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CLIMATE POLICY TRACKER

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FOR THE EUROPEAN UNION

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The European Council “... supports an EU objective, in the context of necessary reductions according to the IPCC by developed countries as a group, to reduce emissions by 80-95% by 2050 compared to 1990 levels.”

European Council
Presidency conclusions, 30 October 2009

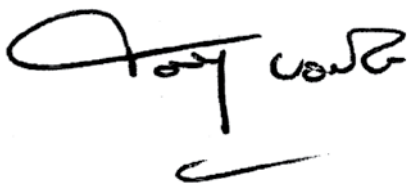
FOREWORD

2050 is a powerfully symbolic date in climate and energy policy. It is the date when wealthy regions of the world, including Europe, will need to achieve near total decarbonisation of their economies if we are to avoid runaway climate change.

Of course, for some adopting a 2050 timeframe is a convenient way of avoiding hard choices in the short term. Why take action today when you can put it off till tomorrow?

The results of this report indicate precisely the opposite - action now is absolutely vital. The European Union and its member states are doing today only about a third of what they need to be doing to meet the 2050 goal. Every year we fail to keep up the right pace, we will fall still further behind the target. At some point, decarbonisation will become unachievable. Clearly, we must take every opportunity to take bolder action now.

The good news from this report is that in every member state there are positive examples of policy innovation across all economic sectors. With joined up action across Europe and positive leadership to achieve change, Europe is well placed to be a leader in the economy of the future. The new economy now emerging will create jobs, reverse climate change and build a future in which humans live in harmony with nature.



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CLIMATE POLICY TRACKER

For the European Union

A WWF report, produced by Ecofys



EXECUTIVE SUMMARY

Industrialised countries must reduce their greenhouse gas emissions 80-95% by 2050 to establish a low-carbon economy and keep the global average temperature below 2°C, although a wide range of countries demand that the average global temperature rise stay below 1.5°C. We have analysed what is currently needed from the European Union member states to achieve this. We conclude that, on average, each country must triple its efforts, even the countries that were rated best must double the effectiveness of their policies. Member states provide each other with good examples of further action. A country that follows the example of the respective highest scoring country in each policy area will achieve two-thirds of the required effort. In general, the area where most additional effort is required is energy efficiency.

Collecting and rating climate policies - the method

We have undertaken a comprehensive review of EU member state policies that affect greenhouse gas emissions. We provide an overview of each member state's policy situation broken down by sector and policy area.

In addition, we have developed a rating method to measure the impact of these climate policies. We developed a total of 83 indicators that measure the effectiveness of greenhouse gas emission reduction policies for all sectors of the economy.

Most indicators measure the expected impact of current policy. They make up 70% of the total indicator score of each country. In addition, there are indicators that measure past progress and those that represent the quality of the long-term strategies.

The indicators do not only measure whether policies directed at emission reduction are in place, but also whether counterproductive policies and barriers for emission reduction are adequately removed.

For twelve of the smaller countries, we have applied a more limited indicator set of 43 indicators.

Aggregated scores for the indicators were given for the sector and national levels. The results are then presented on a scale from A (excellent) to G (poor).

The scores for the indicators are benchmarked against a framework vision of a low carbon future. This vision includes ambitious energy efficiency improvements, 100% renewable energy supply by 2050, wide application of zero energy buildings, a paradigm shift in industrial production towards long-lasting, 100% recyclable products, almost

100% electric passenger cars, new options to reduce emissions in agriculture, and comprehensive land use strategies. Sensitivity analysis to a different low-carbon framework vision does not yield significantly different results. Prompt action in all these areas is required.

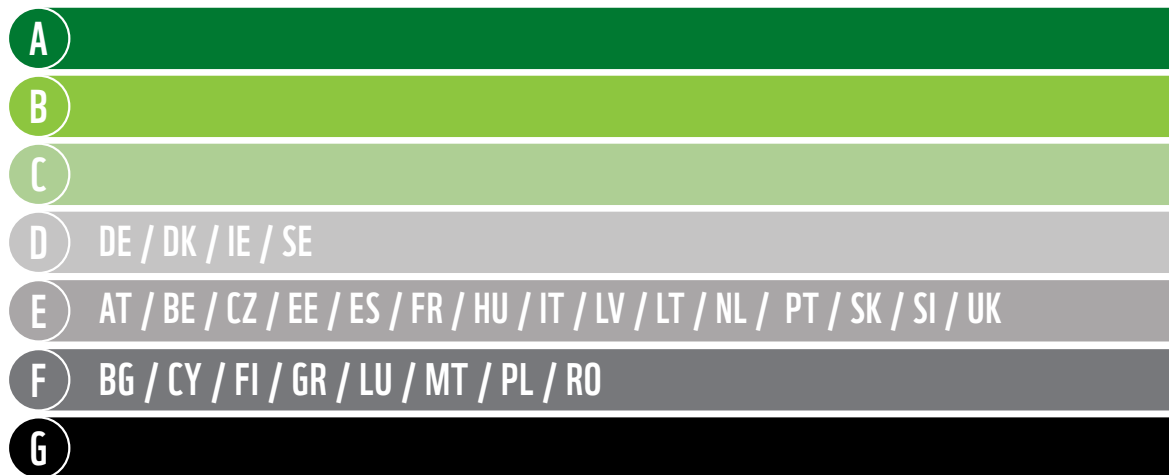
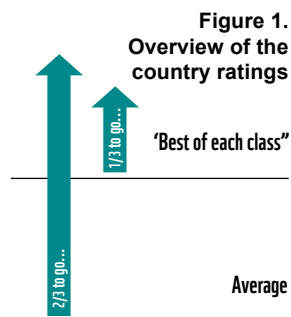
Our method is unique in three aspects:

- > **Comprehensive:**
The analysis includes all policy areas that both positively and negatively influence greenhouse gas emissions.
- > **Comparative:**
All countries are rated by the same methodology, so that their performance in renewables, efficiency and overall climate policy is comparable.
- > **Ambitious:**
Policies are rated against the clear goal of a low carbon economy in 2050. This includes policies that initiate long-term transformations, such as the development of new technologies, and do not focus only on the least costly options for emission reduction to reach 2020 targets.

We intend to update the analysis annually to track progress.

Main findings

- > **On average, countries must intensify their efforts by a factor of three:**
Summing up all results across all countries and sectors, only a third of the necessary action has currently been undertaken to put countries on a path towards a low carbon economy. This would be enough to achieve an 'E' rating. The worst performing countries score even less ('F').
- > **"Best of each class" is two-thirds of the way:**
A country that would follow the example of the respective highest-scoring country in each policy area, per sector, would achieve 2/3 of the required effort, a 'C' rating, which is substantially better than the average. This means that policy options are available, but not implemented across the board.
- > **The countries rated highest are not leaders:**
The countries rated best currently score only half of what is needed, a 'D' rating. It would therefore not be appropriate to call them leaders, as they still need to double their policy efforts to get on track to a low carbon economy.



- **Support for renewable energy is most widely implemented.**
Countries have developed and implemented comprehensive strategies to support renewable energy and have gained experience with the removal of barriers. Renewable energy policies are best developed for electricity production with an average of a 'D' rating (max B). However, these are moderate for buildings (average E / max C) and transport (average E / max C) and particularly weak for industry (average F / max C).
- **The area of energy efficiency is less well covered and** the actions are far less comprehensive. Maximum rating is a 'D' for energy efficiency with an average of 'F'.
- **Most of the new member states are rated below average.**
Of the 12 member states that joined the EU in 2004 and 2007, 10 are rated below average. These countries are rated low in most policy areas, with notable exceptions in the areas of forestry and building energy efficiency.
- **In some areas EU member states can learn significantly from each other, while in others, good examples are missing.**
Table 1 (page 11) provides an overview of the best scoring countries in each policy area compared to the EU average. In two policy areas, exemplary ratings of 'B' are present, however, in most categories, even the highest-scoring country is insufficient.

GENERAL

United Kingdom and Ireland reach high scores with an integrated, long-term, legally binding climate strategy that is directed towards a low carbon economy.

ELECTRICITY SUPPLY



Germany and Denmark have stable support systems for electricity generation from renewable energy. Both have operated feed-in tariffs for over a decade. Policies to support combined heat and power are relatively advanced in Ireland, Germany and Spain. Performance in overarching issues for electricity supply is generally low due to the un-ambitious cap of the electricity sector in the emission trading system. There are no emission performance standards for new power plants which has led to newly built coal-fired power plants and widespread subsidies in addition to tax exemptions for fossil fuels.

INDUSTRY



Policy in the industry sector is generally insufficient. One of the few highlights is Sweden with its widespread use of biomass as a heat source in industry. This is partly due to the high availability of biomass and partly due to policies. All other countries are well below halfway in supporting renewables in industry. Energy efficiency in industry is also not well covered. Significant action, such as large scale, ambitious renewables and energy efficiency programmes is missing across the board. Allocation in the ETS is not ambitious enough to induce these developments. Restructuring industry towards high material efficiency is a blank area for all countries. A material efficiency agency (Germany) is one of the very few measures in this area.

BUILDINGS



Support for renewables in buildings is quite advanced. The Czech Republic and Denmark score well because they increased the share of renewables in buildings substantially with financial incentives and through combined heat and power from renewables. Germany rates well because it introduced a comprehensive renewable heat law with an obligation to use renewables. Cyprus and Greece obtain high scores by obligatory introduction of solar water heaters. Action on efficiency in buildings is generally low. Firstly, the fast introduction of zero-emission standards is missing and secondly, there are insufficient incentives for energy optimised renovation. Germany has a package of many measures, but is still not ambitious enough in size.

TRANSPORT



Incentives in transport are also insufficient. Relatively good scores are reached for introducing biofuels in the past (Germany, Austria). Support for electric mobility, combined with support for renewable electricity is missing. Energy efficiency, which is the most important area in transport according to our methodology, is lacking ambition. France with a bonus/malus system for new cars is ranked at the top, although this is not sufficient to induce the necessary change. Tight emission standards and monetary incentives can increase ambition. The overarching issue of avoidance of traffic and modal shift is underrepresented. Portugal ranks higher compared to other countries with its strategy to move freight transport from road to sea.

AGRICULTURE



Countries usually consider the most important sources of emission to be from agriculture, but no country is at the forefront towards a low carbon economy for agriculture. Most countries apply the EU-prescribed nitrogen limits per hectare, but implementation and compliance with the limit is unclear. Equally, all countries aim to reduce methane emissions from animals, but again, no country is at the forefront.

FORESTRY



An integrated land use strategy covering all aspects is only present in a few countries, e.g. Slovenia. One highlight is that all state-owned forests in Latvia are certified through the Forest Stewardship Council (FSC).

Table 1.
“Best of each class”:
top rated countries per
policy area are compared
to EU average



	Renewables		Energy efficiency		Overarching ¹	
GENERAL ²					Ireland / United Kingdom	EU average
ELECTRICITY SUPPLY	Denmark / Germany	EU average	Ireland	EU average	Denmark / Estonia	EU average
INDUSTRY	Sweden	EU average	Denmark / Estonia / Lithuania / Slovenia	EU average	Germany	EU average
BUILDINGS	Czech Republic / Denmark / Germany	EU average	Germany	EU average	Denmark / Hungary / Latvia Netherlands / Romania / Slovenia / Sweden	EU average
TRANSPORT	Austria / Germany	EU average	France	EU average	Portugal	EU average
AGRICULTURE					Denmark / Ireland / Netherlands / Slovenia / Sweden / United Kingdom	EU average
FORESTRY					Cyprus / Ireland / Latvia / Lithuania / Malta / Netherlands	EU average

¹ Includes all policies that are not covered under renewables or energy efficiency, which are measures aimed at other emission reduction options (e.g. CCS in electricity generation and industry or modal shift in transport), at greenhouse gas emissions in general (e.g. the emission trading system, CO₂ taxes) or energy use in general (e.g. energy taxes).

² Includes the general long-term climate strategy

EU member states can learn significantly from each other.

In many countries, good examples of effective policies can be found. Highlights include:

- **Austria:** Forestry policies in accordance with climate protection
- **Belgium:** Tax rebates for investments in energy efficiency
- **Cyprus:** Obligation to use solar-thermal for heating in buildings, high coverage already reached
- **Czech Republic:** Support for retrofitting of buildings coupled to building standards or more ambitious level
- **Denmark:** Leading in grid integration of renewable energy sources, highest combined heat and power (CHP) share in EU
- **Estonia:** Consistent land use strategy implemented
- **Finland:** Large CHP share in industry and building sector
- **France:** Bonus/malus system for cars encouraging lower emissions
- **Germany:** Well-functioning feed-in tariff for electricity from renewable sources
- **Ireland:** Ambitious agricultural and forestry policies
- **Italy:** Well functioning feed-in tariff for photovoltaics
- **Latvia:** Ambitious forestry policies: all state forests are FSC certified
- **Lithuania:** Ambitious CHP goal in place
- **Luxembourg:** Early feed-in tariff for renewable electricity
- **Malta:** High financial support for solar water heaters
- **Netherlands:** Target to have 5% electric cars running by 2020
- **Portugal:** Ambitious feed-in system for RE power generation; target to reach 45% by 2020
- **Slovenia:** Spatial Development Strategy with several aspects of sustainable transport which enables integrated planning
- **Spain:** Obligation to use solar thermal energy (30-70% of warm water demand)
- **Sweden:** Long-term experience with a general CO₂ tax
- **United Kingdom:** Comprehensive Climate Change Act with long-term binding emission reduction targets and independent oversight and reviews

Disclaimer on the results

The policy tracker measures the impact of current policies on emissions, regardless of their motivation. In many of the countries with high scores, measures that account for a relatively better position in climate policies have been put in place due to political motivations other than climate change, such as job creation and support for agriculture.

Most policies are based on an implementation process that takes several years. It is therefore not always the current governments that should be praised or blamed for the high or low scores of their countries.

We are evaluating all countries' trend towards a common goal of a low-carbon economy, irrespective of their starting point in e.g. per capita emissions or efficiencies. Some countries may rate well because they implement policies that bring them significantly closer to the common goal although they start from a very emission-intensive level (e.g. the German electricity sector).

We rate all countries with the same methodology and ambition level, although countries may have differences in ability to act, due to differences in economic conditions, size of the country, public support for climate policy and institutional environment.

An important feature of the tracker is that it creates transparency on the composition of the overall scores. Often, public opinion is guided by rather intuitive assumptions on a country's ambitions, for example, based on recent high or lowlights. The tracker enables crosschecking of these assumptions by looking at each sector and policy area individually and learning more about the composition of effective or less effective overall policies.

The way forward

- Climate policies need to be comprehensive. A low carbon economy can only be reached if all policy areas are covered. Many countries focus on a few particular sectors and neglect others. To develop consistent policies which address climate change effectively (and not only accidentally), strong political arguments about the implicit coherence of climate, economic and technology policies must be developed and implemented. Both at EU and member state levels, it is urgently required to define goals that are common to climate protection and other policy areas. These goals need to have the low-carbon economy with domestic reductions as a long-term objective and avoid lock-in and other decisions that would make later emission reductions more expensive. **Countries must scan their policy portfolios and implement or strengthen policies in their weak areas.**
- Energy efficiency policies must be strengthened across the EU. It transpires that for buildings, industry and transport, the effectiveness of policies is weak in most member states. This suggests that the first step to better policies should come from a stronger effort at the European level. **This calls for a more ambitious formulation of the relevant European directives.** The current energy and climate package of the EU for 2020 is not sufficient to bring the EU on track to achieve a low-carbon economy in 2050.
- There are some areas where policies are virtually non-existent. These include the efficient use and re-use of materials, infrastructure policies for low-carbon transport, energy efficiency policies for freight transport, and renewable energy policies for manufacturing industries. **These 'Cinderella areas' need urgent revitalisation, both at the level of the Union and the individual member states.**
- Particular attention is needed for the new member states. There are historic reasons for why new member states are lagging behind. Nevertheless, successful European policies are not possible without their contribution. **The European Union needs to consider climate policy as a joint responsibility and provide adequate support to the member states that face difficulties in implementing effective climate policies.**



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1. INTRODUCTION

Climate change is one of the greatest challenges of this century. To limit the rise of the average global temperature to 2°C or better still 1.5°C, massive emission reductions are required over the next few decades. A paradigm shift is necessary; changing the way we work, live and produce goods. Scientific evidence reveals that industrialised countries require a reduction in emissions of 80% to 95% by 2050, creating a zero-carbon economy.

The next ten years are crucial in establishing whether society will be able to make this transition, or the ‘two degree’ limit agreed by the EU in 1996 will be irreversibly missed, let alone the ‘one point five degree’ limit demanded by over one hundred of the poorest and most vulnerable countries. Moving to a zero-carbon economy by 2050 requires decisions now. Any delay can have significant environmental, social and economic consequences.

Against this context, it is essential to regularly analyse whether countries’ policies are being shaped and developed towards a zero carbon economy.

In recent years, significant political actors have recognised the importance of climate protection and policies to reduce greenhouse gas emissions. Further action is planned and discussed, both at the EU level and within national governments. However, there is still discrepancy in current discussions regarding preferable policy approaches, e.g. in terms of cost vs. amount of emission reduction. When it comes to implementation, strong interference from other policy areas such as industrial policies or financing issues is noticeable, and ultimate decisions often do not reflect action against climate change as a top priority.

To achieve a zero carbon economy, a paradigm shift in policy assessment is also required. The question is not, “how can we achieve short-term reductions at the lowest cost”, but, “can the policies initiate a long-term structural shift towards a zero-carbon economy”. The evaluation of past performance is important to verify the effectiveness and efficiency of measures, to learn about their driving forces and adjust policies accordingly.

After the missed opportunities of reaching further international climate policy agreements in Copenhagen in December 2009, concerns among the population are growing and trust in political leadership has declined. Nevertheless, government activities and supranational political initiatives are needed more than ever to formulate guidelines and implement reliable framework conditions. In this respect, the European Union is one of the key players worldwide, through its economic weight and political experience.

The EU has adopted a couple of strategic decisions and policy measures claiming an international front-runner position (EU 20-20-20 target, a number of directives on energy efficiency and renewable energy, and green house gas emissions). Climate

protection is definitely on the EU's political agenda, but it is often criticised because it is more present in political rhetoric than in practical implementation.

Regarding policy design, to be fully on track, a country would need to implement a climate mainstreaming process of all policy areas based on ambitious climate strategies. How can current policies that originate primarily from motivations other than climate protection be comparable? Few countries have yet adopted a low-carbon strategy. Nevertheless, a considerable number of policies currently exist that address climate change issues. Ordinarily, their impact is measured by allocating them an emission reduction. However, due to the absence of climate mainstreaming, quantitatively successful policy instruments are often negated by counterproductive developments in other policy areas, diminishing or even reversing their net effect. This fact is not sufficiently reflected under common (usually short-term) quantitative approaches.

The Climate Policy Tracker for the European Union opts for a wider perspective. It shows the net effect of a country's emission-related policies, considering that they may originate from diverse political motivations. Policies in the EU member states are examined against three main goals:

- > Creating transparency on what is being done vs. what would need to be done.
- > Contributing to public discussion.
- > Stimulating action.

2. METHODOLOGY

This chapter provides an overview of the methods used for this assessment. A detailed description of the method is provided in a separate technical paper which can be downloaded at <http://www.climatepolicytracker.eu>

2.1 Goal

The goal of this project is to provide an overview and an assessment of the different policies of EU member states that affect greenhouse gas emissions and contribute to the national, EU-wide and international policy debate. Countries are rated on whether their current greenhouse-gas-related policies are sufficient to eventually create a low carbon economy.

The method is unique in three aspects:

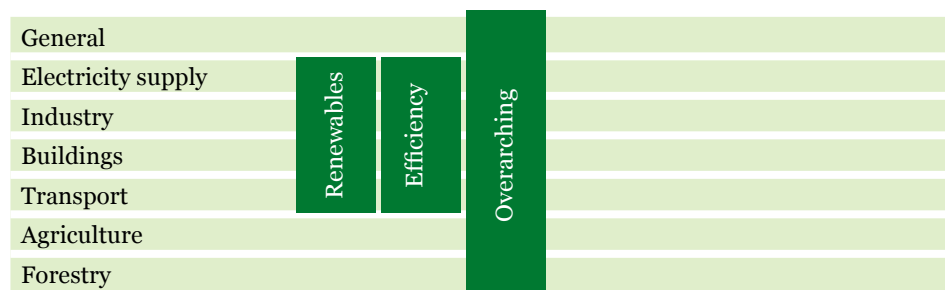
- **Comprehensive:** The analysis includes all policy areas that both positively and negatively influence greenhouse gas emissions.
- **Comparative:** All countries are rated by the same methodology, so that their performances in renewables, efficiency and overall climate policy are comparable.
- **Ambitious:** Policies are rated against the clear goal of a low carbon economy in 2050. This includes policies that initiate long term transformations, such as the development of new technologies, and do not focus only on the least costly options for emission reduction to reach 2020 targets.

We intend to update the analysis annually to track progress.

2.2 Methodological approach

We have analysed policies in all areas that, positively or negatively, influence greenhouse gas emissions. Policies on renewable energy and energy efficiency were considered separately. All other elements were grouped under an “overarching” category, which includes measures aimed at other emission reduction options not covered before, for example, CCS in electricity production and industry or modal shift in transport, GHG emissions in general (e.g. the emission trading system, CO₂ taxes) or energy use in general (e.g. energy taxes). An individual analysis was conducted for each sector: electricity supply, industry, buildings, transport, agriculture and forestry. The category, “General” includes the general long-term climate strategy (see Figure 2).

Figure 2.
Dimensions of the analysis



The methodology is designed to reflect the need for action to move towards a low carbon economy and evaluate countries and policies against identified needs. It is a combination of a top-down approach, defining what needs to happen to obtain the desired outcome, and a bottom-up analysis of the current status in each country.

The method comprises three steps:

- ➔ **Review of low-carbon scenarios:** We reviewed several low-carbon scenarios for the EU and the world and defined the technical requirements to reach a low-carbon economy by 2050. For example, the electricity supply by 2050 must be 100% generated from renewable sources, supported by an appropriate grid infrastructure and system integration.
- ➔ **Definition of the best practice policy package:** We defined a best practice policy package with steps that must be implemented immediately to reach the desired ambition in the required time frame. The definition of the best practice policy package determines to a certain extent the outcome of the evaluation. We identified policy elements that must be incorporated to reach the intended target, and were neutral regarding the specific instrument used. For example, for electricity supply, the package must include sufficient and stable support for renewable electricity generation for a diverse set of technologies. It would not prescribe however, whether this support would be generated by a feed-in-tariff or a renewable energy obligation, for example.
- ➔ **Evaluation of countries' policies against the best practice policy package:** We evaluate a country's policies against the best practice policy package using certain indicators.

Two methods were used to evaluate countries. For the twelve countries with the highest emissions, plus three particularly interesting countries, we evaluated 85 indicators. For the other twelve countries, we applied a simplified method using only 43 indicators and the average values for the 16 barriers analysed in the detailed method.

We evaluated indicators per country on a scale from 0 (poor) to 4 (excellent) against defined benchmarks and aggregated the results to scores per country, per sector and per policy area. Weighting of sectors is, in principle, based on their share of emissions in the country. Weightings over policy areas are based on the necessary contribution of the area to a low carbon economy.

DETAILED METHOD

Austria	France	Netherlands	Spain
Belgium	Germany	Poland	Sweden
Czech Republic	Greece	Portugal	United Kingdom
Denmark	Italy	Romania	

SIMPLIFIED METHOD

Bulgaria	Finland	Latvia	Malta
Cyprus	Hungary	Lithuania	Slovakia
Estonia	Ireland	Luxembourg	Slovenia

The summary results per sector, area and country are displayed in seven categories 'A' (excellent) to 'G' (poor), resembling the EU energy efficiency labelling for appliances.



2.3 A framework low-carbon vision

Based on the review of low-carbon scenarios, we developed a framework vision of a low carbon future, constituting the benchmark for the Climate Policy Tracker. This vision includes essential building blocks. Changes to that vision do not change the results significantly (see chapter 3.5). The key highlights of that vision include the following features (see also Table 2):

- **Ambitious energy efficiency improvements:**
A fully sustainable low-carbon future is only possible if all energy efficiency potentials are fully implemented in a very ambitious way.
- **100% renewable energy supply by 2050:**
The scenarios show that 100% renewable energy supply is technically possible and economically feasible. Significant adjustments to the electricity grid are necessary.
- **Wide application of zero emission buildings:**
Buildings need to be retrofitted to very high energy efficiency standards at least twice as fast as they are currently. These renovated buildings and all new buildings must be zero-emission buildings.
- **Paradigm shift in industrial production:**
Energy efficiency is not the only necessary area of improvement, material efficiency also needs to be enhanced. Industrial production must be redefined to avoid material-intensive products and focus on long-lasting, 100% recyclable products.
- **Almost 100% electric passenger cars:**
Assuming a massive shift away from individual energy-based mobility, the remaining passenger car fleet must meet ambitious requirements. With a 100% renewable energy supply, the resource of sustainable biomass is very scarce and it will be used in areas where there are no technological alternatives, e.g. trucks, aviation and shipping, therefore, passenger cars must run on electricity with suitable batteries.
- **New options to reduce emissions in agriculture:**
Major reductions in non-energy emissions in agriculture are necessary. Where there are currently no mitigation options, research must be intensified.
- **Comprehensive land-use strategies:**
Comprehensive land-use strategies must be developed to solve the potential conflict

in land use. Land use can be optimised to reduce transport emissions; agricultural areas, forests and wood production compete with each other: for food production, for carbon storage, and as a source of biofuels.

→ **Prompt action:**

Time is very short, so action must begin immediately to initiate a fast transformation.

In most policy areas there is a general consensus on how a low-carbon economy can be achieved. Electricity generation will depend strongly upon renewable energy and zero-emission buildings will meet common standards. These points provide an initial premise upon which to formulate the necessary policies to enable the technological and behavioural changes to materialise.

In some areas, however, there are ongoing controversial discussions on appropriate solutions. Questions of technical viability and potential conflicts with other technology solutions must be considered. We used the following principles for the formulation of the best-practice policy package:

- We do not consider nuclear energy to be a long-term, sustainable solution for the energy sector, due to its safety concerns and unsolved waste disposal problem. Active support from governments for nuclear power will divert resources from the sustainable solutions and is not considered best-practice. A sensitivity analysis for this assumption is presented in chapter 3.5.
- We define carbon capture and storage (CCS) by the source of emissions: Support for CCS for biomass is considered best-practice because it is currently the only option available to actively remove CO₂ from the atmosphere over long time spans. Support for CCS in industrial process emissions is considered best practice as currently, few technical options have moved beyond the initial research stages, and it is yet unproven whether recent innovations can be mobilised on a commercial scale. However, support for CCS from coal power plants leads to negative rating unless it is coupled with an emission performance standard of at least 350 g/kWh for all new power plants. Through this, CCS becomes a means of accelerating decarbonisation rather than a means of competing for resources with other technical options. A sensitivity analysis to this assumption is presented in chapter 3.5.
- We only consider electric transport to be best-practice when the increased power demand is coupled to increased renewable capacity and does not lead to direct or indirect lock-in effects of nuclear or fossil power.
- We consider it only best-practice, if an integrated sustainable land-use approach considers all land uses and is integrated at national level. We do not determine whether carbon sequestration in biomass or bio-energy should be favoured. Additionally, a framework for sustainable biomass imports is required to ensure that leakage is minimised.

2.4 Best-practice policy package

Based on the low-carbon vision, a best-practice policy package was defined, prescribing the indicators against which all policies of a country are rated. This is summarised in Table 2. It describes what countries have to do today to put themselves on a pathway towards a low carbon economy. The table also includes the weights within a sector to represent the importance of the policy and technology options for each sector based on the review of the low-carbon scenarios. A review of the scenarios, technical requirements, and all indicators with weightings are included in the separate technical paper.

We are not specifically considering costs of each different mitigation option. The focus is on long-term transformation and not on short-term cost optimisation.

Table 2. Best practice policy package

GENERAL

- The country has set a stringent and binding GHG target or budget until 2050, which is supported by an ambitious and comprehensive climate strategy for a low carbon economy
- Innovation for a low carbon economy is supported through a comprehensive strategy with sufficient resources for research and development

ELECTRICITY SUPPLY



Renewables (60%)

- Stable support for renewable energy sources of sufficient level and size
- No administrative or grid barriers

Energy efficiency (20%)

- Effective and sufficient support of combined heat and power production

Overarching (20%)

- Stringent emission trading scheme allocation and/or emission performance standard for fossil fuel power plants, in total more stringent than current phase III plans
- Incentives for biomass carbon capture and storage
- No support for coal carbon capture and storage, except if linked to an emission performance standard of all new coal power plants
- No active support for nuclear
- No subsidies for electricity production from fossil fuels (also not through free allowances)

INDUSTRY



Renewables (25%)

- Effective support for renewables in industry
- Support of innovative breakthrough technologies in industry

Energy efficiency (25%)

- Support schemes or sufficiently ambitious and effective voluntary agreements that lead to significant additional improvements in energy efficiency

Overarching (50%)

- Active support towards the redesign of products to be less material-intensive, long-lasting, 100% recyclable
- Incentives for biomass or process emission carbon capture and storage
- Sufficient levels of energy taxes for industry to factor-in external cost and motivate energy savings and use of renewables

BUILDINGS



Renewables (25%)

- Promotion of renewable heating/cooling technologies in new and existing buildings for all types of buildings

Energy efficiency (65%)

- Ambitious efficiency standards for new buildings for all types of buildings
- Sufficient incentive for high energy related retrofit rates for all types of existing buildings, leading to > 3% per year (average 2010-2020) and >2% afterwards
- Sufficient incentive for the use of efficient appliances
- Removal of barriers such as the landlord-tenant dilemma and effective enforcement of standards

Overarching (10%)

- Sufficient levels of energy taxes for households and the service sector to factor in external cost and motivate energy savings and use of renewables

TRANSPORT



Renewables (30%)

- Sufficient incentives to increase the share of renewable energy sources in transport (biofuels + RE electricity)

Energy efficiency (50%)

- Measures to reduce new vehicle emissions per kilometre, achieving 95g/km by 2015 and new freight vehicles emissions per kilometre substantially

Overarching (20%)

- A political framework that supports modal shift and avoids traffic, supported by sufficient investment in low-carbon transport infrastructure
- Sufficient levels of fuel/CO₂ to factor-in external cost and motivate energy savings and use of renewables

AGRICULTURE



- Formulation and implementation of a consistent and comprehensive land use strategy, incorporating agriculture, forestry, conservation and other land uses, based on the latest available science
- Effective measures to reduce the nitrogen load per hectare
- Ambitious incentives to reduce methane emissions from animals
- Sufficient funding allocated to promotion of sustainable farming and consumption practices with positive impact on GHG emissions

FORESTRY



- Formulation and implementation of a consistent and comprehensive land use strategy, covering agriculture, forestry, conservation and other land uses, based on the latest available science
- Strategy for forest management planning and prevention of deforestation

2.5 Important considerations when interpreting the results

We evaluate the impact of policies on the potential for a low-carbon future:

The policy tracker is evaluating the impact a policy will have on the development of an emission-free economy, regardless of the motivation behind that policy. In many of the countries with relatively high scores, measures have been enforced due to political motivations other than climate change. The high CHP share of Denmark has, for example, been a combined result of farming support and energy security policies.

We evaluate the impact of policies which have been adopted:

The future expected effects of measures, which are fully implemented as of 1 September 2010 and have already become effective, will also be considered when granting a high score in the policy tracker. These are policies that often originate from political initiatives dating back three or four years, assuming this is the average time span for the related political and legislative processes. Therefore, governments recently elected are only in part responsible for the high or low scores of their countries. Political continuity and a stable institutional setting are more important. Approximately 70% of the scoring is based on future performance, but it is evident that a country with a strong past performance will be at advantage for future performance.

We evaluate the trend not the current status:

We are evaluating all countries' trends towards a common goal of a low carbon economy, irrespective of their starting position in per capita emissions or efficiencies, for example. Some countries may rate well because they implement policies that bring them significantly closer to the common goal, despite starting from a very emission-intensive level, for example the German electricity sector.

Sectoral scores often tell more than overall country score:

The most significant feature of the tracker is that the composition of the overall scores is transparent. Often, public opinion is guided by intuitive assumptions of a country's ambitions. The tracker allows the public to crosscheck these assumptions by examining each sector and policy area individually and learning more about the composition of effective, less effective or even counterproductive overall policies.

Countries have different starting points:

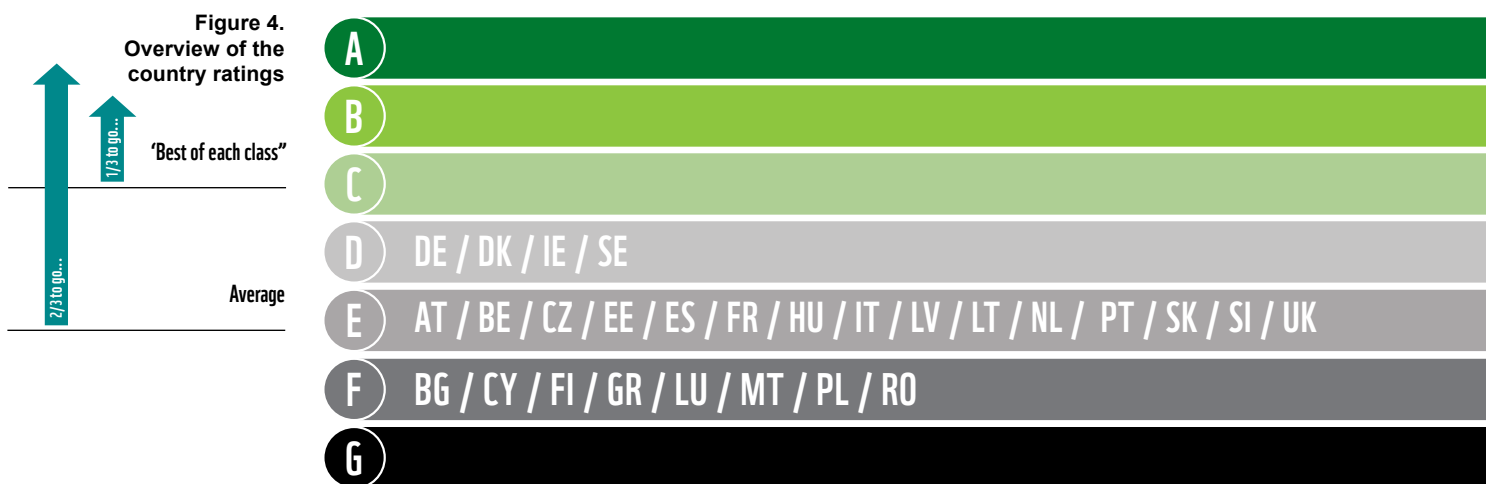
We rate all countries with the same methodology and ambition level, although countries have substantially different starting points and abilities to act.

- **Economic power:** The economic power of countries in the EU is very diverse. Eastern European countries, in particular, face a substantially different national situation than Western European countries and usually rate less well, compared to other countries.
- **Size:** Very small countries such as Malta, Cyprus and Luxembourg, may need comprehensive 'small country policies' that reflect their size.
- **General policy making process:** Countries in which regulatory policies are put into action quickly and effectively have a structural advantage to those where processes are lengthier. The same applies to political continuity and a well-established institutional setting that favours long-term policy. This is true irrespective of a country's ambitions on climate issues.

3. OVERVIEW OF RESULTS

3.1 General evaluation

Country results are provided in Figure 4. Countries reach scores between 'F' and 'D', approximately 20% to 50% of the achievable score. These scores are composed of contributions to increase the share of renewables, energy efficiency and overarching areas.



On average, countries must intensify their efforts by a factor of three:

After collating all results across all countries and sectors, only a third of the action is achieved that would be necessary today to lead to a low carbon economy in the long term. This would be enough to achieve an 'E' rating. The worst performing countries score less ('F').

“Best of each class” is two thirds of the way to achieving the goal:

A model country that follows the example of the respective highest-scoring country in each policy area per sector would achieve 2/3 of the required effort, a 'C' rating, which is substantially more than the average. This means that policy options are available, but it is not implemented across the board (see also chapter 3.2).

The best-rated countries are not leaders:

Countries that received the best scores in this report (a 'D' rating), should not become complacent. Top-rated countries have substantial policies in place to support renewable energy and energy efficiency but these are, at most, only half of what should have been achieved so far to create a low-carbon economy.

Most new member states are below average:

Of the twelve member states that joined the EU in 2004 and 2007, ten score below average. Sectoral scores are at the low end of the spectrum in most policy areas, with notable exceptions in forestry and building energy efficiency.

Being an old member state is not a guarantee to be top-rated:

Luxemburg and Italy score at the low end of the scale. Luxemburg, as a small country, may have difficulty in implementing comprehensive policy without integrated cooperation with neighbour countries. Italy demonstrates a general low performance.

Comprehensive action against climate change is necessary in all sectors:

Many countries focus on a few particular policy areas and neglect others. A low carbon economy can only be reached if all policy areas are covered sufficiently. In addition to failing to cover all areas with positive incentives, many countries also have counterproductive policies in place, e.g. support for fossil fuels, tax exemptions or subsidies for energy-intensive activities or for passenger and air transport. To develop consistent policies which address climate change effectively (and not only inadvertently), strong political arguments regarding the implicit co-dependency of climate, economic and technology policies need to be developed and implemented. Both at EU and member state levels, it is urgently necessary to define goals that are common to climate protection and other policy areas. Countries need to scan their policy portfolios and implement or strengthen policies in weaker areas.

3.2 “Best of each class”

EU member states can learn significantly from each other:

Table 4 provides an overview of the best scoring countries in each policy area. In two policy areas, example ratings of ‘B’ are available. However, in most categories even the highest scoring country is insufficient.

GENERAL

United Kingdom and Ireland maintain high scores with an integrated, long-term, legally binding climate strategy for a low carbon economy.

ELECTRICITY SUPPLY



Germany and Denmark have stable support systems for electricity generation from renewable energy. Both have operated feed-in tariffs for over a decade. Policies to support combined heat and power are relatively advanced in Ireland, Germany and Spain. Performance in overarching issues for electricity supply is generally low due to the un-ambitious cap of the electricity sector in the emission trading system; no emission performance standards for new power plants leading to newly built coal fired power plants and widespread subsidies, in addition to tax exemptions for fossil fuels.

INDUSTRY



Policy in the industry sector is generally insufficient. Among the few highlights is Sweden because of its widespread use of biomass as a heat source in industry. It is due to high availability of biomass and partly due to policies. All other countries are well below half way to achieving full potential in supporting renewables in industry. Energy efficiency in industry is also not well covered. Significant action, for example, large scale, ambitious renewables and energy efficiency programmes are missing across the board. Allocation in the ETS is not ambitious enough to induce these developments. Restructuring industry towards high material efficiency is a blank area for all countries. A material efficiency agency (Germany) is one of the very few measures in this area.

BUILDINGS



Support for renewables in buildings is quite advanced. The Czech Republic and Denmark score well because they increased the share of renewables in buildings substantially with financial incentives and through combined heat and power from renewables. Germany rates well because it introduced a comprehensive renewable heat law with an obligation to use renewables. Cyprus and Greece reach high scores due to the obligatory introduction of solar water heaters. Action on efficiency in buildings is generally low. The quick introduction of zero emission standards is missing and there are also insufficient incentives for energy optimised renovation. Germany has a package of many measures, but is still not ambitious enough for its size.

TRANSPORT



Incentives in transport are also insufficient. Good scores compared to others are obtained for introducing biofuels in the past (Germany, Austria). Support for electric mobility combined with support for renewable electricity is missing. Energy efficiency, which is the most important area in transport according to our methodology, is lacking ambition. France, with its bonus/malus system for new cars, ranked top, although this is still not sufficient to induce the necessary change. Tight emission standards and monetary incentives can increase ambition. The overarching issue of traffic avoidance and modal shift is under represented. Portugal ranks higher compared to other countries because it has already implemented a strategy to move freight transport from road to sea.

AGRICULTURE



Countries usually implement policies that cover the most important sources of emissions from agriculture, but no country is at the forefront in this sector pioneering a low carbon economy. Most countries apply the EU-prescribed nitrogen limits per hectare, but implementation and compliance with the limit is unclear. Equally, all countries intend to reduce methane emissions from animals, but again, no country has made any significant steps.

FORESTRY



An integrated land use strategy incorporating all aspects is only available in a few countries, e.g. Slovenia. One highlight is that all state owned forests in Latvia are certified through the Forest Stewardship Council (FSC).

Table 4.
“Best of each class”:
top rating countries per
policy area compared
to EU average.



	Renewables		Energy efficiency		Overarching ³	
GENERAL ⁴					Ireland / United Kingdom	EU average
ELECTRICITY SUPPLY	Denmark / Germany	EU average	Ireland	EU average	Denmark / Estonia	EU average
INDUSTRY	Sweden	EU average	Denmark / Estonia / Lithuania / Slovenia	EU average	Germany	EU average
BUILDINGS	Czech Republic / Denmark / Germany	EU average	Germany	EU average	Denmark / Hungary / Latvia Netherlands / Romania / Slovenia / Sweden	EU average
TRANSPORT	Austria / Germany	EU average	France	EU average	Portugal	EU average
AGRICULTURE					Denmark / Ireland / Netherlands / Slovenia / Sweden / United Kingdom	EU average
FORESTRY					Cyprus / Ireland / Latvia / Lithuania / Malta / Netherlands	EU average

³ Includes all policies that are not covered under renewables or energy efficiency, which are measures aimed at other emission reduction options (e.g. CCS in electricity generation and industry or modal shift in transport), at greenhouse gas emissions in general (e.g. the emission trading system, CO₂ taxes) or energy use in general (e.g. energy taxes).

⁴ Includes the general long-term climate strategy

In many countries, good examples of effective policies can be found. Examples include:

- **Austria:** Forestry policies in accordance with climate protection
- **Belgium:** Tax rebates for investments in energy efficiency
- **Cyprus:** Obligation to use solar-thermal for heating in buildings, high coverage already reached
- **Czech Republic:** Support for retrofitting of buildings coupled to building standards or more ambitious level
- **Denmark:** Leading in grid integration of renewable energy sources, highest combined heat and power (CHP) share in EU
- **Estonia:** Consistent land use strategy implemented
- **Finland:** Large CHP share in industry and building sector
- **France:** Bonus/malus system for cars encouraging lower emissions
- **Germany:** Well-functioning feed-in tariff for electricity from renewable sources
- **Ireland:** Ambitious agricultural and forestry policies
- **Italy:** Well functioning feed-in tariff for photovoltaics
- **Latvia:** Ambitious forestry policies: all state forests are FSC certified
- **Lithuania:** Ambitious CHP goal in place
- **Luxembourg:** Early feed-in tariff for renewable electricity
- **Malta:** High financial support for solar water heaters
- **Netherlands:** Target to have 5% electric cars running by 2020
- **Portugal:** Ambitious feed-in system for RE power generation; target to reach 45% by 2020
- **Slovenia:** Spatial Development Strategy with several aspects of sustainable transport which enables integrated planning
- **Spain:** Obligation to use solar thermal energy (30-70% of warm water demand)
- **Sweden:** Long-term experience with a general CO₂ tax
- **United Kingdom:** Comprehensive Climate Change Act with long-term binding emission reduction targets and independent oversight and reviews

3.3 Performance per sector

The performance per sector is summarised in Table 6. There is a large divergence in ranking for different sectors within one country.

Table 6.
Sector results in
comparison

General	Electricity supply	Industry	Buildings	Transport	Agriculture	Forestry	
							A
IE / UK							B
	DK / DE				DK / IE / NL / SI / SE / UK	CY / IE / LV / LT / MT / NL	C
FI / FR / DE / HU / SE	BE / PT / ES / IE		DE / SE	FR / SE / IE	AT / CZ / FR / DE / GR / HU / IT / MT / PT / SK / ES	AT / DK / EE / FI / FR / DE / HU / IT / SI / SE / UK	D
NL	AT / CY / CZ / EE / FR / GR / HU / IT / LV / LT / NL / PL / SK / SI / SE / UK	BE / DK / FI / DE / IT / LV / LT / NL / SK / SI / ES / SE / UK	CZ / DK / FR / MT / UK	AT / BE / CY / DK / DE / LT / MT / NL / PT / SI / UK	BE / BG / CY / EE / LT / LU	BE / PL / RO / SK / ES / PT	E
AT / DK / EE / LT / MT / PL / PT / ES	BG / FI / LU / MT / RO	AT / BG / CY / CZ / EE / FR / GR / HU / LU / MT / PL / PT / RO / IE	AT / BE / BG / CY / EE / FI / GR / HU / IE / IT / LV / LT / LU / NL / PL / PT / RO / SK / SI / ES	CZ / EE / FI / GR / IT / LV / LU / RO / SK / ES	FI / LV / PL / RO	BG / CZ / GR / LU	F
BE / BG / CY / CZ / GR / IT / LV / LU / RO / SK / SI				BG / HU / PL			G

“General” includes the general long-term climate strategy

Policies for electricity supply are relatively well developed. Climate policy has traditionally focused on this sector and long-term experiences with policies exist. A few countries have long-standing policies. The maximum rating is a ‘C’, however most countries are well below halfway to achieving the goal, with an average rating of ‘E’.

Agriculture and forestry are rated relatively high. The best-practice policy package, against which policies are rated, is relatively general and leaves room for design of the policies. Countries therefore score better compared to other sectors. Policies in some sectors need to be lifted to the next level:

- **Industry:**

In a low carbon economy, the industrial sector requires substantial structural change for redesign of products to be less material intensive, long lasting and 100% recyclable. Renewable energy sources must be applied much more broadly to supply industrial heat. No country has a comprehensive and convincing strategy to achieve this. Even the best country only reaches an ‘E’ rating. The average is ‘F’.

- **Transport:**

There is a general lack of ambition to tackle emissions from the transport sector. Most countries are not seeking to achieve a significantly lower CO₂ level for new cars and trucks. Air travel is still directly or indirectly subsidised. Efforts to increase rail and other public transport for both passengers and freight are insufficient, particularly in market conditions and investment. The maximum rating among all countries is 'D'. The average is 'F'.

- **Buildings:**

The ambition level of building standards for new buildings is generally low and not conducive to achieving zero-carbon buildings in the near future. Too little is done to monitor performance. Huge potentials for cost savings in the existing building stock are still untapped and only a few countries are providing adequate incentives to trigger substantial modernisation efforts and the use of renewable energy sources. The maximum rating among all countries is 'D' and the average is 'F'.

3.4 Performance per policy area

Comparing the three policy areas examined, renewable energy, energy efficiency and overarching issues, it becomes obvious that renewable energy scores considerably higher than in the two other policy areas and that overarching issues having the weakest general performance, see Figure 4.

Figure 6.
Overview of scoring per policy area: renewables, energy efficiency and overarching issues

Renewables	Energy efficiency	Overarching
		A
		B
DK / DE		C
IE / NL / PT / SE	DK	DK / DE / IE / UK
AT / BE / CY / CZ / FR / GR / HU / IT / LV / LT / MT / PL / SK / SI / ES / UK	BE / CY / EE / FR / DE / IE / LT / NL / SI / ES / SE / UK	AT / BE / EE / FI / FR / HU / IT / LT / MT / NL / PT / SI / ES / SE
BG / EE / FI / LU / RO	AT / CZ / FI / GR / HU / IT / LV / LU / MT / PL / PT / SK	CZ / GR / LV / LU / PL / RO / SK
	BG / RO	BG / CY
		G

"Overarching" includes all policy areas not covered under renewables and energy efficiency.

This can partly be explained by the long history of renewable energy policy making. Effective, straightforward instruments have been developed and implemented over the past 10-15 years. Politically-induced framework conditions stimulate markets for renewable energy technologies, giving rise to a new and dynamic industrial sector. Although the initial impulse for these policies was often environmentally motivated, today's political drivers are a strong symbiosis of environmental and economic interests. This has, in many countries, created a relatively stable political environment for the development of the sector, independent of majorities with an affinity to climate issues. Factors that impede effective renewable energy policies include the reluctance for structural change in energy policy in combination with minor public concern on climate

change, often paired with strong nuclear supply structures such as Finland, France and Sweden. Additionally, a multitude of other barriers to renewables exist, related to inadequate implementation of measures, inefficient administrative/ institutional structures and discontinuity in political support.

Renewable energy policies are developed best, for electricity production, with an average of a 'D' rating (max B). However, they rate moderately for buildings (average E / max C) and transport (average E / max C) and particularly poorly for industry (average F / max C).

For energy efficiency, the motives and reasons for the countries' performance are less clear. The maximum rating is a 'D' for energy efficiency and an average of 'F'. Original energy efficiency efforts in many countries date back to the 1970's as a reaction to increasing energy prices, resulting in well established institutional settings and continuous lines of development, such as industrial norms, regulatory policies and technology development. The driving forces for energy efficiency were mostly not climate-oriented, but include energy security, support for local industries, technology leadership etc. Accordingly, they are not part of consistent policy packages but cover isolated issues. Additionally, the level of ambition is rather low because a greater effort on energy efficiency is regarded politically as harmful to business.

Policy on energy efficiency is still a long way from a symbiosis of economic and environmental interest as it drives renewable energy development. In energy supply, common business models work in a way that higher consumption equals higher profits. Saving energy and therefore reducing cost is a welcomed co-benefit for users of energy alone but is mostly not pursued actively. Due to the more complex market structure of energy efficiency, it is more challenging to address with effective policies.

The policy area of the overarching issues is suffering even more from the structural handicap described above, as the issue deals with the interaction or rather the interference of different policy areas and related sector policies. In most countries, current climate policy is just one policy area of a multitude, usually under the responsibility of the ministry for environmental issues. In fact, these ministries are usually not the most powerful ones in their cabinet position. Often, their impact is restricted to regulatory policies, with little influence on overarching political structuring.

Political consistency in overarching climate issues can only be reached if all policy areas and related sector policies undergo a 'climate mainstreaming' process, removing counterproductive effects and supporting positive trends. Next to the still-insufficient political status, the interaction of economic and environmental effects on a broader level (such as international competitiveness of specific economic sectors) has not been fully examined and is therefore subject to ongoing political discussions.

3.5 Robustness of results

3.5.1 Comparison to short-term trends

We checked whether our evaluation is consistent with major economic data and recent trends of countries' emissions. Some key data is provided in Table 8.

Countries differ significantly in their national circumstances and starting points. They differ significantly in size and population (columns 2 and 3). The economic power per

Table 8.
Selected data per country

Indicator	Land area ⁵	Population ⁶	GDP PPP/cap ⁷	GHG emissions (excl. LUCF, excl. int. tran.) ⁸	GHG emissions/cap ^{6,8}	Past emission trends ⁸	Distance to Kyoto target ⁹
Year of data	2007	2008	2007	2008	2008	2000 - 2008	in 2008
Unit	km ²	thousand people	€/cap	MtCO ₂	tCO ₂ /cap	%	%

Country							
Austria	83,871	8,344	32,600	87	10.38	7.4	23.0
Belgium	30,528	10,704	31,500	133	12.45	-8.6	0.1
Bulgaria	110,879	7,623	3,800	73	9.61	5.7	-29.7
Cyprus	9,251	864	20,300	9	10.85	17.2	n.a.
Czech Republic	78,867	10,428	12,300	141	13.56	-4.2	-19.5
Denmark	43,094	5,498	41,600	65	11.87	-6.9	13.7
Estonia	45,227	1,341	11,600	20	15.11	10.9	-42.4
Finland	338,419	5,313	33,900	70	13.20	0.8	-0.2
France	663,339	62,048	29,700	532	8.57	-6.6	-7.0
Germany	357,114	82,140	29,500	958	11.66	-6.7	-1.4
Greece	131,957	11,238	20,200	127	11.29	-1.8	-3.5
Hungary	93,028	10,038	10,100	76	7.59	-2.7	-17.4
Ireland	70,273	4,460	43,500	67	15.12	-1.2	10.1
Italy	301,336	59,855	26,000	541	9.05	-1.8	10.9
Latvia	64,559	2,266	9,300	12	5.26	16.4	-47.5
Lithuania	65,300	3,358	8,500	24	7.25	25.4	-43.1
Luxembourg	2,586	488	78,100	12	25.62	25.7	23.2
Malta	316	411	13,400	3	7.37	17.2	n.a.
Netherlands	38,154	16,443	34,700	207	12.61	-5.8	0.7
Poland	312,685	38,123	8,200	395	10.35	1.1	-7.2
Portugal	92,090	10,625	15,900	79	7.40	-3.8	5.2
Romania	238,391	21,513	5,800	136	6.33	6.8	-36.2
Slovakia	49,035	5,406	10,200	49	9.03	-0.9	-26.2
Slovenia	20,273	2,039	17,100	21	10.44	12.4	21.7
Spain	505,992	45,568	23,500	406	8.90	4.3	25.7
Sweden	441,370	9,221	36,900	64	6.94	-8.1	-16.0
United Kingdom	243,051	61,399	33,500	632	10.29	-7.5	-7.2

Sources:

⁵ UN statistics <http://unstats.un.org/unsd/demographic/products/dyb/dyb2007.htm>

⁶ World Bank, World Development Indicators (World Bank 2009), downloaded Nov. 2009

⁷ Eurostat, nama_gdp_c-GDP and main components - Current prices, extracted on: 30-06-2010 11:09:06

⁸ 2010 UNFCCC inventory submissions

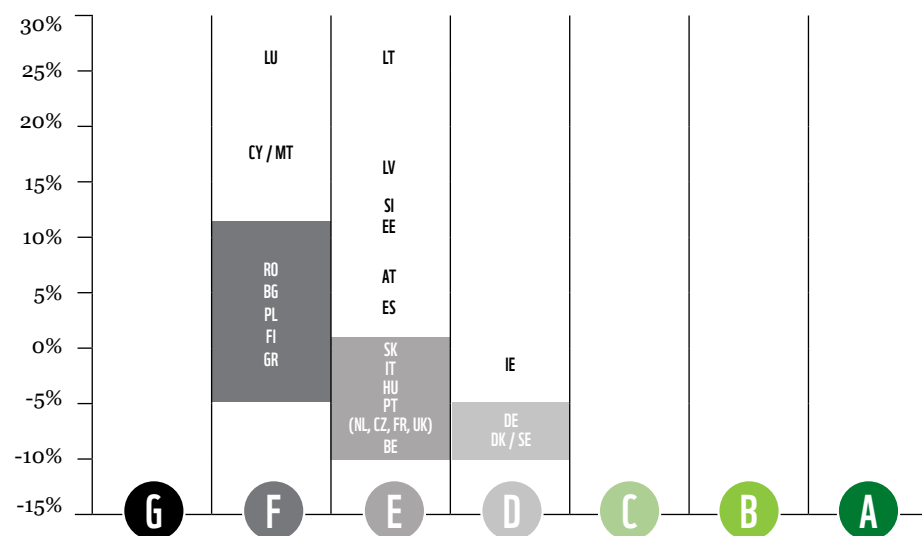
⁹ Own calculations as the difference between the Kyoto target (valid for 2008 to 2012) and emissions in 2008 based on 2010 UNFCCC inventory submissions using the country specific choice for the base year for fluorinated gases

inhabitant reflected in income also ranges from four thousand to almost € 80000 per capita and year. Greenhouse gas emissions per capita range from around 5 to around 25 tCO₂. Hence, countries have a significantly different distance to cover to reach the status of a low-carbon economy. High per-capita emissions can be due to high production and consumption and/or due to emission intensive production and consumption.

The distance to reach the political short-term targets under the Kyoto Protocol (last column) show that several countries are significantly behind meeting their Kyoto commitments. For those countries, for example Spain, emissions have been rising significantly. Other countries overachieve their targets, in particular the Eastern European States.

Figure 7.
Our evaluation (x-axis)
against greenhouse gas
emission trends
2000 to 2008 (y-axis) for
EU member states

PAST EMISSIONS
TRENDS 2000-2008



The overall scores of this report are generated by a complex matrix, aggregating the sectoral scores, each consisting of a multitude of indicators. Some results may differ from how a country may be publicly perceived regarding its ambition on climate protection. To check the consistency of the scores in this report, a comparison of each country's GHG emission trends 2000-2008 in relation to its respective score is made (Figure 7).

The picture demonstrates a general correlation between recent greenhouse gas reductions (2000 to 2008) and the ratings of this report, but also includes countries that significantly deviate from this trend.

- **Ireland** has quite well developed policies, but has also experienced significant economic growth in recent years, leading to less-significant reductions.
- **Estonia, Latvia, Lithuania and Slovenia** benefited from high economic growth rates between 2000 and 2008 and this was followed by growing emissions.
- **Cyprus, Malta and Luxembourg** require specific policy approaches to effectively reduce emissions due to their size.
- **Austria** has a relatively high emission trend that is mainly due to an increase of transport-related CO₂ emissions in combination with comparatively low fuel prices.

Regarding policy ambition, upon initial examination, the same preconditions are given as in Germany, for example, therefore Austria is often perceived as one of the most advanced countries in Europe. However, the detailed scores of the tracker show that in many cases it has less ambition, for example, regarding support for energy efficiency in buildings.

- **UK:** The country is often perceived as a front runner in climate policies. Upon examination of the figures in the context, although political strategies are outstanding due to their long-term approach (80% GHG reduction by 2050) and their broad sector coverage, their implementation is often still insufficient. For example, a zero-carbon standard for new buildings as of 2016/2019 has been introduced, but very little is done to refurbish the existing building stock which currently shows very poor performance.

3.5.2 Influence of EU policies

Policies of EU member states are heavily influenced by the directives made at the EU level. Therefore, we have analysed the influence of EU policies on our overall rating.

Around 40% of the score of a country is directly related to policies from the EU. If these 40% governed by EU policies were evaluated, the EU would receive an average score of 'E', which is insufficient. The most important EU policies include:

- **The Emission Trading System:** The current allocation for the phase from 2012 to 2020 is not compatible with a path leading to a low-carbon economy. It would receive a 'D'. Countries could, however, reach higher scores with additional emission performance standards for new power plants to avoid the construction of unabated coal fired power plants. The Emission Trading System has relatively little weight in our methodology, because it is currently focused on short-term/least-cost optimisation and not on a long-term transformation into a low-carbon economy.
- **Energy Performance in Buildings Directive:** The directive asks countries to set energy performance standards for buildings but does not prescribe the level. This level of ambition is up to the countries.
- **Ecodesign Directive:** The standards under this directive are not considered to be ambitious enough and are rated 'D'. Countries can, however, adopt additional support policies, such as subsidies.
- **Energy efficiency for passenger cars:** The current level of ambition for new passenger cars set at the EU level is insufficient to reach a low-carbon economy by 2050 and it is rated 'D'. Countries can implement more ambitious measures.

The energy and climate package of the EU for 2020 would therefore not be sufficient to reach a low-carbon economy by 2050.

3.5.3 Sensitivity to alternative low-carbon vision

We applied a sensitivity test of the results to a different low-carbon vision. As discussed in chapter 2.3, some areas of the low-carbon vision could be controversial. We therefore applied three additional test cases.

- **CCS and nuclear rated neutral:** The original methodology applies negative scores for support for coal CCS (if not accompanied by an emission performance standard) and nuclear. This test case rates coal CCS and nuclear as neutral.

- **CCS and nuclear rated positive:** This test case provides positive scores for support of CCS and nuclear.
- **Vision based on CCS and nuclear:** For this case, we assume that the low-carbon vision in electricity supply is to be accomplished mainly through CCS and nuclear energy. This test case provides positive scores for support of CCS and nuclear and gives much more weight to the category “overarching”: 60% instead of 20% and accordingly, less weight to renewables.

Figure 8.
Changes in countries' total scoring as a function of a different method
(only countries which change categories are shown here)

Original	CCS/nuclear neutral	CCS/nuclear positive	Vision based on CCS and nuclear
			A
			B
			C
SE			D
CZ / HU / LV / SK / SK	SK / SE	CZ / GR / SK / SE	E
BG,GR	BG / CZ / GR / HU / LV	BG / HU / LV	F
			G

Figure 8 provides the changes in rating for the countries where such a change occurred. It can be observed that the rating changed only for a few countries. This is due to several reasons:

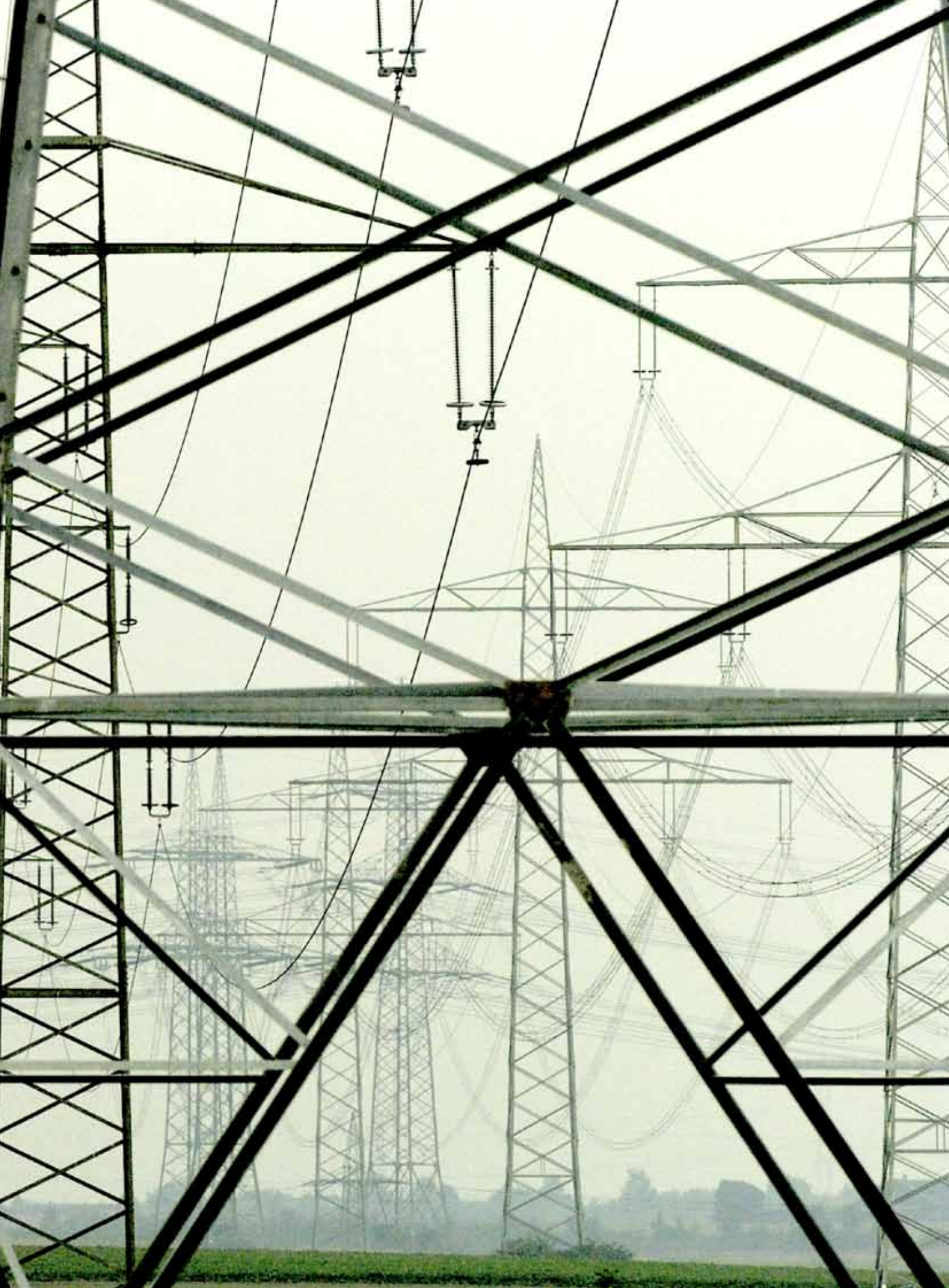
- For the CCS/nuclear neutral and positive cases, the weight of the indicators and therefore their influence on the final results is still very small. The electricity supply sector is usually around 20%, of which CCS and nuclear make up 20%.
- For the vision based on CCS and nuclear, some countries rate better due to support for CCS and nuclear, but those and many other countries lose the relatively good rating for renewables in electricity supply, keeping the average constant.

We therefore conclude that our results are relatively robust, also with respect to a substantially different low-carbon vision.

4. THE WAY FORWARD

- All policies affecting GHG emissions must be coherent and comprehensive. A low-carbon economy can only be achieved if all policy areas are considered. Many countries focus on a few particular sectors and neglect others. To develop consistent policies that address climate change effectively (and not only inadvertently), strong political arguments regarding the implicit coherence of climate, economic and technology policies need to be developed and implemented. Both at the EU and member state levels, it is urgently necessary to define goals that are common to climate protection and other policy areas. These goals must have a low-carbon economy with domestic reductions as a long-term objective and avoid lock-in and other decisions that would make later emission reductions more expensive. **Countries must scan their policy portfolios and implement or strengthen policies in their weakest areas.**
- Energy efficiency policies must be strengthened across the EU. It transpires that for buildings, industry and transport, the effectiveness of policies is weak in most member states. This suggests that the first step to better policies should come from a stronger effort at the European level. **This calls for a more ambitious formulation of the relevant European directives.** The current energy and climate package of the EU for 2020 is not sufficient to bring the EU on track to a low-carbon economy in 2050.
- There are some areas where policies are virtually non-existent. These include the efficient use and re-use of materials, infrastructure policies for low-carbon transport, energy efficiency policies for freight transport and renewable energy policies for manufacturing industries. **These ‘Cinderella areas’ need urgent revitalisation, both at the level of the Union and the individual member states.**
- Particular attention is needed for new member states. There are historic reasons for why the new member states are falling behind in these targets. Nevertheless, successful European policies are not possible without their contribution. **The European Union must consider climate policy to be a joint responsibility and provide adequate support to the member states that face difficulties in implementing effective climate policies.**





5. COUNTRY RESULTS

The policy tracker measures the impact of current policies on emissions, regardless of their motivation. In many of the countries with high scores, measures which account for a relatively better position in climate policies have been put in place due to political motivations other than climate change, such as job creation and support for agriculture.

Most policies are based on an implementation process that takes several years. It is therefore not always the current governments that should be praised or blamed for the high or low scores of their countries.

We are evaluating each countries' trends towards a common goal of a low-carbon economy, irrespective of their starting point in e.g. per capita emissions or efficiencies. Some countries may rate well because they implement policies that bring them significantly closer to the common goal although they start from a very emission-intensive level (e.g. the German electricity sector).

We rate all countries with the same methodology and ambition level, although countries may have differences in ability to act, due to differences in economic conditions, size of the country, public support for climate policy and institutional environment.

An important feature of the tracker is that it creates transparency on the composition of the overall scores. Often, public opinion is guided by rather intuitive assumptions on a country's ambitions, for example, based on recent high- or lowlights. The tracker enables crosschecking of these assumptions by looking at each sector and policy area individually and learning more about the composition of effective or less effective overall policies.

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AUSTRIA

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AUSTRIA

Overall assessment

Austria is rated E

Many sectors and policy areas are covered by a broader set of initiatives, but many of them are not sufficiently ambitious to transform Austria into a low-carbon economy by 2050. Important areas such as promoting material-efficient and fully recyclable products and efficiency in transport are not developed.

Success stories

- Austria has a relatively well-functioning feed-in tariff for renewable electricity generation. A decrease in the level and duration of support, as well as a cap on funds had initially stopped further new installations. However, a further substantial change to the law was passed at the end of 2009 which may improve the situation.
- Austria is among the European top-runners with respect to use of solar-thermal for private household heat generation. This is mainly incentivised by regional - not national - promotion schemes.
- In 2007, the Climate and Energy fund has been set up with an endowment of € 500 mio to support the implementation of the Austrian Climate Strategy. The Fund provides subsidies for promoting innovative projects e.g. renewable energy supply.

Unique - national goal for retrofit rate of 3% in 2020

This is a good example for ambitious target setting - which is not yet followed up with the necessary measures to ensure implementation.

Subsidies on fossil fuels increase emissions

While there are substantial subsidies and tax exemptions on fossil fuels both in the energy and industry sectors, the government did not yet take action in this area.

Areas that need improvement

- Further substantiation of the ambitious goal to increase the retrofit rate. According to the Austrian Energy strategy and the Austrian National Renewables Action Plan submitted to the EC at the end of June 2010, the retrofit rate of buildings shall increase to 3% in 2020. Difficulties might arise as support programmes are not coordinated among regions and the share of buildings owned by condominium owners' associations is high. These face a significant barrier in collective decision-making.
- Efforts to initiate a transformation to low-carbon industry are missing.
- Incentives for low-emission cars are not sufficient and are undermined by various measures which increase fuel consumption e.g. commuter tax allowances, mileage allowances for business trips, and the absence of taxes on aviation.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> • Strategy is currently being developed and is to be finalised and presented by mid-2010 <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> • Well functioning support system for renewable electricity • But policy not always stable and no support for adapted grid <i>Between 5% to 10% weight</i> 	<ul style="list-style-type: none"> • Well functioning CHP support <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • Substantial tax exemptions on fossil fuels <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> • Very limited incentives for renewables in industry <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Several support programmes targeting small and medium enterprises <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • No efforts to initiate a transformation to low-carbon industry • Substantial tax exemptions on fossil fuels <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> • Significant incentives for biomass and solar heating <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • Ambitious target of annual 3% retrofit rate, but likely to be missed • Landlord tenant dilemma considered in regulation • Some regional subsidy schemes to support passive house standards <i>Between 5% to 10% weight</i> 	<ul style="list-style-type: none"> • Moderate energy tax <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> • Detailed strategy but needs to be implemented <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Incentives for low emission cars (e.g. tax credits), but not sufficient <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> • High Investments in rail infrastructure • Various measures which create the effect of higher fuel use <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> • Land use strategy exists, but only short-term • No targets to reduce nitrogen and methane <i>Between 5% to 10% weight</i>
FORESTRY			<ul style="list-style-type: none"> • Very detailed forest inventory • Excellent integrative forest dialogue • Well-structured forest programme <i>Between 5% to 10% weight for the country</i>





ELECTRICITY SUPPLY

Sectors in detail

Renewables	<p>Austria traditionally has a large share of renewable electricity, mainly from large hydropower. Since 2002, renewables are supported mainly through the Austrian Green Electricity Act (Ökostromgesetz).</p> <p>The feed-in tariff has undergone various changes, including limited budgets, which led to a decline in new installations. The support scheme has just recently been adjusted with prolonged guarantee periods and a higher budget. Small hydro and PV are now covered through an investment scheme and not by the feed-in tariff. The agreed changes are promising and should be able to re-stimulate investment.</p> <p>There is no preferential grid access and the cost for grid extensions is often paid by the renewables project. This could be improved by adjusting legislation accordingly. The preferential dispatch rules are exemplary. However, no overall strategy for a fully renewable grid structure exists.</p>
Energy efficiency	<p>The feed-in tariff for biomass and biogas is directly connected to the use of CHP for these fuels, as a minimum conversion efficiency of 60% is required. This very effectively promotes the use of highly efficient CHP technology. This resulted in a total growth of CHP production of 83% between 1996 and 2007.</p>
Overarching	<p>There is a general exemption on energy taxes for energy suppliers. Power plants pay no tax for hard coal and 3% for fuel oil. There are no plans to reduce these tax exemptions and subsidies.</p> <p>While the main business association, the IV (the "Industriellenvereinigung") demanded support for R&D as well as infrastructure investment and legal frameworks for CCS, it is likely that there is no major support in the medium term for biomass- or coal-based CCS.</p>



INDUSTRY

Renewables	<p>Some demonstration projects for renewable energies in the industry are covered by the feed-in tariff, but they are not sufficient to develop the sector's potential.</p>
Energy efficiency	<p>Efficiency measures are targeted mainly towards small and medium enterprises, which traditionally play a large role in the sector. The support through the 'Klima:aktiv' campaign covers consulting services, information provision and investment support. 'Best practice' projects receive additional funding. The target is to save 20,000 tCO₂ per year.</p>
Overarching	<p>There are substantial refunds of energy taxes for energy intensive industries. According to the finance ministry, tax refunds amount to 1/3 of total energy tax revenues. Although the Austrian Court of Audit made recommendations in 2005 to make use of the options opened by the EU directive in order to reform the energy tax system towards more environmentally friendly taxation, these have not yet been taken up by the government. Some evidence can be found that a more environmentally friendly taxation (e.g. introduction of a CO₂-tax, adaptation of mineral oil taxes) could be a possible part of a general tax reform.</p> <p>Some measures or strategies for restructuring the industrial and material system can be found in the resource efficiency action plan which will be finalised by the end of 2010.</p>

BUILDINGS



Renewables A grant scheme to support renewable technologies at the national level, targets commercially-active investors and provides support to activities such as district heating, biomass plants, solar-thermal and heat pumps. Support for individual households is administered at the provincial level. This also includes investment grants for the same types of activities, although level and conditions vary widely.

Information campaigns and training carried out at the provincial and national level supports the deployment of renewable technologies. However, no measures have been taken to make investment in such technologies more attractive for rented space by improving possibilities to hand down cost to tenants. This area needs significant improvement.

In 2002, the regional building law was amended and introduced an obligation to use renewable energy sources as a legal requirement for all public buildings.

Energy efficiency The new Energy Strategy adopted by the Council of the Ministers at the start of 2010 includes a 3% target for the annual retrofit rate by the year 2020, with a linear trajectory starting from current retrofit rates (1% p.a.). However, since instruments to support this are under the responsibility of the provinces, not ambitious enough and not well coordinated (although a new agreement according to Art. 15a of the constitution sets common minimum standards), additional measures need to be taken to achieve the target laid out in the national Energy Strategy.

Public procurement guidelines are detailed in an agreement (in relation to Art. 15a B-VG) and include ambitious standards for new buildings, retrofit and for technical appliances. This is a good example that could easily be followed by other countries.

Overarching Only a moderate energy tax for households of around 13.5% for natural gas and 17.7% for oil exists

TRANSPORT



Renewables Renewables in transport are mainly supported through a biofuel obligation, which was enacted in 2004 and includes growing shares of biofuels in petrol and diesel, supported by tax incentives for high shares of biofuels and bio ethanol. However, this policy is not supported by a framework to ensure the sustainability of biofuels from national or international sources.

Additionally there is an action plan on electric transport, aiming at using mainly renewable electricity and promoting electrification of passenger transport. However, this plan is not yet substantiated by concrete measures.

Energy efficiency A 'bonus-malus' system for new vehicle registration fees is the main tool used to promote efficiency of vehicles. After its introduction in 2008, the system had already been tightened in 2010 to further reduce CO₂-emissions from newly registered vehicles. It is yet to be judged whether this measure will be sufficient to put Austria on a path towards 95g/km in 2015 for newly registered vehicles.

Overarching Austria has the second highest per-capita investment in rail infrastructure in Europe and also supports a wide range of activities around climate friendly mobility through a financial support and information programme “klima:aktiv mobil”. To reduce emissions from freight transport and to shift road transport to rail, various measures aim at supporting combined freight transport. Those measures consist of financial support, fiscal incentives (e.g. incentives regarding vehicle tax) and other support measures (e.g. liberalised initial and final combined transport hauls, exemption from driving bans on lorries). One of the financial support measures is a programme that supports investment in transport units and technology innovations until 2014. Past support periods of this programme reached less than 3% of road freight transport.

However, various measures also promote higher fuel use: a commuter tax allowance, mileage allowance for business trips, no tax on aviation and the low level of mineral oil taxes. The problem is aggravated by uncoordinated regional planning leading to urban sprawl (Zersiedelung).

AGRICULTURE



Ambitious limits on nitrogen load per hectare and incentives to reduce methane emissions from animals exist.

A consistent land-use strategy exists and sufficient funding is allocated to the promotion of sustainable farming with positive impact on GHG emissions and consumption practices including labelling, information programmes, etc.

FORESTRY



Forestry The strategy for forest management planning is consistent and policy tools to ensure implementation exist. Between 1990 and 2007, an increase of the total forest carbon stock took place.

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BELGIUM

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BELGIUM

Overall assessment

Belgium is rated E

The country's overall performance is dominated by the complex relationship between the Belgian Federal Government and the autonomous regions. While on regional level some ambitious approaches exist, there is an overall lack of harmonisation across the measures, and those issues which require a solution on the national level often lag behind.

Success stories

- In Belgium, regional targets are set for cogeneration. Flanders aims at a share of 5.25% CHP in electricity production by 2012 and stimulates this with a separate certificate system. Further plans are proposed to increase the share to 10.5% by 2021. Wallonia has set a combined target of 14% electricity from either CHP or renewable electricity. This means that both options are interchangeable and green certificates are valid for both.
- Belgium has several good policies to support public transport. The Federal government finances 20% of the cost to employers for a public transport season ticket for commuting. Furthermore, there is a tax incentive to promote carpooling. Wallonia & Flanders pay 100 percent of the costs for a number of employers. Additionally, there is an obligation for private train companies to increase passenger transport by 25% from 2006 to 2012.

Nuclear or no nuclear?

An unstable policy environment for renewable energies is created by doubts surrounding the Belgian nuclear phase-out law. According to this law the first three reactors (almost 1800MW) need to go offline by 2015. Policy makers in Belgium are making side agreements with the nuclear operators and fail to address the windfall profits accrued by this industry. Project developers of renewable energies are taking this into account. This is hindering further investment.

Areas that need improvement

- The Belgian climate policy is established until 2012, but is under development for the period until 2020. This process is expected to take several years. To become effective in terms of a low-carbon economy, short-term results are needed. There also needs to be a comprehensive climate and energy strategy towards a zero carbon economy by 2050.
- Apart from RES and CHP, there are hardly any targets set.
- Many policies on sustainability and renewable energy are determined on a regional level. This makes federal decisions slower and leads to a diffuse set of policies that create a more complex environment for investors.
- Climate and energy policy is distributed over different federal and regional organisations and knowledge is not shared broadly across these.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> • There are no targets set after 2012 <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> • Stimulation of renewable electricity by green certificates and quota obligations • Renewable electricity has priority on grid <i>Between 5% to 10% weight</i> 	<ul style="list-style-type: none"> • CHP targets are set • CHP is being promoted on a regional level <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • New tax for the use of coal, coke and fuel oil for electricity production <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> • Some tax-exemptions and regional support for the use of renewable energy in industry <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Voluntary agreements on improving energy efficiency <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Good policies on recycling <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> • Tax reductions for investments in renewable energy. Solar thermal and PV receive additional awards. <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • Belgium follows EU Energy Performance of Buildings Directive, but falls behind compared to surrounding member states. • Tax incentives and rebates for improving efficiency are also applicable for tenants. <i>Between 5% to 10% weight</i> 	<ul style="list-style-type: none"> • No carbon tax in place <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> • Incentives for electric driving • Quota system to stimulate national biofuels production <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Flanders: subsidy for efficient lorries • Incentives and tax reduction for energy-efficient cars <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> • Some investment and incentives for public transport, like financial compensation on season tickets for public transport for employees <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> • Green certificates are awarded for biogas <i>Between 5% to 10% weight</i>
FORESTRY			<ul style="list-style-type: none"> • Several policies that prohibit deforestation • Policy restricting illegal cutting of wood <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY
SUPPLY

Renewables	In Belgium, renewable electricity is promoted through quota obligations, green certificates and by giving it priority on the grid for both connection and congestion. However, there is not yet a strategy designed to create a grid that can accommodate a large share of renewable electricity.
Energy efficiency	Regional targets for CHP exist. Flanders aims at a share of 5.25% CHP in electricity production by 2012 and stimulates this through a regional CHP certificate system. Wallonia aims at 14% CHP in electricity production, being part of the existing support system for RES. This has the effect that electricity generated from high quality CHP is exchangeable by RES-E, i.e. higher CHP deployment might be at the expense of RES-E deployment and vice versa.
Overarching	<p>The Belgian Federal Government recently stopped tax exemptions on the use of coal, coke, lignite and fuel oil for electricity generation. Additionally, a new tax of € 8.65/ton was introduced for using the above-mentioned fossil fuels for electricity production.</p> <p>The reward of green certificates is high, making co-firing biomass in coal fired power plants very attractive. Because of the higher CO₂ content of coal compared to natural gas, this does not have a positive impact on CO₂-emission reductions.</p> <p>The Belgian government has approved a nuclear phase-out law that prescribes closure of nuclear reactors after 40 years of operation.</p>

INDUSTRY



Renewables	Apart from the national and regional quota systems, there is no specific policy on the use of renewable energy in industry. European standards on biomass are applied, but biomass imports are not promoted or regulated by the Belgian government.
Energy efficiency	<p>Industrial parties that represent more than 80 percent of the energy consumption are included in voluntary agreements to improve energy efficiency. Involved parties will be exempted from the energy tax.</p> <p>There is no structural support for demonstration or breakthrough technologies. Support is only granted on an ad-hoc basis.</p>
Overarching	<p>Belgium has a good policy on recycling and collection of recyclable materials. Glass, paper and plastic, metal and carton packaging is being collected separately. Unrecyclable packaging waste is also reduced by an ecotax. Plastic and aluminium packaging is also taxed. There is a small programme in Flanders that promotes Eco design of products on a voluntary basis.</p> <p>At the federal level, product standards are currently elaborated in relation to the European Directive on Eco Design for Energy-using Products (EuP Directive), but no measures are implemented that go beyond the EU requirements.</p>

BUILDINGS



Renewables	At the federal level, tax reductions are given for investments in renewable energy. Solar thermal and PV are rewarded with a higher tax reduction. Regulations do not provide investment-friendly and easy solutions to include the cost of retrofitting rented houses in the rent or to have the issue covered by the tenant contract.
Energy efficiency	Tax incentives and rebates on improving efficiency are also applicable for tenants. There are also some low interest loans available.
Overarching	There is no carbon tax in place.

TRANSPORT



Renewables	There is no policy or strategy to develop an infrastructure for electric driving in Belgium. The share of biofuels in transport is in line with the EU target. Incentives for electric driving and a quota system to stimulate national biofuels production have been put into place.
Energy efficiency	Belgian emissions targets are in line with EU standards. In Flanders, there is an investment subsidy for efficient lorries. Generally there are some incentives and tax reductions for energy efficient cars available together with customer information on efficient cars.
Overarching	There are investment programmes for the public transport sector and incentives for a modal shift. For example, the federal government subsidises 20% of the costs for a public transport season ticket for commuting. Furthermore, there is an obligation for private train companies to increase passenger transport by 25% over the period from 2006 – 2012. Besides stimulating public transport, there are no ambitious policies towards a low-carbon infrastructure put into place.

AGRICULTURE



FORESTRY



	Despite the moderate biomass potential in Belgium, Belgium aims at producing biofuels and reaching a target of 5.75% by 2010, which will require the import of energy crops.
	Several policies that prohibit deforestation without a development permit and compensation. There is a policy in place that restricts the use of illegally cut wood.

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BULGARIA

F

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BULGARIA

Simplified
methodology

Overall assessment

Bulgaria is rated F

Bulgaria has shown efforts in implementing policies, for example, by supporting renewables in electricity production. However, it still has a long way to go to develop into a low-carbon economy.

Success stories

- As a concrete implementation of the European Energy Performance Building Directive (EPBD), a certification system for buildings has been introduced. In Bulgaria, certification is performed on new buildings and on buildings that are modernized or restructured. For public buildings certification is mandatory. Still, much work remains to be done, especially in the residential sector. The largest barrier is the lack of organisation of home owners.

Victim of its own success

The relatively good levels of feed-in tariffs and the length of support to stimulate renewable energy in Bulgaria have led to tremendous investment interests. In solar PV alone, investments of over 1.6 GWp have been announced, and several thousand MW of wind power are currently being developed.

The grid, however, is not capable of dealing with these large amounts of fluctuating production. Further, it is clear that the conditions for the feed-in tariff will change, although it is not yet clear how. The government is trying to put a lid on the market, also in order to reduce increases in consumer energy prices. Although not formalized, the renewable electricity sector has therefore come largely to a standstill. Barriers introduced in the last half-year are described by some as a 'tacit moratorium'.

Areas that need improvement

- An integrated long-term climate policy strategy is necessary to show a clear direction for Bulgaria.
- Policies covering all relevant sectors need to be developed and implemented to a much higher degree.
- There is a need for clear responsibilities of the state authorities on monitoring implemented policies.



Overview summary

- GENERAL
- ELECTRICITY SUPPLY
- INDUSTRY
- BUILDINGS
- TRANSPORT
- AGRICULTURE
- FORESTRY

	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> No long-term integrated climate strategy <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> The ambitious support policy was (temporarily) suspended due to uncertainty about the future strategy <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> No policy mechanism for cogeneration with RES to sell heat for district heating <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No additional measures <i>Between 5% to 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> No policy for integration of RES in industry <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No national funding for efficiency <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No information on policies aimed at structural change <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Bulgaria is working on legislation to stimulate RES in buildings <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Mandatory energy certification for public buildings <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No additional policies <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Blending of biofuels is obligatory, but not for blending ethanol into petrol, and target is lower than EU requirements <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Ecotax for import of second-hand cars from Western Europe <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No overarching policies in place to reduce emissions from transport <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> No integrated agricultural land development strategy <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> No consistent land-use strategy implemented <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>Bulgaria passed an ambitious RES legislation in 2008 and attracted a lot of potential investors applying for support (PV: 1.6 GWp). Unfortunately, the strategy for reaching the EU RES targets has not been well structured. This has resulted in a (temporary) suspension of the policy until the implications for the public budget are sorted out. Additionally, the national network operator has continued to control (and thus to limit) grid access of renewable electricity projects.</p>
Energy efficiency	<p>There is no policy mechanism in place that allows a small co-generation plant based on RES to sell its heat for district heating where available. Even though some support exists, it is unlikely that it will lead to a 5% share.</p>
Overarching	<p>No additional measures, such as a carbon tax, biomass or CCS projects are being considered.</p>

INDUSTRY



Renewables	No policy for integration of RES in industry.
Energy efficiency	Voluntary agreements on efficiency in industry. However, this has not led to implementation.
Overarching	Energy efficiency is focusing predominantly on European funding and "market mechanisms" without indicating what these could look like.

BUILDINGS



Renewables	The government is working on legislation to stimulate RES in buildings. Currently, there is no minimum requirement for RES use in buildings.
Energy efficiency	Energy Performance Buildings Directive and Ecodesign Directive requirements (efficient appliances) are implemented in Bulgaria.
Overarching	In Bulgaria, a certification system for energy efficient buildings has been implemented. The system is used mainly on new buildings or in the modernisation or reconstruction of existing buildings. For public buildings, certification is mandatory.

TRANSPORT



Renewables	Blending of 4% biodiesel with conventional diesel has been obligatory in Bulgaria since March 2010. Nonetheless, this does not apply for blending ethanol into petrol. The target is lower than EU requirements.
Energy efficiency	No policies on the promotion of vehicle efficiency could be found.
Overarching	Bulgaria has an ecotax for the import of second hand cars from Western Europe. This import tax is controversial and opposed by the sellers of old vehicles. However, it is too low in order to have serious impact on the number of imported old cars. Bulgaria has also introduced a 50% rebate in road tax for cars which are equipped with a catalytic converter, aiming to encourage the use of this technology.

AGRICULTURE



	Between 2000 and 2008, greenhouse gas emissions from agriculture decreased by almost 10%. As there is no integrated agricultural land development strategy in place, this effect cannot result from any sectoral policy. Two likely reasons are a) economic difficulties of agriculture in the post socialist restructuring of the economy and b) further restructuring challenges after joining the EU.
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FORESTRY



	Bulgaria does not have a consistent land-use strategy in place. There is a short-term forestry development strategy, but this has not been implemented and is not mandatory yet.
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CYPRUS

F

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CYPRUS

Simplified methodology

Overall assessment

Cyprus is rated F

Support does exist in the energy and buildings sector, but is not sufficient. The industry and transport sectors would need to be addressed further so that the transformation to a low-carbon economy can take place.

Success stories

- The current policy framework, including a feed-in tariff for RES-E, runs from 2009-2013 and has the target to reach a 9% renewable energy share in electricity generation by 2013. A new framework was submitted to the European Commission in 2010, covering the period from 2013-2020 for the target of 13% of RES-E in electricity production.

Successful renewable heating

Due to a solid funding system, solar water heating has become very widespread in Cyprus with its climatic conditions for solar energy. In the new framework, it will be obligatory to have solar thermal heating in buildings.

Areas that need improvement

- A consistent climate strategy for the period after 2020 has not been developed and thus, the path to a low-carbon economy in Cyprus is not paved yet.
- More support instruments for renewable energy and efficiency measures in smaller industries, which are the main sector in Cyprus, are needed. This should include financial support instruments as well as the provision of information and technical assistance.

Overview summary



Renewables	Energy efficiency	Overarching
<ul style="list-style-type: none"> • A feed-in system is in place, aiming at a 9% share of renewables in 2013. A new framework with the target of 13% by 2020 was submitted to the European Commission in 2010 <p><i>Between 5% to 10% weight for the country</i></p>	<ul style="list-style-type: none"> • Although there is support, CHP installations are not expected to be significant <p><i>Up to 5% weight for the country</i></p>	<ul style="list-style-type: none"> • No consistent strategy beyond 2020 • Penalty on oil use in electricity generation <p><i>Up to 5% weight for the country</i></p>

GENERAL

ELECTRICITY
SUPPLY

	Renewables	Energy efficiency	Overarching
INDUSTRY	<ul style="list-style-type: none"> The current framework has specific parts on large installations from companies, but not specifically for industry <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> The current framework supports energy efficiency solutions with funding. <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No overarching instruments <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> The use of solar thermal energy for heating use in buildings is widespread and accepted <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Labelling and funding for energy efficient appliances in hotels <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No additional incentives <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> There are incentives for biofuels in transport, but the current share for biofuels is only set at 2% <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> There are incentives for hybrid/electric vehicles through state support High tax on large cars <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> No measures exist <i>Between 5% to 10% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Cyprus has implemented the nitrates directive, but enforcement should improve. Methane emission reductions from animals are addressed. No consistent land use strategy is in place <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Consistent strategy for forest management is in place, but no land use plan <i>Up to 5% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	A feed-in tariff supports the generation of electricity from solar (PV), wind and biomass. In addition, investment grants are supplied to renewable electricity projects. The current aim for 2013 is to reach 9% of RES-E; a new framework with the target of 13% by 2020 was submitted to the European Commission in 2010. The use of oil for electricity production is financially penalised in order to create a shift towards natural gas as a conventional fuel.
Energy efficiency	CHP is supported under the same system as renewable energies but in the past, the CHP share of electricity has not increased.
Overarching	A penalty on oil-use in electricity generation applies. No additional information could be found.

INDUSTRY



Renewables	Small industry is predominant in Cyprus. Enterprises can profit from a fund to support renewable electricity production and other renewable technologies for heating and cooling. However, this funding is not sufficient to boost the development of renewables in industry.
Energy efficiency	Energy efficiency measures can profit from a fund established in 2004. Energy intensity in industry has significantly decreased, dropping by 22% from 2000 to 2006.
Overarching	No information could be found.

BUILDINGS

Renewables	Renewable energies for heating and cooling are successfully supported in Cyprus: from 1990 to 2005 their use has increased by 16%.
Energy efficiency	The implementation of the EPBD has started in 2009, but no trajectory to zero energy buildings or any other measures to substantially reduce buildings' energy consumption are in place.
Overarching	There are discussions about a support policy for efficient governmental buildings to set good examples, but nothing has been decided or implemented yet.

TRANSPORT

Renewables	Currently, the quota for biofuels is at 2%, which is far below the necessary share to reach a low-carbon transport sector. Renewable electricity for electric mobility is not considered in transport policies in Cyprus.
Energy efficiency	A small support to increase vehicle efficiency is a subsidy of € 700 for the purchase of hybrid or electric vehicles.
Overarching	No strategies or policies exist in other areas of transport such as modal shift or investment in low-carbon transport infrastructure. In the past, per capita emissions from transport have increased by 33%.

AGRICULTURE

	The agricultural sector is addressed by several policies: for vulnerable zones, a limit of 170 kg nitrate per hectare is in place, other areas are covered by recommendations for nitrate loads, but these are not binding.
	Methane emissions from manure are supposed to decrease through the use of processing units with biogas electricity generation; further units are planned but not built yet.
	A consistent land use strategy does not exist for all land, but only new land use is targeted by the current strategy.

FORESTRY

	Forest management and avoiding deforestation is a priority in Cyprus and the respective plans are implemented by the Department of Forests of the Ministry of Agriculture, Natural Resources and Environment.
	However, no land use plan including forests exists.

A

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C

D

CZECH REPUBLIC

E

F

G

CZECH REPUBLIC

Overall assessment

The Czech Republic is rated E

The country has not yet defined either a long-term target to reduce its emissions or a strategy to develop into a low-carbon economy. However, support programmes for renewables in electricity production and buildings are in place. The agricultural and forestry sectors are also targeted with policies. In contrast, the important industrial sector is not targeted appropriately by policies to reduce emissions towards a low-carbon economy.

Success stories

- The Czech Republic has relatively good support systems and programmes for renewables in all sectors. However, in the electricity sector, the support is not planned and guaranteed for the long term.
- A combined building sector support for renewable energies and energy efficiency exists.

RES-E support scheme in place

In general, the current support scheme for renewable electricity has had some positive effects, but due to the annual review of tariffs and the resulting high level of insecurity it stays behind its potential impact.

Transport sector neglected

While there are policies in many sectors, the transport sector seems to be neglected, especially freight transport. The existing target for modal shift only aims at 2013 and does not go beyond.

Areas that need improvement

- - In general, the relevant Czech policies lack ambition to really transform the economy into low-carbon in the future. An overall strategy and target for the country has not been developed.
- The Czech Republic has not introduced a framework for sustainable biomass imports. Although the country currently is a net exporter and thus this topic is not relevant right now, due to support for the energetic use of biomass and developments observed in the past, the Czech Republic might become an importer in the near future.
- Although an energy tax does exist, it is set at a very low level and therefore does not set incentives to reduce energy use.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> No long-term target has been defined, there is a lack of policies <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Support system for renewable electricity is quite good, but not sufficiently long-term No support for adapted grid No framework for sustainable biomass import <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Some support for CHP through the feed-in tariff, but not ambitious enough <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Level of energy tax is very low Support for CCS is limited Active support for the development of new nuclear plants <i>Between 5% to 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> There is no ambitious strategy to increase the share of RE in industry, only some minor support exists <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Only few policies to support energy efficiency exist Some incentives are planned for post-2012 <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Progressive phase-out of subsidies/tax exemptions for energy-intensive industry The level of energy tax in place is very low <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Green Investment Scheme for renewables and energy efficiency in buildings No standards for sustainable biomass imports <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Standards for new buildings at passive house level by 2020 Insufficient incentives for retrofitting <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Energy tax in place, but at a very low level <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Limited incentive to increase renewables in transport No development of infrastructure for electric mobility <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Implementation of EU Directive for car emissions per km, but nothing more ambitious No policies to address freight vehicles <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Short-term targets (2013) for modal shift and investment in low-carbon transport infrastructure No sufficient funding allocated to significantly influence modal shift <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Limit for nitrogen use in place Some methane reductions planned <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Strong rules in place to prevent deforestation Good strategy in place for forest management planning Policy tools need to be strengthened <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>A feed-in tariff and green bonuses are in place in the Czech Republic to support the use of renewable energy in electricity generation. The level of tariffs depends on the technology used. The instrument as such provides a good legal framework, but long-term reliability has been affected by political decisions. Recently, PV support was lowered as it was decided that the national RE target could be reached with less effort.</p> <p>In theory, renewable installations are preferably connected to the grid while the congestion management is non-discriminatory. However, currently, applications for grid connection are denied as newly erected renewable capacity is exceeding the available grid capacity. The situation of the transmission system in the Czech Republic will continue to present a large barrier as planned investments into the infrastructure are insufficient.</p>
Energy efficiency	<p>CHP is supported through a feed-in tariff. Biomass and biogas CHP units are additionally supported by financial aid from a state fund.</p>
Overarching	<p>The level of energy tax for power production fuels is relatively low and there is no CO₂ tax in place. The subsidy for coal mining has significantly decreased since 1990 and currently, no such subsidies for mines in operation exist. However, state aid is provided for environmental liabilities of mines that are no longer in operation, which constitutes an indirect subsidy.</p> <p>R&D about CCS for fossil fuel plants is supported financially in one research project while there is no explicit support for biomass CHP.</p> <p>There is significant political support for new nuclear power stations and currently, an environmental impact assessment is carried out for two additional blocks for the Temelin plant. The preparation of nuclear waste disposal sites is also actively supported by the state.</p>

INDUSTRY



Renewables	<p>The use of renewables in industry is almost neglected in the Czech Republic. R&D for demonstration or pilot projects in the industry is supported through the Ministry of Industry. However, in 2009, only 2 out of about 500 projects included renewables. There is some minor support through a state programme which covers part of the structural and investment costs, but this is not sufficient to lead to a low-carbon industry.</p>
Energy efficiency	<p>Energy efficiency in industry is also poorly targeted. Voluntary agreements are planned in the future and a joint declaration of the Ministry of Environment and the largest Czech utility has not been ratified although it has been pending for a long time.</p>
Overarching	<p>The redesign of products for a future low-carbon economy is not subject to any support, nor is CCS for biomass or process emissions.</p>

BUILDINGS

Renewables The support for renewables in heating and cooling is rather successful: from 1990 to 2005, the share of renewables used for thermal applications increased by 18%. The support comes from a Green Investment Scheme. Enterprises, public buildings and households are all targeted by special financial support programmes.

The landlord-tenant conflict regarding the inclusion of costs for retrofitting in rents is not addressed in the Czech Republic. A high share of the current building stock is owned by municipalities and the respective tenancy agreements do not reflect the issue. Gradually, a higher share of flats is expected to be offered on the private market. The chance of addressing the landlord-tenant problem at an early stage should be used.

Energy efficiency New buildings in the Czech Republic are subject to efficiency standards set at a low-energy level from 2012 onwards and at a passive house level from 2020 on. There is no trajectory towards zero energy buildings. However, the standards for eligibility for the support programmes for renewable energies and energy efficiency in buildings are stricter than the general building codes.

While in the past, building standards were poorly enforced, this has improved significantly in recent years. Public support programmes are coupled to compliance of standards, or even a more ambitious level. Support has to be paid back if the required standards are not fulfilled.

For existing buildings, minor support exists for energetic retrofitting and the current programme is not sufficient to incentivise high retrofit rates.

The Ecodesign Directive has been transposed into Czech legislation in 2000. There are no measures in place to promote efficiency beyond the EU requirements. Some public procurement guidelines regarding energy efficient and environmental friendly appliances exist, but their implementation depends on the specific institution (e.g. ministries, municipalities) and their internal rules of procedure.

Overarching The level of taxes for energy (electricity and natural gas) used in buildings is very low. There are discussions about setting up a CO₂ tax in the future and a carbon tax is planned as an implementation of future EU-directives. However, these instruments are still under discussion.

TRANSPORT



Renewables	The aim of the Czech Government is to reach a stagnating level of transport-related CO ₂ emissions in 2010, and to achieve a decrease of 5% by 2013. However, there are no national plans for electric mobility, neither in combination with renewables nor with conventional electricity. Only the biggest state energy company plans a pilot project with electric vehicles. There is no ambition to move beyond the EU biofuels target.
Energy efficiency	The Czech transport sector is similar to industry, rather neglected when it comes to policies and measures towards a low-carbon economy. Regarding CO ₂ emissions for new passenger cars, there is no higher ambition than to reach the EU target. Freight vehicle emissions, too, are not targeted by reduction measures.
Overarching	Policies for modal shift and avoiding transport exist, but only with a horizon until 2013. The aims set are not sufficiently backed by financial allocations and are therefore likely to be missed.

AGRICULTURE



There is no single land use strategy, but rather diverse aspects are covered in several strategies, like a brownfield renewal strategy or in urban planning. These strategies, as each was developed separately, show inconsistencies.

Nitrogen load in agriculture is addressed though limits for different types of crops and landscapes. The level varies between 70 and 260 kg/ha. In some cases, the limit is 0. Around 50% of the agricultural area is subject to these limits. Improved feedstock and manure management is expected to reduce methane emissions by 20%.

FORESTRY



A national Forest Plan is implemented through individual forest management plans with a time frame up to 2013. The long-term strategy for implementation of further measures will only be updated in 2013.

Deforestation is not permitted; clear cuts have to be reforested within two years. This is valid for all forests and country areas and non-compliance is sanctioned.

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DENMARK

D

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DENMARK

Overall assessment

Denmark is rated D

Denmark does not have a long-term greenhouse gas target. A long history of diversified support for renewables has led to the current comparatively high share of renewable electricity production. Danish climate policy is especially weak in relation to the transport sector. Energy efficiency in buildings is another area where much more action is needed.

Success stories

- Denmark has a diversified support system for renewables, encouraging a variety of technologies through a system of price premiums, a tendering system for offshore wind and additional measures provided by the transmission grid operator. It has been very successful in integrating a high share of fluctuating renewable sources, especially wind, into its grid.
- Denmark has an advanced and highly decentralised electricity system, where 20% of all electricity generated comes from wind turbines.
- Denmark produces no nuclear energy. In 1985 the parliament decided against producing nuclear energy in Denmark.

Early action, but also setbacks and potential revitalisation

Denmark's rating benefits from the fact that Denmark launched an active energy policy quickly after the oil crises of the 1970s with a shift towards gas, expansion of CHP, development and expansion of wind energy, and biomass use as the main results. Policies included a broad range of instruments, amongst them economic tools in particular. A change of government in 2001 meant a break with the active climate and energy policy and the introduction of a policy without national targets and with plans for meeting the Kyoto-obligations by heavily relying on purchase of credits. The result has been that the previously falling trend in the Danish GHG emissions stopped after 2004 and did not fall again until the economic recession in 2009.

In the last few years, there have been signs of a return to a more active climate policy. The most prominent example is the government proclamation in 2006 of a long-term vision for Denmark to become 100% fossil fuel free. An independent climate commission is investigated how and when this vision can be achieved, and reported in September 2010. The big test is whether and to what extent the commission work and not least the subsequent political process will lead to substantial policy improvements to be identified in next year's climate policy tracker.

Areas that need improvement

- Danish policy has for decades favoured private car use. As a natural consequence the price of public transport has continuously risen relative to individual private transport. Despite of this development, the focus on low-carbon vehicles has been low.



Overview summary

	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> Zero fossil fuels vision exists, but without time frame and strategy on how to achieve the vision. No domestic greenhouse gas target exists <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Diversified support for different types of renewables <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> High share in CHP, but declining CHP incorporated into the municipal heat planning process <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Highly decentralised electricity system, renewable electricity has priority access No production of nuclear energy <i>Between 5% to 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> Some funding for biomass and waste use in industry <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Voluntary agreements for industry on efficiency, supported with a tax penalty <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No direct subsidies for energy intensive industry for conventional fuel supply and consumption <i>Between 5% to 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Renewable heat requirements are set at a system level rather than at the building level Renewable heat is generally exempt from taxes <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Building standards with increasing levels over time, also for retrofit <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Specific energy and CO2 taxes <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Biofuels are exempt from CO2 tax imposed on ordinary petrol and diesel Electric vehicles are exempt from car registration fee <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> High registration fee on purchase of vehicles Car ownership fees which favour fuel efficient vehicles <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Long distance commuting between home and work is encouraged through tax rebates <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Ban on straw and stubble burning in open fields. Green Growth Agreement is a step in the right direction but needs to be fully implemented and further strengthened <i>More than 10% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Ambitious afforestation target, but implementation not ensured Forests are strongly protected from conversion to other land uses <i>Up to 5% weight for the country</i>

**ELECTRICITY
SUPPLY****Sectors in detail**

Renewables Denmark has high levels of renewable electricity generation installed, especially wind. Support is in place through price premiums and tenders for offshore wind power. Support levels are subject to regular review, but for each individual installation the conditions at the moment of grid connection apply and stay constant over time. Support is given to different types of installations, except large hydro (>10MW), very small home PV systems (<6kW) and geothermal power production. The level of support is in the lower half of the cost range. Especially for biogas, the Danish guaranteed price of 0.76 DKK/kWh is considered too low to secure investments. Furthermore, a lack of clarity regarding the potential for future sales of biogas through the natural gas network hampers growth in this area. The transmission grid operator Energinet.dk provides some additional subsidies to small installations and loan guarantees for investigating opportunities for local wind power generation.

The government's objective is to double the share of renewable energy, so that it accounts for at least 30% of energy consumption by 2020 (extended final energy consumption) and 20% by 2011 (gross energy consumption) compared to 15% in 2007. The long-term vision for Denmark is to be 100% independent from fossil fuels. An independent climate commission is currently investigating how and when this vision can be achieved and reports in September 2010. It remains to be seen if the strategies presented will be adequate and how the government will implement the findings into legislation.

In recent years, Denmark has experienced difficulties in finding locations for onshore wind turbines, in part due to political hesitation originating from scepticism toward wind turbines. In 2008, a compensation scheme for wind turbine neighbours was introduced, which makes the deployment of onshore wind turbines more difficult and expensive.

Denmark is introducing sustainability criteria for biomass used for the production of biofuels and bioliquids as set out in the Renewable Energy directive.

Energy efficiency The energy efficiency of Danish power plants is relatively high with just over 37% in 2007. Implementation of combined heat and power reached a historically high level in Denmark in the late nineties and since then, approximately 80 percent of district heating and approx. 50-60% of thermal electricity production originates from CHP.

However, the specific situation of Denmark with high and fluctuating imports of electricity from the Nordic neighbouring countries makes it difficult to evaluate the share of CHP in total production. From year to year total CHP production does not vary greatly, while total electricity production can vary significantly due to market conditions on the Nordic electricity market, hence influencing the share of CHP. In addition, the increase in wind power generated electricity leads to a decrease in the share of CHP. In 2008, 55% of thermal electricity production (i.e. the total production, excluding wind energy and hydropower) was generated in combination with heat, but the share is declining. In 1990, the share was 36.8%, while the figure was 17.6% in 1980.

Energy efficiency	CHP is part of the municipal heat planning policy. Municipal governments assess heat demand and supply options and then introduce restrictions on electric heating and power production without heat recovery.
Overarching	<p>Denmark has an advanced and highly decentralized electricity system, where 20% of all electricity generated comes from wind turbines. All renewable electricity has priority access to the grid and utilities are obliged to receive and pay for the electricity.</p> <p>In 2008 the current government abolished the “coal stop”, which was introduced in 1997 to put a cap on the quantity of coal being used and to ensure that new plants did not use coal.</p> <p>In November 2008, the Danish parliament approved an agreement on guidelines for the future expansion of the main electricity transmission grid in Denmark. According to the agreement, new 132-150 kV power lines will be installed as underground cables and the existing 132-150 kV overhead lines will be buried. Furthermore, the political parties formally agreed to promote the intelligent management of the future electricity grid, i.e. extended use of smart meters, smart grids etc. A parliamentary decision not to produce nuclear energy in Denmark was made in 1985.</p>

INDUSTRY



Renewables	There is funding for research, development and demonstration projects covering biomass to bioenergy, conversion technologies and waste to energy.
Energy efficiency	Danish voluntary agreements with the industry on the implementation of energy efficiency projects are supported by a tax penalty. Enterprises with particularly high energy consumption can contract with the Danish Energy Authority on energy-efficiency improvements in return for a discount in CO2 taxes and heating taxes. The agreements are complied with by the industry, but the requirements for payback periods of up to five years are not very severe. Taxes on energy consumption have been increased from the first of January 2010.
Overarching	There are no direct subsidies for energy-intensive industry for conventional fuel supply and consumption (direct and indirect). At present, no initiatives for promoting production of chemicals and materials from renewables exist.

BUILDINGS



Renewables	More than 50% of all buildings are heated by district heating with a high share of it coming from renewables. Renewable heat is exempt from some taxes. Municipalities are obliged to set up heat plans based on feasibility studies (as determined by the Act on Heat Supply).
Energy efficiency	Building codes include standards for retrofit activities. For new buildings, 2006 standards are gradually adjusted to at least 25% additional reduction in energy consumption in 2010 and at least 25% additional reduction by 2015 and again by 2020. This means that from 2020, new buildings must be below the level of passive houses.
Overarching	<p>The law was changed in 2009 to address the landlord-tenant problem but results remain to be seen. Electricity use per capita in homes has been steadily decreasing since 1990, mainly due to substitution of electric heating and more efficient products.</p> <p>Specific energy and CO2 taxes that have some influence on consumer behaviour.</p>

TRANSPORT



Renewables	All biofuels – sustainable or not - have been exempt from the CO ₂ tax imposed on ordinary petrol and diesel for transport since January 2005. A mandatory blend of 5,75% biofuels in road transport fuel will be gradually implemented during 2010-2011. Electric vehicles are exempt from the car registration fee. A test scheme for electric vehicles is being funded in the period from 2008 to 2012 to generate new specific and practical experience with electric cars and their required infrastructure.
Energy efficiency	Denmark has high fees on the purchase of vehicles and car ownership which favour fuel efficient vehicles. Nevertheless, both the number and weight of cars have been rising for years.
Overarching	Danish policy has for decades favoured private car use. This trend has been further enhanced under the current government. From 2002 to 2008, investment in roads increased by 66% from 3 billion to 5 billion per year (culminating in 2006 with 7 billion), while investments in railways remained stable at around 1.5 billion per year.

AGRICULTURE



In 1989, Denmark was the first country in the world to introduce a ban on straw and stubble burning in open fields. Today, Denmark is converting a total of 1.5 million tonnes of straw to energy annually. Denmark has been experimenting with the development of biogas stations, which among other things convert manure into sustainable energy and eco-friendly fertiliser. This trend is now hampered by low sales prices for biogas electricity and other barriers.

The Green Growth Agreement is a government plan establishing a long-term strategy for environmental policy in the agricultural industry. Among the goals is the reduction of GHG emissions from the agricultural sector by 800,000 tonnes annually. Approximately half of these reductions are expected to come from a market-based restructuring of nitrogen regulation. The agreement also includes a green agriculture and food industry strategy, with a goal that 50% of livestock manure be used for green energy in 2020. Measures to facilitate the use of livestock manure include tax equalisation between vegetable biomass and livestock manure, and modification of the Waste Incineration Directive. However, while the agreement is a step in the right direction, it requires that further measures and laws are implemented fast to show any real effects.

Land use planning approach could be improved.

FORESTRY



Unlike its Scandinavian neighbours, Denmark is not a country in which forestry plays an important role within the national economy. Instead of clear-cut systems, forest owners are invited and given small incentives to apply near-to-nature forest management regimes in the future. At the current conversion rate, 50 percent of state forests, which constitute 25% of the Danish forest area, are expected to be converted to “near-to-nature forestry” by around 2050.

Denmark has a relatively ambitious afforestation target, and forests are strongly protected from conversion to other land uses. However, actual afforestation is currently limited due to lack of planning/designation of afforested areas as well as due to public subsidies giving insufficient incentives. Afforested areas are automatically protected as forest reserves. In particular, the Forestry Act protects the existing forest from conversion to other land use. This means that most of the forested land in Denmark will remain as forest.

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B

C

D

ESTONIA

E

F

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ESTONIA

Simplified
methodology

Overall assessment

Estonia is rated E

The country faces several challenges due to post-socialist economic restructuring such as the collapse of former key industries, a sudden rise in living standards for part of the population, a high amount of foreign investment and vulnerability to the economic crisis. Estonia focuses on measures which are necessary to meet EU targets and to profit from Kyoto but does not aim at further reductions. As efficiency standards in the building and energy sector are generally still at a low level, efficiency improvements are economically attractive and in the public and political interest. Estonian political sustainability ambitions are specifically focused on nature protection and the avoidance of pollutants.

Success stories

- The agricultural sector is characterised by a good policy mix including limits for nitrogen load. It is especially remarkable that a land use strategy is implemented and consistent.
- Sustainable forestry is practised and 30% of the forest area is protected.
- The plan to carry out an ecological tax reform by 2012, which explicitly aims at including external costs, is included in the Development Plan of the Estonian Electricity Sector.

Large share of biomass in the building sector

The share of RE in the buildings sector was 53% in 2005, mainly due to use of wood. There is no information on the efficiency of the boilers used, but it can be assumed that most of them are traditional. The share increased by 27% between 1990 and 2005, when electricity (e.g. for water heating) was substituted by (cheaply available) domestic wood. However, the share of RE dropped again after 2000, which suggests that wood was formerly used in simple boilers and with growing income, a switch to oil and gas is made.

Areas that need improvement

- An overall strategy to reduce GHG emissions covering all sectors is needed. Except for the buildings, agricultural and forestry sectors, policies are not sufficient and based on a piecemeal approach.
- Although the agricultural sector has a good policy mix, methane emissions from animals are only tackled by a voluntary measure to implement more efficient cattle breeding.
- The building stock is characterised by poor insulation, high energy consumption and need for renovation.
- The industrial policy follows EU legislation, but does not go beyond. Renewable energies or energy efficiency are not explicitly promoted.
- Transport needs to focus on modal shift and reduction of traffic demand.
- The energy supply sector is not sustainable and needs a systematic change. The use of renewable energies is not sufficiently supported in any sector.

Overview summary

	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> No strategy with long-term binding GHG targets <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Support scheme is implemented, but with low tariffs and no differentiation by technology <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Subsidy scheme for efficient cogeneration is in place <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Potential future incentive through a planned ecological tax reform which includes external costs <i>More than 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> No policies for the promotion of renewable energies <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Some voluntary agreements Environmental Impact Assessment and Environmental Management System Act support energy management systems <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Different regulations implement EU requirements but fail to trigger necessary substantial changes <i>Up to 5% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> No significant incentive High share of biomass (firewood) <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> In line with EU legislation, but requirements for buildings are by far not sufficient <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No clear and agreed-upon policy for saving energy and no effective energy conservation plan <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Tax exemption for biofuels, but with little or no effect <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No significant incentives 2nd lowest efficiency of new cars in the EU-25 in 2008 <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Some very limited promotional activities on a city level Action plan is under development <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Good policy mix Land use strategy is implemented and consistent <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Sufficient strategy on sustainable forestry <i>More than 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>The subsidy scheme consists of a feed-in tariff and a related system with fixed additional premiums on the fluctuating wholesale price which was improved in 2007. The support is not differentiated by technology, paid for a maximum of 12 years, and rather low. However, since 2010, producers can apply for higher tariffs to cover all costs. Barriers exist, mainly in the integration of wind electricity into the electricity system. Biomass exports into countries with higher energy prices limit national options for the use of biomass.</p>
Energy efficiency	<p>A feed-in tariff (€54/MWh) or feed-in premium (€33.3/MWh) is applied if electricity is produced in an efficient cogeneration regime using waste, peat or oil-shale processing retort gas as a source of energy, with a capacity not exceeding 10 MW. There are no other support schemes in place to encourage the use of district heating and cooling using RES in Estonia.</p>

INDUSTRY



Overarching The Ecological tax reform (DPE) tries to gradually take external cost into account until 2012. A pollution charge on fuel combustion has been implemented, but is too low to have large impact due to lack of alternative options.

Renewables There are no policies for the promotion of renewable energies in the industry sector.

Energy efficiency There are no specific policies for an increase of energy efficiency in the industry sector. However, energy efficiency is generally supported via the EU-ETS and the National Programme for Abatement of Greenhouse Gases. There exist several voluntary agreements between the Ministry of Environment and industry sectors in order to increase energy efficiency. Many enterprises have established environmental management systems on the basis of the Environmental Impact Assessment and Environmental Management System Act.

Overarching The share of recycled waste out of total waste is approximately 10% below EU average; but it increased within two years by approx. 12%, reaching 45.7% in 2006. Producer's liability for waste of products is implemented, but apart from this no substantial policies exist to minimise waste and encourage re-use and recycling. There is an environmental charge (not sector specific) which doubled within three years. However, enterprises can be exempt from this tax if they invest in waste and pollutants reduction.

BUILDINGS



Renewables The share of renewables for heating increased substantially between 1990 and 2005 and reached 53% in 2005. This is mainly due to increased domestic wood use for room heating and warm water, replacing electric boilers from the Soviet era when electricity prices rose. Modern heating systems should be considered for new buildings and buildings undergoing major renovation. But there is no legislative or financial measure.

Energy efficiency While energy consumption for space heating and hot water decreased between 1990 and 2005, the average electricity use per capita increased sharply. The building stock is characterised by poor insulation, high energy consumption and a need for renovation. Energy use per capita has increased significantly due to higher standards of living. Standards differentiated for new and existing buildings exist, but the requirements are much too low to allow a development towards the required zero emission buildings.

In the Energy Efficiency of Equipment Act the country has set a target of 75% sold A-label electric appliances in 2013 (from 50% in 2006). This seems ambitious, but there are only some implemented measures to achieve this, the main one being a mandatory labelling of appliances.

Some measures are planned for 2008 - 2013, e.g. 40 additional energy development plans at municipal level, targeted loans for dwelling houses and mapping of the actual situation of the whole housing stock. However, a clear and agreed-upon policy for saving energy is missing and there is no effective energy conservation plan.

Overarching No relevant policies could be found.

TRANSPORT



Renewables	The Ministry of Economy is recently working on an action plan for transport which might improve the situation and help to at least achieve the EU requirements as e.g. the biofuels quota.
Energy efficiency	Estonia has the second lowest efficiency of new cars in the EU-25 in 2008, which is, among others, due to the fact that large cars are an important status symbol among the arising wealthy class. The only implemented measure is an obligatory database on fuel consumption per car model.
Overarching	<p>There is a tax exemption for biofuels until 6/2010 (no information on plans after that), but the share of biofuels in the transport sector was 0% in 2007. There are no measures for electric cars.</p> <p>There are some very limited promotional activities for sustainable transport, mainly on a city level as e.g. Tallinn. The Ministry of Economy is recently working on an Action plan for transport which might improve the situation and help to at least achieve the EU requirements as e.g. biofuels quota, average emissions from new cars. However there is no consistent transport strategy yet.</p>

AGRICULTURE



The agricultural sector is characterised by a sophisticated policy mix. Limits for nitrogen load exist. It is remarkable that a consistent land use strategy is implemented. The total emissions from agriculture declined by 56% from 1990 – 2007, although a large part of this effect was due to post-soviet transformation.

Major improvements are possible to reduce methane emissions from animals and the incentives for sustainable farming could be increased. However, it is positive that a development plan for organic farming and an action plan for organic farming exist. The development plan includes the target of an increase of the land area for organic farming from 72.8 thousand ha in 2006 to 120.0 thousand ha in 2013.

FORESTRY



Around 50% of the land area is covered by forests. Over 30% of the forest area is protected and a monitoring and information system for sustainable forestry has been launched for gathering and analyzing forestry information. It is especially remarkable that a consistent land use strategy is implemented. The principles of sustainable forestry are included in the Forest Act. The Development plan of the Estonian Forestry (until 2010) mandates the re-forestation of 300.000 ha of out-of-use agricultural land. The Rural Development Plan 2007–2013 promotes the establishment of protection forests. The strategy for forest management seems to be sufficient.

A

B

C

D

E

FINLAND

F

G

FINLAND

Simplified
methodology

Overall assessment

Finland is rated F

In spite of a comparatively high share of CHP, district heating, biomass and hydro energy, other renewable options are hardly supported. Finland has some policies to stimulate the use of renewable energy, but all of these are on a voluntary basis. Finland is clearly focusing on nuclear energy by aiming at two additional nuclear reactors besides the one under construction.

Success stories

- Under the 'National Forest Programme', the Finnish forests are monitored and conserved. Since the 1970s, the area of forest is constantly increasing.
- The Finnish industry can be considered as comparatively energy efficient, mostly because of frequent use of CHP. Heat from power plants and industrial process is used both in industry and for district heating.

Developing new materials from biomass

In 2007 Finland established the 'BioRefine Technology Programme' to promote new biomass products. The goals are to develop innovative new products, technologies and services based on biomass refining and bio refineries and to strengthen and expand existing biomass expertise in energy and forest industry to new areas.

Areas that need improvement

- The transport sector is underrepresented in energy and climate policies. There are no instruments to promote electric vehicles or a modal shift.
- There is a clear focus on renewable energy production from biofuels and hydro energy. Other renewable options such as wind and PV are not yet sufficiently supported.
- There is a feed-in-tariff for peat which, in terms of GHG emissions, is equivalent to coal. Subsidies like this need to be abolished.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> An 80% reduction target for 2050 (relative to 1990) is set as part of an international effort <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Support for RES through investment grants and tax subsidies, but not for all technologies and with limited budgets <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> No policies supporting extension of (biomass) CHP yet, but in planning <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Σ Finland favours nuclear energy, one plant is under construction and parliament approved two o. <i>Between 5% to 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> Reuse of process heat for district heating. Making biomass more attractive for electricity production creates new trade-off for industry <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Main policy is based on voluntary agreements <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Energy taxes for industry were reduced in the beginning of 2007 to alleviate the impact of the EU ETS. <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Limited grant scheme to support renewable energy use for heating <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Satisfactory norms for efficiency in buildings because of cold climate <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No additional policies <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> 20% biofuels target proposed, not yet implemented No instruments to promote electric vehicles <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Purchase tax for cars and vans depends on emissions <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No additional incentives <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Finnish nitrogen load is far below EU standards Agricultural emissions have been reduced in the past years <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> National Forest Programme to monitor and preserve the forests <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	Finland uses both investment subsidies and tax measures as support instruments. The investment grants are available for investments and research projects and can cover 40% of the investment, up to € 250,000 per project. To support wind, biomass and biogas, Finland uses a tax subsidy system. The rates increased from € 4.2/MWh to € 6.9/MWh. In its renewable energy plan, Finland aims at setting up a feed-in tariff for electricity production by wind and wood chips, but this has not yet been implemented.
Energy efficiency	Finland makes extensive use of CHP and district heating. There are no subsidies for CHP because it is already being used at large scale. A feed-in tariff for biogas CHP and small scale wood based CHP electricity production is also planned within the renewable energy plan.
Overarching	Finland's former CO ₂ tax used to be higher than the price effect of the EU ETS. When the EU ETS became mandatory, CO ₂ emissions went up due to the diminished cost.

INDUSTRY



Renewables	Industry and electricity/heat production are highly interdependent in Finland. Industrial companies own power companies and process heat coming from industry is used for district heating.
Energy efficiency	Initiatives like auditing are in place to make industry more efficient but these are on a voluntary basis. Finland's industry can be considered comparatively energy efficient, which is partly due to the high CHP share.
Overarching	A technology programme for new biomass products was established in 2007. Its goal is to develop innovative new products, technologies and services based on biomass refining and bio refineries.

BUILDINGS



Renewables	The government intends to reduce the use of oil as fuel for heating in existing buildings. However, few specific policy instruments on the use of renewable energy in the building sector exist. There are energy grants for residential buildings that cover up to 40% of the cost of the implementation of renewable energy sources.
Energy efficiency	Not much initiative regarding efficiency is seen in the building sector, but building norms are already satisfactory because of climate conditions. There are energy grants for residential buildings that cover up to 40% of the cost of external energy audits, external repair work, ventilation and heating system improvements.
Overarching	No overarching instruments could be found.

TRANSPORT



Renewables	First-generation biofuels are currently not considered a major option. Discussions are ongoing on their bad cost-efficiency and poor GHG-emission reduction. Second-generation biofuels and electric vehicles are currently favoured in the discussion, driven by the strong position of the energy industry. No policy decisions have been taken to promote this; so far there are only proposals. Electric cars need investment in infrastructure, and these vehicles must be made affordable. There is a proposal to establish a 20% target for biofuels in 2020 instead of EU's 10% target to promote second-generation biofuel production from forest residues.
Energy efficiency	A purchase tax exists depending on the emissions of the car. This tax, together with the economic recession, has led to an increase in the demand for smaller, more efficient cars. Car density per inhabitant is high, especially in the remote parts of Finland, where public transport is very limited.
Overarching	There are no incentives for modal shift and no major investment in public transport infrastructure. In Finland a lot of people have two cars, especially those who live in remote parts of Finland. Public transport is also limited in these parts of the country.

AGRICULTURE



Over the last years Finnish agriculture emissions decreased. Measurements detected relations to waste, organic waste and landfill gas recovery.

FORESTRY



Finland has adopted a National Forest Programme to monitor and preserve the forests. Although Finnish wood is used intensively, the volume of the forests has been constantly growing for the last 30 years. In the next 10-20 years loggings are expected to increase as the forest stock gets older meaning that the carbon stock (and carbon sink) will also diminish significantly. In international climate negotiations, Finland does not accept responsibilities in compensating the loss of this carbon sink.

A

B

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D

FRANCE

E

F

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FRANCE

Overall assessment

France is rated E

Although most areas are addressed by policies and measures, these are not ambitious enough to transform France into a low-carbon economy. France rates comparatively well in transport, but incentives for the use of renewables and energy efficiency in the industry sector are very limited.

Success stories

- There is a well-functioning support system for RES-E through a feed-in tariff with long support periods (15/20 years) and a cap on only a very limited area of the support. However, tariffs for solar electricity have been reduced since the beginning of 2010 and are to be reduced further by September 2010. The requirements for wind turbine installations have recently been strengthened, adding new legal constraints and administrative procedures.
- France currently has some of the lowest levels of emissions for new cars (131 gCO₂/km) and has introduced a bonus/malus system to further lower these emissions.
- Well-managed forests exist in France, including public and privately owned forests. Extensive information is available for all owners.

Landlord-tenant problem addressed

France was aware of the implications of the landlord-tenant problem with regard to retrofitting of buildings. Quite recently, a solution has been introduced and now the tenant can be involved in the costs of retrofitting.

Electricity based on nuclear

The power sector in France is heavily based on nuclear energy – around 80% of electricity is currently generated by nuclear power stations.

Areas that need improvement

- The overall strategies in the “Plan Climat”, published in 2010, only have a time horizon until 2020, which is a relatively short term. France was the first country to introduce a binding long-term goal of reducing emissions by a factor of four by 2050 through the “Grenelle 1” law in August 2009. Just recently the “Grenelle 2” law was adopted, which presents the first concrete actions to reach the defined targets, but it does not yet present a comprehensive long-term strategy to achieve them.
- Although minor incentives for renewables and efficiency measures in the industry do exist, they should be improved to enlarge their impact.
- While some incentives for a modal shift exist, little incentives to actually avoid traffic are in place.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> • There is a Climate Plan until 2020, but not beyond. Furthermore, France aims at a cut in GHG emissions of 75% until 2050, but this is not binding <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> • Feed-in tariff works well, but recent changes make wind development more difficult and solar less profitable. Renewables are neither given priority in grid access nor in usage and connection times are long <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Support in place for small CHP • Other support for big CHP phased out <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • France traditionally supports nuclear power. CCS in general is supported, but not specified by technology <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> • Very limited incentives for RE in industry <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Incentives for more efficiency in industry quite limited • Voluntary agreements for some members of industrial sectors in place <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Small programmes that aim at emission reductions exist, but they are not sufficient <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> • Use of renewable heating /cooling in buildings is supported through several support schemes <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • Efficiency standards in place: • New buildings may not use more than 50kWh/m² by 2011/ 2012 • New buildings in 2020 will have to be zero-energy. • Incentives for higher retrofit rates • Landlord / tenant problem has been addressed <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Low taxes on energy for households • Ambitious action plan on buildings (plan bâtiment Grenelle) <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> • Good support for biofuels but not sufficient attention to the sustainability of biomass production. No support specifically for the use of renewable electricity for electric mobility <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Currently, France has one of the lowest emissions rates for new cars. • Limit of 95 gCO₂/km by 2020 <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> • According to the new Grenelle 2 law, investments in railways, rivers and ports are given large priority, however, road infrastructure is still heavily financed and the plan of a new Airport in Bordeaux has not been abandoned • Low tax on fuels • No major strategy to avoid traffic <i>Up to 5% weight for the country</i>

AGRICULTURE

FORESTRY

Renewables	Energy efficiency	Overarching
		<ul style="list-style-type: none"> Methane emissions from animals not addressed directly Land use strategy included in urban codes, but not as an overall strategy <i>More than 10% weight for the country</i>
		<ul style="list-style-type: none"> Well managed forests Information strategy on forests and climate change issues <i>Up to 5% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>A feed-in tariff is the main support instrument in place in France for RES-E. The tariff is differentiated according to the technology used. Solar PV, geothermal and offshore wind receive the highest tariffs. The support is granted for 15 to 20 years and is not generally capped. There is a cap for solar electricity regarding the number of hours that can benefit from the tariffs. Biomass installations do also profit from the feed-in tariff since the end of 2009 and are supported through a call for tenders for biomass projects.</p> <p>With regard to access to and use of the grid, renewable energy plant operators are not preferentially considered. Both are handled without discrimination against any technology or operator. Only the existing electricity suppliers are obliged to purchase the renewable electricity and benefit from the national compensation. This creates, de facto, a competitive distortion for the access to renewable electricity production between existing suppliers and newcomers.</p> <p>The French grid is quite well developed and can, at least currently, support renewables without additional investment. Thus there is no strategy aimed at renewable energy oriented grid structures. However, there is funding for studies in the field of smart grids which in the future will be able to support the increased share of renewable energy.</p>
Energy efficiency	<p>CHP support is currently only provided to small scale applications. Support for large CHP was phased out. The current situation will probably not lead to a big increase.</p>
Overarching	<p>In France, CCS is supported without any restrictions on technology. Thus, it could be used for coal, gas or biomass. Currently, R&D in this field is financially supported with the aim for demonstration-scale projects after 2010.</p> <p>Traditionally, France has been a nuclear power country and there is no strong political ambition to change that. A new reactor is currently built in Flamanville and a second 'third generation' EPR was recently announced by President Sarkozy.</p>

INDUSTRY

Renewables	There are tenders for the use of renewables, especially biomass, in industry, the tertiary sector and agriculture. The demonstration fund, equipped with € 400 mio for the period 2009-2012, supports R&D and demonstration projects in the fields of renewables, energy efficiency, CCS, smart grids etc. Currently, eight projects with renewables were started in the industrial sector. The share of renewables used for heating/fuel purposes in industry has significantly increased from 2000-2007.
Energy efficiency	Efficiency in the industrial sector is almost neglected. A voluntary agreement with some members of the sector was signed but no penalties were introduced for non-compliance. Apart from the aim to increase efficiency, no clear target has been set to be reached by this agreement. Recently, a new law was introduced under which funding for various fields of low-carbon development can be provided, including industry. Its first call will be in the summer of 2010, so some budget for breakthrough technologies will be available.
Overarching	The chemical industry signed a voluntary agreement to use primary material from renewable origin and aim at a share of 15% in 2017, compared to 7% today. The tax level applicable in the industry sector is rather low.

BUILDINGS

Renewables	Renewables in the building sector are supported through tax deductions, zero interest loans and lower VAT for material and installation costs. Schools and other public buildings can also benefit from a regional feed-in premium for public services. A tax credit has been rather successful. The overall share of renewable energy in thermal applications has started to increase since 2007.
Energy efficiency	New buildings in the tertiary sector and new public buildings may not use more than 50 kWh/m ² a after mid-2011. For private new homes, this limit will become effective by the end of 2012. From 2020 onwards, new buildings may not use more primary energy than they generate themselves from renewable energies, i.e. only zero energy new buildings will be allowed after 2020. With regard to retrofitting of buildings, the state wants to set a good example and renovate public buildings and social housing and has allocated a budget with specific targets and a timeframe for this. For private households, financial incentives like zero interest loans and tax refunds have been set. This will, however, not lead to a sufficiently high retrofit rate. The white certificate scheme is an interesting measure, which has already led to good results, even though the target has not been very stringent. A new target, which is yet to be set, should be much more stringent. France is a front runner regarding the landlord-tenant problem; certain conditions apply regarding the kind and amount of retrofitting measures and resulting energy consumption, but considering these, the costs can be put (partly) onto the tenant.
Overarching	The tax level in the building sector is rather low.

TRANSPORT



Renewables France fixed the target for biofuels to 7% in 2012 and 10% in 2015. There are no sustainability criteria for the production or import of biofuels at the national level. For electric vehicles, however, renewables are not explicitly aimed as a source for electricity. It is assumed that electricity will come from conventional fuels. The “Nuclear Energy Commissariat” participates in R&D and development for batteries for electric vehicles with the aim to produce non-carbon electricity.

Support for electric vehicles is granted through support for R&D for batteries, support for electric vehicle purchase, infrastructure on the one hand and the obligation for new (later also existing) buildings to offer charging stations. Still, the aim to have 2 million vehicles and 4 million charging stations by 2020 seems rather ambitious.

Energy efficiency New cars have to comply with an emission level of 95 g CO₂/km by 2020. Currently, new cars in France emit, on average, 131 g CO₂/km, which is the second lowest value in Europe. A bonus/malus system is in place to further decrease these emissions: a bonus of €100 to €1000 is paid for cars emitting less than 120 g CO₂/km; buyers of new cars emitting more than 150 g CO₂/km have to pay a malus of 200 up to € 2600.

Freight transport is addressed under a voluntary agreement (not signed by all actors) to reduce emissions by 20% by 2020. Participants of this agreement are evaluated annually, but there is no penalty for non-fulfilment of the target.

Overarching The main area of support for a modal shift is the combined transport of goods which is part of the transport strategy of France. Investment grants for the combined rail/road transport are given. Regarding infrastructure, investment in railways, river transport and ports is given priority and € 97 bio are allocated for non-road transport until 2020.

AGRICULTURE



The agricultural sector is not subject to very ambitious policies. France has not implemented the EU Nitrates Directive sufficiently, but some departments have action plans to reduce nitrogen loads. No overall land use strategy exists, but in the urban codes, land use and its interrelations are included. Land use registers including those for protected areas exist and they are updated every ten years.

FORESTRY



The current French National Forest programme runs only until 2015 and cannot be considered long-term. However, it does cover all types of forests and includes questions on adaptation. There is a wide range of information for private and state-owned forests. Climate change is addressed along with sustainable forest management. Information can be obtained via the internet or through print and regular information events are organized by ONF for state forests and private forest owners.

A good forest inventory exists with various data that can be obtained via a website.

A

B

C

GERMANY

D

E

F

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GERMANY

Overall assessment

Germany is rated D

Despite its relatively good position in comparison to other countries, Germany still has to double its efforts to get on track towards a low-carbon economy. Germany is at the forefront in the promotion of renewable energy in the electricity sector. It has implemented a package of diverse measures to promote efficiency and renewables in buildings, which is however still insufficient to promote the necessary building renovation rates. The target of reducing emissions by 40% by 2020 is not binding and there is no comprehensive climate and energy strategy beyond 2020. More ambitious policies are especially needed in promoting efficiency in industry and transport. In addition, several incentives still exist that increase greenhouse gas emissions, like tax rebates for energy intensive industries and for company cars and travel to work.

Success stories

- The promotion of renewable energy in the electricity sector via an adequate, long-term and predictable feed-in tariff promotes the construction of many renewable energy production sites. The differentiated feed-in tariff leads to one of the most diversified ranges of renewable energy technologies used within the European Union.
- Germany has implemented a policy package in the building sector with a broad spectrum of instruments. There are moderately ambitious performance standards for new buildings, combined with differentiated support systems for exceeding these standards and for stimulating energy efficient renovation. A law on renewable heat use complements the package. Still, the effect is not sufficient to reach necessary renovation rates, due to insufficient overall size (which has just recently been reduced even further) and the administrative barriers that remain.

A new approach: The 'Material Efficiency Agency'

The agency is funded by the Federal Ministry of Economics and Technology. Its purpose is to support businesses in becoming more material-efficient. This includes direct consultancy but also support in creating networks in order to improve their efficiency.

Areas that need improvement

- The transmission system for electricity needs to be upgraded to be able to deal with the increasing amounts of renewable production capacity. With current legislation the most recently added power plant is taken off the grid in case of congestion, resulting in the negative side effect that the most efficient plant is taken off the grid.
- Energy efficiency support schemes in the industry sector are not ambitious enough in size and scale to significantly transform business decisions.

- Incentives to increase energy efficiency in passenger cars are insufficient to reach Germany’s own target, which is more ambitious than the EU target but still not ambitious enough for a low-carbon economy. An example for a further incentive is France with a bonus/malus system for the purchase of new cars.
- Incentives that promote the use of high carbon transport modes still exist, e.g. tax exemptions for air travel, tax reductions for company cars and a commuter tax relief. The commuter tax relief could be organised as in the Netherlands, where it applies only to public transportation or as in Sweden where it applies only to public transportation or to cars if the journey by car is two hours shorter than when using public transport.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> • Political aims, but no binding GHG emission reduction target or strategy beyond 2020 <i>Between 5% to 10% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> • Feed-in tariff that ensures long-term investment security • Ambitious target for share of renewable energy in total energy production (30%) in 2020 • Transmission system needs to be upgraded to allow for more renewables <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> • Financial support to promote CHP/ mini-CHP stations • Aim: 25% share of CHP on total electricity production by 2020 <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • No emission performance standard for new fossil fuel power plants • Still significant subsidies for coal, but to phase out in 2018 • The agreed phase-out of nuclear power is currently renegotiated, extensions between 8 and 14 years considered <i>Between 5% to 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> • Pilot projects for renewable energy use in industry exist • Consultancy and project funding to increase renewable energy use • No policy requiring a certain amount of renewable energy use <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Several small initiatives, but in total insufficient <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • No decrease in and no phase-out plan for subsidies/ tax exemptions for energy intensive industry • A variety of good measures to reduce waste quantity exist • No incentives for CCS for process emissions <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> • Obligatory shares for renewable energy used for heating in new buildings • No national but some federal standards for existing buildings • Landlord-tenant problem partly addressed, but rather inflexible <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • Moderately ambitious energy efficiency standards for new buildings • Although broad spectrum of funding schemes for retrofit measures available, it is still insufficient for reaching necessary renovation rates • Funding schemes recently further reduced <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Energy tax is very low in comparison to the total energy price <i>Up to 5% weight for the country</i>



TRANSPORT

	Renewables	Energy efficiency	Overarching
	<ul style="list-style-type: none"> • High bio fuel share achieved • Ambitious sustainable biomass import strategy beyond EU Directive <p><i>Up to 5% weight for the country</i></p>	<ul style="list-style-type: none"> • Aim of 130g CO₂/km (new passenger cars) in 2012 but not supported with policies <p><i>Between 5% to 10% weight for the country</i></p>	<ul style="list-style-type: none"> • Per capita emissions in transport decreased since 2000, but impact of policy unclear • Some but insufficient investment in promotion of low-carbon traffic modes and modal shift • Tax exemptions/reductions for carbon intensive traffic modes such as exemption for company cars <p><i>Up to 5% weight for the country</i></p>
AGRICULTURE			<ul style="list-style-type: none"> • Target to set limit at 80 kgN/Ha/a but not sufficiently well implemented • Some funding for promotion of sustainable farming <p><i>Between 5% to 10% weight for the country</i></p>
FORESTRY			<ul style="list-style-type: none"> • Funding for afforestation requires planting of a certain share of native species. Permit needed for deforestation • Nationwide regular forest inventory for all species <p><i>Up to 5% weight for the country</i></p>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>Germany has a differentiated support system for various renewable energy technologies, leading to several types being used. The adequate feed-in tariff combined with the price guarantee for a period of 20 years led to a strong increase in the production of renewable energy. Even though the government has just introduced cuts to the tariff for PV, the overall level of support is still sufficiently high to trigger further investment.</p> <p>Improvements are needed in the field of congestion management and improvement of the transmission system. Currently grid operators do not need to accept any more renewable energy under specific conditions in case of congestion. This might lead to the fact that the latest and thus most efficient wind plants might be turned off.</p> <p>Act on grid expansion (EnLag) came into force recently. There is investment into grid extension, but the law is not effective enough to incentivise the necessary grid expansion.</p>
Energy efficiency	<p>The Act on the modernisation of CHP aims to promote CHP by paying a premium and granting preferential grid access. There is special support for mini CHP plants to be used in households. However, the total for all premiums is limited to € 750 mio euro per calendar year.</p> <p>Germany has set itself the goal to increase the share of CHP to 25% by 2020; but currently this goal still seems far away, with a share of 12% in 2007 and growth rates of around 0.5% per year.</p>

Overarching Subsidies on hard coal are still substantial, but have decreased and are to be phased out by 2018. Lignite mining receives exemptions for payments for water and mineral resources extraction. All energy production plants are exempted from mineral oil tax.

Funding is provided for research and pilot projects on CCS. Yet, there is no emission performance standard for new fossil fuel power plants.

Germany's decision to phase out of nuclear power production via the amendment to the nuclear law in 2002 is being revised. Current proposal from the government is to extend the lifetime of nuclear plants by between 8 and 14 years. This proposed decision negatively impacts the transition to a climate compliant energy system based on renewable energies.

INDUSTRY



Renewables There are only limited activities to promote renewable energies in the industry sector. The German Bank for Reconstruction (KfW) offers some consultancy, financial support and funding in R&D.

Energy efficiency Several small support measures exist, but in total the effect is insufficient in size and scale compared to the overall size of German industry to significantly change business decisions. The small measures include support via consultancy, specific loans for energy efficiency measures, awards and funds for demonstration projects for new technologies in the solar-thermal sector.

Overarching Energy intensive industry is exempt from paying its share of increased electricity price due to the feed-in-tariff. This was introduced/broadened in 2006 and no plans exist for a phase-out. Since more businesses than before are now covered, there was an increase of the total exemption from € 650 mio to € 1.1 bio Euros in 2010. In order to receive this exemption, businesses are obliged to prove that they monitor and analyse their energy efficiency potentials.

There are programmes and an agency in place to promote material efficiency improvements. Companies who want to reduce their production waste and emissions receive funding. Several laws aim at improving the efficiency of specific products.

No incentives are being provided for carbon-capture technologies in process emissions.

BUILDINGS



Renewables The law on renewable heat-use in buildings aims at an average of 14% share of renewable energy on heating. New buildings must have a share of renewable energy of 15-50%, depending on the type of building and the type of renewable energy source used. Standards for existing buildings can be set by the states, but few have made use of this option. The government provides support of up to € 115 mio euro/yr for renewable energy use for heating from 2009-2012. In 2010 the Renewable Energy Incentive Programme for Residential and Small Business Customers has been stopped by the federal government in May. New applications can be handed in since mid of July.

The landlord-tenant problem has been partly addressed in the way that owners can increase the rent by up to 11% of the investment cost of renewable energy installations annually. The system is very inflexible and does not reflect the size of investment and its energy savings effect.

Energy efficiency	<p>Existing regulation of energy efficiency in new buildings is moderately ambitious. With potential amendments, which are currently being discussed, a near passive house standard could be in reach until 2015.</p> <p>There are several financial support mechanisms to promote both retrofitting measures and efforts to substantially surpass standards for new buildings. Still, the effect is not sufficient to reach necessary renovation rates, due to an insufficient scale and remaining administrative barriers. Additionally, the support programme for energy efficient buildings by the KfW has been cut by 50% for 2011. The main fund available for these measures has just recently been reduced further to around € 265 mio/yr. Enforcement mechanisms for new buildings regarding standards and the obligation to use renewable heat are rather strict, with needed improvement in on-site inspection and enforcement of modernisation measures.</p> <p>The Law on Energy Using Products promotes and regulates energy efficiency of appliances, implementing the EU Directive. Initiatives to provide information on energy efficient products exist, but are not yet sufficient to trigger the needed change.</p>
Overarching	<p>Energy tax, EEG apportionment and CHP apportionment constitute together a share of approximately 21% of the total electricity price.</p>

TRANSPORT



Renewables	<p>The regulation on biofuels “Biomassekraftstoff-Nachhaltigkeitsverordnung” partly goes beyond EU requirements. Biofuels are applicable for tax reductions, but only those biofuels which have 35% less emissions (up to 60% after 2017) than conventional fuels. Biofuels must constitute an increasing share of fuel for transport.</p> <p>Electric vehicles are promoted mainly via model regions and investment in R&D. However, while political statements stress that electricity shall come from renewable sources, this has not been put into policy yet. Additionally investment in infrastructure for electric vehicles needs more attention.</p>
Energy efficiency	<p>Germany has formulated a voluntary target of 130g/km by 2012 as average for new passenger vehicles constituting a more ambitious target than the current EU regulation requires. However, the implementation of incentives through tax reductions for electric cars and natural gas cars is barely sufficient to reach even the EU target.</p> <p>Average emissions from trucks have decreased by 32% between 1995 and 2007.</p>

Overarching There are several support programmes promoting low CO₂ transport modes, but the total effect is low. For personal transport they focus on the promotion of 15 regional networks, while they include investment into handling plants and train track extensions for freight. The “Masterplan on Freight Traffic and Logistics” also includes the plan to internalise external costs e.g. for climate. Several plans related to transport exist from different ministries, but there is a lack of an overall integrated planning approach.

Taxes on cars are relative to the energy they consume. There is an energy tax which includes a share of the Eco tax although the share is not very high. Many policies exist to reduce the attractiveness of private vehicles, but not enough to make rail traffic more attractive.

Several subsidies for higher emission and fuel intensity transportation modes exist, like tax exemptions for air travel, tax reductions for company cars and travel to work.

AGRICULTURE



There is no national strategy on land use - this remains in the jurisdiction of the federal states. There is also no clear policy on the reduction of emissions from animals, although some research is funded in this area.

On average Germany's farmer produce a surplus of 103kg N/ha/yr. Yet the policy has not been sufficiently well implemented and it is unclear whether the national goal of 80 kg N/ha/yr until 2011 can be met.

There are several forms of information on ecological land use, like the law on ecolabelling (Ökokennzeichnungsgesetz). Additionally, subsidies of 210 euro/ha for land converted to ecological use and 270 euro/ha for ecological land maintained are being paid.

FORESTRY



The jurisdiction on forest policy lies with the federal states and not with the national government. Forest owners are obliged to manage their forest sustainably. A target was set to convert 5% of the wooded area into natural forest by 2020. The aim stated in the strategy is to certify 80% of the woodland to high ecological standards by 2010 and 10% of privately held forest shall be converted into protection areas. There are different programmes where forest issues are elaborated with different stakeholders. Stakeholders are informed via different channels on climate change, its impact on forest and the potential for mitigation from forests.

Afforestation is financially supported as long as it fulfils certain criteria. For deforestation, a permit is needed. Reports on the conditions of the forest are published annually and every ten years a comprehensive forest inventory is created.

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D

E

GREECE

F

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GREECE

Overall assessment

Greece is rated F

Although it has an official climate strategy, this is only defined until 2010 and there is no binding target for GHG emission reductions. Currently a new strategy is being developed, but it looks like it will not be comprehensive and will only focus on implementing the EU renewables strategy. In terms of implemented policies, all sectors are lacking sufficiently ambitious measures, while the most important and emission intensive sectors industry, transport and buildings are rated very low.

Success stories

- Greece has a well functioning support system for household PV (feed-in tariff at the highest possible level and removal of old administrative barriers). Moreover, a new law requires the installation of PV systems in combination with solar thermal systems in every new or completely renovated building.

Support framework for RES-E

In Greece, a feed-in tariff that is differentiated according to technologies has been in place since 2006. The support is in the upper half of the costs range and thus should lead to increasing shares of RES-E. However, improvements in administration could lead to significant increases in the effectiveness of the system. Currently there are large administrative barriers, especially for wind development e.g. lack of an integrated and binding national land use plan and land registries, information and stakeholder involvement.

Areas that need improvement

- Energy intensive industries face very favourable conditions regarding their use of electricity. They can buy at very low rates defined by long-term contracts, which strongly discourages energy efficiency.
- Lignite is the main energy source in the Greek system - and is provided for free to the Public Power Corporation. The importance of coal is also reflected in the fact that two new lignite power plants are planned in Greece. Even though the government has just published a study with prices for different types of electricity production capacities, which showed that lignite is not even the most economic solution. Still, plans go ahead, due to energy security and independence concerns.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> No consistent climate strategy beyond 2020 exists <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Good framework, with good and differentiated support Problems in the administrative environment Changes of legislation are creating uncertainties <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Same CHP prices as for renewable electricity. A planned new framework expects to introduce a correlation of premiums to the gas price Expected increase in CHP due to expected increase of gas in the energy mix <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Significant subsidies for fossil fuels (lignite deposits are provided for free) and no CO₂ tax <i>Between 5% to 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> No special political measures in place <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> The use of cheap electricity for energy intensive industries reduces the energy efficiency margins <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Subsidies to energy intensive industries exist and there is no specific plan for change <i>Between 5% to 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Support scheme through tax credits for renewable heat applications. Scheme was phased out in 2003 and reintroduced later but reduced substantially <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Energy certification for the building stock implemented with delay Certification of inspectors problematic <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Low tax level on energy used in buildings <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> There are no efforts to move beyond EC regulation Support is only given to biodiesel, but not for bioethanol. The total percentage is set at 7% but problems with application exist <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Some tax incentives, but in total no sufficient incentives for increased efficiency <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Extension of metro in Athens, new metro in Thessaloniki and some plans for electric trains No CO₂ tax, rather, tax is based on the volume of the vehicle <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Legislation that protects the change of land use, but problems with implementation and control No incentives for reduction of methane and only some support programmes for organic and sustainable farming <i>Between 5% to 10% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Legally binding and clear prohibition of land use change for forests, but problems with implementation and control Lack of forest inventory and mapping Inventory is only partly available for protected areas and insufficient in resolution. <i>Up to 5% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>The primary support instrument for RES-E is a feed-in tariff that was introduced in 2006. It covers all renewable technologies and the tariff depends on the technology used. Still, the administrative and technical environment is not very favourable as there are significant project delays – these are mainly due to appeals in higher court against the projects, the problem of long-standing production licenses which did not result in actual construction of power plants (transaction of licenses among the investors) and the lack of access to a proper electricity grid. Major barriers, especially for wind development, include the lack of integrated and binding national land use planning, access to information and stakeholder involvement.</p> <p>However, in the connection to and use of the grid, renewable energy projects are preferred to conventionally fuelled projects.</p>
Energy efficiency	<p>CHP is also supported through the feed-in tariff for renewables and more specified tariffs for different CHP technologies which have been proposed but not yet implemented. The national target of increasing CHP electricity by 12% will probably be missed.</p>
Overarching	<p>In Greece, heavy subsidies for the Public Power Corporation are in place. The lignite deposits are provided for free, based on regulation that is in place since PPC’s creation. Currently, there are no plans to phase this out and fear has increased that this status will be extended to cover private investors’ access to lignite deposits.</p> <p>CCS technology is not supported in Greece, neither for coal or gas, nor for biomass.</p>

INDUSTRY



Renewables	<p>Although there are no targeted policies in this area and only few pilot or demonstration projects for renewables used in the industry sector, the use of renewables for heat or fuel use has increased in the past by 1.4% from 2000 to 2007. Most likely, this is due to autonomous developments within the sectors.</p>
Energy efficiency	<p>The energy efficiency of the industrial sector is not addressed by special incentives. No additional support schemes for emissions trading are in place and there is no support for breakthrough technologies. Without targeting this sector in the future, it will not be possible to achieve a low-carbon economy.</p>
Overarching	<p>The energy intensive industries, mainly steel and aluminium, profit from very low tariffs for their electricity use. This does not support the development of renewable energies or energy efficiency measures. Furthermore, the energy tax for conventional fuels used in the industry is rather low.</p> <p>There is some minor support in place for the development of innovative product design, but this support is not very ambitious.</p>

BUILDINGS



Renewables	Renewable heating in Greece in buildings has been supported through investment grants, subsidies and tax deductions since 1995. As there were budget restrictions, lower support was introduced in 2006 and is still in place.
Energy efficiency	<p>In current regulation, no trajectory to zero energy buildings can be seen. However, a new framework is expected to be enacted this year, which will include a trajectory to zero energy buildings for new buildings until 2019.</p> <p>The requirements of the Ecodesign Directive have been introduced in Greece legislation. There is labelling for white appliances and in 2009 a successful programme on energy efficient air conditioners was introduced.</p> <p>EU regulation on building certificates has been implemented, but with considerable delay of 4 years. The enforcement of this legislation is not very strong and problems regarding the certification of “energy inspectors” exist.</p>
Overarching	The tax level on energy used in buildings is quite low. Natural gas, for example, has no energy tax if used for heating buildings.

TRANSPORT



Renewables	A share of up to 5% biofuels has to be blended in by refineries. Additionally, a quota for biofuels is set annually, which is exempt from fossil fuels tax. Subsidies of between 40% and 55% for biofuels, but not for bioethanol, exist. This support has led to a small increase in the use of biofuels by 0.9% between 2005 and 2007. The current quota is set to 7%, but current measures and trends make it unlikely that this will be reached. Electric mobility does not play a role in the future strategy of the transport sector in Greece.
Energy efficiency	No incentives to reduce new vehicle emissions below the EU legislation are in place. For freight transport, there are no incentives for lower emission trucks. This problem is aggravated by the fact that the Greek vehicle fleet is quite old, 18 years on average.
Overarching	Only minor investments are planned for low-carbon modes of transport. Action is mainly taken at the city/community level and no overall strategy exists. Modal shift strategies also do not really play a role in the Greek transport sector. Cars are taxed based on the volume of their engine and not on CO2 emissions.

AGRICULTURE



	<p>In the agricultural sector, limits for nitrogen loads do exist but mainly are enforced where EU subsidies are paid. While there are no measures on reducing methane emissions and there is only limited support for sustainable farming practices, total emissions from agriculture have decreased significantly, by more than 10% from 2000 to 2008.</p> <p>Since 1999, land-use in Greece is surveyed through the CORINE programme, which provides an update every 10 years. The resolution however is not high enough and there is no additional registry or respective legislation. Protected areas are mapped.</p>
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FORESTRY



	<p>No forest inventory exists for the whole of Greece, which constitutes a major factor of uncertainty for investors.</p> <p>Forest areas are sufficiently protected by the National Constitution and by the forest legislation against land use change. Although the legislation is clear and very strict, there are significant problems with efficient application, primarily due to the lack of forest mapping.</p>
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HUNGARY

E

F

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HUNGARY

Simplified
methodology

Overall assessment

Hungary is rated E

Hungary is rated insufficient overall. It presents a very mixed picture, with some good efforts in agriculture, forestry and partly in promoting renewable electricity production. In general, however, there is a lack of ambition in most sectors. There are hardly any efforts on the way to tackle emissions from the transport sector, while European regulation is implemented rather weakly in the building sector.

Success stories

- Hungary has clear and strict laws to protect land, forests and soil. The use of land cannot be changed without prior consent of the respective authority. For forests, the aim is to increase the territory of forests as an ecosystem and maintain or improve its diversity.

Feed-in tariff - creating instead of solving problems

Hungary follows the approach to provide additional incentives for renewable electricity production according to calculated payback times. This is economically a sensible approach, as it takes into consideration the differences in technologies. However, there can be significant problems with the calculation, leading to investment insecurity. A commonly agreed calculation method, for example on EU level, could contribute to solving this issue.

Most of the renewables part of the feed-in tariff actually goes to lignite and brown coal plants using 10-20% biomass together with coal. This not only provides large profits to the power companies running the coal plants, it also makes them more profitable, preventing their shut-down.

Areas that need improvement

- Support of gas fuelled CHP via feed-in-tariffs is taking up to 75% of available funds, leaving only 25% for renewables. This not only diverts funds from needed investments, it also cross-subsidises district heating by reducing the cost for heat. This reduces the incentive for the renovation of housing.
- There is a need for a new balance in the use of biomass. Due to the subsidies in RES, biomass is becoming attractive for electricity production. Because of the higher demand, prices for biomass increase, which has a negative effect on other sectors that use biomass (e.g. furniture markets or construction works). With current pricing, high quality timber is also being used to fuel biomass plants, instead of residues from wood chipping.
- Current network capacity prohibits the connection of more weather-dependent RES like wind energy (max 330 MW). Therefore, weather dependent RES-E installations can be licensed only if balanced by a non-weather dependent power plant. This implies that RES-E wind development demands a comparatively high investment.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> Goals for all sectors are set for 2012 and 2025. The overall target for 2020 is closely linked to the EU position. No long-term targets <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Stimulation of RES by feed-in-tariff and EU structural funds with substantial limitations. <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Focus on CHP stimulated by feed-in-tariff, 3/4 of feed-in funding goes to CHP <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Government stimulates the development of the bioenergy segment <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> No specific policies to stimulate RES in industrial processes <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No policies in place to target energy efficiency in industry <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Only small incentives through consumer taxes and public procurement guidelines <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> No obligation for RES in buildings <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Energy efficiency must be 'taken into consideration' Some subsidies for efficiency in buildings available Application for grants is too bureaucratic and long <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Energy labelling of buildings according to EU regulation, but weak enforcement and no sanctions <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Stimulation of biofuels through reduced excise tax <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No policies on improving energy efficiency in transportation. <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Toll payment for trucks was introduced in 2008 Transportation by train is not being promoted <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Moderately ambitious nitrogen limit Good legislation on the protection of land-use Forestry <i>Between 5% to 10% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Targets set until 2020, no long-term targets Good policies on forest management, but problems with illegal logging <i>Up to 5% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>The main support instrument at national level has been a feed-in tariff, with additional instruments in the form of EU structural funds. However, support for RES-E is limited. There are large uncertainties regarding the duration of the feed-in payment. Most of the funding is used for CHP, which receives around 3/4 of feed-in funding. In 2009, only 4% of electricity consumed was generated using renewable energy sources. From the funding going into renewables, most is provided to coal plants using 10-20% biomass for co-firing. This not only provides large profits to the power companies running the coal plants, it also makes them more profitable, preventing their shut-down.</p> <p>The Hungarian government stimulates the agricultural sector to intensively participate in the development of the bioenergy segment. There is support for three categories of bioenergy, among which is solid biomass for electricity production.</p>
Energy efficiency	<p>CHP is supported through the feed-in system and receives the largest share of funding. Most of the CHP support goes to large, inefficient and already existing gas CHP. The system is not designed to promote investment in new, efficient CHP installations.</p>
Overarching	<p>No other specific policies could be found that target emissions in the electricity supply sector.</p>

INDUSTRY



Renewables	<p>Between 2000 and 2007 the share of renewable heat/fuel use in industry increased by around 3%. This trend is largely responsible for the fairly decent rating of this sector, but it is not due to outstanding policies. There are no specific policies for use of renewable fuel in industrial processes.</p>
Energy efficiency	<p>The energy-intensity index in industry improved by almost 25% between 2000 and 2006. There are no outstanding policies in this area, so the fairly decent rating can mainly be attributed to the past trend.</p>
Overarching	<p>According to the public procurement law, public tenders 'are allowed to include environmental or sustainability aspects' in the tender documentation. No significant efforts to reform the industrial sector could be found.</p>

BUILDINGS



Renewables	<p>The installation of RES production units is not obligatory but 'should be considered' in the building design.</p>
Energy efficiency	<p>Energy efficiency 'must be taken into consideration' when designing new buildings. However, this weak implementation of EU requirements is not likely to lead towards zero carbon buildings in the near future.</p>
Overarching	<p>Energy labelling is only obligatory for new buildings and governmental buildings above 1000 m², which complies with EU regulation. Gradually it will be extended to other buildings. However, there are no sanctions in case the energy audit is not done.</p> <p>Approximately € 60 mio are available for grants for house insulation and renewables. This is too limited to meet the needs.</p>

TRANSPORT



Renewables	Hungary is by far the laggard on transport policy. The only incentives to promote climate-friendly developments are a reduced excise duty for biofuels and tolls for trucks. These were introduced in 2008 as part of an environmental policy.
Energy efficiency	Measures targeting vehicle efficiency are not supported.
Overarching	There are no policies to support modal shift. On the contrary, train lines are closed and highway construction is intensified.

AGRICULTURE



A decree of the Ministry of Agriculture states that nitrogen load per hectare of land cannot exceed 170 kg/ha.

Within a subsidy programme, it is possible to apply for grants for, among others, biomass, biogas and biomethane utilisation. Available funds are up to € 37 mio for 2009-2010.

There is some protection on the quantity and quality of land and soil. Clear and strict rules exist on changing the purpose of land. Agricultural land has to be maintained and used. The use of land cannot be changed without prior consent of the respective authority.

FORESTRY



The Law on Forest and Forestry aims at maintaining and increasing the area of forests as an ecosystem. The diversity of the forests has to be kept or improved.

There has been a large-scale introduction of biomass in power generation. However, this induced illegal forest cutting, raising questions about the sustainability of large-scale investments.

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B

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IRELAND

D

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IRELAND

Simplified
methodology

Overall assessment

Ireland is rated D

This is mainly due to advanced agriculture and forestry policies, with agriculture being an important sector compared to other countries. A lot of work remains to transform the country into a low-carbon economy by 2050, especially in the industry and buildings sectors. However, Ireland has formulated a National Climate Strategy aiming at a reduction of 80% by 2050 and is currently preparing new climate change legislation to address both mitigation and adaptation issues in policy formulation across all sectors and government departments.

Success stories

- The National Climate Strategy covers all sectors and aims for 80% reduction by 2050. New climate change legislation is being prepared that can potentially enhance the degree by which climate change adaptation and mitigation is considered in policy formulation across all government departments and agencies. A framework document for this legislation was published in late 2009.
- Ireland's energy sector has managed to significantly increase the country's power generation conversion efficiency, while decreasing the carbon intensity of electricity generated from fossil fuels. This has resulted in nearly a third less CO₂ emissions per kWh of electricity produced in 2007 compared to 1990.
- Agriculture and forestry related issues are well covered. Agriculture in particular is of major economic importance to Ireland. Even though there is no overall land use strategy, there are many programmes in both sectors to increase the levels of sustainable farming and sustainable forestry. These programmes (e.g. the Rural Environmental Protection Scheme and the BioEnergy Scheme) have led to a total decrease in agricultural greenhouse gas emissions of 10.5% between 2000 and 2008.

Great potential in a small country

Ireland has great potential to tap into its renewable energy sources and is starting to do so.

The country pays a lot of attention to its forests, with many programmes to enhance its woodlands and increase afforestation.

Differentiated vehicle tax

In 2008 Ireland introduced a Vehicle Registration Tax rate for new cars that is based on the CO₂ emissions of the vehicle.

Areas that need improvement

- There are some first initiatives to support renewable heat use in industry and energy efficiency via an Energy Agreement Programme and Accelerated Capital Allowances. However, these are only first small steps. With no sufficiently effective policies in place to increase efficiency and decrease energy intensity in the sector, special efforts need to focus on material efficiency and reduction of waste through reuse and recycling.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> National Climate Strategy covers all sectors and aims for an 80% reduction by 2050 <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Ireland introduced a renewable energy feed-in tariff (REFIT) in 2006 Target of 41% renewable gross electricity consumption by 2020 <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Significant increase in power generation conversion efficiency Moderate support for CHP <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> ETS cap phase II had no cut in covered emissions Carbon tax of € 15/tonne <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> Only a very generic policy in place to increase renewable heat <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No stringent support schemes to increase energy efficiency Actual increase in energy intensity <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Huge increase in total waste from industry to landfill and hence emissions <i>Between 5% to 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Actual decrease in use of renewable heat Greener Homes Scheme to stimulate uptake of renewable heat is not very ambitious <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Massive increase in per capita energy consumption Proposals for 2010 Building Regulations to demand 60% energy reductions (compared to 2005) <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No additional incentives towards zero-energy buildings or removal of barriers Medium-ambitious target for energy savings in public sector <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Tax relief scheme for biofuels Compliance with EU biofuels obligation <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Vehicle Registration Tax differentiation according to GHG emissions <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Extensions of registration tax exemption for electric vehicles Focus on public transport <i>More than 10% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Comprehensive Rural Environmental Protection Scheme to stimulate sustainable farming Research to reduce methane emissions combined with advisory programme for farmers Bioenergy Scheme to grow willow and miscanthus <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Various programmes to encourage planting forests and increase the nature-value of woodland, as well as protecting native woodland <i>Up to 5% weight for the country</i>

ELECTRICITY SUPPLY



Sectors in detail

Renewables	Ireland is a very windy country, yet its share of renewable energy has only increased by 7% over the last 20 years. In 2006 a feed-in tariff was implemented, with the aim of 41% of renewables in gross electricity consumption by 2020. The scheme covers large and small-scale wind energy, hydro, biomass landfill gas, and other biomass. In 2009, this was extended to cover biomass/anaerobic digestion CHP, ocean energy (wave and tidal) and offshore wind. The country has started to investigate how to integrate larger amounts of wind electricity into its island grid.
Energy efficiency	Through the CHP Deployment Programme and the feed-in tariff, which apply to different forms of CHP production, the country has stimulated energy generation from (small- and large-scale) combined heat and power, with a target of 800MW installed capacity by 2020 – around 10% of electricity generation.
Overarching	Since early 2010, there has been a carbon tax of € 15/tonne on liquid and gaseous fossil fuels. However, installations falling under the EU ETS are exempt from this.

INDUSTRY



Renewables	The use of renewable heat/fuel has seen a modest increase over the last decade. This is supported by the Renewable Heat Deployment Programme (ReHeat), which covers boilers fuelled by wood chips and/or wood pellets, solar thermal systems, and heat pumps for industrial, commercial and community use. When ReHeat was launched in 2007, the target was 5% heat from renewable sources by 2010.
Energy efficiency	Overall, industry in Ireland is very far from becoming a low-carbon sector by 2050. There has been an increase in energy intensity, and only some voluntary agreements with low ambition levels to foster energy efficiency in industry are in place. Accelerated capital allowances were introduced as a tax incentive in the Finance Act of 2008 and extended in scope in the most recent budget to encourage the purchase of energy efficient equipment in the industry and services sectors of the economy.
Overarching	The cut of covered emissions under ETS Phase II is minimal and the target for Phase III is not very ambitious. There are no policies on material use and no additional incentives to cut emissions. A huge increase in waste for landfills and incineration is in line with a massive increase in landfill gas emissions.

BUILDINGS



Renewables	In 2006, the Greener Homes Scheme was launched, providing grant assistance to home owners who want to buy renewable energy heating systems. By 2010 the expected emission savings are 37,000 tonnes.
Energy efficiency	Ireland's building regulations of 2008 demand a 40% reduction in energy demand and carbon dioxide emissions associated with heating, domestic hot water and lighting compared to the 2005 regulations. There are plans to increase this to a 60% reduction in the new regulations for 2010. The objective is to eventually increase this reduction to 70% with a further iteration of building regulations in 2013. To this end, a pilot scheme, "Low-carbon Homes", has been put in place to demonstrate the best technologies. New energy efficiency standards are also in place for domestic oil and gas-fired boilers. The "Home Energy Savings Scheme" and the "Warmer Homes Schemes" were introduced to improve the energy efficiency of existing homes by subsidising the upgrade of insulation and other space and water heating technologies.
Overarching	<p>Ireland has been compliant with the EPBD since 2006 by making energy ratings in buildings mandatory.</p> <p>Due to Ireland's economic boost over the last two decades, electricity consumption per capita has increased substantially. There are no clear incentives for increased efficiency in household appliances, except for a 33% energy savings target for the public sector and a requirement to meet at least part of demand from renewable sources.</p>

TRANSPORT



Renewables	<p>A new biofuels obligation was introduced in 2010 together with a Mineral Oils Tax Relief Scheme for non-fossil fuels with the goal to reach 10% biofuels in 2020. However, the increase in the last decade has not even reached 1%.</p> <p>Ambitious targets are in place for the electrification of the vehicle fleet. The objective is for electric vehicles to make up 10% of the transport fleet by 2020. This target is supported by a range of measures. The government gives a €5000 grant per vehicle and exempts them from registration tax. Additionally a partnership between the government, the Energy Supply Board and Renault-Nissan aims at supplying the necessary infrastructure and vehicles.</p>
Energy efficiency	A policy to differentiate the vehicle registration tax according to GHG emissions was introduced in 2008. VRT was previously about 20% of the average vehicle cost. This measure has led to significant reduction in the purchase of high GHG emitting vehicles since its introduction. The Motor Tax is charged to maintain and upgrade the road network and has been redesigned using a categorisation based on CO ₂ emissions for new vehicles. A vehicle scrapping scheme was introduced in 2010 where passenger cars over ten years old can be replaced with a new vehicle from the lowest two CO ₂ categories and given a government subsidy.

Overarching As with the buildings sector, the transport sector has seen a massive increase in per-capita emissions. However, due to the 2008 differentiation in Vehicle Registration Tax according to vehicle emissions, emissions from new cars have fallen.

There has been an intensive campaign in the last few years to stimulate public transport, mainly in the Greater Dublin Area.

The Smarter Travel policy is the Government's strategy to reduce overall emissions from transport by 2020. This will be done by targeting a modal shift from cars to public transport as well as increased walking and cycling in the smaller cities and towns and avoiding travel through land use planning and policies such as e-working. Policies include investment in public transport infrastructure, reduced spending on road infrastructure and fiscal instruments. The "Smarter Travel Project" fund seeks to support individual demonstration projects.

AGRICULTURE



Agriculture is economically a very important sector in Ireland with a lot of focus on sustainability via the Rural Environmental Protection Scheme. The scheme rewards farmers for carrying out their farming activities in an environmentally friendly manner and for bringing about environmental improvement on existing farms.

The Department of Agriculture has invested a substantial amount of funding in research related to the mitigation of enteric fermentation, using dietary supplementation, pasture based systems and also computer modelling of bovine production systems. Ireland is one of the few developed world countries that has an advisory system in place to move research information from the research centres to the farms.

Other programmes include the Suckler Welfare Scheme, which has a side-effect of increasing the efficiency of beef production, and bioenergy grants to stimulate production of willow and miscanthus.

This has led to a decrease in total agricultural emissions of over 10% in the last decade.

FORESTRY



There are a range of programmes relating to forestry in Ireland, which have been rather successful. This includes an afforestation grant and premium scheme to encourage the planting of forests by compensating forest owners for the costs of forestry establishment and for the income foregone during the maturation of the timber crop. The Forest Environment Protection Scheme grants aid and premiums to encourage farmers to combine the establishment of high ecological-value woodland with their participation in the REPS. The establishment of woodland under this scheme is designed to maximise its environmental contribution.

The Forestry Development Programme is currently under consultation and aims to support the objectives of the National Development Plan 2007-2013 by addressing structural weaknesses and development gaps in order to maximise the potential of the forestry sector.

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ITALY

E

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ITALY

Overall assessment

Italy is rated E

Subject to an ambitious Kyoto target, Italy is showing some good policy initiatives, but they are not combined into a comprehensive strategy reflecting a renewed ambition to reach a zero carbon economy. Additionally, the choice of going back to nuclear for energy supply is likely to divert important resources from future low-carbon policies.

Success stories

- The use of renewable energy is stimulated by guaranteeing a feed-in-tariff over the long-term. Depending on the technology, this varies between 15 and 20 years. This is combined with a renewables obligation which is supported by a green certificate scheme.
- There is a 55% fiscal incentive renewed in the last two years (2009 and 2010) for energy-efficiency measures in buildings, including solar-thermal, insulation and glass substitution. Unfortunately this incentive is expiring at the end of December 2010.

Obligation to use PV and solar thermal

Italy is considering an obligation to use PV for buildings >1,000m² and solar thermal when installing or replacing a heating system. This would be a good step in the right direction. Unfortunately, the legislation has been postponed to Jan. 2011 and is still pending the actuating decrees.

Areas that need improvement

- The implementation of the various strategies and policies is not sufficient. In the building sector standards exist, but without penalties and enforcement and the implementation is not complete. Furthermore, administrative bottlenecks are hampering the process.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> Lack of a comprehensive and national strategy <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Adequate support is guaranteed for 15-20 years, differentiated by technology Renewables obligation with green certificates Administrative bottlenecks <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> CHP rate and trend are positive Expectations are that 5% cogeneration will not be achieved in 2020 <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Nuclear energy is an important element in the governmental strategy and is actively supported by the government, diverting resources from important renewables and efficiency measures <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> There are strategies for the use of renewables in industry, but they are not ambitious enough <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> White certificates system to reduce industrial energy consumption needs to be enforced <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Fossil fuel tax reductions for industrial sector A carbon tax was introduced, but never applied Voluntary initiatives by commercially exposed industrial sectors <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Convenient PV tariff with incentive for roof installation Obligation to install PV and solar thermal for buildings >1,000m² waiting for final approval Good tax rebates but expiring 12/2010 <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Much is left to voluntary agreements. There are no substantial penalties. Administrative bottlenecks <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Taxes on average only around a quarter of the fuel price Carbon tax was introduced some years ago, but it was never really applied <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> No ambitious policy Only local initiatives for electric mobility <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Polices to increase efficiency of vehicles need improvement <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> High taxes on transport fuels Lack of coordination between public bodies to stimulate shift to low-carbon transport. <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Agricultural strategy is not oriented to energy sustainability Only regional incentives to reduce nitrogen load <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> National forest area is regulated by planning instrument Differentiated tariff for local biomass used for electricity production <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>In 2009, a 15 year feed-in tariff for RES-E schemes under 1 MW was introduced. This tariff is expected to have a significant impact on the market.</p> <p>PV is supported with a premium (Conto Energia) initially introduced in 2005 and then modified again in 2007. This premium for PV production is constant for 20 years and differentiated by size and level of architectural integration. The government has just announced cuts of 18-20% for 2011, and a further 6% cut in 2012 and 2013, which reflects reduced cost for PV installations.</p> <p>Support for RES electricity is high but important barriers need to be removed to reach the future targets, such as administrative bottlenecks.</p> <p>There is grid priority for RES producers, and they are granted priority in transmission, as long as grid security can be maintained. In this sense current grid capacity is not sufficient. The national grid operator (Terna) has an ambitious plan for investments which will hopefully solve the current congestion problems, especially in Southern Italy, where most of the wind capacity is present.</p> <p>The support is guaranteed for 15-20 years (differentiated by technology). However, the stability of support is not completely predictable in the absence of a middle to long-term strategy and because there are changes too frequently.</p>
Energy efficiency	<p>CHP trends are positive. However, to achieve further increases, stronger policies, less barriers, clarity and stability of existing incentives are needed.</p> <p>In 2007, specific incentives for (high-efficiency) CHP plants were introduced, such as a feed-in tariff for cogeneration. However, this will be not enough to increase the share of CHP in electricity production by 5% between 2010 and 2020.</p>
Overarching	<p>Nuclear energy is an important part of the National Energy Strategy and 25% of consumption should come from this source in the future. The government is therefore actively promoting the development of new nuclear production capacity. Though it might be a way for cutting emissions, the choice of going back to nuclear for energy supply could distract important resources from other low-carbon policies. Besides other environmental aspects, a strong opposition to the construction of nuclear plants is expected which will most probably delay and downsize the expected results in terms of cuts in greenhouse gases.</p>

INDUSTRY



Renewables	<p>Incentives for renewable energy in industry focus mainly on some electricity production units of medium size (up to 1 MW) via the Industria 2015 programme. No apparent support schemes for the use of renewables in industry outside of electricity (co-)generation exist.</p>
Energy efficiency	<p>Italy has implemented a White Certificates System to reduce industrial energy consumption. The value of the certificates adds 10-15% to the value of the saved energy for the first 5 years. This is somewhat increasing the investment in energy efficiency, but not substantially. Some more support is needed for priority setting, audits and energy management systems are needed to complete the supporting scheme.</p>

Overarching ETS requirements are quite stringent, but there is not enough support for companies to understand how to use the scheme as an opportunity. The weight of fuel taxes on total fuel cost is more than 35% (for natural gas). For large consumers, such as the industry sector, a lower rate applies. The tax for electricity use is approximately 14%, but if system costs and grid costs are included, the total tax will increase to 38%. The taxes on energy and natural gas have remained approximately constant in recent years.

A carbon tax was introduced some years ago, but it was never really applied.

Some sectors exposed to final consumers are voluntarily implementing good polices, like reducing packaging weight and using recycled materials. This is increasing consumer perception of the problem and creating more demand for such initiatives.

BUILDINGS



Renewables The Italian Government has introduced different incentives. For example, tax deductions at the national and municipal level for implementing the use of renewable sources in the built environment. As has happened in the past for other important regulations, the law is published but the actuating rules are still pending while sanctions are not sufficiently enforced. A 55% tax reduction for efficiency measures in building renovation which is available to businesses as well as residential users has given good results but will expire at the end of December 2010.

In 2006, an obligation to install a PV system was introduced for buildings larger than 1000m², as well as the obligation to install solar thermal that covers >50% of hot water and heating demand if a heating system is newly installed or replaced. However, actuating decrees are still missing.

Energy efficiency Developments are moving in the right direction, but much is left to voluntary initiatives. A stronger political statement would be needed to increase the speed towards a zero carbon built environment. Policies for new building standards exist but there is no evidence of substantial penalties and there is no evidence of the expected outcomes of existing tax incentives for renovation.

A € 11 mio/year fund for energy efficiency was established, which is also used for financing tax incentives for energy saving lighting systems in non-residential buildings. It also finances a tax incentive of € 200 per refrigerator or freezer bought which qualifies as A+ and a tax incentive of € 1,500 per highly-efficient electric engine. However, the overall size of this support is too small and the two latter tax incentives are limited to purchases until the end of 2010.

Overarching Taxes on natural gas and electricity are moderate with respective shares of 38% and 14% of the energy price. This is considerably too low to trigger investment in renewables and efficiency or changes in behaviour.

TRANSPORT



Renewables	Some local, mostly market driven initiatives for implementing an electric mobility infrastructure exist, but there is no ambitious and comprehensive policy to go for renewable energy transport.
Energy efficiency	Policies to increase efficiency of vehicles need improvement. A policy encouraging the substitution of old freight vehicles exists, however there is no specific reduction target.
Overarching	There is lack of coordination between public bodies which could control the shift to low-carbon transport. Train infrastructure is not sufficiently promoted and maintained. The taxes on transport fuels are very high. There are no taxes on CO ₂ apart from ETS on aviation.

AGRICULTURE



The existing agricultural strategy is not oriented towards energy sustainability.

There are no ambitious incentives in this specific sector on a national level, but there are some regional initiatives to reduce nitrogen loads. A recent law (March 2010) provides regulations to identify and promote farmer markets and products with a short supply chain. There are some marketing projects to promote local market and regional certified products.

FORESTRY



More than 86.6% of national forest area is regulated by a planning instrument. At the regional level, some areas (Toscana, Liguria and Basilicata) are 100% planned.

There is a differentiated tariff for local biomass used for electricity generation.

A

B

C

D

LATVIA

E

F

G

LATVIA

Simplified
methodology

Overall assessment

Latvia is rated E

The country has no climate strategy. Policies seem to follow individual case-by-case demands rather than being based on a consistent concept. An exception is the forest sector with a good overall strategy. Efficiency levels in the building and industry sector are low, which makes efficiency improvements economically attractive and it is unclear why this potential is not tapped.

Success stories

- The highlight of Latvia's sustainability policy is the forestry sector. The entire state forest is certified by FSC and there is a comprehensive set of policies around sustainable forest management, notwithstanding that Latvia has had to deal with a particularly difficult situation after the privatisation of much of the forest.
- Generally a consistent land use strategy is defined.

Privatisation of state forest

The government of Latvia gave back much of its forest territory to the people. Latvia's 160,000 new forest owners are now responsible for looking after one million hectares of forests, nearly half of Latvia's total forest holdings. Most of the new forest owners however have neither a forestry background nor any natural or resource management experience. This makes forestry policy particularly challenging and important.

Tax on use of natural resources

A tax on the sales, imports and release of taxable pollutants was introduced to internalize the cost of polluting natural resources. It may yet be too limited to have large effects, but is in general an interesting approach. and is still pending the actuating decrees.

Areas that need improvement

- A consistent and stringent climate strategy with binding goals could enhance the current case-by-case approach.
- The sectors with the highest potential for improvements are the transport sector followed by the industry sector. Transport would need to focus on energy efficient cars. The industry sector would benefit from support for RES.
- Latvia actively supports nuclear and coal through the planned construction of a 400 MW coal and nuclear power plant in Lithuania.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> Latvia has no climate strategy <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Feed-in-tariff, differentiated by technology Frequent policy changes <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> No specific support for CHP Direct grants based on EU funds <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Tax for the use of natural resources and pollution CO₂ tax Active support for nuclear/coal <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> No specific policies for renewables in the industry sector. <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Some information campaigns and promotional activities. <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Tax for the use of natural resources and pollution <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> No building obligations or incentives for the use of renewables <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Efficiency standards too low No significant incentives for retrofit <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Procurement guidelines include appliances and buildings Financial support scheme for municipalities Some small information campaigns <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Quota obligation + direct governmental support for biofuels until 2010 No support for electric transport <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Highest average emissions of new cars (EU 25) No significant measures <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> No stringent strategy Some promotional activities <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Consistent land use strategy Limited policies for sustainable agriculture <i>More than 10% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Entire state forest is certified by FSC Forest management is sustainable <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>Latvia has a high share of renewables in electricity production, which is mainly due to a history of large-scale hydropower, although this has decreased over the last years. The support policy is based on a feed-in tariff which is differentiated by technology and sufficiently high, but capped to a limited share of consumption per technology. Additionally, some taxes are favourable for renewables and financial support is available from EU structural funds.</p> <p>However, high uncertainty due to frequent policy changes and changes in the permitting and planning procedures hamper investment. For large biomass/biogas installations, the feed-in tariff does not apply, but instead a guaranteed capacity-related fee is used.</p>
Energy efficiency	<p>There is no specific support policy for CHP except that cogeneration plants are eligible for a guaranteed fee based on capacity if the installed capacity of CHP is greater than 20 MW and included in a list of highly-efficient technologies. Additional support can be received via direct grants from an EU regional aid scheme.</p>
Overarching	<p>Latvia has implemented a tax on natural resources, which taxes everyone who obtains, imports and releases taxable pollutants, as well as a tax on CO₂ from energy/electricity consumption. Reductions on the resource tax can be given if environmental protection measures are carried out.</p> <p>On the other hand, there are plans to construct a 400 MW coal and nuclear power in Lithuania.</p>

INDUSTRY



Renewables	<p>There are no specific policies to support renewable energies in the industry sector. There are some general policies to promote renewables but it is not clear if and how far the industry sector is covered.</p>
Energy efficiency	<p>The substantial increase in efficiency in industry between 1995 and 2007 can be mainly attributed to the general restructuring of the sector after the political changes in the early 90's. However, Latvia also has a number of measures to target efficiency in the sector. Within industry, the use of the best available techniques, which are detailed in the Latvian Industry Development Guidelines (2004 - 2013), include the promotion of environmentally-friendly technologies and cleaner production. There are policies on energy audits, information and consultations on energy efficiency and the promotion of best-available practices. These policies are part legislation and part information provision.</p>
Overarching	<p>The share of recycled waste has decreased in the last years, indicating that policies are not sufficient to keep up with increases in waste production as a result of economic growth. Measures being taken include offering reductions in the natural resource tax for undertaking waste reduction projects, improving recycling and implementing voluntary packaging management programmes. Additionally, environment and energy management systems are promoted.</p>

BUILDINGS



Renewables	There are no building obligations that require the use of renewable sources for heat or electricity production.
Energy efficiency	The building stock in Latvia is characterised by poor insulation, high energy consumption and a need for renovation. Energy use per capita has increased significantly due to higher standards of living. The EPBD is implemented, but with low standards that are far from zero carbon buildings. A programme running from 2009 to 2013 supports energy efficient renovation with a maximum contribution of 50% of eligible costs. The target groups for this program are multi-dwelling houses and social housing. There are some small incentives to increase the efficiency of appliances such as information campaigns and labelling.
Overarching	There are procurement guidelines for efficiency improvements in the public sector that cover energy efficient electrical equipment, energy audits and the construction of new public administration buildings. Additionally, there is a financial support scheme for municipalities and some small information campaigns. No systematic change can be expected from these measures.

TRANSPORT



Renewables	Biofuels in the transport sector are supported with a combination of a quota obligations, fixed direct governmental support and additional fiscal measures (exemption of excise duty for biofuels, tax reductions). The quota obligation is fixed until the end of 2010. There was no information available on plans after 2010. Between 2007 and 2008, biodiesel production in Latvia tripled due to a state subsidy for each litre of biofuel produced. However, the ability of the incentive to trigger further production and also maintain sustainability standards needs to be closely monitored.
Energy efficiency	Since 2004, different tax rates have been applied to passenger cars depending on age and engine size but not related to emissions.
Overarching	There is some funding for investments in public transport infrastructure and some concepts and guidelines for the promotion of public transport/bicycles. However, there is no stringent strategy and the measures are not sufficient to counter the sharp increase in emissions from transport that are caused by increasing standards of living in the country.

AGRICULTURE



The total emissions from agriculture declined substantially between 1990 and 2007, although there is no stringent policy mix. A land use strategy is developed and consistent, although partly too general. Limits for nitrogen load exist. Major improvements are possible to reduce methane emissions from animals as there is no respective policy. Funding for sustainable farming is available based on EU funds. There is no national incentive apart from that.

FORESTRY



The entire state forest, which covers around 50% of the total forested area, is certified by FSC. The principles of sustainable forestry are included in the Latvian forest policy and the respective laws and programmes.

A system for the management of specially protected areas has been developed in Latvia. This system, incorporated in the NATURA 2000 network, covers 12.24% of the territory of Latvia. The majority of the specially-protected areas in Latvia are covered by forests.

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C

D

LITHUANIA

E

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LITHUANIA

Simplified
methodology

Overall assessment

Lithuania is rated E

Although there is a national energy strategy until 2025, renewable energy and energy efficiency are only one out of many priorities. Except for the forestry sector, which follows the principles of sustainable forestry and plans to increase the overall forest area of the state by 3% by the year 2020, no sector has a stringent low-carbon policy mix. Despite the difficult economic situation, the country has put some efforts on increasing energy efficiency in the building sector and the share of renewable energies in the country's energy mix.

Success stories

- There is a consistent set of sustainable policies in forestry. The target is to increase the overall forest area of the state by 3% by the year 2020. Therefore several measures like planting of forests and limitations on felling are integrated in the implementation strategy of the Lithuanian forestry sector.
- Ambitious goal to increase the share of CHP plants to 35% out of total electricity generation by 2025. Due to the shutdown of Ignalina Nuclear Power Plant at the end of 2009, which was the cheapest source of electricity, CHP plants are now economically attractive, even without additional support.
- Public procurement requires the implementation of environmental management systems for suppliers. This is a good way to promote energy efficiency in industry.

Renovate 70% of building stock until 2020 – but right!

Lithuania has a very ambitious goal to renovate 70% of apartment buildings by 2020. This is a major opportunity to introduce low-carbon technologies and insulation. But if renovations do not tap the full energy efficiency potential, a significant amount of emissions will be “locked in” for many years to come. Buildings have a long lifespan and are not frequently renovated.

Areas that need improvement

- Lithuania has a national energy strategy until 2025, where RES and energy efficiency are one out of many priorities. An integrated climate strategy is missing.
- Main sectors which require significant improvements are the transport and the agricultural sector. The national transport strategy focuses on road infrastructure and intermodal transport instead of supporting modal shift towards public transport. In agriculture measures are needed to reduce methane emissions from animals and to support sustainable farming with state funding and not only with EU funding.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> National energy strategy until 2025 No integrated climate strategy <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Feed-in-tariff, differentiated by technology New law under preparation <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> No direct support CHP attractive without additional support <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> RES and energy efficiency are one out of many priorities in the national energy strategy <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> No specific policies on promotion of renewable energies for the industry sector. Funds for promotion of renewable energy use, but not specified to industry <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Voluntary agreements with enterprises Information programmes on energy efficiency <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Promotion of recycling of secondary raw material and re-usable packaging Implementation of EMAS is a requirement for green procurement. <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> No building obligations or incentives for the use of renewables <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Focus on efficiency improvements in multi-apartment buildings, retrofit of 70% of buildings is target Financial support scheme for efficiency improvements in public buildings <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Two information centres on rational use of energy are in place <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Tax exemption for biofuels and premiums for raw materials <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No specific policies found <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Focus on road transport infrastructure and intermodal transport <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> onsistent land use strategy Limits for nitrogen load sufficient Insufficient support of sustainable farming practices <i>More than 10% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Sustainability is included in different policies/plans <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	The current support instrument is a feed-in tariff differentiated by technology and guaranteed for 10 years. However, several barriers exist, like long lead-times for authorisation, environmental impact assessment procedures, and changes in the legal status of land. A new law on promotion of renewables is under preparation. Good support is foreseen in the draft version.
Energy efficiency	<p>The national energy strategy sets the ambitious goal of reaching a share of CHP plants in total electricity generation of 35% by 2025. However, there is no direct support for CHP, although it is possible to apply for subsidies and soft loans.</p> <p>Due to the shutdown of the Ignalina Nuclear Power Plant at the end of 2009, which was the cheapest source of electricity, CHP plants are now economically attractive, even without additional support. The draft of the new law being prepared is expected to support small CHP using RES.</p>
Overarching	Some additional measures are included in different national strategies e.g. pollution standards for fuel combustion. However, the national energy strategy does not focus on renewables or energy efficiency.

INDUSTRY



Renewables	There are no policies or funds for the promotion of renewable energy specific to the industry, only general industrial policies.
Energy efficiency	Due to the NEEAP, there are some voluntary agreements with enterprises which are supposed to lead to energy savings of 740 GWh by 2016. However, it is unclear whether they are ambitious enough and will actually deliver. There are also some information programmes, but here, too, the impact is very unclear.
Overarching	<p>There is a law on waste management and a waste management plan. In addition, a law on management of packaging and packaging waste was implemented in 2002. Recycling of secondary raw material and re-usable packaging is being promoted as part of the national strategy for sustainable development. However, all these measures are not sufficient to counter the growth of waste that is caused by the increasing welfare in the country.</p> <p>Public procurement requires the implementation of environmental management systems by suppliers to promote energy efficiency. This is an innovative and good step in the right direction.</p>

BUILDINGS



Renewables	There are no building laws that require the use of renewables in buildings, nor incentives to use renewable technologies.
Energy efficiency	The building stock is characterised by poor insulation, high energy consumption and need for renovation. Performance standards for buildings are not very ambitious. A programme was initiated to modernise at least 70% of all multi-apartment buildings until 2020 and reduce the relative consumption of thermal energy per unit of the used dwelling area by up to 30%, compared with the year 2004. However, a 30% reduction is far from what is technically and economically possible and the ambition level should be increased. There are some small incentives to increase the efficiency of appliances, for example design requirements and labelling.
Overarching	A financial support scheme for efficiency improvements in public buildings exists. However, it is unclear whether this is part of an overall sustainable procurement strategy. At least two information centres (national/ regional) on rational use of energy are operating.

TRANSPORT



Renewables	The biofuel penetration has almost doubled between 2006 and 2007. Biofuels are supported through tax exemptions / reductions and a compensation for raw materials. These measures are potentially sufficient to reach targets for 2010, but it is not possible to evaluate the impact towards the 2020 targets. They are certainly not sufficient for developing a low carbon economy. There is a lack of legislative framework and a lack of coordination and no incentives for electric transport.
Energy efficiency	No specific policies found to increase the energy efficiency in cars.
Overarching	Some measures are included in the National Transport Strategy, but the focus is on road infrastructure and intermodal transport. The total transport system is characterized by severe problems as a lack of infrastructure, old cars etc., which would be a good starting point to set up a consistent strategy that is oriented towards a low-carbon transport system.

AGRICULTURE



	A land use strategy is implemented and consistent. Financial incentives for organic farming based on EU funding. Major improvements are possible to reduce methane emissions from animals and the incentives for sustainable farming should be increased.
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FORESTRY



	Different policies and laws cover the principles of sustainable forestry. The target is to increase the overall forest area of the state by 3% by the year 2020. Therefore several measures like planting of forests and limitations of cutting are integrated in the implementation strategy for the Lithuanian forestry sector.
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LUXEMBOURG

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LUXEMBOURG

Simplified
methodology

Overall assessment

Luxembourg is rated F

The current policy focuses on renewable electricity generation with some measures in energy efficiency in buildings and cars, leaving other areas untouched. The action is not sufficient to transform the whole economy. Low tax levels on transport fuels incentivise higher emissions.

Success stories

- Support for renewable electricity generation through a feed-in tariff is generally designed in the right way with sufficient tariffs for different types of technologies, fixed tariffs for 15 or 20 years and a policy without end date and no cap. Still, administrative barriers hamper employing the full potential of renewable energy in Luxembourg.

Fuel tourism makes up approximately 40% of emissions

Luxembourg's small size provides a particular challenge in the transition to a low-carbon economy. Domestic energy and climate policy is highly dependent on neighbouring countries and Europe. The low taxes on fuels not only increase the national emissions, but also incentivise higher emissions by consumers across the border.

Areas that need improvement

- Transport fuels sold to foreign cars and trucks make up approximately 40% of emissions in Luxembourg. This high share is incentivised by lower taxes than in the neighbouring countries. Taxes are slowly increased but the tax differences remain significant.
- The focus of industrial policy has been the diversification of industrial production. While this has been quite successful, the strategy lacks the vision towards a more sustainable economy. While the aim must be to support low-carbon industry and highly carbon efficient products, the programme for industrial structural change has not shown a move towards this goal.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> No strategy with long-term targets <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Reasonably well-designed support system for renewable electricity (feed-in tariff) but not leading to substantial RE deployment in line with the country's RE potential <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Reasonably well designed CHP support, but grid connected CHP deployment hampered through legislation <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No incentives additional to the emission trading system <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> Grant scheme for renewables in industry <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Some voluntary agreements and grants <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No efforts to initiate a transformation to low-carbon industry <i>Between 5% to 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Well-designed but limited support schemes, but not leading to a substantial RE deployment in line with RE potentials <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> In line with EU legislation, but not beyond <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No specific pricing instruments <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Bio fuel incentives, but not for electric vehicles with renewable energy <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Incentives for low emission cars (e.g. tax credits), but not sufficient <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Very low tax level compared to neighbours leading to fuel tourism <i>More than 10% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Although emissions from agriculture decreased in the last years, this is not due to targeted policies <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Slight increase in forest in the past Woods are generally well managed and protected <i>Up to 5% weight for the country</i>

Sectors in detail

ELECTRICITY
SUPPLY

Renewables	A feed-in tariff for wind, solar, hydro, sewage and biogas, solid biomass and waste wood was introduced in 1993 and amended in February 2008. It can be combined with investment subsidies. The mechanism has sufficiently high tariffs for different types of technologies, fixed tariffs for 15 or 20 years and a policy without end date and no cap. However, it has not managed to trigger substantial investments in line with the potentials of the country.
Energy efficiency	There is some support for micro-CHP, and some investment subsidies and feed-in tariffs for cogeneration up to 1.5 MW. However, grid-connected CHP deployment is currently blocked on municipal level through legislation by the ministry of internal affairs.
Overarching	There were no further incentives found to decrease the carbon intensity of electricity production, which is also reflected in the upwards trend in carbon intensity between 2002 and 2007.

INDUSTRY



Renewables	There are some grants available for energy efficiency and renewable energy investments for industry, but no significant policies to specifically target renewable fuel use. The grants cover up to 40% of eligible costs.
Energy efficiency	A voluntary agreement and grants for energy efficiency and renewable energy investments incentivise measures.
Overarching	Luxembourg's main industrial product is steel. In recent years, government policy was targeted to diversify production; chemicals, medical products, rubber, tires, glass, and aluminium are now also produced. There are no efforts to initiate a transformation to a low-carbon industry, no redesign of products, high energy or CO2 taxes, or industrial process CCS.

BUILDINGS



Renewables	There are grants available for installation of renewable energy sources in households. Various renewable energy sources are subsidised, such as solar thermal and solar photovoltaic systems (30-50% of the cost up to a specific maximum amount), geothermal heat (40-50%), and biomass heaters (25-30%).
Energy efficiency	Energy consumption for space heating and hot water increased substantially in the period of 1990-2005, influenced by an increase in population of around 20% between 1990 and 2005. Although there are some support schemes for energy-related retrofitting, the set standards are only moderately ambitious. While there are subsidies for energy efficiency cooling appliances (refrigerators and freezers) and an information campaign 'oekotopten' is financed by the Ministry for Sustainable Development, these measures are not broad enough to deliver substantial results.
Overarching	No information on CO2 or specific energy taxes or on investment in energy-efficient government buildings could be found.

TRANSPORT



Renewables	<p>Since 2007, a quota for biofuels is set for operators providing transport fuels for consumption. Pure biofuels can also benefit from a tax deduction. The quota is set at 2% and revised annually. Luxembourg intends to reach 50% of its total renewable energy target of 11% by 2020 with biofuels. However, since the largest share of these biofuels must be imported, there needs to be close monitoring on where these fuels come from and whether strict sustainability criteria are being applied.</p> <p>There is no specific support for electric vehicles using renewable electricity.</p>
Energy efficiency	<p>Energy efficient vehicles are encouraged by taxation (see below) and subsidies, but the incentive is insufficient to limit the increase of vehicle fuel use.</p>
Overarching	<p>Luxembourg’s “CO2 Reduction Action Plan” (2006) targeted transport by increasing vehicle fuel excise taxes, which is based on EU requirements, as well as reforming vehicle taxation and giving subsidies to encourage low-carbon vehicles and increasing the use of public transportation. In 2007, Luxembourg introduced a so called “Kyoto cent”, a specific tax which was increased in 2008 to € 25/1000 litres of petrol.</p> <p>Although excise taxes are slowly increased, the difference to surrounding countries remains significant. Transport fuels sold to foreign cars and trucks account for approximately 40% of total emissions in Luxembourg. This is also illustrated by the increase of 96% (see explanation at the end of this document) of total per-capita emissions from transport between 1990 and 2008.</p>

AGRICULTURE



Rural developments do not offer incentives and grants for organic farming; solely the preservation and the development of natural zones in the rural landscapes are supported.

FORESTRY



Most woods are well managed. The Nature and Forests Administration (NFA) administers municipal woods (some 33% of the forests of Luxembourg), woods owned by the state (11%) and those belonging to public administration (1%). The remaining 55% are private forests, which are extremely fragmented. .

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MALTA

F

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MALTA

Simplified
methodology

Overall assessment

Malta is rated F

It is the smallest EU country and area is one limiting factor. Since its entry into the EU, Malta has made significant efforts to improve the environmental situation. It has formulated a national strategy on climate with 96 measures but without an emission target and it does not go beyond 2020. In general, the implemented policies leave a rather mixed picture.

Success stories

- Solar hot water heaters for buildings are well supported, covering up to 66% of eligible cost. However, this support can be stopped by the government at any time, which causes investment uncertainties.
- There are active plantation management and reforestation projects being carried out.

Areas that need improvement

- A more comprehensive climate plan is needed with targets and actions beyond 2020.
- More measures are needed to decrease fossil fuel dependency in the electricity sector. Mainly the support mechanism for renewable energy needs increased stability and predictability and must be designed in a way to also allow non-domestic investment.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> No GHG targets set in national climate change strategy and no actions beyond 2020 <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Support for small scale PV/Wind No support for non-domestic investors No predictability of support <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> No policies to increase share of CHP <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No major policies Planned power plant based on diesel, natural gas optionally <i>Between 5% to 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> No actions found <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Mixture of policies Impacts unclear <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No policies found for supporting the redesign of products Mineral oil/excise duty tax is insufficient <i>Up to 5% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Support scheme for domestic solar water heaters Insecure, can be stopped anytime <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> EU directive implemented, but could be more stringent Funding scheme for roof insulation <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Some exemplary measures in public sector/social housing Energy tax could be more stringent <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Biofuel target likely to be met Incentive for electric cars, but not linked to renewable energy <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Some policies on energy efficient driving, speed limits No incentives for freight <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Contradicting policy mix Support for modal shift and car use at the same time <i>More than 10% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Code of good agricultural practices does not include focus on climate change <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Active plantation management and reforestation projects <i>Up to 5% weight for the country</i>



Sectors in detail

ELECTRICITY SUPPLY



Renewables	There is a policy mix for land owners to support small grid-connected PV and wind installations, net metering for small PV with a fixed electricity price, which is lower than market price, and soft loans. There is no investment security with the existing system, as support can be terminated at any time. In addition, there is currently no support for non-domestic investors in place.
Energy efficiency	Malta has no specific targets to increase the share of CHP although there are plans to support this. However, the newest power plant addition to the power plant park is not planned as a CHP and retrofitting of the two existing plants is not planned either. Furthermore, no concrete policies or support schemes are being discussed yet...
Overarching	Some efficiency measures for existing power plants are in place. However, an additional combined-cycle diesel engine power plant is planned which could optionally also be implemented as a natural gas plant.

INDUSTRY



Renewables	No actions have been found to increase the use of renewable energies in industry.
Energy efficiency	A mix of policy instruments to increase energy efficiency as an energy auditing scheme is implemented, like an energy auditing scheme for major industrial activities and an “Eco-contribution” scheme as an incentive to minimize waste (industrial, commercial & domestic sectors), but the impacts of the incentives are unclear.
Overarching	No policies found for supporting the redesign of products. The mineral oil/excise duty tax is insufficient.

BUILDINGS



Renewables	A support scheme for domestic solar hot water heaters is in place, covering up to 66% of eligible costs up to a maximum of Euro 460 per family/installation. The scheme can be modified or terminated at any time, which makes long-term planning difficult. A support for geothermal energy is currently planned, but not yet implemented.
Energy efficiency	The EU directives (energy efficiency in buildings, Ecodesign) are implemented but could be more stringent. Additionally, there is a funding scheme for roof insulation. Additional measures to support retrofit and ambitious performance standards are needed.
Overarching	There are some public sector initiatives such as exemplary energy efficiency measures in public buildings or social housing and an information campaign. However, there is no CO2 tax and energy taxes could be more stringent.

TRANSPORT



Renewables	The target from the Biofuel Directive will likely be met through specific support for biofuels produced from wastes and some other sources and tax exemptions for the biomass share in biodiesel; there is an incentive for electric cars in existence but no explicit requirement for renewable electricity.
Energy efficiency	There is support for the EU initiative on emission performance standards. Some policies support increasing energy efficiency, like speed limits, energy efficient driving, congestion management, etc. However, Malta has no vehicle manufacturer. There are no incentives for freight transport.
Overarching	The overall policy mix is contradicting and needs improvement. There are various policies in place to incentivise modal shift but also strong incentives for continued car use (road improvements, traffic control, etc...).

AGRICULTURE



The existing code of good agricultural practices needs to be improved to include climate relevance. Limits on nitrogen load per hectare are included in the best practise code. A shift to organic farming is not supported in the existing code of good agricultural practices. The project on “mainstreaming climate change issues into the land-use planning process in the Maltese islands” is planned for delivery by 2013.

FORESTRY



Malta only has a very limited forest area, >70% of which are publicly owned. One hundred percent of the forested areas are plantations and under management plans, there exist afforestation projects.

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NETHERLANDS

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NETHERLANDS

Overall assessment

The Netherlands is rated E

Although they have formulated a strategy and targets for 2020, these targets will not be reached with the current set of policies. The stability of the Dutch (renewable) energy and climate policy is a key point to be taken into consideration.

Success stories

- The Netherlands is considered a frontrunner in sustainable biomass criteria, for example in setting the “Cramer Criteria” in 2006. However, the subsidy for biomass within the feed-in premium scheme (SDE) is not yet subject to sustainability criteria, but some “high risk” biofuels, like palm oil, are excluded. From 2011 onwards, the intention is to have a sustainability criterion for SDE subsidy of biomass.
- Energy taxes for households are relatively high, representing 50% of the total consumer price.

Support for electric cars, but not linked to renewables

The Netherlands provides substantial support for electric vehicles in order to reach a target of 5% electric vehicles by 2020. For example, to induce investments in infrastructure, companies can deduct cost of charging points from income tax. Such support is however not linked to support for renewables.

Short-term environmental tax can lead to permanent effects

In July 2008 the Netherlands introduced a “flight tax” of €11.25 /€45 per flight. After the introduction, airports just across the Dutch border saw a significant increase in the number of Dutch passengers. In July 2009, protests from airlines and Dutch airports led to the abolishment of the tax. However, this did not reverse the trend to use airports outside of the Netherlands.

Areas that need improvement

- The stability of the Dutch (renewable) energy policy is a point for future consideration. The most prominent example is the feed-in premium (SDE). It took until 2008 for this scheme to be introduced after the previous one (MEP) was stopped in 2006. Although there are no formal plans to stop or replace the current feed-in-premium, it is still a subject of public debate whether the premium should be replaced by, for example, a quota system. Stop-start policies drastically undermine the effectiveness of the financial support the government provides and harm the long-term development of renewables. Dutch market players have low trust in policies.
- The Netherlands lacks a good position in the rapidly developing markets of renewable energy technology. Improvement in policy for the renewable energy industry is needed.
- The Netherlands has set targets for 2020. This includes a 30% decrease in greenhouse gas emissions by 2020 with respect to 1990, a 2% increase in energy efficiency per year and a 20% share of renewable energy in 2020. With current policies these targets will not be met.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> Targets and implementation strategy exists until 2020, but not beyond <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Feed-in premium to stimulate the development of renewable energy No stable policy on renewable energy No preferential treatment of renewables on electricity grid <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Some support for cogeneration, but not enough to meet 5% between 2010 and 2020 <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Energy companies have exemptions from the Regulatory Energy Tax New legislation with emission Performance standard for new power stations is expected (350gCO₂/kwh) <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> Strict criteria on import of biofuels exist, but these are not implemented yet <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Main policies are based on (long running) voluntary agreements <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Two demonstrations on CCS with process emissions were delayed/cancelled Exemptions on fuel tax for industry, including horticulture <i>Between 5% to 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Budget of € 66 mio euro over 4 years to support renewable heating, yet to become effective <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Targets set for climate-neutral buildings in 2020 Targets for retrofitting houses, but lack of financial incentives <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Energy taxes for households are relatively high, representing 50% of total price <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> 10% renewable target in transport in 2020 by blending biofuels Target and attractive tax incentives to reach 5% electric cars in 2020, but not linked to renewables. <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Tax incentives and a purchase bonus for efficient cars; however, expected effect not beyond EU directive <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Environmental tax on flights cancelled Several excise duties on fuels representing 50% of total price <i>Between 5% to 10% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Well-organised land use planning and historic decline in agricultural emissions High nitrogen loads due to intensive farming <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Good laws against deforestation <i>Up to 5% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>Feed-in premiums to stimulate the development of renewable energy are guaranteed for the period between 2007 and 2014. The level of the premium is differentiated by technology.</p> <p>Administrative bottlenecks with regards to renewable energy exist, especially for onshore wind. There has been no stable policy on renewable energy during the last decade. Although the current subsidy scheme gives 12-15 years' support once a subsidy is granted, the former subsidy scheme stopped unexpectedly in 2006. It took two years before this gap was filled with the current scheme. Preferential treatment of renewable electricity is not yet established, but introduction is underway. With the current share of RES in the Netherlands this is not (yet) a barrier for growth of RES.</p> <p>The Netherlands is considered a frontrunner in sustainable biomass criteria. The "Cramer Criteria" of 2006 are described in the standard NTA 8080, which is more stringent than EU legislation. Subsidy for biomass within the SDE scheme is not yet subject to sustainability criteria, but some "high risk" biofuels (palm oil) are excluded.</p>
Energy efficiency	<p>There is some support for cogeneration, but not enough to substantially increase the share of electricity production by CHP up to 5% in the period 2010-2020.</p>
Overarching	<p>The Netherlands is active in CCS, but activities do not focus on biomass CCS.</p> <p>Energy companies have exemptions for the Regulatory Energy Tax.</p> <p>There is no additional policy to have more stringent performance standards than what is prescribed at the EU level. Plans for four new coal-fired power stations have led to opposition and this resulted in an agreement that new power stations should emit less than 350 gCO₂/kWh. This has not yet been implemented in legislation.</p>

INDUSTRY



Renewables	<p>In the period 2008-2009, 11 demonstration projects in the industry were subsidised, of which eight concern the use of biomass.</p> <p>Although criteria exist on imported biofuels (NTA 8080) that are stricter than EU legislation, they are not obligatory yet. Granting of subsidy is not subject to these criteria.</p>
Energy efficiency	<p>Main policy instruments are the voluntary agreements, which have a good coverage (90% of industry) and target (2% energy efficiency per year), but penalties for non-compliance are missing.</p>
Overarching	<p>Two demonstration projects on CCS with process emissions were planned, but both got delayed/cancelled.</p> <p>Exemptions on the Regulatory Energy Tax are made for industry, including the horticulture sector.</p>

BUILDINGS



Renewables	There is an overall reserved budget of € 66 mio between 2008 and 2011, implying the installation of 53,000 solar boilers, 5,000 heat pumps and 9,500 micro CHPs. However, existing subsidies (solar boilers, heat pumps and micro CHP) have not yet lead to an increase in renewable heat in households.
Energy efficiency	<p>The government has set targets for new buildings to be climate neutral by 2020.</p> <p>Ambitious targets for retrofitting houses are implemented, but existing policies (mainly financial incentives) are not sufficient to meet the target.</p> <p>Building standards are only checked when granting permits, before construction starts. Enforcement after construction is considered weak.</p>
Overarching	There is a relatively high energy tax on energy use in households. Taxes represent about half of the end user price.

TRANSPORT



Renewables	<p>Policy to reach 10% renewable energy in transport by 2020 by blending in biofuels. There are no policies that support the use of “pure” biofuels in vehicles.</p> <p>Excise taxes on biofuels are (relatively) high. The ethanol tax is as high as for gasoline (70ct/l) and the tax for biodiesel is equal to the diesel tax (40 ct/l). Because taxes are per litre and biofuels have a lower caloric value than its fossil equivalent, the net tax for biofuels is, in fact, higher than for fossil-based fuels.</p> <p>Policies are set up to reach a target of 200,000 (5%) electric cars by 2020. Examples of measures taken to make electric vehicle financially (very) attractive include no vehicle tax, no road tax and attractive schemes for electric company cars. Companies can deduct investments for electric charging points from their income tax.</p>
Energy efficiency	Some additional incentives exist, such as no vehicle tax for efficient cars, purchase bonus of € 6400 per hybrid car (until 1 July 2010) and campaigns on eco-driving. But, the expected effect is to reach the limit EU directive, not beyond.
Overarching	<p>Environmental tax on flights from the Netherlands was introduced in 2008, but tariff was put to zero again in 2009 because of negative border effects.</p> <p>There are several excise duties, which differ for diesel, petrol and natural gas. On average they are 100% of the fuel price, meaning that 50% of total price are taxes.</p>

AGRICULTURE



	<p>In general the Netherlands is well organised with respect to land use planning. The framework is set out by the national government through the National Ecological Network Programme. Nonetheless, because of lack of funding there is not enough money to meet high ambitions.</p> <p>Nitrogen loads in the Netherlands are high due to intensive farming.</p>
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FORESTRY



	Good laws against deforestation. Use of domestic wood is relatively low with 7% of total wood use.
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POLAND

F

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POLAND

Overall assessment

Poland is rated F

Although Poland has an energy strategy, it only reaches until 2030 and the level of ambition is too low. Policies in the fields of energy, industry and forestry do exist, but are not sufficient to reach a low-carbon economy by 2050. In the fields of buildings, transport and agriculture, big efforts are needed in the future to develop them towards a low-carbon future.

Success stories

- A state forest policy and a programme to increase the forested area are in place, including guidelines on how to develop regional spatial development plans for afforested areas.

Successful forest policy

The Polish forest policy has the aim to increase and improve the national forest resources. Forest management guidelines exist and are implemented. This has led to an increase in forest carbon stock in the past.

Poland plans new nuclear power station

In March 2010, the Polish government presented the site intended for the future development of a nuclear power plant.

Areas that need improvement

- In Poland, the use of renewable energies in the industrial sector is not explicitly addressed by support policies.
- Also, energy efficiency in industry is not targeted by specific support measures but an energy efficiency act is currently under consideration and there are plans to introduce white certificates to incentivise energy efficiency.
- The Polish transport sector is not addressed by many policies in order to make it more carbon efficient. There are no plans for electric mobility, the CO₂ limits for new cars do not go beyond EU legislation and there is no sufficient investment budgeted for a future low-carbon infrastructure.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> An energy policy for Poland until 2030 is in place and government is working on an innovation strategy <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Renewable obligation system, with insufficient increase in total obligation Project implementation phase is too long <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Energy policy of Poland includes target leading to 10% share of CHP, but unclear whether it will be reached <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No emission performance standards that go beyond EU ETS, on the contrary, free allowances for coal producers after 2012 Reduced but constant coal mining subsidies New nuclear power plant planned Two coal CCS plants planned with EU funds <i>Between 5% to 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> Obligation of purchasing electricity from RES in place No additional support for RE in industry <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Energy efficiency act under construction. <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Tax exemption on electricity produced from RES planned <i>Between 5% to 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Limited incentives to renovate existing buildings Incentive for solar thermal collectors through a dedicated credit line <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Un-ambitious building codes Limited incentives to renovate existing buildings Existing thermo-modernisation scheme, however funds for 2010 equal zero <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Tax level for household energy not sufficient to trigger substantial behavioural change <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> 10% of biofuels target in place No plans for electric mobility – except on municipal level, e.g. in Warsaw, Poznan <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No incentives for efficient cars On the contrary: incentives for SUV cars for small and medium enterprises <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No measures for modal split <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Limit on nitrogen load per hectare in place <i>Between 5% to 10% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Fairly high degree of area in the country being afforested A significant proportion of well maintained state forests Implemented a programme to increase forest cover <i>Between 5% to 10% weight for the country</i>

ELECTRICITY
SUPPLY

Sectors in detail

Renewables	<p>Support for renewable energies in the electricity sector is granted through a quota in combination with certificates of origin. The amount of certificates is the same for all technologies, so expensive technologies like PV are not especially supported. The quote will increase from 10.4% in 2010 to only 12.9% in 2017, which is a third of the required increase. Experts see the current system as expensive and not very efficient. From 1990 to 2008, the share of RES-E has increased by only 3%. The project phase for the approval of renewables projects is rather long.</p> <p>Renewable electricity producers are granted access to the grid 'without discrimination', i.e. not preferentially. Regarding congestion management, renewable electricity is treated preferentially. The Polish grid infrastructure in general will be reinforced, and renewables are one of the reasons for that. However, no strategy taking into account the special needs of renewables exists.</p>
Energy efficiency	<p>CHP is supported through a quota system, too. Yet the current support is not sufficient to reach a strong growth of CHP shares.</p>
Overarching	<p>The tax for conventional fuels for power plants is rather low, for coal and coke, Poland makes use of an exemption and has not yet set the tax to the minimum EU level, which has to be done until 2012. Subsidies for coal mining have been substantially reduced since the 1990's, but some subsidies still exist and there are currently no plans to phase these out.</p> <p>The government presented a location for a new nuclear power plant.</p> <p>The development of CCS in combination with biomass or natural gas is not supported in Poland. Two pilot projects in combination with coal power plants are planned with the financial support coming from an EU fund.</p>

INDUSTRY



Renewables	<p>There are no special policies aimed at increasing the use of renewable energy in the industrial sector apart from the renewable energy quota for electricity and emission trading.</p>
Energy efficiency	<p>There is some financial support for energy efficiency projects in industry. An energy efficiency act is currently under development and there are plans for the introduction of white certificates, but they are not finalised yet.</p>
Overarching	<p>No policies exist that aim at the redesign of products to be long-lasting, less material-intensive and recyclable.</p>

BUILDINGS



Renewables	<p>Renewables in buildings for heating and cooling purposes are supported through the "Thermomodernisation Fund", which also targets efficiency measures. A grant for a 25% share of the total investment is given, however, the amount of available finance for 2010 is zero. Incentives for solar thermal collectors are given through a dedicated credit line.</p> <p>From 1990 to 2005, the use of renewables in buildings has increased by 10%, without taking electricity into account.</p>
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Energy efficiency Energy efficiency in existing buildings is supported through the “Thermomodernisation Fund”, which has no available financing in 2010. No strong building standards are in place for new buildings and there is no aim to reach zero energy buildings in the near future.

The EPBD has been transposed into Polish law but with serious delays. Certification for buildings does exist, but without any penalties for owners who do not possess these certificates. The legislation is rather weak and is not followed by the majority.

Overarching The level of taxes on energy for the building sector is quite low.

TRANSPORT



Renewables A quota for biofuels was introduced in 2006. Targets are set annually, taking into account availability and production capacity as well as EU legislation. The quota started at 3.45% in 2008, and biofuels have to fulfil a target of 7.1% by 2013. No additional support for biofuels is in place. The sustainability of imported biofuels has not yet been addressed.

Electric vehicles are not explicitly included in any strategy for the transport sector and thus renewable electricity does not play a role in the development of transport.

Energy efficiency Poland has not yet implemented the EU target for new vehicle emissions but will probably do so. For freight vehicles, no incentives exist to reduce emissions. In the past, the specific emissions from trucks have increased rather than decreased – by 33% from 1995 to 2007.

Overarching Poland has the aim to limit the growth of traffic and transportation, use lower carbon transport and use technical and organisational solutions to reduce harmful influences on the environment. However, concrete measures regarding how to achieve these targets are missing in the transport policy.

Tax levels for transport fuel are set at the minimum level required by EU legislation and do not incentivise lower fuel use.

AGRICULTURE



The rural development programme 2007-2013 sets objectives for rural development. The agricultural sector is targeted by financial support to reduce negative influences on the environment like premiums for the reduction of fertilizer use.

Apart from that, no strong policies in the field of agriculture exist currently.

FORESTRY



In the forestry sector, various policies are in place to protect forests and improve them. There are guidelines for forest management and the development of regional spatial development plans. Poland has the aim to increase its forest area and implemented a programme to reach that. These policies seem to be successful as from 1990 to 2007 the forest carbon stock increased. The state forestry agency collects data for a forest inventory from all districts.

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PORTUGAL

E

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PORTUGAL

Overall assessment

Portugal is rated E

Portugal made a significant effort to implement new policies to reach the Kyoto target, but significant gaps exist for the country to be on a low-carbon development path. Several good initiatives are planned but not yet implemented. Highlights are its support for renewable electricity and efficient appliances. If the positive policy-making trend continues, Portugal will rate significantly better next year.

Success stories

- Portugal has a well-designed feed-in tariff for RES and is about to reach the ambitious target of 45% of electricity consumed coming from RES.
- Energy efficiency policies in industry, buildings and transportation are promising.

Doubling use of solar thermal by obligation

The introduction of an obligation to install solar thermal water heaters in new houses doubled the installed capacity from 2008 to 2009.

Leapfrogging in policy making

The design of Portugal's feed-in tariff and an energy efficiency scheme in industry was influenced by the experience from other countries. Implementing these policies later helped the country learn from others and avoid early mistakes.

Areas that need improvement

- Portugal made a significant effort to implement new policies to reach the Kyoto target but significant gaps exist to be on a low-carbon development path.
- Although the support for RES electricity is well designed and is giving important results, important barriers, such as administrative bottlenecks and grid development need to be removed to reach the targets.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> Current actions are quite comprehensive for the period 2008 to 2012 and just recently, the National Energy Strategy to 2020 was approved <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Well designed feed-in tariff Administrative bottlenecks resulting in long project processes. <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Promising strategy to increase CHP <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Need for reformed taxes to stimulate RES General support for CCS <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> Some limited initiatives to support RES in industry <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Well-designed integrated support scheme for energy efficiency at the start of its implementation. <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Tax increase for fossil fuel use not covered by ETS or efficiency scheme Introduction of taxes for industrial fuel planned <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> Obligation to install solar panels on new buildings No policy on importing biomass <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> New building standards aim at a trajectory to 'near-zero' carbon buildings in 2018 <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Taxes for energy consumption in buildings are relatively low <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Ambitious target on the use of bio-diesel Electric vehicle programme (MOBI-E) at implementation stage <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> CO₂ target of 120gCO₂/km in 2015 Tax exemptions for low-carbon vehicles Emissions part of calculation for vehicle tax <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Various initiatives on modal shift <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Strategy for agriculture not as developed as other sectors Nitrogen load is low <i>Between 5% to 10% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> National Forestry Strategy, with a National Plan for Forestry defence exists "Permanent Forestry Fund" provides for incentives for areas of awareness-raising, structural prevention, forestry planning, management and research and technical assistance <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	Support for renewable electricity via feed-in tariff is well designed and is leading to good results. The domestic target of 45% renewables in electricity production by 2010, which goes beyond the EU requirement of 39%, was reached in 2009. However, important barriers need to be removed, such as administrative bottlenecks and further grid development. The share of renewables could not be improved in the past due to high growth in electricity consumption.
Energy efficiency	A promising strategy to increase co-generated energy, but there is no clarity on the exact support scheme.
Overarching	There has been a decrease in carbon intensity of fossil-based electricity production of 20% between 1990 and 2007. The taxation system is still not correctly designed in favour of sustainable energy support. For instance, there is an energy tax on electricity produced from fossil fuels which is lower than the energy tax for the use of biomass. There is support for CCS, although this is not specifically for coal.

INDUSTRY



Renewables	There are some initiatives to promote renewables in industry through supported projects, although here administration can be a bottleneck. Several measures were put in place to simplify the licensing of renewable energies.
Energy efficiency	Well-designed integrated support scheme for energy efficiency in industry. It includes the obligation for an energy audit, monitoring and target setting. Sanctions are applied for not reaching the agreed targets. The system is still in its infancy, but on the right path. Here, too, bureaucracy could be a potential barrier.
Overarching	For companies which are not part of the EU-ETS and are not part of specific agreements for energy efficiency targets, taxes on fossil fuels have been raised. At the moment, there is no CO2 tax as an incentive to use renewable energy, but this is expected. The introduction of taxes for industrial fuel is in its implementation phase. The level of tax takes into account the need for industries to adapt gradually.

BUILDINGS



Renewables	Energy Certification for buildings in Portugal includes an obligation to install solar panels in new buildings where conditions are good. In 2009, the Solar Thermal Measure has been implemented, which led to the installation of 250.000 m2 of panels that year. This almost doubled the total installed capacity of solar panels in Portugal to 600.000 m2. No policy on importing biomass yet. However, there has been a draft proposal from the Association of Renewable Energy Producers to incorporate sustainability criteria for biomass in the Portuguese legislation.
Energy efficiency	The National Plan for Energy Efficiency (PNAEE) was approved in 2008 (RCM n.º 80/2008, 20/5) and is under implementation. It includes policies and measures for transport, buildings, industry, services, and for public administration. Portugal is implementing the Ecodesign directive with bonuses for highly efficient appliances. Progress has been made on new building standards (trajectory to 'near zero' carbon buildings in 2018) and energy certification of buildings is mandatory for all new buildings (residential and services) and for building transactions since 2008.
Overarching	Taxes for energy consumption in buildings are relatively low.

TRANSPORT



Renewables An ambitious target for a share of bio-diesel of 10% in 2010 was set, but this will not be reached. However, there is a significant increase in the share of bio-diesel in transport. A 5% share in the 2008-2012 period will be reached. Because of increasing renewable electricity production, Portugal is still on track to reach its 2020 goals for renewables. An electric vehicle programme (MOBI-E) is in implementation. Since April, there have been grants of € 5000 per electric vehicle (for the first 5000 cars sold). This can increase to up to € 1500 if an old car is scrapped. Electric cars receive an exemption from the vehicle tax and can be deducted from income tax liability. Portugal plans to build 1300 charging stations across the country by July 2011, plus 50 extra-fast charging stations.

Energy efficiency Portugal has set a target of 120gCO₂/km in 2015. This development is on track, with tax exemptions for low-carbon vehicles and the incorporation of CO₂ emissions into the calculation of vehicle taxes (CIEC). A car scrapping scheme is also in place targeting increased efficiency.

Overarching Various initiatives for modal shifts, such as new logistic platforms and development of “motorways of the sea”. The plans seem feasible but results need to prove effectiveness in next years.

AGRICULTURE



The strategy for agriculture is not as developed as for other sectors. Nonetheless, the nitrogen load is particularly low. The National Programme for Climate Change (PNAC) includes measures for agriculture and forests. It also includes the promotion of agricultural and forest sinks. The “Portuguese Carbon Fund” supports the installation of agricultural sinks.

FORESTRY



There is a National Forestry Strategy, with a subsequent National Plan for Forestry defence. A “Permanent Forestry Fund” was created in 2004 and a range of incentives are given in the areas of awareness-raising, structural prevention, forestry planning, management and research and technical assistance. In July, additional funds were approved through the “PRODER” project, which is a Rural Development Programme that includes measures on forestry and specifically on preventing forest fires and minimising the effects from forest fires.

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ROMANIA

F

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ROMANIA

Overall assessment

Romania is rated F

The country faces several economic challenges. It is starting to implement energy and climate policies, but they are in no way sufficient to put the country on a pathway towards a low-carbon economy. Several plans are underway but not yet implemented.

Success stories

- Romania's renewable energy in electricity production increased by 8% between 1990 and 2007.
- The share of renewable energy (without electricity) in buildings (firewood) increased almost 30% between 1990 and 2005.

Areas that need improvement

- Although the strategies are promising, the implementation is going slowly. Administrative barriers, the lack of concrete action plans and support schemes hamper the implementation of strategies.
- There are no support schemes or voluntary agreements in place that lead to sufficient improvements in energy efficiency.
- There is no long-term forest strategy.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> Targets are set only up to 2020 and strongly depend on EU targets <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Renewable energy policies are not effective yet <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Ambition to increase share of CHP with 10% in 2020 <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No strong policies that give additional incentives for renewable electricity <i>Between 5% to 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> There is a strategy, but no concrete action plan for achieving targets in industry More demonstrations needed <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No support schemes or voluntary agreements in place <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Subsidies for fossil fuels are decreasing Strategy but no policies for reducing consumption of materials and energy <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> High increase in renewables (firewood) since 1990, but not due to policies No specific support policies <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Zero emission buildings supported No specific enforcements added to EU Ecodesign Directive <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> There are energy taxes, but not significant enough to be effective <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Ambition to provide 10% of total fuel used from biofuel. Lack of clear energy crop legislation <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Incentives for reducing emissions, but not beyond EU requirements <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Railway transport development is main objective in long-term strategy Most short-term actions are planned for motorways and highways. <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> No sufficient funding allocated for sustainable farming. <i>Between 5% to 10% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Strong and clear rules, but weakly implemented No long-term forest strategy <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>2010 targets on RES-E were already met in 2007.</p> <p>Romania has policies on renewable energy, but they are not effective yet. Most of these policies were planned to become effective between 2008 and 2010. Because of economic recession, these laws are still being postponed.</p> <p>Green Certificates became operational in 2005. The annual quota for energy produced from renewables that benefits from the promotion system is increasing every year.</p> <p>There is a strategy to give renewable electricity priority access on the electricity grid, but there is no implementation strategy yet.</p>
Energy efficiency	<p>Romania is implementing the EU Directive that specifies an increase of 10% in electricity production from CHP up to 2020. However, currently there is no clear support scheme for implementing this law.</p>
Overarching	<p>No strong policies that give incentives for renewable electricity. There are some taxes, for instance on CO₂, but these are low and insufficient. However, action plans and regulations are drafted or planned.</p>

INDUSTRY



Renewables	<p>Romania has strategies in place in order to reach its targets for RES. Still, there are no concrete action plans and there is room for improvement in implementing these policies.</p> <p>There are demonstration projects for renewables in the industry, but there are only a few. They are financed by the Romanian Environment Fund.</p>
Energy efficiency	<p>There are no support schemes or voluntary agreements in place that lead to sufficient improvements in energy efficiency.</p>
Overarching	<p>There is a decrease in subsidies for the use of fossil fuels in the energy-intensive industry. Furthermore, alternative energy in industry is promoted by national strategies.</p> <p>In their National Strategy for Sustainable Development, Romania states that the specific consumption rates for materials and energy losses should be reduced by 1.2 – 1.5% per year. The strategy points in the right direction; however, there is no clear policy on implementation yet.</p> <p>Implicit energy tax is below 100% at present, but action plans and regulations are drafted or planned to increase it gradually.</p>

BUILDINGS



Renewables	Use of renewables in buildings (firewood) has increased since 1990, but not due to policies. Although EU policies are transposed in national legislation, its implementation is still lagging behind due to administrative barriers.
Energy efficiency	<p>Zero emission buildings for demonstration are supported.</p> <p>The EU Ecodesign Directive is implemented in Romanian law, but no real enforcements are added; some incentive programmes were initiated, but they are in preliminary/elementary phases.</p> <p>Administrative barriers are hindering the improvement of energy efficiency in buildings</p>
Overarching	Energy taxes are at the level of the energy price. They are not significant enough to be effective.

TRANSPORT



Renewables	<p>Romania transposed the EU Legal Framework regarding the promotion of biofuel use, which means that they will have to provide 10% biofuels by 2020. However, Romania is lacking clear energy crop legislation.</p> <p>There are no plans for an infrastructure on electric mobility.</p>
Energy efficiency	Incentives for reducing emissions exists only for cars (based on EU regulation), but not for freight vehicles.
Overarching	Railway transport development is one of the main objectives of the long-term strategy, but most of the actions planned by 2020 are in motorway/highway development.

AGRICULTURE



	<p>Romania has implemented measures that lead to a load of 170 kg N/ha for over 80% of agricultural areas. However, based on our information there is no certainty that this has been reached by now.</p> <p>No sufficient funding allocated for sustainable farming with positive impact on GHG emissions.</p> <p>Register and limits for protected areas exists, but centralised land use database with recent data is missing. There is no protocol or rule for updating.</p>
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FORESTRY



	<p>Rules are clear and strong, applicable for all of the country, but they are weakly implemented.</p> <p>No long-term forest strategy.</p>
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SLOVAKIA

E

F

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SLOVAKIA

Simplified
methodology

Overall assessment

Slovakia is rated E

The country faces several economic challenges. An overall strategy to reduce GHG emissions that covers all sectors is needed. Except for the forestry sector, policies are not sufficient and based on a piecemeal approach. The carbon effects of policies have no priority. The efficiency standards in the building and energy sector are low; efficiency improvements are economically attractive and substantial reductions in energy use have been achieved. The positive ratings are often due to improvements in the past, not new policies.

Success stories

- Support for renewable electricity production has been implemented.
- A land use strategy is implemented and consistent, sustainable forestry is practised.

Areas that need improvement

- An overall strategy to reduce GHG emissions covering all sectors is needed. Except for the forestry sector, policies are not sufficient and based on a piecemeal approach.
- The industrial sector and the transport sector reach the lowest score. The industrial sector needs to improve use of RES and efficiency. Transport needs to focus on modal shift and reduction of traffic demand.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> No climate strategy <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> Feed-in-tariff differentiated by technology is main support instrument New support scheme under development <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Financial support available <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No significant policies found <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> Only a few demonstration projects <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> First efforts: financial (up to € 5 mio per project), informational and training support for improving energy efficiency Requirement of an energy manager since 2005 <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Fund for recycling organization with money from producers and importers of 10 specific products <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> New large buildings need to perform an evaluation on the use of renewable energy Grant scheme for biomass boiler and solar panels of undefined effect <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Standards for buildings are not ambitious Subsidies for housing renovation and thermal insulation <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> No policy found <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> Quota obligation without penalty and tax exemptions for biofuels No support for renewable energy electric vehicles <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> No significant policies found <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Toll on highways and selected roads with low impact <i>Up to 5% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> Limits for nitrogen load Land use strategy is implemented and consistent <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> Land use strategy is implemented and consistent Sustainable forest management is implemented <i>Between 5% to 10% weight for the country</i>

Sectors in detail

**ELECTRICITY
SUPPLY**

Renewables	The share of additional RES-E production increased by 9% between 1990 and 2008. The key support instrument of RES-E is a feed-in tariff (differentiated by technology). A new RES-E support scheme with a feed-in premium is under development, where a fixed price is paid in addition to the current electricity price. Additionally, RES are exempted from the consumption tax and voluntary green certificates for renewable-based electricity can be used. The current system still has implementation barriers.
Energy efficiency	Slovakia supports electricity produced at highly efficiency CHP plants depending on capacity, technology used and when power plant was put into operation. The share of CHP electricity production increased by 8% between 2002 and 2007.
Overarching	No significant overarching policies found. The carbon intensity of fossil fuel-based electricity production even increased by 6% between 1990 and 2007.

INDUSTRY

Renewables	Only very small efforts as demonstration projects are implemented.
Energy efficiency	Energy efficiency measures are only starting. Support for energy efficiency improvements is available in the form of funds of up to € 5 mio euro per project. There is also a total of € 128 mio for information and training until 2010. In addition, since 2005, an energy manager for industries in the heat delivery branch is required.
Overarching	Recycling is identified as a priority, since the share of recycled waste is one of the lowest in the EU. A recycling fund organises recycling and is receiving its funds from producers and importers of 10 specific products. Other measures to restructure industry are not present.

BUILDINGS

Renewables	Builders of new large buildings need to perform a technical, economical and environmental evaluation of alternative energy systems. A grant scheme for support of biomass boilers and solar panels is in place.
Energy efficiency	The temperature-corrected energy consumption for space heating and hot water per m ² decreased by 31% between 1990 and 2005, whereas the average electricity use per capita increased by 49%. The EPBD is implemented, but the standards for buildings are not ambitious. Subsidies for housing renovation are available (financed through the sale of surplus emission allowances under the Kyoto Protocol) as loans. However, the impact is limited as requirements for efficiency improvements are missing and consumers are risk-averse to loans. The Eko Fund supports non-profit activities e.g. the improvement of the energy efficiency of buildings.
Overarching	No overarching policies found.

TRANSPORT



Renewables The support for biofuels is based on a quota obligation without penalty for non-fulfilment and an excise tax exemption for biofuels. There is no specific support for electric vehicles that use renewable electricity. However, between 1990 and 2007 the share of biofuel consumption in transport has increased by 5%.

Energy efficiency The average emissions in 2008 were 150 gCO₂/km (close to the EU average) with a decreasing trend. No significant policies found.

Overarching There is a toll on highways and selected roads since 1996, but the impact was rated low.

AGRICULTURE



Ambitious limits for nitrogen load exist at least for financially supported land. A land use strategy is implemented and consistent. Financial incentives for organic farming and other soil protection measures based on EU funding and on detailed conditions are available. Major improvements are possible to reduce methane emissions from animals and the incentives for sustainable farming could be increased. The total emissions from agriculture decreased by 11% from 2000 to 2008.

FORESTRY



There is a national forest programme to secure sustainable forest management and the Slovakian Forest Act also includes conditions for sustainable management.

A

B

C

D

SLOVENIA

E

F

G

SLOVENIA

Simplified
methodology

Overall assessment

Slovenia is rated E

It is among the advanced new member states. Significant efforts have been made to improve environmental performance, especially in the building, energy and transport sector. The agricultural and forestry sectors are traditionally characterized by a sustainable policy. Although ambitious policies have been implemented to increase energy efficiency in households (insulation and heating systems), the increasing standard of living has almost overtaken these improvements. An overall long-term climate strategy is missing. Slovenia would be a good candidate for a more detailed look next year.

Success stories

- Obligatory installation of 25% RES in new buildings.
- Tax for air pollution with CO₂ exemption for businesses if they agree to reduce their emissions by at least 2.5% compared to base year.
- The Spatial Development strategy defines the use of renewable energy sources as a priority for new or modernised public infrastructure and the use of CHP as priority for new or existing thermal power plants and district heating power plants. The Spatial Development Strategy also includes several aspects of sustainable transport and enables integrated planning.
- Very ambitious target of 20% organic land area by 2015

Climate leader of tomorrow?

In comparison to other eastern European countries, Slovenia is quite advanced in its policy making. Some very good initiatives are underway in almost all sectors. If the speed of implementation continues, Slovenia has the potential to become a leading country for low-carbon development in Europe.

Areas that need improvement

- An overall climate strategy with binding GHG emissions targets is missing.
- A challenge is the increasingly energy consuming lifestyle, which may lead to higher emissions in the future if not enough measures are taken.

Overview summary



GENERAL

ELECTRICITY SUPPLY

INDUSTRY

BUILDINGS

TRANSPORT

AGRICULTURE

FORESTRY

Renewables	Energy efficiency	Overarching
		<ul style="list-style-type: none"> No GHG strategy exists <i>Up to 5% weight for the country</i>
<ul style="list-style-type: none"> Choice between feed-in tariff and feed-in premium, both differentiated by technology Use of RES-E is priority for public infrastructure <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Support for CHP available CHP is priority for thermal power plants and district heating power plants <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> CO2 tax <i>Between 5% to 10% weight for the country</i>
<ul style="list-style-type: none"> Subsidies, loans, information, education and counselling are provided for businesses which invest in environmental friendly heat production Funds (2,5-50% of proposed costs) for use of renewable energy sources are available <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Funds (2.5-50% of proposed costs) for improvement of energy efficiency are available to promote energy audits and feasibility studies. € 15 mio for energy efficiency promotion provided for the period of 2009-2012 European Motor Challenge Programme for improving efficiency of motor driven systems <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Policies to improve recycling, waste separation and waste management in place High energy tax. Tax for air pollution with CO2; exemption for businesses if they agree to reduce their emissions by at least 2.5% compared to base year Eco-labels and environment management systems implemented <i>Between 5% to 10% weight for the country</i>
<ul style="list-style-type: none"> Min. of 25% of total power demand must be provided through RES (new and buildings undergoing major renovation) <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Sufficient incentive for efficient appliances <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> Information campaigns <i>Up to 5% weight for the country</i>
<ul style="list-style-type: none"> Quota obligation for biofuels and tax exemption No specific support for electric vehicles that use renewable electricity <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> Car tax is based on purchase prices and CO2 emissions Subsidy for environmentally friendly trucks <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> Diversified and ambitious policy mix Spatial development strategy includes several aspects of sustainable transport and enables integrated planning <i>Up to 5% weight for the country</i>
		<ul style="list-style-type: none"> Well balanced land use strategy is implemented Very ambitious target of 20% organic land area by 2015 <i>Between 5% to 10% weight for the country</i>
		<ul style="list-style-type: none"> Land use strategy is implemented Sustainability is included in major legislation <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	The relatively well functioning RES-E support scheme is differentiated by technology and valid for 15 yrs. Producers of larger plants may choose between a feed-in tariff (guaranteed purchase) and a feed-in premium (on top of power price) for RES plants above 5 MW and CHP plants above 1 MW. Smaller plants are only eligible for the feed-in tariff. The Spatial Development strategy defines the use of renewable energy sources as a priority for new or modernised public infrastructure.
Energy efficiency	Slovenia supports electricity produced at highly efficient CHP plants depending on capacity, fuel used (fossil fuel and biomass) and number of operating hours a year (up to 4,000 and more than 4,000). Producers above 1 MW can apply for the feed-in tariff or the feed-in premium. The Spatial Development strategy defines the use of CHP as priority for new or existing thermal power plants and district heating power plants.
Overarching	A CO2 tax is implemented. The ECO-Fund provides soft loans for various investments in environment protection at interest rates lower than market rates (also relevant for the buildings and industry sector).

INDUSTRY



Renewables	Subsidies, loans, education and information are provided for businesses which invest in environmentally friendly heating.
Energy efficiency	Funds are also available for renewable energy use and the improvement of energy efficiency. Energy management training is provided. There is a programme for improving the energy efficiency of motor-driven systems. Eco-labels and environmental management systems are implemented.
Overarching	High energy tax. There is a tax for air pollution from CO2 with an exemption for businesses if they agree to reduce emissions by at least 2.5% compared to the base year. The share of recycled waste was 16% below EU average in 2006, yet has increased 6% from 2004 to 2006. In addition there are policies in place for improving recycling and waste management.

BUILDINGS



Renewables	Obligatory installation of RES devices in new buildings and those undergoing major renovation. A minimum of 25% of the total power demand must be covered by the installation of RES systems such as solar hot water, PV and ice storage for cooling. Low interest loans of the ECO fund are available for the installation of RES in buildings.
Energy efficiency	Overall, there is a balanced mix of measures including info campaigns and financial incentives e.g. the investment in energy efficient government buildings. The EPBD is implemented. Some incentives (regulation, support and information) for the use of efficient appliances. Low interest loans of the ECO fund are available for energy efficiency in buildings.
Overarching	There are additional incentives, e.g. information campaigns.

TRANSPORT



Renewables	Slovenia has implemented a quota obligation for a minimum 5% biofuels in transport by 2010. Besides that, biofuels are exempted from excise taxes and grants for growing energy crops are available. There is no specific support for electric vehicles that use renewable electricity.
Energy efficiency	There is a subsidy for the purchase of environmentally friendly trucks since 2009. Slovenia has implemented a progressive tax on CO ₂ emissions of new and used cars. The tax level depends on purchase price and CO ₂ emissions of the vehicle. The tax varies between 0.5% and 31%. It has not yet been effective in halting the increase in emissions/km of new passenger cars.
Overarching	The total per capita emissions from transport increased by a factor of two between 1990 and 2008. However, the overall transport policy mix for the future is diversified and ambitious. Slovenia is one of the few European countries to have implemented a Spatial Development Strategy which includes several aspects of sustainable transport and enables integrated planning. There are financial incentives for bicycle lanes and public transport. Financial incentives for inter-modality and increase in rail freight are financed through taxes on road freight vehicles. External costs are included in tolls and other taxes on freight transport.

AGRICULTURE



The policies in the agricultural sector are well balanced overall. Limits for nitrogen from livestock manure exist for the whole country. A consistent land use strategy is implemented. Slovenia has set a very ambitious target of 20% organic land area by 2015. There are some financial incentives for organic farming, but these are based on EU funding and not on state funding. Significant improvements are possible to reduce methane emissions from animals and the incentives for sustainable farming could be increased.

FORESTRY



Sustainability is included in the Forest Act and the Forest Development Programme in Slovenia. Plans for forest management on the regional and local level (unit plans) exist. A land use strategy is implemented and consistent.

A

B

C

D

SPAIN

E

F

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SPAIN

Overall assessment

Spain is rated E

There are important initiatives in renewable electricity generation and renewables in buildings, but other sectors lack policies, in particular the transport sector. An integrated long-term, low-carbon plan could replace the national climate strategy, which is only in place until 2020. Spain lacks overall ambition, shown for example by the 2020 target for Spain, which according to the EU climate and energy package results in +31% GHG emissions compared to 1990. This target is less ambitious for 2020 than for 2012 (+15% compared to 1990)

Success stories

- In Spain, a well functioning feed-in premium scheme for renewable electricity generation is in place. Until now, the focus was on wind and solar technologies (Spain is one of the world leaders regarding installed capacities). However, the policy framework has been unstable lately. In 2009, a cap has been introduced for solar and wind and retroactive changes in the incentive framework for renewables irritated producers and investors.
- Spain has introduced an obligation to use solar thermal energy (30-70% of warm water demand) as well as a minimum contribution to electricity consumption by PV in new and retrofitted buildings, saving approx. 30-40% energy per household.

Front runner Spain – renewable obligation

Spain was the first European country to introduce the obligation to use renewable energy in new and retrofitted buildings: a minimum share of solar thermal and solar PV

Support of domestic coal – to be phased out or not?

While Spain will phase out subsidies for coal mining, in line with recent EU decisions, a Royal Decree has just been proposed in February to introduce new subsidies and an obligation to use a minimum amount of domestic coal for power generation. While compliance of this scheme with EU regulation is currently investigated by the European Commission, the Decree clearly shows an overall lack of coherence in Spanish energy policy.

Areas that need improvement

- The transport sector was the first GHG emitter in 2009, with a total share of 23.6%. Although the transport sector reduced its emissions by 5.2% compared to the previous year, this reduction was mainly caused by the deep economic crisis. However, emissions from transport increased by 71% compared to 1990 and were above average in other sectors. There are plans to build new roads which could increase transport-related emissions even further.

- Energy taxes are among the lowest in Europe.
- Even though a national forest strategy exists, competencies in this sector lie within the 17 regional governments. There are no national policy instruments to secure the convergence of regional policies with the national forest strategy. The national government should apply conditionality to the funds they transfer to regional governments so that regional strategies contribute to the implementation of the national strategy.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> • There is a national climate strategy, but it is only in place until 2020 with a lack of ambition as the objective for 2020 considers more emissions for the country than the Kyoto objective for 2012 <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> • High level of support, however recently changes in the incentives framework are creating uncertainty for producers and investors <i>Between 5% to 10% weight for the country</i>	<ul style="list-style-type: none"> • Support for CHP relatively high and stable. Cogeneration law exists <i>Up to 5% weight for the country</i>	<ul style="list-style-type: none"> • Energy taxes are among the lowest in the EU, no CO₂-taxes • Obligation to use domestic coal plus subsidies which endanger the improvement in GHG emissions as well as renewable energies' share in the energy mix <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> • Financial support exists for main technologies but credit line ends in 2010. The new action plan (currently developed) will decide upon future incentives <i>Up to 5% weight for the country</i>	<ul style="list-style-type: none"> • Energy savings objective very ambitious, but there is partly a lack of financing • White certificates under discussion but not implemented <i>Up to 5% weight for the country</i>	<ul style="list-style-type: none"> • Policies to support ecological redesign of products exist • Indirect subsidies for energy intensive industries are still in place <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> • Obligation to use solar technologies in new and renovated buildings • Landlord-tenant problem needs to be approached <i>Up to 5% weight for the country</i>	<ul style="list-style-type: none"> • Only minimum efficiency requirements are in place • No trajectory towards zero-emission buildings <i>Up to 5% weight for the country</i>	<ul style="list-style-type: none"> • No specific pricing instruments, relatively low energy taxes <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> • There is a partial tax exemption and a target for biofuels, but other taxes (VAT, IVMH) remain • Pilot projects for e-mobility and ambitious planning for infrastructure, but not connected to renewables <i>Up to 5% weight for the country</i>	<ul style="list-style-type: none"> • Limited support for reduction of new vehicle/freight emissions • Regulation that favours efficient vehicles is under development <i>More than 10% weight for the country</i>	<ul style="list-style-type: none"> • High investment in railway infrastructure, but also in new roads • Recent incentive introduced to buy new cars without limit on emissions <i>Up to 5% weight for the country</i>

AGRICULTURE

FORESTRY

Renewables	Energy efficiency	Overarching
		<ul style="list-style-type: none"> Plans and support to reduce nitrogen load and methane emissions and enforce sustainable farming Land use plans lack coordination between autonomous regional governments <i>Up to 5% weight for the country</i>
		<ul style="list-style-type: none"> A national forest strategy exists, but lacks implementation due to high level of sovereignty of regional governments <i>Up to 5% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>Spain supports the use of renewables for electricity generation by a feed-in premium. The level of support for renewables is rather high. The support is differentiated according to technology. PV and biomass get the highest premiums.</p> <p>The administrative environment for renewable projects could be improved. The policy framework is unstable because in the past, the target for PV and biomass was surpassed and a cap was introduced in 2009. In addition, attempts were made to change the framework retroactively, which upset investors. Spain is very decentralised and at the moment, permitting procedures differ from region to region. On the positive side, grid access and congestion management give preference to renewables by law in the whole of Spain.</p> <p>An expansion of the Spanish power grid is envisaged, but not with a special focus on the needs of renewables.</p>
Energy efficiency	<p>CHP is also supported through a feed-in premium. The premium differs according to technology. Biomass renewable CHP gets a higher tariff than fossil CHP. The support is not sufficient to increase the use of CHP to the necessary share.</p>
Overarching	<p>Spain is planning to phase out coal mining subsidies by 2014 in line with the most recent EU decisions. However, a Royal Decree adopted in February 2010 proposes to introduce new subsidies for coal use together with an obligation to use domestic coal for power generation. While this scheme is currently investigated by the European Commission, it clearly shows the lack of an overall energy strategy and little consistency in policy making.</p> <p>Energy taxes for electricity producers are among the lowest in the EU and there is no CO₂ tax in place.</p> <p>Although the phase-out of Spanish nuclear power was originally planned, a reform law in 2010 allows for longer terms until the phase-out. This has led to the questioning of the final phase-out.</p>

INDUSTRY



Renewables	Incentives for the use of renewables in industry are neglected in Spain. The Renewable Energy Action Plan did include some measures for the industrial sector, but the financing ends this year (2010). A new action plan is to be approved this year, but the future of any support for industry is unclear.
Energy efficiency	Spain introduced an energy savings and efficiency strategy in 2004 to run until 2012. It includes voluntary agreements, energy audits and financial support for efficiency measures. The aim is for this set of measures to lead to emission reductions of 42 Mt CO ₂ by 2012. However, as the financial support only partly covers the necessary investment cost for efficiency measures, especially with regard to the current financial situation in Spain, companies have severe problems to actually invest in energy savings measures and thus the target might not be reached. Although the introduction of white certificates is under discussion, no steps towards implementing them have been taken.
Overarching	The energy tax for the industrial sector is among the lowest in the EU. The redesign of products to be more long-lasting, less material-intensive and more recyclable is targeted by the National Plan for R&D which includes R&D for the eco design of products. However, this field is only a small part of the plan which only goes until 2011 without a follow-up in place.

BUILDINGS



Renewables	Spain was the first country in Europe to introduce an obligation for the use of renewable energy in buildings. Depending on the climatic zone and type of building, between 30% and 70% of hot water demand has to be covered by solar-thermal in new and renovated buildings. Also, PV has to be used for a certain share of the power demand. The landlord-tenant problem has not been addressed yet in Spain. It is not possible to include the costs for retrofitting into the rent.
Energy efficiency	Although there are mandatory energy performance standards for buildings, there is no trajectory towards zero energy buildings. Rather, the current technical building code aims at a reduction of primary energy use between 30% and 40%. Currently, a new building code is under discussion and is to be implemented after 2012. Whether zero energy buildings will be the aim is not yet clear. The certification of buildings in terms of energy use is in place and includes a penalty mechanism. However, certification has yet to be properly implemented. Existing buildings are not fully integrated in the scheme.
Overarching	The level of energy taxes is among the lowest in Europe.

TRANSPORT

Renewables	<p>A partial tax exemption for biofuels exists.</p> <p>Electric mobility is part of integrated transport planning and € 1.5 mio are allocated to develop the necessary infrastructure. In addition, pilot projects with 2000 electric vehicles and 500 loading stations are to be implemented in 2010. Electric mobility is not coupled to the use of renewable energy.</p>
Energy efficiency	<p>The efficiency of the transport sector is not a strong field in Spanish policies. There is a target to reach emission levels of new cars which below the EU Directive, but there are only some small financial incentives in place to support the purchase of cars with emission levels below 120 gCO₂/km.</p>
Overarching	<p>Also, the infrastructure for low-carbon modes of transport and modal shift is limited. Although there are plans to increase the amount of railway lines and the shares of transport by rail and on waterways, the current planning for transport budget at the same time includes big budgets for highways and other roads. This might potentially neutralise the impact of investment in alternative transport modes.</p> <p>As Spanish automotive industry faced large problems due to the economic crisis, an incentive to buy new cars was introduced without connecting it to new vehicle emissions.</p>

AGRICULTURE

Total emissions from agriculture have been substantially reduced in the past (-11% from 2000-2008). Methane emissions are targeted by a budget of € 40 mio from 2008 until 2012 with the aim to save about one fifth of agricultural methane emissions.

There is no national land-use strategy for Spain, rather 17 individual regional strategies. They are not coordinated amongst each other.

FORESTRY

Stringent forest management plans only exist for 13% of the total forest area. The percentage within private property is only 5% which is especially worrying as 70% of forest area is private.

Even though a national forest strategy exists, competencies in this sector lie within the 17 regional governments. As a matter of fact there are no national policy instruments to secure the convergence of regional policies with the national forest strategy. National government should apply conditionality to the funds they transfer to regional governments so that regional strategies contribute to the implementation of the national strategy.

A forest inventory is updated every ten years, but due to different procedures of information collection, there are problems with consistency.

A

B

C

SWEDEN

D

E

F

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SWEDEN

Overall assessment

Sweden is rated D

Sweden adopted a vision that in 2050 the country will have no net emissions of greenhouse gases in the atmosphere. This is possible due to the vast resources of forests and biomass. Sweden has a long history of using biomass. It is regularly used for combined heat and power and as heat source in industry. Standards in buildings and incentives for transport are also relatively high. However, the concentration on biomass has turned the focus away from developing electricity end-use-efficiency, restructuring industry and investing in infrastructure for a modal shift. While there was a moratorium on new nuclear capacity, this has just recently been lifted, opening the possibility of extending the dependence on nuclear energy and diverting resources away from much-needed investment in efficiency and renewables.

Success stories

- Sweden has a long history of using biomass, both for heat and power, but also for materials. In 2009, biomass energy overtook oil to become the largest contributor to Sweden's energy mix. It is regularly used for combined heat and power and as heat source in industry. The high share of biomass use is due to high availability and partly due to policies.
- Sweden has (traditionally) relatively strict energy standards for buildings. Renovated buildings need to reach the same standard as new buildings. However, a trajectory to zero energy buildings is not foreseen.
- There is a long experience with CO₂ taxation. However, for power and industry, this has been overtaken by the Emission Trading System.
- Fuel stations are obliged to offer at least one renewable fuel.

Ambitious GHG vision for 2050

In 2009, Sweden adopted a vision that in 2050 the country will have no net emissions of greenhouse gases in the atmosphere. A comprehensive reduction strategy is set out to 2020.

Low electricity price counters efficient electricity use

The dominance of nuclear and hydro power leads to relatively low electricity prices, which is counterproductive for energy efficiency. For example, Sweden has a relatively high rate of heating with electricity.

Areas that need improvement

- Strong availability and use of biomass takes pressure away from developing electricity end-use-efficiency, restructuring industry and investments into infrastructure for modal shift (other than requiring fuels stations to offer renewable fuels).



Overview summary

	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> • Ambitious vision adopted for no net GHG emissions by 2050 • Comprehensive GHG reduction strategy to 2020 <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> • Stable green certificate system since 2003, not technology specific • Biomass largest contributor to overall energy <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Strong history of district heating from CHP • No sufficient incentive to increase CHP share <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • Electricity mainly from nuclear and hydro • No coal in power mix. No investment to date in CCS • Power sector is exempt from CO2 tax <i>Up to 5% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> • Demonstration projects for biomass in industry in 1980's and 90's. Now common practice in industry <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Voluntary energy efficiency programme gives energy tax exemption <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • No policies in place to restructure industry to be material-efficient • Energy and CO2 tax level low but set to increase <i>More than 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> • Some incentives for retrofit but some short of budget <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • Strict energy standards, same for new and existing buildings, but no plan for zero energy standard • Some incentives for retrofit but some short of budget <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • CO2 tax of around 100€/tCO2 applies • Low electricity prices from nuclear and hydro lead to high rate of heating with electricity <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> • Biofuels are exempt from energy and CO2 taxes • Obligation for fuel stations to offer at least one renewable fuel • Still not meeting 10% biofuel target <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Vehicle tax linked to CO2 emissions. New green cars are exempt from vehicle tax for first 5 years • Stronger incentives than many other countries. <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> • Significant R&D investment in biofuel and in coming years for hybrid and electric vehicles <i>Between 5% to 10% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> • Financial support available to farmers for renewable energy or other environmentally friendly practices such as organic farming <i>Between 5% to 10% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> • Very detailed forest inventory • Long history of sustainable forestry management and increasing forest areas <i>Between 5% to 10% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	<p>Sweden has had a tradable green certificate system in place to support renewable electricity, which has remained relatively unchanged since 2003. The system provides a relatively low level of support and is not specified by technology. Investment support was given to certain technologies, including offshore wind and wind in remote areas until 2009. Lead times for the implementation of projects are relatively long compared to other EU member states. This lack of support instruments towards a wide range of renewable energy technologies results in a relatively low ranking for Sweden in this area, despite its high current share of renewable electricity production.</p> <p>In 2009, biomass overtook oil to become the number one energy source in Sweden.</p> <p>Sweden's target under the EU Renewable Energy Directive is for 49% renewables in 2020. The government has adopted a 50% target.</p>
Energy efficiency	<p>Sweden has a strong history in combined heat and power (CHP). Biomass CHP is also eligible for support under the green certificate system.</p>
Overarching	<p>The main electricity generation technologies in Sweden are nuclear and hydro.</p> <p>There is no coal in the Swedish energy mix. As such, the country has made no investments in CCS, either for coal or biomass. EU ETS installations are exempt from paying the CO₂ tax, which applies to other sectors in Sweden.</p>

INDUSTRY



Renewables	<p>Demonstration projects for large-scale biomass in industry took place in the 1980's and 90's. Today, the use of biomass is common practice in many industry sectors.</p> <p>Sweden does not have specific legislation in place on the sustainability of the biomass used for electricity, but it does have a very long history of sustainable biomass use from domestic forests and wastes.</p>
Energy efficiency	<p>A voluntary programme for energy efficiency in energy-intensive industry (PFE) exists. Companies are exempt from the energy tax for five years if they implement an energy management system and an energy survey on how to best improve energy efficiency. This covers roughly one fifth of Sweden's energy consumption. It is a relatively weak policy compared to what is needed. However, the pulp and paper industry in Sweden, which is an important sector, is highly efficient and has introduced various measures to increase efficiency. This has, however, not been driven by policies.</p>
Overarching	<p>Sweden has no policies in place to restructure industry to be material-efficient.</p> <p>Energy and CO₂ tax level is relatively low, but it is set to increase in the coming years. There are exemptions for those covered by the EU ETS or taking part in PFE.</p>

BUILDINGS



Renewables	Some incentives for retrofit (e.g. wood pellet stoves), but some are out of budget.
Energy efficiency	Relatively strict energy standards are in place, which apply to new and also existing buildings. However, no zero-energy standard is defined. Standards are differentiated according to region. Several small programmes support energy-efficient renovation, but some are short of budget.
Overarching	CO ₂ tax of 1.05 SEK/kgCO ₂ (around 100€/tCO ₂) applies. Low electricity prices from nuclear and hydro lead to high rate of heating with electricity.

TRANSPORT



Renewables	Biofuels are exempt from energy and CO ₂ taxes. Since 2006, all larger fuel stations are obliged to offer at least one type of biofuel.
Energy efficiency	The car fleet in Sweden is dominated by large vehicles with high fuel use. Starting in 2010, new green cars are exempt from the vehicle tax for the first 5 years. Green-cars are defined as vehicles that use E85/biogas or are very energy-efficient and do not emit more than 120 g CO ₂ /km. Vehicle tax is linked to the CO ₂ emissions and is set to increase. There are also other incentives, such as free parking in certain regions and exemptions from the congestion tax for cars defined as being environmentally friendly.
Overarching	Between 120 and 170 million SEK/year have been invested in research and demonstration projects for biofuel. In 2009, another 875M SEK was provided for R&D in biofuels for a period of three years. Approximately 450M SEK shall be spent during the coming years on R&D on hybrid and electric vehicles. Fossil petrol and diesel is subject to the CO ₂ and energy tax. The CO ₂ tax is SEK 1.05/kgCO ₂ . The energy tax on petrol is SEK 0.341/kWh. The energy tax on diesel is SEK 0.134/kWh

AGRICULTURE



	Sweden has low nitrate levels but does not set a limit, such as on nitrogen loads per hectare. Financial support is offered to farmers for the introduction of renewable energy or an increase in the energy efficiency of agricultural greenhouses. Organic farming also receives government support, both crop and animal. There are several labels for ecological agriculture. Additionally, there has been funding by the government to the consumer agency (konsumentenverket) to produce information material and campaigns.
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FORESTRY



	Sweden has a long history of sustainable forestry and of supporting and promoting domestic forests. There are very detailed forest inventories. Forest areas have increased significantly in the past and are now relatively stable. Central policy from the Swedish Forest Agency concerns both mitigation and adaptation to climate change.
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UNITED KINGDOM

E

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UNITED KINGDOM

Overall assessment

The United Kingdom is rated E

The UK has an ambitious, legally binding Climate Change Act which commits the UK to reduce greenhouse gas emissions by at least 80% below 1990 levels by 2050. It sets carbon budgets in 5-year increments and has independent review provisions through its Committee on Climate Change. There are several initiatives covering many sectors and policy areas. However, in most cases, these are not ambitious enough to achieve a transformation to a low-carbon economy by 2050. Some important areas are underdeveloped, particularly in buildings and transport. While the new government, elected in May 2010, has indicated climate ambitions of a similar level as the previous government, budget cuts are currently being implemented and are anticipated across all areas of the economy. These could have serious implications on the policies that are currently rated positively.

Success stories

- The UK is the only EU country with a legally binding long-term commitment to reduce greenhouse gas emissions by 80% by 2050. This commitment is supported by innovative carbon budgets set in 5-year increments to ensure that emissions decline from day one. There is an additional provision for the carbon budgets to be tightened through government responses to recommendations from the independent Committee on Climate Change.
- Successful introduction of new policy instruments - for example the Carbon Trust, receive resources from a climate change levy and this finances further emission reductions.

Legally binding emissions reductions

The Climate Change Act sets a legally-binding long-term commitment to reduce GHG emissions across the economy 80% by 2050.

High RES potential - more action needed

The UK has a high renewable energy potential, particularly offshore wind. Support policies are in place, but have not been improved recently. Non-economic barriers still need to be overcome.

Areas that need improvement

- There are important policy areas (with a high share of emissions) that are not covered sufficiently, e.g. renewable electricity generation, low-carbon industry, efficiency in buildings and transport, reducing emissions from fossil fuel power plants and land use emissions, including those from peat.

- Potential for renewable electricity generation, especially wind, is very high. The level of support is sufficiently high, but substantial barriers, such as planning and grid access, have prevented rapid developments. The obligation scheme is modified and supplemented by feed-in tariff to increase take-up.
- Zero emission standards for new residential buildings are unique in Europe, but if they are not supplemented by support for increased retrofit rates for existing buildings, emissions will not decline to the desired level.

Overview summary



	Renewables	Energy efficiency	Overarching
GENERAL			<ul style="list-style-type: none"> • Binding strategy -80% target by 2050 • Detailed strategy only until 2020 <i>Up to 5% weight for the country</i>
ELECTRICITY SUPPLY	<ul style="list-style-type: none"> • Sufficiently high support system (obligation), differentiated by technology • But substantial barriers in grid access and grid extension <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> • Functioning CHP support, but not at sufficient level <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Political and planning support for new nuclear power plants threatens to divert resources away from renewables and efficiency investments <i>Between 5% to 10% weight for the country</i>
INDUSTRY	<ul style="list-style-type: none"> • Limited incentives for renewables in industry <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • Innovative climate change agreements • Innovation through carbon trust • In total not yet sufficiently effective <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • First efforts to initiate a transformation to low-carbon industry, but has not yet been picked up <i>Between 5% to 10% weight for the country</i>
BUILDINGS	<ul style="list-style-type: none"> • No incentives for the use of renewables for heating <i>Up to 5% weight for the country</i> 	<ul style="list-style-type: none"> • Zero carbon standard but not for all buildings • Landlord-tenant dilemma not solved <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • No specific pricing instruments <i>Up to 5% weight for the country</i>
TRANSPORT	<ul style="list-style-type: none"> • Incentives for biofuels • No incentives for electric mobility based on renewables <i>Between 5% to 10% weight for the country</i> 	<ul style="list-style-type: none"> • Incentives for low-emission cars (e.g. tax credits), but not sufficient <i>More than 10% weight for the country</i> 	<ul style="list-style-type: none"> • Moderate tax levels • Increased Air Passenger Duty and considerations to introduce a 'per plane' tax <i>Between 5% to 10% weight for the country</i>
AGRICULTURE			<ul style="list-style-type: none"> • Comprehensive policy, not yet fully harmonised <i>Up to 5% weight for the country</i>
FORESTRY			<ul style="list-style-type: none"> • Good forestry registry and forestry regulations • Land use policy tools are not comprehensive <i>Up to 5% weight for the country</i>

Sectors in detail

ELECTRICITY SUPPLY



Renewables	A Renewables Obligation has been in place since 2002, which places an obligation on electricity suppliers to supply an increasing percentage of renewable electricity. It is a stable policy, confirmed to be in place until at least 2037. The UK is achieving around 6% RES-E currently. The obligation targets 15% renewable electricity by 2015. It offers sufficient support, particularly since technology banding was introduced. However, non-economic barriers have persisted, especially in grid access and planning. A feed-in tariff has been in place for small-scale renewables since April 2010.
Energy efficiency	CHP support is functioning, but not at a sufficient level to boost its uptake. The level of district heating networks is low. The target to achieve 10GW CHP in 2010 will not be achieved.
Overarching	Phase 3 of the ETS has no free allocation for electricity production. Any new power plant over 300MW needs to be CCS-ready, including biomass CCS. There are proposals to fund four CCS demonstration plants. One requirement for any new coal plant is to fit a minimum of 300MW of CCS. Climate Change Levy varies as a percentage from roughly 7% for electricity to 24% for coal. Electricity producers also face the cost of the white certificate scheme for energy efficiency. There is political support and planning support for new nuclear, but no financial support - nuclear plants get a streamlined planning process. This could distract important resources from promising current and future policies.

INDUSTRY



Renewables	There are some examples of industrial installations having on-site renewables. Industry is eligible to earn green certificates under the Renewables Obligation for RES-E production and get an exemption from the Climate Change Levy for green electricity produced.
Energy efficiency	Climate change agreements are a key initiative in this area. These are negotiated at the sectoral level and entitle energy-intensive industries to an 80% reduction in the Climate Change Levy if they meet energy efficiency or carbon reduction targets. It has been announced that the tax reduction will be reduced from 80% to 65%, thus making the instrument less attractive. In addition, the Carbon Reduction Commitment, a trading scheme for large non-domestic buildings and small industry, provides an incentive to uptake energy efficiency in particular, as well as other carbon abatement measures. The scheme is currently in its uncapped introductory period, with a cap to be introduced in subsequent years; the effectiveness will depend on the cap. Carbon Trust Technology Accelerators provide funding and support for different sub-sectors in renewables, as well as energy efficiency. The Market Transport Programme focuses on sustainable products.
Overarching	A number of measures are in place: Carbon Trust, Carbon Labelling Programme (supply chain emissions), Market Transformation Programme and WRAP. These are good initiatives, but the uptake is not widespread across the industry.

BUILDINGS



Renewables	<p>Renewable heat utilisation is currently very low in the UK. A Renewable Heat Incentive (RHI) is in development, planned to be introduced in April 2011 to give significant boost to this sector: the goal is 12% renewable heat by 2020. It is envisaged to impact households, communities and the industrial sector. It is funded by a levy on suppliers of fossil fuels for heat and will cover a wide range of technologies. The new government has yet to confirm whether the RHI will or will not be going ahead.</p> <p>Some local authorities require a minimum percentage of onsite renewables before planning permission is granted for new buildings, but currently investment in new buildings is limited.</p>
Energy efficiency	<p>There is a target for all new houses to be zero carbon by 2016 and all new non-domestic buildings by 2019. But the target is not financially supported and little detail is available beyond the target. The landlord-tenant dilemma has, however, not been solved.</p> <p>A creative policy is the obligation on suppliers to produce savings from domestic buildings. The suppliers finance the efficiency measures of house owners and can put the costs on general energy prices. In addition, the Carbon Reduction Commitment, a trading scheme for large non-domestic buildings and small industry, will provide an incentive for energy efficiency in buildings (including retrofit and appliances). This scheme starts with an uncapped period and the effectiveness will depend on the cap.</p>
Overarching	<p>The Energy Saving Trust is similar to the Carbon Trust for business but its remit is the domestic and transport sector.</p>

TRANSPORT



Renewables	<p>The Renewable Transport Fuel Obligation started in 2008, with a target of 2.5%. The target was over-achieved by fuel suppliers. From day one, all fuel suppliers had to report on carbon and sustainability aspects of their biofuels to gain tradable certificates. No minimum carbon or sustainability requirements are set until the EU Renewable Energy Directive is fully implemented. The target increases to reach 5.75% in 2013, with an intention to meet 10% target in 2020. There are several city-based demonstration projects for electric car re-charging.</p>
Energy efficiency	<p>Tax incentives exist for low emission cars, but they are not sufficient. Examples include vehicle excise duty, road tax and company car tax which are banded according to emissions.</p> <p>The Department for Transport also runs various Modal Shift Programmes and Logistics Efficiency Programmes for freight.</p>
Overarching	<p>Air passenger duty (APD) was increased from two to four tax bands based on distance travelled in November 2009. The new coalition government is considering the introduction of a tax per plane to replace APD but it is not certain whether this will be implemented. A per plane tax would encourage greater airline efficiency and bring cargo planes and private jets into the tax net.</p>

AGRICULTURE



Agricultural strategy includes all major sectors, but takes place at the local authority level, exposing decision-making to potential inconsistencies. The bioenergy strategy is out of date and in the process of being updated in light of EU renewable energy targets.

- The government's 'Milk Roadmap' includes a long-term target of 40% of energy used on farms to be renewable - anaerobic digestion will play a key role.

FORESTRY



All strategies cover a long-term perspective and all forest lands. Climate change adaptation/mitigation is covered but not extensively for all parts of the UK (not covered in Northern Ireland). Considerable online/printed resources are available via the Forestry Commission, covering climate change mitigation, adaptation and other related topics. Wood planting schemes, such as the 'Energy Crop Scheme' and the 'Woodland Creation Grant' are available in the UK.

The Renewable Obligation and the planned Renewable Heat Incentive (due April 2011) do not differentiate support for domestic wood use over imported. The UK Bioenergy Strategy is being updated. A country level forest inventory is available for 2009 (includes woodland area, planting area, etc). A detailed forest inventory is available by region (i.e. county), but it has not been updated since 2002.

6. REFERENCES

All references and sources used for this report can be found in a separate document on our website:

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