

WHAT TO EXPECT FROM COP21?

Analysis of Contributions Submitted
before COP21

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Introduction to the MILES Project

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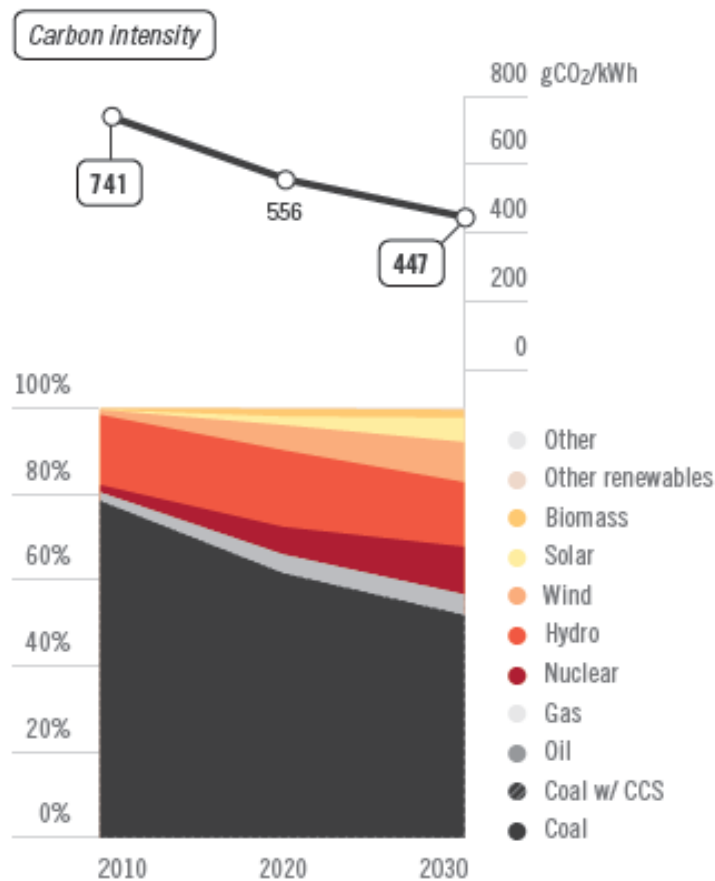


The Chinese INDC

- A peak of emissions by 2030, and make best efforts to peak early
- A reduction in CO2 intensity of 60-65% by 2030, compared to 2005 levels
- Achieving 20% non-fossil fuels in primary energy by 2030

The Chinese INDC – transition in the electricity sector

Figure 27. Electricity generation mix, China

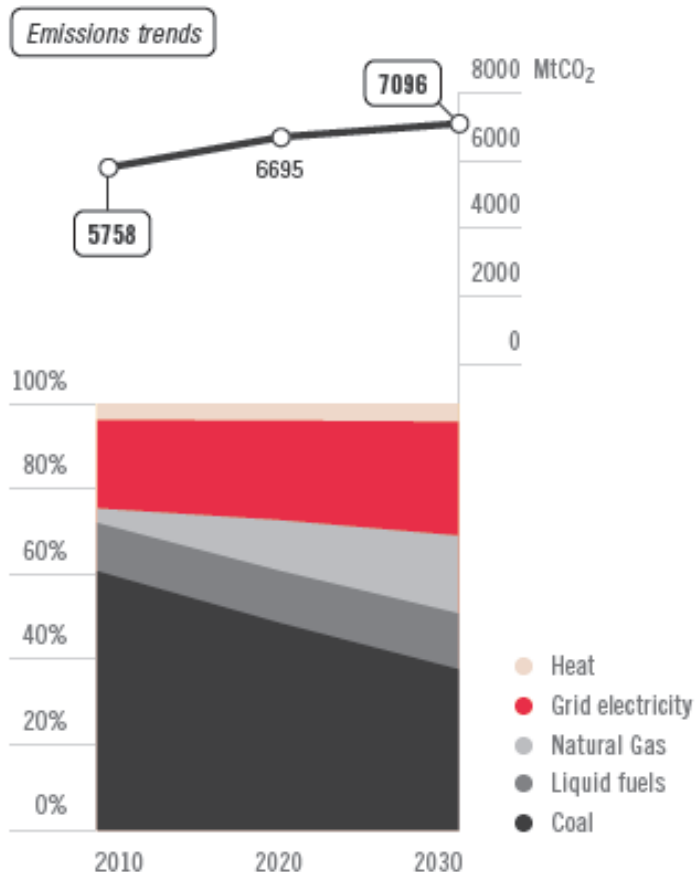


Source: authors' China INDC scenario

- Reduction in carbon intensity of Chinese electricity production by ca. 40% by 2030
- Reaching EU level carbon intensity by 2030
- Reaching ca 45% non fossil fuels in electricity supply; modern renewables ca 18%
- Crucial contribution from electricity sector to reach 20% non fossil fuel target in primary energy

The Chinese INDC - transition in the industry sector

Figure 30. Energy mix in industry sectors, China



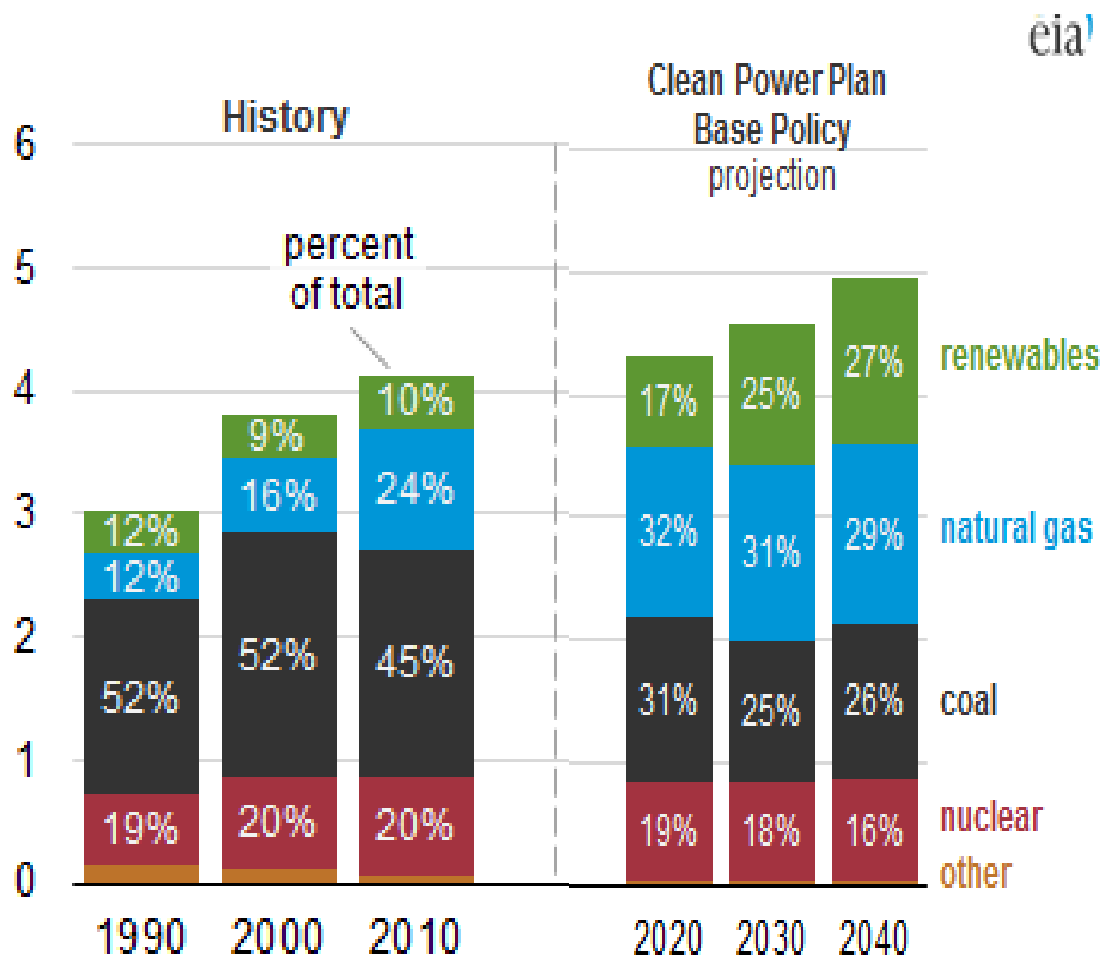
Source: authors' China INDC scenario

- A significant contribution from macroeconomic restructuring
- The share of industry in GDP drops to 38.5%
- Continuous improvement in the technical efficiency of industry equipment, and restructuring within the industry sector (peak of heavy industry sectors by 2020)
- Gradual decarbonization of energy supply, notably through gasification and electrification
- Importance of appropriate pricing (carbon, but also energy, capital, labour, land etc.)

The United States INDC

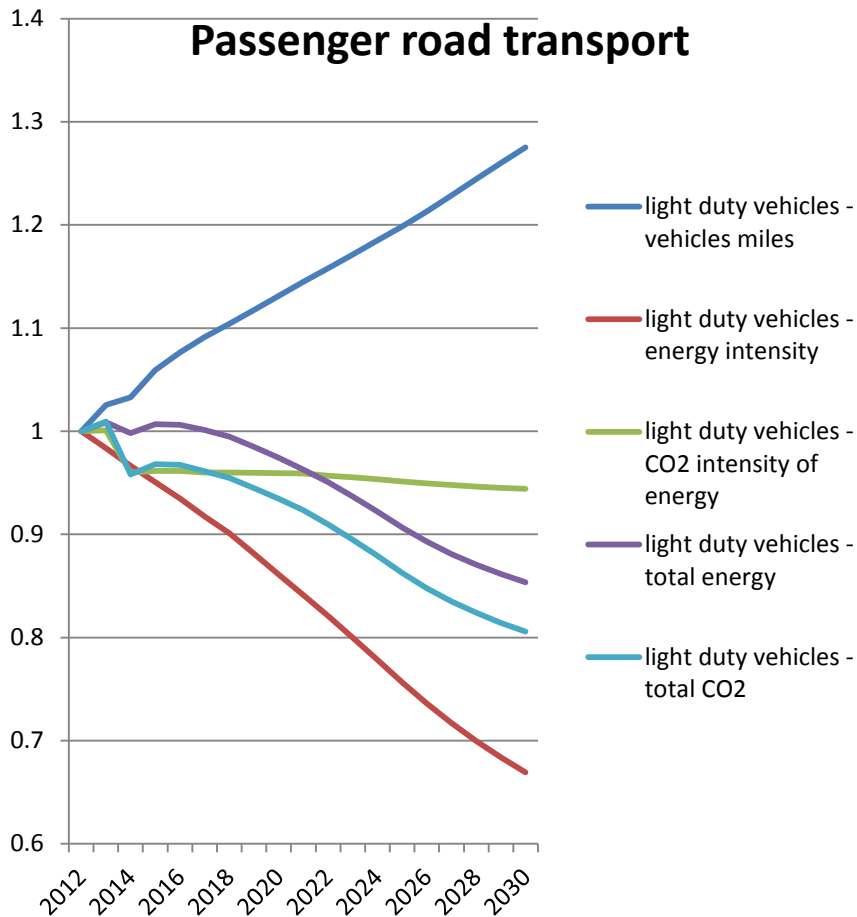
- Reduce GHG emissions by 26-28% by 2025, compared to 2005 levels
- Based on existing regulatory authority and recent regulatory action
 - Clean Air Act: regulations in power and transport sectors, and non-CO2 gases like HFCs and CH4
 - Energy Policy Act and Energy Independence and Security Act: regulations for the building sector
- And state level action: California RES 50% by 2030, Western Climate Initiative etc.

USA INDC - transition in the electricity sector



- Clean Power Plan required -32% of electricity sector emissions by 2030, compared to 2005 levels
- Will promote a significant growth of renewables and natural gas
- And potentially promote the use of carbon trading at state level

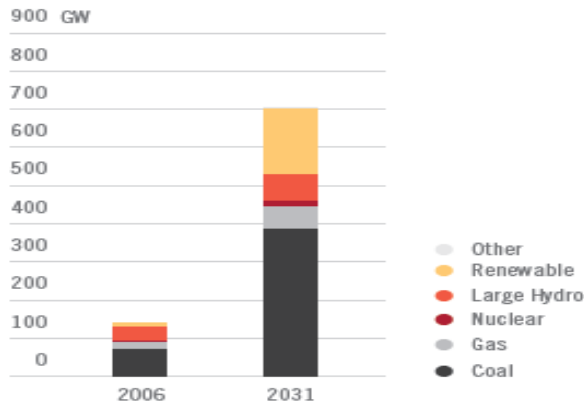
The US INDC – the transport challenge



- Regulations for improving vehicle mileage by 2025 for passenger vehicles and heavy duty vehicles by 2027
- Light duty vehicles regulation = ca. 102 gCO₂/km
- But what is the impact of the low oil price?

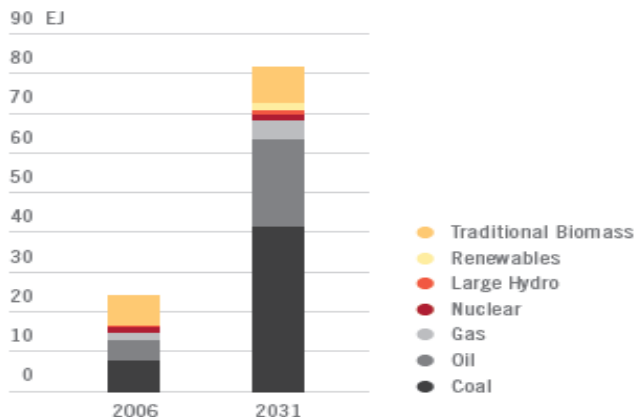
The Indian INDC

Figure 39. Electricity generation capacity, India



Source: TERI scenario based on the India MARKAL model

Figure 40. Primary energy supply, India

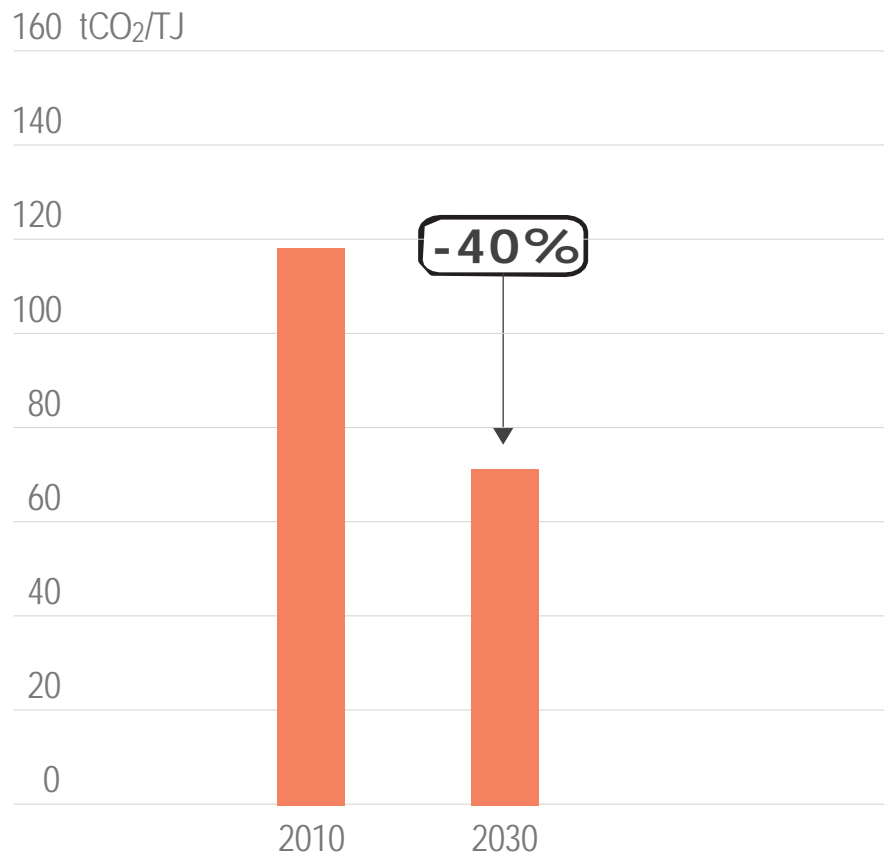


Source: TERI scenario based on the India MARKAL model

- The Indian INDC envisages - 33-35 GHG intensity by 2030
- And 40% non-fossil fuels in installed capacity in the electricity sector by 2030
- Compared to 29% today
- Significant growth in coal demand by 2030

Key message: INDCs imply an acceleration and consolidation of climate action

Aggregate reduction in carbon intensity of electricity in USA, EU, China, India, Brazil and Japan



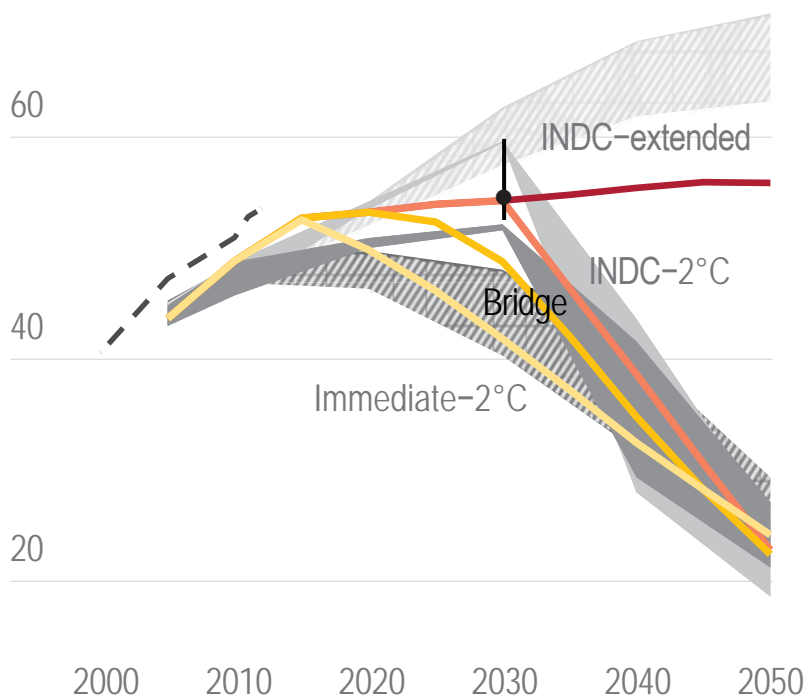
Source: MILES project analysis (see country chapters in this report)

- Renewables reach 36% of electricity supply
- 30% reduction in the energy intensity of passenger transport from 2010-2030
- Coal demand falls 17% in China, Japan, EU and US from 2010-2030
- Low carbon electricity reaches 41% of global electricity supply by 2030.

Key message: Paris Agreement needs to include strengthening mechanisms to build bridge from INDCs to staying below 2°C

Greenhouse gas emissions

80 GtCO₂eq/yr



Source: REMIND model calculations, EDGAR (JRC/PBL, historical emissions), PBL INDC Tool calculations (www.pbl.nl/indc INDC range and best estimate, vertical black line and circle) and IPCC AR5 scenario database

- INDCs are significant deviation from current trends and policies
- But not sufficient to keep below 2°C in reach as freely emitting fossil fuel infrastructure is not reduced until 2030
- Mechanisms for rapid strengthening can send signal of commitment to long term goal to investors.
- Early restructuring of investments can shave additional 5 GtCO₂eq off trajectory in 2030 and reduce the risk of disruptive, rapid, costly change
- The Paris Agreement must establish this early and regular ratchet

Conclusions

- The submission of INDCs from 161 countries represents a very significant step forward
- For the most part, they accelerate and consolidate action on climate change in major economies, and will drive technological and policy innovation and big changes in energy markets
- They are insufficient to keep warming below 2C, and must be strengthened in a timely, predictable and regular way
- It is crucial that progress is made on drivers of decarbonization in 'levers' where less progress has been made (transport, CCS, phase out of fossil fuels, carbon pricing, controlling energy service demand, etc.)

All material available here

<http://www.iddri.org/Publications/Beyond-the-numbers-Understanding-the-transformation-induced-by-INDCs>

<http://deepdecarbonization.org/>