Ideas and Action for Europe

Energy and Environment in the 21st century

Table of Contents

Energy 2
France 2
Consumption & production 2
Policy 2
Transition 2
Innovation 3
Germany 3
Electricity 3
Transport 3
Heating & Cooling 4
Albania 4
Executive overview 4
Objectives of RES policy in Albania 4
Policies and measures to promote the use of energy from renewable sources 4
Energy efficiency 5
Pricing 6
Environment 7
France 7
Key figures 7
Waste management 7
Germany 7
Key figures 7
Waste management 8
Albania 8
Key Figures 8
Waste management 8
The European Dimension 9
EU Energy Strategy 9
Energy efficiency 9
EU Waste Management Legislation and Policies 10
Perspectives for the EU and Albania 11

Energy

France

Consumption & production

The electricity mix in France is dominated by nuclear power, which accounted for around 72% in 2016. Hydro power accounted for around 12% of generation in 2016 and the rest was delivered by fossil fuels and renewables. The importance of nuclear energy in France is also visible through the country's contribution to global innovations, which is particularly strong in nuclear technologies - almost 10% of France's contribution.

The most important producer of electricity in France is EDF, or Électricité de France, with its immense park of nuclear power plants. EDF is the biggest electricity provider in the world, providing 22% of EU's electricity needs. Also, because of its huge nuclear arsenal, France is one of the least carbon intensive countries in the world. Because there is too much electricity on the grid, the price of electricity is going down, which resulted in a rebound effect – people are consuming because the price is very low. In 1998, France and Germany were using the same amount of electricity. But as the price of electricity is now much lower in France than in Germany (in Germany – 25,74/kWh; in France – 14,20/kWh), in 2009, electricity consumption per capita was 27% higher in France.

Policy

In France, electricity from renewable sources is promoted through a feed-in tariffs and fixed or sliding feed-in-premiums. Additionally, tax benefits are also available. The generation of heat through renewable energy plants is promoted through several energy subsidies, tax regulation mechanisms as well as through 0 % interest loans. The main support scheme for renewable energy sources used in transport is a quota system.

In May last year, the French president Emmanuel Macron has endorsed the plan of his predecessor François Hollande to reduce the share of nuclear energy to 50 % by around 2025. To replace the share of nuclear power, Mr Macron aims to double wind and solar capacity. Moreover, he pledged to launch tenders for 26 GW of renewables by 2022, requiring private investment of 30 billion euros.

The French president is also backing a shift towards renewable energy and to phase out coal-fired power completely in France by 2023. Moreover, as in the UK, France proposed a ban on sales of new diesel and gasoline vehicles by 2040. In France, there is also a carbon tax on the use of fossil fuels which is not covered by the EU ETS. The price was set at EUR 22/t CO_2 in early 2016, progressively rising up to EUR 100/t CO_2 in 2030. Energy policy in France is also an issue of municipalities. The city of Paris alone has a target of reducing emissions by 25 % by 2020 relative to 2004 levels. In 2016, new policy also appeared as targets to deliver more electricity by renewable energy sources. By 2030, there is a total target of 32 % of electricity delivered by renewable energy sources. Renewable targets are also made for heating and cooling.

Transition

Buildings are of critical importance as they represent 44% of final energy consumption and 24% of total GHG emissions in France. The main issue is heating, as it takes around 70% of energy consumption. One of the main problems of energy efficiency in France are multi-dwelling buildings, such as ones Paris which consume around 410 kWh/m^2/year. The most recent regulation sets maximum consumption at 50 kWh/m^2/year. Diverse energy efficiency measures can bring down the space

heating consumption down to 120 kWh/m^2/year – up to 70% more efficient than before refurbishment. Still, only around 30 000 deep retrofits are made every year in France.

Innovation

France's contribution to global innovations is particularly strong in nuclear technologies (almost 10% of its contribution), CCS, cement and insulation.

Germany

Electricity

Germany is in the middle of the transition phase to a sustainable energy system („Energiewende“). It all started with the „Stromeinspeisungsgesetz“ (law that regulates the conditions for feeding-in the electricity grid) in the year 1990. In basic terms, this law established the right to feed-in electricity from renewable sources to the grid as well as prototype feed-in-tariffs for those producers. This structure was continued and deepened by the „Erneuerbare-Energien-Gesetz“ (Renewable-Energies-Act), by which producers of renewable energies received incentives by the consumers. There was also a privileged feed-in for renewables, which means that during production peaks of renewables conventional power plants have to reduce the amount of energy they feed into the grid. In the following years several minor amendments to the EEG have taken place, but 2017 the whole mechanism was changed in favour of auction-based feed-in-tariffs. The whole field of energy policy is part of the „Konkurrierende Gesetzgebung“ (competitive legislation), which delegates major competences to the federal government. The regulation of energy policy has traditionally been a shared responsibility of the ministry of economics (BMWi) and the ministry of the environment (BMU). However, in 2013 the field of energy policy was almost completely transferred to the BMWi.

Especially after the liberalization of the energy sector, very critical adjustments of the legal framework took place. The whole energy supply system is historically understood as a part of the “Daseinsvorsorge” (service for the public). Since European law doesn’t contain any counterpart for this very special legal term, the juridical relevance of that notion is still a matter of discussion. A tough challenge for liberalized energy markets lies especially in questions of legal state-aid. Efforts to harmonize European state-aid regulation also resulted in adjustments of the German EEG. A key element of the liberalization was to distinguish three sectors, namely the production, transport and distribution.

Transport

Germany is a transit country in the heart of Europe. Therefore; transport is a crucial topic. Historically, car manufacturers have a huge influence on this sector. In recent years these manufacturers built many technologically advanced cars based on the internal combustion engine. Due to certain financial risks and conservative technology management there has been much less emphasis on the research and development of electro mobility. Pilot projects – such as hybrid or electric buses – are running at the moment but due to financial and political reasons there are still an exception. Because of this dependency on local car manufacturers the public transport sector, especially within cities, has still a long way to go to become fully sustainable. Train transport on the other hand is already operating broadly electrical. Therefore; they are dependent just as the electro mobility in general on the sustainability of the electricity grid. For the implementation of private electric mobility there is a public demand for charging points all over the country.

Heating & Cooling

There is an imbalance of the importance of heating & cooling in the public debate and the dimension in the energy consumption. In Germany, almost half of the energy used is for heating & cooling (~25% electricity and ~25% transport). The difficulty from a technological point of view is the replacement of old structures with renewable sources. Heat pumps for example can only be implemented in new buildings. Politics has subsidized the replacement of old oil heating systems with new, more efficient oil heating systems. This is at least questionable because then heating is still relying on fossil fuels.

Albania

Executive overview

Even for a country like Albania where over 95% of electricity and 20-23% of total primary sources are provided by hydro, use of other renewables is important because improves security of energy supply and energy sector sustainability. The analysis of the status of RE development in comparison with other similar countries is important because it has a positive impact in the reduction of foreign trade deficit for any net important country. Albania as one of the Contracting Parties to the Energy Community Treaty is obliged to transpose and comply with EU Directive 2009/28/EC, i.e. “to promote the use of energy from renewables”.

A substantial portion of energy in Albania imports is between 30% and 60% of total primary energy supply, subject to annual variations. Renewable energy can be a solution for reducing this dependence on imports and improve not only the security of energy supply, but also macroeconomic and political security of the country by reducing the country’s budget deficit.

Objectives of RES policy in Albania

I. Increasing the consumption of renewable energy sources to 38% in 2020

II. Diversifying renewable resources in the country, not only from hydropower but also from wind, solar, biomass and geothermal energy; also, the use of indigenous energy sources, especially in remote areas by opening new jobs and improve living standards

III. Increasing the contribution of biofuels and other fuels from renewable sources in the transport sector to 10% of total fuel consumption by 2020.

Policies and measures to promote the use of energy from renewable sources

- Establishment of a national target for renewable energy sources in total final energy consumption;
- Compliance of the transmission companies or distribution to connect new RES plants in their networks
- Recognition of existing agreements to purchase electricity produced from renewable sources and the operator obligation to buy electricity produced by small HPPs.

Currently, there is a fixed electricity price only for small HPP with installed power less than 15 MW and the fee is calculated according to the annual average price of electricity on the Stock

Exchange of Energy in Hungary (HUPX). As a result of these measures, it has significantly increased interest in renewables especially small hydropower plants as a "traditional" and better-known technology.

Hydropower

KESH is the biggest energy producer in Albania, with a full governmental capacity. The installed capacity is 1448MW which covers 80% of the total power. Drini river cascade covers the main part of internal energy production of the country.

Solar energy

Albania is considered to have good conditions for solar energy because of its high and reliable hours of sunshine throughout the year.

The use of the SWHP (Solar Water Heating Panels) has been extended in Albania. Surveys carried out show that installed capacity of solar panels in Albania are at 9 MW thermic, which corresponds to an installation surface of 12.000 m^2. About 80% of such installations are situated in the western part (Adriatic and Jonian coast). These investments are mainly private. Only 20% of these investments are realized through international donations.

Wind energy

The wind energy constitutes a potential opportunity for power production in Albania. The main directions of wind in our country are northwest-southeast and southwest- northeast, with dominant direction towards land. The major problem of establishing wind power plants in Albania, is the lack of consecutive measurements of the velocity and duration of the wind.

Geothermal energy

Geothermal energy resources in Albania are estimated as warm water sources of the underground soil, which have a sufficient temperature to be used as energy source.

Biomass energy

Outputs of agricultural products in our country are relatively low in comparison with other countries of Europe; this means that the potential possibility of using agricultural waste is limited to justify their economic exploitation.

Energy efficiency

The promotion of renewable energy and energy efficiency in Albania includes requirements to transpose acquis on renewable energy, high efficiency cogeneration based on useful heat demand, the improvement of energy efficiency of buildings, energy services and various other initiatives in compliance with the directive 2006/32/EC on “energy efficiency end use and energy services”, directive 2002/91/EC “on energy performance building” and directive 92/75/EC.

The NEEAP contains a description of measures to improve the energy efficiency in Albania that are planned in order to achieve indicative targets for 2010 –2018. Improved energy efficiency in all sectors is one of the main goals defined in the Albanian National Strategy of Energy. This Action Plan will enable a more focused implementation of energy efficiency policy and better monitoring of its success in the next three years for short term 2012 and long term 2018.

The leading sector in electricity consumption is the residential sector (56%) or 42% of the total primary energy supply for 2008 in the residential sector. Besides high amount of electricity consumption, the residential sector consumes also high values of fuel wood 42% and oil by-products 10%. Furthermore, Albania cannot facilitate the development of a natural gas system in short terms because it has almost negligible endogenous natural gas production and at the same time is not connected with European Gas Networks. Therefore, as described by the circumstances elaborated above, almost all energy services (space heating, cooking, and domestic hot water) for the residential and service sectors is covered either by electricity, fuel wood, and oil by products and especially LPG.

The relation between the economic development of a country and its energy demand is considered a key issue, and it is represented by a closed cycle. Currently, energy intensity in Albania is at a relatively high level. This means that the macroeconomic production, generally reported by the Gross Domestic Product (GDP), has been low compared to total energy consumption. Reasons for this are related to low industrial development of Albania, old technologies and big share of energy consumption goes for residential sector, etc.

The national indicative target must be allocated to the sectors of final energy consumption, so that the effectiveness of proposed measures can be monitored at a more disaggregated level. Furthermore, different authorities and organizations have jurisdiction to implement energy efficiency improvements in different sectors. The sector allocation of the national target is primarily based on the following:

- the potentials for efficiency improvements by different sectors,
- the level of policy interventions in the sector,
- the proportion of individual sectors within the final energy consumption,
- least cost concept of different energy efficiency measures for different sectors

The projection and construction of buildings should foresee the realization of the necessary technical parameters for the saving and efficient using of the energy. All the buildings, which are to be constructed after entering into force of this law, should be realized respecting the normative voluminous coefficient of the thermal losses and should be foreseen the central or local heating installation.

The law no. 10113 of 09.04.2009 on “the indication by labelling and standard product information of the consumption of energy and other resources by household appliances” defines the obligations to publish information on consumption of energy and other essential resources, particularly by means of labelling and information about the product, as well as additional information, concerning certain types of household appliances, allowing the consumer to choose more energy-efficient appliances, for home-use. This law shall apply to all types of household appliances, even if sold for non-household uses, inter alia refrigerators, washing machines, air-conditioning appliances etc.

Pricing

As of 1 January 2015, electricity became more expensive for consumers in Albania. The rates went up for households, but also for business consumers where the price increase was based on the level of connection, rather than consumption.

On 25th December 2014, Albanian Power Regulator (ERE) announced that the parliament approved the decision upon which, starting from 1 January 2015 households will start paying 9.5 lek [0.07 EUR] per every kWh they CO_2. The previous paying scheme predicted that householders who consumed less than 300 kWh of electricity paid 7.7 lek [0.06] per kWh and 13.5 lek [0.10 EUR] per kWh for electricity above that.

In the neighbouring countries, only Romania has higher price then Albania. Romanians paid 0.132 euro/kWh, while other countries have lower prices. Montenegro pays 0.1 euro/kWh while households in Bulgaria pay 0.092 euro per kW/h. In Bosnia and Herzegovina and in Macedonia, electricity price for households is just 0.08 euro per kWh.

Environment

France

Key figures

- 345 million of tons of waste produced in France in 2012
- 37,7 million of tons of domestic waste collected by public service in 2013
- 16,6 billion euro of expenses for waste management 2013
- 21 billion tons of greenhouse gas emissions avoided thanks to recycling in 2014

Waste management

Every producer is responsible for his waste. The management of a waste systematically involves one or more stages of treatment until its elimination or final valuation. Local and regional authorities are largely involved in the prevention and management of waste at different scales; in general, they can also act as catalysts for the development of the circular economy in their territory. At the local level, it falls under the competence of the public institutions of inter-municipal cooperation (EPCI) to ensure the public service of collection and treatment of the waste of households and assimilated, possibly by delegation of the implementation of this competence to a provider. The regions are responsible for planning the prevention and management of all waste.

Waste prevention was introduced into French law as early as 1975. It saw significant momentum beginning in February 2004 with a first National Plan for the Prevention of Waste Production, drawn up voluntarily by the Ministry of the Environment. as well as by the 2009-2012 waste action plan, which set a target of reducing by 7% the production of household waste and assimilated (AMO) per capita between 2008 and 2013. As of 2015 (publication of the energy transition law for green growth), France's waste prevention policy is also part of the broader framework of the transition to the circular economy and the efficient use of resources, to allow the transformation of our economy towards a more resource-efficient mode but still a carrier of economic growth.
The National Waste Prevention Program (PNPD) 2014-2020 defines the strategic orientations of public waste prevention policy and the sustainable production and consumption actions to be implemented to achieve this.

Germany

Key figures

- 387.5 million tons of waste produced in Germany in 2014
- 4785 kg waste per inhabitant and per year are regenerated
- The total amount of municipal waste in Germany of 2015 would fill a freight train with 50 000 km of lengths which would go around our planet more than once

Waste management

Germany's first uniform national waste disposal law, the 1972 Waste Disposal Act (Abfallbeseitigungsgesetz), has been amended and adjusted from time to time, and is now our current Waste Management Act (Kreislaufwirtschaftsgesetz – KrWG).

The centrepiece of Germany's Waste Management Act is a five-level waste hierarchy that builds on a fundamental series of steps comprising waste prevention, reuse, recycling, and other elements besides, including energy recovery, and finally waste disposal. In any given instance, the best option from an environmental protection standpoint always takes precedence, whereby ecological, technical, economic and social effects are to be taken into account as well.

The various types of waste have to be collected separately at source (source separation at the collection point by depositing the various types of waste in separate containers designated for this purpose) so as to maximize the recycling potential of the various waste streams. Separate collection of the various types of waste is necessary in order to maintain waste-stream specific quality standards for recycling. Under the Waste Management Act, beginning in 2015 separate collection of all of the various waste streams comprising paper, glass, plastic and household organic waste will be mandatory.

Albania

Key Figures

- 935,510 tons of waste generated
- 245 kg waste per inhabitant and per year have been generated
- 5% of the total of waste is recycled
- 35% of the population does not have its waste collected
- 30% of the total accumulated are deposited at landfill

Waste management

It is widely accepted that waste management in Albania is at lowest levels and this issue is one of the highest environment priorities of the country. The problems are related mainly to the limited part of service coverage, the collection and removal of waste, the limited amount deposited and handled at the landfill, the existence of a large number of domestic deposits (authorized and unauthorized) that do not fulfil the sanitary and engineering standards, limited number and poor quality of waste collection and transportation equipment, lack of waste at source and low recycling percentage, lack of infrastructure for integrated waste management, including here even the unexpected changes of policy course in the leading transformations in this sector.

According to reports by the Albanian Recycling Association (ARA), there are about 38 companies in Albania that recycle materials, not including those middle man companies. These companies currently have a capacity of 34,540 tons / month which, if there were adequate waste management and would be collected in a differentiated manner, would be sufficient for these companies to work with full production capacity. According to the reports of these companies are currently working with an average capacity of 26.8% which is translated in the amount of 9.256 tons / month or 111.080 tons / year.

The European Dimension

EU Energy Strategy

The **EU 2020 energy strategy** aims to reduce its greenhouse gas emissions by at least 20%, an increasing in the share of renewable energy to at least 20% of total consumption and achieving energy savings of 20% or more. The aim is to reduce the harmful consequences of climate change as well as the dependence on energy imports from outside the EU. The Union formulated following priorities to fulfil the 2020 Energy Strategy: Making Europe more energy efficient by accelerating investment into efficient buildings, products, and transport. Another target is to build a pan-European energy market by constructing technical infrastructures.

For the **EU 2030 energy strategy,** EU countries have agreed on a new 2030 framework for climate and energy. The strategy foresees a 40% cut in greenhouse gas emissions compared to 1990 levels and at least a 27% share of renewable energy consumption and energy savings compared with the business-as-usual scenario. The main political objectives for 2030 are as follows: A reform of the EU emissions trading scheme (ETS) and new indicators for the competitiveness and security of the energy system.

In the **EU 2050 energy strategy**, the EU tries to achieve a reducing of greenhouse gas emissions by 80-95%, when compared to 1990 levels, by 2050. The Energy Roadmap 2050 discovers the transition of the energy system in ways that are compatible with greenhouse gas reductions while increasing competitiveness and security of supply.

An example of European action

The EU emissions trading system (EU ETS) is a cornerstone of the EU's cost-effective policy.

This market, created in 2003, is based on a principle of capping emissions trading and trading these rights between polluting companies and those that are less. Although today this market is the largest CO2 emission market in the world, it faces one major problem - among others. The price of these emission rights set by the market is not high enough to encourage polluting companies to adopt more environmentally friendly processes.

This is why the European Union is currently implementing a market reform in order to increase the exchange price per tonne of CO2.

Energy efficiency

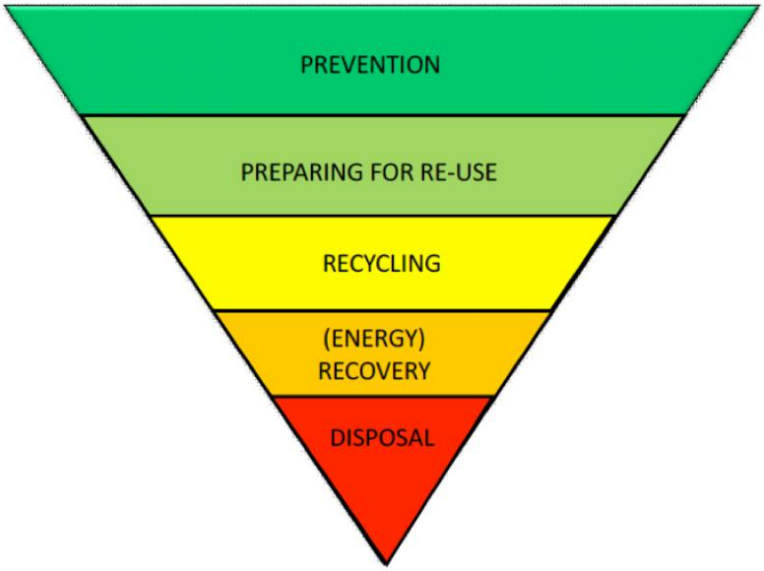
The 2012 Energy Efficiency Directive tries to establish a set detailed measures to achieve the 2020 target by a more efficient energy production and consumption. In 2016, the Energy Efficiency Directive was updated. The member states should set up roadmaps to increase the energy efficiency of the building sector by 2050. As well, the member states have to prepare National Energy Efficiency Action Plans every three years, in which the saving progress can be reviewed by the EU. The energy efficiency directives have not introduced binding targets at member states level, but only binding measures. The energy efficiency directives of the years 2012 and 2016 are the first juridical frameworks for this policy, but the effectiveness of these instruments can be challenged. The policy implementation can vary between member states. For the future development of renewable energy technologies, it can be reasonable to coordinate policy instruments, infrastructure and saving technologies at European level.

Unfortunately, there is a big discrepancy between the ambitious strategies and goals and the reality. In many cases the lack of money is the main issue for the poor results in some countries of the

European Union. It seems that often, in practice, environmental policies are the first ones to get neglected when governments have problems to fulfil all their targets even though they don't get tired to underline the importance of the energy transition. Environmental and energy related policies also show how difficult the cooperation between regional, national and international actors is. While it is important to face energy and environmental issues on an international level, the implementations are often on a regional level.

EU Waste Management Legislation and Policies

EU policies in terms of environment protection will be guided until 2020 by the 7th Environment Action Program (2013), which also provides a more long-term vision of where the EU wants to be in 2050. It reflects the Union's commitment to transforming itself into an inclusive green economy, providing human well-being and economic prosperity. At the heart of this program stand the principles of precaution and prevention, which lead EU strategies. The overall EU approach to waste management was chosen here as an example and can be summed up by locking at the following.



source: European Commission

Prevention of waste is at the heart of the EU strategy, which is to move towards a circular economy (2018 Circular Economy Package), and the identified main problem to be tackled by policies is plastics waste: reduce the use, reuse, replace by alternatives. To achieve the necessary change of mindset and behaviour to EU tries to inform, create awareness for problems and show how to adopt sustainable everyday habits. Further the EU wants to turn a problem into something positive by encouraging new investments into sustainable products.

In 2008, the European Union adopted a directive which provides a framework to waste management. In the first place, it recognises the responsibility of the EU to ensure that it does not present a risk to the environment. It also states that the member States should deal with the waste properly. The Environmental Protection Agency, based in Ireland, works on the implementation.

European Plastics Strategy was adopted on 16 January 2018. It is part of the transition towards a more circular economy and fits the idea of turning a challenge into a positive agenda. By protecting the environment, the EU also intends to foster private sector innovation. It states three goals to reach by 2030: all plastic packaging recyclable on the EU market, reduction of single-use plastics and restriction

of intentional use of microplastics. Frans Timmermans, the first vice president of the Commission, invites us to recycle and reuse more, the two dimensions of circular economy.

On May 28th, the European Commission released its plan to reduce marine litter by reducing single-use plastics consumption, which correspond to 70 % of marine litter items. This plan delivers on the commitment made in the Europe Plastics Strategy to tackle wasteful and damaging plastic litter through new legislation. Different measures are planned, including a total ban of the main single-use plastic products that already have an available and affordable alternative (plastic cotton buds, straws, sticks for balloons…); the European Union would also fix consumption reduction targets as well as obligations for producers to help finance waste management. Awareness raising finally comes down to the Member states and to producers. These proposals will now be examined by the European Parliament and the Council which have the ability to make it a directive. The Commission made them of first priority in order to make relevant institutions act on it before the May 2019 elections.

Despite the EU commitment towards a more responsible waste management, it comes down to the municipalities because of the principle of subsidiarity. The local authorities are in the end responsible for authorization and control of commercial waste collection activities and dealing with hazardous waste for instance and more generally for the monitoring and inspection of waste activities. Also, EU emphasizing on prevention attributes the responsibility of reduction of consumption to the individual citizen.

Perspectives for the EU and Albania

In general, the EU policies on energy on waste management heavily rely on local and regional, even individual responsibility. As a result of the principle of subsidiarity, the situation differs in the Member states with regard to how far the EU targets are implemented and followed. This is especially visible concerning the waste management. The field of energy policies is mentioned in the treaties but by now waste management is not. Due to its dimension and present-day relevance, it might be an idea to reconsider the position of waste management within the EU framework. Furthermore, the EU's financial support and subsidies can have a huge, and even harmful impact on national policies, especially with regard to candidate members such as Albania and its energy strategies. Therefore, and with regard to the future, the EU has to carefully consider how and where to support regions to make sure that policies are set up that actually aim at achieving EU targets.

According to the progress report made about Albania by the Commission this year, Albania is "moderately prepared" regarding the sphere of energy. For instance, there are some areas where Albania has adopted legislation in line with the *acquis*, such as the legislation on gas and electricity regarding its internal market, however many others still remain not in line, such as that of the full alignment of its Energy Efficiency Law with the acquis, which also requires the set-up of an energy efficiency fund. Furthermore, it also pushes drafting and adoption of secondary legislation for the implementation of the Energy Performance of Buildings Directive. These steps are ones the report asks to be taken after the adoption of its national energy strategy. Once these recommendations have been taken, and implemented, the report advises the unbundling of the energy companies in the country, which facilitates the opening of the market.

Furthermore, Albania seems to find itself in a similar position regarding waste management, where the legal framework is again partially aligned with the acquis. While the implementation of the national strategy for the waste management is at an early stage, it is being revised to yield better results. While the progress done in the waste landfills has developed Albania and brought it closer to its EU counterparts, recycling and prevention of waste are still a key priority.