# 3. Policies and measures

## 3.1 Key issues

In 1995 the Government of Iceland adopted an implementation strategy based on the commitments in the Framework Convention. The domestic implementation strategy has been revised, based on the commitments in the Kyoto Protocol and the provisions of the Marrakesh Accords. On March 5, 2002, the Government adopted this new strategy. On April 20th, the Icelandic Parliament approved a motion authorizing the government to ratify the Kyoto Protocol. Iceland deposited its instruments of ratification of the Kyoto Protocol on May 23, 2002.

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.
- For the first commitment period, from 2008 to 2012, the mean annual carbon dioxide emissions falling under decision 14/CP.7 on the "Impact of single project on emissions in the commitment period" shall not exceed 1,600,000 tons.

## 3.2 Policy development process

The Ministry for the Environment formulated the climate change policy in close collaboration with the ministries of Transport and Communications, Fisheries, Finance, Agriculture, Industry and Commerce, Foreign Affairs and the Prime Minister's Office.

The aim of the policy is to curb emissions of greenhouse gases so that they do not exceed the limits of Iceland's obligations under the Kyoto Protocol. A second objective is to increase the level of carbon sequestration resulting from reforestation and revegetation programs. The policy will be a reviewed in the year 2005.

*Box 3.1:*

### Icelandic climate policy

1. Changes in taxation creating incentives to use small diesel cars.
2. Consultation process with aluminum smelters to ensure that PFC emissions from the aluminum industry will be minimized.
3. The fishing industry will be encouraged to increase energy efficiency.
4. Further reduction of waste disposals, especially in terms of organic waste.
5. Increasing annual carbon sequestration.
6. Increased research and development.
7. Increased emphasis on information and public awareness.

Also relevant is a new strategy for sustainable development, "Welfare for the Future", that the government approved in July 2002.
The strategy provides a framework for sustainable development for the next two decades. Seventeen objectives are discussed, each containing several sub-goals, and possible measures for implementation are listed.

Another influential factor is the European Economic Agreement, to which Iceland is party and must therefore implement relevant directions of the EU.

Iceland has two administrative levels, and local authorities work alongside the central government in implementing many of the climate-related policies. In recent years Icelandic municipalities have done considerable work in forming their own sustainable development policy under the label of Local Agenda 21.

The following sections give an overview of the policies and measures in the policy documents listed above, and how they relate to the different sectors of society.

## 3.3 The energy sector

Measures related to electricity generation and household energy efficiency form the backbone of the climate policy of many industrialized countries. In Iceland the situation is very different, given the fact that the country already relies heavily on renewable energy sources to provide heating and electricity. More than 80% of GHG emissions from energy come from mobile sources (transport on land and fishing vessels) where cuts in emissions are generally considered more difficult to achieve than from stationary energy sources.

The proportion of renewable energy in the total primary energy supply is presently around 70%, but Iceland's newest strategy for sustainable development states the goal of decreasing the share of fossil fuels even further in coming decades. The aim is that transport will use energy from renewable energy resources as soon as it is economically feasible to do so. This policy will be further discussed in the section on transport and the section on research and development.

## 3.4 The transportation sector

Transportation is one of the fastest growing sources of greenhouse gas emissions in Iceland. In 2000 the transport sector was responsible for 30% of total GHG emissions in the country.

One of the main measures listed in the Icelandic climate change policy is a change in the taxation system that will provide added incentives for the use of small diesel cars. In the current system owners of diesel cars pay a special tax every year, depending on the weight of their vehicle. The owners have a choice of a fixed tax or a milage tax. The proposed change aims at transferring the taxes into user charge tax for using diesel fuel. This change is expected to result in a transfer of around 10% of current gasoline use to the diesel fuel and a corresponding decrease in GHG emission.

Other measures in this sector that are listed in the government policy include:

- Review of import fees for vehicles to determine if changes in fees are a feasible option to increase the share of energy-efficient vehicles;
- Increased coordination of traffic lights;
- Increased emphasis on short travel distances in physical planning of urban areas;
- Improvement of public transportation systems;

The Ministry of Finance will be responsible for implementing this change in taxation, but other policy measures related to the transport sector fall under the Ministry of Transport and Communication.

*Box 3.2:*

### International hydrogen projects

The Icelandic government has offered political support to those interested in developing hydrogen as an energy carrier in the transport sector, which would greatly reduce GHG emissions from mobile sources. In 1997 the Ministry of Industry and Commerce appointed a special committee to explore available options for use of domestic renewable energy resources in relation to hydrogen and methanol. The committee recommended the establishment of a private company whose function was to maintain foreign contacts made by committee members, and to support further research and development. The company, Icelandic New Energy, was formed shortly thereafter and is a joint venture owned by VistOrka hf. (a common platform for most energy companies in Iceland), Daimler Chrysler, Norsk Hydro and Shell Hydrogen. Foreign companies see Iceland as an ideal testing site for hydrogen projects because of the small size of society, the availability of renewable energy and the political commitment of the Icelandic government to the issue. The hydrogen projects are discussed in more detail in chapter 7.

### *3.4.1 Policies on the local level*

Implementation of some of the measures listed above can only be achieved in cooperation with local governments. This is especially relevant to urban planning and improvement of public transportation systems. The participation of Icelandic municipalities in Local Agenda 21 has greatly increased their awareness of environmental issues, including climate change, and many municipalities have integrated measures to cut GHG emissions in the transport sector in their planning.

Reykjavik, the capital of Iceland, is the largest municipality with almost 40% of the population. Reykjavik's environmental policy states the objective of contributing to Iceland's task of fulfilling its

obligations under the UNFCCC. The city already participates in two transport-related projects that could help reach this goal:

- Reykjavik takes part in ECTOS, an international hydrogen project, in cooperation with Icelandic New Energy, Daimler-Chrysler and Shell Hydrogen. Experiments with public buses using hydrogen as the energy carrier are to begin in the later half of 2003.
- SORPA, an independent waste management firm owned by Reykjavik and six other municipalities, has been experimenting with using methane from landfills as a vehicle fuel. As of fall 2002, 38 vehicles fuelled by methane were in use in the Reykjavik area.

Another example of a municipality that has integrated measures to curb emissions of GHG in the transport sector is Akureyri, a town of 15,000 inhabitants, located in northern Iceland. In its municipal planning for 1998-2018, the town states its goal of keeping GHG emissions from transport at the same level as in 2000. Several measures are listed to reach this objective, with dates when specific measures are to be implemented.

## 3.5 The fisheries sector

Fisheries is another sector that is important in terms of GHG emissions in Iceland, and the use of fossil fuels for fishing vessels explains about 26% of total GHG emissions in the year 2000. Use of HFCs in cooling systems onboard fishing vessels also adds to GHG emissions.

As is the case with transport on land, reductions in emissions from fishing vessels are difficult to achieve. Emissions are expected to rise somewhat due to an increase in catch, but the government policy states that a major objective in the fisheries sector is to improve energy efficiency, thereby minimizing the energy needed per ton of fish-catch. Three measures are specifically listed in the policy:

- To educate vessel owners and fishers about the importance of energy saving and options available to increase energy efficiency.
- To encourage the equipping of new vessels entering the fishing fleet with the best available technology in terms of energy efficiency.
- To reduce use of HFC cooling systems. Currently the use of HFCs is banned with the exception of use for cooling systems and in certain medical applications.

The Ministry of Fisheries is responsible for implementation of climate change policies in the fisheries sector.

## 3.6 Industrial processes

Industrial processes in energy-intensive industries accounted for 21% of total GHG emissions in Iceland in the year 2000. This excludes $CO_2$ emissions from the two projects falling under Decision 14/CP.7. PFC emissions from energy-intensive industries do not fall under this Decision, and climate-related policies in the industrial sector are primarily focused on limiting PFC emissions.

A voluntary agreement between aluminum smelters and the government has already resulted in lower PFC emissions per production unit, but the aim is to reduce these emissions even further. The goal is to keep PFC emissions from existing smelters at the level of 0.22 tons of $CO_2$ equivalents per ton of aluminum produced, but for new smelters the target level is 0.14 tons of $CO_2$ equivalents.

The Ministry for the Environment and the Ministry of Industry and Commerce have initiated a formal consultation process with the aluminum sector in order to achieve these goals.

## 3.7 The waste sector

GHG emissions from the waste sector were 2.2% of total GHG emissions in 2000. Most of these emissions are methane from landfills. The total amount of waste has been increasing in recent years. Nevertheless, GHG emissions from the sector have declined due to increased recycling and technological advances in the handling of waste. The most important measure is the collection of methane from the largest landfill in the country, serving all of the greater Reykjavík area, which started in 1997.

The government climate change policy adopted in April 2002 states the goal of further reducing waste disposal, especially in terms of organic waste. This goal is also stated in Welfare for the Future, the government strategy for sustainable development. A second objective of the climate change policy is to increase the collection of landfill gas for energy recovery and environmental control.

The Ministry for the Environment is responsible for policies in the waste sector, but in most cases

implementation takes place on the local level. Many municipalities have integrated concerns for GHG emissions from waste in their Local Agenda 21. One example of this is SORPA, an independent waste management firm owned by Reykjavik city and six other municipalities, that has been experimenting with using methane from landfills as vehicle fuel (see the section of policies in the transport sector). These experiments will continue.

## 3.8 Carbon sequestration

Revegetation and reforestation is a high priority in Iceland, and there is significant potential to enhance carbon sequestration beyond the present level. In 1996 the Icelandic government announced its decision to dedicate ISK 450 million for a four-year program of revegetation and tree planting to increase the sequestration of carbon dioxide in the biomass. This program was implemented in 1997-2000. The stated goal was an increase of 22,000 tons in carbon sequestration. Assessment of the results of the program indicates that the total additional sequestration was 27,000 tons.

Although this four-year program is over, efforts to increase the annual carbon sequestration rate resulting from reforestation and revegetation programs will continue in the future. A new strategic plan for soil conservation and revegetation, adopted by the Icelandic Parliament in the spring of 2002, lists carbon sequestration as one of the four main objectives of the strategy. The strategic plan covers the period of 2003 to 2014. The parliament also recently adopted a new five year plan of action for the forestry sector, where attention is given to carbon seqestration.

The Ministry of Agriculture is responsible for implementation is this area.

## 3.9 Research and development

The government policy on climate change emphasizes the importance of research and development and specifically lists the following actions:

- Emphasis will be put on improving methods to estimate carbon sequestration and to create a reporting system to improve both inventory and projection estimates.
- Research and development whose aim is to increase the use of environmentally friendly energy will be supported.
- More emphasis will be put on exploring ways to curb emissions from the transport sector.
- Experiments with alternative energy that could replace fossil fuels will continue, as well as research on fuel cells and hydrogen as energy carrier.

Implementation of policies related to research and development is a joint responsibility of all ministries. Discussion on research and development is provided in more detail in Chapter 7.

## 3.10 Information and public awareness

Increased emphasis on information and public awareness is one of the seven main components of the Icelandic climate policy. The government policy stresses the need to inform the public about options available to reduce greenhouse gas emissions on a day-to-day basis by minimizing waste, altering travel habits and increasing fuel efficiency. The government already supports some projects organized by environmental NGOs, whose aim is to encourage environmentally responsible behavior. Information about ways consumers can reduce GHG emissions in their everyday lives is integrated into these projects.

The ministries are jointly responsible for encouraging education and increasing awareness. Further discussion about public education is to be found in Chapter 8.

## 3.11 Other measures

In addition to measures specifically taken to limit GHG emissions domestically, the Icelandic climate policy discusses other commitments, such as inventory information for carbon sequestration, emissions trading, and financial support to developing countries.

According to the climate policy, a nationwide inventory system on carbon sequestration should be implemented no later than 2007, as called for in the Kyoto Protocol.

The Kyoto Protocol also deals with emissions trading. Iceland's intention to take advantage of Decision 14/CP.7, which limits its options for participating in emissions trading with other countries. Each country is free to decide whether a domestic system of emissions trading is a feasible option. In the Icelandic

case, this is not considered an attractive option for the time being.

The European Union adopted a new directive in November 2002 dealing with permits for the trading of emissions in the European Union. Only $CO_2$ emissions from industry are included in this directive. As of early 2003, it was not clear if the directive will apply to the European Economic Area and to what degree it will impact Iceland.

Financial support to developing countries is another important aspect of the UNFCCC. So far, Iceland has not made a decision about its participation in the third replenishment of the Global Environmental Fund. Also relevant in this respect is a declaration from a group of states (the EU, Canada, New Zealand, Norway and Iceland) that they would be willing to provide additional support to developing countries equal to USD 410 million no later than 2005. At the end of 2002, no decision had yet been taken about how this amount would be divided among the states participating in the declaration.

Financial assistance will be discussed in more detail in Chapter 6.