

## **Iceland's emissions for the Kyoto CP1**

This letter is aimed to reason and explain Iceland's retirement on KP units valid for CP1.

Iceland is a party to the UNFCCC and acceded to the Kyoto Protocol on May 23<sup>rd</sup>, 2002. Earlier that year the government adopted a climate change policy that was formulated in close cooperation between several ministries with the aim to curb emissions of greenhouse gases so they do not exceed the limits of Iceland's obligations under the Kyoto Protocol. In February 2007 a new climate change strategy was adopted by the Icelandic government which sets forth a long-term vision for the reduction of net emissions of greenhouse gases by 50-75% by the year 2050, using 1990 emissions figures as a baseline. An Action plan for climate change mitigation was adopted in 2010 which builds on an expert study on mitigation potential and cost from 2009 and takes account of the 2007 climate change strategy and likely international commitments. In 2012 the first yearly progress report was published, where the emissions and removals are compared with the goals put forward in the Action plan.

Iceland submitted its Intended Nationally Determined Contribution (INDC) to the UNFCCC on June 30th 2015, where it aims to be part of a collective delivery by European countries to reach a target of 40% reduction of greenhouse gas emissions by 2030 compared to 1990 levels. Iceland is part of the EU's Emission Trading System, which will become a significant part of Iceland's mitigation profile in the coming years.

### ***Decision 14/CP.7***

The Government of Iceland notified the Conference of the Parties with a letter, dated October 17th 2002, of its intention to avail itself of the provisions of Decision 14/CP.7. Emissions that fall under Decision 14/CP.7 are not excluded from national totals in the NIR report, as Iceland will undertake the accounting with respect to the Decision at the end of the commitment period.

Decision 14/CP.7 allows Iceland to report certain industrial process carbon dioxide emissions separately and not include them in national totals to the extent they would cause Iceland to exceed its assigned amount. The total amount that can be reported separately under this decision is set at 8 million tonnes or on average at 1.6 million tonnes of carbon dioxide per year. Only parties where the total carbon dioxide emissions were less than 0.05% of the total carbon dioxide emissions of Annex I Parties in 1990 calculated in accordance with the table contained in the annex to document FCCC/CP/1997/7/Add.1 can avail themselves of this Decision. The total carbon dioxide emissions in Iceland in 1990 amounted to 2158.6 Gg and the total 1990 CO<sub>2</sub> emissions from all Annex I Parties amounted to 13,728,306 Gg (FCCC/CP/1997/7/Add.1). Iceland's CO<sub>2</sub> emissions were thus less than 0.016% of the total carbon dioxide emissions of Annex I Parties in 1990, which is less than 0.05%.

The Kyoto Protocol commits Annex I Parties to individual, legally binding targets for their greenhouse gas emissions during the first commitment period. Iceland's obligations according to the Kyoto Protocol are as follows:

- For the first commitment period, from 2008 to 2012, the greenhouse gas emissions shall not increase more than 10% from the level of emissions in 1990. Iceland AAU's for the first commitment period amount to 18,523,847 tonnes of CO<sub>2</sub>-equivalents.
- Decision 14/CP.7 on the "Impact of single projects on emissions in the commitment period" allows Iceland to report certain industrial process carbon dioxide emissions separately and not include them in national totals to the extent they would cause Iceland to exceed its assigned amount. For the first commitment period, from 2008 to 2012, the carbon dioxide emissions falling under decision 14/CP.7 shall not exceed 8,000,000 tonnes.

## **Calculations**

Iceland's initial AAUs for the first commitment period amount to 18,523,847 tonnes of CO<sub>2</sub>-equivalents for the period or 3,704,769 tonnes per year on average. Added to that are a total of 1,541,960 RMUs from Art. 3.3 and Art. 3.4 activities resulting in an available assigned amount of 20,098,931 AAUs.

Emissions from Annex A sources during CP1 were **23,356,066** tonnes CO<sub>2</sub>-eq. This means that Annex A emissions were 3,257,135 tonnes CO<sub>2</sub> in excess of Iceland's available assigned amount.

Total CO<sub>2</sub> emissions falling under Decision 14/CP.7 during CP1 were **6,079,323** tonnes CO<sub>2</sub>. Therefore, in order to comply with its goal for CP1, would Iceland report **3,257,135** tonnes of the CO<sub>2</sub> emissions falling under decision 14/CP.7 separately and not included them in national totals.

In the decision a single project is defined as an industrial process facility at a single site that has come into operation since 1990 or an expansion of an industrial process facility at a single site in operation in 1990.

For the first commitment period, industrial process carbon dioxide emissions from a single project which adds in any one year of that period more than 5% to the total carbon dioxide emissions in 1990 shall be reported separately and shall not be included in national totals to the extent that it would cause Iceland to exceed its assigned amount, provided that:

- Renewable energy is used, resulting in a reduction in greenhouse gas emissions per unit of production (Article 2(b));
- Best environmental practice (BEP) is followed and best available technology (BAT) is used to minimize process emissions (Article 2(c));

According to the 2014 NIR Report for Iceland, four projects fulfilled the provisions of Decision 14/CP.7 in 2012, all three Icelandic aluminium plants and the single ferrosilicon plant:

- The expanded part of the Rio Tinto Alcan Aluminium plant at Straumsvík
- The Alcoa Fjarðaál Aluminium plant at Reyðarfjörður
- The Century Aluminium plant at Grundartangi
- The expanded part of the Elkem Iceland Ferrosilicon plant at Grundartangi

## **Recalculation**

In the report on the individual review of the annual submission of Iceland submitted in 2014, the ERT noted that two of the projects (Rio Tinto Alcan (aluminium) and Elkem (ferrosilicon)) include both physical expansion (installation of the new line at the Rio Tinto project and a new furnace at the Elkem project) and process improvements, which led to an increase in production at the old facilities. Thus, the ERT concluded that industrial processes CO<sub>2</sub> emissions from the new installations at the Rio Tinto (line 3) and Elkem (furnace 3) are eligible for the provisions of decision 14/CP.7. And industrial processes CO<sub>2</sub> emissions from the process improvements for line 1 and 2 at the Rio Tinto (130,345 tonnes); and furnace 1 and 2 at Elkem (36,014 tonnes) are not eligible for the provisions of decision 14/CP.7.

Therefore, the sum (166,359 tonnes) is subtracted from decision 14/CP.7 so it is now **5,912,964 tonnes** (6,079,323-166,359).

As previously mentioned, Emissions from Annex A sources during CP1 were **23,356,066** tonnes CO<sub>2</sub>-eq.

**Emissions with the exception of decision 14/CP.7: 23,356,066-5,912,964 = 17,443,107.**

**Part of decision 14/CP.7 that is covered by Emissions from Annex A sources during CP1: 2,655,824**  
(20,098,931-17,443,107).

**Reported separately under decision 14/CP.7: 3,257,140** (5,912,964-2,655,824).

On November 17th 2015, Iceland retired total of **20,098,931** units to the CP1 Retirement account in the Union Registry.

## **Further information on the application of Decision 14/CP.7**

Iceland has provided detailed information on its application of Decision 14/CP.7 and its individual provisions, including in its National Inventory Reports, see for example the information given in the 2014 NIR, pp. 75-86. Only a quick summary will be provided here on some of the key provisions of Decision 14/CP.7, and how Iceland sees that these provisions have been fulfilled.

### ***Definition of „single project“ and the 5 per cent threshold (Article 1 and 2)***

The questions relating to definition of a „single project“ is discussed above. Iceland applies, in accordance to ERT conclusions, that a single project applies to new plants and physical expansion of existing projects. Four projects fulfil the requirement of Article 2 that the project adds to more than 5 per cent of the total carbon dioxide emissions in 1990.

### ***Use of renewable energy (Article 2(b))***

Practically all electricity in Iceland is produced with renewable energy sources: hydropower and geothermal. Electricity, produced with fuel combustion is only 0.010% of the electricity production. All electricity used in heavy industry, including the four projects in question, is produced from renewable energy sources.

### ***Use of best environmental practice and best available technology (Article 2(c))***

Compliance with BAT has been demonstrated by comparing CO<sub>2</sub>, PFC, fluoride, dust and SO<sub>2</sub> to benchmark values given in the IPPC Reference Document on Best Available Techniques (BREF) in the Non Ferrous Metals Industries from December 2001. Detailed in-depth information is given for each of the four projects for examples in the 2014 NIR. In Iceland's view this information clearly demonstrates how each of the projects complies with the use of best environmental practice and best available technology, and that this has resulted in minimal emissions of polluting gases from industrial processes, including of PFCs, which are potent greenhouse gases.

### ***Estimation of emission savings resulting from the use of renewable energy (Article 5)***

As stated above, all energy used for heavy industry in Iceland, including the four projects that fall under the definitions of Dec. 14/CP.7, comes from renewable sources: hydro and geothermal. Weighted average GHG emissions from electricity production in Iceland were 11 g/kWh in 2012. In a global comparison, 51% of the power for aluminium smelting comes from coal, 41% from hydro, 5% from natural gas, 2% from nuclear and less than 1% from oil. It could be assumed, given these numbers, that if the 3 aluminium smelting projects had not been located in Iceland, taking advantage of its supply of renewable energy, over half of the electricity would have been provided by burning fossil fuels. A similar case can be made for the production of ferrosilicon. For calculation of the resulting emission savings by using renewable energy, a comparison was made in the 2014 NIR with a gas fired power plant with 55% efficiency (a cleaner source than coal, the main power source, but higher emitting than hydro, the second largest source). The result of this comparison showed that the emissions savings from the four projects was some 19,1 million tons of CO<sub>2</sub> for a 5 year period, or 3.8 million tons per year. This is comparable to Iceland's total emissions regulated by the Kyoto Protocol in 1990. Of course, these estimates can change if other premises are used as a base for the calculations. All such calculations would, however, show savings of emissions in a global context, and quite sizable savings when compared with Iceland's overall emissions.