ANALYSIS OF THE PROPOSALS FOR GHG REDUCTIONS in 2020 MADE BY UNFCCC ANNEX I COUNTRIES BY MID-AUGUST 2009
Summary of pledges as of August 2009

<table>
<thead>
<tr>
<th>Country</th>
<th>Conservative interpretation</th>
<th>Optimistic interpretation</th>
<th>Reference year</th>
<th>LULUCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUSTRALIA</td>
<td>-5%</td>
<td>-25%</td>
<td>2000</td>
<td>Yes</td>
</tr>
<tr>
<td>CANADA</td>
<td>-20%</td>
<td>-20%</td>
<td>2006</td>
<td>t.b.d.</td>
</tr>
<tr>
<td>EU</td>
<td>-20%</td>
<td>-30%</td>
<td>1990</td>
<td>Not for 20%</td>
</tr>
<tr>
<td>JAPAN</td>
<td>-15%</td>
<td>-25%</td>
<td></td>
<td>Not for 15%</td>
</tr>
<tr>
<td>NEW ZEALAND</td>
<td>-10%</td>
<td>-20%</td>
<td>1990</td>
<td>Yes</td>
</tr>
<tr>
<td>NORWAY</td>
<td>-30%</td>
<td>-30%</td>
<td>1990</td>
<td>Yes</td>
</tr>
<tr>
<td>SWITZERLAND</td>
<td>-20%</td>
<td>-30%</td>
<td>1990</td>
<td>Yes</td>
</tr>
<tr>
<td>UKRAINE</td>
<td>-20%</td>
<td>-20%</td>
<td>1990</td>
<td>?</td>
</tr>
<tr>
<td>USA</td>
<td>-1%</td>
<td>-17%</td>
<td>1990</td>
<td>Yes</td>
</tr>
<tr>
<td>RUSSIA</td>
<td>10%</td>
<td>15%</td>
<td>1990</td>
<td>?</td>
</tr>
</tbody>
</table>
Emission changes implied by the pledges

GHG emissions relative to 1990

Baseline projection  Optimistic pledges  Range to conservative pledges
## Mitigation costs on a per-GDP basis

<table>
<thead>
<tr>
<th>Country</th>
<th>Mitigation costs (as % of GDP)</th>
<th>Revenues from sale of carbon permits (% of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>-3.5%</td>
<td>-3.5%</td>
</tr>
<tr>
<td>Canada</td>
<td>-3.0%</td>
<td>-3.0%</td>
</tr>
<tr>
<td>EU 27</td>
<td>-2.5%</td>
<td>-2.5%</td>
</tr>
<tr>
<td>Japan</td>
<td>-2.0%</td>
<td>-2.0%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>-1.5%</td>
<td>-1.5%</td>
</tr>
<tr>
<td>Norway</td>
<td>-1.0%</td>
<td>-1.0%</td>
</tr>
<tr>
<td>Russia</td>
<td>-0.5%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>0.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Ukraine</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>USA</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Total</td>
<td>1.5%</td>
<td>1.5%</td>
</tr>
</tbody>
</table>

- **Blue** indicates without use of international CDM/REDD permits.
- **Orange** indicates with CDM/REDD permits at 20 €/t CO2.
Co-benefits on air pollution emissions from the current pledges

High pledges

<table>
<thead>
<tr>
<th>Country</th>
<th>SO2</th>
<th>NOx</th>
<th>PM2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>-35%</td>
<td>-30%</td>
<td>-25%</td>
</tr>
<tr>
<td>Canada</td>
<td>-35%</td>
<td>-30%</td>
<td>-25%</td>
</tr>
<tr>
<td>EU 27</td>
<td>-35%</td>
<td>-30%</td>
<td>-25%</td>
</tr>
<tr>
<td>Japan</td>
<td>-35%</td>
<td>-30%</td>
<td>-25%</td>
</tr>
<tr>
<td>New Zealand</td>
<td>-35%</td>
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<td>Russia</td>
<td>-35%</td>
<td>-30%</td>
<td>-25%</td>
</tr>
<tr>
<td>Switzerland</td>
<td>-35%</td>
<td>-30%</td>
<td>-25%</td>
</tr>
<tr>
<td>Ukraine</td>
<td>-35%</td>
<td>-30%</td>
<td>-25%</td>
</tr>
<tr>
<td>USA</td>
<td>-35%</td>
<td>-30%</td>
<td>-25%</td>
</tr>
<tr>
<td>Annex I</td>
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<tr>
<td>With CDM</td>
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<td>-30%</td>
<td>-25%</td>
</tr>
<tr>
<td>Low pledges</td>
<td>-35%</td>
<td>-30%</td>
<td>-25%</td>
</tr>
</tbody>
</table>
Conclusions

- Current Annex I pledges imply for 2020 -6% to -17% GHG reductions relative to 1990

- Substantial over-allocation for Russia and Ukraine – significant implications if put on the carbon market

- In such a case, costs of high pledges amount to 0.14% of GDP of Annex I, (for comparison a 42% increase in GDP by 2020 is assumed)

- 7-9% lower air pollutant emissions as a co-benefit of GHG mitigation measures; use of CDM would reduce these co-benefits.