**FOR IMMEDIATE RELEASE**

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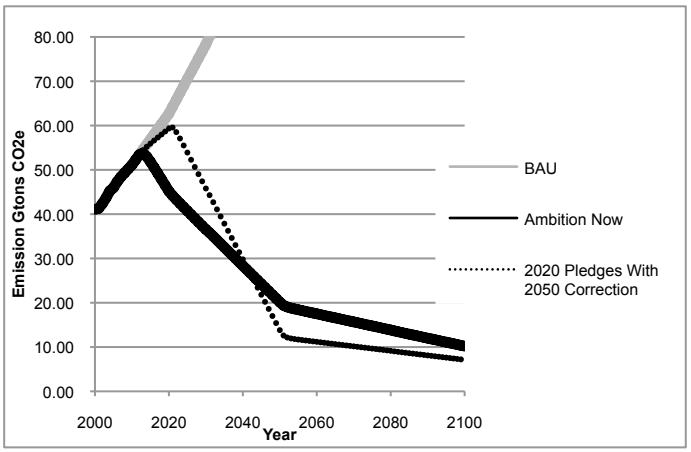
**To Avoid Expensive and Disruptive Rates of Emissions Reduction in Coming Decades Parties Must Increase the Ambition of 2020 Pledges Now**

*Postponing the adoption of ambitious targets until after 2020 would commit countries to rates of $CO_2$ emissions reductions after 2020 far larger than those typically seen in energy system models. The longer the delay in implementing significant emissions reductions, the faster emissions must fall later to limit expected temperature increase to 2°C (3.6 °F). The faster emissions fall, the greater the costs and economic disruption will likely be, reducing the chances that future generations would follow through with such reductions. More ambitious action by 2020 would reduce the rates of reduction needed in later decades, increasing the chances of limiting warming to the 2°C goal.*

In the press and in the halls of the climate negotiations some parties, including the US, have been saying that 2020 pledges are essentially fixed in the form of the voluntary commitments made under the Cancun Agreement, and that current political and economic pressures mean that the time for more ambitious commitments to emissions reductions can come only after 2020.




Two emissions pathways that meet the goal of limiting temperature increase in 2100 to 2°C. The "Ambition Now" closes the 2020 "Emissions Gap" while the "2020 Pledges with 2050 Correction" scenario uses our estimate of 2020 emissions from current UNFCCC pledges and then falls more steeply post-2020 so as to limit 2100 temperature increase to 2°C. From 2020 to 2050 "Ambition Now" requires an average annual decline in emissions of 2.1% of year 2000 emissions while the "2050 Correction" requires a decline of 4.0%.

Using the C-ROADS model, we examined two scenarios for future emissions reductions, both of which would limit temperature change to 2°C. The first scenario has the world already on a '2-degree path' in 2020 (the "Ambition Now" scenario). The second scenario sets 2020 emissions to the amount indicated by the current level of ambition of the Cancun Agreement (as calculated by our Climate Scoreboard[1]), and includes a steeper reduction after 2020 to keep the 2°C goal in reach (the "2020 Pledges with 2050 Correction" scenario). For the "2050 Correction" scenario we had emissions fall steeply enough after 2020 that by 2100 the increase in temperature approximates the temperature increase in the "Ambition Now" pathway.

We compared rates of reduction in $CO_2$ emissions from fossil fuel use between the two scenarios for the period 2020 to 2050 (as a percentage of year 2000 emissions), and found that in the "Ambition Now Scenario" emissions fell at 2.1% per year. In contrast, the "2050 Correction" scenario showed an average rate of reduction of 4.0%.

What would such a rate of decline mean for the world? The 2010 Emissions Gap[2] report reviewed scenarios generated by energy system models (Integrated Assessment Models, or IAMs) and reported that "the highest average rate of emission reductions over the next four to five decades found in the IAM literature is around 3.5 per cent per year."

A 2011 paper[3] examined mitigation scenarios from energy system models. That paper found that the average rate of reduction of industrial $CO_2$ emissions (as a percentage of 2000 emissions), even in stringent scenarios with a greater than 90% chance of limiting temperature increase to 2°C, ranged from 3.1 to 3.3 %.

These studies do not set an absolute upper limit on feasible rates of reductions of emissions. But they do provide a realistic picture of the rates that can be expected without costly measures such as retiring capital stocks dependent on fossil fuels before the end of their useful lives.

To reduce GHG emissions, the carbon intensity of the economy must fall faster than the rate of economic growth. Given the assumptions in C-ROADS about the future growth of world GDP (3.5 % per year in the reference scenario) the carbon intensity of the global economy between 2020 and 2050 would need to fall at a rate of 5.8% per year in the "Ambition Now" scenario and 8.0% per year in the "2050 correction" scenario. Even a 5.8% per year rate of reduction would be a strong departure from historical trends, estimated to be between about 1.3 and 1.7%/year over the past 40 years[45]. Business as usual will not generate the emissions reductions we need. Delaying more ambitious commitments, and the policies needed to implement them, until after 2020, will require even more aggressive actions, with even higher costs and disruption to the economy, and, as a result, even less likelihood of implementation.

Many cost effective mitigation efforts exist today, and the costs will fall as low-carbon, efficient technologies develop and scale. Delaying more ambitious commitments delay these cost reductions and the articulation of the technologies needed to make a sustainable, low-carbon economy a reality.

To propose delayed action is to also propose increased future effort, higher future costs and increased risks of overshooting the 2°C goal if those efforts and costs cannot be sustained. Especially with cost-effective mitigation efforts already at hand[6], the burden is on advocates of delay to justify the increased risks and costs that delay would impose on today's young people and on future generations

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**Additional Data and Notes For Editors:**

Table 1 Change in fossil fuel $CO_2$ emissions and carbon intensity across scenarios

| | Reference Scenario | Ambition Now | 2020 Pledges with 2050 Correction |
|---|---|---|---|
| Change in fossil fuel $CO_2$ emissions as % of 2000 emissions | | | |
| 2012-2020 | 3.9% | -2.1% | 2.7% |
| 2020-2030 | 5.2% | -1.9% | -3.1% |
| 2030-2050 | 6.5% | -2.1% | -4.4% |
| 2020-2050 | **6.1%** | **-2.1%** | **-4.0%** |
| 2050-2100 | 2.2% | -0.58% | -0.39% |
| Change in carbon intensity (annual rate of change of fossil fuel $CO_2$ emissions/GWP) | | | |
| 2020-2050 | -1.0% | -5.8% | -8.0% |

Table 2. Cumulative emissions and 2100 temperature increase

| | Reference Scenario | Ambition Now | 2020 Pledges with 2050 Correction |
|---|---|---|---|
| Cumulative Emissions 2012-2050 | | | |
| $CO_2$ ($GtonsCO_2$) | 2452 | 1060 | 1212 |
| $CO_2e$ ($GtonsCO_2e$) | 3216 | 1401 | 1604 |
| Cumulative Emissions 2012-2100 ($GtonsCO_2$) | | | |
| $CO_2$ ($GtonsCO_2$) | 7696 | 1631 | 1586 |
| $CO_2$ ($GtonsCO_2e$) | 9809 | 2121 | 2076 |
| 2100 Temperature Change from Preindustrial | | | |
| Mean (Deg C)<br>Range | 5.0<br>(3.0 – 8.0) | 2.0<br>(1.2 -3.2) | 2.0<br>(1.2 -3.2) |
| Mean (Deg F)<br>Range | 9.0<br>(5.4 to 14.4) | 3.6<br>(2.2 to 5.8) | 3.6<br>(2.2 to 5.8) |

Raw data in xls form is available at:
http://climateinteractive.org/scoreboard/press/durban-cop17-press-release

**Additional Background:**
The C-ROADS (Climate - Rapid Overview And Decision Support) climate policy simulator is a scientifically sound tool that enables users to rapidly evaluate the impact of national greenhouse gas (GHG) emissions reduction policies on key climate impacts including per-capita emissions, atmospheric GHG concentrations, mean global temperature and sea level, through 2100. C-ROADS has been carefully calibrated to the best available peer reviewed science, including the Fourth Assessment Report of the IPCC. The scientific review panel that assessed the model concluded that C-ROADS "reproduces the response properties of state-of- the-art three dimensional climate models very well.... Given the model's capabilities and its close alignment with a range of scenarios published in the Fourth Assessment Report of the IPCC we support its widespread use among a broad range of users and recommend that it be considered as an official United Nations tool." C-ROADS was developed by the Climate Interactive, MIT Sloan School of Management, and Ventana Systems. Full documentation and details are available at http://www.climateinteractive.org/simulations/C-ROADS/overview

- C-ROADS draws upon and is intended to complement the insights of other, more disaggregated models such as MAGICC, MINICAM, EPPA, AIM and MERGE.

- The development and use of C-ROADS has been supported by Zennström Philanthropies, The Morgan Family Foundation, The Rockefeller Brothers Fund, ClimateWorks Foundation and others.

- Climate Interactive is a non-profit organization and a project of the Washington D.C. based New Venture Fund, USA

## References


[1] http://climateinteractive.org/scoreboard
[2] The Emissions Gap Report. UNEP. 2010 p. 13
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[3] Rogelj, J. et al. 2011. *Emission pathways consistent with a 2°C global temperature limit* Nature Climate Change, 1: 413.
[4] Canadell, J. 2007. Contributions to accelerating atmospheric CO2 growth from economic activity, carbon intensity, and efficiency of natural sinks. PNAS. 104(47): 18866-18870
[5] P. Friedlingstein et al. 2010.*Update on CO2 emissions.* Nature Geoscience. 3: 811–812.
[6] Bridging the Emissions Gap. UNEP 2011.
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