India

Emissions targets and implications for business

India intends to reduce the emissions intensity of its GDP by 33 - 35% by 2030 below its 2005 level

What is India's contribution…

1. Stringent emissions standards and mandatory efficiency targets have been placed on all **coal** fired power stations.
2. 175 GW of **renewables** are expected by 2022, including 100GW from solar PV and 60GW from wind among others. By 2030, non-fossil fuel sources are expected to make up **40% of electric power installed capacity**.
3. A nationwide energy conservation programme will try to save 10% of today's energy consumption by 2018 and 2019. Over the longer term, **industry, transportation, buildings and appliances** will be targeted for further energy efficiency savings.
4. The **carbon tax** has recently increased four-fold to roughly $6 per tonne of CO2 and applies to coal, lignite and peat. Carbon tax revenue is redistributed through the National Clean Energy Fund and contributes up to 40% of project costs.
5. Perform Achieve Trade (PAT) will enter its second phase of **energy intensity targets** (which has achieved a 4-5% decline in between 2012 and 2015 for eight sectors, iron and steel, cement, fertilizers, textiles, aluminium, pulp and paper, and chlor-alkali).
6. 98 of 100 **smart cities** have been chosen for grant support.
7. Additional **forest and tree cover saving 2.5 to 3 billion tonnes of CO2 equivalent** by 2030

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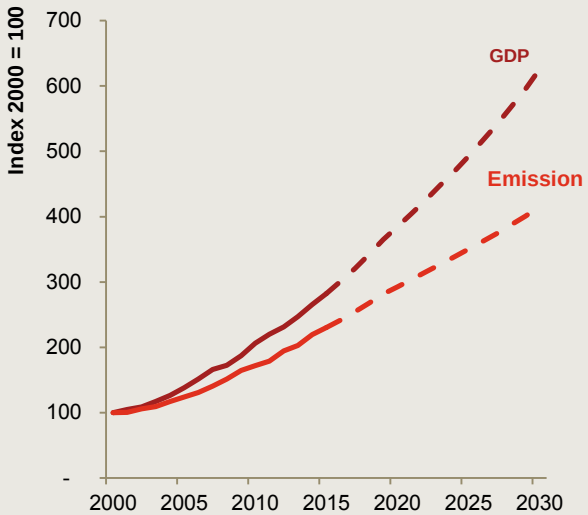
...and what are the implications for business

- **An opportunity the size of China's**: we estimate that the investment required for solar and wind is comparable to China's at US$210bn.
- Around **$40bn is required by 2017 to achieve the government's solar mission of** 22 GW installed capacity, the government has started with a $1.4bn investment.
- Tax-free **infrastructure bonds of $794mn** are being introduced for funding of renewable energy projects during the year 2015-16.
- Grants of $8bn, or **$15m per smart city per year for the next five years** has been earmarked for 100 smart cities. Private sector investment will be required to substantiate this funding.
- India has **relaxed FDI rules** as part of its Make in India campaign to encourage private sector funding for local manufacturing.
- **Businesses need efficiency measures** to reduce their PAT exposure. Certificates bought to make up for missed targets in phase 1 are estimated to cost business $5.4bn.
- The Faster Adoption and Manufacturing of **Hybrid & Electric Vehicles** (FAME India) will receive a **$12.5m** boost from the 2015-2016 Union Budget.
- Funding of **clean energy technologies may exceed $2bn** which was provided in 2014 as a result of recycled revenues from the doubled carbon tax.
- **$6 billion a year for forest conservation** has been allocated in the Union Budget.

GDP, Energy and related emissions

GDP forecast: 5.5% per year
Emissions forecast: 4.1% per year



Our absolute emissions trend is based on combining the GDP forecast above with the average decarbonisation rate so far this century

GDP: India's GDP of US$7,393bn in 2014 is over two and a half times what it was in 2000 having grown by 7.2% per year on average. The pattern has been of relentless positive growth, hitting 'lows' of 3.8% in 2002 and 3.9% in the 2008 recession but was averaging 9.5% in the three years leading up to 2008 and bounced back with 10.3% in 2010. PwC's World in 2050 forecasts growth of 6.4% over the next five years but a lower average of 5.5% for the whole period between now and 2030.

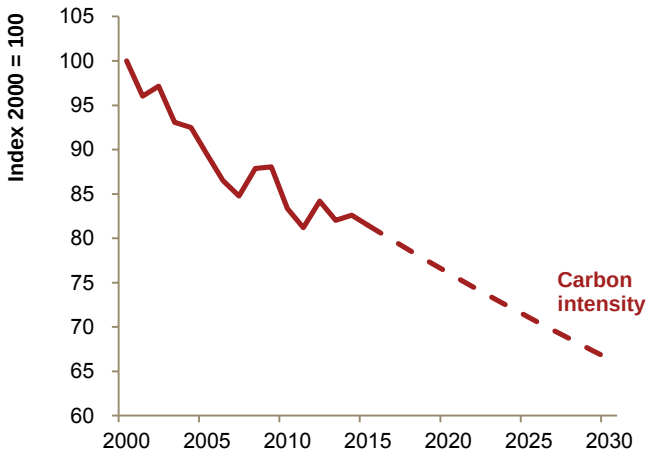
Renewable energy: Renewables made up just 7% of total energy consumption in 2014. Hydro increased from 17 to 30 Mtoe to contribute 5pp of the 7% and wind and geothermal comprise 1pp each. Wind generation's share has been constant since 2006 and geothermal since 2010.

Energy: India's energy consumption has more than doubled this century to 638 Mtoe, and 63% of the increase came from another 216 Mtoe of coal. Oil consumption increased by two thirds to comprise 28% of the energy mix, second to coal's 56%. Gas and nuclear may have roughly doubled absolute consumption levels, but still only contribute 7% and 1% respectively to the mix.

Emissions: By Sector, power contributed 59% of emissions in 2012, industry 22%, transport 12% and buildings 7%.

Carbon intensity

Carbon intensity forecast: -1.4% per year



- India's decarbonisation rate has averaged 1.4% since the turn of the century.
- Carbon intensity followed a mostly downward trend in the early 2000s, but since the 2008 recession it has fluctuated. This is primarily driven by fluctuations in emissions rather than GDP.
- We use the average since the turn of the century, 1.4%, for our business as usual forecast opposite and below.

How ambitious is India's 33-35% intensity target?

Using our measure of ambition – the 0.7% gap between BAU and the target lines below – India's level of ambition is behind China (1.4%) and only just ahead of the EU (0.5%) who are coming from a far lower carbon intensity. China has been decarbonising at a relatively respectable 2% compared to India's 1.4%. From this perspective it is a detailed but unambitious INDC. Indeed compared to its Copenhagen target of 22-25% intensity reduction by 2020, the revised 2030 target means that the pace of decarbonisation between 2021 and 2030 will be slower.

Coal and oil are large parts of India's energy consumption and GDP growth is expected to slow. This will make it hard for India, but it has still left a large gap between its target and the decarbonisation rate needed to achieve two degrees.

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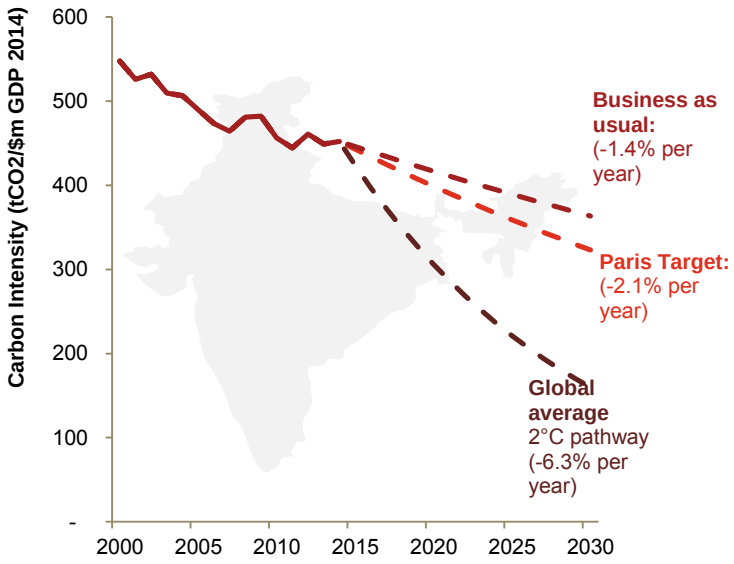

Sources:
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Contacts

Surojit Bose
surojit.bose@in.pwc.com

Ankit Gupta
ankit5.gupta@in.pwc.com

150910-141231-LA-OS