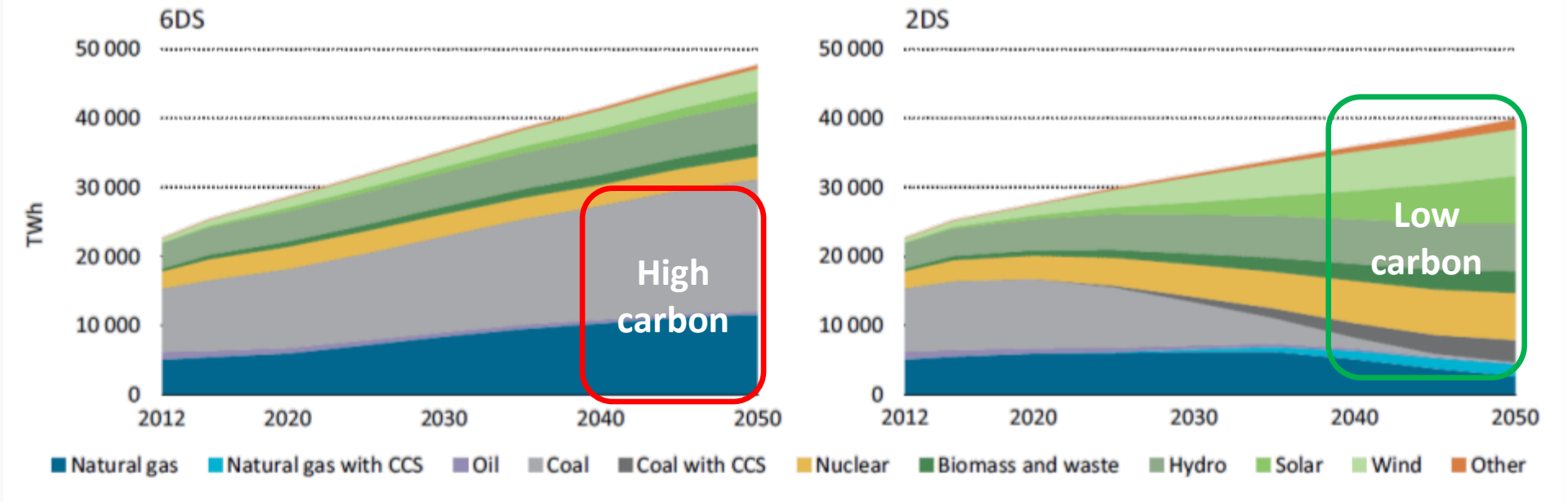
- **Chapter 7: Reframing investment signals and incentives in electricity**
- **Electricity is essential to the decarbonisation agenda**



Source: Energy Technology Perspectives 2015

Electricity Generation in 2DS

- Growing share of variable renewables → demand for a more flexible and integrated system
- Low-carbon generation: higher capital cost, lower operational cost vs. coal and gas



Source: Energy Technology Perspectives 2015

Electricity markets

- Regulatory framework for electricity systems determines investment context, cost, and reliability of system

- Current *wholesale electricity markets* in many OECD countries are not strategically aligned with the low-carbon transition
- Require new market arrangements as well as a robust CO_2 price

- *Regulated electricity systems* also face challenges, e.g. fair grid and market access for new low-carbon sources

Considerations for Japan

- Deregulated electricity markets may not deliver the long-term price signal needed for investment in high capital cost, low-carbon technologies.

- Competitive and timely investment in low-carbon solutions will require new market arrangements such as long-term supply agreements, as well as a robust and stable CO_2 price signal.

- Jurisdictions with regulated systems that consider introducing greater competition need to adopt market arrangements that will encourage, rather than hinder, investment in low-carbon technologies.

Towards COP21

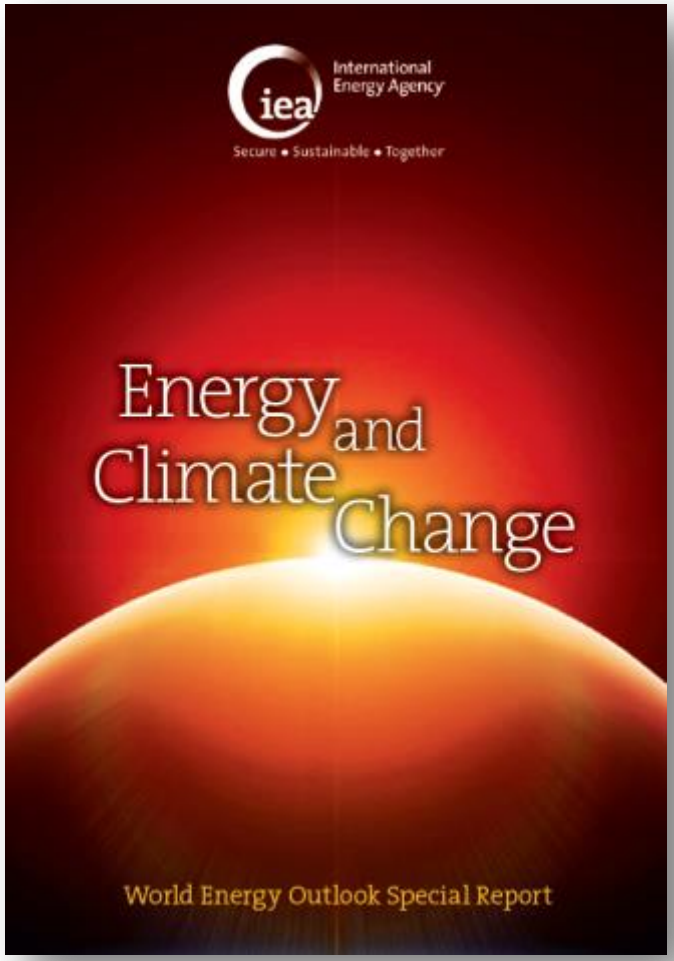
- **A major milestone in efforts to combat climate change is fast approaching – COP21 in Paris in December 2015**
- **Momentum is building:**
  - Historic US-China joint announcement; EU 2030 targets agreed
  - Developed & developing countries are putting forward new pledges to reduce emissions
  - Many energy companies & investors are starting to engage
  - Pope Francis' encyclical *LAUDATO SI'*

Source: Brookings Institute


Source: US Embassy

Source: Business & Climate Summit

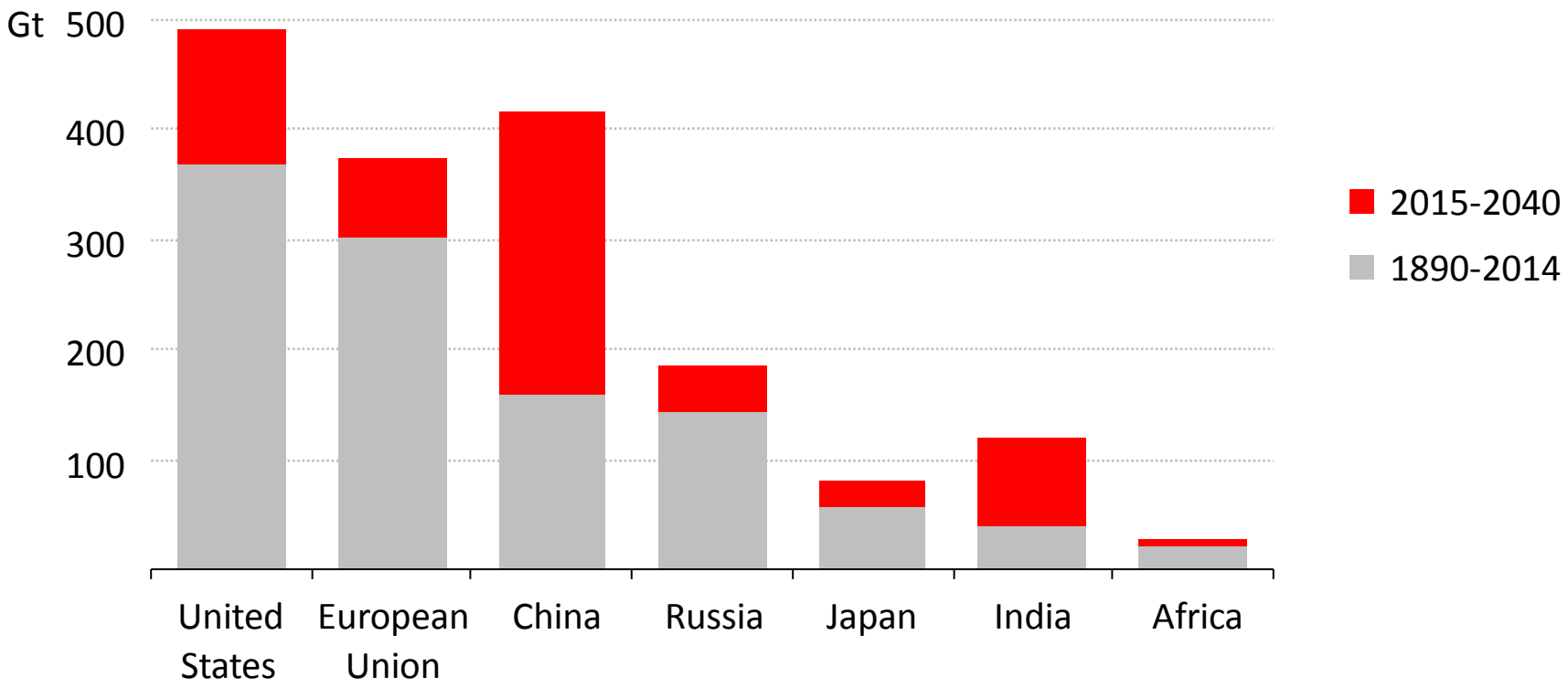
WEO Special Report 2015



- 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
- Proposes four key energy sector outcomes for COP21

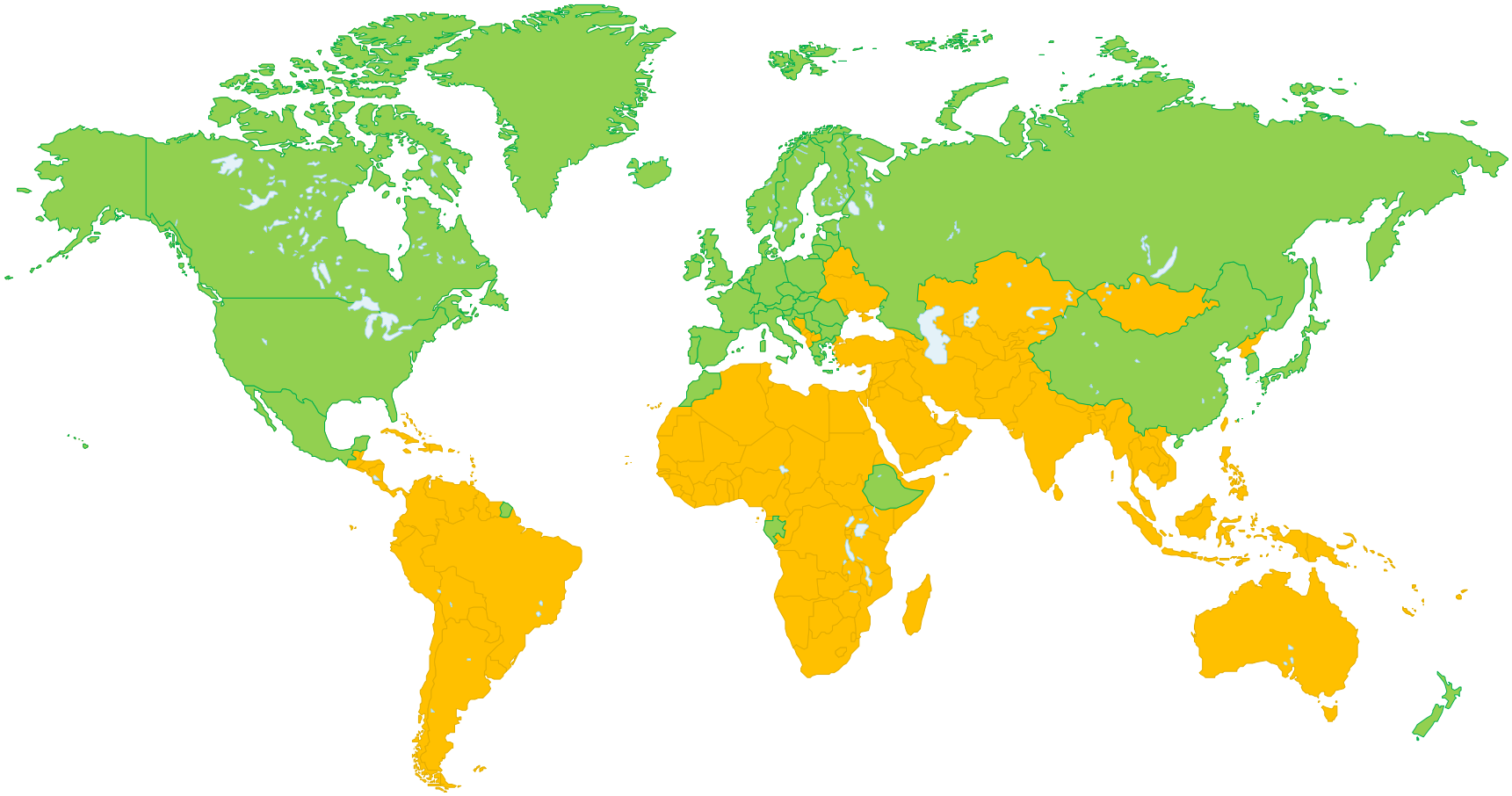
Emissions burden moves over time

Cumulative energy-related CO_2 emissions by region



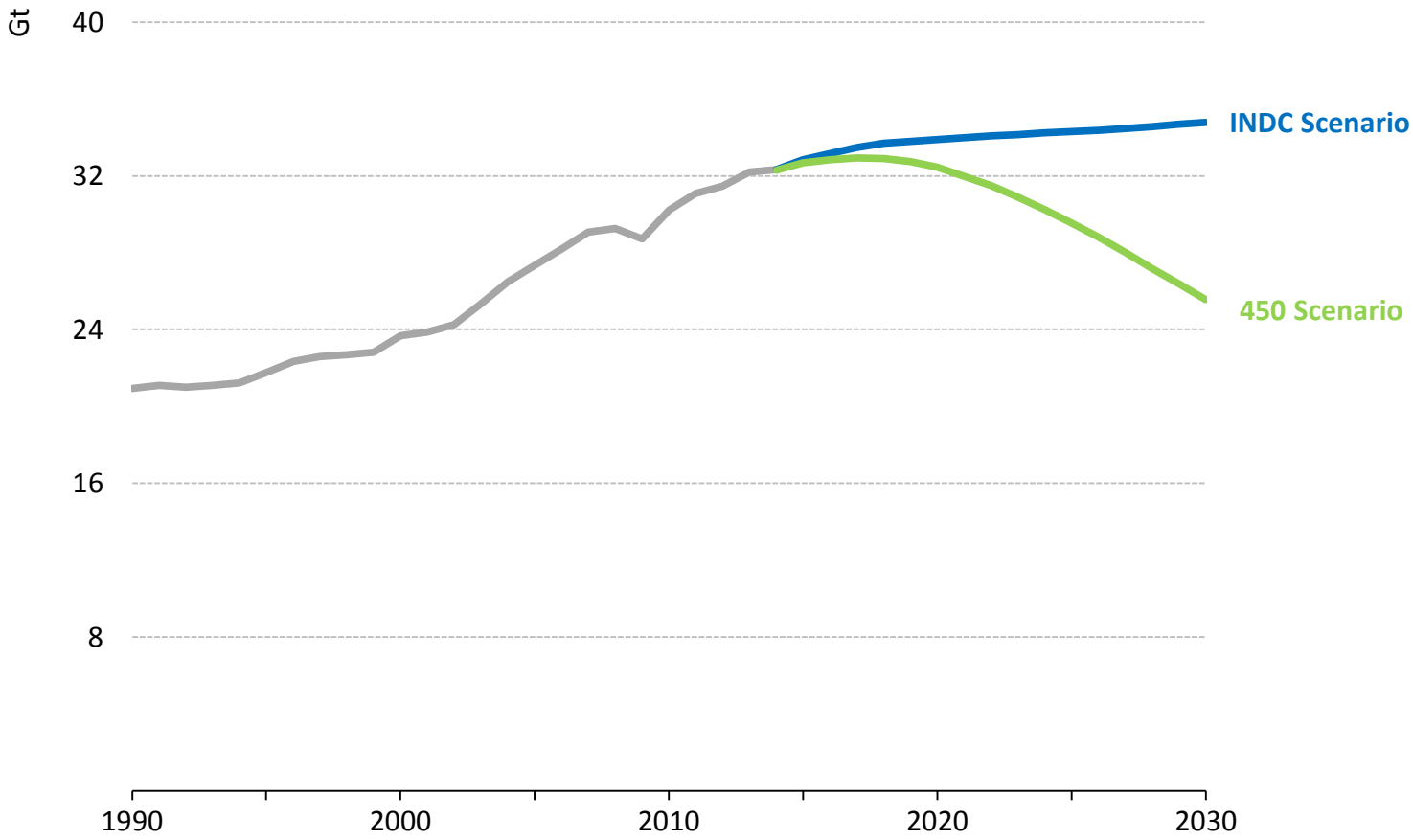
Past emissions are important, although the source of emissions shifts with changes in the global economy

National pledges build towards a global agreement



Submitted INDCs cover two-thirds of energy-related GHG emissions, with implications for future energy & emissions trends

But it's not enough…



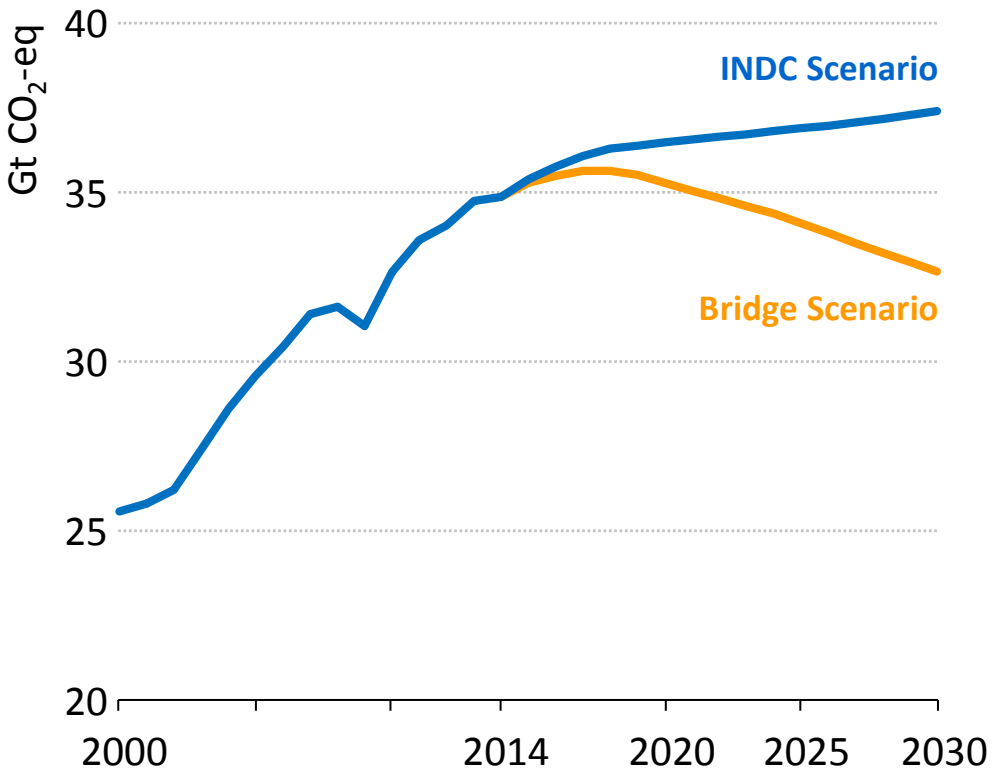
What does the energy sector need from COP21?

- **The IEA proposal for COP21:**

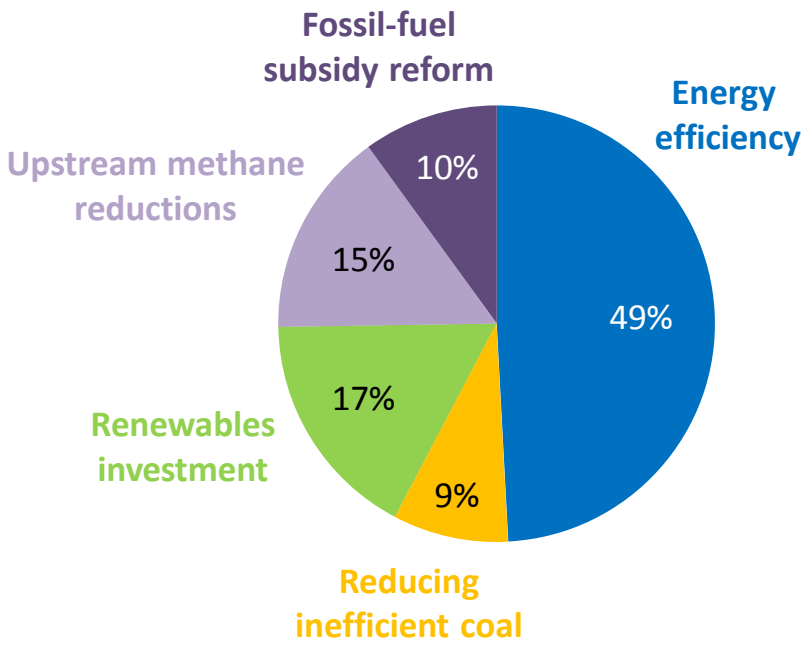
1. **Peak in emissions** – set the conditions which will achieve an early peak in global energy-related emissions
2. **Five-year revision** – review contributions regularly, to test the scope to lift the level of ambition
3. **Lock in the vision** – translate the established climate goal into a collective long-term emissions goal
4. **Track the transition** – establish a process for tracking energy sector achievements

1. Peak in emissions:
IEA strategy to raise climate ambition

Global energy-related GHG emissions



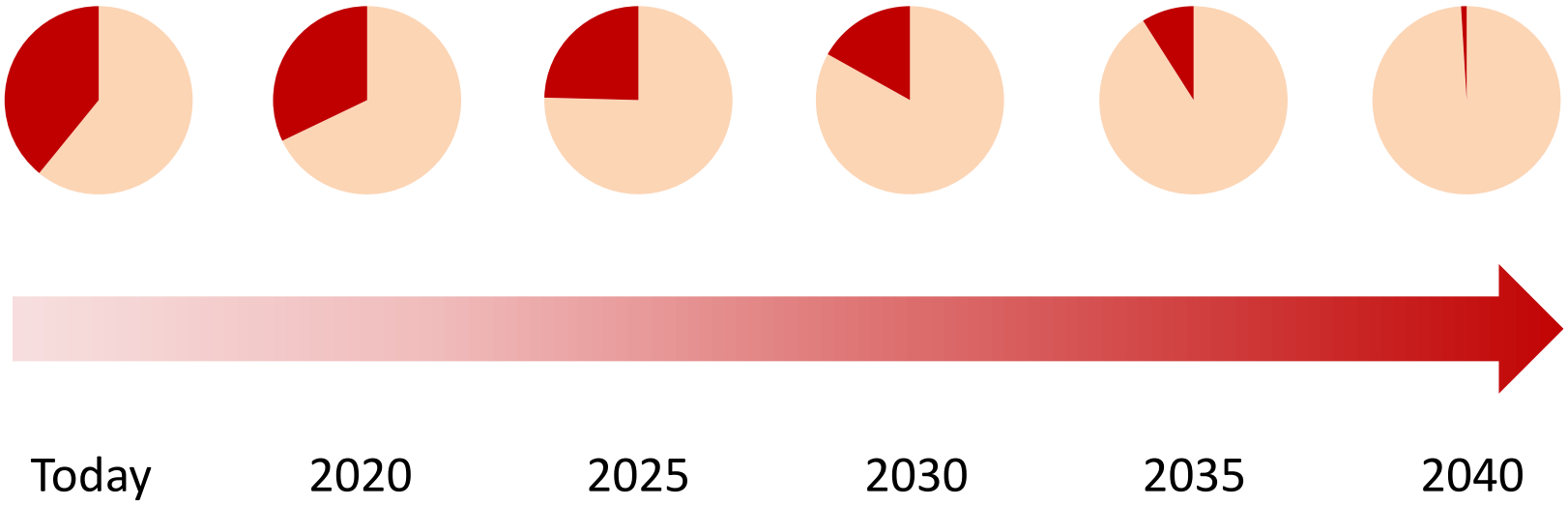
Savings by measure, 2030



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

2. Five-year revision:
World's carbon budget is shrinking

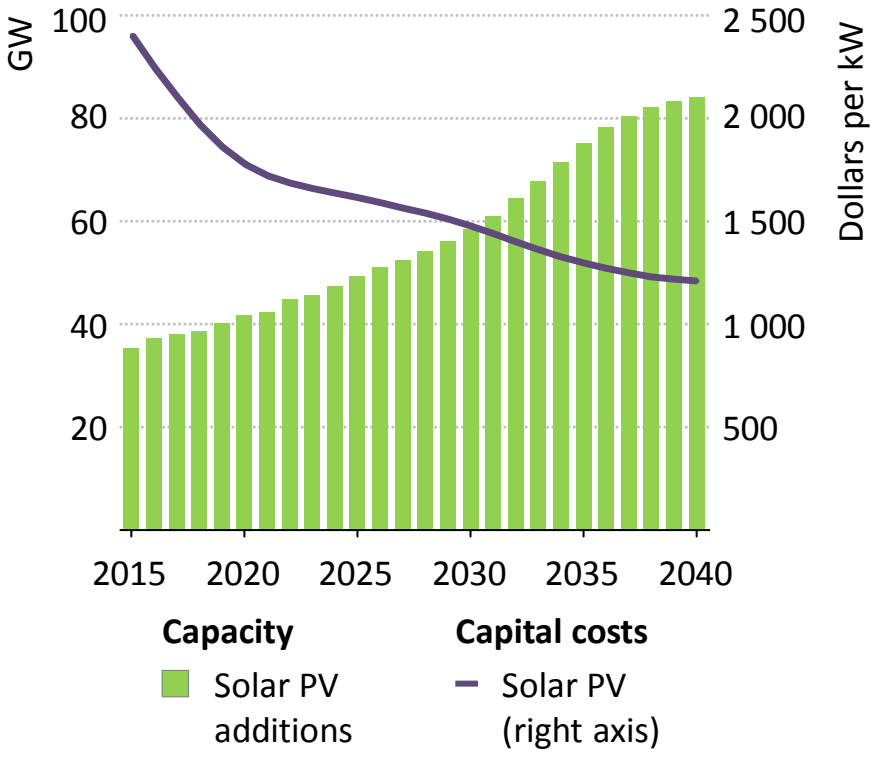
World's remaining carbon budget



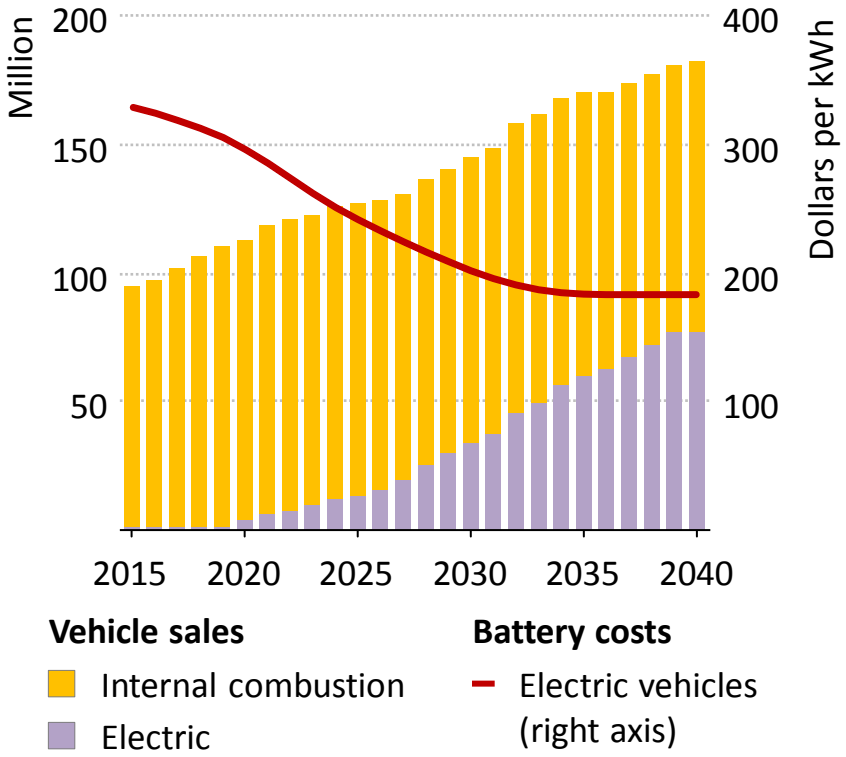
A five-year review cycle would enable pledges to keep pace with energy sector innovation; building ambition before the carbon budget is consumed

3. Lock in the vision:
What more does it take for 2 °C?

Cost reductions & deployment of solar PV



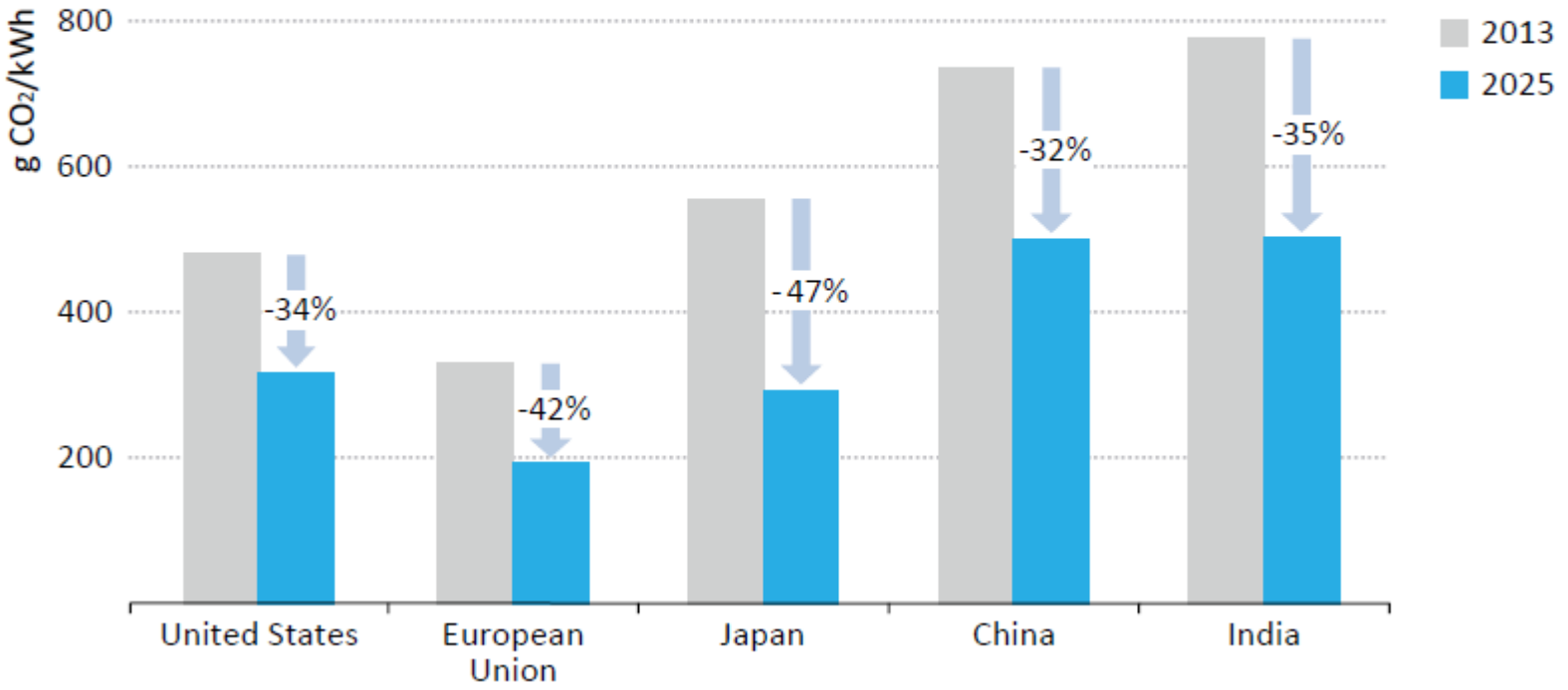
Cost reductions & deployment of electric vehicles



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

4. Track the transition:
Impact of pledges must be monitored

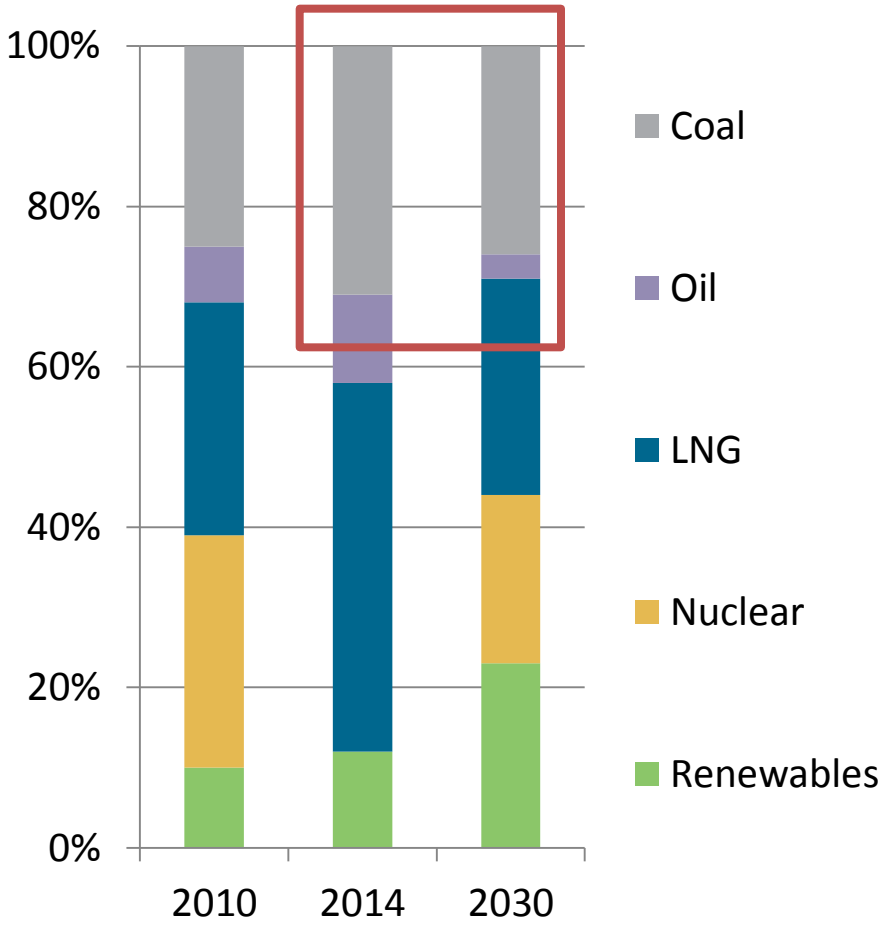
Figure 5.8 ▷ **CO_2 emissions intensity of electricity generation by selected region in the Bridge Scenario**



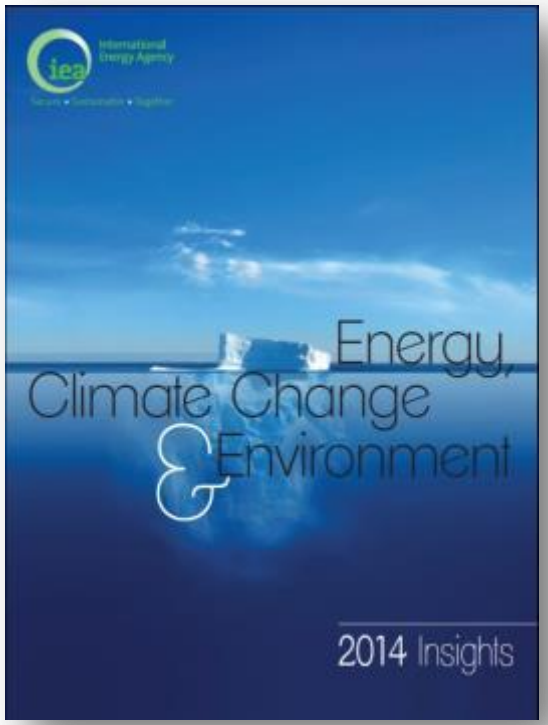
Energy sector indicators are needed to track the low-carbon transition; IEA identifies key metrics to monitor energy sector achievements

Japan: a closer look

- **INDC: 26% below 2013 by 2030**
- **Unique challenges:**
  - limited resources
  - high energy prices
  - already high efficiency
- **Nuclear post-Fukushima**



Energy, Climate Change & Environment 2014:
Unlocking high-emission assets



- **Chapter on policies and actions to "unlock" existing high-emissions assets**
  - Retirement of coal plant
  - Change dispatch of existing power plant fleet
  - Efficiency retrofit of coal plant
  - Retrofit of coal plant for CCS
- **Examples from Canada, China, UK, US, EU**

Energy, Climate Change & Environment 2016

Preliminary topics:

- Tracking the progress of the INDCs and the 2015 agreement
- **Coal and climate**
- Complementary approaches in industry/business
- Energy sector resilience to climate change
- Electricity markets and climate policy
- Energy and emissions data

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Thank you

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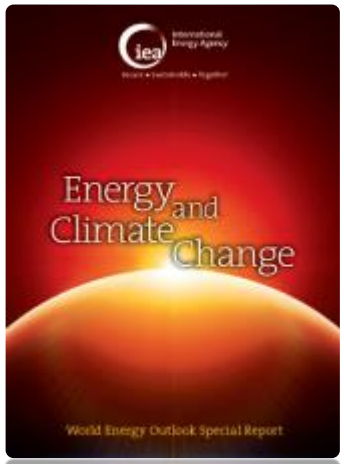

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