

THE STRENGTHENING OF THE GREEN ECONOMY IN ICELAND

SUSTAINABLE PROSPERITY - A MODEL SOCIETY



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Sustainable prosperity - a model society

Report of the Parliamentary Committee on the Strengthening of the Green Economy

September 2011



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Chairman's Address



Skúli Helgason

In just over a century, the global population has increased from nearly 2 billion people to almost 7 billion. For all to survive this vast number of people have to share the gifts of the Earth. Around 20% of mankind uses 80% of the world's energy and resources, and emits most of the greenhouse gases caused by human activities into the atmosphere. If all inhabitants of the Earth were to spend energy in the same manner as the Western world, using the same technology, the future of mankind would be bleak. Mankind's largest and probably most important project in this century is to promote and enact policies that reduce the release of greenhouse gases and promote a more sustainable use of energy. It is the assignment of many national governments and international organizations like the United Nations, the European Union, the Nordic Council and the OECD to define the green economy and to chart a course into the future that reduces the burden that business practices around the globe put on the ecosystem.

The undersigned presented a proposal for a parliamentary resolution on the

strengthening of the green economy at the 138th Legislative Session, along with eighteen MPs from all parties represented at the Parliament of Iceland. On the 10th of June 2010, the parliament — Althingi adopted the resolution with later amendments, and on the 6th of September 2010, elected a nine-member committee to prepare a proposal to strengthen the green economy of Iceland. The committee immediately started working and met regularly every week until early September 2011. The committee interviewed numerous guests on different subjects concerning its work. Moreover, the group organized a think tank conference in Reykjavík in January 2010, to get ideas and proposals from various stakeholders that would promote the creation of green jobs within the country.

This report contains the conclusions of the committee. It deals, for instance, with the definition of a green economy and green jobs, and takes examples of economic activities that can either be considered green according to existing definitions, or which possess important opportunities for increasing green jobs and strengthening the green economy. First the report sets out a future vision and a policy for a green economy in Iceland, but the main subject matter of the report and the principal results of the committee's work are contained in 48 proposals for action which, the committee believes, could contribute to Iceland's development towards a green economy. The proposals are summarised in a list at the beginning of the report but described in more detail in its individual chapters.

By preparing this report Althingi took the initiative in forming a policy for the strengthening of the green economy.

In Iceland we have preconditions for innovation on the basis of various kinds of environmental technologies. Here we have all the conditions for green energy utilization, and the building of a green economy is in good harmony with our emphasis on Iceland's pristine nature and the nation's creative abilities.

I thank all members of the committee for an enjoyable and successful cooperation during the twelve months of work. This remarkable group of people has demonstrated that representatives from all parts of the political spectrum can work cooperatively and deliver a product of outstanding quality despite their different political perspectives. This is an important message for the future, and signifies the hope that the culture of Icelandic politics can change with good will. Special thanks are due to the committee's employees, Stefán Gíslason, Environmental Management Consultant, and Elfa Dögg Þórðardóttir, Environmental Specialist, who made an invaluable contribution to the committee's findings.

Skúli Helgason,
Chair of the Parliamentary Committee of Althingi on the Strengthening of the Green Economy.

A Vision for Iceland



In a green economy new and constructive jobs are created in conjunction with the improvement of people’s living conditions, both locally and globally. Decision making in a green economy is characterized by respect for nature and the environment, and an appreciation of its uniqueness. In addition, full consideration is taken of the foundational principles of the Rio Declaration, such as the Polluter Pays Principle and the Precautionary Principle.¹ The democratic access of the public to decision-making is also one of the pillars of a green economy.

The construction of a green economy based on the principles of sustainable development does not require that Icelanders sacrifice the quality of their lives today for the benefit of future generations. On the contrary, the green economy delivers increased quality of life for both present and future generations. A green economy is made to last.



The conversion into a green economy is not only necessary to prevent the deterioration of ecosystems, it is also imperative in order to maintain and strengthen the nation’s competitive basis.

The public sector plays a pivotal role in establishing a green economy by, among other things, applying economic incentives and by setting an example of green practices for others in society.

With this in mind, the Parliamentary Committee on the Strengthening of the Green Economy presents the following vision and policy for a green economy in Iceland:



A future vision

“We envisage that Iceland can become an international leader as a green economy, focusing on clean natural environment, sustainable use of energy and education towards sustainability”.

Policy

- The National Government and its institutions will serve as role models and create the conditions for a green economy.
- Economic incentives will be used to promote the green economy.
- The Polluter Pays Principle will form the basis for determining fees and tariffs.
- The Precautionary Principle will be an integral part of the national fiscal and employment policy.
- Green jobs will be created.
- Emphasis will be placed on promoting green investment.
- Education for sustainable development and environmental issues will be increased.
- The green economy in Iceland will be an integral theme in the promotion of Iceland to investors and tourists.

¹ See explanations in Chapter 2.1

The Proposals of the Committee on the Strengthening of the Green Economy

1-16

The Committee on the Strengthening of the Green Economy proposes the following 48 actions in order to strengthen the green economy in Iceland:

- 1.** The strengthening of the green economy shall be a priority in the Government's employment policy. (See chapter 3.1)
Responsibility: Althingi/ the National Government Timing: 2012

- 2.** The task of strengthening the green economy in Iceland shall be the responsibility of the Prime Minister's Office. The Prime Minister's Office shall be responsible for coordinating the implementation of an action plan based on the proposals presented in this document, with the participation of all the ministries of the cabinet. Furthermore, the Prime Minister's Office shall initiate a consultative process with local governments on how the municipalities can contribute to the strengthening of the green economy. (See chapter 3.1)
Responsibility: Althingi/the Prime Minister's Office Timing: From the adoption of the proposal by the Icelandic Parliament - Althingi

- 3.** The legislation pertaining to public institutions and their tasks shall be subject to a comprehensive review, in order to integrate the concepts of sustainable development and the green economy into the statutory roles/purposes of the respective institutions. Other relevant legislative provisions shall be revised as needed. (See chapter 3.1)
Responsibility: Althingi / the Prime Minister's Office Timing: 2012

- 4.** The classification of economic activities and the collection of official statistics by Statistics Iceland shall be revised in order to enhance the visibility of the green industries of the economy and green jobs, and make it easier to highlight information on the status of specific growth sectors. (See chapter 3.1)
Responsibility: Statistics Iceland Timing: 2012

- 5.** The scope of the existing green economy in Iceland shall be evaluated in order to estimate its share of GDP and job creation. Based on that analysis a plan shall be established on green job creation. (See chapter 3.1)
Responsibility: The Prime Minister's Office Timing: 2012

- 6.** The Genuine Progress Indicator (GPI) shall be calculated for Iceland and published along with GDP measurements. (See chapter 3.1)
Responsibility: Statistics Iceland Timing: From the beginning of 2013

- 7.** Provisions on cost benefit analysis shall be added to Act No. 105/2006 on Strategic Environmental Assessment and Act No. 106/2000 on Environmental Impact Assessment in order to ensure that the environmental cost is always assessed before construction is initiated. (See chapter 3.1)
Responsibility: Althingi / the Ministry for the Environment Timing: 2012

- 8.** All ministries and public institutions (A-section) shall implement green procurement practices in accordance with the national policy on green public procurement. (See chapter 3.2)
Responsibility: All Ministries Timing: Before end of the year 2012
-
- 9.** The national policy on green public procurement practices (2009-2012) shall be revised. A new policy for the period 2013-2020 shall aim for the percentage of green national tenders to reach 50% in 2015 and 80% in 2020. (See chapter 3.2)
Responsibility: Ministry of Finance / Ministry for the Environment Timing: 2012
-
- 10.** All new framework agreements on procurement shall fulfil environmental criteria in the product categories where such criteria exist. (See chapter 3.2)
Responsibility: The State Trading Centre Timing: 2012
-
- 11.** Budgetary appropriations for the VINN-project on green procurement practices shall be increased. (See chapter 3.2)
Responsibility: Althingi Timing: 2012
-
- 12.** Funding will be set aside annually in the general budget to reimburse public institutions up to 20% of the product costs and services shown to fulfil the terms and conditions of Environmental Labels — Type 1. (See chapter 3.2)
Responsibility: Althingi Timing: 2012
-
- 13.** An audit of the energy use of public buildings shall be carried out, and energy control procedures installed where they are considered feasible. (See chapter 3.2)
Responsibility: Ministry of the Interior / National Energy Authority / The Energy Agency Timing: 2012
-
- 14.** All institutions of the respective ministries and all state enterprises shall publish their annual reports according to Global Reporting Initiative standards. (See chapter 3.2)
*Responsibility: Ministries, institutions, nationally owned companies Timing: 10% of all state institutions and enterprises publishing annual reports for the year 2012
50% of all state institutions and enterprises publishing annual reports for the year 2013
80% of all state institutions and enterprises publishing annual reports for the year 2014*
-
- 15.** Althingi, all ministries and all governmental institutions shall implement a focused environmental management plan to reduce waste and other negative impacts on the environment, both direct and indirect, with reference to the international standard ISO 14001. The plan shall include an initiative to educate public employees about sustainability, with a special emphasis on the leadership role of such institutions with regard to sustainable development and with reference to the aims of the UN Decade of Education for Sustainable Development. (See chapter 3.2)
Responsibility: Althingi, ministries, institutions Timing: 2012
-
- 16.** An assessment shall be carried out on the implementation of national and municipal programmes on sustainable development (such as Local Agenda 21, Welfare for the Future and The Nordic Sustainability Project). (See chapter 3.2)
Responsibility: The Icelandic National Audit Office Timing: 2012

The Proposals of the Committee on the Strengthening of the Green Economy

17-33

- 17.** Eco-friendly use of energy shall be part of publicly owned energy companies' policies, thus becoming a fundamental issue in choosing energy buyers, once demands for profitability have been met. (See chapter 3.2)

Responsibility: Ministry of Finance / Ministry of Industry, Energy and Tourism 2012

- 18.** A fund shall be established called the Green Competitive Fund as a department of the Technology Development Fund. Its purpose will be to fund projects in the field of environmental innovation, with special regard to the definitions of the UN and the US Bureau of Labor Statistics (BLS) of green jobs and the green economy. (See chapter 3.3)

Responsibility: Althingi / the Technology Development Fund Timing: 2012

- 19.** The NSA Ventures shall be entrusted with establishing and operating the Green Venture Capital Fund in cooperation with domestic and foreign investors. The role of the fund will be to invest in environmental technology and in environmentally sound activities. (See chapter 3.3)

Responsibility: Althingi / the New Venture Business Fund Timing: 2012

- 20.** A five year campaign shall be implemented to encourage foreign investment in green businesses, for instance by using the provision in Article 15 of Act No. 99/2010 on Incentives for Initial Investments. The BLS' definitions of green jobs shall be used to determine whether projects meet the necessary requirements. The campaign shall include an economic analysis of the green economy in Iceland, the choice of areas for emphasis, the charting of eligible investors, marketing and promotions. (See chapter 3.3)

Responsibility: The Ministry of Industry, Energy and Tourism / Islandsstofa - Promote Iceland/ Ministry for Foreign Affairs Timing: 2012 - 2016

- 21.** Act No. 99/2010 on Incentives for Initial Investment in Iceland shall be amended so as to permit derogations from the current size limits provided for in point e of Article 5 when the projects in question fall under the definitions of the UN and BLS of green jobs and green economy. (See chapter 3.3)

Responsibility: Althingi / Ministry of Industry, Energy and Tourism Timing: 2012

- 22.** Act No. 106/1999 on the Icelandic Regional Development Institute shall be amended so that the institution operates in accordance with the goals of sustainable development and integrates the core principles of the green economy into its operations, lending practices, growth contracts and other forms of cooperation with respective regional development centres. (See chapter 3.3)

Responsibility: Althingi / Ministry of Industry, Energy and Tourism Timing: 2012

- 23.** One stop shop should be established for information and advice on grants from Icelandic, Nordic, European and international funds for green innovation projects. (See chapter 3.3)

Responsibility: Ministry of Industry, Energy and Tourism Timing: 2012

- 24.** A new provision shall be added to Starfsorka's rules making contracts for new environmental projects eligible. (See chapter 3.3)

Responsibility: Innovation Centre Iceland Timing: Before end of the year 2011

- 25.** A long-term agreement shall be concluded on supporting the Green Flag Project, with the aim of securing schools' access to the project, and making sustainability education an integral feature of all school curricula. (See chapter 3.4)
Responsibility: Ministry of Education/ Ministry for the Environment Timing: 2012
-
- 26.** The course syllabus for a general driver's license (category B) shall be revised, making eco-driving a fundamental part of the practical training. (See chapter 3.4)
Responsibility: Ministry of the Interior / The Road Traffic Directorate Timing: 2012
-
- 27.** Courses available at teacher training institutions shall be revised in order to incorporate education towards sustainability, both into the general teacher training and retraining programmes. (See chapter 3.4)
Responsibility: The Ministry of Education Timing: 2013
-
- 28.** A special "Sustainability Education Fund" shall be established to provide grants for institutions and projects that support education towards sustainable development. (See chapter 3.4)
Responsibility: Ministry of Education/ Ministry for the Environment Timing: 2012
-
- 29.** The Ministry of Finance shall develop pollution fees in accordance with the Polluter Pays Principle, taking into account lessons from the other Nordic countries. The pollution fees shall go to a green fund, which will finance reimbursements of costs related to pollution prevention in respective industries. (See chapter 3.5)
Responsibility: The Ministry of Finance Timing: 2012
-
- 30.** Act no. 50/1988 on Value Added Tax shall be amended so that goods and services that are environmentally and/or organically certified will carry a lower V.A.T. rate than comparable goods and services. (See chapter 3.5)
Responsibility: Althingi / the Ministry of Finance Timing: At the next revision of the legislation
-
- 31.** Legislation shall be amended in order to allow reimbursement to businesses of 20% of the cost in connection with implementing certified environmental management systems (for instance ISO 14001 or EMAS), up to a maximum of 1 million ISK. (See chapter 3.5)
Responsibility: Althingi / the Ministry of Finance Timing: 2012
-
- 32.** Regulation on Green Accounting No. 851/2002 shall be amended, based on the accumulated experience of the previous decade (2000-2010). Special emphasis will be on monitoring the accounting practices with respect to their reliability, in order to meet standards on clarity of information and on environmental protection. (See chapter 3.6)
Responsibility: The Ministry for the Environment Timing: 2012
-
- 33.** The authorities shall develop an action plan to increase organic production in Iceland, so that organically certified production will increase to a level of 15% of the total national agricultural production by the year 2020. (See chapter 3.6)
Responsibility: Althingi / Ministry of Fisheries and Agriculture Timing: 2012

The Proposals of the Committee on the Strengthening of the Green Economy

34-50

- 34.** Support for the adjustment to organic production shall be increased in order to ensure the implementation of the newly approved support to adjustment procedures. (See chapter 3.6)
Responsibility: Althingi / Ministry of Fisheries and Agriculture Timing: 2012
-
- 35.** A cost-benefit analysis shall be carried out on the production of organic fertilizer domestically. (See chapter 3.6)
Responsibility: Ministry of Fisheries and Agriculture Timing: Before end of the year 2012
-
- 36.** Legislation shall be amended in order to allow reimbursement of up to 20% of outlays, up to a specified limit, in connection with vessel retrofitting required to enable a changeover to environmentally friendly fuel or improve fuel efficiency. (See chapter 3.6)
Responsibility: Althingi / the Ministry of Finance Timing: 2012
-
- 37.** The acceptance of Appendix VI to the MARPOL Convention for the Prevention of Pollution from Ships shall be expedited, followed by the declaration of the exclusive economic zone of Iceland as an Emission Control Area (ECA). (See chapter 3.6)
Responsibility: Ministry for the Environment / The Environmental Agency of Iceland / Icelandic Maritime Timing: 2012
-
- 38.** A special evaluation of the energy usage of Icelandic homes and businesses shall be performed and the results presented to the public with the aim of diminishing waste. (See chapter 3.6)
Responsibility: The National Energy Authority / The Energy Agency Timing: 2012
-
- 39.** A complete revision of the waste legislation shall be conducted with the aim of removing obstacles to the recycling industry in Iceland. (See chapter 3.6)
Responsibility: Althingi / the Ministry for the Environment Timing: 2012
-
- 40.** In the case of the establishment of a Natural Resources Fund, the income from its fees should among other things be used for creating green jobs and to strengthen the green economy. (See chapter 3.6)
Responsibility: The National Government Timing: 2012
-
- 41.** The Innovation Centre Iceland shall be entrusted with developing a methodology entailing the greening of Icelandic businesses in all sectors on the basis of innovation and the development of technical solutions that diminish the negative environmental impact of their operations, including the minimisation of their carbon footprint. (See chapter 3.6)
Responsibility: Innovation Centre Iceland Timing: 2012
-
- 42.** The current authorisation for reimbursement of excise tax for cars converted into ecological vehicles shall be prolonged, enabling over 1,000 vehicles to remain eligible under the programme. (See chapter 3.7)
Responsibility: Althingi / the Ministry of Finance Timing: 2012
-
- 43.** Income generated from increased carbon tax rates on fuel in accordance with Act No. 164/2001 shall be allocated to projects promoting the green conversion and energy savings in transportation. (See chapter 3.7) Equalization of the possibilities of residents of different regions to get involved in green conversion and energy savings should especially be kept in mind in relation to this measure.*
Responsibility: Althingi / the Ministry of Finance Timing: 2012

44. Renewable energy use in transportation shall not be taxed until its share has become 20% of the total energy usage in the transportation sector. (See chapter 3.7)

Responsibility: Althingi / the Ministry of Finance Timing: No timing

45. Custom fees on bicycles and associated products shall be cancelled, for instance on children's (bicycle) chairs, back racks lights, locks and other bicycle accessories consistent with the cancellation of custom fees of other vehicles that do not emit carbon dioxide. (See chapter 3.7)

Responsibility: Althingi / the Ministry of Finance Timing: 2012

46. An agreement shall be made with the associations of civil servants on the introduction of transport grants to encourage alternative means of transport (other than automobiles). Also, businesses which develop and implement a green transport policy shall be rewarded with lower taxation. The design of this process should among other things be based on successful methods used in other countries. (See chapter 3.7)

Responsibility: Transportation Cost Committee Timing: 2012

47. A special educational campaign directed towards the public and businesses shall be launched concerning the real cost of alternative means of transport and the relationship between different means of transport and health. (See chapter 3.7)

Responsibility: Ministry of Education / Ministry of the Interior / Ministry for the Environment / Ministry of Welfare / Directorate of Health / Public Health Institute of Iceland / Retraining institutes Timing: Before end of the year 2012

48. Work shall be performed to promote reforestation and ecosystem restoration, aiming for sustainable use and carbon sequestration. Action plans for reforestation and ecosystem restoration for the next 20 years shall be developed where previous plans will be coordinated, and account taken of the objectives to halt the loss of vegetation and to expand forest coverage, thereby creating sustainable resources.*

Responsibility: Ministry for the Environment Timing: Before end of the year 2012

49. Support shall be given to projects aiming at sustainable energy use in Icelandic agriculture and/or energy production from materials from agricultural production and on farms. *

50. Iceland shall be presented as a green economy to buyers of goods and services, investors and tourists. This marketing strategy shall be based on the image and strengths of Iceland and shall be integrated into the marketing of Iceland in the field of tourism, the export of products and culture. (See chapter 3.8)

Responsibility: Promote Iceland Timing: 2012 – 2013

*Amended by Althingi (the Parliament) March 20th 2012

1 Introduction



Man's impact on the environment depends on three main factors: the population, individual consumption and the technology used. During the last years and decades the Earth's population has increased and the average consumption of people has gone up steadily. In spite of technological advances this development has increased the pressure on Earth's resources, so that mankind would now need at least one and a half Earth to survive, given the current consumption patterns, as has been calculated by the organization Global Footprint Network.² The situation would be markedly worse if all nations had developed the same consumption pattern as Icelanders, as is stated in the master's thesis of Sigurður Eyberg Jóhannesson.³ Another notable indication of the need for action can be found in the UN's Millennium Assessment on Ecosystems, published in March 2005, where it was stated that 60% of the world's ecosystems have been severely degraded because of human activities.⁴

Research indicates that the cause for the global degradation of ecosystems can be traced to a development that started with the industrial revolution at the latter part of the 18th century. Since then the institutions and legislation of the industrial countries have supported unsustainable economic growth, which may be the reason why environmental quality is still diminishing in spite of increasing efforts to limit this negative impact.

To stop this and to establish a green economy, it is necessary to begin by assessing how much resource use and waste generation the ecosystems can tolerate, and then to base all policy on those assessments.⁵

The Earth's environmental situation, both locally and globally, has increasingly drawn attention to creating green jobs, i.e. the development of new employment opportunities that support economic growth without using natural resources in an unsustainable manner. Such development of new jobs does not only further the welfare of coming generations; it also creates opportunities in times of recession. Such deliberations (among others) led 19 parliamentarians from all parties to present a proposal for a parliamentary resolution at Althingi in the winter of 2009-2010, where it was proposed that strengthening of the green economy in Iceland should be prepared in keeping with the goals of sustainable development.

On June 10th 2010, Althingi adopted the abovementioned parliamentary resolution on strengthening the green economy in Iceland. According to the resolution Althingi shall "elect a committee of nine members with representatives of parliamentary parties with the assignment to chart the opportunities of the Icelandic business sector in creating green employment. The committee shall, among other things, make proposals for governmental actions and

2 Global Footprint Network. <http://www.footprintnetwork.org>.

3 Sigurður Eyberg Jóhannesson (2010). The Ecological Footprint of Iceland. Master's thesis, Faculty of biological- and environmental sciences, University of Iceland. <http://hdl.handle.net/1946/5384>.

4 Millennium Ecosystem Assessment. <http://www.maweb.org>.

5 Nathan Pelletier (2010). Of laws and limits: An ecological economic perspective on redressing the failure of contemporary global environmental governance. *Global Environmental Change*, 20:220-228. <http://www.sciencedirect.com/science/article/pii/S0959378009001253>.

improvements of the business sector's support system, promoting the growth of the green economy. Additionally it shall seek ways to strengthen the position of sustainable development in the nation's economic and employment policies. A special emphasis shall be put on analysing how Iceland's international competitiveness can be improved in the field of green business operations. The committee shall propose changes in legislation that serve the goals mentioned, and create measurable goals on increasing green jobs in the Icelandic business sector. Care will be taken to synchronize the committee's proposals with various governmental plans related to employment and environment, such as Welfare for the Future, the Master Plan for Hydro and Geothermal Energy Resources, the 2020 Policy Statement and the Strategic Regional Plan".⁶

The appointment of the Committee on the Strengthening of the Green Economy

Following the adoption of the parliamentary resolution, Althingi elected a committee of nine members on September 6th 2010 to form proposals for the strengthening of a green economy in Iceland. Appointed to the committee were: Arna Lára Jónsdóttir, Bergur Sigurðsson, Dofri Hermannsson, Guðmundur Ragnar Guðmundsson, Guðmundur Steingrímsson, Illugi Gunnarsson, Salvör Jónsdóttir, Skúli Helgason, and Þorbjörg Helga Vigfúsdóttir. In November 2010 Þorbjörg Helga Vigfúsdóttir asked to be relieved from service for the committee and on the 8th of December in the

same year Guðný Káradóttir was elected in her place. Skúli Helgason was elected as committee chairman.

The working procedures of the committee

The committee usually met every week from September 2010, except during the summer holidays of 2011. A total of 54 meetings were held. During the meetings numerous guests were invited to discuss individual matters concerning the committee's work. The names of the guests are listed in an appendix to this report. On January 21st 2011 the committee organised a think tank conference in Reykjavík on the strengthening of the green economy, inviting various representatives of the business sector with connections to the green economy. The purpose of the think tank conference was to call for ideas and proposals from the green sector of the business community that could strengthen green job creation in the country.

The first draft of the committee's report was ready in June 2011. Twenty-four copies were then sent out for comments. A total of 14 comments and opinions were received. At the end of summer the committee processed received comments and opinions and presented its final report in September. Issues for discussion in the parliament, based on the report, were subsequently presented.

Environmental Scientist Elfa Dögg Þórðardóttir was an employee of the committee from the beginning until the end of April 2011. From that time Environmental Management Expert Stefán Gíslason assisted the committee with the task of finalising proposals and the committee's report.

The report's structure

In chapter 2 there is a general discussion on the green economy, including definitions and primary goals. There is also a special segment on the preconditions for the implementation of a green economy and on indicators measuring the success of nations, which also indicate how green the economy has become.

Chapter 3 contains the main body of the report. The chapter is divided into several subsections, each dealing with a specific part of the authorities' actions, fields of activity, or sectors of the society. At the end of each subsection the proposals of the committee in that particular field are listed. In chapter 4 there is an overview of how the report ties in with other relevant governmental plans.

⁶ 138. legislative parliament 2009-2010. Parliamentary document 1273 – 520. case. <http://www.althingi.is/alttext/138/s/pdf/1273.pdf>.

2 A Green Economy

2.1 A Green Economy in an International Context



A green economy is an economy that increases quality of life while environmental risks and the disruption of ecosystems is minimized. In a green economy the emphasis is on economic activity emerging from private and public investments that diminish pollution and the emission of greenhouse gases, encourage more efficient use of energy and other resources and prevent the degradation of biodiversity and ecosystem services.⁷ In short, a green economy is characterized by increased value creation with less burden on nature.

In a green economy ingenuity and human resources are harnessed for innovation and progress and traditional production facilities are renewed with sustainability as a goal. A green economy is based on respect for nature and its resources. Those resources are to be treated carefully with regard to the interests of coming generations. A green economy responds to the demand for responsible utilization of natural resources and is based on the vision that diverse economic activities are required for sustainable welfare.

It is hard to define the green economy in a comprehensive and absolute manner since the meaning of the term is subject to the knowledge and circumstances of a given time. Actually, a green economy is better described as a process than as a state of affairs,

7 UNEP (United Nations Environment Programme) (2011). Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication. <http://www.unep.org/greeneconomy/GreenEconomyReport/tabid/29846/Default.aspx>.

because what is green today may not be considered green tomorrow. In fact, a green economy is any economy more conducive to sustainable development than other economies.

The term sustainable development first appeared around 1980. The most often quoted definition of the term hails from the report of the Brundtland Commission of 1987⁸ and was later incorporated into the agreements of the 1992 Rio UN Conference on Environment and Development. In Rio sustainable development was defined as *"development which meets the needs of the present without compromising the ability of future generations to meet their needs"*.⁹ Sustainable development is based on the integration of environmental, economic and social factors, and on equality between generations as well as between different parts of the world. The basic principles agreed upon in 1992 with the adoption of the Rio Declaration on Environment and Development is among the most important cornerstones of sustainable development. The Polluter Pays Principle and the Precautionary Principle are especially noteworthy.¹⁰ In short the Polluter Pays Principle states that the polluter is responsible for paying the costs of the pollution. The Precautionary Principle states that where there are threats of serious or

8 The United Nations (1987). Report of the World Commission on Environment and Development: Our Common Future. <http://www.un-documents.net/wced-ocf.htm>.

9 The Ministry for the Environment (2002): Welfare for the Future. Sustainable development in Iceland – A Policy until 2020. The Ministry for the Environment, Reykjavik. http://www.umhverfissraduneyti.is/media/PDF_skrar/Velferd_til_framtidar_2002.pdf.

10 UNEP (United Nations Environment Programme). Rio Declaration on Environment and Development. <http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78>.

irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. In order to protect the environment, the precautionary principle shall be as widely applied by the world's nations as their capabilities allow.^{11,12,13}

The goal of a green economy is to increase prosperity and to create green jobs that are decent and contribute to a better environment, which is in line with sustainable development, the vision for a green economy. The perfect green job would use energy and resources in the best possible manner while generating neither pollution nor undesirable waste.

In a parliamentary resolution on the strengthening of the green economy, adopted by Althingi on June 10th 2010, UNEP's following definition of green jobs was put forth:

Green jobs reduce the negative impacts that businesses have on nature and the environment and are designed to orient the economy towards greater sustainability. Green jobs are to be found in many business segments. Their commonality is to promote reduction in the use of energy, resources and water, using economical methods, reduce greenhouse gas

11 Gunnar G. Schram (1993). The future of Earth. The route from Rio. Institute of International Affairs, University of Iceland, Reykjavik.

12 The Environmental Agency of Iceland. Marine preservation – goals and development. <http://eldri.ust.is/Mengunarvarnir/Mengunhafsgogstranda/utgafaogfraedsla/Fraedsluefni/nr/2297>.

13 Aagot V Óskarsdóttir (editor) (2011). Conservation of Nature. White Paper on legislation to conserve nature in Iceland. (Page 182). The Ministry for the Environment, Reykjavik. http://www.umhverfisraduneyti.is/media/PDF_skrar/Hvitbok_naturuvernd_001-478.pdf.

*emissions, waste and pollution, while protecting and restoring ecosystems and biodiversity. In that way, green jobs help breaking the links between economic growth and negative environmental impact. Furthermore, the goal of green economic management is for green jobs to be in keeping with human dignity.*¹⁴

This definition of green jobs is fairly general and therefore difficult to use to measure the increase or decrease of the number of such jobs. The US Bureau of Labor Statistics (BLS) has presented a more precise definition that can be used when doing economic categorisation and analysis of the scale of the green economy in Iceland. According to that definition, green jobs can be divided into two main categories. On the one hand there are jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources, and on the other hand there are jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources. The exact BLS definition of green jobs is as follows:¹⁵

A. Jobs in businesses that produce goods and provide services that benefit the environment or conserve natural resources and fall into one or more of five groups:

1. *Energy from renewable sources.* Electricity, heat, or fuel generated from renewable sources. These

14 138. legislative parliament 2009-2010. Parliamentary document 909 – 520th case). <http://www.althingi.is/altext/138/s/pdf/0909.pdf>. (Page 2).

15 The US Bureau of Labor Statistics (BLS)). The BLS Green Jobs Definition. http://bls.gov/green/green_definition.pdf.

energy sources include wind, biomass, geothermal, solar, ocean, hydropower, landfill gas and municipal solid waste.

2. *Energy efficiency.* Products and services that improve energy efficiency. Included in this group are energy-efficient equipment, appliances, buildings, and vehicles, as well as products and services that improve the energy efficiency of buildings and the efficiency of energy storage and distribution, such as Smart Grid technologies.

3. *Pollution reduction and removal, greenhouse gas reduction, recycling and reuse.* These are products and services that:

- Reduce or eliminate the creation or release of pollutants or toxic compounds, or remove pollutants or hazardous waste from the environment;
- reduce greenhouse gas emissions through methods other than renewable energy generation and energy efficiency, such as electricity generated from nuclear sources;
- reduce or eliminate the creation of waste materials; collect, reuse, remanufacture, recycle, or compost waste materials or wastewater.

4. *Natural resources conservation.* Products and services that conserve natural resources. Included in this group are products and services related to organic agriculture and sustainable forestry; land management; soil, water, or wildlife conservation; and stormwater management.

5. *Environmental compliance, education and training, and public awareness.* These are products and services that:

- Enforce environmental regulations;
- provide education and training

related to green technologies and practices;

- increase public awareness of environmental issues.

B. Jobs in which workers' duties involve making their business production processes more environmentally friendly or use fewer natural resources.

These workers research, develop, maintain or use technologies and practices to lessen the environmental impact of their establishment, or train the establishment's workers or contractors in these technologies and practices. These technologies and practices fall into one or more of four groups:

1. *Energy from renewable sources.* Generating electricity, heat, or fuel from renewable sources, primarily for use within the establishment. These energy sources can, for instance, include wind, biomass, geothermal, solar, ocean, hydropower, landfill gas and municipal solid waste.
2. *Energy efficiency.* Using technologies and practices to improve energy efficiency within the establishment. Included in this group is the cogeneration of heat and power.
3. *Pollution reduction and removal, greenhouse gas reduction, recycling and reuse.* Using technologies and practices within the establishment to:
 - Reduce or eliminate the creation or release of pollutants or toxic compounds, or remove pollutants or hazardous waste from the environment;
 - reduce greenhouse gas emissions through methods other than renewable energy generation and

- energy efficiency;
- reduce or eliminate the creation of waste materials; collect, reuse, remanufacture, recycle or compost waste materials or wastewater.
- 4. *Natural resources conservation.* Using technologies and practices within the establishment to conserve natural resources. Included in this group are technologies and practices related to organic agriculture and sustainable forestry; land management; soil, water, or wildlife conservation; and stormwater management.

Upon closer inspection jobs in green business sectors, as they are defined above, do not necessarily need to be compliant with the spirit of the green economy. Such exceptions are obvious, for example the working conditions of workers recycling electrical appliances in Asia. In order to fit within the philosophy of the green economy those jobs need both to be environmentally friendly and offer decent working conditions. This is not a crucial point in the discussion of green jobs in Iceland, but even though the scene for this report is Iceland, the topic of this report is global. In other words, the BLS' definitions and categorisations are not undisputable, but useful when defining, categorising and analysing the scale of green jobs in the economy of Iceland.

Increased emphasis on "green" jobs may raise the question of whether it will lead to increased unemployment among those who are doing "brown" jobs, and furthermore to a decrease in GDP. Indications are that this will not be the case, unless maybe for a very limited term. All changes cause some movement of workforce between

industries, but in a recent report from UNEP it is stated that if the nations of the world were to spend 2% of their GDP to strengthening the green economy, it would not only suffice to bring a green economic transformation about, but also lead to an increase in job opportunities on the whole, both in the near future and beyond. In fact, economic growth might shrink for the first years, but in 2020 economic growth would have surpassed what it would have been without a change in policy, and nature's capital would have grown. Therefore, the interests of economies and ecosystems go hand in hand, even in the short term.¹⁶

UNEP's report proposes governmental actions to create the necessary preconditions for the growth of the green economy. These actions include revisions of laws and regulations, shifts in emphasis regarding the allocation of public funds, the abolition of any kind of subsidies to environmentally harmful activities, the use of economic incentives in the form of taxation and quotas, as well as workforce training, education and actions to facilitate international trade in "green" products and services.¹⁷

The EU has issued a special growth strategy under the heading Europe 2020 with targets for the year 2020. Keywords in the strategy are *employment, innovation, education, social inclusion and climate/energy*. The objectives of the strategy are categorised under these five keywords.

¹⁶ UNEP (United Nations Environment Programme). Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication. <http://www.unep.org/greeneconomy/GreenEconomyReport/tabid/29846/Default.aspx>.

¹⁷ Same.

EU countries are then expected to set their own objectives in the same categories.¹⁸ The strategy does not specifically aim at building a green economy, but does nonetheless contain green goals. For instance, the EU's goal that 20% of its member states' energy needs be met by renewable energy sources is expected to produce over 600,000 new jobs, and another 400,000 additional jobs will come into existence if the EU meets its goals of 20% improvement in energy efficiency.¹⁹

2.2 Preconditions for Implementing a Green Economy

To establish a green economy, environmental and nature conservation goals as well as responsible resource management must be effectively integrated in public administrative decision making. The primary goal in transitioning from traditional to a green economy is to not have to choose between economic growth and investment, on the one hand, and environmental and social gains on the other, but rather to have them go hand in hand. The attendant emphasis on environmental and social improvement should create both more income and increased welfare.

Cost Benefit Analysis (CBA) is an important foundation on which to base decisions about changes in economic strategy. In a green economy such

analysis always takes environmental costs into account. On that note it is worth mentioning that the OECD has especially recommended that environmental costs be directly factored into cost-benefit analysis for assessments of further development of energy-intensive industrial projects in Iceland.²⁰

To obtain the correct picture of activities of economic nature the main indicators, such as Gross Domestic Product (GDP), used to measure economic progress, need to be adjusted in order to take into account, not only the growth of the economic system, but also the indirect costs that the economic activity entails, such as pollution, depletion of natural resources and ecosystem services and the inequality that follows the decline of natural capital.

GDP is by far the most common tool used to measure and compare the success of nations. The index was developed in the 1940s in order to indicate economic progress. The purpose was to monitor economic development in the post-war years in order to ensure a stable economy and progress after the economic instability, unemployment and trade barriers that marked the years during the war. During these past 70 years GDP has become a standard and is now generally used to evaluate and compare the success of nations.

With their use of GDP as an indicator, both governments and the media have equated economic growth with welfare. In fact this use of GDP does

not accord to the definition of the index, since it was, from the beginning, only meant to measure the value change in any given year's production of goods and services. GDP does not take into account various social and environmental aspects that contribute to welfare even though they are not subject to sales and purchases. On the other hand various costs connected to things harmful to the environment and the society contribute to an increase in GDP. Examples are the cost of accidents, pollution and crimes, even though those things obviously do not contribute to increased social welfare. Turnover that is based on depletion of non-renewable resources also leads to an increase in GDP without the worth of the lost ecosystems being subtracted anywhere. If GDP is to reflect actual prosperity this depletion of natural and social resources needs to be subtracted. At the same time, activities that lead to increased welfare, even though they do not have a market value, should be added to the calculation. An example of the latter is that GDP does not reflect the worth of volunteer work, of even income distribution, of equality, the value of household work, etc.

In response to the aforementioned limitations of GDP, new indicators have been developed that are supposed to give a more accurate reading of a nation's welfare. One of those measuring tools is the Genuine Progress Indicator (GPI) whose goal is to "correct" the GDP by subtracting variables that hinder general welfare and adding variables that increase prosperity, even if they are not visible in the marketplace. With GPI, deviation from GDP is calculated using the following formula:²¹

18 The European Union. Europe 2020. <http://ec.europa.eu/europe2020>.

19 The European Union. Sustainable growth - for a resource efficient, greener and more competitive economy. http://ec.europa.eu/europe2020/priorities/sustainable-growth/index_en.htm.

20 OECD (2008). Economic survey of Iceland 2008: Executive summary. http://www.oecd.org/document/54/0,3746,en_2649_34569_40158070_1_1_1_1,00.html.

21 Bagstad, Kenneth J. (2009). Ecological,

$$\text{GPI} = C_{\text{adj}} + G + W - D - S - E - N,$$

were:

- C_{adj} (e. adjusted consumption) stands for individual consumption adjusted to account for uneven income distribution,
- G is growth in capital, or the net change of non-monetary capital and change in foreign debt,
- W stands for non-monetary contribution to welfare (e.g. house-hold labour and volunteer work),
- D stands for defensive private expenditures or individual expenditures to avoid trauma (such as disease- and pollution prevention),
- S stands for depletion of social capital (for example the cost of crime and lost free time),
- E stands for the cost of environmental degradation (such as from pollution) and
- N stands for the depletion of natural capital (for example soil and fish populations).

GPI research in various countries (USA, Sweden, Austria and others) supports the so-called threshold theory, i.e. that in the industrial states GDP and GPI growth was parallel until the 60's when the GPI development turned negative in most states while GDP continued to grow at the same time. This indicates that the positive development of the economy had reached the point where production started to have long-term negative effects on welfare. Thus progress ceased to be sustainable and instead began to deplete the social and

environmental capital of nations.²² As said before, GPI is one of many measuring tools meant to correct the image of nations' prosperity drawn by GDP. Among other such economic indicators are the Index of Sustainable Economic Welfare (ISEW), actually a predecessor of GPI.²³ Genuine Saving (also called Adjusted Net Saving) is another similar indicator that the World Bank has used to evaluate sustainability.²⁴ Finally there is the quality of life measuring tool, the Human Development Index (HDI), used by the United Nations Development Programme.²⁵ It only uses a few factors especially relevant to the progress of developing countries. Various other indicators could be named, but GPI is the broadest and most useful to complement GDP. Necessary data for GPI calculations can also be used when calculating other indicators.

The transformation to a green economy has to filter through the whole governmental system. Strengthening the green economy is an interdisciplinary task connected to all three dimensions of sustainable development and all ministries of government. Still, the transformation does not only depend on governmental actions. Public participation is also

very important to the process. The authorities create the framework, but those living and partaking in the economy must also take active part in implementing the changes. Increased participation of the public in environmental decision making is an important factor in this respect, which was strengthened by the ratification of the Aarhus Convention by Althingi in September 2011.²⁶

Economic Applications for Urban and Regional Sustainability. PhD dissertation. The University of Vermont, USA.

22 Tim Jackson and Susanna Stymne (1996). Sustainable economic welfare in Sweden: A pilot index 1950-1990. Stockholm Environmental Institute. Stockholm.

23 Friends of the Earth. Introduction. <http://www.foe.co.uk/community/tools/isew>.

24 The World Bank. Adjusted Net Saving – A proxy for sustainability. <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTTEEI/0,,contentMDK:20502388~menuPK:1187778~pagePK:148956~piPK:216618~theSitePK:408050,00.html>.

25 The UN Development Programme (UNDP). The Human Development Index (HDI). <http://hdr.undp.org/en/statistics/hdi>.

26 Law changing various other laws because of the ratification of the Aarhus Convention. <http://www.althingi.is/altext/139/s/1983.html>.

3 The proposals of the Committee on the Strengthening of the Green Economy

3.1 Responsibility, Coordination and Implementation



As stated earlier, a green economy will not prevail unless the accompanying transformation infiltrates into the entire system of government. Strengthening the green economy is an interdisciplinary task connected to all three pillars of sustainable development and all ministries of government. Therefore, it is fundamental that the Prime Minister's Office oversees and governs this extensive task and takes care of coordinating its implementation on all levels of government. Follow-up of the proposals in this report must be in the hands of a ministry that has a broad overview of all responsible ministries, each of which plays an important role in policy making and implementation in their respective fields. Among others, this applies to the ministries of Industry, Energy and Tourism, Fisheries and Agriculture, Economic Affairs and Finance, Education, Welfare, Environment, the Ministry of the Interior (including Transportation and Local Government), and the Ministry for Foreign Affairs. The Committee proposes that the strengthening of the green economy be made a priority in Icelandic employment policy and that the Prime Minister's Office be made responsible for its implementation. In addition the municipalities are to be consulted regarding their participation in the strengthening of the green economy.

The legislative framework is a decisive factor with respect to the priorities of public institutions, since their role is defined by law. This is very important when deciding on improvements that can benefit sustainable development

and the green economy. There is a reason to embark on a total review of the main laws in question, with a special emphasis on integrating green values into the definitions of the institutions' roles to the appropriate extent. This applies to all institutions. The need for a review is most likely equally great whether it applies to the University of Iceland, the National University Hospital, the Environmental Agency, the Road Administration, or the Directorate of Labour, to name a few. The task is even more pressing bearing in mind that in some instances roles are not clearly defined but rather stated in the laws as a list of tasks for the public institution in question. The same can apply to publicly held companies. The committee recommends a total revision of the legislation pertaining to public institutions and their role, with the aim of integrating the core principles of sustainable development and a green economy into the defined roles.

In addition to the points already mentioned the implementation of a green economy calls for national budget revisions, revisions of support to environmentally harmful activities and the use of new methods in marketing. All in all, this entails a total revision of the current infrastructure originally devised with the need of the "brown economy" in mind. The transformation to a green economy calls for unavoidable changes in public finances, though the primary goal of that process is not to create unnecessary public costs, but rather to lay the foundations for long-term prosperity.

In addition to changed support system for the economy and public finance, awareness raising is needed among

the public and business executives. In that regard, some go so far as to talk of new traditions and culture.²⁷ It is possible to hasten this awakening by various means. Besides traditional administrative actions, like those mentioned above, it is especially worth mentioning how important it is that public entities show good example. The educational system plays a vital role in the awakening. The UN Decade of Education for Sustainable Development (DESD) is ongoing, with an emphasis not only on increasing knowledge, but also and not less on building up the skills to put that knowledge to use.²⁸

Improved documentation and processing of data regarding individual business sectors is necessary for setting realistic goals for developing a green economy in Iceland and evaluating its progress. Current classification of economic activities according to ÍSAT (Icelandic Standard Industrial Classification), does not offer enough data for sorting out information about green businesses and jobs from the data of Statistics Iceland. The classification of economic activities needs to be reviewed, as well as the collection of economic statistics, in order to enhance the visibility of businesses and jobs. This calls for more detailed definitions than are currently available. As noted above the definitions of the US Bureau of Labor Statistics (BLS) can be used in this work, but in addition thereto, a handful of

other foreign examples of definitions can be taken into account and adjusted to Icelandic circumstances. The Committee on the Strengthening of the Green Economy proposes that the classification of economic activities and the collection of statistic by Statistics Iceland be revised accordingly.

When definitions, registration and the sorting of data has been sufficiently revised according to the points related above it will be possible to embark upon a special analysis of the scope of the green economy in Iceland with regard to job creation and GDP contribution. The Committee on the Strengthening of the Green Economy proposes that such an analysis be conducted and that the status and outlook of green technology be analysed subsequently.

Iceland's emphasis on building a green economy must call for timed-bound objectives regarding the increase of green jobs in addition to the growth based on the general growth of the economy. Still, this cannot be done with sufficient accuracy until an analysis of the current scope of green activity has been made. The Committee on the Strengthening of the Green Economy proposes that a plan should be developed to increase green jobs, based on such analysis.

Discussion on and revision of the indicators used to measure and compare the success of nations is a very important part of the strengthening of the green economy. GDP is the standard most commonly used for that purpose, though in recent years the Genuine Progress Indicator GPI has been increasingly used as a "correction" to GDP. Instead of basing the evaluation of progress solely on

gross turnover, irrespective of how it is created, the factors that oppose common welfare are subtracted, while other factors not visible on the market are added. Calculating and publishing the GPI standard alongside GDP entails an important message about the government's emphasis on sustainable development and a green economy, and sets an example for other domestic parties in green accounting. The Committee on the Strengthening of the Green Economy proposes that a Genuine Progress Indicator (GPI) for Iceland be calculated, and published along with GDP measurements.

Researchers at the University of Iceland within the Department of Economics have already begun researching how GPI calculations can be adjusted to Icelandic circumstances. There the scope of the green economy is also being evaluated (see above).²⁹ This research has shown that the introduction of a GPI calls for statistics that have not been collected in Iceland.

As stated in the introductory chapters of this report the OECD has specifically recommended that environmental costs be directly factored into cost-benefit analysis for assessments of further development of energy-intensive industrial projects in Iceland.³⁰ Cost-benefit analysis is regularly used in decision making in other countries, such as in the US where all bills and policy documents undergo such an analysis. Standards and methodology already exist, that should be easy to incorporate and adjust to Icelandic circumstances.

27 Erik Assadourian (2010). *The Rise and Fall of Consumer Cultures*. In *The State of the World 2010 – Transforming Cultures From Consumerism to Sustainability*. Worldwatch Institute, USA. (Page 3-20).

28 The United Nations Educational, Scientific and Cultural Organization (UNESCO). *Education for Sustainable Development (ESD)*. <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development>.

29 Brynhildur Davíðsdóttir, University of Iceland. Personal information, September 2011.

30 OECD (2008). *Economic survey of Iceland 2008: Executive summary*. http://www.oecd.org/document/54/0,3746,en_2649_34569_40158070_1_1_1_1,00.html.

In that regard, the committee proposes that clauses on the cost-benefit analysis be included in legislation on strategic environmental assessment of plans and policies and in legislation on environmental impact assessment, in order to ensure that environmental costs will always be given monetary value before plans are executed. Increased use of cost-benefit analysis in decision making is an important step to greener economic management.

Committee proposals and plan of action

The Committee on the Strengthening of the Green Economy proposes the following in order to create a platform for strengthening the green economy:

1. The strengthening of the green economy shall be a priority in the Government's employment policy.
2. The task of strengthening the green economy in Iceland shall be the responsibility of the Prime Minister's Office. The Prime Minister's Office shall be responsible for coordinating the implementation of an action plan based on the proposals presented in this document, with the participation of all the ministries of the cabinet. Furthermore, the Prime Minister's Office shall initiate a consultative process with local governments on how the municipalities can contribute to the strengthening of the green economy.
3. The legislation pertaining to public institutions and their tasks shall be subject to a comprehensive review in order to integrate the concepts of sustainable development and the green economy into the statutory roles/purposes of

- the respective institution. Other relevant legislative provisions shall be revised as needed.
4. The classification of economic activities and the collection of official statistics by Statistics Iceland shall be revised in order to enhance the visibility of the green industries of the economy and green jobs, and make it easier to highlight information on the status of specific growth sectors.
 5. The scope of the existing green economy in Iceland shall be evaluated in order to estimate its share of GDP and job creation. Based on that analysis a plan shall be established on green job creation.
 6. The Genuine Progress Indicator (GPI) shall be calculated for Iceland and published along with GDP measurements.
 7. Provisions on a cost benefit analysis shall be added to Act No. 105/2006 on Strategic Environmental Assessment and Act No. 106/2000 on Environmental Impact Assessment in order to ensure that the environmental cost is always assessed before development is initiated.

3.2 The Public Sector as a Role Model

This chapter deals mostly with the public sector as a role model and first and foremost with the government and its institutions. Much of the material in the chapter also applies to Icelandic municipalities, i.e. local governments, their institutions and companies.

The government is the country's largest employer. In the year 2009,

21,800 workers were employed by the Icelandic state, though annual working units were fewer, or 18,200, since many civil servants hold part-time positions. According to this, civil servants make up roughly 12% of the Icelandic work force.³¹

The proportion of public procurement in EU countries is considered to be about 16% of GDP on average, or more specifically 11-20% depending on the country in question. By using this average, it can be estimated that public procurement in Iceland amounts to ca. 200 billion ISK annually.³² This amount is most likely fairly equally divided between the state and the municipalities.³³

It is obvious, in light of the information above, that the Icelandic state and the municipalities can have a huge impact on the progress of the labour market and on the markets for goods and services, in addition to the influence directly linked to their role in passing legislation and monitoring adherence to laws and regulations, enforcing acts of administration, etc. How the Icelandic state and municipalities will influence the society is determined by, among other things, how the state and municipalities apply their purchasing power, that is to say, how they go about buying goods, services and tendering of contracts. Through their demand, large buyers like the state

31 The Ministry of Finance. Key-numbers on state employees and institutions. <http://www.fjarmalaraduneyti.is/starfsmenn-rikisins/yfirlit/almenn/starfsm-stofnanir>.

32 Information from the State Trading Centre and the Environmental Agency, February 2011. See also <http://www.hagstofa.is/pages/983#11.3>.

33 Green procurement. Practical information. Numbers on green procurement. <http://vinn.is/index.php/bakgrunnur/toelur-um-vistvaen-innkaup>.

and the municipalities have decisive influence on the supply of goods and services while promoting innovation.

Public procurement is in fact an integral part of the government's employment policy and can be used in a targeted manner to increase innovation among businesses. By this means the operations of public entities can provide opportunities to find new, economical solutions that can cultivate new international business transactions. This can be encouraged by technology procurement³⁴ where the market is informed in good time about the prospective needs of the buyers. Thereby, the market gets an opportunity to respond and develop solutions that fit the needs. At the same time, increased cooperation between public entities and businesses is encouraged, which is well suited for increasing efficiency in research and development. Green public procurement was first mentioned in *Environmental Policy in Public Governance*³⁵ that was adopted in 1998. On March 27th 2009 the government of Iceland adopted a green public procurement policy, which is a specific policy which is a part of the state's procurement policy and applies to ministries, public institutions and other public entities. The policy holds the status of administrative instructions in the system of government. In the policy, green procurement is defined as: *"Choosing goods or services less harmful to the environment or to people's health, which carry the same*

or lower lifetime cost in comparison to other goods or services that fulfil the same needs".³⁶

There are strong indications that public emphasis on green procurement has already had a significant market impact. A visible example is that in just a few months the number of Swan-labelled cleaning companies has increased from one to five and a similar increase has occurred in Swan-labelled printing companies. This increase seems to be a direct consequence of environmental requirements in public tenders.

The state and municipalities enforce the policy on green procurement within the project Green procurement (VINN),³⁷ commenced in the year 2003. The project is governed by a steering group with representatives from the Ministry for the Environment, Ministry of Finance and the municipalities. The task of the steering group is to work on common projects that support green public procurement in Iceland. The group has set up a web page, translated a handbook on green procurement and translated and adapted European and Nordic environmental criteria to be used in public tenders.³⁸ The steering group is assisted by a work-group with representatives from the Environmental Agency, the State Trading Centre and the Ministry of Finance, that works

on introducing green procurement in public institutions and companies, through visits and educational programmes. The steering group and the working group rely on material from the EU and the Nordic countries where decisive steps are being taken to increase green public procurement.

Green procurement can lead to both environmental and financial gains. The experience of several companies and public entities show that green procurement has reduced waste and operating costs, even though the eco-friendly products are sometimes more expensive than similar lower priced products available. One reason for the financial gains is that in green procurement needs are thoroughly evaluated before making a purchase, and options are chosen that fill those needs in the most cost-effective way. Another reason is that lifetime costs are taken into account, i.e. the purchase price plus the cost of operating, maintaining and discarding. The purchase price is often only a part of the total cost of the purchase. In other words, green procurement is about good procurement practices that are based on the idea of best buy.

Green procurement entails the best purchasing practices, where responsibility, procurement rules and goals are clear, the procurement process is transparent, procurement personnel are educated about green procurement, active communication occurs with suppliers and purchasing data and results are closely monitored. The green public procurement policy defines how public entities can introduce green procurement step by step. The first stage provides, among other things, for the education of key procurement personnel about

34 Björn Bauer et al (2008). Technology procurement. TemaNord 2008:567. The Nordic Council of Ministers, Copenhagen. http://www.norden.org/is/utgafa/utgefidefni/2008-567/at_download/publicationfile.

35 The Ministry for the Environment (1998): Environmental Policy in Public Governance. <http://www.umhverfisraduneyti.is/utgefidefni/nr/189>.

36 The Government of Iceland (2009). Policy on Eco-friendly Public Procurement. The government as an enlightened eco-friendly buyer. http://www.fjarmalaraduneyti.is/media/utgafa/Stefna_um_vistvaen_innkaup_rikisins_200903.pdf. (Page 6)

37 Green procurement (VINN). <http://www.vinn.is>.

38 Information from the State Trading Centre and the Environmental Agency, February 2011.

procurement and for a procurement analysis to be conducted. Clear goals on green procurement are subsequently based on that analysis.³⁹ The Committee on the Strengthening of the Green Economy suggests that all ministries and central governmental bodies (A-section) introduce green procurement procedures conforming to the policy on green public procurement. The committee suggests that such a policy in the period 2013-2020 should aim for 50% green national tenders by the year 2015 and 80% by 2020.

Clear standards of measurement are a prerequisite for the monitoring of environmental and economical gains from green procurement. The VINN steering group is working on the development of measuring standards for the environmental and economic gain from green public procurement that adheres to the policy on green public procurement. The steering group has proposed the use of the newly developed EU measuring standards in the work, since they would facilitate international comparison. These measuring standards are partly quantitative, where the ratio of green public tenders is measured, and partly effect related, with the measure of relative environmental impacts of the procurement, i.e. carbon dioxide emissions on one hand and lifetime costs on the other.

Various other elements that can support green procurement need to be researched, including how budget

plans and annual accounts of public entities are presented. In them, the start-up expenses and operating expenses are kept separate, which means that cost-cutting decisions on the side of start-up expenses can lead to much higher operating costs than otherwise would have been incurred. This could be changed if executive decisions were based on lifetime cost calculations. A recent administrative assessment of ministries' purchases, made by the National Audit Office, showed that registration in the accounts is often unclear.⁴⁰ Clear accounting is required for quality procurement.

The state and the municipalities can impose requirements on suppliers during the procurement process. These not only relate to environmental aspects of goods or services purchased, but to the seller's environmental performance, to the extent that the performance is related to the product in question or production methods used. For instance it can be required that the seller himself uses green procurement, has an environmental management system that meets certain criteria, and files annual reports that comply with the GRI-standard, etc. The requirements can thus initiate a chain reaction running up the value chain. The Committee on the Strengthening of the Green Economy proposes that all new framework procurement agreements of the state comply with environmental criteria in all product categories where such criteria have been set.

Increased emphasis on green procurement influences the market both directly and indirectly. The indirect influence is in particular included in the state's exemplary role. It is obvious that the government's emphasis on green procurement plays a vital role in turning the sights of other buyers, both in business and in common households, to the opportunities that the market offers for cost-effective purchases with minimal negative impacts on the environment and the society. In that way the government's initiative in the field can lead other buyers to increasingly follow its example.

The VINN-project has limited financial resources. Government budgetary contributions to the project in 2011 only amounted to ISK 4.8 million. In addition the project received indirect contributions from ministries and institutions that have representatives in the project's steering group and working group, but the limited funding nevertheless slows down the project's progress and reduces the probability of making green procurement the driving force it should be in the creation of a green economy. The Committee on the Strengthening of the Green Economy proposes an increase in appropriations for the VINN-project in order to expedite progress towards greener economy.

The state budget can be used in many ways to further promote the application of the governmental policy on green procurement. In that regard the Committee on the Strengthening of the Green Economy suggests that a certain amount be taken aside annually in the state budget in order to refund public institutions up to 20% of the cost of goods and services that are shown to comply with the criteria of Environmental Labels — Type 1.

39 The Government of Iceland (2009). Policy on Eco-friendly Public Procurement. The government as an enlightened eco-friendly buyer. http://www.fjarmalaraduneyti.is/media/utgafa/Stefna_um_vistvaen_innkaup_rikisins_200903.pdf. (Page 8).

40 The National Audit Office (2010). Public procurement. Intermediate report 1. Government ministries' procurement policy. http://www.rikisendurskodun.is/fileadmin/media/skyrslur/Innkaup_stefna_raduneyta.pdf. (Page 6).

The state does not only play a part as a role model in the field of green procurement. It can be argued that other environmentally related projects with direct links to the operations of the state or the municipalities can also significantly impact the development in the day-to-day activities of businesses and homes, including activities in the field of waste management, transportation and energy use. With its initiatives in those fields the state can be a driving force in the development of a more sustainable society, while strengthening the green economy. Good examples are energy efficiency projects, where in-house reforms of public entities can be a model for others, encourage job creation and achieve long-term savings. The Committee on the Strengthening of the Green Economy recommends an audit of public buildings' use of energy, and the setting-up of energy management systems wherever feasible.

There are some examples in other countries of similar projects, where the state has proactively tried to influence other entities in this way. Only examples from Norway and Sweden will be mentioned here:

As early as in 1996 the OECD issued a special recommendation to its member countries asking them to incorporate environmental considerations into the activities of public institutions. In 1998, the Norwegian state embarked on a special three year environmental campaign under the heading *Grønn stat*. The campaign has been renewed several times and still exists in a revised form, 13 years later.⁴¹

All ministries in Norway had started formal environmental work by the end of the year 2002 under the flag of *Grønn stat*. At a similar time it was decided that all institutions of the Norwegian state should install a simple environmental management system no later than 2005. At the outset of that work, Børge Brende, then the Norwegian minister for the environment, said that the state needed to be "*en miljøpioner*", rather than "*en etterløper*".⁴²

Today there are three projects active in the Norwegian administrative system, all with roots in the original *Grønn stat* project. In one of these a special strategy has been adopted concerning environmental and social responsibility in public procurement.⁴³ Another project deals with EMAS-registration⁴⁴ in all Norwegian ministries. That project is in its early stages, and is carried out with the help of the Ministerial Service Centre (DSS). Thirdly there is an experimental project on carbon offsetting at state-owned companies. To begin with 10 companies that already have set up an active environmental management system have been chosen to participate.⁴⁵

In November 2007 the Swedish government decided that all publicly held companies, 55 in all, should publish annual accounts that conform to the directions of the Global Reporting Initiative (GRI),⁴⁶ which is an organization that has developed international criteria for making sustainability reports, with the main emphasis on transparency and credibility. These criteria can be implemented gradually with both their extent and internal/external review adjusted according to capabilities. In 2007 around 14% of the public companies in question published their annual accounts in that form. In 2008 the ratio was up to 89% and in 2009 the annual accounts of the Swedish state-owned companies were all kept according to GRI standards. A report, written by the Department of Business Studies at Uppsala University for the Swedish government and published in September 2010, claimed this new emphasis in annual accounts had led to an increased awareness within the companies about the importance of sustainable development, focused procedures and improved methods, in addition to having put matters concerning sustainable development higher on the agenda of the board members and executives of the companies.⁴⁷ All this contributes to the strengthening of the foundations of a green economy. The Committee on the Strengthening of the Green Economy proposes that all institutions

41 The Norwegian Ministry for the Environment. *Grønn stat*. <http://www.gronnstat.no>.

42 The Norwegian Ministry for the Environment. *Grønn stat – miljøledelse i departementene*. Homepage news item 5th March 2002. http://www.regjeringen.no/nb/dokumentarkiv/Regjeringen-Bondevik-II/md/Taler-og-artikler-arkivert-individuelt/2002/gronn_stat_miljoledelse_i_departementen.html?id=266302.

43 DIFI, Direktoratet for forvaltning og IKT. *Anskaffelser.no. Miljø- og samfunnsansvar*. <http://www.anskaffelser.no/samfunnsansvar-miljo>.

44 Regulation No. 990/2005 on the free participation of companies and institutions in the EU Eco-Management and Audit Scheme (EMAS). <http://www.reglugerd.is/interpro/dkm/WebGuard.nsf/key/2/990-2005>.

45 Bente Næss, Norway's Ministry for the Environment. E-mail April 28. 2011.

46 Global Reporting Initiative. <http://www.globalreporting.org>.

47 Tommy Borglund, Magnus Frostenson and Karolina Windell (2010). *Increasing responsibility through transparency? A study of the consequences of new guidelines for sustainability reporting by Swedish state-owned companies*. Regeringskansliet, Sweden. <http://www.sweden.gov.se/content/1/c6/15/23/57/a5d3ccbc.pdf>.

of the respective ministries and all state-owned companies should publish annual reports in accordance with The Global Reporting Initiative (GRI).

The December 2002 UN General Assembly agreed to make the years 2005-2014 the Decade of Education for Sustainable Development (DESD).⁴⁸ The overall goal of the decade is to integrate the principles, values and practices of sustainable development into all aspects of education and learning, not only in the school-system, but also in the field of politics, i.e. where political decisions are made. There, as in other places, the administration can make improvements and set a good example. Bearing that in mind, the Committee on the Strengthening of the Green Economy proposes that an effort should be made to educate public institutional staff about sustainability, stressing the leading role of such institutions in the field of sustainable development with reference to the aims of the UN Decade of Education for Sustainable Development. Towards this end one could utilize the resources from the *Global Action Plan*⁴⁹ that Landvernd, the Icelandic Environment Association has overseen in Iceland. For example, the Global Action Plan has assisted families and work place groups improve their environmental awareness and reduce their environmental footprint through education and with the help of trained instructors. Environmental sustainability education within the public sector should be a key component in the environmental work of Althingi, and of all government ministries and their institutions.

⁴⁸ See further in chapter 3.4.

⁴⁹ Landvernd (Icelandic Environment Association). The Global Action Plan (Vistvernd í verki). <http://www.landvernd.is/vistvernd>.

International Standards Organization (ISO) 14001 should be considered within this policy framework.

More things that would strengthen public entities in Iceland as role models, encouraging others to follow in their footsteps on the road to a green economy, could be named. Public institutions could, for instance, direct their business to financial institutions that are committed to social responsibility and have taken conspicuous steps in that direction. The government and municipalities could also show better examples than they do today in following through with policies of sustainable development. In that regard strategic planning should be mentioned, for according to Article 1 of the Planning Act No. 123/2010 sustainable development should be the vision for the planning work. A comparable provision was also in the prior act from 1997, but follow-up seems to have been limited, not only concerning that provision, but even with respect to the plans in general. Targeted follow-up of one's own decisions is an important part of being a role model. No special evaluation has been made of the state's and the municipalities' implementation and follow-up of their own plans for sustainability (such as Local Agenda 21, Welfare for the Future and the Nordic Sustainability Strategy), but at a glance something seems to be lacking. The Committee on the Strengthening of the Green Economy proposes such an evaluation, with proposals for improvement in fields where follow-up is found to be lacking. The evaluation needs to include how sustainability indicators and other indicators are used to monitor success.

In order for public entities to be role models in the creation of a green

economy direction needs to be clear. The Committee on the Strengthening of the Green Economy feels there is a room for improvement. For example, setting clear goals for public energy companies. Therefore, the committee suggests that green energy should be defined as a special area of emphasis in the ownership policy of public energy companies, thus becoming a fundamental issue when choosing energy buyers, once demands for profitability have been met.

Committee proposals and plan of action

The Committee on the Strengthening of the Green Economy proposes that the following steps be taken in order to strengthen the role of public entities as role models in strengthening a green economy:

8. All ministries and public institutions (A-section) shall implement green procurement practices in accordance with the national policy on green public procurement.
9. The national policy on green public procurement practices (2009-2012) shall be revised. A new policy for the period 2013-2020 shall aim for the percentage of green national tenders to reach 50% in 2015 and 80% in 2020.
10. All new framework agreements on procurements shall fulfil environmental criteria in the product categories where such criteria exist.
11. Budgetary appropriations for the VINN-project on green procurement practices shall be increased.
12. Funding will be set aside annually in the general budget, to repay

public institutions up to 20% of the product costs and services shown to fulfil the terms and conditions of Environmental Labels — Type 1.

13. An audit of the energy use of public buildings shall be carried out, and energy control procedures installed where they are considered feasible.
14. All institutions of the respective ministries and all state owned companies shall publish annual reports according to Global Reporting Initiative standards.
15. Althingi, all ministries and all governmental institutions shall implement a focussed environmental management plan to reduce waste and other negative impacts on the environment, both direct and indirect, with reference to the international standard ISO 14001. The plan shall include an initiative to educate public employees about sustainability, with a special emphasis on the leadership role of such institutions with regard to sustainable development and with reference to the aims of the UN Decade of Education for Sustainable Development.
16. An assessment shall be carried out on the implementation of national and municipal policies, plans and programmes for sustainability (such as Local Agenda 21, Welfare for the Future and The Nordic Sustainability Project).
17. Eco-friendly use of energy shall be part of publicly owned energy companies' policies, thus becoming a fundamental issue in choosing energy buyers once demands for profitability have been met.

3.3 The Support System for the Economy

This chapter deals briefly with the Icelandic business environment's infrastructure, how it serves the goals of a green economy and how it can be adapted to further support the strengthening of the green economy.

The Technology Development Fund is meant to support development and research in technological development aiming at innovation in the Icelandic economy. To further that end the Fund is authorised to finance innovative projects conforming to the Science and Technology Policy Council's general policy. The Fund serves diverse groups, including health technology, computer gaming and many other companies. Green goals could possibly be set for the Fund's financial allocation, but its emphasis must remain first and foremost on innovation. In that field it can be hard to know how green the jobs created will eventually be. Likewise many green projects are beyond the Fund's scope, e.g. projects on importing and adapting technology, such as in the fields of composting and the production of fuels from waste. Therefore a special fund is needed to support such projects. The Committee on the Strengthening of the Green Economy proposes the creation of a fund called the Green Competitive Fund as a division of the Technology Development Fund to fund only projects in the field of green innovation. The system would be comparable to the Technology Development Fund's current financing policy ("equal funding contribution"), which requires a 50% contribution from the beneficiary. A special committee should evaluate and put forward proposals for funding, with

regard to the UN's and BLS' definitions of green jobs and green economy. The fund could be financed by allocating to it a part of an increased carbon tax on fuel and the proposed pollution fees, in accordance with the discussion on those fees later in this report.

The New Venture Business Fund is a risk capital investor that invests in innovation and start-up companies where much added value and profitability can be expected. The fund is financed by its own income and receives no public contributions. The fund's profit goes to further investment in companies. The fund is authorised to invest in companies directly by buying shares and indirectly through participation in cooperative funds that invest in innovation companies. The Committee on the Strengthening of the Green Economy proposes that the fund be entrusted with the task of founding and running a green investment fund in cooperation with domestic and foreign investors. The role of the green fund will be to invest in environmental technology and in environmentally sound activities.

According to Article 15 of Act No. 99/2010 on Incentives for Initial Investments in Iceland, the government is authorised to issue general incentives "to enterprises in respect of environment-related new investments which contain improvement or innovation in environmental protection, i.e. reduced use of energy or reduced emissions of greenhouse gasses". This can include support for staff training costs because of new investments, and research and development costs connected to new investments. The maximum amount for such support is EUR 7.5 million for every small and medium sized company's investment

project and EUR 2 million for training support. The Committee on the Strengthening of the Green Economy suggests a five year campaign to increase foreign investment in green businesses, e.g. by using the above mentioned authorisation in Article 15 of the law. The campaign shall include an economic analysis of the green economy in Iceland, the choice of areas for emphasis, the charting of possible investors, marketing and promotions. Special emphasis should be put on attracting green foreign investment projects. When choosing projects the definitions of the UN and BLS of green jobs shall be used for reference.

In Act No. 99/2010 on Incentives for Initial Investments in Iceland, the precondition is set out in point e of Article 5 for granting incentives, that the annual turnover of the prospective investment project must be a minimum of ISK 300 million, or the new investment must create a minimum of 20 man-years of employment with the applicant in the operation of the investment project in its first two years. The Committee on the Strengthening of the Green Economy proposes that these limits be eased, because they exclude incentives to smaller investments, even if they otherwise fit well within the legal framework and are well suited to support a green economy.

An important factor in attracting green foreign investment to Iceland is thorough groundwork, in order to shorten the preparation process from the moment an idea is formed, without reducing requirements concerning the protection of the environment and the society. In this respect the state and the municipalities play a vital role by having performed basic

environmental assessments in the most likely construction areas. Such research could, for instance, be funded with contributions from the Natural Resources Fund that the government plans to establish, as noted in the Governments Policy Declaration.⁵⁰ Development centres can also contribute by having presentations ready each in its area.

It is important to integrate the emphasis of a green economy into other parts of the infrastructure, such as into the work of the Icelandic Regional Development Institute and development centres. Green references should also be included in all new growth contracts. This can be done by amending Act No. 106/1999, on the Regional Development Institute, such as Article 2 on the institution's purpose. The Regional Development Institute's board of directors would also need to amend its lending rules with green goals in mind. The Committee on the Strengthening of the Green Economy suggests that the Act on the Regional Development Institute be amended accordingly.

Strategic planning on the national level, with an integrated policy for public entities on transport, regional development, nature conservation, energy utilization and other areas concerning land usage, and where sustainable development is an underlying theme, is a novelty in the Icelandic organizational system. The strengthening of a green economy fits well in with the Planning Act and the forming of a Country Wide Strategic Planning Phase also facilitates the

introduction of a green economy where the municipalities and the state set forth a common policy on land usage where sustainable development and green goals are deciding factors in decision making.

As the examples above show, it is the task of different parties to support innovation, increase employment and strengthen companies' competitiveness. To help entrepreneurs understand the possibilities that the infrastructure offers the Committee on the Strengthening of the Green Economy proposes efforts to ensure that that applications for grants for green innovation from Icelandic, Nordic, European or international funds can be made at a single location where advice and information on how to apply for grants supporting green innovation are also available.

All new businesses undergo a sort of infancy from the formation of an idea until it becomes a marketable product or service. In that period the businesses need "patient" risk capital, accessible only in very limited amounts as loans from traditional banks. And because these businesses are not listed on a stock market, the banks cannot use capital in asset management to invest in them. Therefore a different approach must be taken in search of patient investment capital. The government can allocate funds to this kind of development in one of two ways, either by collecting a tax whose income goes to some sort of project funds, or by tax exemptions to private parties. The latter method is particularly likely to produce results in the current circumstances in the financial market, with low interest rates on deposits and a lack of investment opportunities. In such circumstances the owners

50 The Prime Minister's Office. The government of the Social Democratic Alliance and the Left-Green Movement's Declaration of Cooperation. <http://www.forsaetisraduneyti.is/utgafur/stefnur/nr/4158>.

of capital are likely to be prepared to invest part of their liquid assets in new ideas, provided they receive tax exemptions within a given framework, e.g. in the form of a discount on their capital income tax. In other words, by using such incentives capital could be mobilised that currently lies immobile in bank accounts. The government's administrative costs would also be lower than in a fund system where the evaluation of applications calls for much work. Still, such incentives can cause problems, especially when they can be interpreted as direct subsidies to businesses in a competitive environment. It is clear that all such proposals need to conform to Iceland's commitments under the EEA agreement.

Lack of adequate collateral or guarantees often prevents new businesses from getting loan financing, even if the idea that the business is founded on is already in production and profitable. This often makes it hard for businesses to strengthen their foundations, achieve stability and increase their activity. In that stage, guarantee funds can play a vital role. The Collateral Fund for Women Entrepreneurs in Iceland is an example of such a fund, which operated in the years 1997-2005, and was restored in March 2011.⁵¹ In some neighbouring countries there have been similar "green guarantee funds", set up with the cooperation of governments and banks, that guarantee loans to growing green businesses. One such model is in Denmark, where Vækstfonden has for years, after thorough analysis, issued such guarantees in cooperation with

all of the country's major financial institutions.⁵²

The Starfsorka Project of the Innovation Centre Iceland is a project that enables businesses to hire unemployed people.. The basis for the project is a trilateral agreement between the Directorate of Labour, the business and the job-seeker regarding an employment connected with innovation and development and the payment of unemployment benefits. Businesses that operate all over the country can, on the basis of the agreement, hire personnel for up to 6 months to work on developing new business ideas. The business in question pays the salaries, while the Directorate of Labour refunds the business a sum that amounts to the unemployment benefits that the unemployed person is entitled to receive, plus an 8% pension fund contribution.⁵³ The Committee on the Strengthening of the Green Economy suggests a revision of Starfsorka's rules making contracts for new environmental projects eligible. Such revision would make it easier for businesses to hire individuals for green jobs.

Committee proposals and plan of action

The Committee on the Strengthening of the Green Economy recommends the following actions for infrastructure improvements in order for it to facilitate even further the strengthening of the green economy:

18. A fund shall be established called the Green Competitive Fund as

a department of the Technology Development Fund. Its purpose will be to fund projects in the field of environmental innovation, with special regard to the definitions of the UN and the US Bureau of Labor Statistics for green jobs and green economy.

19. The NSA Ventures shall be entrusted with establishing and operating the Green Venture Capital Fund in cooperation with domestic and foreign investors. The role of the fund will be to invest in environmental technology and in environmentally sound activities.
20. A five year campaign shall be implemented to encourage foreign investment in green businesses, for instance, by using the provision in Article 15 of Act No. 99/2010 on Incentives for Initial Investments. The BLS' definitions of green jobs shall be used as criteria when selecting projects. The campaign shall include an economic analysis of the green economy in Iceland, the choice of areas for emphasis, the charting of eligible investors, marketing and promotions.
21. Act No. 99/2010 on Incentives for Initial Investments in Iceland, shall be amended so as to permit derogations from the current size limits provided for in point e of Article 5, when the projects in question fall under the definitions of the UN and BLS of green jobs and green economy.
22. Act No. 106/1999 on the Icelandic Regional Development Institute shall be amended so that the institution operates in accordance with the goals of sustainable development and integrates the core principles of the green economy into its

51 The Ministry of Welfare. Grants for women re-established. Web-page news 8. March 2011. <http://www.velferdarraduneyti.is/frettir-vel/nr/32690>.

52 Vækstfonden. <http://www.vf.dk>.

53 The Innovation Center Iceland. Starfsorka Job Empowerment Project. <http://www.nmi.is/impra/styrkir-og-studningsverkefni/starfsorka>.

operations, lending practices, growth contracts and other forms of cooperation with respective development centres.

23. One stop source should be established for information and advice on grants for green innovation projects from Icelandic, Nordic, European and international funds.
24. A new provision shall be added to Starfsorka's rules making contracts for new environmental projects eligible.

3.4 The Educational System

It is often said that the authorities possess three kinds of tools to influence the behaviour of the public and businesses, i.e. firstly they can command and control, secondly they can introduce economic incentives and thirdly they can distribute information. The educational system plays the most vital role regarding the third part and is as such of great importance when introducing a green economy. This does not only apply to the traditional school system, but also to others in the field of education and distribution of information of any sort, including retraining and adult education. The media also plays a vital role in this regard.

A recent report from the European Centre for the Development of Vocational Training (Cedefop) points out that all jobs can be made greener. To do so one only needs to envision the impact the job in question has on the environment and to understand how the job can help make the economy greener. Vocational training is an important

precondition for developments towards a green economy and therefore these principles need to be integrated into all vocational training and retraining in every field. A huge effort is needed to build the skills that a green labour market needs.⁵⁴

The December 2002 UN General Assembly agreed to make the years 2005-2014 the *Decade of Education for Sustainable Development*. The overall goal of the decade is to integrate the principles, values and practices of sustainable development into all aspects of education and learning. The assumption is that education for sustainable development is for everyone and can either be formal or informal. Such education can be carried out anywhere, in schools and non-governmental organisations (NGOs).⁵⁵

The public and businesses play a vital role in introducing and strengthening a green economy. To do their part the respective parties need access to thorough information and to possess the necessary knowledge. In addition to public entities and the school system the media and NGOs play a big part in distributing this information and in building up knowledge and thereby promoting an awareness and changes in behaviour. Examples of specific projects with that aim are the *Global Action Plan*⁵⁶ and the *Green*

Flag Project,⁵⁷ that in Iceland are both run by Landvernd, the Icelandic Environment Association. Many more could be named, such as *Green April*,⁵⁸ first held in the Spring of 2011. Increased support for such projects would strengthen the green economy.

The international Green Flag Project has grown fast in Iceland since it was adopted by Landvernd in the year 2001. From that time around 200 schools have joined the project. The number of participating pre-schools and primary schools is similar, but the project is tailored to the needs of those levels of education. More than 10 other schools in Iceland, mostly in the secondary school level, have also used the Green Flag in their environmental work. In the Green Flag schools the students, parents, teachers and other staff work together on targeted environmental projects, with rich emphasis on certain themes each year. When a school has reached a certain required minimum success it is permitted to fly the Green Flag for the next two years. Constant environmental progress is, on the other hand, necessary to get that license renewed.⁵⁹ The Green Flag Project has achieved great results and therefore the Committee on the Strengthening of the Green Economy proposes a long-term agreement on supporting the project, with the aim of securing schools' access to the project, and making sustainability education an integral feature of all school curricula.

54 Cedefop – European Centre for the Development of Vocational Training (2010). Skills for green jobs. European Syntheses Report. Cedefop. http://www.cedefop.europa.eu/EN/Files/3057_en.pdf.

55 Stefán Gíslason (2009). Environmental Education in Iceland. Current status and proposals for improvement. A report for The Board of Environmental Education, Reykjavík. http://environice.is/Files/Skra_0042865.pdf.

56 Landvernd (The Icelandic Environment Association). The Global Action Plan (Vistvernd í verki).

<http://www.landvernd.is/vistvernd>.

57 Landvernd (The Icelandic Environment Association). The Green Flag. <http://www.landvernd.is/graenfaninn>.

58 Green April. <http://graennapril.is>.

59 Landvernd (The Icelandic Environment Association). The Green Flag. <http://www.landvernd.is/graenfaninn>.

In addition to being well suited for saving money and increasing the quality of living, eco-driving is an excellent example of how the public can decrease its environmental impact with minimal effort. With eco-driving fuel consumption and pollution can be reduced significantly. During eco-driving courses students are instructed on how to care for their vehicles and how to drive in such a way that their fuel consumption is kept to a minimum. Fuel savings among those who attend the eco-driving courses are commonly around 10-15%.⁶⁰ Eco-driving also reduces vehicles' wear and tear and increases security. Eco-driving courses are now available to anyone with a valid driver's license for automobiles. In the course syllabus for a driver's license (category B)⁶¹ eco-driving is mentioned in chapter 2.2.8, however the Committee on the Strengthening of the Green Economy suggests a revision of the course syllabus making eco-driving a fundamental part of the practical education.

Sustainable development gets more weight in the Ministry of Education's new National Curriculum than ever before. Sustainability is for instance one of the six fundamental elements that together form the nucleus of the educational policy and concern the functioning, content and the environment of education at all school levels and create an

important continuum in the Icelandic school system.⁶² The emphasis on sustainability in the pre-, primary and secondary school levels is hugely important in strengthening the green economy, both short and long-term. It is important for this emphasis to also reach higher education, not only in the scientific disciplines, but also in other disciplines, whether it is business, economics, philosophy or the arts.

In order for the principles of sustainable development to come through in the students' education, the teachers and others leading the educational work have to be knowledgeable in the field. To promote that knowledge the teacher training needs to be revised, integrating education for sustainable development into all teacher education, both in traditional teacher training and post-graduate studies, as well as in diploma studies to obtain a license for teaching and retraining. The Committee for the Strengthening of the Green Economy proposes that such a revision be done.

In order for the emphasis of sustainable development to reach all school levels, as well as education outside the school system, the Committee on the Strengthening of the Green Economy proposes the establishment of a special "*Sustainability Education Fund*" that would issue grants to institutions and projects for sustainable development education. Included could for example be the production of any kind of teaching materials in the field, production of educational material on the environment and sustainable development for the media, etc.

In addition to the emphasis on education for sustainable development it is important to look to the supply of educational courses directly connected to green businesses. More and more students in the fields of industry, technology and business must be prepared for participation in green businesses. A shortage of individuals trained in the appropriate fields can delay the progress towards a green economy. Increased offerings of such courses of study may need to be accompanied by special measures to make such studies as attractive as possible.

Committee proposals and plan of action

The Committee for the Strengthening of a Green Economy suggests the following actions to support the system of education in planning education for sustainable development and thereby support the strengthening of the green economy:

25. A long-term agreement shall be concluded in support of the Green Flag Project, with the aim of securing schools' access to the project, and making sustainability education an integral feature of all school curricula.
26. The course syllabus for a general driver's license (category B) shall be revised, making eco-driving a fundamental part of the practical training.
27. Courses available at teacher training institutions shall be revised in order to incorporate education towards sustainability, both into the general teacher training and retraining programmes.
28. A special "*Sustainability Education Fund*" shall be established to

60 Landvernd (The Icelandic Environment Association). Eco-driving. <http://www.landvernd/vistakstur>.

61 The Road Traffic Directorate (2010). Syllabus for a general driver's license (category B). A passenger car. A light van. <http://www.us.is/Apps/WebObjects/US.woa/swdocument/1003144/N%C3%A1mskr%C3%A1+fyrir+almenn+%C3%B6kur%C3%A9ttindi+-+Flokkur+B%2C+febr%C3%BAar+2010.pdf>.

62 The Ministry of Education, Science and Culture (2011). The Primary School National Curriculum General section. <http://www.menntamalaraduneyti.is/utgefid-efni/namskrar/nr/3953>.

provide grants for institutions and projects that support education towards sustainable development.

3.5 Economic Incentives

As mentioned earlier the governmental authorities in general possess three kinds of tools to influence the behaviour of the public and businesses, i.e. firstly they can command and control, secondly they can introduce economic incentives and thirdly they can distribute information. In the years after 1970 Nordic governments primarily used the command and control approach to manage environmental development. Then in the mid 80's, taxes on polluting products and later also on the emission of pollutants were increasingly used. After 1990, carbon fees became more common and in the mid-decade commerce with emission permits commenced to some extent. Furthermore, to name some examples, fees have increasingly been collected in many countries for the emission of chemicals like NOx and SOx. Experience shows that the use of these kinds of economic incentives usually promotes more cost effective solutions in pollution prevention than have been achievable by using command and control.⁶³

Economic incentives refers to any financial aspect that encourages or enables certain behavior, or provides impetus to select one particular option

over another.⁶⁴ Economic incentives can take various forms, such as direct grants or fees, or tax exemptions. If such incentives are used with foresight and good governing, they encourage polluters to reduce pollution in the most cost-effective manner. At the same time the incentives can promote a greater long-term economic growth than can be expected from the command and control method. In order to further the strengthening of the green economy it is most important to use such incentives in favour of sustainable development, while at the same time reducing public support for "brown" economic activities that have negative impact on the environment.

As a rule, the economic incentives proposed in this report, are those least burdensome financially for the Treasury and are rather based upon adjustments and transfers in the budgeting of the national budget. The Committee members agree that fees on pollution are to be used more widely in accordance with the Polluter Pays Principle, while other fees or taxes should be reduced as applicable. The Committee's meetings with representatives of the government and of the business community showed that these parties were in agreement with the Committee on that point. Moreover the Committee feels it is feasible to increase the setting aside of pollution fees for specific tasks, using the revenue to promote and strengthen environmental reforms in the sectors paying the fees.

The Committee on the Strengthening of the Green Economy proposes that the Ministry of Finance be assigned

the task of designing a new source of revenue, i.e. pollution fees in the spirit of the Polluter Pays Principle for the 2013 State Budget. The experience of other countries, especially the Nordic countries, should be given consideration when implementing pollution fees, e.g. fees on NOx and SOx. Iceland's particular circumstances should also be taken into account, e.g. with regard to fees on the emission of hydrogen sulfide (H2S) and fluoride (F-). The pollution fees should go to a green fund that finances refunding of costs related to businesses' investments in technical solutions that reduce pollution or increase energy efficiency. A proportion of the fees could also be allocated to a green competitive fund that issues grants to projects in the field of green innovation (see above).

The government can use economic instruments to enhance the green economy in several ways. Theoretically, the aim of such actions should be the perfect internalisation of the externalities, i.e. that ultimately the price of all goods and services would reflect its impact on the environment and the society, thereby preventing that the real cost is carried partially by others than the provider or the consumer of the goods or services in question, such as neighbours, individuals in distant countries or unborn children. A simple example is when a polluting product is sold at a specific price that does not include the costs associated with the pollution.

Administrative actions which seek to incorporate externalities into the prices for goods or services do indeed constitute market intervention, given that the purpose of such action is to rectify a certain market failure. An example of such an action is the

63 John Magne Skjelvik, Annegrete Bruvoll and Karin Ibenholt (2011). Greening the economy: Nordic experiences and challenges. TemaNord 2011:532. The Nordic Council of Ministers, Copenhagen. <http://www.norden.org/is/utgafa/utgefid-efni/2011-532>.

64 Arthur O'Sullivan and Steven M. Sheffrin (2002). Economics: Principles in Action. Prentice Hall, USA.

introduction of environmental taxes or other “Pigovian taxes”, i.e. taxes that are equal to the negative externality. Carbon emission taxes are examples of this. The introduction of such taxes should not mean increased tax burden on the whole, but only a transfer between tax sources. In other words this means taking steps towards an Ecological Tax Reform (ETR),⁶⁵ that entails that the tax burden is in part, or even in whole, transferred from income to consumption, letting the taxation of the consumption be governed by its impacts on the environment and the society.

A radical tax reform like ETR is not being proposed in this report, as the implementation of such a change is complicated for a variety of reasons, including due to its effects on the welfare system and the competitiveness of nations. On the other hand, small steps towards internalization of externalities can lead to a significant strengthening of the green economy. At first such steps need to be built on estimates, since it is difficult to make infallible assumptions about the impact of specific goods or services.

Ecolabels – Type 1, such as the Nordic Swan, are based on life cycle thinking, which means that when setting criteria, the environmental impacts of the products or services in question are taken into account right from the processing of raw materials until the time when the product has served its purpose and turned into waste.⁶⁶ In other words, in order for a specific

product or service to be allowed to carry an ecolabel of this kind it has to comply with specific environmental criteria based on a sort of life cycle analysis, which at the same time includes an indirect evaluation of the product’s externalities. The result is the adoption of specialised criteria to implement positive discrimination of the product or service in a taxable context, either by lowering taxes on the product or service or by raising taxes on another product or service intended for the same use but which has demonstrably failed to meet the criteria of a specific ecolabel of this type.

Another example of a Type 1 ecolabel is the EU-ecolabel (The Flower). The Flower and the Nordic Swan are the official ecolabels in Iceland according to the Regulation on Ecolabels No. 525/2006. Consequently, it is reasonable that tax incentives for ecolabels favour these labels over others, although nothing stands in the way of extending the said incentives to goods or services bearing other Type 1 ecolabels, per further administrative decisions, such as the German Blue Angel label, or the Swedish labels Bra Miljöval or TCO. They all fall into this category and are to some extent available in the Icelandic consumer market.

Organic certification is not based on a lifetime approach in the same way as Type 1 ecolabels. Considering that organic production is generally thought to conform well to the philosophy of sustainable development, and is in fact specifically mentioned in BLS’ definition of green jobs,⁶⁷ it is entirely possible to apply positive tax discrimination to those as well, given

that the certification in question is based on international standards and rules in accordance with Regulation No. 242/2010 on the (11th) amendment of Regulation No. 74/2002 on organic agricultural products and labelling, and therefore on the EU Commission Regulation No. 123/2008 from February 12, 2008.

With regard to the aforementioned, the Committee on the Strengthening of the Green Economy proposes that when revising the V.A.T. legislation, provisions should be introduced to levy lower V.A.T. on products and services that are ecolabelled and/or organically certified than on other products and services intended for the same purpose.

Businesses and institutions that have implemented a certified environmental management system (acc. to ISO 14001 or EMAS) have, in general, a much better overview of the environmental aspects of their activities than other businesses and institutions. Such certification could be encouraged with a refund amounting to the V.A.T. levied on the cost of installing the system, up to a specific maximum amount, for example 1 million ISK. The discount system already used for compensating R&D costs for innovation projects could be used for reference. The Committee on the Strengthening of the Green Economy proposes that this method be put into effect. In addition these certified businesses could get a discount from pollution prevention control by being subject to a reduced number of inspections compared to other businesses. Such concessions are authorised in Paragraph 6 of Article 12 of Regulation No. 786/1999 on Pollution Prevention Control. This can be viewed as an endorsement of the environmental work and a type

65 Ernst U. Weizsacker (1992). Ecological tax reform: A policy proposal for sustainable development. Zed Books, London.

66 Icelandic Standards (IST). Environmental labels and declarations – Type 1 environmental labeling – Principles and procedures. IST Standard EN ISO 14024:2000.

67 See chapter 2.1.

of declaration of trust vis-à-vis the certification.

Decisions to use economic incentives for the benefit of a green economy need to be in line with EU and EEA regulations. As a rule, decisions of this kind must be brought to the attention of the EFTA Surveillance Authority (ESA), though a pre-notification is available in order to get an early response to such a proposal. Still, in general, incentives of this kind fit well with the goals of the EU and EEA and are common in the member states countries. Directions listing the preconditions for an incentive to be allowed⁶⁸ and also a database with information about approved incentives⁶⁹ are to be found on the EU webpage. The database can be searched by types of economic activities, incentive categories, etc. On the ESA webpage there is also a separate list of incentives granted in Iceland, Norway and Lichtenstein.⁷⁰ All sorts of tax incentives exist, but tax allowances are more common than repayments within the EEA.⁷¹

Naturally the national government plays a leading role when applying economic incentives for a green economy. Still, local governments can also contribute to the matter, e.g. with special incentives for eco-friendly buildings, such as by using building permit fees, street connection fees,

municipal property fees or specific tariffs.

Committee proposals and plan of action

The Committee on the strengthening of the green Economy proposes the following actions, using economic incentives in order to strengthen the green economy:

29. The Ministry of Finance shall be given the task to develop pollution fees in accordance with the Polluter Pays Principle. The pollution fees shall go to a green fund, which will finance the reimbursements of costs related to pollution prevention in the respective industries. Lessons from the other Nordic countries shall be taken into account in the development of these fees.
30. Act no. 50/1988 on Value Added Tax shall be amended so that goods and services that are environmentally and/or organically certified will carry a lower V.A.T. rate than comparable goods and services.
31. The legislation shall be amended in order to allow reimbursement to businesses of 20% of outlays in connection with implementing certified environmental management systems (for instance ISO 14001 or EMAS), up to a maximum of 1 million ISK.

of Labor Statistics' (BLS) definition of green businesses and green jobs. The BLS divides jobs into two main categories. On the one hand, there are jobs producing environmentally friendly goods or services and on the other, jobs making manufacturing processes friendlier to the environment.⁷² A green economy is characterised by such jobs.

Despite difficulties in distinguishing between green and non-green economic activities, it is easy to point out activities that are in principle, for the most part, considered green pursuant to BLS' definition. These include, in particular, activities that produce environmentally friendly goods or services, i.e. businesses in BLS's first main category. Into the second category fall activities that are not considered green as such, even though they include many green jobs.

In 2001 an amendment was made to the Act No. 7/1998 on Hygiene and Pollution Control, making it mandatory for businesses in specific polluting industries to keep green accounting, that is to say, material accounting with quantitative information on the status of environmental affairs in the production in question. More detailed provisions were laid down concerning this obligation in Regulation No. 851/2002 on Green Accounting. The Committee on the Strengthening of the Green Economy finds that the green accounting has neither made a significant difference with respect to the environmental performance of businesses, nor changed much regarding the flow of information to the public. The original goals of clearer information and environmental protection have in fact not been met.

3.6 Green Economic Activities

In its work, Althingi's Committee on the Strengthening of the Green Economy has relied on the US Bureau

⁷² See chapter 2.1.

⁶⁸ The European Union. Summaries of EU Legislation. State aid for environmental protection. http://europa.eu/legislation_summaries/competition/state_aid/126106_en.htm.

⁶⁹ The European Union. State Aid Cases. http://ec.europa.eu/competition/state_aid/register.

⁷⁰ The EFTA Surveillance Authority (ESA). State aid. <http://www.eftasurv.int/state-aid/state-aid-register>.

⁷¹ Haraldur Steinþórsson, Ministry of Finance. Phone call 10 June 2011.

The lack of results is in part due to the methods applied in reviewing the accounts and in limited follow-up by the businesses in question and the Environmental Agency. Therefore, the Committee proposes that the aforementioned regulation No. 851/2002 should be revised based on the experience of the past decade. Surveillance of the reliability of the accounting practices shall be especially considered, to help in fulfilling the goals regarding the clarity of information and environmental protection.

Below is a discussion of several examples of economic activities that either are considered green, according to the definitions above, or have significant potential for the increase of green jobs. Furthermore, proposals are put forth regarding actions that could lead to an increase of green jobs within these fields of activities and hence strengthen the green economy.

Organic production is an example of an activity that is green in nature according to BLS' definition. The term organic production refers to methods and products, that fulfil the criteria of Act No. 162/1994, Regulation No. 74/2002 with later amendments and the rules of Tún Organic Certification body. Organic methods are not limited to food production. They can also be used when handling other natural resources, such as textiles, cosmetics, fertilizers or animal feed, to name a few. Among internationally recognised farming practices, organic farming is the closest to sustainable development in agriculture.

All food production and other production using the resources of nature cause some disruption in

the natural environment. However, organic methods greatly reduce that disruption. The emphasis in organic agriculture is on *"building up the biota and carbon content of the soil through crop rotation, growing carbon binding plants, the use of organic fertilizer instead of manufactured fertilizer, and managing the strain on pastures. Biological control is used instead of pesticides, alternative medicine instead of conventional medicine, and all efforts are made to ensure the livestock's welfare. Organic raw material is kept separate from other products during procession and handling. Also the use of secondary materials and additives is strictly limited"*.⁷³

Organic production is a growing part of western countries' agriculture and is increasing in the developing countries as well. It is most developed in some EU countries, such as Sweden, Austria, Switzerland, Finland, Italy, Denmark, Greece and the Czech Republic.⁷⁴ In those countries 5-15% of all agricultural land is certified as organic, while in Iceland the ratio was 1.2% in 2009.⁷⁵ Iceland is among the European countries that have the furthest to go in this matter. The same seems to apply to public expenditure for organic production. A report made by Tún Organic Certification and published by

the Icelandic Regional Development Institute in 2006 states that the annual contribution of the Norwegian government to organic production was ca. 20 times higher than the Icelandic government's contribution, relative to population and based on the ISK exchange rate at the time.⁷⁶

Tún Organic Certification is Iceland's only accredited supervision and certification body for organic production. Tún is on the EU list of recognised organisations in this field, according to EU regulation No. 2092/91, and the organisation's system of certification is operated in accordance with IFOAM (International Federation of Organic Agricultural Movements) standards. Tún is responsible for control and certification in accordance with Act No. 162/1994 on Organic Agricultural Production, and Regulation No. 74/2002, with later amendments, all within the framework of EU regulations on organic agriculture. Tún Organic Certification is accredited by the accreditation department of the Icelandic Patent Office in accordance with Act No. 24/2006 on Accreditation etc.⁷⁷

In the summer of 2004 the EU Council agreed on an action plan to strengthen organic production in the member countries. The stimulus for the plan was a significant increase in the number of farmers involved in organic

73 Tún Organic Certification Agency (2010). Tún's rules on organic production and sustainable use of nature. 652-2: 5. change from 2010-06-01. Tún Organic Certification Agency, Reykjavik. (Page 13).

74 Tún Organic Certification Agency (2006). Organic Production. Unused opportunities in the rural economy. The report of a Task Force on the Status and Possibilities of Organic Production in Iceland. The Icelandic Regional Development Institute. <http://www.byggdastofnun.is/static/files/Skyrslur/lifraenframleidsla.pdf>.

75 Information from the Tún Organic Certification.

76 Tún Organic Certification Agency (2006). Organic Production. Unused opportunities in the rural economy. The report of a Task Force on the Status and Possibilities of Organic Production in Iceland. The Icelandic Regional Development Institute. <http://www.byggdastofnun.is/static/files/Skyrslur/lifraenframleidsla.pdf>.

77 Tún Organic Certification Agency (2010). Tún's rules on organic production and sustainable use of nature. 652-2: 5. change from 2010-06-01. Tún Organic Certification Agency, Reykjavik. (Page 2).

production and growing consumer demand. Among other things the plan is meant to increase the flow of information about organic agriculture, promote positive regional development and strengthen research.⁷⁸ While the market for organically certified products seems to be constantly growing, both domestically and abroad, the Icelandic government has not instigated any such plans. It is estimated that the share of organically certified products on the Icelandic market is up to 2%, half of which is domestic production.⁷⁹ With regard to the aforementioned, the Committee on the Strengthening of the Green Economy suggests that the government develop an action plan for stimulating organic production in Iceland, with the goal that certified organic products comprise 15% of Iceland's agricultural production by 2020.

Producers and sellers of organic products in Iceland seem to agree that the demand for organically certified products has grown significantly. This is for example reflected in the remarks of Sigurður Jóhannesson, board chairman of the trade association of licensed slaughterers, in *Bændablaðið* (Farmers' Journal) in the summer of 2011, where he stated that there were significant market opportunities for certified organic lamb, both in Iceland and abroad. He claimed that the quantity of meat could be multiplied and sold for 20% higher prices than other kinds of lamb.⁸⁰ Similar and even

higher price differences can be seen in other organically certified products in stores, which in itself is an indication of significant demand over supply. This increased demand, both among Icelandic consumers and tourists that visit Iceland, brings about the creation of new jobs in organic production. Whether these jobs are created domestically or abroad largely depends on government policy making.

In the summer of 2010, a committee set up by Jón Bjarnason, Minister of Fisheries and Agriculture, evaluated the status of organic agriculture in Iceland. On the basis of the committee's findings, the procedures for an up to five year adaptation support plan have been set up,⁸¹ and in late March 2011, the first advert appeared for applications for support in accordance with those rules. The new rules are much more comprehensive than older guidelines and more like the norm in the neighbouring countries since they are largely modelled after the Norwegian rules. Nevertheless, the implementation of the rules depends on the annual budget. The Committee on the Strengthening of the Green Economy suggests an increase of government support for the adaptation to organic production, in order to ensure the execution of the newly agreed procedures on adaptation support.

One of the main hindrances to increased organic production in Iceland is the lack of suitable fertilizers. While many farmers engaging in organic production have mastered the use of organic waste from the farms, the

supply of organic fertilizers in the country must be evaluated, both to meet the demand already mentioned and to improve the utilization of the organic waste already available, such as in fisheries, agriculture, commerce and in people's homes, for instance. The Committee on the Strengthening of the Green Economy proposes a cost-benefit analysis of the production of organic fertilizers in Iceland.

Environmental technology or green technology refers to technology that improves production processes, productivity, efficiency, and the utilization of raw materials and/or energy, while reducing waste materials and/or pollution.⁸² There is a high demand for green technology in all industry sectors and the opportunities are obvious, not only for the reduction of negative impacts individual industry sectors have on the environment, but to maintain and strengthen the competitiveness of businesses and nations. Those who do not take action in this field are going to be left behind in the development. In this race, the main emphasis is on solutions that reduce the emission of greenhouse gasses, though the goals and tasks are certainly more diverse.

Jobs in green technology are without a doubt considered green jobs according to BLS' definitions. Many businesses have specialized in services and/or the development and production of instruments and equipment intended to reduce pollution and other negative effects on the environment. In addition, people engage in these kinds of jobs within businesses in various sectors, green and brown.

78 The EU Commission. European Action Plan. http://ec.europa.eu/agriculture/organic/eu-policy/action-plan_en.

79 The Farmers Association of Iceland. Support of organic adaption in agriculture. Webpage news item 25th March 2011. <http://www.bondi.is/pages/23/newsid/1312>.

80 Sigurður M. Harðarson. Significant market opportunities. An article in *Bændablaðið* 11th issue 9 June 2011. (Page 4). <http://bondi.is/>

[lisilib/getfile.aspx?itemid=4675](http://www.bondi.is/lisilib/getfile.aspx?itemid=4675).

81 The Farmers Association of Iceland. Support of organic adaption in agriculture. Web-page news 25th March 2011. <http://www.bondi.is/pages/23/newsid/1312>.

82 The Federation of Icelandic Industries (FII). Green technology. <http://www.si.is/starfsgreinahopar/graen-taekni>.

Green technology is one of the fields that are expected to grow the most in the coming decades and many countries place great emphasis on developing it. This calls for a contribution from R&D funds and all sorts of support for start-up businesses and job creation. Several businesses in Iceland are working on technical solutions in the field of renewable energy in transportation, improved energy efficiency in buildings and transportation, as well as waste management solutions. The businesses create solutions that help deal with current environmental problems, while at the same time creating jobs and products for export. The Icelandic market is small and therefore most of the businesses look to other countries for markets, as the solutions are international and the market is growing. There is a reason to carefully monitor the development in this area and to support the growth and expansion of the industry. The business environment that suits those businesses is the same as for other start-ups and intellectual property businesses. Public entities are in many cases important customers and can with targeted cooperation support green product development.⁸³

In the summer of 2010 a special industry group of businesses in green technology was established within the Federation of Icelandic Industries, under the heading *CleanTech Iceland – CTI*.⁸⁴ The group is meant to stimulate the growth of green technology businesses by various means, including by encouraging exports, the financing of projects, staff training, establishing a suitable regulatory context and sustainable planning and development

of land use. The group is designed to promote green economic activities and sustainable development, and therefore it fits perfectly with the philosophy of a green economy. The group places most emphasis on renewable energy in transportation, energy savings and waste management. Those are the fields in which Icelandic businesses have been most successful and are therefore a focus area here.⁸⁵

In the neighbouring countries work on environmental technology is often done in clusters.⁸⁶ A good example is the *Copenhagen Cleantech Cluster*. It strives to ensure a steady growth of companies in the cluster, to support new companies in the field of green technology and to attract foreign companies in the same field. Parties to the cluster are companies in green technology as well as research institutions and public entities, since the cluster wants to ensure its uniqueness by linking groups across industrial sectors, value chains and borders. The cluster has set itself a few well defined and measurable goals. Among them is creating 1,000 new jobs, getting 25 foreign businesses to cooperate, instigating 30 cooperative projects on research and innovation with the participation of businesses and research institutions, getting 15 foreign environmental technology clusters to cooperate and increasing the number of active cluster participants to 200.⁸⁷

The association *Green Business Norway* is another example of cooperation in the green technology sector. It is a traditional organisation of businesses in the green technology and energy

sector, with the purpose to encourage innovation, cooperation and projects of member companies.⁸⁸ The use of renewable energy is also greatly encouraged and the same seems to apply to other organisations in the field.

Yet another example is a Nordic project that the Federation of Icelandic Industries and Promote Iceland have participated in during the last few years under the heading *Nordic Cleantech Alliance*.⁸⁹ In that project Promote Iceland works with businesses on marketing solutions in environmental technology in foreign countries and promotes connections with partners in the Nordic countries. Promote Iceland has shown interest in further work in the field and it is quite possible that green technology could be added to its marketing efforts in other countries. This would call for an increase of knowledge in the field and for a network of contacts abroad, in addition to making market information available. This emphasis would strengthen Iceland's image as a land of eco-friendly technical solutions.

The fishing industry is a hugely important part of the Icelandic economy. The industry as such is not a green business sector according to BLS' definition, but many green jobs have been created within and in connection to this sector. Still more green jobs could be created under favourable circumstances.

Green jobs in fisheries can be related to fisheries management, improved conduct and use of fishing zones, the use of green energy, energy savings,

83 See discussion in chapter 3.2.

84 Clean Tech Iceland. <http://www.si.is/starfsgreinahopar/graen-taekni/clean-tech-iceland---cti>.

85 Bryndís Skúladóttir, Fl. Personal information.

86 Bryndís Skúladóttir, Fl. E-mail 25 May 2011.

87 Copenhagen Cleantech Cluster. <http://www.cphcleantech.com>.

88 Green Business Norway. <http://www.greenbusiness.no>.

89 Nordic Cleantech Alliance. <http://www.nordiccleantech.net>.

development of eco-friendly fishing gear, etc.

On average Icelandic fishing vessels use around 0.3-1.1 litres of oil for every kilo of cod products⁹⁰ but the oil use varies greatly depending on species, fishing methods etc. In fact, much more oil is used if the whole process is taken into account, i.e. from the setting off to fish and until the fish is ready for consumption. A 2009 life-cycle assessment (LCA) of an Icelandic cod product compared 1 kg of lightly salted cod fillet with skin and bone, caught with a bottom trawl on one the hand, with long line fishing on the other. The assessment showed that bottom trawl caught cod used much more oil and therefore left a much larger carbon footprint than the long line caught cod. When taking account of the fishing vessels' oil use, inland processing and transportation to market, the combined carbon footprint of the trawler cod was 5.14 kg carbon dioxide equivalent while the footprint of the long line cod was 1.58 kg.⁹¹ The comparison did not include the effects of the fishing methods on the seafloor, but comparison thereof is also to the advantage of the long line caught cod with regard to the negative effects on the environment. Icelandic research indicates that for every kilo of fish that is caught in a bottom trawl the fishing gear is dragged over a 1,000 square meters of seafloor.⁹² A

committee looking into possibilities to reduce greenhouse gas emissions, also looked at the Icelandic fishing fleet and calculated the use of energy for every kilo of marine products, sorted by species and fishing gear and also analysed the cost of the fleet switching over to using eco-fuel.⁹³ From the committee's report it is obvious that there are great opportunities for improvement, whether the goal is to save domestic currency or reduce the emission of greenhouse gasses. A few experimental projects are ongoing regarding the use of biodiesel and hydrogen to fuel fishing vessels.

Progress towards increasing the use of domestic and eco-friendly fuels is of course highly suited to supporting the green economy. The Committee on the Strengthening of the Green Economy proposes legislative amendments in order to allow reimbursement of up to 20% of outlays, up to a specified limit, in connection with the changeover of fishing vessels to green fuel or in connection with the increase of their fuel efficiency. The primary goal of these kinds of improvements is to reduce the energy used in fishing. It is also necessary to embark on the same kind of improvements for the country's fleet of cargo vessels.

There are significant opportunities for job and value creation in the total utilization of marine products. Much work has been done in the field, e.g.

in the cooperation of fisheries, start-up companies and Matis Ltd. The fish proteins project, the manufacture of fish skin hides, plasters from cod skin, and many more are worth mentioning. There are great opportunities in bringing a larger share of the catch to shore in Iceland, whether it is used for food production, products as those mentioned above or to make organic fertilizers. In that context it can also be said that on September 1st 2011 a new regulation took effect that makes it compulsory for ship operators to bring refuse from the fishing to shore in greater quantities than before.⁹⁴

Actors within the fishing industry have gone to great lengths to make the industry more sustainable and to present their efforts to the markets. Industry associations have, with the support of the government, developed their own certification of origin for Icelandic marine products, which is also meant to verify Icelanders' responsible fishing methods. In addition a few companies operating fishing vessels and doing fish processing have joined hands in seeking an independent international environmental certification of their fishing methods and production.

A good example of a development project within the fisheries sector is the Icelandic Innovation Centre's effort to develop new fishing gear where modern technology is used to increase fishing efficiency in trawler fishing and to target more directly the species that are meant to be caught, while at the same time reducing oil usage and diminishing the negative effects on habitats on the seafloor.

90 Aðalbjörg Birna Guttormsdóttir (2009). Life Cycle Assessment on Icelandic cod product based on two different fishing methods. Environmental impacts from fisheries. M.Sc. Programme essay within Environment and Natural Resources Studies, The University of Iceland, Reykjavik. <http://skemman.is/stream/get/1946/6393/18204/1/Thesis1.pdf>.

91 Same source.

92 Helga Eyjólfsdóttir, Halla Jónsdóttir, Eva Yngvadóttir, Bryndís Skúladóttir (2003). Environmental effects of fish on the

consumer's dish-Life Cycle Assessment of Icelandic frozen cod products. IceTec and Icelandic Fisheries Laboratories, Reykjavik.

93 Brynhildur Davíðsdóttir, Ágústa Loftsdóttir, Birna Hallsdóttir, Bryndís Skúladóttir, Daði Már Kristófersson, Guðbergur Rúnarsson, Hreinn Haraldsson, Pétur Reimarrson, Stefán Einarsson, Þorsteinn Ingi Sigfússon (2009). Possibilities for reducing the net emission of greenhouse gasses in Iceland. A Committee of Experts' report. The Ministry for the Environment, Reykjavik. http://www.umhverfisraduneyti.is/media/PDF_skrar/Loftslag.pdf.

94 The Ministry of Fisheries and Agriculture (2011). Regulation No. 810/2011 on the utilization of catch and by-products. <http://stjornartidindi.is/Advert.aspx?ID=99452af5-e9b3-4582-853d-64b0be2e35f6>.

The AVS fisheries research fund gives out grants for research projects in the industry, intended to increase the value of marine products and fish farm products.⁹⁵ The fund's board prioritizes grant proposals for the Minister of Fisheries and Agriculture emphasizing that its funds are best used to promote green fisheries and at the same time a green economy. Matís Ltd. also does much development work in this field.

A number of jobs have already been and can be created in developing new technologies in fisheries that are suited to reducing the industry's negative impact on the environment. Icelanders have made an impact in this field and exports of green technical innovations have already generated significant foreign currency income. However it draws attention to how little of the turnover in the field is domestic. These innovations have seemingly been better received internationally than in the domestic market. The Committee on the Strengthening of the Green Economy considers it of a great importance to examine how the government can promote growth and further development of those technical innovations and promote the adoption of the technology in the domestic market. One way of achieving this would be to reimburse outlays in connection with changes necessary to enable fishing vessels to switch over to using eco-fuels and increase fuel efficiency, whatever the fuel may be. Annex VI to the MARPOL Convention for the Prevention of Pollution From Ships stipulates actions to reduce the emission of sulfur oxides (SO_x), nitrogen oxides (NO_x) and ozone depleting chemicals from ships, including the emission of volatile

organic compounds (VOCs) in loading docks for oil tankers.⁹⁶ Countries that are parties to the Annex are also authorised to make their jurisdiction a special Emission Control Area (ECA-area) where stricter rules on emission can be applied than are otherwise in general effect according to Annex VI. The ratification of Annex VI is in process in Iceland, although delayed because of a lack of personnel in the appropriate institutions. The Committee on the Strengthening of the Green Economy proposes that the ratification of Annex VI be expedited as possible, and that the Icelandic exclusive economic zone will consequently be made an ECA-area. This would encourage the creation of green jobs in connection with fisheries and sailing, where new markets would open for green shipping fuels, technical equipment to increase fuel efficiency and information technology in the sector. In addition this would help reduce the risk of pollution in the Icelandic fishing zone, because the burning of heavy fuel oil is automatically banned in ECA-areas because of how much it pollutes. Heavy oil usually contains considerable quantities of dangerous chemicals and chemical residues that can harm the ocean's biota. The Arctic ecosystems are particularly vulnerable in this regard, since decomposition is slower there than in warmer waters. In addition to what has already been said, a decision of an Icelandic ECA-area would oblige all sailing in Icelandic waters to give information about their activities in the vicinity, whether fishing vessels, cargo vessels or leisure ships. The founding of an ECA-area also includes a special policy

forming message that is important in promotional activities (see chapter 3.8).

At a meeting of the International Maritime Organization's (IMO) environmental committee in London in July 2011, the countries that are parties to Annex VI to the MARPOL Convention agreed to a binding clause on actions to reduce greenhouse gas emissions from ships. The clause in question will be included in Annex VI and supposedly enters into force on January 1st 2013. The clause stipulates that the design of new ships over 400 gross metric tonnes have to adhere to the Energy Efficiency Design Index (EEDI). All ships will also have to install a special Ship Energy Efficiency Management Plan (SEEMP).⁹⁷ Those stricter rules include new opportunities for the producers of software and other necessary equipment, while at the same time it works as a reminder for Icelanders of the importance to accept Annex VI and increase their participation in IMO's work.

Increased energy efficiency entails various opportunities for creating green jobs in Iceland given that the country is both rich in energy and knowledge in how to utilize it. All the energy being produced in Iceland is nonetheless far from being used in the most efficient way. Geothermal power plants are an example of this, where steam is used to produce electricity, but then released after it condenses, despite the near boiling temperature of the water. This limited use of the primary energy of geothermal heat is usually

95 AVS Fisheries Research Fund. <http://www.avsis.is>.

96 The Icelandic Maritime Administration. International treaties. <http://www.sigling.is/?PageID=139>.

97 The International Maritime Organization (IMO) (2011). Mandatory energy efficiency measures for international shipping adopted at IMO environment meeting. Webpage news item 15 July 2011. <http://www.imo.org/MediaCentre/PressBriefings/Pages/42-mepc-ghg.aspx>.

governed by the size of the power plant and the distance from a market for warm water. In the unused energy there are various opportunities, such as for the development of industrial parks in the spirit of Industrial Ecology, where efforts are made to establish cooperation between companies that can use surplus energy and each other's by-products.

New green jobs in the energy sector can be created either in the knowledge industry pertaining to energy savings or because of the utilization of the energy saved. Much streamlining can be achieved by examining the energy use in buildings, reducing the waste of energy and managing its use. Significant expenditures can often be saved by using specific methods of mapping how energy is used indoors and by making low cost renovations. Simple things like turning off lights when they are not needed and setting heaters not to be on full blast can be very effective. In large buildings the savings can amount to millions. There are also significant opportunities in heat pumps, especially in cold areas, where there is no access to geothermal water for heating.

In public debates power plants are often said to be a precondition for creating jobs, when in reality it is the energy, not the plant, that creates the jobs, aside from the jobs created during the construction of the plant. This is irrespective of where the energy originates. Each gigawatt hour can create as many jobs, whether it is achieved via a power plant or improved energy efficiency. Actually it has been said that energy saving is the most inexpensive form of power harnessing available. There has not been much discussion in Iceland about

energy efficiency and energy savings, while the issue has been a focal point in other countries. Here the Nordic countries have led the way in many regards, and within the EU there is much emphasis on increased energy efficiency. In the EU countries energy savings are regarded as a major source of energy. The EU has set itself the goal of increasing energy efficiency by 20% before the year 2020 from the year 2006.⁹⁸

Electrical equipment on standby is one of many opportunities for improved energy efficiency. It has been estimated that around 10% of the electricity used in the West is spent by equipment on standby. This number is going up as electrical appliances become more diverse and complex. Estimates for the USA surmise that standby use could reach 30% of the electricity use of homes by 2030. The International Energy Agency has estimated that standby use is around 1-2% of all the world's energy use, or over 200-400 terawatt hours (TWh) annually.⁹⁹

Use of electricity for lighting and appliances in Icelandic homes (apart from farms) measured at 627 gigawatt hours (GWh) in 2009.¹⁰⁰ If

one assumes that the standby usage ratio is similar in Iceland as in other Western countries, which most likely is a conservative estimate, it can be assumed that the annual electricity usage of Icelandic homes for keeping electrical appliances on standby, is around 63 GWh or around 63 million kilowatt hours (KWh). A common electricity price for homes in Iceland is around 12 ISK/ KWh including V.A.T., but excluding flat rate. This means that standby electricity usage could cost the households more than 750 million ISK annually. Added to this is standby use in farms, summer homes, companies and institutions. Loosely estimated these numbers could be similar or even slightly higher when added up, which means that the cost of standby use in Iceland could amount to a total of around 1.5-2 billion ISK annually. In this there must be real opportunities for increased value creation and supposedly job creation as well, since saving would mean that significant funds and energy could be turned to other uses. Presently a hydropower plant producing up to 10-25 MW is needed just to provide electricity for standby use, according to the numbers above.

Most homes in Iceland are linked to a geothermal heat supply, though around 9% of the people still use electric heating.¹⁰¹ The Energy Agency estimates that the total annual use of electricity for heating is up to 700 GWh.¹⁰² This number could easily be lowered by enlarging geothermal heat supply areas, improving housing insulation and by setting up heat pumps. Electricity is a high quality

98 The European Union (EU) (2011). Energy Efficiency Plan 2011. Communication from The Commission to The European Parliament, The Council, The European Economic and Social Committee and The Committee of the Regions. COM(2011) 109 final, Brussels, 8.3.2011. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0109:FIN:EN:PDF>.

99 Lloyd Harrington and Bruce Nordman (2010). Standby Power and Low Energy Networks – issues and directions. Report for APP and IEA 4E Standby Annex, September 2010. <http://standby.iea-4e.org/files/otherfiles/0000/0023/Network-Standby-2010-09-final.pdf>.

100 The Energy Information Administration (2010). Electricity forecast 2010-2050. The National Energy Authority. <http://www.os.is/gogn/Skyrslur/OS-2010/OS-2010-07.pdf>.

101 The Energy Agency. Heating houses. http://www.orkusetur.is/page/orkusetur_hushitun.

102 Sigurður Ingi Friðleifsson, The Energy Agency. E-mail September 16. 2011.

energy and as such not sensible for heating homes, if other options are available. Also, electricity is in most cases more expensive for the user than geothermal heating, even if it is subsidized by the government. With action to reduce the use of electricity for heating houses both energy and funds are freed for other uses. Additionally such action could directly create jobs, at least temporarily.

The Committee on the Strengthening of the Green Economy proposes that the energy use of Icelandic homes and businesses will be assessed and the results publicly presented, with the goal of reducing waste of energy.

There are many more opportunities for green job creation in the energy sector. An obvious example is the production of vegetables, fruits and any kind of agricultural crops in heated and illuminated greenhouses. That kind of production can save foreign currency and increase the food security of Iceland, and at the same time create new jobs while decreasing imports dependent on oil. An increase in domestic production also leads to less use of pesticides, since pesticide use in Iceland is much lower than in most of the neighbouring countries. High pesticide use has created environmental problems in many places and now an increasing focus has been directed at the possible harmful effects of chemical residue on consumers' health.

Excess energy and carbon dioxide from geothermal plants could be used for small and large scale production of food and several such projects are already being prepared. Surplus heat can also be used in fish farming, as well as in growing algae, which has

the desirable characteristic of being the fastest growing organisms on earth. From algae one can for instance produce all sorts of chemicals, biofuels and feed for fish farms and livestock, to name a few options. Similarly it is possible to transform hydrogen sulfide (H₂S) to pure sulphur and thereby solve the problem that has been noted in the Reykjavik area because of the emission of hydrogen sulfide from the Hellisheiði Geothermal Power Plant. The sulphur would be used for industrial production. In addition to all these opportunities there are opportunities in developing technology and machinery for power plants, utilizing Icelandic experience and ingenuity.

In June 2011 the Iceland Geothermal Cluster was formally established. A new report from the cluster includes an analysis of the status in Iceland and the main growth opportunities in this field.¹⁰³

There are many opportunities for creating green jobs *in waste*, including in the recycling industry. In recent years there has been much development in the field, since rising disposal costs and higher cost of raw material has made recycling more competitive than before. The introduction of recycling fees has also supported that development. Today a large share of the material for recycling is exported. It is interesting to look at ways to increase domestic use, whether it is for the recycling of materials, composting or energy production. There is already some experience of production from waste,

103 Hákon Gunnarsson and Þóra Margrét Þorgeirsdóttir (2011). Added value in geothermal energy. The Icelandic Geothermal Cluster; Mapping and mobilization. 2nd edition September 2011. Gekon ehf., Reykjavik. <http://www.gekon.is/images/stories/Vegferd%20og%20vegvisir.%202nd%20september%202011.pdf>.

and experimental projects in energy production are ongoing. An increase in support for projects in this field could achieve much.

The legislative framework for waste issues needs to be revised. This specially applies to the legislation on producer responsibility, since there are several variants of legislation being employed and they are producing mixed results. By simplifying this system it should be possible to cut costs and reduce complexity. That should result in more possibilities of diverting efforts and funds into finding good recycling solutions. The legislation on slaughterhouse waste is also fairly misleading. It takes account of agricultural perspectives on the one hand (transmissibility), and waste issues on the other hand. The conflict between the two is significant, in part because of the uncertainty that has surfaced concerning the permissible use of the product. In this regard the Committee on the Strengthening of the Green Economy proposes a total revision of the legislation on waste disposal thereby removing a number of obstacles to the recycling industry in Iceland.

The *tourism industry* is one of the fastest growing business sectors in Iceland. The Icelandic travel industry is very much reliant on the country's nature, history and culture. The emphasis on a green or sustainable travel industry is growing even faster than the industry as a whole, both because of demand from buyers and also because of the obvious interests of the travel service providers themselves in maintaining and preserving the resources that the industry first and foremost builds its income on. Within the travel industry there have already

appeared jobs whose direct aim is to preserve natural resources, reduce waste, increase energy efficiency, etc. and are therefore green jobs according to BLS' definition. Ever more travel industry companies choose to organise their environmental work and make it visible with the independent labelling of the Nordic Swan, Earth Check or the ISO 14001 standard. The same goes for specific regions. For years Snæfellsnes has been in a leading role because of the interest of the municipalities in the area in certifications in cooperation with Green Globe and later Earth Check.

The Committee on the Strengthening of the Green Economy has not made any specific recommendations in relation to green jobs in the travel industry, even though quite a few proposals in this document carry with them opportunities for strengthening the environmental work within the industry.

Eco-design is an important part of product development in a green economy. The British Design Council estimates that 80% of the environmental impact of a product is decided at the design stage. Eco-design seeks to answer questions about environmental impact, such as how material use can be reduced, the impact of chemicals on the environment, which composition of a product is best suited for recycling, how large the carbon footprint of the product is, etc. The building industry is the field where systems of environmental certification and checklists for eco-design are most developed but the fact is that eco-design matters for all industries in a green economy, including agriculture, fisheries, environmental technology and the tourism industry.

As of yet, eco-design has not made much impact in the product development and marketing of Icelandic businesses. Still, its influence is growing. The project *A Date with Farmers* has, for instance, created new uses for rhubarb, which was formerly used mostly for making jams. After designers got involved the rhubarb-caramel has become a popular market product. The dairy product, skyr-praline, from Erpsstaðir farm is another product made in cooperation with designers. The cooperation has created a market for localized production. The project *Order the Influence* is still another example. It is a mobile fast food diner where food orders are placed according to the influence they have on the body. Local products and eco-friendly raw materials are used, and every aspect of the diner is designed with the total experience in mind. Finally there is the *Friends of Water project* (Vatnavinir), connecting design with sustainable tourism, with a novel take on the special characteristics of Icelandic nature.

The Committee on the Strengthening of the Green Economy has not made specific proposals connected to green jobs in design, but nevertheless there is a huge potential in eco-design for environmental improvements and the creation of green jobs. This potential should be kept in mind when implementing actions based on specific proposals made in this report.

The Social Democratic Alliance and the Left-Green Movement government's Declaration of Cooperation from 2009 stipulates the forming of the Natural Resource Fund that would govern the allocation of fishing rights owned by the nation, and whose income would

go to the creation of more jobs.¹⁰⁴ The Committee on the Strengthening of the Green Economy proposes that if the fund is established, its resources should also be spent on creating green jobs.

Governmental policies are instrumental in influencing how well opportunities in green job creation are seized. Therefore it is important for the government to form a clear policy in this particular field, in accordance with the vision presented in this report, i.e. that *"Iceland may become one of the leading nations in the world regarding green economy, focusing on clean natural environment, sustainable use of energy and education towards sustainability"*. In order to move forward on that path the strengthening of a green economy needs to be a priority in the government's employment policy. The policy needs to emphasize the opportunities for creating green jobs in all business sectors for the purpose of stimulating innovation and the development of technical solutions that diminish negative environmental impacts and minimize the carbon footprint of businesses. A special methodology needs to be developed that Icelandic businesses can rely on when progressing from polluting to environmentally friendly activities. The Committee on the Strengthening of the Green Economy suggests that the Innovation Centre Iceland should be given the task of developing such methodology for the greening of Icelandic businesses in all industrial sectors based on the foundation of innovation and the development of

¹⁰⁴ The Prime Minister's Office. The government of the Social Democratic Alliance and the Left-Green Movement's Declaration of Cooperation. <http://www.forsaetisraduneyti.is/utgafur/stefnur/nr/4158>.

technical solutions that lessen the negative environmental impacts of businesses' activities and minimize their carbon footprint.

Committee proposals and plan of action

The Committee on the Strengthening of the Green Economy proposes the following actions in order to promote greener economic activities in Iceland:

32. Regulation on Green Accounting No. 851/2002 shall be amended, based on the accumulated experience of the previous decade (2000-2010). Special emphasis will be on monitoring the accounting practices with respect to their reliability, in order to meet standards on clarity of information and on environmental protection..
33. The authorities shall develop an action plan to increase organic production in Iceland, so that organically certified production will increase to a level of 15% of the total national agricultural production by the year 2020.
34. Support for the adjustment to organic production shall be increased in order to ensure the implementation of the newly approved support to adjustment procedures.
35. A cost-benefit analysis shall be carried out on the production of organic fertilizer domestically.
36. Legislation shall be amended in order to allow reimbursement of up to 20% of outlays, up to a specified limit, in connection with vessel retrofitting required to enable a changeover to environmentally friendly fuel or improve fuel efficiency.
37. The acceptance of Appendix VI to the MARPOL Convention for the Prevention of Pollution from Ships shall be expedited, followed by the declaration of the exclusive economic zone of Iceland as an Emission Control Area (ECA).
38. A special evaluation of the energy usage of Icelandic homes and businesses shall be performed and the results presented to the public with the aim of diminishing waste.
39. A complete revision of the waste legislation shall be conducted with the aim of removing obstacles to the recycling industry in Iceland.
40. In the case of the establishment of a Natural Resources Fund, the income from its fees should among other things be used for creating green jobs and to strengthen the green economy.
41. The Innovation Centre Iceland shall be entrusted with developing a methodology entailing the greening of Icelandic businesses in all sectors on the basis of innovation and the development of technical solutions that diminish the negative environmental impact of their operations, including the minimisation of their carbon footprint..

3.7 Green Transport

Green transport is a broad concept which entails the reduction of emissions of greenhouse gasses from transport, while at the same time reducing other negative impacts that transport has on the environment and the society. Green transport entails changes in consumption pertaining to all kinds of transport, from walking and bike riding to air transport and shipping.

Efforts to increase green transport might entail efforts to encourage the public to make greater use of public transportation, bicycles or other eco-friendly vehicles. It could also entail efforts to encourage businesses and institutions to seek new and more eco-friendly ways to transport people and products, and actions to promote the development and use of eco-friendly fuels and energy saving technologies. Decreasing use of carbon fuels and improved energy efficiency are key elements in the effort to make transport greener.

The number of eco-friendly vehicles is steadily increasing in the international automobile market. Presently most car manufactures produce some vehicles of this kind. The definitions for green vehicles have not been totally clear. In 2007, city authorities in Reykjavik issued the first rules in Iceland that defined green vehicles and made them exempt from parking fees. The rules were revised in the summer of 2011, and now state that vehicles have to meet the following criteria to fall under the definition:¹⁰⁵

- Gasoline and diesel cars, as well as hybrid cars that produce less than 120 g of carbon dioxide per kilometre.
- Internal combustion engine cars that run on domestic fuels, such as methane, methanol and bio-diesel and emit less than 120 g of carbon dioxide per kilometre.
- Cars that run on electricity, plug-in hybrids.
- Cars that run on hydrogen.

¹⁰⁵ The City of Reykjavik. Changes in rules of free parking for eco friendly automobiles. Web page news item 7 July 2011. http://www.reykjavik.is/desktopdefault.aspx/tabid-757/521_read-27385/521_page-6/.

The Swedish government has, both country wise and in specific municipalities, worked on making their country's fleet of cars more eco-friendly. In Sweden, green cars (s. miljöbilar) are defined much like the city of Reykjavik has done, i.e.:¹⁰⁶

- Gasoline and diesel engine cars, including hybrid cars that emit a maximum of 120 g CO₂/km (the same as around 5.0 l of gasoline or 4.5 l of diesel per 100 km). Also they have to meet specific demands for pollution control, like the diesel engine cars being fitted with a particulate filter, emitting a maximum of 5 mg of suspended particulates/km.
- Cars that run on E85 (85% ethanol), given their fuel usage is a maximum of 9.2 l gasoline per 100 km and they meet specific demands for pollution control.
- Cars that run on methane (including fossil natural gas), given their fuel usage is a maximum of 9.7 m³ of gas per every 100 km and they meet specific demands for pollution control.
- Cars with an automatic transmission that run on eco-fuel can spend more fuel than stipulated above, as long as they are otherwise comparable to the same type of cars with the mechanical transmission, that meet the standards.

In 2009 cars in Iceland used about 270,000 tons of fuel,¹⁰⁷ or around 850 kg per capita. Using prices from early 2011 (ca. 90 ISK/l) the import value of this quantity would amount

to ca. 30 billion ISK (30,000 million). It is therefore clear that increased fuel efficiency has a tremendous macro-economic effect. With less import, foreign currency is saved in addition to significant opportunities for creating green jobs in domestic fuel production and creating knowledge in that field.

In a parliamentary resolution on energy change in transport, adopted at Althingi on June 7th 2011, it is stated that energy change in transport will be sought, replacing fossil fuels with domestic renewable sources of energy. Work on policy making, goal setting, and on a plan of action for the energy change in transport until 2020 is to be ready on January 1st 2012. The goal is for Iceland to be at the helm among the countries of the world in using renewable energy in transportation. This calls for a significant effort, given that the ratio of renewable energy in transportation in Iceland is currently lower than in other countries, or <1%. In the parliamentary resolution it is envisaged that *"concrete measures be taken to reduce, as fast as possible, the import of fossil fuels by encouraging energy savings and creating economic preconditions for using vehicles that run on renewable energy"*.¹⁰⁸ In the opinion of the Committee on the Strengthening of the Green Economy, specific time-bound objectives should be specified in the process of making this policy with respect to increasing the addition of eco-fuels into liquid fossil fuels. Furthermore the Committee emphasizes the importance of international cooperation in all of these matters, since it is apparent that an issue as big as this will not solely be

solved domestically based on domestic knowledge alone.

The entry into force of Act No. 156/2010 marked an important step in the direction of energy change in transportation amending existing provisions of three older laws on excise duties on vehicles, fuels and more. Pursuant to the most important amendment, taxation is now, for the first time, governed by the vehicle's carbon dioxide emission, in addition to authorising the waiving of excise duties for new and unused vehicles that have been modified before their first registration, to use methane instead of gasoline or diesel.¹⁰⁹ The Committee on the Strengthening of the Green Economy proposes further steps in this direction, such as extending permissions to include reimbursement for those that have their vehicles modified to become eco-vehicles. The reimbursement is based on transitional provision no. XIII in Act No. 29/1993 on Excise Duties on Vehicles, Fuels etc. The provision was inserted by Act No. 156/2010, which grants the Directorate of Customs permission to refund the excise duty on vehicles (less than 6 years old) that have been modified to use methane instead of gasoline or diesel. The reimbursement will amount to 20% of the modification cost, up to a maximum of ISK 100,000. The existing authorisation is valid until excise duties on 1,000 vehicles have been refunded due to such modifications.

In addition to the aforementioned legislative amendments, many projects

¹⁰⁶ Miljöfordon.se. Vad är miljöfordon - definitioner. <http://www.miljofordon.se/fordon/vad-ar-miljofordon.aspx>.

¹⁰⁷ The National Energy Authority. Fuel usage. <http://www.os.is/eldsneyti/tolfraedi/eldsneytisnotkun>.

¹⁰⁸ 139th legislative parliament 2010-2011. Parliamentary document 1658 – 403. case. <http://www.althingi.is/thingskjal.php4?nlthing=139&nthingskjalnr=1658>.

¹⁰⁹ Act No. 156/2010, on the amendment of Act No. 29/1993, on excise duties on vehicles, petrol and more, Act No. 39/1988, on vehicle excise duty, and Act No. 87/2004, on oil fees and per-kilometer fees, with later amendments (systemic change in vehicle taxation). <http://www.althingi.is/altext/stjt/2010.156.html>.

have been initiated to encourage energy change in Icelandic transport and thereby eco transport. It suffices in that regard to mention the Icelandic New Energy's hydrogen project, the Northern Lights Energy's project on introducing electric cars in Iceland, the experimental production of biodiesel from rape, plans to produce methanol from the emission of geothermal energy plants and heavy industries, as well as the efforts of Metan Ltd. and Metanorka LLC to modify the Icelandic car fleet to run on methane. Other ideas are less developed, e.g. producing fuel from algae. Most of the projects are in the spirit of the green economy. On the other hand, they all need a friendly environment of institutions, taxation and funding for the first years, in order to do R&D.

The projects listed above as examples reflect the five main themes distinguishable in the efforts to make the Icelandic car fleet, and to some extent the shipping fleet, less dependent on imported fossil fuel:

- Electricity
- Hydrogen
- Methane
- Addition (methanol / ethanol)
- Bio diesel

There are various obstacles to energy change in transportation. Some are best described as catch-22 problems, where the infrastructure is lacking to meet the needs of new transportation — and the new transportation cannot find foothold because the infrastructure is lacking. A good example is the introduction of electric vehicles. The charging stations are too few and slow for the electric vehicles to function properly, while the start-up costs and the cost-effectiveness of the charging stations hinders development,

especially while the electric vehicles remain as few as they are.

Other obstacles are in the regulatory environment and the incentives based upon it, such as the support of new investments. As has been mentioned above, Act No. 99/2010 on Incentives for Initial Investments in Iceland lays down a prerequisite of an estimated annual turnover of at least ISK 300 million of the investment project in question, or that the new investment creates at least 20 annual jobs with the applicant in the course of its first two years. Individual investment projects that do not meet these criteria can nonetheless play an important role in the energy change in transportation.

The amount of current carbon levy on fuel was initially based on 75% of the emissions quota price on the EU quota market (Emissions Trading System (ETS) 110)¹¹⁰, but has subsequently become a fixed amount in ISK. The energy change in transportation could be encouraged by raising carbon taxes on fuel for example by one third. The additional income generated could be allocated to projects promoting energy change in transportation. The experience from our neighbouring countries shows that public support for investments in this field is a prerequisite for success. In some cases the support amounts to up to half of the start-up costs of certain investments, while in other places producers are guaranteed a minimum price for their products at the outset. Examples of direct support include grants that the Danish government has awarded to businesses that invest in methane production from manure. As a follow-up to an

110 The EU Commission. Emissions Trading System (EU ETS). http://ec.europa.eu/clima/policies/ets/index_en.htm.

agreement of the Danish political parties, ratified in the spring of 2009,¹¹¹ the Danish government allocates 100 million DKK to this project per annum in 2010-2012.¹¹² Individual grants can amount to up to 20% of start-up costs, up to a maximum of 30 million DKK per recipient. Those grants are based on a regulation from the Danish Ministry of Food, Agriculture and Fisheries from September 2010¹¹³ and the goal of the agreement on green growth that half of all manure in Denmark shall be used for energy production in the year 2020.¹¹⁴

The Committee on the Strengthening of the Green Economy proposes that the carbon tax on fuel shall be increased by one third, and the increased income allocated to projects promoting energy change in transportation.

With growing numbers of vehicles running on renewable energy, the government's fuel charge revenue will decrease. The decrease in revenue must foreseeably at some time be met with an increase in other charges, such as road fees or charges on eco-fuels. In the opinion of the Committee on the Strengthening of the Green Economy such charges should be imposed in a manner that encourages the use of eco-fuels instead of fossil fuels. In order to promote development and

111 Miljøministeriet (2009). Historisk fremskridt for natur og miljø. Homepage news item June 16. 2009. http://www.mim.dk/Nyheder/Pressemeddelelser/2009/20090616_gvaftale.htm.

112 Ministeriet for fødevarer, landbrug og fiskeri. FødevarerErhverv. Biogas. <http://ferv.fvm.dk/Biogas.aspx?ID=77729>.

113 Retsinformation. Bekendtgørelse om tilskud til investeringer i anlæg til fremstilling af biogas. <https://www.retsinformation.dk/Forms/R0710.aspx?id=133489>.

114 Ministeriet for fødevarer, landbrug og fiskeri. FødevarerErhverv. Biogas. <http://ferv.fvm.dk/Biogas.aspx?ID=77729>.

investment in eco-friendly technical solutions the committee suggests that a fuel charge or other comparable taxes on energy used in transportation should not be imposed until its share in the total energy use in transportation has reached 20%.

Local governments play an important role in encouraging green transportation. To cultivate that role they can, for instance, adopt a special policy on eco-friendly vehicles. The policy could contain provisions for increased traffic rights for eco-friendly vehicles, and on designated free parking. In addition, a charge for all parking should be adopted as a general rule, given that the start-up cost of parking spaces is high and that it is contrary to the Polluter Pays Principle that those costs be covered by public funds. This creates an important economic incentive for people to travel on foot, to use bicycles, public transportation or green vehicles. The lowering of excise duties on bicycles and bicycle equipment would also be a step in the right direction. The Committee on the Strengthening of the Green Economy therefore proposes that customs duties on bicycles and associated products should be cancelled, for instance on children's (bicycle) chairs, trailers, lights, locks and other such equipment, in conjunction with the cancellation of customs duties on other vehicles that do not emit carbon dioxide.

Most people think that public transportation in Iceland is more primitive than in the neighbouring countries. Large rural areas and a small population play its part, though government policies are also important, both in the planning stage and in setting long-term policy. When setting up a planning framework it is important that regional

development and the development of transportation improvements go hand in hand, reducing the need for private car ownership and including public transportation. While the local governments play a vital role, the national government's input is also needed to facilitate changes in the spirit of a green economy. Its part can be to remove obstacles such as inconsistent use of economic instruments. In that context the reimbursement of oil taxes needs to be reconsidered, as well as incentives for energy change, different taxation on coaches and busses, etc. The Committee on the Strengthening of the Green Economy welcomes the newly signed letter of intent of the Ministry of the Interior, the Road Administration and the Association of Local Authorities in the Metropolitan Area, pledging to embark on a 10 year experimental project on public transportation in the metropolitan area. The letter of intent is based on the Transport Council's draft policy for the Transport Plan 2011-2022¹¹⁵ and entails the promise that the government will issue 10 billion ISK (10,000 million) from carbon fees to public transport in the metropolitan area in the next ten years, while the municipalities match the government's contribution.¹¹⁶

Terms of appointment often include provisions on transport grants. Such grants are mostly limited to employees' use of their own vehicles. Rarely are they remunerated for using other modes

115 Ministry of the Interior. The Department for Transport's task force on public transportation. <http://www.innanrikisraduneyti.is/verkefni/malaflokkar/samgonguaaetlun/almennt/starfshopur/starfshopur-um-almenningsamgongur>.

116 Ministry of the Interior. (2011). Declaration of Intent on a Ten Year Experimental Project in Public Transportation in the Metropolitan Area. Homepage news item September 22, 2011. <http://www.innanrikisraduneyti.is/frettir/nr/27276>.

of transport. Walking and cycling are limited when it comes to long distances. Nonetheless the current arrangement entails discrimination, where eco-friendly transportation has a disadvantage which is why the Committee on the Strengthening of the Green Economy proposes that an arrangement should be made in transport agreements between the government and civil servants to introduce grants for other modes of transportation than driving. Other businesses should also be encouraged to introduce similar clauses in their contracts. They can build on the experience individual businesses have with contracts of that sort. One such example is the transportation policy of Mannvit, whose goal is to fulfil the employees' needs for travel in an economical and eco-friendly manner. To this end special transportation grants are issued to employees that usually use public transportation, bicycles or walk to and from work.¹¹⁷

In addition to the steps above, the Committee on the Strengthening of the Green Economy suggests an effort to increase awareness, both in the public and within businesses, on the real cost of different types of transportation and the link between transportation and health.

Committee proposals and plan of action

The Committee on the strengthening of the green Economy proposes the following action in order to promote green transportation:

42. The current authorisation for reimbursement of excise tax for cars converted into ecological vehicles shall be prolonged,

117 Mannvit. Transportation Policy. <http://mannvit.is/Mannvit/StefnurMannvits/Samgongustefna>.

enabling over 1,000 vehicles to remain eligible under the programme.

43. The carbon tax rate on fuel shall be increased by one third, and the additional income generated shall be allocated to projects promoting green conversion in transportation energy use.
44. Renewable energy use in transportation shall not be taxed until its share has become 20% of the total energy usage in the transportation sector.
45. Custom fees on bicycles and associated products shall be cancelled, for instance on children's (bicycle) chairs, back racks lights, locks and other bicycle accessories consistent with the cancellation of custom fees of other vehicles that do not emit carbon dioxide..
46. An agreement shall be made with the associations of civil servants on the introduction of transport grants to encourage alternative means of transport (other than automobiles). Also, businesses which develop and implement a green transport policy shall be rewarded with lower taxation. The design of this process should among other things be based on successful methods used in other countries.
47. A special educational campaign directed towards the public and businesses shall be started concerning the real cost of alternative means of transport and the relationship between different means of transport and health.

3.8 Certifications and Image Building

This chapter deals with certifications and image building, especially the ways in which public entities can create circumstances that encourage the certification of institutions, businesses, products and services. The government's policy in the matter is an important factor in strengthening the green economy.

Iceland is known for its magnificent nature and history. Various projects have also drawn attention to Iceland as an innovator in the field of sustainable development. Examples are the utilization of geothermal energy, use of hydrogen, fisheries management, and more. Still, those are mostly individual cases or projects, while Icelanders in general have, at the same time, engaged in various activities more likely to generate negative attention to the country. It can be argued, that Iceland's positive image was created by a number of chance occurrences, rather than as a result of a coordinated policy on Iceland's status as a forerunner in sustainable development. Such an image is fragile.

A positive image does not emerge by itself, and it cannot be maintained without concrete follow-up measures. A declaration of its own excellence by a nation, industrial sector, institution or business, becomes of no importance as soon as contradictory indications emerge. In addition to a comprehensive policy, independent certification by a third party is needed to verify the declaration's accuracy. Independent certification can be likened to an inspection seal on a car's registration plate. The car can be in good condition even though the seal is outdated or has

disappeared, but absence of the seal undermines the credibility of the car owner, for instance when he describes the car's qualities to a potential buyer.

A certification becomes more important as the buyer or receiver is further removed from the seller or from the one sending the message. The certification of exports is therefore very important. Independent third party certification doesn't only promote product sales but also promotes the competitiveness of the product in markets where both standards and prices are the highest. There are great opportunities in this respect. Type 1 ecolabels, such as the Nordic Swan, are based on life cycle thinking, which means that when setting the criteria, the environmental impact of the product or service in question is taken into account, from the processing of raw materials until the product has served its purpose and turned to waste.¹¹⁸ In other words, in order for certain goods or services to be granted an ecolabel of this kind, they have to live up to specific environmental demands based on life cycle analysis, which at the same time includes an indirect evaluation of the product's externalities. The same goes for the EU-ecolabel (The Flower). This label and the Nordic Swan are the official ecolabels in Iceland according to the Regulation on Ecolabels No. 525/2006. Labels of this kind are suited to provide information to consumers in a simple and trustworthy manner. The labels enjoy great trust among consumers and are therefore well suited for image building.

¹¹⁸ Icelandic Standards (IST). Environmental labels and declarations – Type 1 environmental labelling – Principles and procedures. IST Standard EN ISO 14024:2000.

Labels confirming organic origin of products are another example of trusted labels that are important in marketing and for building an image, given that the certification in question is based on international standards and rules that are in accordance with the provisions of Regulation No. 242/2010 on the (11th) amendment of Regulation No. 74/2002 on organic agricultural products and labelling – and thereby in conformity with the EU Commission Regulation No. 123/2008 from February 12, 2008. Tún Organic Certification is in charge of certifying organic production in Iceland, and is on the EU's lists of recognized bodies in the field, in accordance with EU Regulation No. 2092/91. In addition, Tún's system of certification is run in accordance with the criteria of IFOAM (the International Foundation of Organic Agricultural Movements).¹¹⁹ Certification bodies of the same kind operate all over the world with one or more in all of the countries that are Iceland's most important trading partners. Labelling from these certification agencies is coordinated and the system as a whole is widely trusted by consumers in many countries.

Many other systems of certification could be named that are relevant in this context. A handful of Icelandic businesses and institutions have had their eco-management schemes certified according to the ISO 14001 standard. Such certification helps to strengthen the competitiveness of the entity in question, both at home and internationally. The Earth Check certification is also worth mentioning, now commonly used in the Icelandic travel industry, both among specific

businesses and as a certification for municipalities or regions, see for example the initiative of the municipalities of Snæfellsnes.¹²⁰

Icelanders have significant experience in marketing campaigns where the government and businesses combine their efforts to present Icelandic goods and services. Before embarking on such campaigns it is important to ensure the dependability of the products or services promoted. Certification is important in that respect.

Until now the Icelandic government has not adopted a clear policy with respect to what kind of businesses or activities should be attracted to Iceland. The establishment of a green economy should be a priority so that Iceland can be presented as a green economy to investors and tourists. Chance occurrences and initiative taken by foreign parties should not determine what kind of activities will be established in the country. This marketing campaign must be based on the image and strengths of Iceland and coincide with the marketing of Iceland in the fields of tourism, goods export and culture. The Committee on the Strengthening of the Green Economy proposes that Iceland shall be presented as a green economy towards buyers of goods and services, investors and tourists. This marketing shall build on the image and strengths of Iceland and shall be synchronized with the marketing of Iceland in the fields of tourism, goods export and culture.

Local governments play an important role in building and maintaining the image of individual areas and regions. The positive image of a municipality

does not only strengthen the operational environment of businesses in the region, but also increases the odds of people wanting to take up residence there. The local governments can encourage this progress by seeking a sustainability certification for the municipality and/or for its individual institutions and enterprises, by offering professional support for the certification of local businesses, their products and services, and by setting a good example (see chapter 3.2).

Committee proposals and plan of action

The Committee on the Strengthening of the Green Economy suggests the following steps to encourage the environmental certification of institutions, businesses and products, and to facilitate businesses' presentation of results and actions for sustainable development:

48. Iceland shall be presented as a green economy to buyers of goods and services, investors and tourists. This marketing shall be based on the image and strengths of Iceland and shall be integrated into the marketing of Iceland in the fields of tourism, the export of products and culture.

¹¹⁹ Tún Organic Certification Agency (2010). Tún's rules on organic production and sustainable use of nature. 652-2: 5. change from 2010-06-01. Tún Organic Certification, Reykjavík. (Page 2).

¹²⁰ The Snæfellsnes Project Management Council. Eco-Certified Snæfellsnes. <http://www.nesvottun.is>.

4 Coordination of Policies and Plans



In the Parliamentary proposal passed by Althingi on June 10 2010, which serves as the premise for the Committee on the strengthening of the green Economy, there is a clause stipulating that the committee's proposals shall be integrated into various governmental plans connected to employment and the environment, such as the Welfare for the Future programme, the Master Plan for hydro and geothermal energy resources, the Iceland 2020 policy statement and the Strategic Regional Plan.¹²¹

This chapter accounts in short for how this report ties in with those plans and other policy documents either agreed or in deliberation.

4.1 Welfare for the Future – Iceland's Policy for Sustainable Development

Iceland's policy on sustainable development hails from the resolutions of the 1992 UN Conference on Environment and Development in Rio, and is published in two documents; one with long-term goals extending to the year 2020 and the other with the main points of emphasis for the next four years. Iceland's main policy in the matter appeared in the document "*Welfare for the Future. Sustainable Development in Iceland – A Policy until 2020*",¹²² which includes Iceland's policy for sustainable development,

agreed by the government, shortly before the 2002 World Summit on Sustainable Development in Johannesburg. This report puts forth long-term goals, while points of emphasis for the short term have been introduced in smaller publications, defining priority projects for four years at a time. The most recent publication introduces the points of emphasis for the years 2010-2013.¹²³

The proposals of the Committee on the strengthening of the green Economy are very much in line with Iceland's policy for sustainable development. The policy for sustainable development stresses the use of economic instruments to achieve the goals of sustainable development. In the policy for the years 2010-2013 there is a chapter devoted to education for sustainable development, with the same or similar points of emphasis as made in this report.

Among the goals in Iceland's Policy for Sustainable Development for the Years 2010-2013 is to greatly increase green procurement. The following action is defined as a priority in the period:¹²⁴

- An action plan for the implementation of green procurement in Iceland, with the national and local governments in partnership.
- The percentage of state tenders compliant with environmental criteria shall be 30% in 2010, 60% in 2011 and 80% in 2012.

121 138. legislative parliament 2009-2010. Parliamentary document 1273 – 520. case. <http://www.althingi.is/altext/138/s/pdf/1273.pdf>.

122 The Ministry for the Environment (2002): *Welfare for the Future. Sustainable development in Iceland – A Policy until 2020*. The Ministry for the Environment, Reykjavik. http://www.umhverfisraduneyti.is/media/PDF_skrar/Velferd_til_framtidar_2002.pdf.

123 The Ministry for the Environment (2010): *Welfare for the Future. Sustainable Development in Iceland – Points of Emphasis for 2010-2013*. The Ministry for the Environment, Reykjavik. http://www.umhverfisraduneyti.is/media/PDF_skrar/Velferd-til-framtidar-2010-2013.pdf.

124 Same source. (Page 10).

Many other things could be mentioned. A point of interest is that many of the basic ideas that come out of the last revision of the Policy for Sustainable Development are the same as those fundamental to the proposals of the Committee on the strengthening of the green Economy. The main conclusion drawn from the comparison is that the proposals of the Committee on the strengthening of the green Economy are fully in line with Iceland's policy for sustainable development, and in many instances entail a more detailed approach, as the committee's proposals are more action oriented than the Policy.

4.2 The Iceland 2020 Policy Statement

According to The Iceland 2020 policy statement the primary goal of Iceland's Employment Policy until the year 2020 is to "create new and diverse jobs, which are well paid, generate foreign currency and are based on Iceland's competitiveness as a whole or on the specialties of individual regions. The basis of the Employment Policy shall be diversity, equitability, sound business practices, equality and green job creation in accordance with the philosophy of sustainable development".¹²⁵ In other words, the employment policy is based on a green emphasis in the spirit of sustainable development, which in effect includes the other basic elements, i.e. diversity, equitability, sound business practices and equality.

¹²⁵ Iceland 2020 Policy Statement (2010). The results of The 2020 Policy Statement – November 2010. (Page 7). <http://www.forsaetisraduneyti.is/media/2020/Soknaraaetlun2020Lokaskyrsla.pdf>.

The Iceland 2020 policy statement proposes "that national accounts that measure the quality of life be expanded to include information to measure GPI (Genuine Progress Indicator)".¹²⁶ This is in total harmony with the proposals of the Committee on the strengthening of the green Economy, even though the GPI idea is not further expanded upon in the policy statement and is actually mixed in parts with ideas concerning other indicators.

The assumption is that the Prime Minister's Office will be responsible for monitoring and following up on actions stipulated in the 2020 policy statement. A consultative forum will be set up involving representatives of political parties, the Association of Local Authorities in Iceland and members of the labour market, to make headway on specific projects, especially in the field of job creation and labour market issues, though the execution will be handled by ministries, institutions, municipalities and private parties.

The Committee on the Strengthening of the Green Economy places great emphasis on the importance of the role of the Prime Minister's Office in overseeing that work and that it be given a high priority in Iceland's employment policy. The PM's Office shall coordinate the execution of an action plan based on the proposals in this document, with the participation of all government ministries. Thus a similar method is chosen in both cases to ensure oversight and the coordination of action.

The main conclusion drawn from the comparison of the proposals of the Committee on the strengthening of the

¹²⁶ Same source. (Page 9).

green Economy on the one hand and of the Iceland 2020 policy statement on the other, is that while there may be a difference in perspective, the proposals are by no means mutually exclusive.

4.3 The Strategic Regional Plan

On April 15th 2011 Althingi passed a Parliamentary resolution on a Strategic Regional Plan for 2010-2013.¹²⁷ With the passing of the resolution the Government was entrusted with the task of implementing the plan which has been ready in a draft proposal at the Regional Development Institute since March 2009.¹²⁸

The Parliamentary resolution states that the regional plan is based on "measures in innovation and economic development, in keeping with other strategies pertaining to the preparation of the governmental policy on development, Iceland 2020". The primary goal shall be to "to improve conditions for residence, innovation, and sustainable development in all parts of Iceland, and to strengthen the education, culture, communities, and competitive position of towns and communities nationwide through a variety of measures". This does, in other words, reflect the same points as the 2020 Policy Statement, i.e. the emphasis on competitiveness and sustainable development. There is talk

¹²⁷ 139th legislative parliament 2010-2011. Parliamentary document 1328 – 42. case. <http://www.althingi.is/altext/139/s/1328.html>.

¹²⁸ The Regional Development Institute. The Regional Plan for 2010-2013. Draft in progress March 9th 2009. http://www.byggdastofnun.is/static/files/Byggdaaetlun1013/Byggdaaetlun_drog_i_vinnslu_090309.pdf.

of “increasing the share of domestic green energy in transportation” and “the development of ways to utilise or bind carbon dioxide from the emissions from energy and industrial plants”.¹²⁹

The themes are all very similar to the emphasis set by the Committee on the Strengthening of the Green Economy, even though the Parliamentary resolution does not use the terms green economy and green jobs as such.

Four proposals in the Strategic Regional Plan for the years 2010-2013 (Proposals No. 16-19) focus on energy utilization. Proposal No. 17 proposes the building of “so-called, hybrid service stations where people can purchase traditional fuels, in addition to being able to obtain in the same place various eco-fuels, such as methane, ethanol, bio-diesel and hydrogen. Additionally there shall be equipment to charge electric vehicles”. The goal of the proposal is to “increase the number of green vehicles all over the country”, given that it is “an aspiration to increase the use of green domestic fuels while decreasing use of fossil fuels”. Proposal No. 18 also envisages that “possibilities for the production of green fuels will be explored and the project viewed in conjunction with ideas on developing hybrid service stations”. Landfill gas is mentioned especially in this context, as well as fuels from organic waste, e.g. from forestry. The assumption is that the research will be carried out in the years 2010-2012 by the Ministry of Industry, the Innovation Centre Iceland, the Regional Development Institute and development centres.¹³⁰ Those proposals fit very well with the

emphasis of the Committee on the Strengthening of the Green Economy.

On the whole, an emphasis on a green economy is not at the forefront of the Strategic Development Plan for the Years 2010-2013, though it does not include anything that goes against it. The conclusion, drawn from comparing the proposals made by the Committee on the Strengthening of the Green Economy and those of the Development Plan for 2010-2013, is that although the perspective may differ, the proposals in no way oppose each other.

4.4 The Energy Policy for Iceland

A draft of a Comprehensive Energy Policy for Iceland was submitted in early 2011. The draft was the result of the work of a steering group appointed by the Minister of Industry late in the year 2009 to work on the task. The draft reveals that the energy policy is linked to other policy making projects of the government, such as the 20/20 Action Plan, the Master Plan for Hydro and Geothermal Resources, the Climate Action Programme, the proposed National Strategic Phase, and the Green Energy – eco-energy in transportation.¹³¹ In that way, integration with other plans is built into the Energy Policy.

The Energy Policy is not action oriented in the same way as the proposals of the Committee on the strengthening of the

green Economy as the Energy Policy is intended to be a “comprehensive and general policy in the fields of energy and energy utilization. Main objectives are presented, along with secondary objectives and recommendations for action, as well as proposals for standards and timeframes where applicable. The routes are not elaborated on in detail”,¹³² but possible ways of execution pointed out. The objective of the Energy Policy “is to introduce a vision, a guiding light and objectives on which a strong consensus can be reached”.¹³³

The core of the Energy Policy is that “the energy utilization in Iceland should be sustainable, for the benefit of the society and the general public”.¹³⁴ The term sustainable development is thoroughly explained in the policy, and the way in which the primary objectives of the policy are linked to the three pillars of sustainable development, i.e. environment, society, and economy is described. The Energy Policy and the proposals of the Committee on the Strengthening of the Green Economy therefore stem from the same roots.

The draft Energy Policy deals with many issues also addressed in the proposals of the Committee on the Strengthening of the Green Economy. These include energy savings, more efficient use of geothermal energy, the development of industrial parks and ways to decrease the use of imported fossil fuels. The Energy Policy also states that “by using positive and negative economic incentives the government can influence markets in the interest of the greater good and the objectives

129 139th legislative parliament 2010-2011. Parliamentary document 1328 – 42. case. <http://www.althingi.is/altext/139/s/1328.html>.

130 Same source.

131 Steering Committee on the Forming of a Comprehensive Energy Policy (2011). An Energy Policy for Iceland. Draft for consultation. http://www.nea.is/media/orkestunefnd/Orkestunefna_jan_2011.pdf.

132 Same source. (Page 5).

133 Same source. (Page 7).

134 Same source. (Page 8).

of sustainable development".¹³⁵ In all instances the objectives are the same as in the work of the Committee on the Strengthening of the Green Economy.

4.5 The Master Plan for Hydro and Geothermal Energy Resources

The results of the 2nd phase of the Master Plan for Hydro and Geothermal Energy Resources, which deals with the protection and utilization of natural resources, were handed in to the Minister for the Environment on July 6, 2011.¹³⁶ Work on the Master Plan had then been progressing since 1999. With the Master Plan a policy is formed on what proposed power projects are available and which areas should be conserved completely, without any energy-harnessing activities. The "objective is to create a vision for the future in energy utilization and protection and a consensus amongst the general population".¹³⁷

Work on the Master Plan was mostly performed by four working groups of experts that laid the foundation for the

sorting of nature areas by resources and ideas for power plant building and various interests. Working group I dealt with nature and cultural artefacts, group II with recreational areas, the travel industry and various advantages of the land, group III with the economic and social effects of power plants and group IV with proposed power projects and their feasibility. Emphasis on getting a comprehensive picture and on long-term considerations is reflected in the working groups' tasks, as well as being an underlying thread in the steering group's final report. It is, therefore, clear that the Master Plan reflects the same ideology as was the basis of the work of the Committee on the Strengthening of the Green Economy.

On May 11, 2011 Althingi approved Act No. 48/2011, on a plan for Protection and Development of Energy Resources. The goal of the legislation is to "ensure that the utilization of regions with possible power projects is based on long-term considerations and a comprehensive evaluation of interests, where consideration is made of the worth of protecting the natural environment and of cultural/historical objects, the feasibility and profitability of different modes of utilization and other values of national interest, as well as the interests of those utilizing those same resources, with adherence to the goals of sustainable development". In this legislation the Master Plan's results have been given a legal status. It stipulates that the Minister of Industry "in consultation and cooperation with the Minister for the Environment submit to Althingi, at least every four years, a proposal for a parliamentary resolution on a plan for the protection and energy utilization of regions", where there is formed "a policy on

whether regions with options to build power plants can be utilized for energy production or whether they should be protected or researched further". The plan shall "evaluate the protection and energy utilization value of regions and the economic, environmental and social effects of utilization, including protection".¹³⁸

With Act No. 48/2011, sustainable development has in effect been given permanent status as a standard for making decisions on the protection and utilization of regions. The Act also contains clauses making a plan for protection and energy utilization mandatory when setting up planning frameworks. Accordingly, local governments are obliged to coordinate current regional plans, master and secondary plans with the plan for protection and utilization. With this clause the chances are increased that decisions on the use of land and resources are in the spirit of sustainable development and further a green economy.

In context of the aforementioned it seems that the Master Plan for Hydro and Geothermal Energy Resources is in good harmony with the focal points made by the Committee on the Strengthening of the Green Economy.

135 Steering Committee on the Forming of a Comprehensive Energy Policy (2011). An Energy Policy for Iceland. Draft for consultation. http://www.nea.is/media/orkustefnunefnd/Orkustefna_jan_2011.pdf. (Page 6).

136 Project Management on the Master Plan for Hydro and Geothermal Resources, dealing with the protection and utilization of natural resources (2011). Results of the 2nd phase of the Master Plan. http://www.umhverfisraduneyti.is/media/PDF_skrar/skyrsla-verkefnisstjornar-2.-af..pdf.

137 The Ministry for the Environment (2011): Report on the 2nd phase of the Master Plan filed to the Minister for the Environment and the Minister for Industry. Webpage news item July 6th 2011. <http://www.umhverfisraduneyti.is/frettir/nr/1852>.

138 Act No. 48/2011, on a plan for protection and energy utilization, May 16. <http://www.althingi.is/altext/stjt/2011.048.html>.

Appendices

APPENDIX 1. *Guests of the Committee and Discussion Points*

October 7, 2010

A visit from the Clean Tech Iceland organization:

Jón Ágúst Þorsteinsson, chairman of CleanTech Iceland and Bryndís Skúladóttir from the Federation of Icelandic Industries met with the Committee.

October 21, 2010

A visit from representatives of the Ministry of Industry:

Sveinn Þorgrímsson and Guðrún Þorleifsdóttir from the Ministry of Industry met with the Committee and presented the ministry's infrastructure.

October 28, 2010

A visit from the Ministry of Finance, Ministry of Industry and the Project Management for Green Energy - Renewable Energy in Transportation:

Hólfríður Sveinsdóttir, chairman of the steering group for Green Energy, which is a Ministry of Industry preparatory commission working on a plan for the energy change in transportation, met with the Committee. Also in attendance were Ögmundur Hrafn Magnússon from the Ministry of Finance and Haukur Alfreðsson from the Ministry of Industry.

November 4, 2010

Visit from the Invest in Iceland Agency:

Þórður Hilmarrsson, manager of foreign investments at Promote Iceland and Ingvi Már Pálsson from the Ministry of Industry came to meet with the Committee. Discussions were held on legislation on incentives for new investments in Iceland, No. 99/2010, and job creation, including a "green economy" for creating jobs.

November 11, 2010

Guests from the Ministry for the Environment:

Hrafnhildur Þorvaldsdóttir and Hugli Ólafsson from the Ministry for the Environment came to meet with the Committee. Among discussion points were green procurement, the Government's environmental policy in general and the cooperation of ministries and institutions.

Visit from Orkuveita Reykjavíkur:

Eiríkur Hjálmarsson from Orkuveita Reykjavíkur met with the Committee. Discussions were mostly about energy efficiency.

Visit from Landsvirkjun:

Magnús Bjarnason from Landsvirkjun National Power Company came in to discuss the company's activities, largest projects, choice of buyers, requirements for buyers, and more.

November 18, 2010

Guests from Tún:

Gunnar Á. Gunnarsson and Helga Guðrún Jónasdóttir from Tún Organic Certification met with the Committee. Organic certification in Iceland and abroad was discussed. A report commissioned by Tún on the possibilities and status of organic production in Iceland was presented.

Guest from the Innovation Centre Iceland:

Manager of Innovation Centre Iceland, Þorsteinn Ingi Sigfússon, met with the Committee. Different alternatives for producing energy in Iceland were discussed and how Icelandic businesses could be made as green as possible, and more.

November 25, 2010

Guests from the Icelandic Association of Horticulture Producers:

Bjarni Jónsson and Sveinn Sæland from the Icelandic Association of Horticulture Producers met with the Committee. The status of domestic vegetable production, organic production, and more was discussed.

Guests from the Farmers Association of Iceland:

Guðbjörg H. Jóhannesdóttir and Ólafur R. Dýrmundsson from the Farmers Association of Iceland met with the Committee. The guests presented reports and observations made by the association and introduced ideas that could be helpful to the Committee.

Guests from the Ministry of Fisheries and Agriculture:

Gunnfríður Hreiðarsdóttir, Niels Árni Lund and Ólafur Friðriksson from the Ministry of Fisheries and Agriculture met with the Committee. The guests made various observations relevant to the Ministry's field of activities.

December 2, 2010

Kolbrún Halldórsdóttir and Hjálmar H. Ragnarsson, Dean of the Iceland Academy of Arts, met with the Committee. They explained the value of creative industries and presented a newly published report mapping the economic effects of creative industries.

December 10, 2010

Vilhjálmur Þorsteinsson from the Energy Policy Committee met with the Committee and discussed its priorities.

December 16, 2010

Senior Lecturer in Environment and Resource Studies, Brynhildur Davíðsdóttir, met with the Committee and introduced the basic ideology behind sustainable development, the criteria for sustainability and the green economy.

December 17, 2010

Director of the Icelandic Tourist Board, Ólöf Ýrr Atladóttir, met with the Committee and talked about the progress and opportunities in the tourism industry.

January 5, 2011

Stefán Gíslason, an Environmental Management Expert at Environice, met with the Committee.

January 6, 2011

Sigurbjörg Sigurgeirsdóttir, Public Administration Specialist, met with the Committee.

February 24, 2011

Jóhanna Hilmarsdóttir from the State Trading Centre and Elva Rakel Jónsdóttir from the Environmental Agency met with the Committee and talked about public procurement. Guðlaugur Ágústsson explained various procurement methods for Althingi and linked institutions.

March 3, 2011

Finnur Sveinsson from Landsbanki was a guest at the meeting. Finnur illustrated various investment and financing options.

March 31, 2011

Guests were Ellý Katrín Guðmundsdóttir, Director of Reykjavik's Office of Environment and Transportation and Þorsteinn Hermannsson, Tryggvi Jónsson and Teitur Gunnarsson from Mannvit engineering firm.

April 8, 2011

Guests were Ellý Katrín Guðmundsdóttir, Director of Reykjavik's Office of Environment and Transportation, and Hrólfur Jónsson, Director of Reykjavik's Department of Public Works.

May 27, 2011

Guests were representatives from Promote Iceland, Arnar Guðmundsson, Marketing Director of Foreign Investments, and Þórður H. Hilmarsson, Manager of Foreign Investments.

September 8, 2011

Guests were Jón Ágúst Þorsteinsson Managing Director of Marorka, Helga Valfells Managing Director of the New Venture Business Fund and Brynhildur Davíðsdóttir Senior Lecturer in Environment and Resource Studies at the University of Iceland. Among other things, Jón Ágúst discussed maritime pollution prevention, technological development and job opportunities in the field. Helga introduced the New Venture Business Fund's operations and investment strategy. Brynhildur reviewed the committee's proposals on GPI and other things.

September 9, 2011

Attending the meeting were Pétur Reimarsson and Halldór Árnason from the Confederation of Icelandic Employers. They talked in general about the committee's proposals and raised questions on the balance between a free market and public interventions. Also attending was Lúðvík Eckhardt Gústafsson, Project Manager at the Association of Local Authorities in Iceland. He discussed the possible involvement of the Association and municipalities in strengthening the green economy. Also attending was Sigurður Guðmundsson from the Ministry of Finance to talk about factors that could influence the progress of specific proposals from the Committee such as their link to regulations in Europe.

Appendix 2. Committee Members' Reservations

A) Illugi Gunnarsson's reservations

1. A reservation because of the Precautionary Principle

In the Committee's meetings a different understanding of the subject matter of the so-called Precautionary Principle was apparent. Because of the proposal to make the Precautionary Principle a basis in government policy I want to make the following reservation:

The Committee's report mentions the so-called Precautionary Principle. In the Committee's meetings the subject matter of the Principle was discussed at some length. In that discussion the White Book on nature preservation in Iceland was quoted, where the argument behind the Precautionary Principle is summarized as follows: *"cases which in most instances scientific uncertainty and lack of information on whether specific actions, or as the case may be, lack of action, are going to have an adverse effect on the environment. Despite the uncertainty precautionary measures shall nonetheless be taken, even if the causal link between specific actions and their influence has not been proven"*.

If this definition is understood to mean that precautionary measures are always to be taken even if the causal link between specific actions and their influence cannot be proven, then my view is that the Principle is not suited to dictate the actions of public entities. It is clear that there is always some degree of uncertainty in construction. The eco-system and nature are immensely complex matters and there is always going to be some scientific uncertainty that can be pointed out in connection with construction projects. If this is the understanding the danger is that the rule will be used in such a way within the system of government that the nation's possibilities to utilize its resources

will be severely diminished, despite lack of scientific proof that the activities are harmful or too disruptive.

In my opinion it is prudent to use the precautionary principle that a thorough and scientific evaluation of the environmental effects of specific projects should always be carried out, which in the end evaluates the economic, or regional, importance of the project on one hand and the effects on the environment on the other. When evaluating the need for preventive precautions, individual cases must be evaluated on the basis of the scientific knowledge at hand at any given time.

2. Reservation because of Proposal No. 29

I agree with the basic idea that those who pollute pay for that pollution. In cases where ownership is hard to define in order to solve the problem of pollution, such fees may be necessary. Businesses must be given time to develop new and economical ways to respond to the fees.

Because of the economic situation in Iceland I feel it is right to emphasize that if new taxes or fees are decided on the basis of the Polluter Pays Principle the following must be kept in mind:

- a. *The timing of the fees:* Investment in Icelandic business life is at an historical low and it is therefore necessary to limit as much as possible all fiscal obligations on businesses. I therefore feel that new fees should be delayed until the level of investment has reached similar levels as on average in the past decades.
- b. *The interaction with other charges:* Taxes on Icelandic businesses have been raised in recent times. When introducing taxes on the basis of the Polluter Pays Principle there is created the opportunity to lower taxes and duties in a positive manner. Should matters be dealt with in such manner it would be desirable to execute the proposed changes sooner.

3. Reservation because of Proposal No. 37

I think the possibility of defining the Icelandic waters as an ECA-area should be carefully looked into, although, the evaluation of whether, when, and how fast it is done should be done in the cooperation of the government and stake-holders in fisheries, transport and in the tourism industry.

4. Reservation because of Proposal No. 40

The establishment of the Natural Resources Fund is on the current Government's agenda. I have always disagreed with those rooting for the establishment of such a fund. The disagreement is based in various fundamental political issues, such as the question of how ownership rights are created and who owns unused natural resources. If the government enjoys the parliamentary strength needed to bring about the foundation of such a fund, then I agree to the fund being, among other things, used for the actions stipulated in Proposal No. 40.

5. Reservation because of Proposal No. 43

Charges on car owners are already excessively high and the price of petrol is very high and not given that the prices will drop in the coming years. I therefore oppose further charges on car owners, despite all good intentions and plans for an eco-efficient energy change. Such plans must, in my view, be financed by current taxes.

6. Reservation because of Proposal No. 20

The Treasury's position is and will for the coming years be very difficult. In light of planned expenditures to facilitate foreign investment I want to make the following reservation:

I feel it is right to embark on the task dealt with in the latter part of the Proposal. It is important to introduce investors to all the possibilities in Iceland, particularly in the field of green business

activity. Going forward, I feel that all measures must be taken to attract investment into the country without funding from the Treasury.

B) Reservations from Guðmundur Ragnar Guðmundsson

1. A reservation on Iceland resigning from the WTO

In the meeting of the Committee on the Strengthening of the Green Economy on September 26th I submitted the following proposal, which, although discussed in the Committee, was not formally decided on. I regret that the Committee did not come to a decision on the proposal.

The text of the proposal:

Iceland shall resign from the World Trade Organization (WTO) and denounce international agreements by the WTO.

Through many radical and onerous multinational agreements, states, municipalities, smaller communities and individuals have increasingly less space for self-determination. In the work of the Committee on the Strengthening of the Green Economy (acc. Althingi's agreement from June 10, 2010) it has become clearly apparent that various agreements place severe restrictions on action to protect the environment and increase prosperity. It is therefore urgent to map the international agreements that hinder self-determination and denounce those that go against the interests of nature and a sustainable society. Replacing them will be international agreements ensuring normal business transactions, environmental protection, equality and peoples living conditions.

2. A reservation on the workings and assignment of the Committee on the Strengthening of the Green Economy

An era in the history of mankind has come to an end. This has been an era of great

prosperity for some and opportunities for material indulgence. This ends, one way or another. We are presented with two options. One entails preponderant actions in line with emergency control through contingency plans done by entities like the Civil Protection System's Council of Scientists. A state of emergency is upon us. The right response in this situation can greatly reduce the trauma that will be afflicted on us. The other option is to turn a blind eye, to keep playing the game of power and wealth. That game will come to an automatic end with the collapse of the eco-system and the termination of a large part of earth's living organisms, mankind included. The idea that some individuals can survive because of current wealth or power is an illusion. Actions at this time in the history of life on earth need to be decisive and take notice of the needs of the eco-system we are part of.

Minor inconveniences are inevitable. To increase the standard of living of the part of mankind that is worst off is inevitable, so the level of consumption the rest of us enjoy has to be reduced and we must make some sacrifices. Not all of life's qualities are material; increased prosperity is possible while reducing the strain on the eco-system. We need to take responsibility for the state of affairs in the world and make sacrifices that mostly include minimal changes in our way of living, diet, travel, operational environment of businesses, etc.

With that in mind it has been a great pleasure for me to partake in the work of the Committee on the Strengthening of the Green Economy. The Committee members have devoted much effort in researching circumstances and possibilities for improvement. I think the Committee's report is good and various proposals are for the better. However I still believe that the environmental problem facing the world has not had nearly enough effect

on the Committee's work. In light of that I want to raise four points:

I would have wanted to see more decisive action within the framework given to the Committee. Worth mentioning are actions to reduce the emission of greenhouse gasses, e.g. from agriculture, a proposal to reduce trawling, a proposal for a GMO-free Iceland, Iceland free of oil, an organic Iceland, etc. The Committee's proposals are only suited to slow down a process that should in fact be reversed.

The Committee limited its own freedom of action. The Committee's proposals are too specific to the current society and business environment. I think that a committee commissioned by Althingi can propose systemic changes in the society. Such discussions were not embraced in the Committee.

Various agreements exist that restrict the nation's possibilities to ensure prosperity, as well as its ways to sufficiently address the environmental problem. Some of these agreements need to be terminated and others denounced.

The work and report of the Committee has been confidential and not open outside of the committee. Setting up a meeting with the committee has not been an option, nor to review its report and have the opportunity to suggest changes or amendments going forward. I would have thought it better to have the Committee's work more open, e.g. in line with the methods of the Constitutional Council.

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Sustainable prosperity - a
model society

Report of the Parliamentary Committee
on the Strengthening of the Green
Economy

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