Iceland’s emissions profile and trends

- Small population (320,000) and overall emissions (4.6 m tons); 15 tons per capita
- Unusual emissions profile (industrial processes and transport biggest sectors)
- Highest share of renewables in OECD: 72% of total energy use; 100% of stationary energy
- Abundant renewable energy sources (hydro, geothermal)
- Abundant carbon sequestration opportunities (afforestation, revegetation)

De-carbonization of energy production:
- Energy production = 5% of total emissions (CO2 from geothermal)
- Emissions from energy production = 260+ thousands tons; would be over 10 million tons CO2 with fossil fuels

Current commitments under Kyoto

- Greenhouse gas emissions from Iceland may not increase more than 10% over and above 1990 levels; that is, they must remain within approximately 3,800 thousand tonnes of CO2 equivalents per year, on the average, during the period 2008-2012.
- It is authorised, however, to emit additional CO2 from new heavy industry originating after 1990, if that industry meets the conditions of Decision 14/CP.7, though the emissions may not exceed 1,600 thousand tonnes per annum, on average, during the period 2008-2012.
**Emissions trends and Kyoto-commitments**

Iceland has increased emissions from energy-intensive industries; stays within Kyoto limits by applying Dec. 14/CP.7

**Iceland and the EU-ETS**

- Iceland is part of EU-ETS as a part of the European Economic Area. Aviation enters in 2012, heavy industry in 2013.
- Sectors entering in 2013: Aluminium, ferrosilicon, mineral wool, fishmeal production
- Legislation already in force regarding aviation, a new legislation is currently being drafted for the revised ETS
- Some issues regarding regarding the application of the revised EU-ETS to be discussed with EU, regarding benchmarks et.al.

**Government 2007 Climate Strategy**

- Iceland will fulfill its international obligations according to the UNFCCC and the Kyoto Protocol.
- Greenhouse gas emissions will be reduced, with a special emphasis on reducing the use of fossil fuels in favour of renewable energy sources and climate-friendly fuels.
- The government will attempt to increase carbon sequestration from the atmosphere through afforestation, revegetation, wetland reclamation, and changed land use.
- Long-term aspirational goal: 50-75% net emissions cuts to 2050
- The government will support research and innovation in climate mitigation and will promote transfer of Icelandic expertise in renewable energy and climate-friendly technology.
- The government will prepare for adaptation to climate change.

**Iceland’s Mitigation Potential:**

- Expert Committee’s 2009 Study: Analysis of climate mitigation potential in Iceland
- Options to reduce net emissions evaluated according to size of reduction and cost
- Find: Significant mitigation potential at low and moderate cost
- Actions with negative cost can reduce emission by 4% by 2020
- Actions that cost 0-20 Euros could reduce net emissions by 19%
- Afforestation and revegetation offer the most significant mitigation potential
- Significant mitigation potential in transport and fisheries
- Insignificant mitigation potential in energy production – which offers the highest mitigation potential in many countries – due to almost 100% reliance on renewables

**Mitigation Actions – scale and cost**

- Action Plan takes account of 2007 Strategy and likely international commitments; builds on 2009 expert study on mitigation potential and cost
- Ten “key actions” are to cut net emissions, so that they will be 1.2-1.7 million tons less than they would have been in 2020
- Key actions should ensure that Iceland can honour its post-2012 commitments in the period up to 2020
- Highest mitigation potential in LULUCF: afforestation and revegetation
- Significant mitigation potential in transport and fisheries
- Heavy industry must acquire emission permits after 2012
- Net emissions in non-ETS sectors should decrease appr. 30% from 2005 to 2020
- Actions in non-ETS sectors should lead to 16% cuts in emissions from 2005 to 2020; with carbon sequestration cuts in net emissions should be over 30%
- Action Plan to be reviewed in 2012, with more clarity in international commitments
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Ten Key Actions

1. Application of EU-ETS to relevant sectors
2. Carbon tax
3. Change in taxes and fees for cars and fuels
4. Official procurement of low-carbon and fuel efficient vehicles
5. Increased share of public transport, walking and bicycling in transport
6. Biofuels for the fishing fleet
7. Electrification of fish meal production (currently using
8. Increased afforestation and revegetation
9. Restoration of drained wetlands
10. Increased R&D in climate-friendly technology

- Total: 1330-1570 Gg less net emissions per year by 2020 (emissions were 4600+ Gg 2008)

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Table: Ten Key Actions

<table>
<thead>
<tr>
<th>Sector</th>
<th>Emissions 1990 (Gg)</th>
<th>Emissions 2008 (Gg)</th>
<th>Emissions 2020 (Gg)</th>
<th>Change 1990-2020 (%)</th>
<th>Change 2005-2020 (%)</th>
<th>Change 2008-2020 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy industry (aluminium and ferrosilicon)</td>
<td>761</td>
<td>1007</td>
<td>1112</td>
<td>210%</td>
<td>170%</td>
<td>130%</td>
</tr>
<tr>
<td>Transport</td>
<td>648</td>
<td>815</td>
<td>579</td>
<td>-32%</td>
<td>-20%</td>
<td>-5%</td>
</tr>
<tr>
<td>Fisheries</td>
<td>758</td>
<td>200</td>
<td>150</td>
<td>-80%</td>
<td>-79%</td>
<td>-80%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>719</td>
<td>800</td>
<td>650</td>
<td>-16%</td>
<td>-12%</td>
<td>-16%</td>
</tr>
<tr>
<td>Other</td>
<td>164</td>
<td>227</td>
<td>216</td>
<td>-11%</td>
<td>-6%</td>
<td>-11%</td>
</tr>
<tr>
<td>Energy Production</td>
<td>727</td>
<td>228</td>
<td>230</td>
<td>2%</td>
<td>-3%</td>
<td>-9%</td>
</tr>
<tr>
<td>Total</td>
<td>2904</td>
<td>3024</td>
<td>2420</td>
<td>9%</td>
<td>16%</td>
<td>20%</td>
</tr>
<tr>
<td>LULUCF (afforestation and revegetation)</td>
<td>0</td>
<td>371</td>
<td>775</td>
<td>3%</td>
<td>-3%</td>
<td>-9%</td>
</tr>
<tr>
<td>Total (excluding heavy industry &amp; including LULUCF)</td>
<td>2904</td>
<td>2693</td>
<td>1645</td>
<td>38%</td>
<td>32%</td>
<td>38%</td>
</tr>
</tbody>
</table>

Action Plan analysis of sectoral emissions developments and goals

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Model for emissions from non-ETS sectors 2005-2020

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Graphs: Ten Key Actions

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Graphs: Ten Key Actions

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Graphs: Ten Key Actions

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Graphs: Ten Key Actions
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LULUCF - Background

- Large part of Iceland has little or no vegetation
- 1.7 million hectares (17 thousand km²) of land below 500 m are severely degraded
- Natural birch woodland was in steady decline from the settlement of Iceland (870 AD) until the late 20th century. An estimated 95% of the natural birch woodland was deforested

LULUCF activities - Revegetation

- Iceland elected revegetation under Art. 3.4 of the Kyoto Protocol
- 78 kha of land were revegetated in the period 1990 - 2009
- Sequestration in 2009 resulting from revegetation activities since 1990 amounts to 194 Gg CO₂.
- After revegetation, carbon sequestration continues for 30 - 60 years

Afforestation

- Forests now cover 119.6 kha of Iceland – corresponding to 1.16% of the total land area:
  - Natural birch forest 85.0 kha
  - Cultivated forest 34.6 kha
- 28.7 kha of land has been afforested in the period 1990 - 2009
- Carbon sequestration in 2009 resulting from afforestation amounts to 147.7 Gg CO₂

Wetland drainage and rewetting

- New activity under Art. 3.4
- Following invitation by the UNFCCC: *IPCC at its 33rd session approved the development of a 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*
- Will be completed before the 39th session of SBSTA in 2013
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LULUCF - summary:
- Large potential for afforestation and revegetation
- Active participation in forming UNFCCC rules
- Win-win opportunities
- Relatively cost-effective
- Investment in better methodology for measuring and verifying

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Iceland’s current and future international and EU commitments
- Iceland feared complex double regulation (Kyoto & 14/CP.7 + EU regulation) of emissions post-2012. A solution to this was seen in joining the EU “bubble” and taking up all relevant EU legislation
- A letter suggesting this was sent by Iceland to the EU Presidency in summer 2009. Prior, two consulting meetings had been held between Iceland and DG Environment experts
- EU Council welcomes Iceland’s proposal 9 Dec 2009:
  EU Council WELCOMES the strong interest of Iceland to adhere fully to the EU Climate and Energy Package and to undertake the same emission reduction commitments as the EU with regard to a future international climate agreement.
  NOTES WITH APPRECIATION the request by Iceland to conclude a joint fulfilment agreement with the EU for the emission reduction commitments that the EU and Iceland may undertake in the framework of a future international climate agreement.
  INVITES the European Commission to present a recommendation for the opening of the necessary negotiations with Iceland that is in line with the principles and a time set out in the EU’s Climate and Energy Package, ensures its environmental integrity and its overall ambition level, including emission reduction commitments, with a view to concluding such an agreement ahead of the ratification of a future international climate agreement by the EU and its member states.

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Iceland’s UNFCCC pledges and likely future commitments
- “30% reduction, in a joint effort with the European Union, as part of a global and comprehensive agreement for the period beyond 2012, provided that other developed countries commit themselves to comparable emissions reductions and that developing countries contribute adequately according to their responsibilities and respective capabilities”
- “The Government of Iceland decided on May 29 2009 to reduce net GHG emissions by 15 per cent by 2020, compared to 1990 levels. In real terms this ambition entails 25 per cent reduction compared to the target acceded to Iceland in the Kyoto Protocol. This target is dependent upon the continuation of the decisions included in the Marrakech Accords, in particular the continuation of LULUCF and of Decision 14/CP.7. Iceland has previously adopted the long-term goal of reducing emissions by 50-75 per cent until 2050.”

Iceland’s likely commitments up to 2020:
- 1) Emissions from heavy industry and aviation fall under EU-ETS,
- 2) Net emissions from other sectors (including LULUCF) need to be cut by appr. 30% to 2020, compared to 2005

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THANK YOU!