



## IEAGHG Information Paper: 2015-IP24; INDC's and Implications for CCS

The submission date for countries to send their Intended Nationally Determined Contributions (INDC's) to the UN after March 2015<sup>1</sup>. The idea being that the INDC's were submitted well in advance of COP21. The UNFCCC then would produce a synthesis report in November 2015. This report can be found at:

[http://unfccc.int/files/focus/indc\\_portal/application/pdf/synthesis\\_report\\_-\\_brief\\_overview.pdf](http://unfccc.int/files/focus/indc_portal/application/pdf/synthesis_report_-_brief_overview.pdf)

A total of 147 Parties\* (75% of all Parties to the UNFCCC) responded to this invitation by 1 October 2015. Together, they represent approximately 86% of global greenhouse gas emissions in 2010. The main conclusions from the synthesis report were:

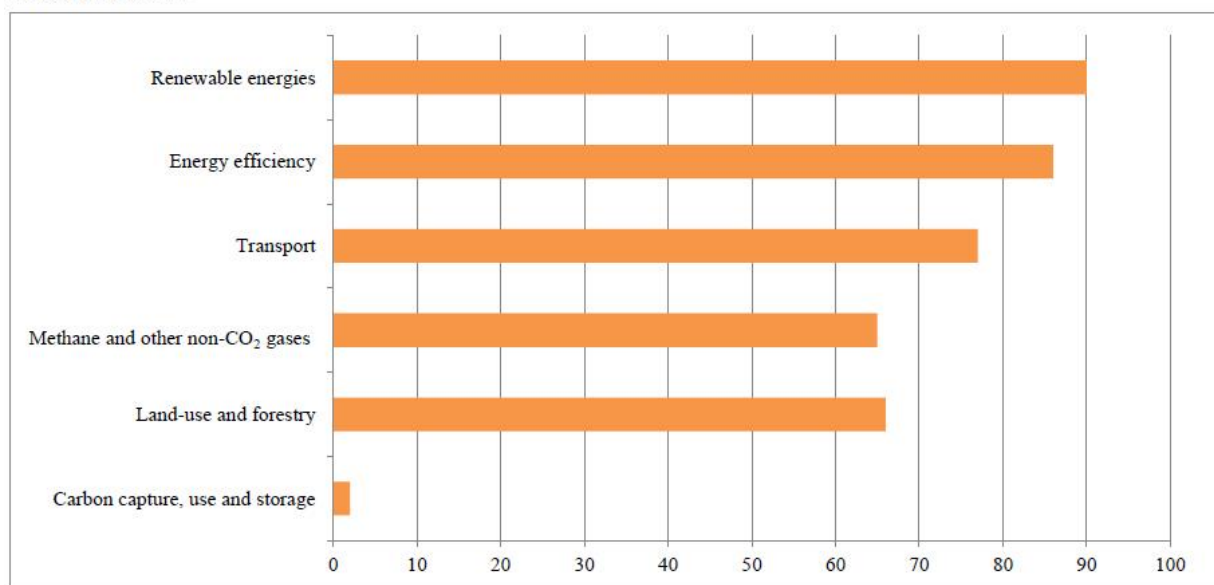
- The INDC's indicate a significant increase in the number of countries taking climate action, and covers a large number of sectors and greenhouse gases.
- The INDC's are expected to deliver sizeable emission reductions and slow down emissions growth in the coming decade. They will, however, not be sufficient to reverse by 2025 and 2030 the upward trend of global emissions.
- The estimated annual aggregate emission levels resulting from their implementation do not fall within least-cost 2 °C scenarios levels.

In terms of their scope the INDC's covered:

- The Sectors covered were the energy, industrial processes and product use, agriculture, LULUCF<sup>2</sup> and waste sectors
- All greenhouse gases

The priority areas for action were presented in Figure 7 of the synthesis report which is reproduced below.

### Priority areas for implementation highlighted in the intended nationally determined contributions



<sup>1</sup> A good reference document on the INDC process and what they should contain can be found at: <http://www.ecofys.com/files/files/ecofys-giz-2014-intended-nationally-determined-contributions-under-unfccc.pdf> for those interested in the process itself.

<sup>2</sup> LULUCF = land use, land-use change and forestry.



As one can see CCS does not figure highly as a priority action for many countries in their INDC's which is extremely disappointing. Renewable energy and energy efficiency came out highest with transport and methane/Non CO<sub>2</sub> GHG mitigation also important.

- Renewable energy related actions highlighted in the INDC's were aimed at increasing the share of and improving access to clean energy through feed-in tariffs, investment programmes for renewable energy generation, and improvement of the grid.
- Actions on energy efficiency, included the modernization of the energy generation and transmission infrastructure, the promotion of smart grids, efficiency improvements in industrial processes, and energy conservation standards.
- Sustainable transport was highlighted in several INDC's with measures such as improving public transport, limiting the import of inefficient vehicles and using fuel efficiency standards.
- Measures to reduce CH<sub>4</sub> and other non-CO<sub>2</sub> gases largely related to improving crop and livestock production, promoting low-carbon agriculture and establishing waste management and recycling programmes as well as waste-to-energy facilities.

There was nothing noted in the synthesis report concerning actions on CCS. A cursory look at some of our members INDC's which mentioned CCS did not reveal anything of value other than there seemed to be an interest in deployment in both the power and industry sectors.

The synthesis report also highlighted that for many Countries adaptation is a priority issue.

The adaptation components include actions in virtually all sectors of national economies. The sectors of highest concern are; water resources, agriculture, health, ecosystems, and forestry. Finance needs of individual Parties for implementing the adaptation actions in their INDC range from USD 100 million to over 200 billion. As IEAGHG's focus is on mitigation, I have not followed this issue further in this note.

Of more relevance is that the outcomes and conclusions from the UNFCCC synthesis report are picked up in another report that provides a detailed understanding of the transformations required to achieve individual country commitments on climate change.

The report entitled: Beyond the numbers: Understanding the transformation induced by INDC's can be found at:

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

The report was produced by the "Modelling and Informing Low-Emission Strategies" (MILES) project which is an international research project comprising 16 leading research teams from around the world. The objective of this report was to understand the implications of INDC's of the 5 countries and 1 region covered by the project (US, China, Japan, EU, Brazil and India), both at a national and global level. The report looked in detail at the implications of INDC's for the low-carbon transformation by and beyond 2030, from energy systems, buildings, transport and industry. The focus of the study on different sectors and in particular energy systems, is most relevant to the work of IEAGHG.

Some of the key conclusions that are relevant to our activities are:

- A significant transition appears in the electricity sector, where INDC's will further drive the transition towards renewables and other low-emissions forms of electricity production.
- In the six major economies assessed individually, CO<sub>2</sub> emissions per unit of electricity production fall by about 40% between 2010 and 2030 and renewable electricity becomes the dominant source of electricity production at about 36% of the electricity mix.



On the downside the report also suggests that:

- Some crucial low-carbon solutions, like CCS, electric vehicles, advanced biofuels, sustainable urban planning, appear unlikely to be developed under the INDC's at the scale and speed required for a 2°C scenario.
- Another concern is that the INDC's would leave too much inefficient and unabated fossil fuel capacity online in 2030 to be coherent with a 2 degrees scenario.

This outcome the authors claim highlights the risks of lock-in into a high carbon trajectory if action is not strengthened quickly. They indicate that Post-Paris policy efforts need to stimulate technology innovation, deployment and diffusion in order to drive down costs in such sectors where insufficient progress is being seen.

Whilst the authors of the MILES study acknowledge that the INDC's imply a significant acceleration of climate action, which is consistent with the UNFCCC line. They also concur that as currently submitted the INDC's may not be enough to keep the below 2°C goal in reach.

They suggest that:

- The Paris Agreement should establish a clear mechanism to allow the regular, predictable and timely revision of national contributions and the global framework.
- New contributions should be based on a vision for the deep decarbonisation of national energy systems. The Paris agreement should foster the development of national deep decarbonisation pathways around 2018.

The message that the Paris agreement should set a clear timeline for ramping up action is fairly common, with speakers I have heard recently already referring to "Beyond Paris". It is feared that without strong messages from Paris that mechanisms for strengthening INDC's until 2020 are needed and a pathway set at Paris the needed signal to investors in the energy sector and beyond, in particular through the announcement of further economy-wide climate policies will not transpire.

One co-benefit identified in both studies is that in addition to helping slow climate change—the INDCs would reduce air pollution and energy dependency, two factors that could convince countries to make their targets more ambitious. In a separate study published in Nature it is estimated that 6.6 million people will die globally by 2050 as a result of air pollution.

In summary:

- Whilst the interest by countries to commit to action to mitigate climate change has grown, the current commitments do not put us on a 2DS scenario
- There seems to be more desire by countries to implement renewable energy than CCS. The latter may risk locking in high emission fossil technology for another decade or more, and putting back the deployment of CCS for the same period.
- Paris needs to set a clear schedule for enhancing the current INDC's before 2020
- Post-Paris the policy community needs to elevate the benefits of CCS in the minds of governments worldwide to get CCS back high on countries agenda's.

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