



Assessment of climate change policies as part of the European Semester

Country Report Sweden

26 January 2015

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1 Short Summary

Sweden is aiming for net zero greenhouse gas emissions by 2050. The country has already reached its EU 2020 target for renewable energy share in gross final energy consumption. In 2009 the Swedish Parliament decided on its national climate and energy targets through to 2020. In 2014 the government presented a proposal for a new Climate Roadmap until 2050. It proposes a strategy for achieving the government's long-term target for Sweden of no net emissions of greenhouse gases in 2050.

By 2020, Sweden needs to reduce its emissions not covered by the EU ETS by 17% compared to 2005, according to the Effort Sharing Decision (ESD). The latest data for 2013 show that Sweden met its annual allocation interim target under the ESD for the year 2013 and even exceeded it by 12.5 percentage points (see figures in Table 2). National projections indicate that the country will stay at this emissions level and thus also meet its 2020 target by a margin of about 2.3 percentage points with existing measures (WEM) and by 3.3 percentage points with additional measures (EEA 2014a).

The key policy developments in the last year (Jan. 2014 – Jan. 2015) include new energy efficiency measures, the withdrawal of an introduction of a biofuel quota and the approval of a proposal for a new Rural Development Program for years 2014-2020.

2 Climate and energy policy priorities

Climate change mitigation is an important component of Swedish policy-making, as the country prides itself on being at the forefront of greenhouse gas (GHG) emissions reduction and seeks to continue its green image and legacy.

Sweden already reached its EU target (from the Renewable Energy Directive) in 2012, under which renewable energy is to account for half of all energy consumption by 2020 (Eurostat, t2020_31). In 2011 the electricity mix in Sweden consisted of hydro power (44.1%), nuclear power (40.5%), biofuels and waste (8.5%), wind (4%), natural gas (1.2%) and in very small portions (<1%) from coal, oil and peat (IEA, 2013). In light of this, further promotion of renewable energy focuses less on the electricity sector and rather on sectors with relatively greater GHG abatement potential, such as transport. Sweden is aiming for net zero GHG emissions by 2050 (Government Offices, 2012).

The Swedish Parliament decided in June 2009 on its national climate and energy targets for 2020 (Climate Bill, 2008):

- 40% reduction in GHG emissions by 2020, compared to a 1990 baseline (emissions and removals from land use, land-use change, and forestry (LULUCF) are not included)
- 20 million tonnes less CO₂e emitted from the non-ETS sectors compared to 1990 levels (this results in a much higher reduction obligation compared to the ESD target ¹)
- 50% renewable energy by 2020
- 10% renewable energy in the transport sector by 2020
- 20% increase in energy efficiency by 2020

The targets are to be reached by strengthening existing policies (e.g. taxes), implementing EU legislation and purchasing international carbon credits under the UNFCCC (CDM) and EU ETS (Art 24a EU ETS Directive), with the aim of achieving two-thirds of the reductions domestically and one-third through international investments (Climate Bill, 2008).

¹ In 1990, Sweden emitted about 72.8 Mt CO₂e. Assuming that around 65% of the emissions can be attributed to the non-ETS sectors, the reduction target would result in non-ETS emissions of 28 Mt CO₂e in 2020 (minus 33% compared to 2005 non-ETS emissions). The ESD target for Sweden is minus 17% of non-ETS emissions in 2020 compared to 2005 levels or 36.4 Mt CO₂e in 2020 (see also Chapter 2) (EEA, 2013).

In April 2014, the government published a proposal for a new Climate Roadmap 2050. It proposes a strategy for achieving the government's long-term target for Sweden with no net emissions of GHG in 2050. The roadmap includes *inter alia*:

- a proposition for appropriate interim emissions targets for the period 2030 to 2050,
- analysis of existing instruments and proposals for changes or introduction of new cost-effective and long-term instruments,
- proposals on how the roadmap can be designed to be able to act together with an international regulatory framework and governance instruments at EU and international level (Regeringen, 2014a).

Sweden also has a long term target specifically for the transport sector. Sweden aims at achieving a vehicle fleet that is independent of fossil fuels by 2030. At the same time, the GHG emission reduction targets for road transport are 35 percent reduction by 2020, 60 percent by 2025 and 80 percent by 2030 compared with 2010 levels. The latest report describing the proposed measures to achieve that goal is the Swedish Ministry of Industry report "Fossil Freedom on the Road" (Fossilfrihet på väg), which was published in December 2013 (Fossil Freedom on the Road, 2013).

3 GHG trends and projections

Sweden reduced its total GHG emissions by 16% between 2005 and 2013. The share of GHG emissions not covered by the European Emission Trading Scheme (EU ETS) is around 64%, which is above the EU28 average (see Table 1).²

Table 1 Key data on GHG emissions

| | | National data | | | | EU28 |
|----------------------------|--------------------------|---------------|------|------|------|-------|
| | | 2005 | 2011 | 2012 | 2013 | 2013 |
| Total GHG emissions | Mt CO ₂ eq | 66.9 | 60.8 | 57.6 | 56.0 | 4,539 |
| Non-ETS emissions | Share in total emissions | 71% | 67% | 68% | 64% | 58% |

Source: EEA 2014a; EEA 2014c

By 2020, Sweden needs to reduce its emissions not covered by the EU ETS by 17% compared to 2005, according to the Effort Sharing Decision (ESD). The latest data for 2013 show that Sweden met its annual allocation interim target under the ESD for the year 2013 and even exceeded it by 12.5 percentage points (see figures in Table 2). National projections indicate that the country will stay at this emissions level and thus will also meet its 2020 target by a margin of about 2.3 percentage points with existing measures (WEM) and by 3.3 percentage points with additional measures (EEA 2014a).

² The European Environment Agency has developed a complex methodology to measure progress on the Non-ETS/ESD targets of all EU Member States. This report uses the figures derived on this basis. A detailed explanation and the underlying absolute amounts are contained in Annexes 1-3 of the EEA report No 6/2014 "Trends and projections in Europe 2014. Tracking progress towards Europe's climate and energy targets for 2020" available at <http://www.eea.europa.eu/publications/trends-and-projections-in-europe-2014/>

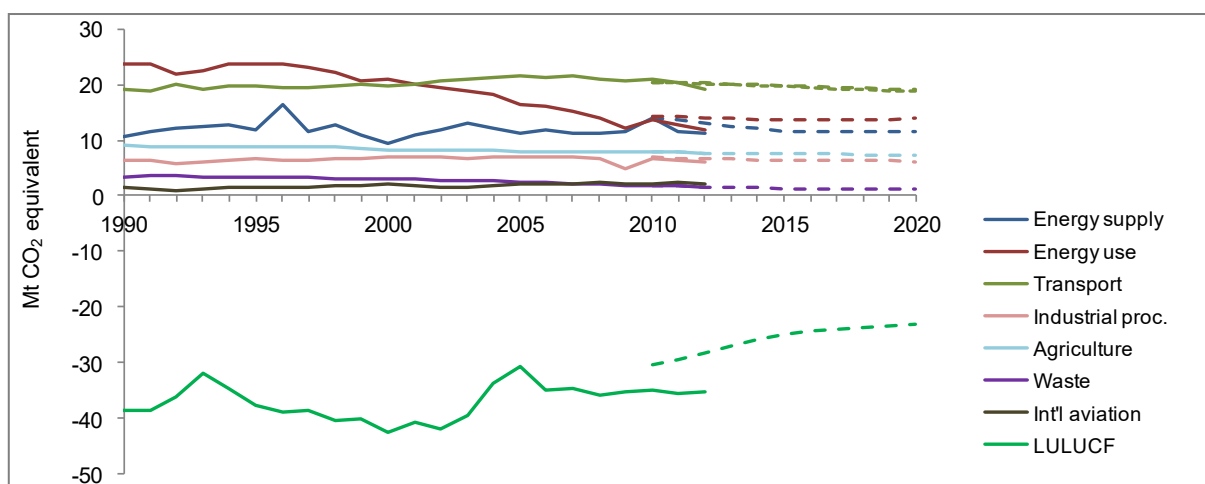
Table 2 Non-ETS emission targets, trend and projections

| | | Compared to base year |
|------|---------------------|-----------------------|
| 2013 | ESD interim target | - 7.0% |
| | ESD emissions | - 19.5% |
| 2020 | ESD target | - 17.0% |
| | ESD projections WEM | - 19.3% |
| | ESD projections WAM | - 20.3% |

Source: EEA 2014a. Green indicates target met or exceeded, orange indicates a value below.

GHG emissions are mainly created by the transport sector followed by the energy industries, and direct fuel consumption (e.g. households for heat generation) (see figure below for historic and estimated emissions by sector). Projections indicate that by 2020 emissions from energy use and the transport sector will remain at 2010 levels, while emissions from the energy industry will be slightly reduced.

Figure 1 GHG trends and projections by sector



Source: EEA 2014a. Actual data until 2012 and projections from 2010 onwards.

4 Policy development

This section covers significant developments made in key policy areas between January and December 2014. It does so through two different perspectives: 1) progress on the policies communicated under the National Reform Programme, and 2) developments in the identified national priority sectors and policy areas.

4.1 Key policies as outlined in the National Reform Programme

Member States prepare National Reform Programmes (NRPs) each April outlining the country's progress and the key policies and measures to achieve targets under the EU 2020 Strategy. These key policies and measures are summarised in the following table and their current status is provided.

Table 3 Key policies and measures as outlined by the NRP 2014

| Government Bill “Tax reduction for micro production of renewable electricity” | |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Status in the NRP | It is suggested that the proposed legislation would have come into effect on 1 July 2014. |
| Status as per Dec 2014 | The amendments in the legislation (Electricity Law (1997:857), Income Tax Act (1999:1229), Tax Law (2011:1244) and Tax Regulation (2011:1261)) introducing the tax reduction for microgeneration of renewable electricity entered into force on 1 January 2015. |
| Description of policy | The tax reduction is designed for micro-generation of renewable electricity. The tax reduction applies to surplus electricity fed into the electricity grid and amounts to 60 öre per kWh (6 EUR ct/kWh), up to a maximum of 18,000 SEK (1,915 EUR) per year (Skatteverket, 2014a). |
| Introduction of a quota system for biofuels | |
| Status in the NRP | A quota system will be introduced from May 2014 to ensure continued low-level blends of biofuels on the market. |
| Status as per Dec 2014 | After the government in April 2014 announced the delay of the introduction of the biofuel quota, it announced in June 2014 that the introduction of the Act on Biofuel Quota Obligation and of the Law Amending the Law on Taxation of Energy will be withdrawn. |
| Description of policy | The draft act foresaw the introduction of a quota obligation as a support scheme for biofuels. The Swedish government cites the reason for withdrawing the law was that the European Commission did not provide state aid approval for the proposed changes of tax on biofuels combined with the introduction of the quota obligation system (See Chapter 4.2.2). |

4.2 National policy priorities

The below sub-sections provide updates on key existing and new policies in priority sectors and policy areas of relevance to the energy and climate targets under the Europe 2020 strategy³. Each sector or policy area contains information on the most important policy instruments in operation or development.

4.2.1 Energy Efficiency

Within the EU-28, Sweden has the twelfth most-energy-intensive economy and is slightly above the EU average energy intensity. Energy intensity declined by 13% from 2005 to 2012, similar to the EU average decline (Eurostat, tsdec360). Final energy consumption dropped by only 4% from 2005 to 2012 with the reductions coming mainly from the industrial and agricultural sector (Eurostat, tsdpc320). Sweden is currently not on track to meet its indicative EU energy efficiency target (EEA 2014a).

Sweden has set its overall target of 20 percent energy savings by 2020 compared to 2008. There is a specific target for energy efficiency in buildings which aims for a decrease in the total energy per heated surface in residential and commercial buildings of 20% by 2020 and 50% by 2050, relative to consumption in 1995. In order to achieve this national objective, annual energy consumption in the building sector will need to decline by 30 TWh by 2020 and by 75 TWh by 2050 (Energimyndigheten, 2014a).

³ The Consortium jointly with DG Clima identified these based on identified challenges in Country Profiles (EEA, 2014), share of sectors in total GHG emissions, and Country Specific Recommendations (2014). DG Clima has identified additional relevant issues to be reviewed for some or all Member States, including country specific energy challenges.

In February 2014, the Swedish government presented a list of proposed new energy efficiency measures. The background of this proposal is the EU Energy Efficiency Directive from December 2012. The measures include, among others, mandatory energy audits for large companies and individual metering for each newly constructed or renovated installation for heating, cooling and domestic hot water in apartments, when it is cost effective to install metering at the apartment level. Both proposed new rules came into effect in June 2014 (Regeringen, 2014b).

4.2.2 Transport

Emissions from transport first increased and then decreased between 1990 and 2012, reaching a similar level in 2012 as in 1990. However, due to emissions reductions in other sectors, their proportion among Sweden's total emissions has increased to 32%. Energy consumption from transport has slightly increased between 1990 and 2012 (Eurostat, tsdcc210 and tsdpc320). Average emission rates for newly registered cars are moderate in Sweden with a level of 133.3 gCO₂/km. This value is the twelfth highest in the EU, but has decreased by 31%, which is at a rate faster than the EU average decline of 22% between 2005 and 2012 (Eurostat, tsdtr450). Fuel taxation in Sweden is above EU average. The road fuel excise duties on petrol are the fifth highest among EU MS and the excise duties on diesel are the third highest (EEA 2014b).

While Sweden does not charge a registration tax, its annual circulation tax is partly based on CO₂ emissions and cars emitting less than 120 gCO₂/km, alternative fuel cars, and electric cars are exempt from the tax for five years (as an "environmental car premium"). Additionally, Sweden levies a time-based road toll for Heavy Duty Vehicles (HDVs) above 12t, which is called Eurovignette (ACEA 2014, CE Delft 2012).

Sweden aims at achieving a vehicle fleet independent of fossil fuels in 2030. In December 2013, the Swedish Ministry of Industry has published a Government Official Report "Fossil Freedom on the Road" (Fossilfrihet på väg). Its goal was to identify possible options for action and identify possible measures for how Sweden will reach a fossil fuel-free vehicle fleet. The following measures are planned: plan and develop attractive and accessible cities that reduce transport demand and increase transport efficiency; more efficient vehicles and more efficient driving; support of biofuels and introduction of road-powered electric vehicles (Regeringen, 2013a). The GHG emission reduction targets for road transport that these measures hope to achieve are 35 percent reduction by 2020, 60 percent by 2025 and 80 percent by 2030 compared with 2010 levels (Fossil Freedom on the Road, 2013).

Sweden planned to introduce a biofuel quota as a new support scheme in May 2014. The Act was intended to oblige specific companies to ensure that biofuels constitute a certain percentage of volume of gasoline and diesel. The biofuel blends in gasoline should have amounted to 4.8% by volume, but increased as of 1 May 2015 to 7% by volume. Biofuel blends in diesel should have been at least 9.5% by volume and at least 3.5 percentage points of these would have consisted of specially designated biofuels (biofuels produced from wastes, residues, cellulose or lignocellulose). The introduction of the new support scheme was supposed to be combined with some changes in the energy tax on biofuels. However, the European Commission did not provide the necessary state aid approval for these proposed changes and in June 2014 the government announced that the introduction of the Act on Biofuel Quota Obligation and of the Law Amending the Law on Taxation of Energy will be withdrawn (Energimyndigheten, 2014b).

4.2.3 Agriculture

In June 2014, the government approved the proposal for a new Rural Development Programme (Landsbygdsprogrammet). The new rural development program runs from 2014 until 2020. It consists of subsidies and payments for rural development. Environment and sustainable development also play a very important role. The Rural Development Programme 2014-2020 lists 6 priorities:

- 1) Fostering knowledge transfer and innovation in agriculture, forestry and rural areas
- 2) Enhancing farm viability and competitiveness of all types of agriculture in all regions and promoting innovative farm technologies and the sustainable management of forests

- 3) Promoting food chain organisation, including processing and marketing of agricultural products, animal welfare and risk management in agriculture
- 4) Restoring, preserving and enhancing ecosystems related to agriculture and forestry
- 5) Promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors
- 6) Promoting social inclusion, poverty reduction and economic development in rural areas

The fifth priority, regarding the impact of agriculture on climate, covers the following measures:

- Increasing efficiency in water use by agriculture
- Increasing efficiency in energy use in agriculture and food processing
- Facilitating the supply and use of renewable sources of energy, of by products, wastes, residues and other non-food raw material for the purposes of the bio-economy
- Reducing GHG and ammonia emissions from agriculture
- Fostering carbon conservation and sequestration in agriculture and forestry

The costs of the Programme are 36 billion SEK (3.82 billion EUR), funded jointly by Sweden and the EU (20.6 billion SEK from the state budget, 14.8 billion SEK from the EU budget, and the remaining funds from other public funding sources, mainly municipalities) (Jordbruksverket, 2014).

5 Policy progress against Country Specific Recommendations (CSRs) issued 2013

The EU Commission provides Country Specific Recommendations (CSRs) for each MS for consideration and endorsement by the European Council. The recommendations are designed to address the major challenges in relation to the targets of the EU 2020 Strategy.

No CSRs have been issued in the climate and energy area.

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