**European Employment Observatory**

# EEO Review: The Employment Dimension of Economy Greening

## Norway

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Abbreviations used

CCS - Carbon capture and storage

LO - The Norwegian Confederation of Trade Unions

NHO – The Confederation of Norwegian Enterprises

WEA – Work Environment Act

## 1. Introduction

As the first country in the world, Norway established a Ministry of the Environment in 1972 and environmental issues have attracted attention for years. New knowledge about the climate change has extended this awareness. Norway has major resources in oil and hydroelectric power. The petroleum industry it employed around 76 000 employees in 2003 (Bråthen et al. 2007). In 2008 crude oil, natural gas and pipeline services accounted for more than 50 % of Norway's export value. Almost 40 years of oil and gas-production has been decisive for the nation's economic development and for the financing of a generous welfare state that employs about one third of the labour market. Opening up for off-shore drilling in the northern part of Norway (Lofoten and Vesterålen) was an important topic during the election campaign for the general election in 2009. The issues of prosperity and employment versus environmental protection were extensively discussed.

At the same time, the petroleum activities account for 31 % of Norway's total carbon dioxide emissions. The Norwegian Parliament has decided that Norway's greenhouse gas emissions must be reduced by 15-17 million tonnes by 2020 - a 25 % cut in the current emission levels.[1] Several measures are discussed. The government has stated that "no matter how hard we try to develop renewable; coal, oil and gas will be with us, and will continue to be our main source of energy supply for several decades to come."[2] The political platform which forms the basis for the government's work states that "as a part of a global and ambitious climate accord where other industrial nations also accept their great obligations, Norway promises to reduce emissions 100 % by 2030 so that as a nation we become carbon neutral".[3]

Therefore, an energy policy built on carbon capture and storage (CCS) is seen as essential. Other measures are increased energy efficiency and a stronger focus on renewable energy. Further expansion on hydroelectric power and development of wind power is undertaken.

For trade unions as well as employer organisations in manufacturing and the oil and gas industry, climate issues related to greenhouse gas emissions are challenging. The obvious reason is the difficult balance between green considerations and the interests and employment situation of the organisations' members working in private sector.

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[1] http://www.npd.no/en/topics/environment/temaartikler/contributing-facts-to-the-climate-cure
[2] http://www.regjeringen.no/nb/dep/oed/aktuelt/taler_artikler/minister/olje--og-energiminister-aslaug-haga/2008-2-2/ccs-projects-in-norway.html?id=502599
[3] http://arbeiderpartiet.no/Politikken/Politisk-plattform-2009-13

## 2. Labour market outcomes

Norway has, for several years, adopted strict environmental measures. In the early 1990s taxes on CO2 was introduced. Today, approximately 70 % of the Norwegian discharge of greenhouse gases are subject to taxation (LO 2009:12). Given the strict requirements for Norwegian companies to reduce their greenhouse gases, it is common to claim that the companies are at the forefront of different green technology areas in the maritime sector, waster, renewable energy, and the water sector. However, there are no available statistics to confirm this assumption (SSB 2008: 61). There is also a lack of data on the overall size of the environmental sector in terms of the number of employed and its annual turnover. Statistics Norway points out that the environmental sector cuts across the regular classification of industries and therefore is difficult to identify in statistical terms (SSB 2008: 61). The LO emphasises that there is no such thing as a 'green job sector', as the aim must be to make all jobs greener. Nevertheless, Statistics Norway has tried to estimate the turnover and employment within enterprises producing technology for renewable energy production (see Table 1).

**Table 1: Preliminary estimates for turnover and employment within enterprises producing technology for renewable energy production, by type of energy, 2008**

| | **Number of enterprises** | **Turnover (mill. NOK)** | **Employment** |
|---|---|---|---|
| Water | 12 | 554 | 309 |
| Wind | 6 | 550 | 339 |
| Bio-energy | 10 | 384 | 188 |
| Solar energy/tidal energy | 11 | 3 121 | 741 |
| Heat pumps/thermal energy | 4 | 20 | 8 |
| Incinerators with energy recovery | 4 | 10 | 10 |
| **TOTAL** | 47 | 4 669 | 1 595 |

*Source*: Statistics Norway, SSB Environmental Goods and Services Industry.

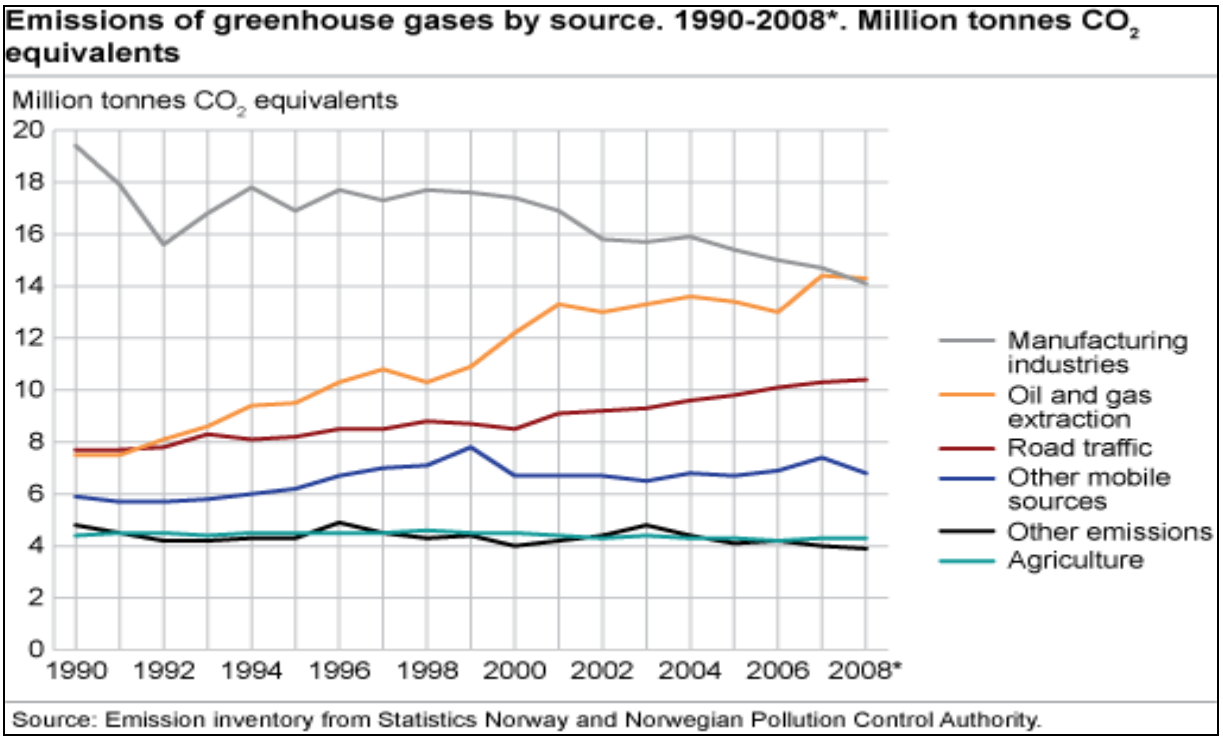
The EU target to increase the share of renewable energy to 20 % by 2020 poses some challenges for Norway. Today, the share of renewable energy in Norway is approximately 62 %, due to the use of hydroelectric power. Hence, it would be challenging to increase the share of renewable energy (almost all electricity in Norway comes from the renewable hydroelectric power). If Norway is to calculate new targets after the same method as in the EU Member States, the share of renewable energy has to reach 76.3 % by 2020. Norway is negotiating with the EU about the level of the new

target (LVK 2009). There is, however, no debate about the possible labour market outcomes with respect to the 20-20-20 targets. There is hope that the environmental sector will be the new big emerging sector that could combine the political targets of economic growth with development technology and reduce the discharges of greenhouse gases in Norway as well as in rest of the world.

*Challenges for the energy intensive manufacturing sector*

There are concerns about Norway's large energy-intensive industry. LO points out that with introduction of significant environmentally friendly national measures against the industry without similar measures in other countries, the national production could move abroad to non-regulated areas (the so-called carbon leak). Thus, strict national measures could result in negative effects on the global climate, at the same time as it would have considerable human and economic costs for Norway (LO 2009:12). Many of the energy intensive companies are located in small industry-based communities. A rapid restructuring process could lead to structural unemployment in these communities. On the other hand, it is important to notice that there has been a significant improvement in the industry in relation to the discharge of greenhouse gases over the last two decades. As Figure 1 shows, the reduction in the discharge of CO2 in the industry sector (the grey line) has been extensive. The metal industry has reduced their discharges by 40 % since 1990 (LO), and the overall reduction in the manufacturing sector was 27 % in the same period (SSB 2009). On the other hand, the oil and gas sector (the yellow line) increased their discharges, which is equivalent to the reduction in the manufacturing industries. It is important to notice that the Norwegian oil sector is claimed to have relative small discharges, compared to the same sector in other countries due to the high taxation of CO2-discharges (342 NOK/ton) (LO 2009:12).

**Figure 1: Discharge of CO2, by source, 1990-2008, million tons of CO2 equivalents**[4]




Although the transition towards an even stricter regulation of greenhouse gas discharges will represent challenges for one-sided industry communities, there are important characteristics of the Norwegian labour market that will influence the restructuring process to a greener economy. The Norwegian labour market is characterised by a close and extensive co-operation between the social partners. All policy changes that affect the labour market are closely discussed and negotiated with representatives from the trade unions and the employer organisations. It is reasonable to assume that reforms and policy changes in the direction of a greener economy will be closely discussed between these organisations to ensure the overall low levels of unemployment, and that redundant employees would get necessary retraining. The LO and the Confederation of Norwegian Enterprise (NHO) have published a joint statement, encouraging their members to join campaign initiatives on green issues. In addition, this statement strongly emphasized the importance of climate changes (Eurofound 2009: 16). As noted in Figure 1, the discharge of CO2 from road traffic (red line) has increased significantly over the last decade. The head of the Norwegian Transport Workers Union

[4] http://www.ssb.no/emner/01/04/10/klimagassn/index.html

has stated that they want to work towards the abandonment from fossil fuel, as well as support moves to the transportation of goods by railway. It seems reasonable to assume that the social partners, at least to some extent, will contribute and work together with the government on restructuring the labour market in a greener direction.

*Measures undertaken by the government to promote green growth*

In addition to the active use of green taxation, the government has put forward several measures to promote green growth. In the fiscal stimulus package put forward to counteract the financial crisis, the government decided to use NOK 1.7 billion (EUR 200 million) on green measures. Hence, there have been efforts to contribute to a more green economy and to address the labour market needs in the recovery measures. The measures included NOK 1.2 billion (EUR 140 million) to measures to save energy and transfer to renewable energy, an increase of the budget to the Ministry of Environment (NOK 340 million, EUR 42 million), NOK 50 million (EUR 6 million) to build recharging stations for electric cars, NOK 70 million (EUR 8.5 million) to research on renewable energy and NOK 50 million (EUR 6 million) to increase the use of bio-energy.

In the stimulus package, the government also increased the spending on railways by NOK 1.3 billion (EUR 150 million), and classified this as a green measure. In the annual budget for 2010, the Government has reserved NOK 3.5 billion (EUR 420 million) for carbon capture measures, an increase by NOK 1.6 billion (EUR 190 million) compared to 2008. In addition the government budgeted for NOK 5 billion (EUR 600 million) to the fund for renewable energy end energy efficiency, it is also spending NOK 350 billion (EUR 42.7 billion) more on research and NOK 100 million (EUR 12.2 million) to a scheme that will subsidise development of new technologies. Also in the annual budget for 2010, the government increased the spending on railways by additionally NOK 1.3 billion (EUR 150 million). It is, however, difficult to conclude which of these measures will have the greatest employment potential or how many jobs they actually will create.

## 3. Labour market policy developments

Changes and restructuring of the labour market will probably be done in close co-operation between the social partners. Tripartite collaboration is a central labour market feature in Norway. At national level, the interplay between extensive welfare arrangements, active labour market policies and generous protection in the event of lay-offs contributes to the labour mobility. At the company level, the flexibility of employees is characterised by their ability and willingness to combine different tasks, take on new responsibilities and use their skills in the best interests of the company

(Hagen and Trygstad 2009). These important mechanisms may help Norwegian enterprises in "going green".

*Shortage of qualified employees*

Despite the financial crisis, there were shortages of engineers and technical skilled workers in 2009 (NAV 2009); and estimates indicates that the shortage will increase. The Ministry of Education and Research has for several years emphasised the need for mathematical and scientific expertise in the labour market. This expertise is seen decisive to understand environmental challenges, to react properly to them and to enable development of alternative sources of energy. In 2009, the government launched the third action plan to strengthen the focus on mathematical and scientific studies from 'kindergarten to working life' (Ministry of Education and Research 2008).[5] In 2009, NOK 400 million (EUR 48.8 million) was granted for further education of teachers, and scientific subjects was a prioritized area in the secondary compulsory schools. Another measure to improve the recruitment of engineers is to offer technical skilled workers, who do not fulfil the standard requirements to apply for engineering studies, an opportunity to apply for adapted engineer education.

Increasing the number of engineers and technical skilled workers is necessary for developing new alternative sources of energy and further development of hydroelectric power (Jordfald and Svalund 2009). The government has proclaimed that it will expand the grid capacity between different regions in Norway as well as between Norway and foreign countries (Political platform Stoltenberg III, 2009:63). A considerable amount of investments is needed to meet this goal. The estimate is NOK 33 billion (EUR 4 billion) in the 2008-2025 period (Jordfald and Svalund 2009). Further development of the central grid and hydroelectric power will also require workers. The competition in the recruitment of engineers (especially with advanced, master degrees) and technical skilled workers will be considerable in the years to come.

*Export of hydroelectric power*

There is a debate in Norway related to whether surplus from the hydroelectric power shall be exported or be used in Norway by offering cheaper energy to the manufacturing industry and private households. In June 2009, the LO affiliated Industry and Energy Union organised a political strike against what it viewed as the government's failure to provide cheap power to the manufacturing industry, as large parts of energy intensive

[5] According to the PISA 2006 survey, Norwegian pupils are below the OECD average in mathematics, and have worse results than the other Nordic countries.

industries depend on access to power at low and stable prices. The outcome of this debate is not settled.

*Developing renewable energy*

Although the government has granted subsidies for developing the wind power, it has been criticised for not promoting wind power and other renewable energy sources in a sufficient way. Renewable energy is seen as a measure to respond to the climate change, as well as a measure for creating sustainable industry and green jobs. Some parts of Norway depend heavily on a cornerstone manufacturing company, and any closures are damaging for the communities. The development of the Renewable Energy Corporation (REC) is an example of how innovation in green technology may contribute to new industry in remote areas in Norway. Hydropower in abundance and a long tradition and expertise within the metal industry field brought along the idea that solar cells made from multicrystalline wafers would become the leading technology in an industry. About the same time (1993), a local ammoniac production facility in Glomfjord in northern Norway shut down. This was the beginning of the production of solar wafers at this site. The first wafer was produced in the summer of 1997, and the founders were in the plant washing the first wafers by hand. Today, REC has plants in Sweden, USA and Singapore and is the world's largest integrated solar energy company. In 2005, REC had 1 101 employees. In 2008, the number had increased to 2 418 employees.[6]

*Job quality*

Job quality is an important issue in the Working Environment Act (WEA 2005).[7] The first purpose of this legislation is "to secure a working environment that provides a basis for a healthy and meaningful working situation, that affords full safety from harmful physical and mental influences and that has a standard of welfare at all times consistent with the level of technological and social development of society".[8] WEA 2005 covers the majority of all employers and employees ain both the private and public sectors.[9] The employer is responsible for complying with the requirements of the Act and for ensuring that the enterprise maintains a healthy and safe workplace. Companies with 10 or more employees are also obliged to have a health and safety officer elected from the employees. But in a representative study mapping the working conditions in Norway (Health, environment and safety study 2007) 23 % of the employees stated they did not have or did not know whether they had a health and safety officer at their workplace.

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[6] http://www.recgroup.com/en/recgroup
[7] Act of 17 June 2005 No.62 amended by Act of 23 February 2007 No.10
[8] Section 1-1(a) WEA 2005.
[9] The military, aviation, shopping and fishing sectors are not covered by the WEA.

The health and safety officers are required to ensure that the management fulfils their obligations under the WEA 2005. He or she can stop all activities if employees are in imminent danger and shutdowns may also be imposed when enterprises fail to comply with orders given by the Norwegian Labour Inspection Authority. In a representative survey among Norwegian employees, 17 % of the health and safety officers said they have used their right to stop work and 12 % have threatened it (Falkum et al. 2009).

The physical working environment in Norway has improved from 2001 to 2007. There is a significant reduction in employees who are exposed to harmful physical and chemical working conditions, and fewer have a working situation with heavy lifts for most of day (Bråten et al. 2007).

Traditionally, the union representatives' and the health and safety officers' roles have been limited to the internal affairs at the enterprise.

*Social dialogue and changes in the basic agreement*

In Norway, the LO and NHO have published a joint statement emphasising the longstanding tradition of social dialogue, underlining the importance of co-operation in the area of climate change issues. One illustrating example is the revision of the basic agreement. The basic agreement determines the rights and obligations of both parties (employers and employees).

The revision of the basic agreement between the LO and the NHO in private sector in 2009 extended the scope of co-operation. The parties have agreed that the social dialogue at company level shall promote understanding and knowledge about enterprise's impact on the external environment.[10] It should also be mentioned that environmental protection already is emphasised in the Systematic Health, Environmental and Safety Activities in Enterprises (Internal Control Regulations).[11] The regulation (§1) states that[12] "through requirements as to systematic implementation of measures, these regulations shall promote efforts to improve conditions in enterprises in regard to:

- protection of the external environment against pollution and improved treatment of waste so as to ensure that the objectives of the health, environmental and safety legislation are achieved."

Furthermore, the Ministry of Labour and Social Inclusion has appointed a commission of participation and co-determination. The health and safety officer and the working

[10] http://www.lo.no/Presse/Pressemeldinger/Revisjon-av-hovedavtalen-LO-NHO
[11] The regulation was implemented in 1997.
[12] http://www.arbeidstilsynet.no/binfil/download2.php?tid=77839

environment committee's role and responsibility in relation to the protection of enterprise's external environment are debated.[13] In one survey, Norwegian employees were asked different questions concerning the external environment (Bråten et al. 2008). The data shows that:

- 59 % of employees in the private sector and 67 % of the employees in the public sector agreed with the statement that "health and safety officers should have the right to stop the production/work if it damages the external environment".
- 53 % of employees in the private sector and 68 % of the employees in the public sector agreed with the statement that "the trade union ought to push for environmental protection even if this can threaten our jobs".

Although there are significant differences between employees in the two sectors, the numbers indicate a strong awareness of environmental protection among the Norwegian employees.

*The direction of existing reforms*

There is no current debate regarding shifting taxes from labour to consumption of energy/transport. There is already heavy taxation on gasoline and energy in Norway, as well as on regular consumption (the 25 % VAT rate). There are, however, continuous debates about the need for an increased use of taxation to give incentives to "going green". The government has introduced several changes in taxation to promote lower discharges of greenhouse gases (e.g. tax increases for cars with high levels of emissions), but this is not related to reduction in the taxation of income/labour.

## 4. Conclusions

The awareness of climate change and the impact on the labour market is a hot topic in Norway. The nation's dependency on the petroleum industry in revenues and employment is a challenge in the process of going green. However, different measures are undertaken. Carbone capture and storage is seen essential. The government has also focused on increased energy efficiency and allocated funds to strengthen the efforts to develop renewable energy. One challenge is shortage of engineers and technical skilled workers.

As in other countries, it is challenging to promote a sustainable green economy and at the same time prevent redundancies and unemployment. However, the tripartite system in Norway has a long tradition to co-operate in difficult matters, such as structural changes in the labour market and to work to improve the working environment at the

[13] The commission will hand over the proposal to the government during the spring 2010.

workplace. There is also a willingness among the parties to extend this co-operation in matters concerning the external environment. The awareness of the importance of environmental issues both inside and outside the enterprise is evident among employees as well as among employers. This fact may be an important advantage when it comes to developing a greener labour market policy.

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