HOW AMBITIOUS ARE THE POST-2020 TARGETS?

Assessing the INDCs: comparing apples with oranges
<table>
<thead>
<tr>
<th>Date</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 June 2015</td>
<td>• Original version published</td>
</tr>
</tbody>
</table>
| 3 July 2015     | • Slides 4-5: updated to include new INDC submissions  
                  • Slide 7: adjusted rankings to account for official targets announced by China and South Korea  
                  • Slides 8-10: chart updated with official targets announced by China and South Korea  
                  • Slides 17-18: charts and text updated based on figures released in China and South Korea’s official target announcements and BNEF’s view of the post-2020 pledge |
| 13 August 2015  | • Slides 4-5: updated to include new INDC submissions  
                  • Slide 7: adjusted rankings to account for official targets announced by Japan and Australia  
                  • Slides 8-10: chart updated with official targets announced by Japan and Australia  
                  • Slides 19-20: charts and text updated based on figures released in Japan and Australia’s official target announcements and BNEF’s view of the post-2020 pledge |

For more information on this theme click the image
The goal of the UN climate talks is to stabilise global greenhouse gas emissions at a level that prevents “dangerous interference” with the climate – specifically to prevent average global temperatures from rising more than 2°C above pre-industrial levels.

Despite the 1997 Kyoto Protocol that set binding caps on a number of developed countries’ emissions, and the 2010 Cancun Agreements that led to more countries, including some developing ones, adopting voluntary targets, the UNFCCC has failed to deliver an agreement that comes near to meeting the emission curbs needed to achieve the 2 degree goal.

This could all change in Paris at the end of the year when delegates will try to thrash out an agreement to underpin a new global framework to take effect from end-2020. Governments are slowly submitting their post-2020 targets – dubbed ‘Intended Nationally Determined Contributions’, or INDCs in UN-speak. These targets will form the basis of any agreement that may come out of Paris.

This slide deck looks at submitted and expected INDCs, and assesses the level of relative ambition being put on the table by each country.

Negotiators only have two more official negotiating sessions before COP21. INDCs must be submitted before 1 Oct to be included in the UN synthesis report due to be published in November.

COP21, Paris (30 Nov-11 Dec)

UNFCCC synthesis report (1 Nov)

COP subsidiary body sessions, Bonn (1-11 Jun)

Durban Platform session, Bonn (31 Aug-4 Sep)

Durban Platform session, Bonn (19-23 Oct)

COP21 (2015) – Paris Deal?

The agreement is likely to be vague. Underpinning the outcome will be the list of self-determined country-level post-2020 targets, but discussions on how these interact within a new global framework will continue long after the Paris COP.

COP19 (2013) – Warsaw Outcomes

The wording that references post-2020 targets is changed from ‘commitments’ to potentially weaker ‘contributions’. Countries agree to communicate their contribution ahead of COP21.

COP20 (2014) – Lima Call for Climate Action

The Lima outcome is a short decision text and lengthy annex listing out the many options for various parts of a draft negotiation text for Paris. This has since been expanded into an official draft, but remains an 86-page monster.

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THE MOST LIKELY SHAPE OF A PARIS DEAL

WHAT IS A DEAL IN PARIS LIKELY TO LOOK LIKE?

We expect a deal to come out of COP21 in Paris, but the agreement will fall short of the all encompassing highly ambitious global deal hoped for by some observers. It will instead be a high-level framework agreement based around an overall long-term goal – most likely to limit the average rise in global temperatures to 2 degrees – and the hotchpotch of ‘Intended Nationally Determined Contributions’ (INDCs) – post-2020 targets – put forward by each country. The Paris agreement will be the starting point for years of continued negotiations about how these national goals interact within a global framework.

INDCs

Country A’s INDC
Country B’s INDC
Country C’s INDC
Country D’s INDC

Aggregation of country targets

The Paris ‘deal’...

Hotchpotch of country-level targets

Continued negotiations post-2015 focused on:
- Marrying together long-term global ambition with country-level INDCs
- Establishing how INDCs can interact within a global framework

Overall ambition
- Overarching goal to limit increase in global temperatures to 2 degrees.

Differentiation
- Clear distinction drawn between developed and developing countries.
- Anchoring in the principle of ‘common but differentiated responsibility’ (CBDR). All developing country action to be conditional on financial and technological assistance from developed country parties.

Ancillary frameworks
- Reaffirmation of a joint commitment to develop frameworks for REDD+ (forestry), loss and damage, as well as the ‘new market mechanism’. We do not expect any details on these frameworks to emerge, however.
- Commitment to Green Climate Fund and the pledge to deliver $100bn/yr of climate finance by 2020, but only a modest number of new pledges will be made.

Vague text on the overall ambition and principles of a new post-2020 framework

... but what’s more important is what happens after Paris!
EU: 40% below 1990 by 2030

Notes: *INDC submissions as of 12 August 2015. INDC, Intended Nationally Determined Contribution, refers to countries post-2020 pledge submissions to the UNFCCC.

26 of 169 submitted INDCs*

<table>
<thead>
<tr>
<th>Country</th>
<th>Emission Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>26-28% below 2005 by 2025</td>
</tr>
<tr>
<td>Mexico</td>
<td>22% below BAU by 2030</td>
</tr>
<tr>
<td>Canada</td>
<td>30% below 2005 by 2030</td>
</tr>
<tr>
<td>Russia</td>
<td>25-30% below 1990 by 2030</td>
</tr>
<tr>
<td>Japan</td>
<td>26% below 2013 by 2030</td>
</tr>
<tr>
<td>South Korea</td>
<td>37% below BAU by 2030</td>
</tr>
<tr>
<td>China</td>
<td>Emissions intensity 60-65% below 2005 by 2030</td>
</tr>
<tr>
<td>Australia</td>
<td>26-28% below 2005 by 2030</td>
</tr>
</tbody>
</table>

Annex I parties
Non-annex I parties

<table>
<thead>
<tr>
<th></th>
<th>Submitted</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>post-2020 pledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>submission</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

August 2015
## Party Submissions to the UNFCCC

### Party Submissions to the UNFCCC

<table>
<thead>
<tr>
<th>Party</th>
<th>Target year</th>
<th>Base year</th>
<th>Unconditional target</th>
<th>Date of submission</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland</td>
<td>2030</td>
<td>1990</td>
<td>-50%</td>
<td>27 Feb 2015</td>
<td>CH INDC</td>
</tr>
<tr>
<td>EU</td>
<td>2030</td>
<td>1990</td>
<td>-40%</td>
<td>6 Mar 2015</td>
<td>EU INDC</td>
</tr>
<tr>
<td>Norway</td>
<td>2030</td>
<td>1990</td>
<td>-40%</td>
<td>27 Mar 2015</td>
<td>NO INDC</td>
</tr>
<tr>
<td>Mexico</td>
<td>2030</td>
<td>BAU</td>
<td>-22%</td>
<td>30 Mar 2015</td>
<td>MX INDC</td>
</tr>
<tr>
<td>Gabon</td>
<td>2025</td>
<td>2000</td>
<td>-50%</td>
<td>1 Apr 2015</td>
<td>GA INDC</td>
</tr>
<tr>
<td>Russia</td>
<td>2030</td>
<td>1990</td>
<td>-25-30%</td>
<td>1 Apr 2015</td>
<td>RU INDC</td>
</tr>
<tr>
<td>Liechtenstein</td>
<td>2030</td>
<td>BAU</td>
<td>-40%</td>
<td>23 Apr 2015</td>
<td>LI INDC</td>
</tr>
<tr>
<td>Andorra</td>
<td>2030</td>
<td>BAU</td>
<td>-37%</td>
<td>30 Apr 2015</td>
<td>AD INDC</td>
</tr>
<tr>
<td>Canada</td>
<td>2030</td>
<td>2005</td>
<td>-30%</td>
<td>15 May 2015</td>
<td>CA INDC</td>
</tr>
<tr>
<td>Morocco</td>
<td>2030</td>
<td>BAU</td>
<td>-13%</td>
<td>5 Jun 2015</td>
<td>MA INDC</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>2030</td>
<td>BAU</td>
<td>-64%</td>
<td>10 Jun 2015</td>
<td>ET INDC</td>
</tr>
<tr>
<td>Serbia</td>
<td>2030</td>
<td>1990</td>
<td>-9.8%</td>
<td>30 Jun 2015</td>
<td>RS INDC</td>
</tr>
<tr>
<td>Iceland</td>
<td>2030</td>
<td>1990</td>
<td>-40%</td>
<td>30 Jun 2015</td>
<td>IS INDC</td>
</tr>
<tr>
<td>China</td>
<td>2030</td>
<td>2005</td>
<td>-60-65% em.int.*</td>
<td>30 Jun 2015</td>
<td>CN INDC</td>
</tr>
<tr>
<td>South Korea</td>
<td>2030</td>
<td>BAU</td>
<td>-37%</td>
<td>30 Jun 2015</td>
<td>KR INDC</td>
</tr>
<tr>
<td>Singapore</td>
<td>2030</td>
<td>2005</td>
<td>-36% em.int.*</td>
<td>3 Jul 2015</td>
<td>SG INDC</td>
</tr>
</tbody>
</table>

### Emissions and GDP represented by submitted INDCs (2014 estimate)

<table>
<thead>
<tr>
<th>Emissions covered by INDCs</th>
<th>GDP covered by INDCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>US</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Notes:
- *emissions per unit GDP. GDP reported in real terms (constant 2005 US$m). BAU is Business As Usual. FYR is former Yugoslav Republic.
- Sources: Bloomberg New Energy Finance, UNFCCC, World Bank, IMF

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**August 2015**
COMPARING AMBITION
COMPARING THE AMBITION OF INDCS

QUANTIFYING AMBITION

‘Ambition’ is a subjective term that can be assessed in a number of different ways. We have attempted to quantify ambition using the following approaches:

Target emissions trajectory relative to a baseline year
- Many INDCs are articulated as an explicit reduction target below a baseline year. Those that are not can be equated as such by estimating the emissions trajectory consistent with the respective target, and comparing this target trajectory to historical emissions.
- Ambition is assessed based on the level of emissions growth/reduction that is needed to achieve the target relative to a baseline year.
- We have chosen to compare countries’ INDC targets to reported emissions in 2010.

Implied impact of target trajectory on emissions intensity per unit of GDP
- Emissions intensity is the level of greenhouse gas emissions per unit of economic output (GDP).
- Assuming a certain level of GDP growth, the target emissions trajectory can be translated into a target trajectory for emissions intensity.
- Ambition can be gauged based on the decline in emissions intensity required to achieve the target.
- We have chosen to compare countries’ INDC targets in terms of the change in emissions intensity relative to 2010.

Abatement required to achieve targets relative to a ‘business-as-usual’ scenario
- If an estimate is made for business-as-usual emissions growth then it is possible to quantify the absolute level of emission reductions necessary to achieve a specified target.
- This is arguably the truest quantification of ambition, but comparisons are subject to the uncertainty and subjective nature of defining an appropriate emissions forecast.
- We have chosen to compare abatement needed to achieve countries’ INDC targets as a proportion of estimated emissions over 2012-30.

Parties ranked by target emissions trajectory

<table>
<thead>
<tr>
<th>Party</th>
<th>Absolute target emissions trajectory relative to 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU</td>
<td>-32% by 2030</td>
</tr>
<tr>
<td>US</td>
<td>-22% by 2025</td>
</tr>
<tr>
<td>Australia</td>
<td>-22% by 2030</td>
</tr>
<tr>
<td>Canada</td>
<td>-21% by 2030</td>
</tr>
<tr>
<td>South Korea</td>
<td>-21% by 2030</td>
</tr>
<tr>
<td>Japan</td>
<td>-16% by 2030</td>
</tr>
<tr>
<td>Mexico</td>
<td>+7% by 2030</td>
</tr>
<tr>
<td>China</td>
<td>+58% by 2030</td>
</tr>
<tr>
<td>Russia</td>
<td>+60% by 2030</td>
</tr>
<tr>
<td>Global benchmark</td>
<td>-21% by 2030 (consistent with 50% reduction in emissions over 2010-50)</td>
</tr>
</tbody>
</table>

The EU has taken on the strongest target in terms of absolute emissions, whereas Russia’s target leaves plenty of room for emissions growth to 2030.

Parties ranked by target emissions intensity

<table>
<thead>
<tr>
<th>Party</th>
<th>Required change in emissions intensity consistent with INDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>-54% by 2030</td>
</tr>
<tr>
<td>South Korea</td>
<td>-53% by 2030</td>
</tr>
<tr>
<td>Canada</td>
<td>-51% by 2030</td>
</tr>
<tr>
<td>Australia</td>
<td>-50% by 2030</td>
</tr>
<tr>
<td>EU</td>
<td>-48% by 2030</td>
</tr>
<tr>
<td>US</td>
<td>-43% by 2025</td>
</tr>
<tr>
<td>Japan</td>
<td>-29% by 2030</td>
</tr>
<tr>
<td>Mexico</td>
<td>-28% by 2030</td>
</tr>
<tr>
<td>Russia</td>
<td>+12% by 2030</td>
</tr>
<tr>
<td>Global benchmark</td>
<td>-49% by 2030 (consistent with 50% reduction in emissions over 2010-50)</td>
</tr>
</tbody>
</table>

China and South Korea’s targets imply the most ambitious reductions in emissions intensity by 2030, and Russia falls behind again being the only country to increase it.

Parties ranked by abatement needed to hit target vs BNEF emissions estimate

<table>
<thead>
<tr>
<th>Party</th>
<th>Required change in emissions compared with BAU over 2012-30</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Korea</td>
<td>-28% by 2030</td>
</tr>
<tr>
<td>Mexico</td>
<td>-21% by 2030</td>
</tr>
<tr>
<td>Canada</td>
<td>-11% by 2030</td>
</tr>
<tr>
<td>US</td>
<td>-8% by 2025</td>
</tr>
<tr>
<td>Australia</td>
<td>-7% by 2030</td>
</tr>
<tr>
<td>Japan</td>
<td>-3% by 2030</td>
</tr>
<tr>
<td>EU</td>
<td>+5% by 2030</td>
</tr>
<tr>
<td>China</td>
<td>+9% by 2030</td>
</tr>
<tr>
<td>Russia</td>
<td>+53% by 2030</td>
</tr>
</tbody>
</table>

South Korea’s target implies that it has the largest need for abatement (relative to our emissions estimate), whereas Russia, China and the EU do not require abatement.
WHAT DO THE INDCS MEAN IN TERMS OF FUTURE EMISSIONS GROWTH TO 2030?

Long-term targets fall into one of three categories: those that imply **significant growth in emissions**, those that imply **little or no growth in emissions**, and those that imply a **decline in absolute emissions**. The ambition behind each target can be partly judged on which of these categories it falls within. A principal of the UNFCCC is the differentiation of rich and poor countries – rich countries must aggressively cut their emissions in order to allow developing countries to continue to grow their emissions whilst they industrialise and develop – so it is not surprising that the INDCs submitted by many developing countries will imply further growth in emissions. For the world to stay on track towards its 2 degree target, however, emissions must collectively fall by 40-70% between 2010 and 2050 – according to the Intergovernmental Panel on Climate Change (IPCC). We therefore make a comparison with a global benchmark that assumes a 50% reduction over 2010-50 – this equates as a 21% reduction over 2010-30.

### EMISSION TARGET TRAJECTORIES, RELATIVE TO 2010 LEVELS

**SIGNIFICANT GROWTH IN EMISSIONS (>10%)**
- **Russia** – Overall, its 2030 target implies growth in emissions from 2010. The 2030 target does imply a net reduction in emissions compared with its 2020 goal, but this is so slack that it is effectively meaningless.

**LIMITED OR NO GROWTH IN EMISSIONS (<10%)**
- **Mexico** – Emissions can continue to grow to 2030 under its unconditional target. If its conditions are met, however, the INDC implies a 12% reduction in absolute emissions below 2010 levels.

**DECLINE IN ABSOLUTE EMISSIONS**
- **Japan** – Japan aims to reduce its emissions by 19% over 2010-30. However, its INDC implies that the majority of abatement is planned for post-2020.
- **US** – The US target is one of the most ambitious in terms of absolute emission reductions. The US target puts it on a similar path to the EU, but only runs to 2025.
- **EU** – The EU’s target is the strongest out the INDCs submitted so far in terms of absolute emission reductions over 2010-30.

Notes: Russia trajectory only includes 2030 target, see slide 14 for details on 2020 target. Assumes Chinese 2030 target of 60% below 2005 in emissions per unit GDP and high GDP growth. US INDC target is set for 2025 and assumes 26% below 2005 levels. Assumes Australian target of 26% below 2005 levels.
WHAT DO THE INDCS MEAN IN TERMS OF FUTURE REDUCTION IN EMISSIONS INTENSITY TO 2030?

Based on the necessary improvement in emissions intensity implied by the INDCs, countries fall into three categories: an increase in emissions intensity, a limited decline in intensity, or a significant decline in intensity needed to achieve the target. Comparing INDCs in this way is a suitable complement to the previous comparison based on absolute emission reductions – emissions intensity trends are more likely to reflect the achievements of developing countries in decarbonising their economic growth, which is arguably a more appropriate measure of ambition for developing countries. Therefore, even if absolute emissions continue to grow in some developing countries, their INDCs may still be considered to be ambitious. For the world to stay on track towards its 2 degree target, in line with the IPCC’s latest assessment, our global benchmark trajectory implies that emissions must fall in absolute terms by 50% over 2010-50, or 21% by 2030. This implies that emissions intensity must almost halve by 2030.

**INCREASE IN EMISSIONS INTENSITY**
- **Russia** – Its INDC accommodates for a 12% increase in emissions intensity over 2010-30. Russia is the only country so far to have submitted a goal that implies growth in emissions intensity.

**LIMITED DECLINE IN EMISSIONS INTENSITY (<40%)**
- **Mexico** – Mexico’s unconditional target implies a 28% reduction in emissions intensity over 2010-30. It also implies, however, that intensity will remain flat during the 2020s, if the country achieves its 2020 goal.
- **Japan** – Japan is expected to reduce its emissions intensity to 2030 at a slower rate than most other developed nations. In addition, its 2020 target implies little reduction in emissions per unit GDP this decade.

**SIGNIFICANT DECLINE IN EMISSIONS INT. (>30%)**
- **US** – The implied emissions intensity under the US’ 2025 target continues on a similar trajectory both pre and post 2020. The reduction in emissions per unit GDP from 2010 is set to be the biggest by 2030 if it hits its target and continues on a similar trajectory post 2025.
- **EU** – Its 2030 target implies a pronounced decline in emissions intensity post 2020. This is because the EU’s 2030 goal in an increase on its 2020 target, where as GDP growth is expected to remain relatively stable.
- **China** – China’s INDC is on a par with the developed countries in terms of reduction in emissions intensity.

### IMPLIED EMISSION INTENSITY TARGET TRAJECTORIES, RELATIVE TO 2010 LEVELS

<table>
<thead>
<tr>
<th>Country</th>
<th>Post-2020 target emissions vs. 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>+12%</td>
</tr>
<tr>
<td>Mexico</td>
<td>-28%</td>
</tr>
<tr>
<td>Japan</td>
<td>-31%</td>
</tr>
<tr>
<td>US</td>
<td>-43%</td>
</tr>
<tr>
<td>EU</td>
<td>-48%</td>
</tr>
<tr>
<td>Australia</td>
<td>-50%</td>
</tr>
<tr>
<td>Canada</td>
<td>-51%</td>
</tr>
<tr>
<td>South Korea</td>
<td>-53%</td>
</tr>
<tr>
<td>China</td>
<td>-54%</td>
</tr>
<tr>
<td>Global benchmark</td>
<td>-54%</td>
</tr>
</tbody>
</table>

Notes: Emissions intensity is calculated as emissions per unit GDP (tCO2e excl. LULUCF / constant 2005 US$m).

Source: Bloomberg New Energy Finance
WHAT DO THE INDCS MEAN IN TERMS OF ABATEMENT NEEDED BY 2030?

Based on the level of abatement needed to hit the INDC targets compared with our own business-as-usual emission scenarios (see box below), countries fall into one of three categories: those that require no abatement, those where our emissions estimate is in line with the target, and those that require abatement. Governments’ emissions projections tend to differ from our estimates – official forecasts are usually presented in combination with the targets to demonstrate how ambitious a pledge is, and therefore tend to be higher than our estimates. We believe that comparing targets with our independent outlook for emissions may be the truest approach to evaluate ambition, since the cost and effort needed to meet a target depend on how much abatement is required. The cost of abatement, however, will differ in each country, but we have not considered such costs in this analysis.

NO ABATEMENT NEEDED
- Russia* – Russia will not need to achieve any abatement below our emissions forecast in order for it to hit its 2030 target.
- China – Based on the lowest end of its emission intensity goal of a 60% reduction below 2005 levels by 2030, the Chinese target implies a low level of ambition. However, if we flex the assumption for GDP growth this will impact the level of abatement needed.
- EU – The EU is on track to meet its 2030 goal. Although we do not expect the EU to require any additional policy measures beyond what is currently being implemented, our emissions estimate assumes reform of the EU ETS and a resulting carbon price of €20-25/t around 2020.

ABATEMENT NEEDED
- Japan – Japan’s 2030 target implies that it will need some additional policies to meet its pledge. However, it will likely be able to hit its 2020 target (that was revised following Fukushima) with existing policies.
- US – The US’ transportation and energy efficiency standards, along with the new Clean Power Plan will get the US most (but not all) of the way to its post-2020 target. Additional policy intervention will be required.
- Mexico – Mexico’s target is the most ambitious compared with our emissions estimate. We expect Mexico’s emissions to continue to grow sharply if unabated, but its INDC implies a sharp reduction below the BAU.

BNEF emissions estimate methodology (business-as-usual)
- For the power sector, we model an emissions trajectory for each country using power generation forecasts, based on our own demand, cost and capacity projections to 2040. We factor in existing and expected policies.
- For non-power sectors we look at the historical relationship between emissions and GDP per capita, and forecast this relationship in intensity to 2030 based the historical trend. We do not factor in policies in this calculation.

Note: *Russia excluded from the chart, please see slide 14 for more details.

Source: Bloomberg New Energy Finance
The EU will not struggle to meet its 2020 target, and we do not consider its 2030 target to be particularly ambitious. Existing policies and the likely reform of the EU ETS will ensure it hits its long-term pledge. The bloc tops our ranking in terms of implied absolute emission reductions, but lags behind both China and our estimated global benchmark in both the rankings based on emissions intensity, and relative to our emissions estimates.

The primary sources of abatement in Europe is through increased penetration of renewables in the power sector. The bloc has also stated in its INDC that its 2030 goal will include land use, land-use change and forestry (LULUCF), which its 2020 goal does not, meaning that the EU’s emissions sinks will help the region achieve its long-term pledge.

The EU's INDC clearly states it will not use international credits to contribute towards its target. We believe that end up not being the case, however, given the EU's support for market mechanisms under the UNFCCC. It will likely use the matter as a bargaining chip during the negotiations and change its stance in return for concessions from developing countries.
**US POST-2020 PLEDGE**

**BNEF analyst opinion**

It is plausible that the US will be able achieve its 2020 target without much additional policy intervention. It has seen a shift in its energy mix due to gasification of the power sector, switching from dirtier coal to natural gas. Meanwhile, Obama has slowly ramped up environmental policies. Our rankings indicate that the US has taken on one of the strongest post-2020 targets so far, both in terms of absolute emissions, emissions intensity and compared with our own BAU emissions forecast. Meeting this 2025 target, however, appears to be a greater challenge compared with the 2020 target, given our estimated emissions trajectory – which does not take into account the Clean Power Plan.

The political uncertainty over who will be the next US president adds another layer of complexity to the situation. The new target assumes that Obama’s successor will stay the course and implement climate action through executive orders. This is by no means certain and it is hard to envisage any climate related legislation being passed by Congress for the foreseeable future.

If we ignore this level of uncertainty, however, our most recent analysis of the final Clean Power Plan (CPP) indicates that the US appears on track to achieve its ambitions, now that the CPP is aiming for a 32% cut from the power sector rather than 30%.

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**Emissions reduction targets**

- **2020**: -17% on 2005 levels
- **2025**: -26-28% on 2005 levels
- **2050**: -83% on 2005 levels

**Climate policy drivers**

**Push factors**
- President Obama’s desire to implement policy changes to clean up energy sector and combat climate change (an election promise)
- State-level initiatives to pursue low-carbon strategies independently

**Pull factors**
- Political opposition in Senate and House of Representatives that paralyses congress on climate issues
- General public and official scepticism towards the reality of climate change

**Key energy and climate regulation**

- **US Environmental Protection Agency’s (EPA’S) Clean Power Plan**
  - Sets state-specific standards for emissions rates for 2030 – the aim is to lower the ratio between emissions and MWh generated
  - Non-binding, headline target of 32% cut in emissions by 2030 on 2005 levels
  - Corporate average fuel economy (CAFE) standards
  - Sets fuel efficiency standards for cars, light and heavy trucks

Notes: LULUCF is land use, land-use change and forestry activities. BNEF BAU assumes 0.9Gt/yr of sequestration over 2013-30. Government policy projections from US’ sixth national communication to the UNFCCC.

Sources: Bloomberg New Energy Finance, Bloomberg Industries, UNFCCC
The 2030 target allows Russia to grow its emissions around 50% above 2010 levels, although it is a net reduction on the 2020 target. Russia will likely not have any issues keeping its emissions below the 2020 target level – given that it still allows for a 71% increase on 2012 emissions (including LULUCF that are a significant source of abatement in Russia – see chart on right), according to our calculations. Russia comes in last place in all of our rankings because of how much emissions are allowed to grow under its targets.

Russia has never been willing to take on ambitious commitments. But it has always supported a legally binding deal with universal participation, given that Russia is allowed to hold on to the ‘hot air’ granted to it by virtue of the UNFCCC’s 1990 baseline year since its emissions plummeted after the fall of the Soviet Union in the 1990s.

Russia has done little to date to implement policies directed at mitigation action to lower its emissions. The energy- and climate-related policies that have been adopted tend to focus on energy efficiency. The government’s stance on the issue has shifted, however, over the past years because of a growing concern among the public about the physical threat that climate change poses.

Notes: LULUCF is land use, land-use change and forestry activities. BNEF BAU assumes 0.3Gt/yr of sequestration over 2013-30.

Government policy projections from Russia’s sixth national communication to the UNFCCC.
Mexico’s unconditional 2030 target does not rank highly compared with other parties in terms of necessary absolute emissions reductions nor the implied fall in emissions intensity. However, it will still have to achieve significant abatement to hit its post-2020 target if emissions grow in line with our estimate. The conditional 2030 target is on a similar trajectory to the 2020 target, but it is questionable if Mexico will meet this first goal. It was the first developing country to submit its INDC, and the first big emitter to put forward a long-term target relative to BAU emissions – the same approach used for its 2020 commitment. It has both an unconditional and conditional target for 2030, just as several developed countries did for their 2020 pledges. Its 2030 target is 22% below a government defined BAU, which may increase to 36% subject to conditions such as the establishment of an “international carbon price”. In its INDC it also states that it sees emissions peaking from 2026.

Notably, the BAU projections used by the Mexican government in its 2020 and 2030 targets differ significantly – by about 170Mt in 2020. Under its revised BAU used for its INDC, emissions will not reach the previously projected 2020 level until 2030.

Mexico is open to using carbon credits beyond 2020, which may prove necessary given the level of abatement required to hit its 2030 target.
Canada’s overarching target is a 30% cut in emissions below 2005 levels by 2030. It will need to achieve a significant level of abatement to hit its goal, according to our analysis. Canada is not expected to hit its 2020 target and it is unclear where the abatement will come from for Canada to achieve its new 2030 goal. There is little opportunity for fuel switching from coal to gas in the power sector and emissions continue to grow from Canada’s flourishing oil and gas industry.

Canada has aligned itself with the US in the past when it comes to the international negotiations. It pulled out of the Kyoto Protocol in 2011 arguing that the agreement could never work without the US and China. Its initial 2020 pledge of 20% below 2006 emissions was somewhat weakened to 17% below 2005 levels, mimicking its southern neighbour’s target. Both the US and Canada continue to use a 2005 base year for their long-term targets, but the US’s INDC extends to 2025 – not 2030.

Canada has stated in its INDC that it is open to using offsets to meet the post-2020 target, so long as there are “robust systems that deliver real and verified emissions reductions” in place.

**Emissions reduction targets**

- **2020**: -17% below 2005 levels
- **2030**: -30% below 2005 levels
- **2050**: -60-70% on 2006 levels

**Push factors**
- Sub-national initiatives to pass own province-level legislation
- Promotion of non-emitting types of generation
- Alignment with eg. US regulation transportation emission standards

**Pull factors**
- No flagship climate change policy
- Production and export of oil and gas important to economy
- Large natural resource base that it wants to extract

**Key energy and climate legislation**

- Heavy-duty Vehicle and Engine GHG Regulations
  - Aim to reduce emissions by up to 23% by 2018
- Energy Efficiency Act
  - Establishes energy efficiency standards for products and equipment

Notes: LULUCF is land use, land-use change and forestry activities. Government policy projection from Canada’s sixth national communication to the UNFCCC.
CHINA POST-2020 PLEDGE

BNEF analyst opinion

China’s official INDC submission is in line with the joint announcement that it made with the US last November. The government has pledged to peak its emissions “around 2030” and to increase “non-fossil fuels in primary energy consumption to around 20%” by 2030. China has also stated that it will lower emissions per unit GDP by 60-65% on 2005 levels, something that has not previously been communicated. This pledge demonstrates a change in China’s stance within the UN process. After years of resisting a limit being put on its emissions, this could be the first time China is willing to subject itself to international scrutiny on its domestic climate action. We expect that China will hit its 2020 intensity target (per unit GDP) and will easily achieve an emissions peak by 2030. Our BAU forecast indicates that China’s emissions will begin to decline due to policy action to slow growth in coal consumption and improve urban air quality.

It must be noted that it is difficult to assess the ambition of China’s INDC as growth in emissions intensity is sensitive to the growth rate of GDP as well as emissions to 2030. If the economy slows, the target becomes more ambitious; if it booms then it becomes easier to achieve. In addition, China has not made it clear if intensity will be measured in real or nominal terms. Considering this, the chart below shows a wide range for the emissions trajectory implied by the target given high and low scenarios for economic growth from 2020 (see notes below).

Emissions reduction targets

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>-40-45% in emissions intensity from 2005</td>
</tr>
<tr>
<td>2030</td>
<td>-60-65% in emissions intensity from 2005</td>
</tr>
<tr>
<td>2050</td>
<td>None</td>
</tr>
</tbody>
</table>

Climate policy drivers

**Push factors**
- Need to improve localised air pollution
- Desire to rebalance economy with more focus on services sector and consumption
- Diversification of energy supply

**Pull factors**
- Maintaining economic growth target and reaching development goals, such as improving living standards
- Culture of weak regulatory enforcement, and state ownership and regulated energy market structure

Key energy and climate legislation

- **Five-Year Plans for the Development on National Economy and Society**
  - Sets emissions intensity target of 40-45% reduction in emissions intensity per unit GDP below 2005 levels by 2020 and expect future ‘peak and decline’ by 2030 target

- **National Energy Development Plan**
  - Increases share of non-fossil fuel primary energy consumption to 15% by 2020, and indications of achieving 20% share by 2030

Notes: LULUCF is land use, land-use change and forestry activities. The high GDP scenario assumes an annual average of 5.5% real growth over 2020-30. The low GDP scenario assumes an annual average of 3.3% real growth over 2020-30.
South Korea's post-2020 pledge is considered ambitious compared with others in our country rankings, and the official target is stronger than the 15-31% below BAU target that was rumoured prior to the submission of its INDC. Significant abatement and reduction in emissions intensity will be required to 2030, if it wishes to hit the target. This will, however, likely prove difficult, as there are few cheap abatement options in the South Korean economy. The efficiency of its industrial sectors are among the best in the OECD.

The absolute level that South Korea's emissions must drop to in order to meet its 2030 target is similar to that needed to hit its 2020 target. However, we consider it unlikely that South Korea will hit its highly ambitious 2020 goal of a 30% reduction below BAU that implies emissions must fall by almost 20% over 2012-20. This is mainly due to the fact that the country is expanding its fleet of coal-fired power plants to tackle chronic supply constraints. We expect emissions from power generation in South Korea to increase by two thirds over 2013-20.

In its INDC, South Korea stated it will allow the import international credits to help achieve its target. Demand for offsets in South Korea could therefore be significant.

**BNEF analyst opinion**

Notes: LULUCF is land use, land-use change and forestry activities. Government policy projections from South Korea's INDC.

Sources: Bloomberg New Energy Finance, UNFCCC, CAIT
Japan will have to implement new and additional emission reduction policies in order to hit its 2030 target, according to our estimates, which implies that emissions must fall well below the range where they have fluctuated historically. The Japanese government made a final decision on the post-2020 target in June, and submitted its INDC the following month. Japan considered several different pledges, most of which would have resulted in a relatively similar goal for 2030, according to our analysis. Their target appears ambitious in absolute emission terms compared with other countries, and in comparison to our own emissions forecast, but less ambitious in terms of the implied drop in emissions intensity.

Japan appears on track to meeting its 2020 target, which was revised down from 25% below 1990 levels following the Fukushima Daiichi nuclear disaster in 2011. The disaster triggered a complete revision of Japan’s climate change policy and the outlook for Japan’s energy mix. The government released the draft of its long-term energy outlook at end-April and reaffirmed it on 1 June. Our view differs slightly from the government’s, as we forecast a larger share of renewables and gas generation. Non-power sector emissions are, however, a larger contributor to Japan’s total emissions and there is a limited number of abatement opportunities in the already energy efficient industry sectors.

**Push factors**
- Sensitivity to impacts on global reputation
- Desire to achieve a lower-emissions generation mix and to lower reliance on imported fossil fuels

**Pull factors**
- Reality of current state of power sector including the need for imported fossil fuels
- Coal and nuclear are politically favoured technologies
- Nuclear safety concerns

**Climate policy drivers**

**Key energy and climate legislation**

- Provides a long-term outlook on Japan’s energy mix
- Sets numerical targets for different technologies in 2030, including 20-22% nuclear and around 14% renewable generation, up from almost no nuclear and renewables generation in 2013 (excl. hydro)
- Aim to reduce reliance on imported fossil fuels

**Notes:** LULUCF is land use, land-use change and forestry activities. BNEF BAU assumes an average 0.1Gt/yr of sequestration over 2013-30. Government policy projection from Japan’s sixth national communication to the UNFCCC.
AUSTRALIA POST-2020 PLEDGE

BNEF analyst opinion

Australia will need to implement additional policy mechanisms to achieve its 2030 emissions reduction target, which is in line with other OECD countries according to our rankings. Emissions in Australia will fall at a relatively slow rate to 2030 because power sector emissions are expected to remain stubbornly high. In the absence of any policy to decommission coal-fired stations, coal generation will remain high in absolute terms. The expected increase in renewable generation and strong uptake in small-scale PV will mainly meet growth in power demand.

There is also uncertainty around whether Australia will hit its 2020 target, despite a fall in emissions since the mid-2000s. Since assuming office Prime Minister Tony Abbott has repealed the Carbon Pricing Mechanism and has reduced the Renewable Energy Target. Abbott’s new key climate policy mechanism – the Direct Action Plan – is likely to struggle to achieve the 5% reduction on 2000 levels. The Emissions Reduction Fund (ERF) is unlikely to purchase enough abatement to meet the 2020 target with its limited budget, and a mooted Safeguard Mechanism is unlikely to have stringent enough baselines to drive abatement.

Notes: LULUCF is land use, land-use change and forestry activities. Government policy projection from Australia’s Department of the Environment (DOE) emissions projection 2014-15.
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