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# Energy and climate change towards COP21

*6 October 2015*

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# IEA, energy, and climate change



- The IEA's *4 "E"s*
  - Energy security
  - Economic growth
  - Environmental sustainability
  - Engagement worldwide

- Energy production and use accounts for **two-thirds** of global greenhouse-gas emissions
- Energy sector must cut emissions, while powering economic growth, boosting energy security & increasing energy access

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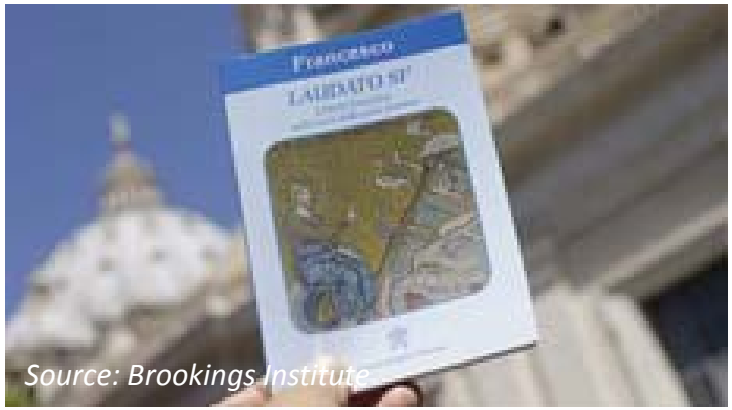
# Towards COP21



- **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 announcements
  - 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*

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# Timeline

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**COP20**
Dec/14

**ADP 2.8**
Feb

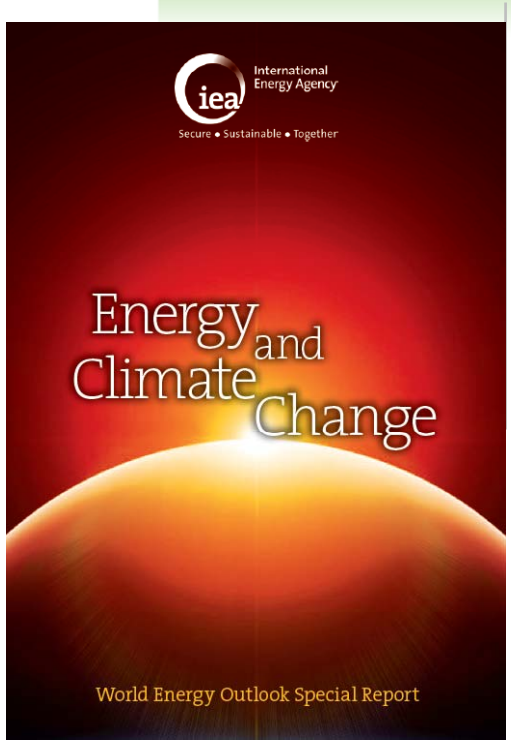
**ADP 2.9**
June

**ADP 2.10**
31 Aug - 4 Sep

**ADP 2.11**
19-23 Oct

**COP21**
30 Nov - 11 Dec

Dec | May | June | July | Aug | Sep | Oct | Nov | Dec




**WEO Special Report**
June

**Compl Measures Workshop**
22 June

**CCXG**
Sept

**GHG Trading Workshop**
29-30 Sept

**Briefs:**
1. Resilience
2. Compl. Measures
Fall

**WEO 2015**
10 Nov

**IEA Ministerial**
17-18 Nov

**Briefs:**
1. Key Messages
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Pre-COP

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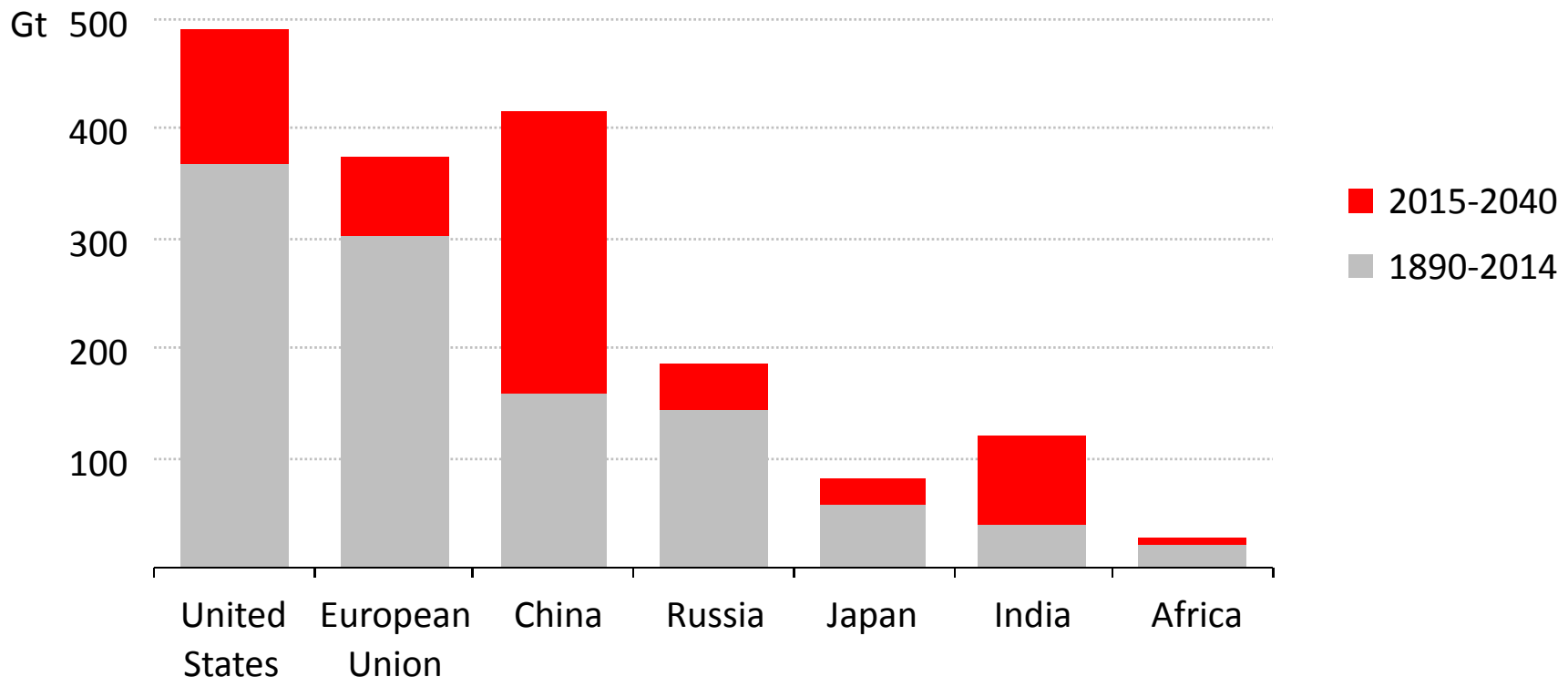
# Emissions burden moves over time



## Cumulative energy-related $CO_2$ emissions by region




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

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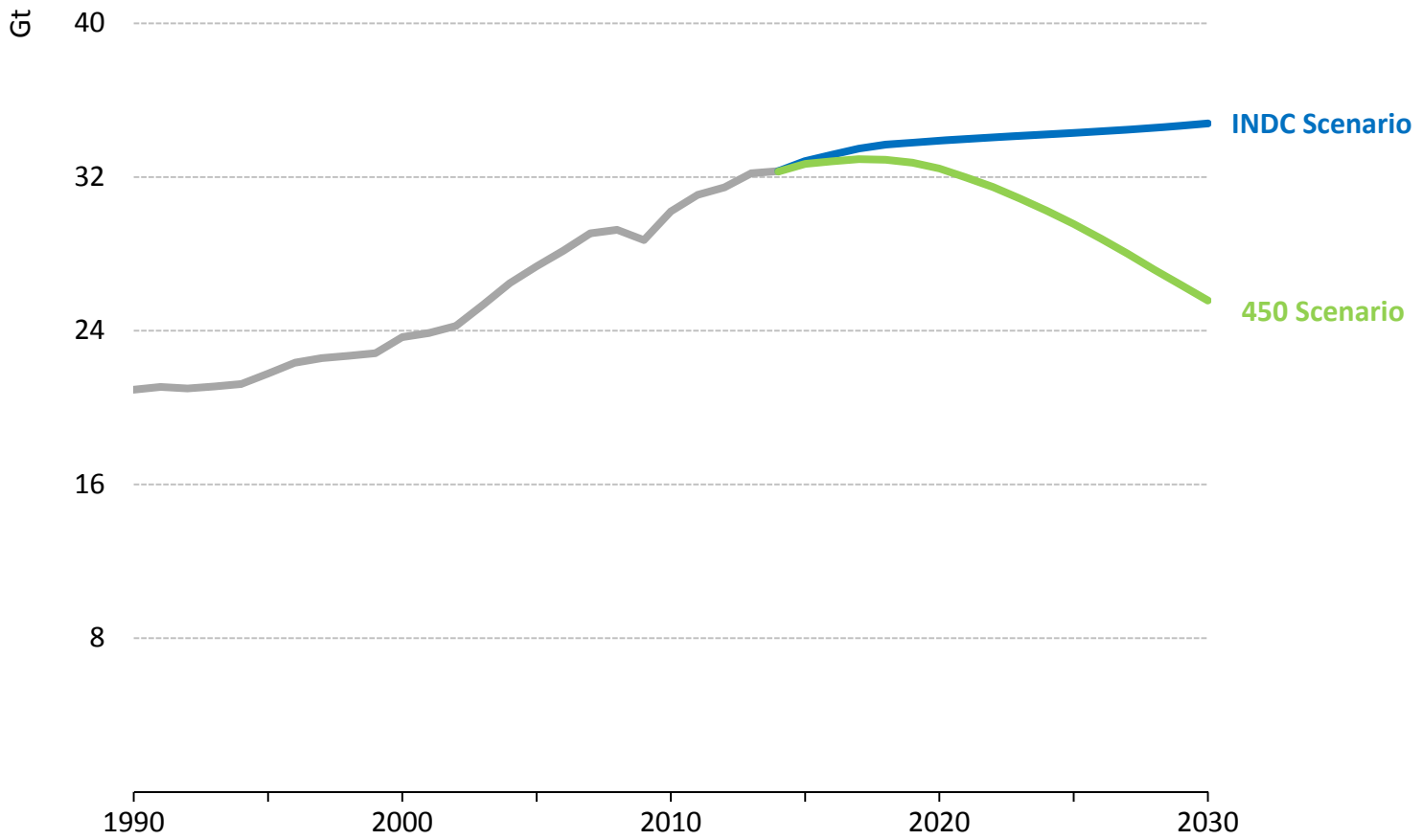
# National pledges build toward a global agreement, but are not enough…





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# 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

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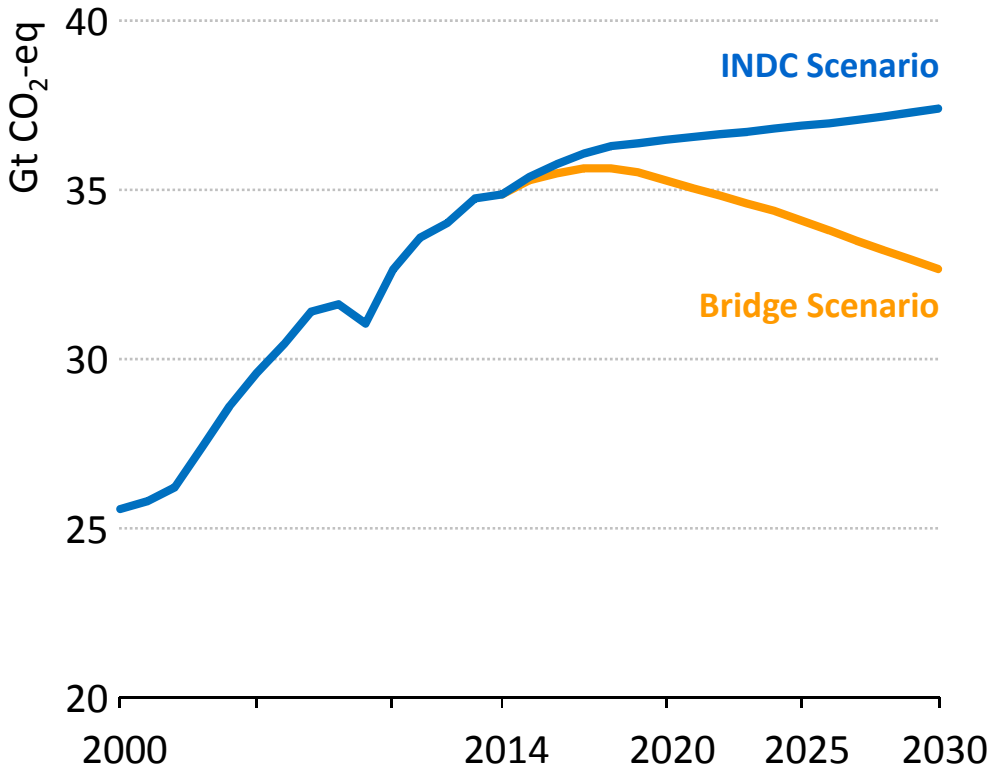
# 1. Peak in emissions:

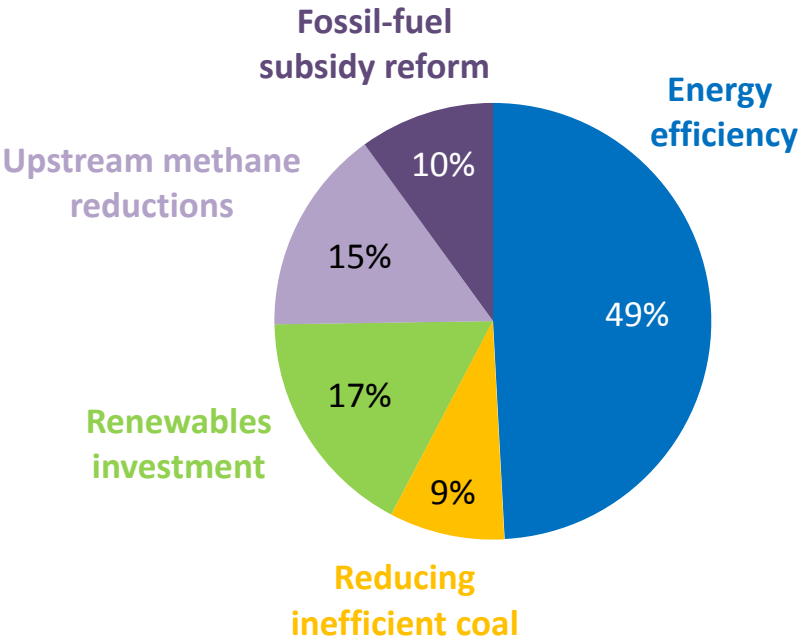
## IEA strategy to raise climate ambition



### 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***

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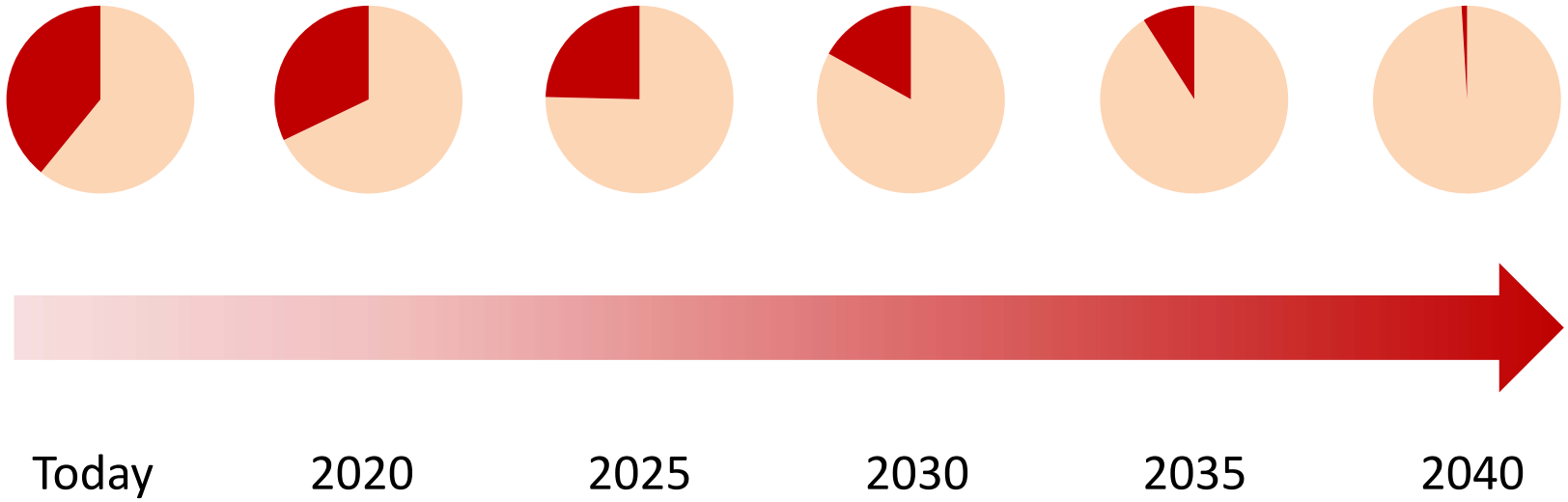
# *2. Five-year revision:* World's carbon budget is shrinking



## 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***

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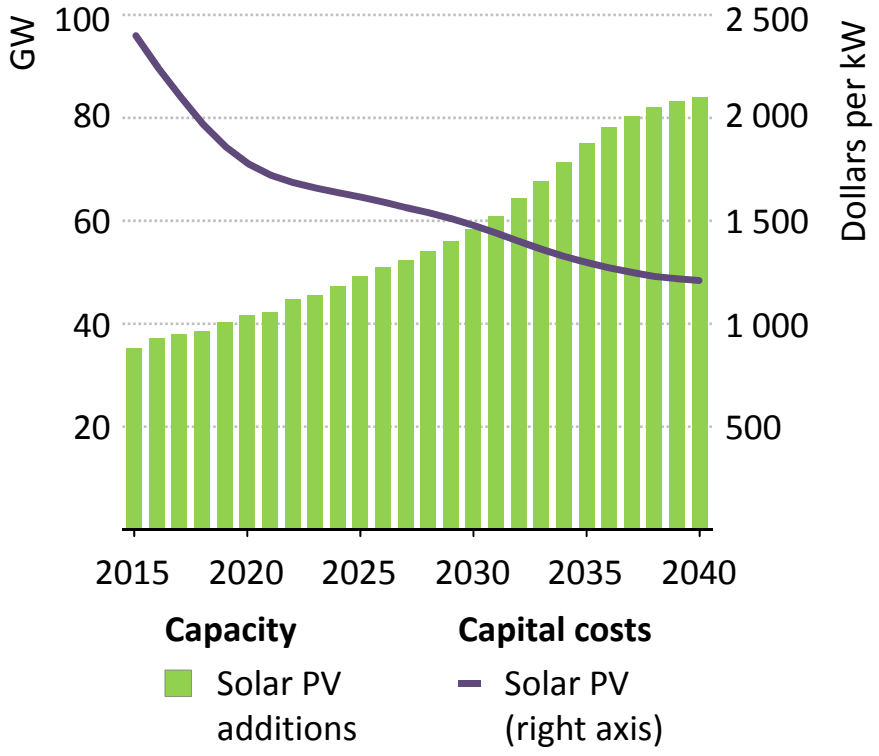
# *3. Lock in the vision:*

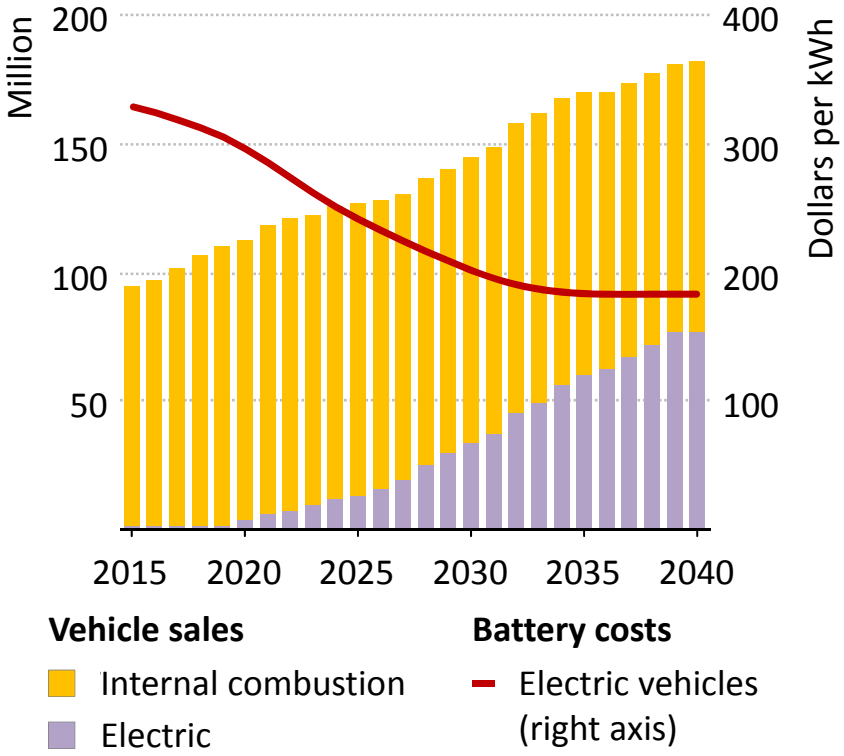
## What more does it take for 2 °C?



### 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***

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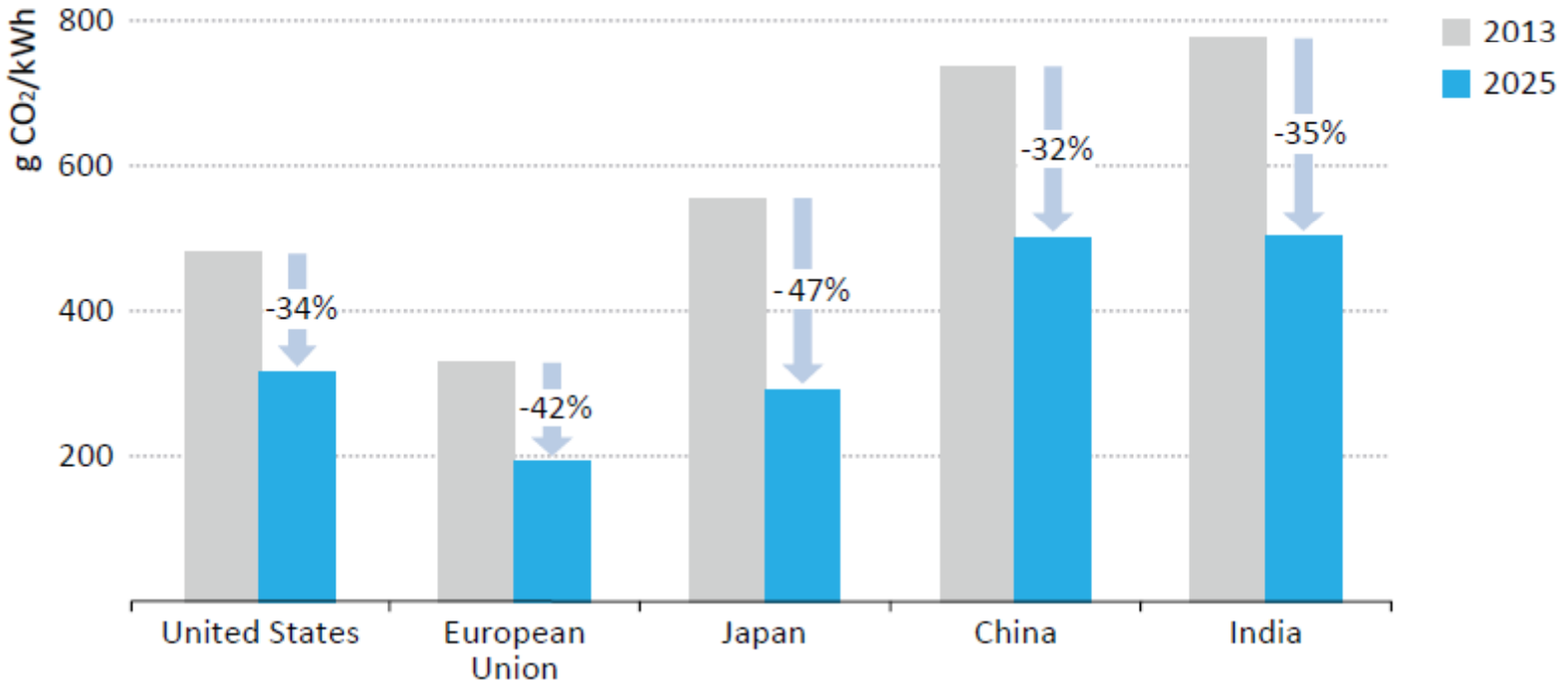
# *4. Track the transition:*
## Impact of pledges must be monitored



**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***

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# Other key elements



- **Strengthen energy sector resilience to climate impacts**
  - Nexus Forum, policy brief/chapter, policy & measures database
- **Build partnerships to enhance global implementation**
  - Engage non-member countries, implementing agreements, etc.

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# Timeline

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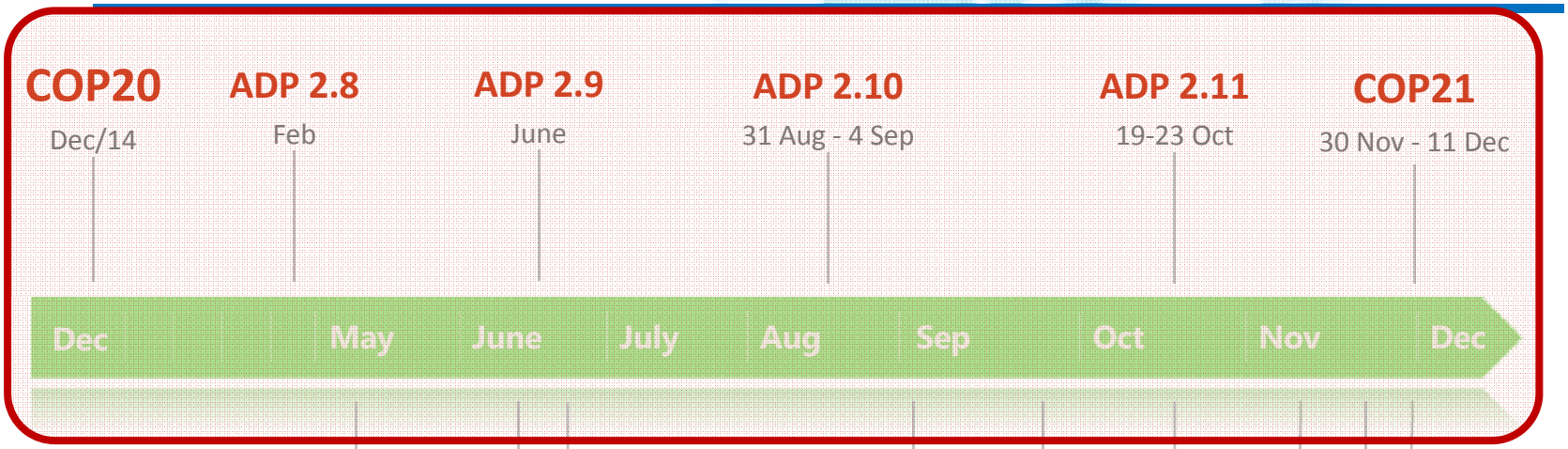


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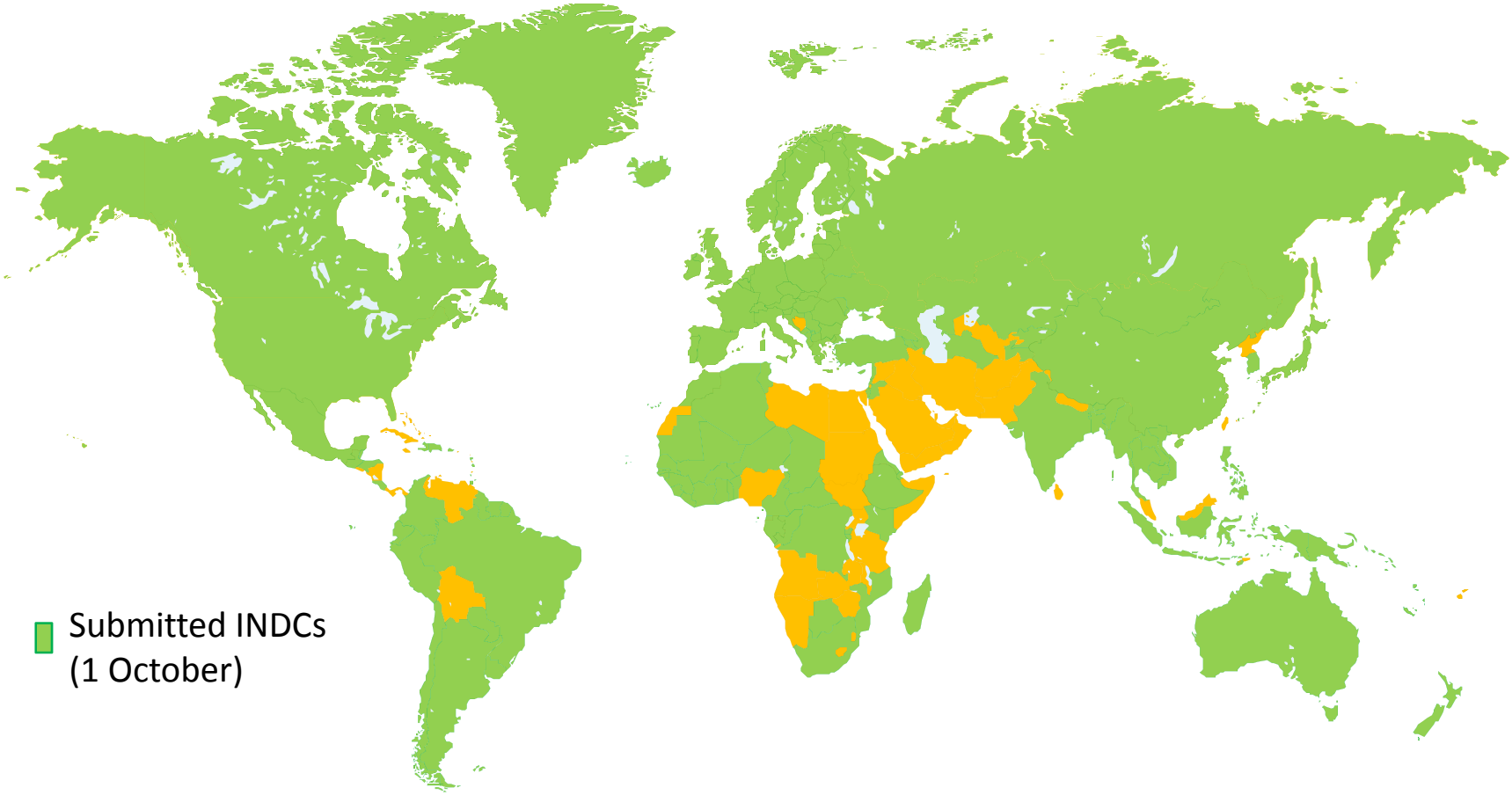
# 120 INDCs, 147 countries
# Over 87% of energy related GHG






***Submitted INDCs cover over 87% of energy-related GHG emissions, with implications for future energy & emissions trends***

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# Analysis of INDCs

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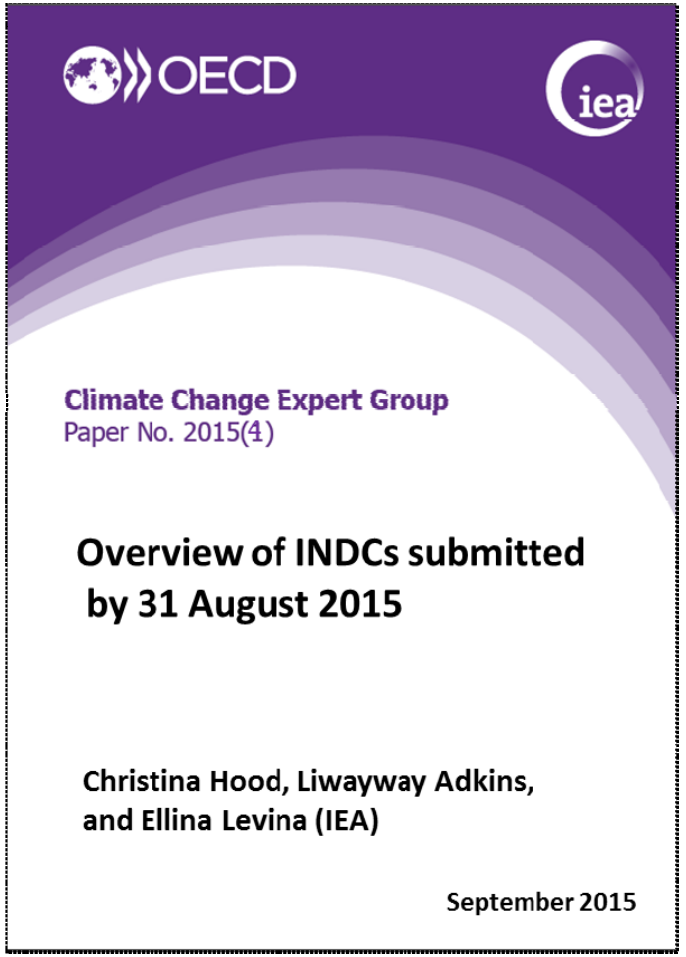
1. Goal type (absolute, BAU, single or multi-year etc.)
2. Is the goal quantifiable?
3. Coverage (sectors, gases)
4. Intention to use international markets
5. Inventory methodologies
6. Accounting approaches/assumptions



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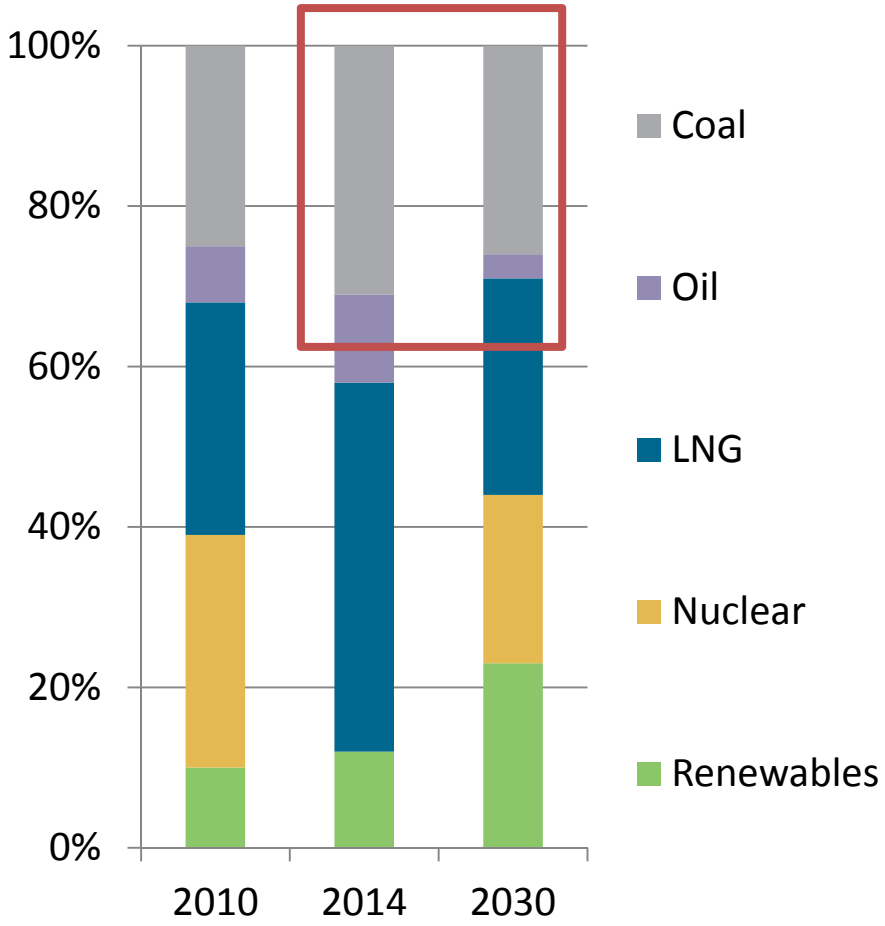
# Japan: a closer look



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



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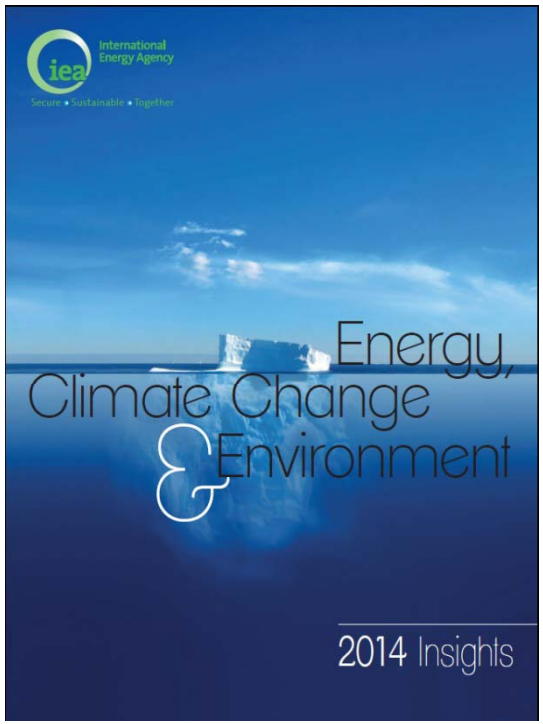
# Energy, Climate Change & Environment 2014:
# Unlocking high-emission assets






- **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**

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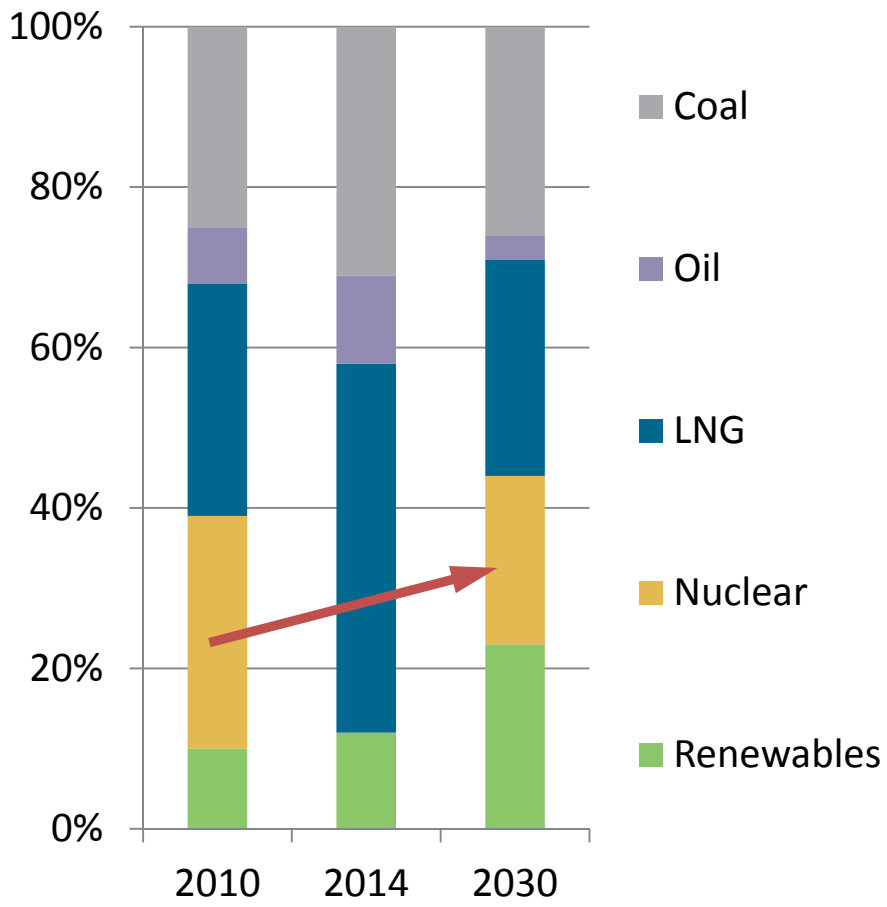

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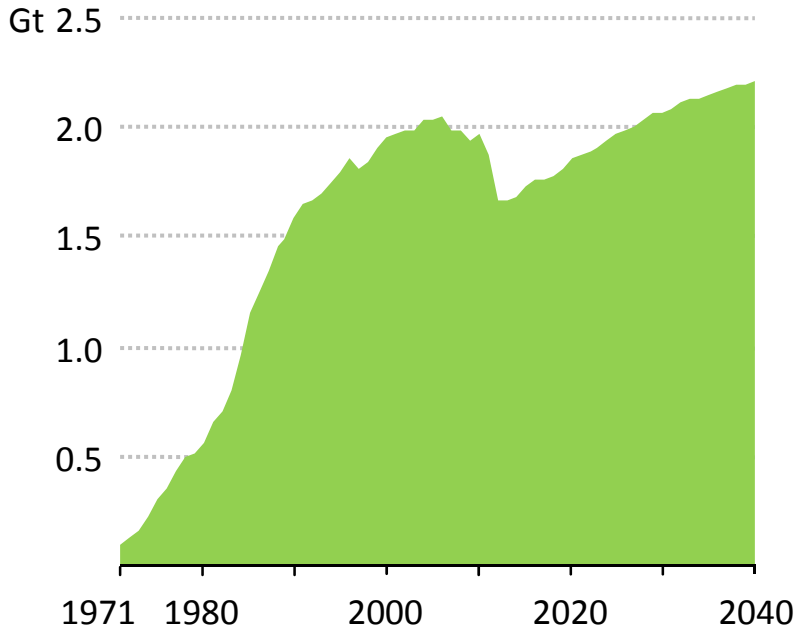
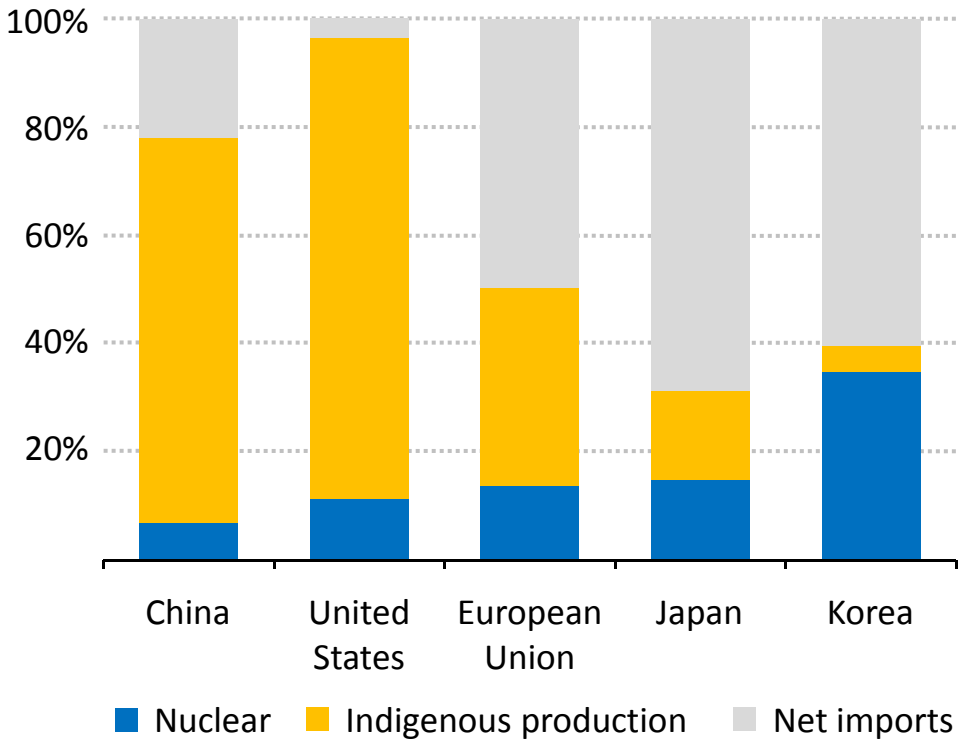
# Nuclear power can play a role in $CO_2$ abatement & energy security



## $CO_2$ emissions avoided annually by nuclear power 1971-2040




## Share of energy demand met by domestic sources and nuclear power in 2040



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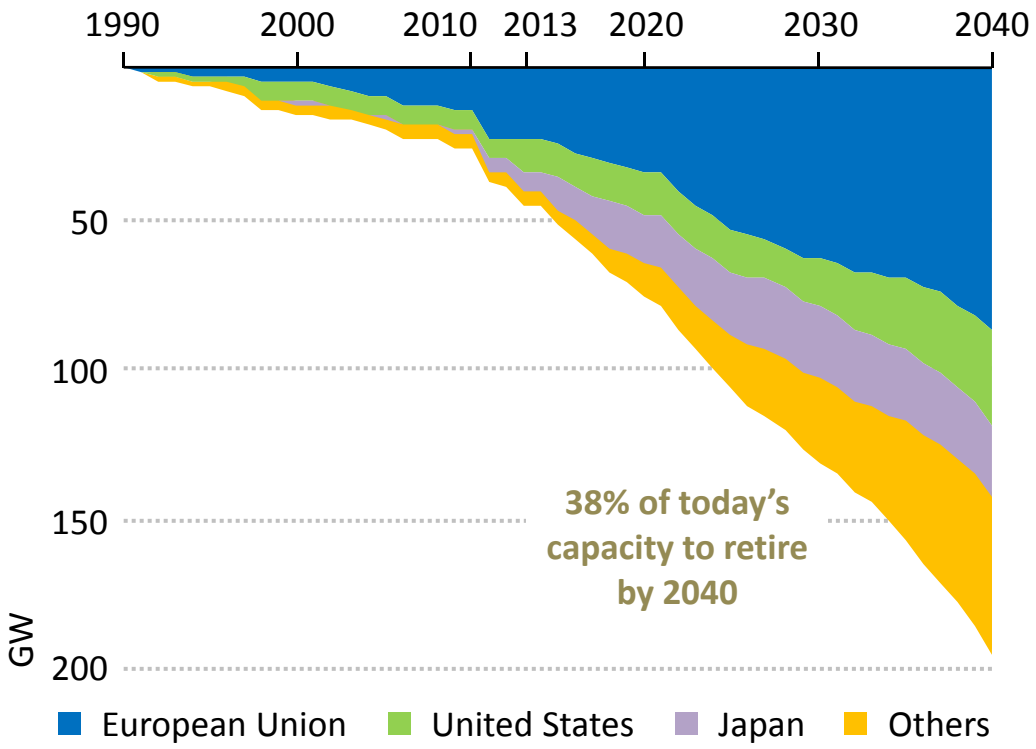
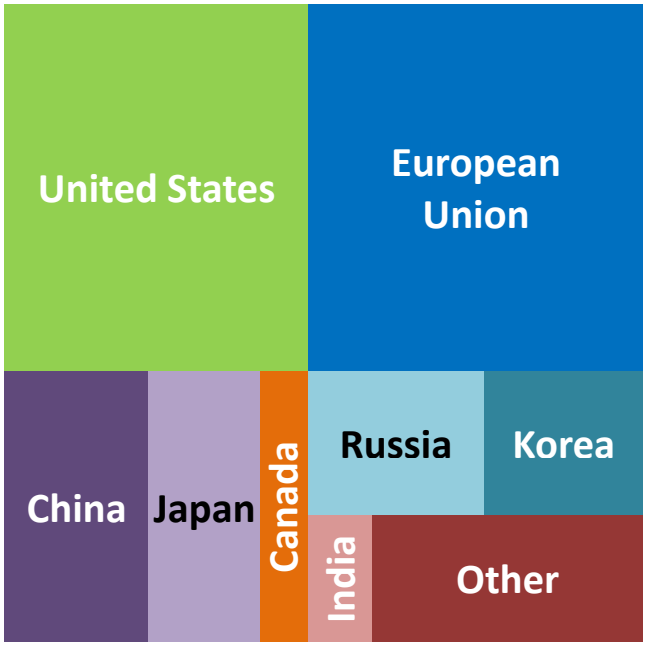
# Nuclear power issues



## Retirements of nuclear power capacity




## Spent nuclear fuel
## 1971-2040: 705 thousand tonnes




***By 2040, almost 200 reactors are retired & the amount of spent fuel doubles***

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# Timeline

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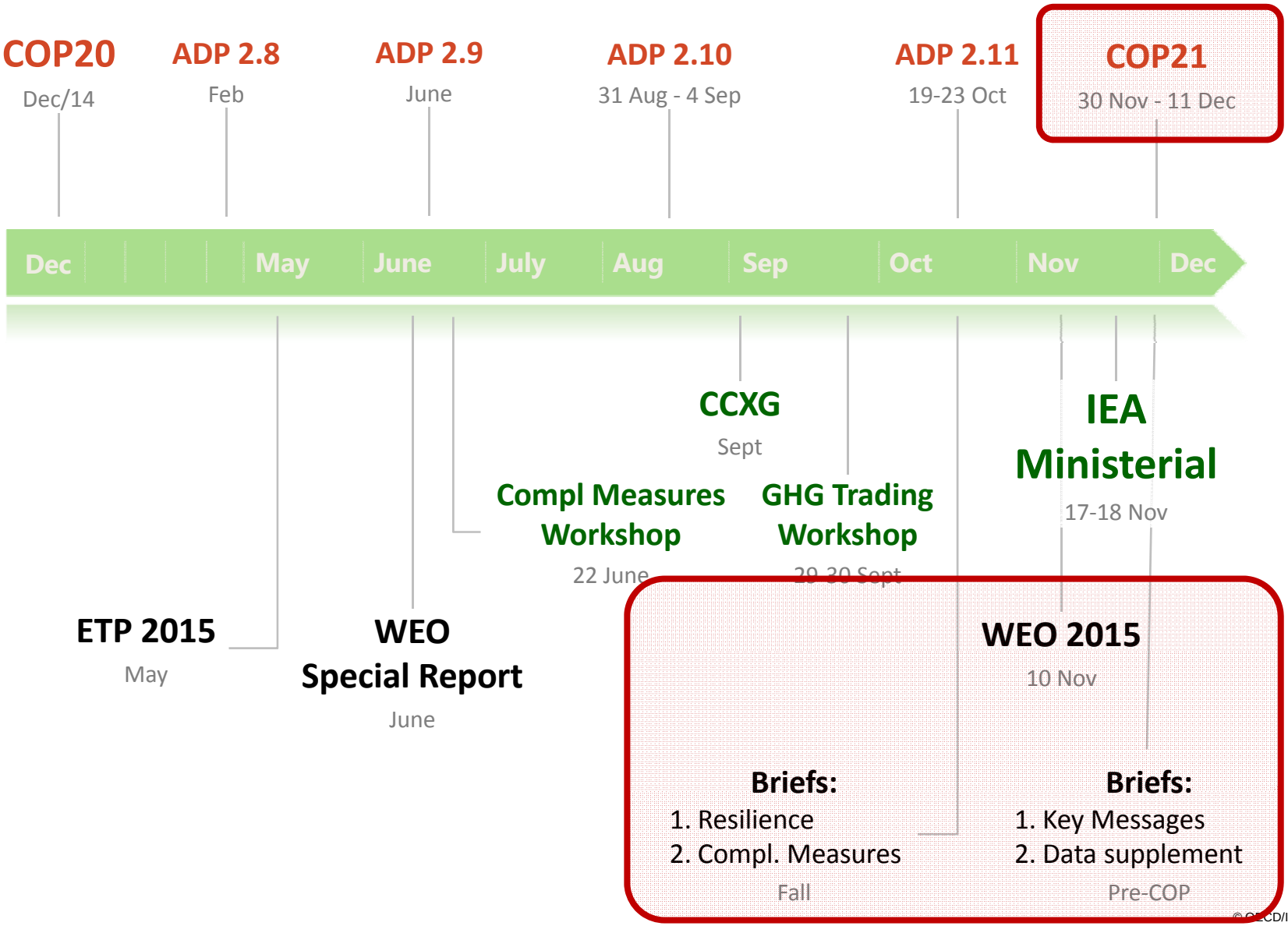

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# COP21 Programme



- **Two weeks: 30 Nov – 11 Dec**
- **Heads of State invited for opening 30 Nov**
- **Most Ministers will attend for second week**
- **High-level segment likely Mon 7 – Wed 9**
- **Lima-Paris Action Agenda (LPAA) Theme Days**
  - e.g. resilience, transport, buildings, renewables, energy efficiency, innovation

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# Proposed IEA activities at COP21



- **Key IEA-led events:**
  - Technical-level IEA Day (3 Dec) – full day
  - High-level IEA/ADB official side event (9 Dec)
  - High-level public event (10 Dec)
- **Executive Director activities:**
  - Side event, high-level bilaterals, speaking engagements
- **IEA expert presentations and speaking engagements**
- **IEA stand with publications**
- **Activities and events in the Le Bourget Civil Society Space and city of Paris**
- **Web: IEA COP21 webpage and social media (www.iea.org/COP21)**

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# Potential role of Japan at COP?



- Play a leading role in the negotiations as one of the largest economies in the world, and a leader in energy efficiency and low carbon technology
- Driving innovation and climate action globally
- Role in emerging Asian markets?

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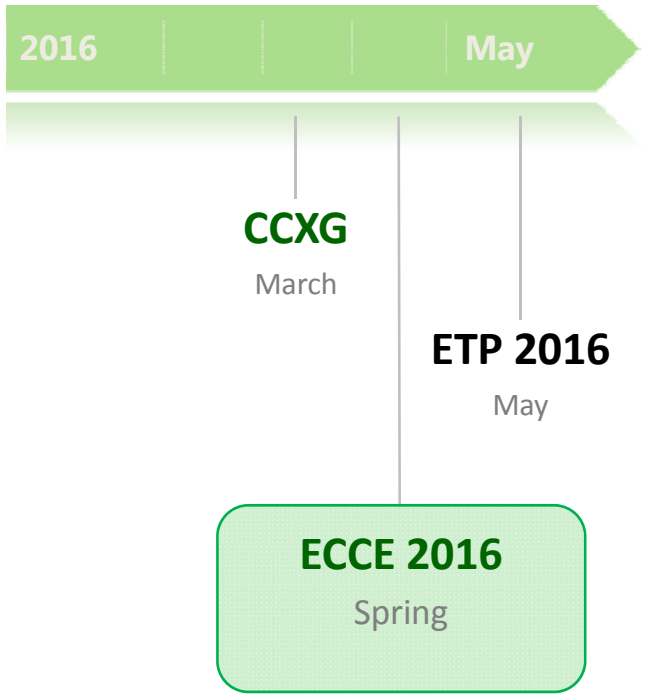
# Timeline after COP





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# 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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# Complementary measures



| Type | Examples |
|---|---|
| **Voluntary partnerships between businesses and government** | • Voluntary programs and agreements (e.g. UK Climate Change Agreements, Japanese Voluntary Action Plan) |
| **Government actions to influence state-owned enterprises** | • Investments and direct control (e.g. Chinese power, France EDF) |
| **Private sector business action** | • Unilateral actions, business coalitions, partnerships with NGOs (e.g. renewable energy targets, supply chain, efficient products, investor action) |

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# Complementary measures



- **January Workshop**
  - Country cases in energy efficiency programs, e.g. Japan
- **June Workshop**
  - Business/industry use of complementary measures
  - 70+ attendees from government, industry, research, and NGO communities
- **Information sheet / briefing**
- **Chapter in ECCE 2016**

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# Discussion

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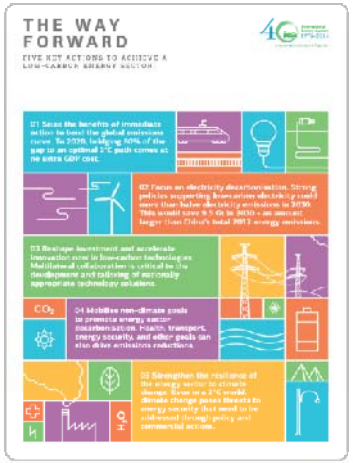
- **What is Japan's role at COP21?**
- **What might Japan want out of COP21 and the Agreement?**

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