WEO Special Report on

Energy & Climate Change

ITAM

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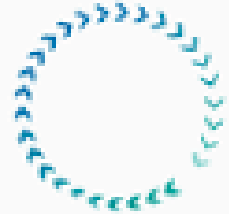
CONACYT



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World Energy Outlook

Energy and Climate Change

Instituto Tecnológico Autónomo de México

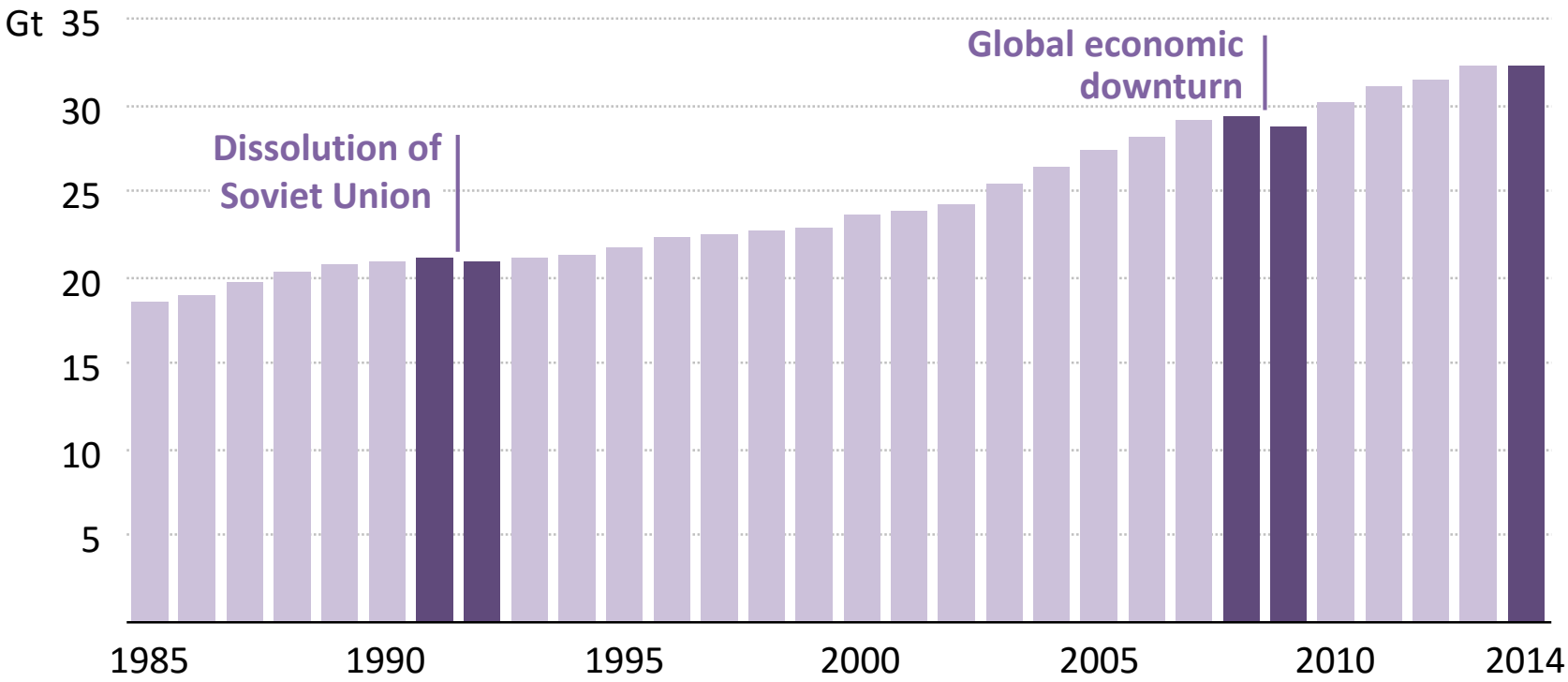
Mexico City, 28 September 2015

Energy & climate change today

- **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*
- **Energy production & 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**

Energy emissions stall but economic engine keeps running

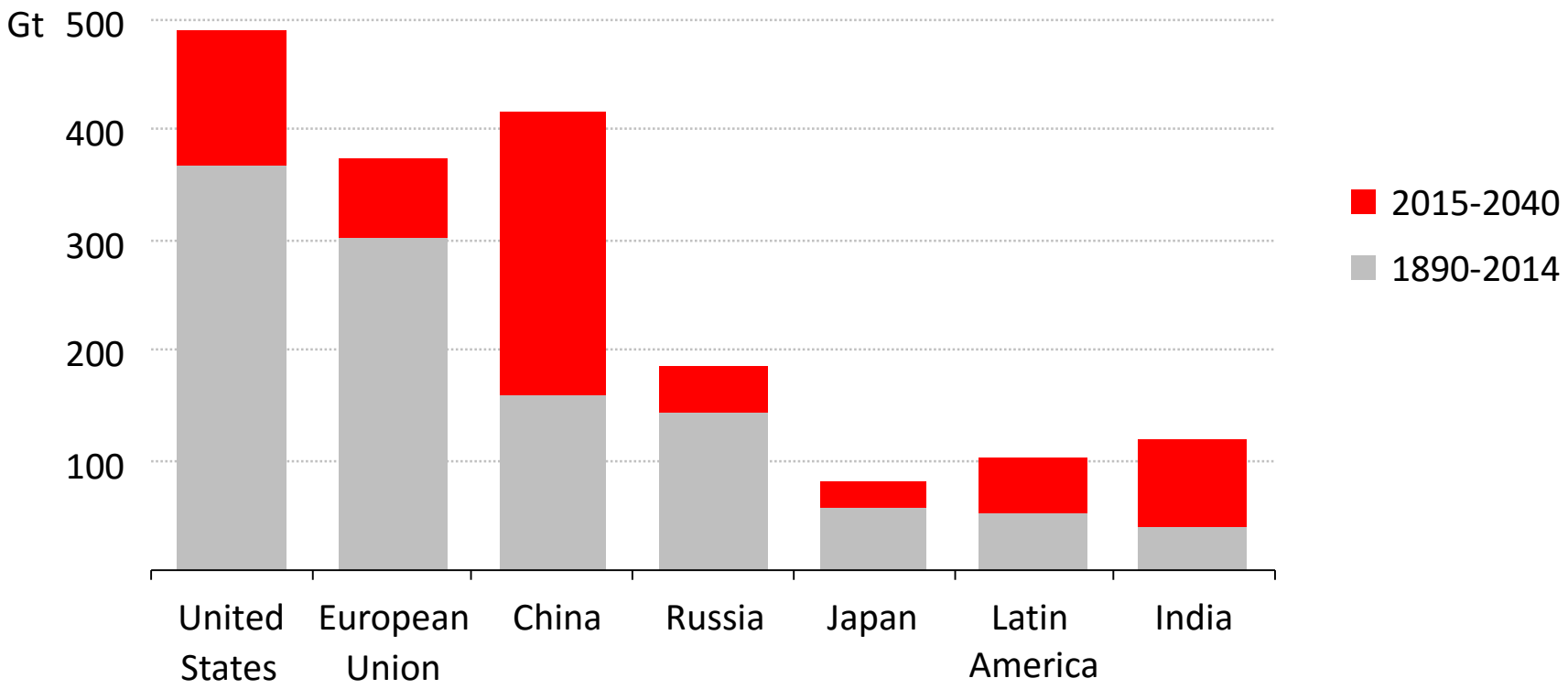
Global energy-related CO_2 emissions



For the first time, energy-related CO_2 emissions stalled despite the global economy expanding by 3%

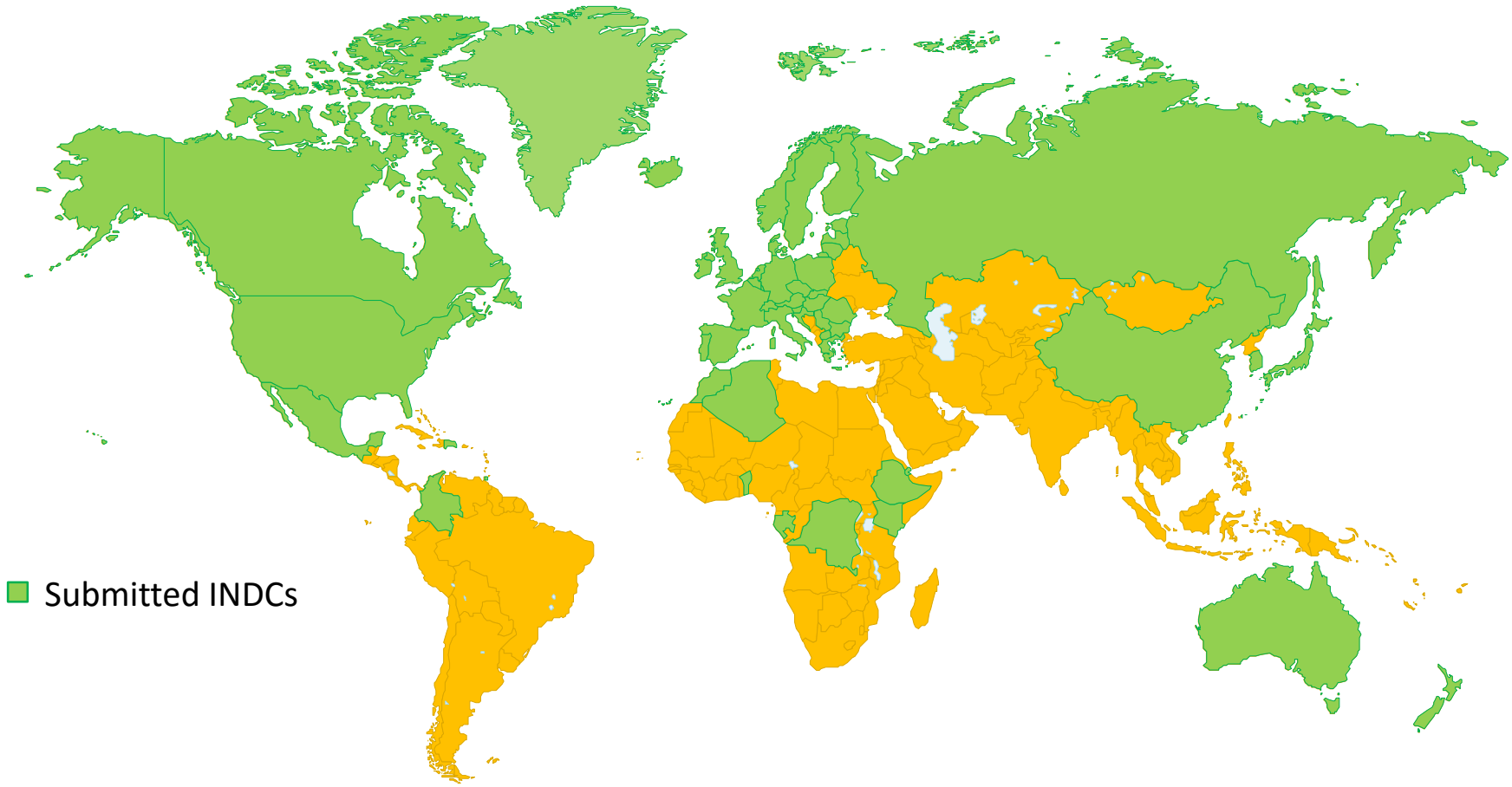
Emissions burden moves over time

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 70% of energy-related GHG emissions, with implications for future energy & emissions trends

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

Mexico's INDC confirms its climate leadership

- Unconditional 2030 pledge stabilises total emissions at today's level, at twice the size of the economy & 20% more population
- The INDC changes Mexico's energy sector: by 2030, one-third of power generation is from renewables, in particular wind
- The share of fossil fuels in the energy mix drops by 10 percentage points, while energy intensity is 30% lower than today
- Achieving INDC goals requires substantial investments in the power sector ($150 billion) & for energy efficiency ($75 billion)
- Mexico is to be applauded for setting ambitious INDCs and for enshrining them in law

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

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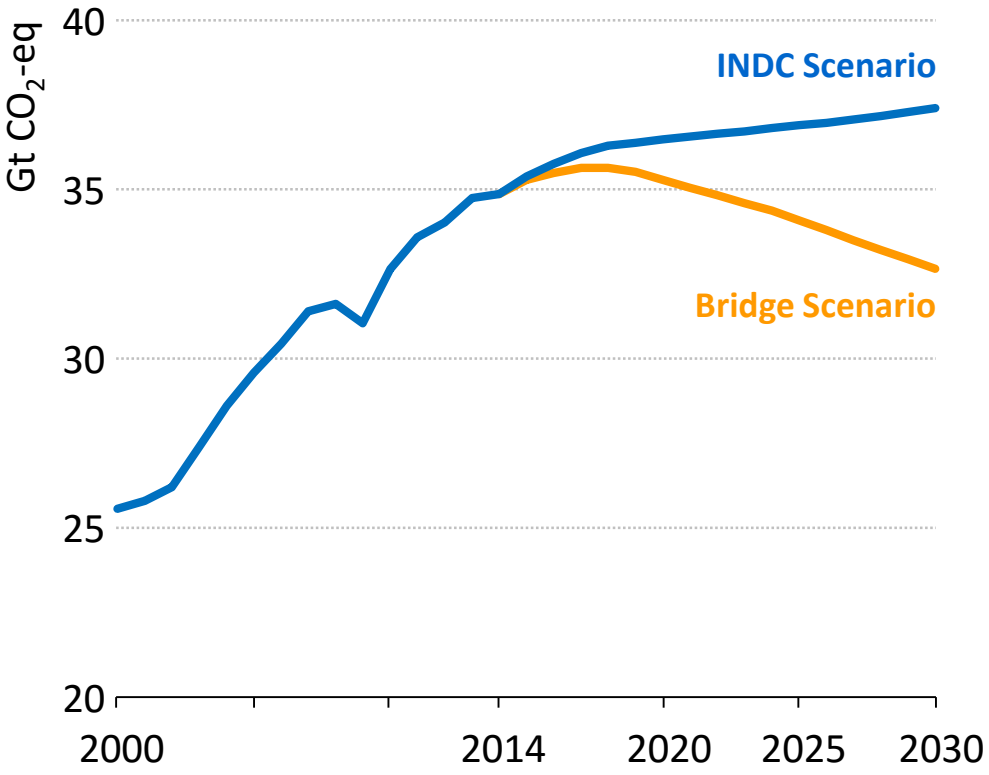
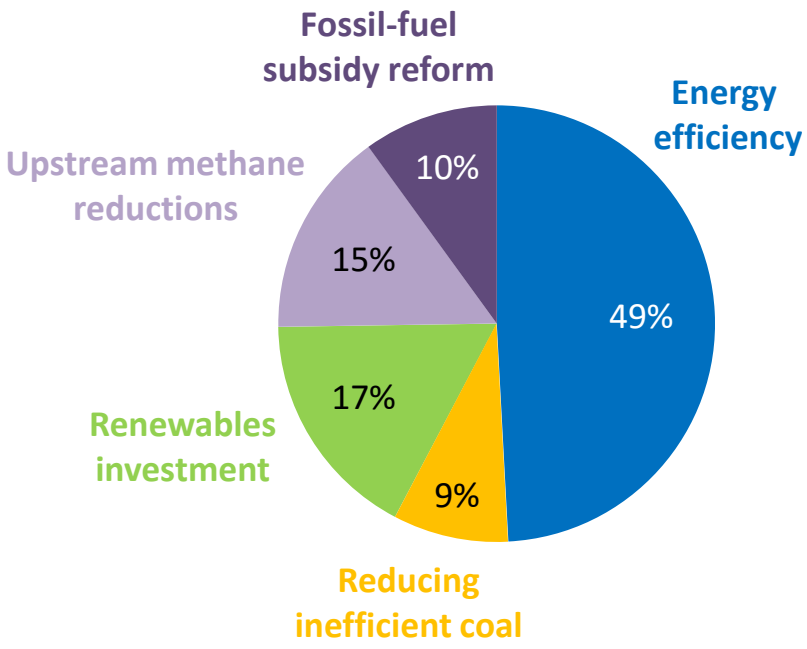
Global energy-related GHG emissions



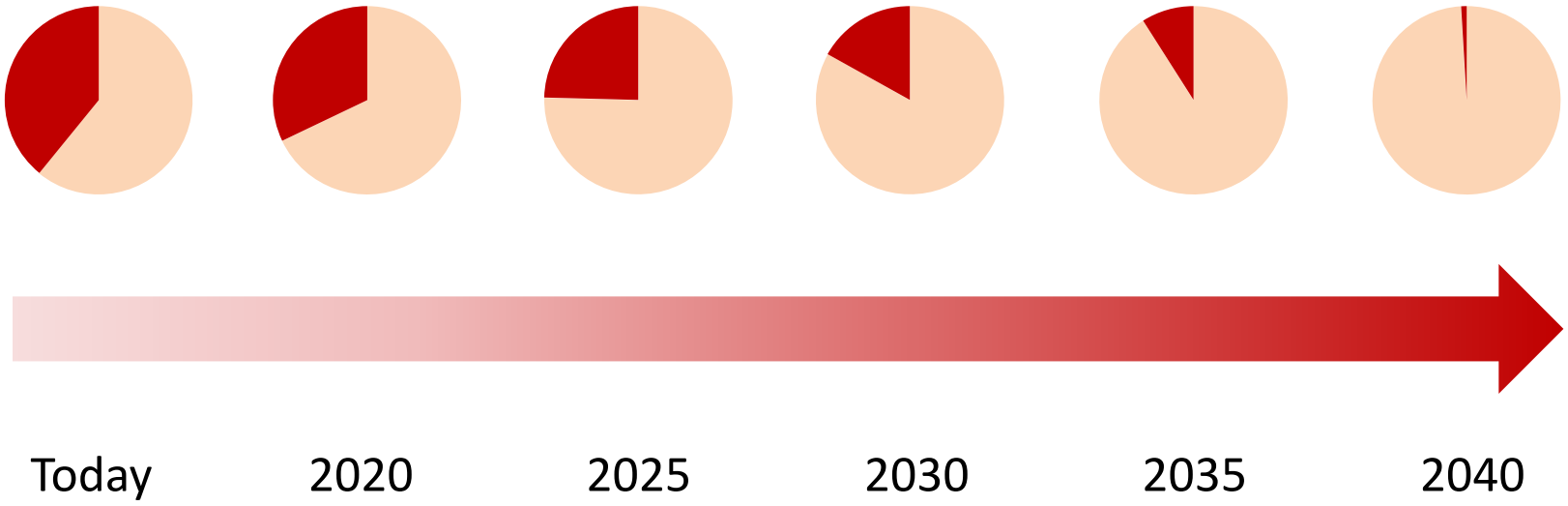
Savings by measure, 2030



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?

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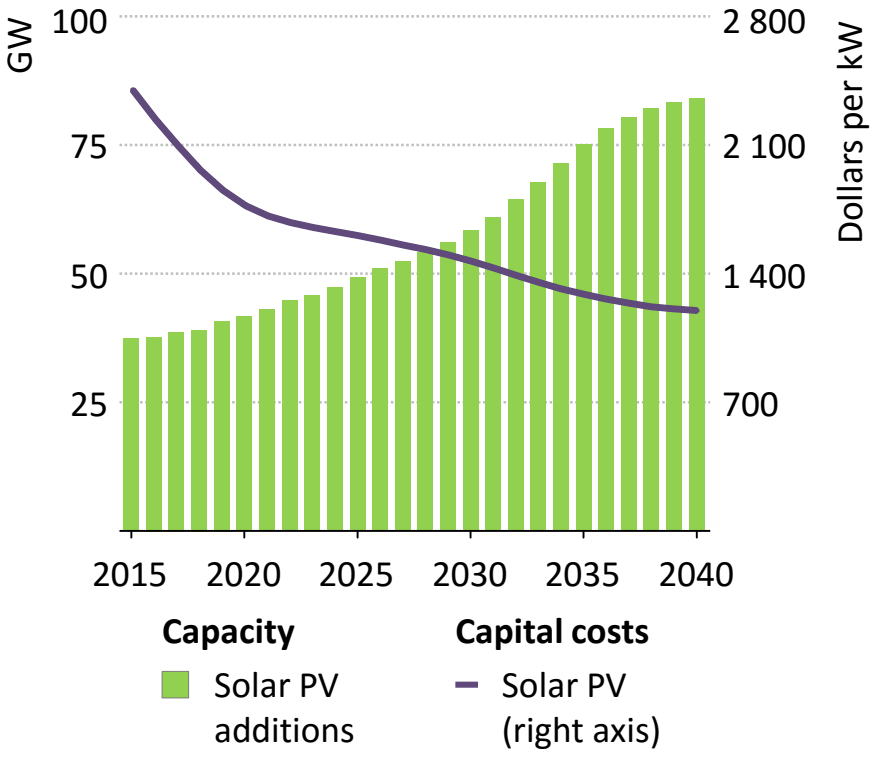
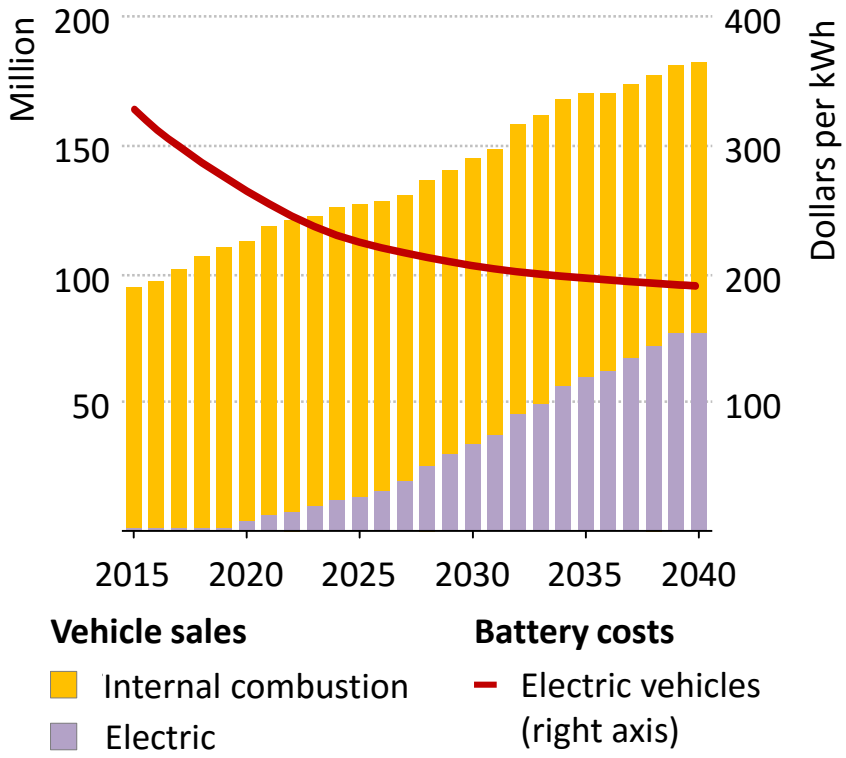
Cost reductions & deployment of all solar PV



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

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

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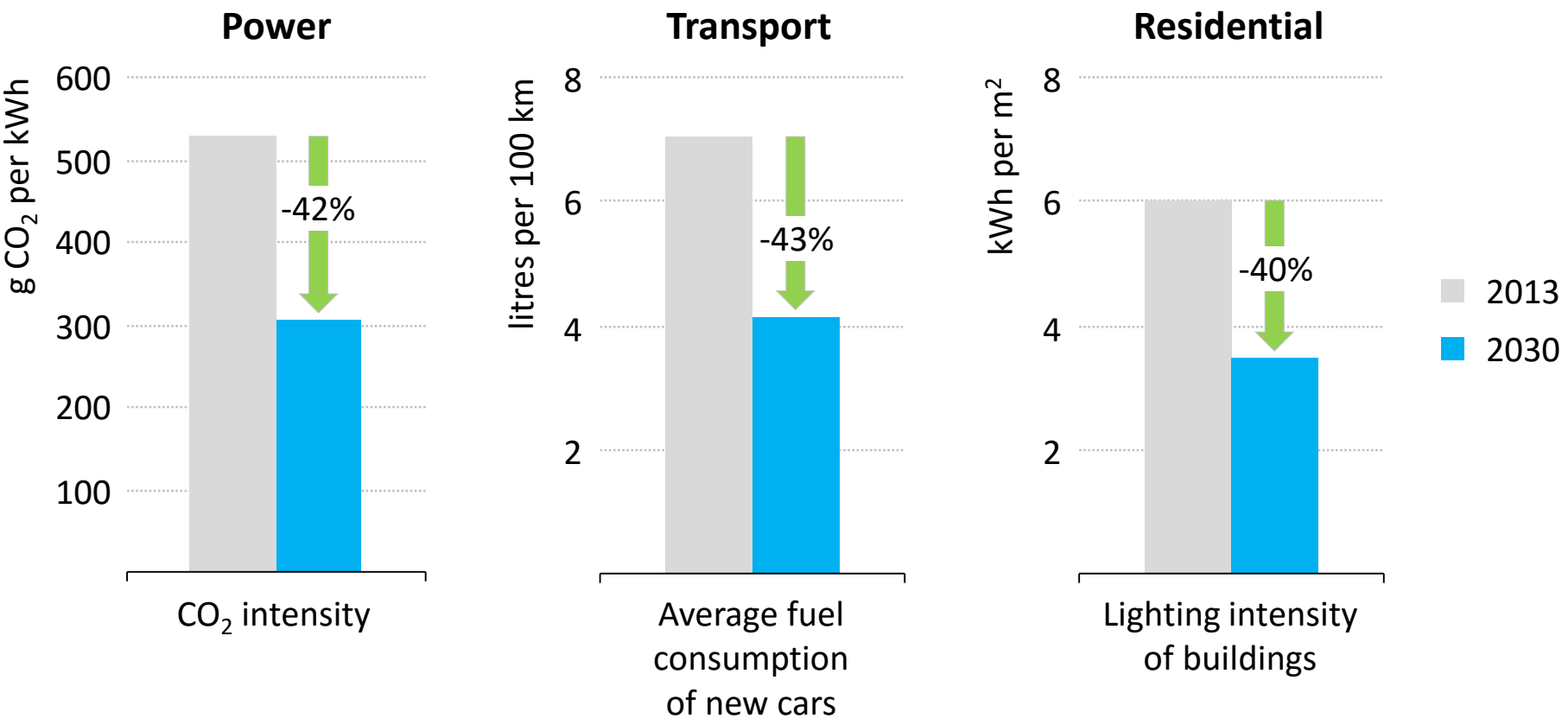

Energy sector indicators are needed to track the low-carbon transition; IEA identifies key metrics to monitor energy sector achievements

Conclusions

- **Pledges are not yet enough to achieve our climate goal, but are a basis from which to build ambition**
- **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*
- **Mexico's early submission of an INDC is consistent with the strong leadership it has shown in climate negotiations**
- **Climate change will lead the agenda at the IEA's Ministerial meeting on 17-18 November 2015**

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