

ENERGY BARGE

Building a Green Energy and Logistics Belt

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Deliverable 6.1.1

Mapping the political and regulatory framework in the Danube region regarding biomass production for energetic use and logistics

31 May, 2017

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III Abbreviations

BAFA	Federal Office of Economics and Export Control
BioKraft-NachV	Biofuel Sustainability Ordinance
BioStNachV	Biomass Sustainability Regulation
BLE	Federal Agency for Agriculture and Nutrition
BMEL	Federal Ministry of Food and Agriculture
BMUB	Federal Ministry of environment, Nature Conservation, Building and Nuclear Safety
BMWi	Federal Ministry for Economic Affairs and Energy
CAP	Common Agricultural Policy
CHP Plants	Combined Heat and Power Plants
DBFZ	German Biomass Research Center
EAGGF	European Agricultural Guarantee and Guidance Fund
EAFRD	European Agricultural Fund of rural Development
EEA	European Environmental Agency
EC	European Commission
EEG	Renewable Energy sources Act
EEGWärmeG	Renewable Energies Heating Act
EU	European Union
FNR	Agency for Renewable Resources
FQD	Fuel Quality Directive
GHG	Greenhouse Gas
ILUC	Indirect land use change
IUCN	International Union for the Conservation of Nature
KWKG	Combined Heat and Power Act
NBAP	National Biomass Action Plan
NREAP	National Renewable Action Plan

RED	Renewable Energy Directive
SAC	Special Areas of Conservation
SPA	Special Protected Areas
UBA	German Environment Agency

IV About the ENERGY BARGE project

The Danube region offers a great potential for green energy in the form of biomass. The main objective of ENERGY BARGE is to exploit this potential in a sustainable way, considering the Renewable Energy Directive 2009/28/EC, thereby increasing energy security and efficiency in the Danube countries. The project will bring together key actors along the entire value chain, biomass companies and Danube ports as well as relevant public authorities and policy stakeholders. The project will map value chains and facilitate the market uptake of biomass, support better connected transport systems for green logistics and provide practical solutions and policy guidelines. FNR coordinates the project with its fourteen partners from Austria, Bulgaria, Croatia, Germany, Hungary, Slovakia and Romania.

Project coordinator

Agency for Renewable Resources

Fachagentur Nachhaltende Rohstoffe e.V.	FNR	Germany
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Project partners

BioCampus Straubing GmbH	BCG	Germany
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Deggendorf Institute of Technology	DIT	Germany
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Austrian Waterway Company	VIA	Austria
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Port of Vienna	PoVi	Austria
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Bioenergy2020+ GmbH	BE2020	Austria
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International Centre of Applied Research and Sustainable Technology	ICARST	Slovakia
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Slovak Shipping and Ports JSC	SPaP	Slovakia
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National Agricultural Research and Innovation Center	NARIC	Hungary
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MAHART-Freeport Co. Ltd.	MAHART	Hungary
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International Centre for Sustainable Development of Energy, Water and Environment Systems	SDEWES Centre	Croatia
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Public Institution Port Authority Vukovar	PoVu	Croatia
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Technology Center Sofia Ltd.	TCS	Bulgaria
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Romanian Association of Biomass and Biogas	ARBIO	Romania
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Federation of owners of forests and grasslands in Romania	Nostra Silva	Romania
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V About this document

This report corresponds to D 6.1.1 *Mapping the political and regulatory framework in the Danube region regarding biomass production for energetic use and logistics* of ENERGY BARGE. It has been prepared by:

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Executive Summary

This report provides an overview on the political and regulatory framework concerning biomass production and logistics in the Danube region. The overall EU-legislation is illustrated as it provides the scope for national policy making institutions. Country reports emphasize the different legislative situations in the following countries: Austria, Bosnia-Herzegovina, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Moldova, Montenegro, Romania, Serbia, Slovakia, Slovenia and Ukraine.

Policy framework for renewable energies is developing in the Danube region. Up to now all countries have implemented the Renewable Energy Directive (RED) and the Energy Efficiency Directive. Country-specific National Renewable Energy Action Plans have been submitted in accordance with Article 4 of the RED. Therefore binding targets for developing renewable energies and reducing greenhouse gas emissions were determined. Furthermore measures are established to ensure the completion of the individual national targets. This report reveals how these superior objectives are implemented at the regional level.

The Danube region has a great potential for biomass and the expansion of biomass-cultivation can help to develop and strengthen rural areas within the area. Through the establishment of value-chains, long-lasting partnerships can arise which secure the energy supply. Therefore well elaborated logistics are needed. In this case the Danube River is exceptional as it is the second longest river in Europe and it flows through 10 countries, which is unique. This requires a superior transboundary legislation, which has been realised with the Belgrade Convention in 1948. Main objectives are the freedom of inland waterway navigation and the maintenance and improvement of navigation conditions. All Danube neighbouring countries have signed the convention and have to fulfil the obligatory purposes and incorporate them in national legislation. The country reports outline the logistic regulatory framework set in each Danube country.

Work package 6 of the ENERGY BARGE project aims to make a contribution to better integrated policies for biomass exploitation in the participating countries as well as developing logistical aspects of transporting the biomass. Not only an overview on regulations and measures shall be given, but also guidance to countries which policies can be improved is an important part of this task. This deliverable is the first step in achieving these goals, as it is the basis for further assessment of the regulatory framework for biomass production and logistics in the Danube region.

1 Background

This deliverable “D 6.1.1 Mapping the political and regulatory framework in the Danube region regarding biomass production for energetic use and logistics” is mainly based on the activity as described in the latest approved version of the Application Form of the project ENERGY BARGE (Project Code: DTP1-175-3.2).

- *Activity 6.1 Assessment of the status quo of policies for biomass production and logistics in partner countries* (Lead: FNR)

In order to give an assessment of the status quo of policies that are related to biomass production, it will be part of this activity to give an overview to appropriate regulations. Policies and regulations will be mapped, considering availability, uptake, efficiency and security. Moreover, policies and regulations related to biomass handling and logistics on national and transnational level will be assessed, taking the compendia of national market studies and reports of legal framework from D 3.1.1 and D 4.1.1 into account. ENERGY BARGE workshops as well as Advisory Board and User Fora meetings will function as communication, networking and learning platform. A summary report of policies existing in different Danube riparian states including a table with comparison of different countries and their policies will be given, looking at sustainability issues and necessary legislation.

2 Biomass production for energetic use and logistics in the Danube region

On European (EU28) as well as on national level of the respective Member States, a broad number of policies and regulations exist considering biomass production for energetic use and logistics. In the following section initially a general overview of the political and regulatory framework on EU level is given. Subsequently the production of biomass for energetic use and logistics will be specified for the partner countries of the ENERGY BARGE project, complemented by a brief description of the policy landscape in the additional countries which are covered by the Danube Transnational Programme (DTP).

2.1 Political and regulatory framework on EU level

2.1.1 Regulatory framework in the field of bioenergy

The **Renewable Energy Directive (RED)** of 23rd April 2009 (Directive 2009/28/EC) sets binding targets to increase the share of renewable energies in the respective member states (European Commission 2009a). Furthermore the energy generation from biomass is required to be sustainable.

Throughout the European Union 20% of the final energy consumption shall be covered by renewable energy sources by 2020. Also a minimum share of 10% of renewable energy in the transport sector is intended to be achieved in this timeframe.

For the production of biofuels and bioliquids GHG emissions savings of at least 35% compared to fossil fuels should be achieved. Otherwise they are not taken into account for the calculation of the saved GHG. The percentage increases up to 50% in 2017 and 60% in 2018.

In September 2015 the RED was amended (European Commission 2015) due to discussions about indirect land use change (ILUC). In order to prevent undesirable developments the RED has been supplemented.

Biofuels and bioliquids shall not be produced from raw materials obtained from land with high biodiversity value, namely land that had one of the following statuses in or after January 2008, whether or not the land continues to have that status:

- primary forest and other wooded land, where there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed;
- areas designated by law or by relevant competent authority for nature protection purposes, e.g. IUCN (International Union for Conservation of Nature), unless evidence is provided that the production of the raw material does not interfere with nature protection purposes;
- areas designated for the protection of rare, threatened or endangered eco-systems or species recognised by international agreements or included lists drawn up by

intergovernmental organisations or the IUCN (unless evidence is provided that the production of the raw material does not interfere with nature protection purposes);

- highly biodiverse grassland: grassland that would remain grassland in the absence of human intervention and which maintains the natural species composition and ecological characteristics and processes;
- non-natural highly biodiverse grassland: grassland that would cease to be grassland in the absence of human intervention and which is species-rich and not degraded, unless evidence is provided that the harvesting of the raw material is necessary to preserve its grassland status.

Biofuels and bioliquids shall not be produced from raw materials obtained from land with high carbon stock, namely land that had one of the following statuses in January 2008 and no longer has that status:

- wetlands, namely land that is covered with or saturated by water permanently or for a significant part of the year;
- continuously forested areas namely land spanning more than one hectare with trees higher than five metres and a canopy cover of more than 30%, or trees able to reach those thresholds in situ;
- land spanning more than one hectare with trees higher than five metres and a canopy cover of between 10% and 30%, or trees able to reach those thresholds in situ, unless evidence is provided that the carbon stock of the area before and after conversion is such that [...] the conditions laid down in paragraph 2 of Article 17 of the RED would be fulfilled;
- not to be fulfilled by biofuels produced from waste and residues (other than agricultural, aquaculture, fisheries and forestry residues);
- biofuels and bioliquids shall not be produced from raw materials obtained from land that was peatland in January 2008, unless evidence is provided that the cultivation and harvesting of that raw material does not involve drainage of previously undrained soil.

For the period after 2020 a proposal for a revised Renewable Energy Directive (RED II) has been prepared by the European Commission in November 2016¹. Main aspects are the extension of sustainability criteria for advanced alternative fuels, renewable electricity and food-based biofuels. Additional criteria for biomass produced from forestry feedstock are also defined. Furthermore new targets are set: at least 27% renewables are foreseen in the final energy consumption in the European Union by 2030. Additionally 6.8% of transportation fuels must derive from renewable sources. The proposed Renewable Energy Directive II offers a set of policy measures to achieve these goals².

The individual Member States of the EU have different available resources and varying framework conditions of their respective energy markets. Therefore they follow distinctive

¹ <https://ec.europa.eu/energy/en/consultations/preparation-new-renewable-energy-directive-period-after-2020> (last access: 14.03.2017)

² http://www.theicct.org/sites/default/files/publications/RED%20II_ICCT_Policy-Update_vF_jan2017.pdf (last access: 18.07.2017)

paths to meet the obligations under the RED, including their legally binding 2020 targets³. The Member States set up **National Renewable Energy Action Plans (NREAP)**, which comprise measures that are intended to be implemented. The plans cover the following aspects:

- individual renewable energy targets for the electricity, heating and cooling, and transport sectors;
- the planned mix of different renewables technologies;
- policy measures to achieve national targets including cooperation between local, regional, and national authorities;
- any planned statistical transfers and/or joint projects with other countries;
- national policies to develop biomass resources;
- measures to ensure that biofuels used to meet renewable energy targets are in compliance with the EU's sustainability criteria.

Austria, Bulgaria, Czech Republic, Germany, Hungary, Romania, Slovakia and Slovenia compiled their national action plans in 2010, Croatia in 2013 after its EU accession. The Republic of Moldova and Serbia also elaborated national renewable energy plans in 2013. Montenegro and Ukraine approved their national action plans in 2014, Bosnia and Herzegovina in 2016⁴.

The **Common Agricultural Policy (CAP)** is the EU policy in the agricultural sector and was introduced in 1962. Since then it has been amended several times. Aims of the CAP are to increase the productivity in the agricultural sector and to ensure a fair standard of living for the farmers. Furthermore it targets to stabilize the markets and to ensure the availability of supplies and reasonable prices for consumers⁵.

The CAP is based on two pillars. The first pillar⁶ includes direct payments to farmers through the European Agricultural Guarantee and Guidance Fund (EAGGF). The second pillar is aimed at rural development⁷ and is co-financed from the European Agricultural Fund of Rural Development (EAFRD). The following priorities were formulated for rural development and the agriculture, forestry and rural areas:

- fostering knowledge transfer and innovation;
- enhancing competitiveness;
- promoting food chain organisation;
- restoring, preserving and enhancing ecosystems;
- promoting social inclusion and economic development.

³ <https://ec.europa.eu/energy/en/topics/renewable-energy/national-action-plans> (last access: 06.04.2017)

⁴ https://www.energy-community.org/portal/page/portal/ENC_HOME/DOCUMENTS (last access: 06.04.2017)

⁵ http://www.europarl.europa.eu/atyourservice/en/displayFtu.html?ftuId=FTU_5.2.1.html (last access: 06.04.2017)

⁶ http://www.europarl.europa.eu/atyourservice/en/displayFtu.html?ftuId=FTU_5.2.5.html (last access: 15.03.2017)

⁷ http://www.europarl.europa.eu/atyourservice/en/displayFtu.html?ftuId=FTU_5.2.6.html (last access: 15.03.2017)

The CAP reform⁸ of 2013 aims to enhance the competitiveness of EU agriculture, provide more sustainability and improve its environmental performance. To achieve these goals the following changes regarding the design of direct payments have been set in the CAP:

- redistribution of EU funds in support of new EU Member States;
- support for specific environmental performances (greening);
- for better targeting the support of small and medium-sized farms a redistributive payment to the first hectares of the farms can be applied;
- support for young farmers through additional payments.

For the period from 2014 to 2020 a total budget for the CAP of 362.8 billion Euro is foreseen for direct payments and market-related expenditure (Pillar 1) and rural development (Pillar2).

In terms of a **Forestry Policy**, in 2013 a new EU Forest Strategy for forests and the forest-based sector (COM(2013) 659) has been elaborated. Even though the EU contributes through its policies since a long time to the implementation of sustainably managed forests in the respective Member States, a uniform policy on EU level for forests and the forest sector does not exist (European Commission 2013).

The need for a common policy framework has been determined to ensure and coordinate the coherence of forest-related policies in the EU. Therefore a common framework on EU level shall guarantee, among other things, the sustainability of forest management, manage the increasing demand for raw material and renewable energy and protect forests and biodiversity (European Commission 2013).

The **Fuel Quality Directive (FQD)** of 23rd April 2009 obliges the Member States to reduce GHG emissions related to the consumption of transport fuels by 10% by 2020 (European Commission 2009b). Also environmental criteria for fossil fuel components such as petrol and diesel are determined. These criteria are the same as defined in the RED. Additionally criteria for diesel fuel are set (Annex II of the FQD).

In 2015 the **Directive to reduce indirect land use change for biofuels and bioliquids** ((EU)2015/1513) came into force. This so called iLUC Directive amended legislation on biofuels – specifically the RED and FQD – to reduce the risk of indirect land use change and to prepare the transition towards advanced fuels. Among others the Directive limits the share of biofuels from crops grown on agricultural land that can be counted towards the 2020 renewable energy targets to 7%, harmonises the list of feedstocks across the EU whose contribution would count double towards the 2020 target of 10% for renewable energy in transport and requires that

⁸ https://ec.europa.eu/agriculture/sites/agriculture/files/policy-perspectives/policy-briefs/05_en.pdf
(last access: 15.03.2017)

biofuels produced in new installations emit at least 60% fewer greenhouse gases than fossil fuels⁹.

The **Energy Efficiency Directive** (Directive 2012/27/EU) sets up a framework to increase the energy efficiency in the EU in order to achieve its 20% energy efficiency target by 2020. All Member States are required to utilize energy more efficiently at all stages of the energy chain, from production to final consumption.¹⁰

In order to fulfil the requirements for different biomass feedstocks implemented by legislation, certification schemes are a useful tool. The certification scheme **ENplus** for example controls wood pellets from the entire supply chain, starting from the production up to the delivery to the end customer. In 2010 ENplus was first introduced in Germany and in the meantime the principle is applied in most of the countries within the Danube region.¹¹

Biofuels and bioliquids used in the EU must fulfil the requirements of sustainability. To ensure this, companies can participate in **Voluntary Schemes** that verify the compliance with the sustainability criteria set by the EU. For the certification process, the whole production chain is reviewed by independent auditors. Most verification schemes are privately run but approved as valid by the European Commission. Recognitions can last for a period of five years.

The scheme must fulfil criteria such as¹²:

- feedstock producers comply with the sustainability criteria;
- information on the sustainability characteristics can be traced to the origin of the feedstock;
- all information are well documented;
- companies are audited before they start to participate in the scheme and retroactive audits take place regularly;
- the auditors are external and independent;
- the auditors have both the generic and specific auditing skills needed with regards to the scheme's criteria.

⁹ <https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/land-use-change> (last access 10.05.2017)

¹⁰ <http://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficiency-directive> (last access 11.05.2017)

¹¹ <http://www.enplus-pellets.eu/> (last access: 31.05.2017)

¹² <https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes> (last access: 15.03.2017)

Table 1: Examples for Voluntary Schemes.¹³

Name	Date Commission Decision	Feedstock type	Feedstock origin	Biofuel Production geography	Extent of supply chain covered
International Sustainability and Carbon Certification (ISCC)	09.08.2016	Wide range of feedstocks	Global	Global	Full supply chain
REDCert	24.07.2012	Wide range of feedstocks	Europe	Europe	Full supply chain
NTA 8080	31.07.2012	Wide range of feedstocks	Global	Global	Full supply chain
Roundtable on Sustainable Biomaterial EU RED (RSB EU RED)	09.08.2016	Wide range of feedstocks	Global	Global	Full supply chain
Bonsucro EU	19.07.2011 (expired 09.08.2016)	Sugar cane	Global	Global	Full supply chain

The **Habitats Directive** of 21st May 1992 (European Commission 1992) assures the conservation of rare, threatened or endemic animal and plant species, as well as rare and characteristic habitat types. Together with the **Birds Directive** (European Commission 2010), it contributes to the implementation of the Berne Convention¹⁴. Different annexes to these guidelines name species and habitat types that are particularly vulnerable and whose conservation is to be ensured by the protected area system.

The Habitats Directive requires Special Areas of Conservation (SAC). The bird sanctuaries are designated as Special Protected Areas (SPA). They are selected and protected under EU-wide standards. The Natura 2000 network is based on both SPAs and SACs. The European Environmental Agency (EEA) provides an interactive map displaying Natura 2000 areas as well as protected areas according to the Habitats and Birds Directive¹⁵.

¹³ <https://ec.europa.eu/energy/en/topics/renewable-energy/biofuels/voluntary-schemes> (last access: 23.03.2017)

¹⁴ <http://www.coe.int/en/web/conventions/full-list/-/conventions/rms/0900001680078aff> (last access: 23.03.2017)

¹⁵ <http://natura2000.eea.europa.eu/#> (last access: 23.03.2017)



Figure 1: Protected Areas (Natura 2000 and others) in the Danube River Basin District.

Orange: EU Bird Directive, green: EU Habitat Directive, rose: other protected areas; Source: <http://www.icpdr.org/main/activities-projects/danube-river-basin-management-plan-2009>.

2.1.2 Logistics and biomass handling in inland ports

In general, the River Danube (such as the Rhine) underlies special, international regulation as it crosses ten countries and thus underlies the sovereignty of ten neighbouring countries. The legislation governing the transport on the Danube thus is laid down in an international commission called the **Danube Commission**. All Danube neighbouring countries have signed the so-called **Belgrade Convention** regulating the Danube shipping in 1948.

The main objectives of the Convention in order to establish a regime of navigation on the Danube are:

- Freedom of inland waterway navigation on the Danube for all signing parties, trade vessels and goods of all states on the basis of equal treatment in terms of port- and shipping fees and the conditions of trade shipping,
- Maintenance and improvement of navigation conditions on the Danube in terms of technical, nautical and administrative aspects.

All signing parties of the Convention have to make sure, by means of their national legislation, that these objectives are fulfilled. The convention enables the Danube Commission as its executive transnational body located in Budapest to ensure, with a number of instruments and provisions, the abovementioned objectives. It works towards a harmonization of inland waterway navigation regime in Europe.

A number of national and regional legal regulations are in place in order to ensure the national implementation of EU wide directives and regulations on inland waterway navigation such as communication and technical communication standards on board, stipulated in the **River Information Directive (RIS)** which is in force since 2005 (**Directive 2005/44/EC**).¹⁶

In 2000, a transnational convention on cargo freight on European inland waterways was drafted and signed in Budapest by all European states engaged in inland waterway navigation, the so-called **Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway (CMNI)**. 18 states in total have ratified the convention up until today. All ENERGY BARGE member countries except for Austria are signatories of the convention which is in force whenever either the port of loading or the ports of discharge are located in signatory states. It mainly regulates the relations, rights and obligations between the shipping, freight carrying, and receiving parties of the goods transported on inland vessels, including regulations for liability and contracts of carriage. This also applies for cases in which a carrier has made a contract with an actual carrier to entrust this party with the actual shipping of the cargo.

Rules for the inland waterway transport of goods or passengers are laid down in the **Regulation (EC) No 1356/96**. The aim of this regulation is to ensure that operators can freely provide the transportation of goods or passengers on inland waterways in the EU.¹⁷ **Directive 2008/68/EC** regulates the inland transport of dangerous goods to set up the framework for a safe and secure

¹⁶ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:255:0152:0159:EN:PDF> (last access 10.05.2017)

¹⁷ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:l24151> (last access 10.05.2017)

transport of dangerous goods within and between Member States of the EU for different means of transportation.¹⁸

2.1.3 Summary of existing policies

Table 2: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics on EU level

Applicable value chain components	Policy	Valid dates	Summary
Biomass production GHG reduction	Renewable Energy Directive	23th April 2009	- targets for reducing GHG - energy sources comparator - sustainability criteria
Biomass production GHG reduction	Fuel Quality Directive	23th April 2009	- targets for reducing GHG - sustainability criteria
Biomass production	ENplus	2010	- Control of the entire value chain of wood pellets
Biomass production	Voluntary Schemes		- sustainability criteria
Political framework for the agricultural sector Financial support	Common Agricultural Policy	1st January 2014	- legislation in the agricultural sector - direct payments to farmers - rural development
Biomass production	EU Forest Strategy	2013	- sustainability of forest management - manage the increasing demand for raw materials and renewable energy - forest and biodiversity protection
Sustainability of biomass production	Directive to reduce indirect land use change for biofuels and bioliquids	2015	- reduce the risk of indirect land use change and to prepare the transition towards advanced fuels
Energy efficiency	Energy Efficiency Directive	2012	- all Member States of the EU are required to utilize energy more efficiently at all stages of the energy chain

¹⁸ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32008L0068> (last access 10.05.2017)
Project co-funded by European Union funds (ERDF)

Nature conservation	Habitats Directive	21st May 1992	<ul style="list-style-type: none"> - conservation of rare, threatened and endemic animal and plant species - conservation of rare and characteristic habitat types
Nature conservation	Birds Directive	April 1979, amended November 2009	<ul style="list-style-type: none"> - protection of wild bird species
Danube shipping	Belgrade Convention	1948	<ul style="list-style-type: none"> - establish a regime of navigation on the Danube
Inland waterway navigation	River Information Directive	2005	<ul style="list-style-type: none"> - communication and technical communication standards on board
Inland waterway navigation	Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway	2000	<ul style="list-style-type: none"> - relations, rights and obligations between the shipping, freight carrying, and receiving parties of goods transported on inland vessels
Inland waterway navigation	Regulation (EC) No 1356/96	1996	<ul style="list-style-type: none"> - regulations for the transport of goods or passengers
Inland waterway navigation	Directive 2008/68/EC	2008	<ul style="list-style-type: none"> - transport of dangerous goods

2.2 Political and regulatory framework on national level

2.2.1 Austria

2.2.1.1 Regulatory authorities

Table 3: Regulatory authorities in the field of bioenergy and logistics in Austria.

Authority	Abbr.	Field of activity
Ministry of Agriculture, Forestry, Environment and Water Management	BMLFUW	<ul style="list-style-type: none"> - in 2010 the BMLFUW and the BMWFW published an energy strategy (BMLFUW and BMWFW 2010) - the pillars of the strategy are the promotion of energy efficiency and renewable energies as well as long-term energy security
Ministry of Economy	BMWFW	see above
Ministry of Transport, Technology and Innovation	BMVIT	<ul style="list-style-type: none"> - in 2010 the BMVIT prepared the Austrian Energy Research Strategy (BMVIT 2009) - released agendas for bioheating and cooling (BMVIT 2014a) and most recently for a biobased industry (BMVIT 2014b) - the successful development of the bioenergy sector is based on a long-lasting, internationally oriented R&D policy which aims to become innovation leader - beside others the Ministry supports Austrian's participation in IEA Bioenergy since the first days of the Agreement - provides a general framework for infrastructure from rail to road, water and air to telecommunications and technology development in Austria
via donau – Österreichische Wasserstraßen-Gesellschaft mbH		<ul style="list-style-type: none"> - established by the bmvit to ensure a safe and efficient waterway and to develop innovative solutions for environmentally friendly inland navigation, thereby strengthening Austria as a business location - the company carries out its tasks in accordance with the Federal Waterways Act (BGBl. I no. 177/2004)

<p>Supreme Navigation Authority</p> <p>(original title in German: Oberste Schifffahrtsbehörde) of the Federal Ministry for Transport, Innovation and Technology</p>	<ul style="list-style-type: none"> - is a department within the BMVIT - in charge of technical and nautical affairs regarding navigation on the Danube and particularly deals with safety and legislative issues, registration of inland vessels as well as permissions for shipping facilities e.g. transshipment sites - in addition the authority carries out examinations regarding the qualifications of ship personnel including the licensing process according to international law - with several premises along the Austrian Danube the so called "Schifffahrtsaufsicht" ensures the observance of national and international navigation law on the waterway
<p>Water Police</p> <p>(original title in German: See- und Stromdienst) of the Federal Ministry of the Interior</p>	<ul style="list-style-type: none"> - responsible for ensuring public security on the Austrian Danube - inquiries and assistance in the case of accidents and controls regarding the transport of dangerous goods are also among its tasks - the so called "Schifffahrtspolizei" carries out controls of vessels and ship crews in accordance with the provisions of the Austrian Ministry of the Interior (e.g. immigration control, employment law etc.)

2.2.1.2 Regulatory framework in the field of bioenergy

The total primary energy supply of Austria in 2014 amounted to 1,342 Petajoule (PJ) with fossil fuels (oil, gas, coal) still contributing most. Renewable energy sources have a share of 32.8% or 441 PJ. Oil products account for a third of the energy supply (474 PJ), coal products (127 PJ) and natural gas are contributing to another third (267 PJ). Electricity as source has a share of merely 2.5% or 33 PJ. The total primary energy supply of renewable energy sources comprises energy from biomass with 61.0%, followed by hydropower with 33.0%, solar and wind energy together with 6.0% and geothermal power with 0.3% (IEA Bioenergy Countries Report 2017).

The major part (84%) of bioenergy consumed in Austria is composed of solid biofuels. Solid biofuels include fuel wood, wood chips, bark and sawmill by-products. Fuel wood is the most important biogenic source of energy in Austria with a share of 25% of total bioenergy consumed. Wood chips, bark and sawmill by-products together contribute a share of 37%. Wood chips and sawmill by-products are primarily used for energy production in forest based industries, as well as in cogeneration and district heating plants. Pellets are mainly used in domestic heating systems. Waste lye, sludge and bark are used for the production of electricity and process heat in the pulp and paper industry (IEA Bioenergy Countries Report 2017). The supply of bioenergy in

Austria more than doubled from 1990 to 2014. In 1990 bioenergy almost entirely originated from solid biomass and accounted for 97 PJ. In 2014 solid biomass contributed 209 PJ, liquid biofuels 20 PJ and gaseous 12 PJ. The share in total final energy consumption increased from 1990 (9.3%) to 2014 (17.9%). The sharpest rise in consumption occurred between 2005 and 2010, when the use of solid biomass increased and liquid biofuels were established on the market (IEA Bioenergy Countries Report 2017). In 2015, the consumption of solid biomass amounted to 166 PJ in Austria (Biermayr et al. 2016).

According to the **NREAP**, Austria has committed to a target of 34% share of renewable energy in gross final energy consumption in 2020 (NREAP-AT 2010). In 2015, the share already reached 32.8 % (Statistics Austria 2016). Furthermore, in the National Action Plan for Renewable Energy binding figures for the development of solid biomass in Austria can be found: For the year 2020 a share of 3.56 Mtoe (= 150 PJ) is indicated. This represents an increase of 5% compared to 2010. However, in 2015 the biomass consumption already increased to 165.5 PJ (= 3.95 Mtoe). Thus, the share of solid biomass in the final energy consumption, as defined in the National Action Plan for Renewable Energies, was already exceeded in 2015 (Biermayr et al. 2016). However, political efforts are still needed to finally achieve a successful transition from a fossil to a renewable energy system.

Austria has established a comprehensive legislative and administrative framework regulating and facilitating sustainable development of renewable energies. This framework is supported by various financial, fiscal, research and promotional measures and incentives. A detailed description of all fiscal and non-fiscal supports for bioenergy development is available at: <http://www.iea.org/policiesandmeasures/renewableenergy/?country=Austria>. Furthermore, the deliverable 3.1 of the IEE “Biomass Policies” project provides an overview of policy Landscapes for the selected biomass value chains in Austria (<http://www.biomasspolicies.eu/>). In the following, the most important policies in the field of bioenergy are summarized.

Forest Act 1975 (Forstgesetz 1975)

The Forest Act encompasses all measures dealing with the use, care, conservation and protection of forest land. Its key regulations are relevant to maintain its legally determined functions including forestry use along with protective, welfare, and recreational functions.

CAP implementation (LWG Landwirtschaftsgesetz)

The European Common Agricultural Policy (CAP) provides a framework for financial support to farmers (Pillar 1 – Direct Payments) and national rural development programmes (Pillar 2 – Rural Development). The new CAP 2014-2020 has been presented in 2014, and Member States has adapted their national approach within this framework. In 2015 the new Austrian CAP (LWG) came into force.

ÖPUL – Austrian Agri-environmental Programme 2007 (Österreichisches Agrar-Umweltprogramm ÖPUL)

Unlike some other EU countries which apply their environmental programmes only in specific, environmentally sensitive areas, Austria chose an integral, horizontal approach for its agri-environmental program, aiming at the participation of Austrian farmers all over the country. In 2012, 526 million euros were paid to 11,200 holdings for 2.2 million hectares under the programme. Around 110,200 farms, i.e. 74.6% of all agricultural holdings, managing 89% of the utilised agricultural area, participate in ÖPUL. This high participation rate in the Agri-environmental Programme puts Austria first among the EU Member States. The areas covered by ÖPUL (not including pastures) account for approximately 2.20 million hectares. The average aid amounted to 4,800 euros per holding.

Regulation on recycling of post-consumer and waste wood (RecyclingholzV)

The objective of this regulation is an efficient recycling of post—consumer and demolition wood by the industry. The directive should avoid any accumulation of hazardous substances and supports the sorting of waste wood for reuse and recycling in accordance with the Waste Management Act AWG. For 2018 an amendment for the Recycling Wood Regulation is expected. It will include stricter limit values for contaminants in products from recycling wood and the obligation that post-consumer and demolition wood is subject to recycling.

Austrian standard C 4005 - wood chips & shredder wood

The standard focuses on wood chips and shredder wood for energetic use in heating appliances with a thermal output over 500 kW. It provides requirements, test methods and an easier qualification of woody fuels, less classification and lists of typical values for the ash content etc..

ISO 17225 - International Standard for solid biofuels

The ÖN EN ISO 17225 covers solid biofuels - Fuel specifications and classes - Part 1: General requirements; Part 2: Graded wood pellets; Part 3: Graded wood briquettes; Part 4: Graded wood chips; Part 5: Graded firewood; Graded non-woody pellets; Graded non-woody briquettes.

Green Electricity Act – Federal Act on the Support of Electricity Produced from Renewable Energy Sources (Ökostromgesetz ÖSG 2012)

The Green Electricity Act sets the following targets for new installations until 2020: Hydro 1,000 MW, Wind 2,000 MW, PV 1,200 MW, Biomass and Biogas 200 MW. A feed-in tariff scheme under the Green Electricity Act supports the recovery of the investments. For green electricity plants based on solid and liquid biomass as well as biogas, an amount of EUR 10 million is available as an annual support volume in accordance with § 23 (3) Z 2 ÖSG 2012. Of this, EUR 3 million are designated to plants based on solid. According to § 16 (1) no. 1 ÖSG 2012, the duration of the general contracting obligation for green electricity plants based on solid and liquid biomass or biogas is 15 years. The level of feed-in tariffs is set in the "Ökostrom-Einspeisetarifverordnung".

On 28.02.2017 an amendment to the ÖSG 2012 was released in order to create a better framework for wind, hydropower and photovoltaics. Overall, the aim is to increase efficiency and to reduce bureaucracy and the compensation energy costs in the green electricity sector. For highly efficient second-generation biogas plants with higher efficiency new seven-year follow-on tariffs have been introduced. Operators of unprofitable biogas plants get a compensation if they shut down the biogas plants. An amendment concerning the biomass heat and power plants is expected for the end of 2017.

Combined Heat and Power Act (Kraft-Wärme-Kopplungsgesetz KWKG)

This federal act regulates the uniform distribution of subsidies for combined heat and power facilities. The act promotes the financial support for the modernisation of existing facilities as well as investment subsidies for new CHP facilities. The Austrian Energy Liberalisation Act implemented on 1 December 2000 included the Federal Act providing new rules on the organisation of the electricity sector, "ELWOG 2000" (Electricity Act 2000). This act enabled the executive laws of the nine federal provinces to oblige grid companies to purchase electricity from CHP plants, provided that they served public district heating supply. An amendment concerning the biomass heat and power plants is expected for the end of 2017.

ÖNORM EN 303-5

Currently the national supplement, ÖNORM EN 303-5 "Heating boilers for solid fuels, manually and automatically stoked, nominal heat output of up to 500 kW, terminology, requirements, testing and marking", of the corresponding European Standard regulates the type-certification of boilers in Austria. The standard applies for boilers with a thermal output of up to 500 kW, that are solely meant for the purpose of combustion of solid fuels.

ÖNORM M 9466 - Standard containing emission limits for wood boilers > 50kW

This norm includes emission limits for air contaminants of boilers of a nominal fuel heat output from 50 kW onwards. The standard covers Acceptance inspection, Continuous operation, Fuel wood, Ratings, Pollution of the air, Air purification, Installation locations, Limitation of emissions, Firing plants, Measurement conditions, Nominal thermal output, Wear-quantity, Methods for measuring, Measurement, Terminology, Surveillance (approval), Definitions, Test reports, Testing.

Combustion plant ordinance (Feuerungsanlagenverordnung, FAV)

The FAV applies for all businesses that are subject to the industrial code. The FAV applies for all types of fuel (solid, fluid, gaseous, special biomass fuels) that are combusted in order to produce useful heat in commercial operating plants up to 50 MW. For larger installations, the regulations for steam boilers have to be applied. The amendment of 2012 extends the definition of conventional fuels. This includes liquid biogenic fuels, fuel oil with very low sulfur content, light fuel oil with biogenic components and herbal products such as cereals or grasses. For PM and NOx more stringent emission limit values have to be applied. In the case of wood combustion, a change in the oxygen reference value from 13% to 11% leads to a further

aggravation of all limit values, even if the numerical value remains unchanged. Furthermore, for combustion plants using straw and other fuels (except wood), emission limit values are set.

Fuel Order Amendment 2012 biofuel quota (Kraftstoffverordnung, KVO 2012)

The fuel ordinance amendment 2012 sets a quota for biofuels and defines tax exemptions. By 2020, 8.45% (with regard to energy content) of the diesel and petrol provided to the transport sector have to be substituted by energy from renewable resources.

Immission Control Act – Air (Immissionsschutzgesetz – Luft, IG-L)

The Austrian Immission Control - Air Quality Protection Act has established air quality limit values for SO₂, NO₂ and NO_x, lead, benzene, CO and PM, as well as target values for ozone. Pollution levels are generally lower than the limit values for lead, benzene and CO. For SO₂, exceedances are rare and usually caused by transboundary air pollution from neighbouring eastern countries. However, limit values for PM and NO₂ are exceeded frequently in agglomeration areas (Vienna, Graz and Linz), predominantly at heavily frequented sites (NO₂ and PM) and some industrial hot spots (PM).

Waste Management Act 2002 (Abfallwirtschaftsgesetz AWG)

Waste management in Austria revolves around the principle of sustainable development. The system is based on the Waste Management Act (in line with Waste Framework Directive 2008/98/EC), with its priority being the protection of humans and the environment, and is achieved through minimizing emissions and optimising resource use. The text consists of 91 articles divided into 10 parts as follows: General provisions (1); Prevention of waste and processing of waste (2); General obligations for waste plants (3), Waste collectors and treatment of waste (4), Waste collection and processing systems (5); Waste disposal treatment plants (6), Monitoring (8); Transitional provisions (9); Final provisions (10). Six Annexes are enclosed. The **Federal Waste Management Plan** and its periodic amendments describe the dynamism and development in the area of waste management. The Federal Waste Management Plan is considered the “White Paper” of Austrian waste management and must include the application fields of the Waste Management Act 2002. The **ÖNORM S 2100: 2005 10 01 – List of wastes** defines the key numbers for waste materials. This listing is essential for the diversification in the Waste Management Act. It affects directly the collection and recycling of bio-based materials.

Directive for the appropriate use of biomass ash for the utilization on agricultural and forestry areas (Richtlinie für den sachgerechten Einsatz von Pflanzenaschen zur Verwertung auf Land- und Forstwirtschaftlich genutzten Flächen)

The directive describes the requirements regarding the contained nutrients and pollutants for the appropriate use of biomass ash on agricultural and forest areas. The directive can also be applied to gardening and landscape gardening. Biomass ash is defined as ash from the combustion of biomass (e.g. bark, wood chips, sawdust, wood logs, whole plants, plant parts, straw, grasses, other biogenic residues from agriculture and forestry, the garden and green areas and the food industry).

Funding programmes:

Specific programmes are financed by the Austrian Climate and Energy Fund (KLIEN). This fund is endowed by the BMVIT and the BMLFUW. It focuses on advancing the mobility and energy transitions and subsidizes measures for the reduction of greenhouse gas emissions. KLIEN is a hub for relevant issues of climate protection and reduces the time to market of research results. R&D projects are funded within the KLIEN's Energy Research Programme. The Austrian Climate & Energy Fund also provides a subsidy scheme for private households for the implementation of pellet and wood-chip central heating systems and pellet stoves. The subsidy applies to the substitution of fossil-fuel-based heating systems with renewable-energy-based ones. Installations must be operated either with wood chips or pellets. Log wood boilers are not subsidised.

- Austrian Climate and Energy Fund:
www.klimafonds.gv.at
- Funding programme "Future Production":
<https://www.ffg.at/produktionderzukunft>

2.2.1.3 Regulatory framework in the field of Danube logistics and biomass handling in inland ports

The legal provisions for inland navigation in Austria are defined by European regulations and their implementation into national law on the one hand, along with specific national legal provisions on the other.

Navigation Act (original title in German: Schifffahrtsgesetz, Federal Gazette I 62/1997)

The Navigation Act regulates navigation on Austrian waters and contains provisions with regard to waterways, shipping facilities, laws regulating ship's certificates, ship operation and navigation schools.

With regard to the topics covered in ENERGY BARGE the Navigation Act has special relevance for the administration of public ports (e.g. port dues) as well as for the awarding of concessions for commercial shipping companies.

Directive on Traffic Regulations for Waterways (original title in German: Wasserstraßen-Verkehrsordnung, Federal Gazette II 289/2011)

These regulations cover topics such as navigation rules, lock operations and port management. They cover provisions regarding the release of emissions of inland vessels, visual signals on vessels (marketing) as well as obligatory documents to be carried on board.

In the field of port management the Austrian Directive on Traffic Regulations for Waterways regulates transshipment in inland ports and the handling of dangerous goods (mainly liquid cargo).

Naval Engineering Directive (original title in German: Schiffstechnikverordnung, Federal Gazette II 162/2009)

The Naval Engineering Directive regulates the technical requirements for watercrafts on inland waterways. In detail, the regulation covers legal requirements for licensing issues such as the certification of ships as well as the ship's certificate or the license number.

Directive on Shipping Facilities (original title in German: Schifffahrtsanlagenverordnung, Federal Gazette II 298/2008)

In general, this regulation is based on the Navigation Act (Schifffahrtsgesetz, Federal Gazette I 62/1997). This directive contains more detailed regulations concerning the operation, configuration and use of ports and transshipment sites but also regulates bunkering facilities, handling of dangerous goods (ADN) at transshipment sites as well as public and private ports. Furthermore the directive deals with other shipping facilities such as locks on the Danube, pontoons or Roll on/Roll off-facilities. Maintenance tasks respectively other facilities on waterways, port dues in public and private ports as well as prohibition and restriction areas on waterways are further subsections in the directive. Bridges and overpasses of waterways are regulated within the framework of this directive as well.

With regard to the topics covered in ENERGY BARGE the Directive on Shipping Facilities has special relevance for the administration of public ports (e.g. port dues), for the operation respectively configuration of berths as well as for the handling of dangerous goods (ADN).

Austrian Federal Law on the carriage of dangerous goods (original title in German: Gefahrgutbeförderungsgesetz, Federal Gazette I 145/1998)

The Federal Law on the carriage of dangerous goods regulates the transport of dangerous goods on road, rail, inland waterway, maritime transport and civil aviation. Especially relevant for inland navigation on the Danube, the law refers to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) which constitutes the legal basis for the Austrian Federal Law.

Crop Monitoring Directive (original title in German: Getreide-Überwachungsverordnung, Federal Gazette II 3 02/2010)

This directive covers the official monitoring procedure of shipment and treatment of crops which is carried out by national authorities or by the Agrarmarkt Austria (AMA). In Austria the storage of crops, the combination of lots in means of transport or the direct transshipment of one or several lots in means of transport is only permitted in storage facilities or with handling equipment that was certified by the AMA for this purpose. The certification is regulated by conditions stated in the directive.

The Austrian Federal Ministry for Transport, Innovation and Technology also developed integrated policies to foster and actively support inland waterway transport on the Danube. Following two documents provide the framework for these integrated policies:

Master Transport Plan for Austria (original title in German: Gesamtverkehrsplan für Österreich 2012 (G-VP))

The Master Transport Plan for Austria (G-VP) frames the national objectives and strategies of a comprehensive transport policy until 2025 in Austria. In addition to the Master Transport Plan the Federal Ministry for Transport, Innovation and Technology launched a platform for stakeholders in the field of cargo transport and logistics in 2013. The working group specified the objectives of the master plan in more detail by elaborating 117 measures to strengthen Austria as a major logistics hub in Europe. Based on these guidelines, the Action Programme for the Danube (APD) was published by the bmvit and viadonau in 2015.

bmvit's Action Programme for the Danube 2022 (original title in German: Aktionsprogramm Donau des bmvit bis 2022 (APD), June 2015)

The Action Programme for the Danube (APD) is a national strategy which ensures a balanced development of the inland navigation along the Austrian Danube. The objectives of shipping as well as ecology and flood protection are bundled in this action programme. The document defines a total of 23 measures to be implemented until 2022. Measure 11 "Develop transports on the Danube further" and measure 12 "Expand multimodal handling possibilities along the Danube" are the most relevant for activities carried out in the ENERGY BARGE project.

2.2.2.4 Summary of existing policies

Table 4: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Austria.

Applicable value chain components	Policy	Valid dates	Summary
Biomass supply	Forest Act 1975	Since 1975	- the Forest Act encompasses all measures dealing with the use, care, conservation and protection of forest land
Biomass supply	CAP implementation (LWG)	2015-2020	- the European Common Agricultural Policy (CAP) provides a framework for financial support to farmers. In 2015 the new Austrian CAP (LWG) came into force
Biomass supply	ÖPUL – Austrian Agri-environmental Programme 2007	Since 2007	- Austria chose an integral, horizontal approach for its agri-environmental program, aiming at the participation of Austrian farmers all over the country

Biomass supply/recycling	Regulation on recycling of post-consumer and waste wood (RecyclingholzV)	Since 2012	<ul style="list-style-type: none"> - the objective of this regulation is an efficient recycling of post-consumer and waste wood by the industry - for 2018 an amendment for the Recycling Wood Regulation is expected
Biomass Handling	Austrian standard C 4005 - wood chips & shredder wood	Since 2016	<ul style="list-style-type: none"> - the standard focuses on wood chips and shredder wood for energetic use in heating appliances with a thermal output over 500 kW
Biomass Handling/Energetic use	ISO 17225 - International Standard for solid biofuels	Since 2014	<ul style="list-style-type: none"> - the ÖN EN ISO 17225 covers solid biofuels - Fuel specifications and classes
Biomass market/Energetic use	Green Electricity Act – Federal Act on the Support of Electricity Produced from Renewable Energy Sources (Ökostromgesetz ÖSG 2012)	Since 2012	<ul style="list-style-type: none"> - the Green Electricity Act sets targets for new installations - a feed-in tariff scheme under the Green Electricity Act supports the recovery of the investments - an amendment concerning the biomass heat and power plants is expected for the end of 2017
Biomass market/Energetic use	Combined Heat and Power Act (Kraft-Wärme-Kopplungsgesetz KWKG)	Since 2009	<ul style="list-style-type: none"> - this federal act regulates the uniform distribution of subsidies for combined heat and power facilities - an amendment concerning the biomass heat and power plants is expected for the end of 2017
Combustion/Emission limits	Combustion plant ordinance (Feuerungsanlagenverordnung; FAV)	Since 2012	<ul style="list-style-type: none"> - the FAV sets emission limits and applies for all types of fuel (solid, fluid, gaseous, special biomass fuels) that are combusted in order to produce useful heat in commercial operating plants up to 50 MW
Biomass market/Energetic use	Fuel Order Amendment 2012 biofuel quota (Kraftstoffverordnung KVO 2012)	Since 2012	<ul style="list-style-type: none"> - the fuel ordinance amendment 2012 sets a quota for biofuels and defines tax exemptions
Combustion/Emission limits	ÖNORM M 9466 - Standard containing emission limits for wood boilers > 50kW	Since 2011	<ul style="list-style-type: none"> - this norm includes emission limits for air contaminants of boilers of a nominal fuel heat output from 50 kW onwards

Combustion/ Emission limits	ÖNORM EN 303-5	Since 2012	- ÖNORM EN 303-5 "Heating boilers for solid fuels, manually and automatically stoked, nominal heat output of up to 500 kW, terminology, requirements, testing and marking"
Immission Limits-Air quality	Immission Control Act – Air (IG-L) (Immissionsschutzgesetz - Luft)	Since 2010	- the Austrian Immission Control - Air Quality Protection Act has established air quality limit values for SO ₂ , NO ₂ and NO _x , lead, benzene, CO and PM, as well as target values for ozone
Biomass supply/recycling	Waste Management Act 2002 (AWG) and ÖNORM S 2100: 2005 10 01 – List of wastes	Since 2002	- principles of waste management in Austria - the ÖNORM S 2100: 2005 10 01 defines the key numbers for waste materials
Recycling	Directive for the appropriate use of biomass ash for the utilization on agricultural and forestry areas	Since 2010	- the directive describes the requirements regarding the contained nutrients and pollutants for the appropriate use of biomass ash on agricultural and forest areas
Logistics	Navigation Act (Federal Gazette I 62/1997)	Since 1997	- provisions with regard to shipping facilities, ship certificates, administration of public ports, ship operation and concessions for commercial shipping companies
Logistics	Directive on Traffic Regulations for Waterways (Federal Gazette II 289/2011)	Since 2011	- regulations on navigation rules, transshipment in inland ports and handling of dangerous cargo
Logistics	Naval Engineering Directive (Federal Gazette II 162/2009)	Since 2009	- technical requirements for watercrafts, licensing issues and certification of ships
Logistics	Directive on Shipping Facilities (Federal Gazette II 298/2008)	Since 2008	- regulations concerning the operation, configuration and use of ports and transshipment sites - operation of bunkering facilities
Logistics	Austrian Federal Law on the carriage of dangerous goods (Federal Gazette I 145/1998)	Since 1998	- provisions on the transport and handling of dangerous goods along the Danube

Biomass handling	Crop Monitoring Directive (Federal Gazette II 3 02/2010)	Since 2010	- permits for storage facilities and handling equipment used for crops
Logistics	Master Transport Plan for Austria (G-VP)	Since 2012	- national objectives and strategies of a comprehensive transport policy until 2025 - 117 measures in the field of cargo transport and logistics
Logistics	bmvit's Action Programme for the Danube 2022	Since 2015	- national strategy which ensures a balanced development of the inland navigation along the Austrian Danube (23 measures)

2.2.2 Bosnia and Herzegovina

2.2.2.1 Regulatory authorities

Table 5: Regulatory authorities in the field of bioenergy and logistics in Bosnia and Herzegovina.

Authority	Abbr.	Field of activity
Ministry of Energy, Mining and Industry ¹⁹		<ul style="list-style-type: none"> - implements the enacted policy - makes proposals and recommendations in the field of its scope
Commission for Energy Regulation of the Federation of Bosnia and Herzegovina ²⁰		<ul style="list-style-type: none"> - independent and non-profit organization - supervision and regulating the relations between power generation, distribution and electricity customers including power traders
Operator for renewable energy sources and efficient cogeneration ²¹		<ul style="list-style-type: none"> - non-profit legal organisation - creating institutional structures for the operationalization of the system of subsidies for production and purchase of electricity from plants using renewable energy sources and efficient cogeneration
Federal Ministry of Transport and Communications ²²		<ul style="list-style-type: none"> - in charge, among other, for the areas of transport and communications, maritime, river and lake transport

2.2.2.2 Regulatory framework in the field of bioenergy

The Law on the use of renewable energy sources and efficient cogeneration²³ of 2013 (last amended in 2014) promotes the use of renewable energy sources for the production of electricity, energy for heating and cooling and for transport.

The **Decree on feed-in tariffs** of 2012 aims at supporting small-scale RES-E plants. Fixed rates for selling the produced electricity shall enforce this kind of power generation.

¹⁹ http://www.fbihvlada.gov.ba/english/ministarstva/energija_rudarstvo_industrija.php (last access: 10.05.2017)

²⁰ <http://www.ferk.ba/en/> (last access: 10.05.2017)

²¹ <http://operatoroieiek.ba/operator-for-res/> (last access: 10.05.2017)

²² http://www.fbihvlada.gov.ba/english/ministarstva/promet_komunikacije.php (last access: 30.05.2017)

²³ <http://www.fmeri.gov.ba/zakon-o-obnovljivim-izvorima-energije-i-kogeneracije.aspx> (last access: 10.05.2017)

The **Green for Growth Fund**²⁴ (GGF) set up in 2009, is a fund especially for the region Southeast Europe. Responsible authorities are: European Investment Bank (EIB), KfW Development Bank (KfW), European Commission (with the European Investment Fund as Trustee), German Federal Ministry of Economic Cooperation and Development (BMZ), European Bank for Reconstruction and Development (EBRD), International Finance Corporation (IFC) and Netherlands Development Finance Company (FMO). The main goal is to advance energy efficiency and renewable energies through the reduction of energy consumption and CO₂ emissions. Therefore non-financial institutions with projects concerning those issues are funded. GGF also offers technical assistance facility for capacity building of partner institutions. Moreover companies are supported in form of energy audits or energy efficiency and renewable energies project implementation.

The new **Regional Energy Efficiency Programme for the Western Balkans (REEPWB)**²⁵ of 2013 supports the participating countries to achieve their sustainable energy objectives as set out in their National Energy Efficiency Action Plans. REEPWB has the following key aspects:

1. Policy dialogue: provides assistance to set up regulatory framework and to overcome market barriers;
2. Credit line framework for local financial institutions;
3. Direct financing for investments in medium-scale renewable energy and energy efficiency improvements in industrial enterprises.

The Western Balkans sustainable energy direct financing facility²⁶ of 2006 (last amended 2012) aims at stimulating investments in energy efficiency and use of renewable energy. The facility is open to small and medium enterprises or to project developers. The implementation of the following characteristics shall be the main focus for the applicants: (i) industrial energy efficiency (ii) renewable energy projects (iii) energy efficiency in the public sector.

The **National Renewable Energy Action Plan**²⁷ of 2016 is a key document concerning energy policies in Bosnia-Herzegovina. It aims at fulfilling the main strategic objectives: increasing the security of energy supply, sustainable development and climate change abatement. The Plan defines the sectoral targets for 2020:

- 40% Renewable Energy Sources contribution to the energy consumption;
- 52.4% Renewable Energy Sources in electricity;
- 10% Renewable Energy Sources in transport;
- 56.9% Renewable Energy Sources for heating and cooling.

²⁴ <http://www.ggf.lu/about-green-for-growth-fund/> (last access: 04.05.2017)

²⁵ http://www.ebrd.com/downloads/research/factsheets/343_REEPWB.pdf (last access: 08.05.2017)

²⁶ <http://www.websedff.com/index.php?id=25> (last access: 08.05.2017)

²⁷ <http://operatoroieiek.ba/wp-content/uploads/2014/07/APOEF.pdf> (last access: 10.05.2017)

2.2.2.3 Regulatory framework in the field of inland waterway transport and biomass handling in inland ports

The **Framework Agreement on the Sava River Basin**²⁸ of 2002 is a multilateral agreement between Bosnia-Herzegovina, Croatia, Slovenia and Serbia. It was implemented to establish the conditions for international traffic navigation along the Sava River and its navigable tributaries and to establish a sustainable water management of the Basin and to undertake measures for prevention/limitation of hazards, floods and similar.

2.2.2.4 Summary of existing policies

Table 6: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Bosnia and Herzegovina.

Applicable value chain components	Policy	Valid dates	Summary
Political framework for renewable energies	Law on the use of renewable energy sources and efficient cogeneration	2013	promotes the use of renewable energy sources
Political framework for renewable energies	Decree on feed-in tariffs	2012	support small-scale RES-E plants
Funding	Green Growth Fund	2009	funding in the field of energy efficiency and renewable energies
Funding	Regional Energy Efficiency Programme for the Western Balkans	2013	funding in the field of renewable energies and energy efficiency
Funding	Western Balkans sustainable energy direct financing facility	2006 (amended 2012)	stimulating investments in energy efficiency and use of renewable energy
Political framework for renewable energies	National Renewable Energy Action Plan	2016	key document for energy policies in Bosnia-Herzegovina
Transport framework	Framework Agreement on the Sava River Basin	2002	establish conditions for international traffic navigation; establish sustainable water management

²⁸ <http://www.mkt.gov.ba/aktivnosti/default.aspx?id=5026&langTag=bs-BA> (last access: 10.05.2017)
Project co-funded by European Union funds (ERDF)

2.2.3 Bulgaria

Bulgaria has a well-established energy sector. It is one of the main exporters of electricity in Southeast Europe and has the prospect to export even more. Although Bulgaria's renewable energy already represents 18.2%²⁹ in 2015 of the country's total installed capacity, there is still potential to exploit renewable resources, particularly biomass.

Biomass is a somewhat unexploited renewable energy source, because according to UNDP in 2012 Bulgaria had an electricity capacity of 6.6 MW from Biomass, with a potential of 3,700 MW.³⁰ Biomass could cover 8.5% of the end energy consumption in Bulgaria – this was stated in the National Long-term Program to promote the use of biomass for the period of 2008-2020.³¹ According to a plan for the development of the country's power distribution network of the Electricity System Operator (ESO) by 2025 new Biomass plants will add a combined 64 MW to the grid.³²

2.2.3.1 Regulatory authorities

The state policy in the field of energy is determined by a resolution of the National Assembly and the Council of Ministers. Competent for the energy policy in the Republic of Bulgaria are the following bodies: the Ministry of Economy and Energy, the Sustainable Energy Development Agency, the Energy and Water Regulatory Commission, the National Electricity Company, and the Bulgarian Energy Holding.

Main regulatory authorities with regard to biomass production for energetic use in Bulgaria are shown in the table below:

Table 7: Regulatory authorities in the field of bioenergy and logistics in Bulgaria.

Authority	Abbr.	Field of Activity
Ministry of Economy ³³		- is working to create a competitive low-carbon economy
Ministry of Energy ³⁴		- responsible for implementing Bulgaria's policy for promoting the production and use of energy from RES - shaping the energy policy of Bulgaria - is also responsible for pursuing the state policy on RES and energy efficiency

²⁹http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Share_of_energy_from_renewable_sources_in_gross_final_consumption_of_energy_2004-2015_%25_T1_Newpng.png (last access: 22.05.2017)

³⁰<http://eurasia.undp.org/content/dam/rbec/docs/Bulgaria.pdf?download> (last access: 22.05.2017)

³¹<http://strategy.bg/FileHandler.ashx?fileId=1422> (last access: 22.05.2017)

³²http://tso.bg/uploads/file/bg/10_Year_Net_Dev_Plan_2016-2025_projekt.pdf (last access: 22.05.2017)

³³www.mi.government.bg (last access: 22.05.2017)

³⁴www.me.government.bg (last access: 22.05.2017)

Sustainable Energy Development Agency ³⁵	SEDA	<ul style="list-style-type: none"> - is a legal entity at state budget support and has the status of an executive agency within the Ministry of Energy - is also in charge of carrying out the state policy on promoting the production and consumption of electricity, heating and cooling energy from RES; the production and consumption of gas from RES; as well as the production and consumption of transport biofuels and energy from RES
Ministry of Environment and Water ³⁶		<ul style="list-style-type: none"> - responsible for environment protection; for instance, it can order inspections of the quality of the ambient air, soil, and water, where biomass processing plants are settled
Ministry of agriculture, food and forestry ³⁷		<ul style="list-style-type: none"> - responsible for developing and administrating policies in the fields of agriculture, food safety, veterinary and phytosanitary issues, animal welfare, forestry, fisheries
Executive forest agency ³⁸	EFA	<ul style="list-style-type: none"> - responsible for the implementation of the state policy in the Bulgarian forest sector and the control over the fulfilment of the national and EU legislation in the field of management and protection of woodlands, forest territories and resources
Ministry of Transport, Information Technology and Communications ³⁹		<ul style="list-style-type: none"> - executes the state policy and plan the strategy for developing and restructuring of the transport - implements the state investment policy in the field of transport - prepares projects of international contracts and agreements in the field of transport and ensure the implementation of international agreements and conventions in this area, to which Bulgaria is a contracting side
Bulgarian Ports Infrastructure Company ⁴⁰		<ul style="list-style-type: none"> - manages the port infrastructure in accordance with the Maritime Spaces, Internal Waterways and Ports of the Republic of Bulgaria Act - responsible for provision of information on traffic management and information services for shipping, distribution of marine information on safety and maintenance

³⁵ www.seea.government.bg (last access: 22.05.2017)

³⁶ <http://www.moew.government.bg> (last access: 22.05.2017)

³⁷ www.mzh.government.bg (last access: 22.05.2017)

³⁸ www.iag.bg (last access: 22.05.2017)

³⁹ www.mtitc.government.bg (last access: 22.05.2017)

⁴⁰ www.bgports.bg (last access: 22.05.2017)

State Energy and Water Regulatory Commission ⁴¹	SEWRC	<ul style="list-style-type: none"> - regulates the energy activities in observance of the Energy Act (EA) - issues, amends, supplements, terminates and revokes licenses in the cases provided for by the EA - determines the feed-in tariff annually - Grants permits and licences to companies within the power sector
Bulgarian Energy Holding ⁴²	BEH	<ul style="list-style-type: none"> - owns the main electricity generation facilities in the country as well as the electricity transmission grid - public supplier of both electricity and gas
National Electricity Company EAD ⁴³		<ul style="list-style-type: none"> - production and transition of electricity, centralized purchase and sale of electricity, power supply to users connected to the transition network, import and export of electricity, construction and repair activity in the production and transition of facilities, investment activity, Introduction and promotion of energy efficiency in the production and transition of energy
Energy Efficiency and Renewable Sources Fund ⁴⁴	EERSF	<ul style="list-style-type: none"> - operates according to the provisions of the Energy Efficiency Act, the Energy from Renewable Sources Act and the agreements with the donors - finances energy efficiency investment projects
Electricity System Operator ⁴⁵	ESO	<ul style="list-style-type: none"> - responsible for operating the national grid

2.2.3.2 Regulatory framework in the field of bioenergy

Since 2004, the Bulgarian legislation in terms of state energy policy has been developing in a dynamic way and is mainly the result of the process of harmonization with the EU law. Bulgaria's regulatory framework on RES is nowadays determined by the Energy Act and the Energy from Renewable Sources Act (ERSA). Furthermore, in 2010 mandatory and indicative targets for the share of energy from RES were set in the National Renewable Energy Action Plan 2020. Renewable energy generation is supported through a feed-in tariff (FIT), which is now restricted to solar and biomass projects. The FIT is determined annually by the SEWRC. While under the Renewable and Alternative Energy Sources and Biofuels Act until 2011 favourable

⁴¹ www.dker.bg (last access: 22.05.2017)

⁴² www.bgenh.com (last access: 22.05.2017)

⁴³ www.nek.bg (last access: 22.05.2017)

⁴⁴ www.bgeef.com (last access: 22.05.2017)

⁴⁵ www.eso.bg (last access: 22.05.2017)

FITs were guaranteed, with ERSA the regime for renewable energy has become since then more restrictive, with wind energy, biogas and geothermal energy no longer eligible.⁴⁶

Electricity from biomass is somewhat an exception from the generally restrictive outlook on renewable energy. The validity of Power purchase agreements for mandatory purchase of electricity from biomass has actually been extended to 20 years from the previous 15-year term under the repealed statute. However, in 2015 the SEWRC decided to reduce FITs for new biomass power plants significantly, depending on the technology used.⁴⁷ The following table gives an overview about existing policies.

Table 8: Policies, technical and sustainability standards, government strategies influencing bioenergy in Bulgaria.

Valid dates	Policy	Summary
2003 (last amended 2016)	Energy Act ⁴⁸	<ul style="list-style-type: none"> - regulates the connection of plants to the grid, the generation and transmission of electricity and the pricing of these services in Bulgaria - stipulates provisions for the regulatory authority for energy - contains provisions for the support of electricity from renewable sources.
2011 (last amended 2015)	Energy from Renewable Sources Act (ERSA) ⁴⁹	<ul style="list-style-type: none"> - promotes the use of energy produced by renewable sources - regulates the general terms and conditions for the production and consumption of electricity, heating and cooling energy from renewable sources, gas and transport biofuels from renewable sources - legal basis for the feed-in tariff support system
2004 (last amended 2017)	Ordinance on the Pricing of Electric Power ⁵⁰	<ul style="list-style-type: none"> - authorises regulatory authority EWRC to regulate the prices for electricity from renewable sources exported to the grid

⁴⁶<http://www.res-legal.eu/search-by-country/bulgaria/single/s/res-e/t/promotion/aid/feed-in-tariff-8/lastp/111/> (last access 22.05.2017)

⁴⁷<http://www.cms-lawnow.com/ealerts/2015/03/bulgarian-energy-regulator-deals-blow-to-biomass-projects> (last access 22.05.2017)

⁴⁸<https://www.me.government.bg/library/index/download/lang/en/fileId/256> (last access 22.05.2017)

⁴⁹<https://www.me.government.bg/library/index/download/lang/en/fileId/167> (last access 22.05.2017)

⁵⁰<http://www.dker.bg/files/DOWNLOAD/naredba-regtsenelen-24mar2017.pdf> (last access 22.05.2017)

2004 (last amended 2016)	Energy Efficiency Act ⁵¹	<ul style="list-style-type: none"> - regulates the general terms and conditions for the implementation of state policy aimed at increasing energy efficiency in the end consumption of energy and the provision of energy services - does not apply to the consumption of energy by land and water transport vehicles - covers Energy Efficiency and Renewable Energy Sources Fund
2011 (last amended 2017)	Forests Act ⁵²	<ul style="list-style-type: none"> - to increase the timber yield in the context of preserving the natural timber stocks and guaranteeing sustainable economic development
2007 (superseded by ERSA)	Renewable and Alternative Energy Sources and Biofuels Act ⁵³	<ul style="list-style-type: none"> - was the first statute to institutionalise renewable energy incentives - was adopted to diversify energy supply, environmental protection, to set the terms for sustainable local and regional development, to promote the development and implementation of technologies for the production and use of energy generated by renewable and alternative energy sources, and to promote the production and consumption of biofuels
2006 (last amended 2017)	Excise Duties and Tax Warehouses Act ⁵⁴	<ul style="list-style-type: none"> - regulates i.e. the excise duty taxation of fuels from renewable energy sources
2011 (last amended 2017)	Agricultural Land Ownership and Use Act ⁵⁵	<ul style="list-style-type: none"> - prescribes various rules and terms aimed to define the effective manner for the correct and sustainable use of the agricultural land
2011	Soils Act ⁵⁶	<ul style="list-style-type: none"> - provides for the prevention of soil degradation and damage to soil functions, protection of soil functions, and for the restoration of damaged soil functions
1999 (2013)	Water Act ⁵⁷	<ul style="list-style-type: none"> - regulates the ownership and management of waters (including integrated management of water; supply of good quality surface and groundwater; reduction of pollution of waters)
2012	Law on waste management ⁵⁸	<ul style="list-style-type: none"> - regulates the measures and actions aimed to protect the environment and human health by i.a. increasing the efficiency of waste management

⁵¹http://seea.government.bg/documents/ZEE_EN.pdf (last access 22.05.2017)

⁵²http://www.iag.bg/data/docs/ZAKON_za_gorite2017.pdf (last access 22.05.2017)

⁵³<http://www.seea.government.bg/documents/deinost/sustainable/RES%20Law%202007%20eng.doc> (last access 22.05.2017)

⁵⁴<https://www.minfin.bg/document/12064:5> (last access 22.05.2017)

⁵⁵<http://extwprlegs1.fao.org/docs/pdf/bul164528.pdf> (last access 22.05.2017)

⁵⁶<http://extwprlegs1.fao.org/docs/pdf/bul116552.pdf> (last access 22.05.2017)

⁵⁷<http://extwprlegs1.fao.org/docs/pdf/bul33607.pdf> (last access 22.05.2017)

⁵⁸<http://extwprlegs1.fao.org/docs/pdf/bul154431.pdf> (last access 22.05.2017)

2002	Environmental Protection Act ⁵⁹	- sets up the basic principles of the environmental law, such as: health protection; prevention of pollution; and conservation of biological diversity
	Strategies / Action Plans	
2013	National strategy for the development of the forest sector in the Republic of Bulgaria 2013 – 2020	- to promote sustainable and multifunctional management of the forestry in order to develop an economically viable forestry sector, which would contribute to economic development
2011	Energy strategy until 2020 ⁶⁰	<ul style="list-style-type: none"> - main priorities: Ensuring the security of energy supply; Achievement of renewable energy objectives; Increasing energy efficiency; Development of a competitive energy market and policy meeting the energy needs; Consumer protection - emphasis on clean and low-emission energy - balance between the quantity, quality and prices of electricity produced from renewable sources, nuclear energy and energy from coal and natural gas
2010	National Renewable Energy Action Plan ⁶¹	- establishes the general framework to be followed and implemented in the national legislation and outlines the actions to be taken by the local, regional and national authorities by 2020 in order to promote the use of renewable energy
2008	National Long-Term Programme to Encourage the Use of Biofuels in the Transport Sector for 2008-2020 ⁶²	<ul style="list-style-type: none"> - to reduce external dependency, insecurity of energy prices and supplies, but also as a response to the Biomass Action Plan of the EU - to encourage the use of biofuels or other renewable fuels in the transport sector - aims to implement the general structure for the possibilities for the use of biomass for the purposes of energy production

⁵⁹ http://nacid.bg/sites/qual/att_files/en/LAW_ENVIRONMENT.pdf (last access 22.05.2017)

⁶⁰ http://me.government.bg/files/useruploads/files/epsp/23_energy_strategy2020%D0%95ng.pdf (last access 22.05.2017)

⁶¹ http://pvtrin.eu/assets/media/PDF/EU_POLICIES/National%20Renewable%20Energy%20Action%20Plan/203.pdf (last access 22.05.2017)

⁶² <http://www.strategy.bg/FileHandler.ashx?fileId=1421> (last access 22.05.2017)

2007	National Long Term Programme for the Promotion of the Use of Biomass 2008- 2020 ⁶³	<ul style="list-style-type: none"> - establishes the general framework of the opportunities to utilise biomass for energy purposes - utilisation of the biomass energy potential in Bulgaria as well as future perspectives
2005	National Long-Term Programme to Encourage the Use of RES for 2005- 2015	<ul style="list-style-type: none"> - objective: existing share of RES should exceed 8% of gross electrical energy production, while from 2005 to 2015 the target should be 9%

2.2.3.3 Regulatory framework in the field of Danube logistics and biomass handling in inland ports

In Bulgaria there is no special legislation in the field of Danube logistics and biomass handling in inland ports. It applies the general regulatory framework for transportation, inland waterways and ports, which is shown in the following table.

Table 9: Policies, technical and sustainability standards, government strategies influencing logistics in Bulgaria.

Year	Policy description
2000 (last amended 2013)	Law on the Maritime Spaces, Inland Waterways and Ports⁶⁴ <ul style="list-style-type: none"> - regulates the legal regime (mostly administrative issues, technical provisions, and offences and penalties) as regards the maritime spaces, inland waterways and ports
2000 (last amended 2016)	Railway Transport Act⁶⁵ <ul style="list-style-type: none"> - regulates the construction, maintenance, development and the use of the republican railway infrastructure (RRI), the access requirements for this infrastructure, the main train traffic rules as well as the relations between the carriers and the customers referring to transportation services
2000 (last amended 2016)	Roads Act⁶⁶ <ul style="list-style-type: none"> - regulates ownership, operation, management, construction and repairs of road infrastructure

⁶³ <http://www.strategy.bg/FileHandler.ashx?fileId=1422> (last access 22.05.2017)

⁶⁴ http://www.conces.government.bg/save?fileId=3183&type=doc&fileName=Maritime_of_Bulgaria_Act.pdf (last access 22.05.2017)

⁶⁵ [http://www.iaja.government.bg/IAJI/engwwwFWRAEA.nsf/f8c6e36331ccea9d0025728b005cd1fd/4cb04a03586656e1c225742d0040819d/\\$FILE/BG%20Rail_Transport_Act.%20last%20amended%202.08.2013_EN.rtf](http://www.iaja.government.bg/IAJI/engwwwFWRAEA.nsf/f8c6e36331ccea9d0025728b005cd1fd/4cb04a03586656e1c225742d0040819d/$FILE/BG%20Rail_Transport_Act.%20last%20amended%202.08.2013_EN.rtf) (last access 22.05.2017)

⁶⁶ http://www.api.bg/files/2814/7143/9999/roads_act_20160418.pdf (last access 22.05.2017)

1999 (last amended 2015)	Road Traffic Act⁶⁷ - regulates the rules of the road open to public, the requirements for vehicles to drive on these roads, the requirements for certification of drivers of vehicles, the rights and obligations of the participants in the traffic, as well as coercive measures to be applied, and the penalties for violating the provisions of this law
1999 (last amended 2015)	Law on road transport - provides regulations for issuing a permit, domestic transportation, international transportation, specific rules for transportation contracts, time of driving and stops, transportation control
1997 (last amended 2016)	Local Taxes and Fees Act (LTFA)⁶⁸ - regulates the taxation regime of transport vehicles (motor vehicles, ships, etc.)
1970 (last amended 2016)	Merchant navigation code⁶⁹ - regulates the requirements for the Bulgarian ownership in ships, the requirements for the ship's and carriage documents, the rights and duties of the masters and the crews, the contracts for carriage of cargoes, the contracts for rental of ships, the contracts for insurance of ships and loads, the average of ships, the salvage on sea and rivers, and other relations connected to the shipping and its safety

2.2.3.4 Summary of existing policies

Table 10: Summary of existing policies on bioenergy and logistics of Bulgaria.

Applicable value chain components	Policy	Valid dates	Summary
National energy law	Energy Act	2003 (l. a. 2016)	- sets out the legal foundation upon which the power, gas and heating industrie are currently based and regulates i.a. the use of RES
RES legislation	Energy from Renewable Sources Act (ERSA)	2011 (l. a. 2015)	- regulates the general terms and conditions for the production and consumption of electricity, heating and cooling energy from RES - regulates the field of biomass and bioenergy
RES framework	National Renewable Energy Action Plan	2010	- establishes the general framework to be followed and implemented and outlines the actions to be taken in order to promote the use of renewable energy

⁶⁷ <http://www.lawyersbulgaria.org/content/2011/603/road-traffic-act/> (last access 22.05.2017)

⁶⁸ <http://www.minfin.bg/document/1915:1> (last access 22.05.2017)

⁶⁹ <http://www.marad.bg/upload/docs/Merchant Shipping Code.doc> (last access 22.05.2017)

Biomass framework	National Long Term Programme for the Promotion of the Use of Biomass 2008- 2020	2007	- establishes the general framework of the opportunities to utilise biomass for energy purposes
Biomass supply	Forests Act	2011 (l. a. 2017)	- settles the regulations in connection with the ownership and tenure - management, reproduction, use and protection of the forests
Transport / Logistics	Law on the Maritime Spaces, Inland Waterways and Ports	2000 (l. a. 2013)	- regulates the legal regime of inland waterways and ports
Transport / Logistics	Railway Transport Act	2000 (l. a. 2016)	- regulates the use of the railway infrastructure
Transport / Logistics	Law on road transport	1999 (l. a. 2015)	- provides regulations for issuing a permit, domestic transportation, international transportation
Transport / Logistics	Road Traffic Act	1999 (l. a. 2015)	- regulates the requirements for vehicles to drive on these roads
Taxes	Local Taxes and Fees Act (LTFA)	1997 (l. a. 2016)	- regulates the taxation regime of transport vehicles

2.2.4 Croatia

2.2.4.1 Regulatory authorities

In Croatia, one can regard the regulatory authorities on several levels: national, regional and local. In the following table only authorities on the national level will be considered. Biomass production/consumption, and in wider respect, renewable energy sources are in one way or another handled by different ministries within the government and will be hereby listed with their respective tasks and roles regarding the topic of this project.

Table 11: Regulatory authorities in the field of bioenergy and logistics in Croatia.

Authority	Abbr.	Field of activity
Ministry of Environment and Energy		<ul style="list-style-type: none"> - handles administrative and professional affairs regarding general policies on environmental protection, water resources and energy (both renewable and non-renewable) - plans and suggests the strategy of energy development including programmes and measures for its implementation according to the principles of energy strategy, security of supply, energy sector and sustainable development competitiveness, etc. - handles administrative and professional affairs regarding the renewable energy sources and cogeneration, namely, by issuing approvals for obtaining the status of eligible producers, handles the Register of projects and facilities for alternative energy sources and cogeneration and eligible producers. It also prepares programmes, calls and measures for placing biofuels on the engine fuel market for transportation purposes
Ministry of Agriculture		<ul style="list-style-type: none"> - biomass production and utilization - handles administrative and other affairs in the field of agriculture, fishery, forestry, rural development and also management of state owned agricultural land - handles all administrative and other affairs regarding forestry, forest protection, regulation of legal relations of state-owned forests and land (except for property-related affairs) - handles regulations of relations and conditions of production, transport and use of seedlings, ecology aspects, forest protection of elemental disasters and anthropogenic influence
Ministry of Construction and Physical Planning		<ul style="list-style-type: none"> - energy efficiency issues in a building sector by providing a rule book on the conditions and standards for establishing the quality system of services and work for certification of renewable energy installers – for smaller boilers and biomass furnaces (OG 39/2015)

Hrvatske šume d.o.o. (Croatian Forest Ltd)		- 75% of forest in Croatia is state owned, and the majority is managed by the state company Hrvatske šume d.o.o., founded on the basis of the Amending Forestry Act (OG 41/90), with the beginning of function on January 1st 1991
Environmental Protection and Energy Efficiency Fund	EPEEF	- central point for collecting and investing extra budgetary resources in the programmes and projects of environmental and nature protection, energy efficiency and use of renewable energy sources
Paying Agency for Agriculture, Fisheries and Rural Development		- aims to connect Croatian farmers, fishermen and operators in rural areas with the institutions at national and European level which finance the development of agriculture, fisheries and rural areas through its programs and funds
Croatian Agency for Nature and Environment		- collecting and compiling the data and information on environment to ensure and track the implementation environmental protection policies, sustainable development measures and any other professional actions related to environmental protection
Croatian Energy Regulatory Agency	HERA	<ul style="list-style-type: none"> - has been founded as an autonomous, independent and non-profit public institution based on the Energy act (OG 177/04 and 99/07), in order to establish and implement regulation of energy activities - issues licenses for carrying out energy activities, and also temporarily and permanently revokes these licenses, and rulings on granting the status of eligible producers, and also temporarily and permanently revokes these rulings - decides on invitations to tenders and selecting the most advantageous bidder for construction of production facilities up to 50 MW, in line with the Article 10, Electricity Market Act (OG 120/12) and submits proposals to the Government of the Republic of Croatia on invitation to tenders and selecting the most advantageous bidder for building production facilities of 50 MW and higher (OG 120/12) - supervises the work of Croatian Energy Market Operator
Croatian Energy Market Operator	HROTE	- performs activities of organizing electricity and gas market as a public service, as well as performing activities in system for incentivizing electricity production from renewable sources and cogeneration and in system for incentivizing production of biofuels for transport
Center for Monitoring Business Activities in the Energy Sector and Investments	CEI	- CEI was established in 2012 (OG 25/12) with the objective of finding solutions for improving the financial effectiveness of companies in the energy sector in which the state has shares or holds stock and appropriate and targeted directing of funds in a manner ensuring biggest and most long-term economic return, stable growth and centralized and systematic monitoring of all investments in the Republic of Croatia

North-West Croatia Regional Energy Agency	REGEA	- promoting and starting projects on sustainable development, established by the City of Zagreb and three neighbouring counties – Zagreb, Karlovac and Krapina-Zagorje in 2008 within the framework of the Intelligent Energy Europe Programme
Ministry of the Sea, Transport and Infrastructure		- national authority, responsible for conducting decisions determined by act and all of its parts as well as sub acts

2.2.4.2 Regulatory framework in the field of bioenergy

Aside from the various acts adopted by the Croatian Parliament, two main documents should be considered at this point: the National Energy Strategy and the National Action Plan for Renewable Energy Sources to 2020.

National Energy Strategy has been adopted by the Croatian Parliament on October, 16th 2009, as prepared by the former Ministry of Economy, Labour and Entrepreneurship. The Energy Strategy is adopted for the period until 2020 in order to harmonize with goals and time framework of strategic documents of the European Union, and Strategy, as a policy document and within the framework of the document Strategic framework for development from 2006 to 2013, has a purpose to define the development of Croatian Energy sector by 2020 and a goal to build, under the conditions of uncertainty in the global energy market and scarce local energy resources, a sustainable energy system. The Strategy has three basic objectives: 1) to increase the security of energy supply, 2) to develop a competitive energy system and 3) to ensure development of the sustainable energy sector. The strategy document recognizes the large biomass potential in Croatia, also visible from the projection for the year 2020 where from all renewable energy sources the majority comes be from bioenergy sector (biomass at 31.5%, biofuels at 10.8% and biogas at 1.3%). Biomass potential is here referred to the wood biomass and biomass out of agriculture, as well as the firewood cultivation, with addition of wood biomass from wood harvesting during maintenance of waterways and power facilities. The strategy defines a goal to, along with the existing incentive measures and removing the existing administrative barriers, use around 15 PJ of biomass in energy purposes in 2010, while in 2020 double, around 26 PJ. Part of this biomass shall be used in many biomass fired power plants of total power of 85 MW in 2020, preferably cogeneration plants. In respect to biofuels, according to the National Energy Strategy, Croatia sets up a goal to use 9 PJ energy out of biofuels in 2020, which amounts 10% of petrol and diesel consumption in transport, and is determined that biofuel sources do not compete to food, finally setting up a goal to produce around 340,000 tons of biofuels in 2020. Biogas, not a topic for this project, will not be elaborated further in this text.

The basic legal framework for the field of renewable energy resources, energy efficiency and cogeneration in Croatia is contained in the **Energy Act** (OG 68/01, 177/04, 76/07, 152/08, 120/12), **Act on Renewable Energy Sources and High-efficiency Cogeneration** (OG 100/15), **Electricity Market Act** (OG 177/04, 76/07, 152/08, 22/13 and 102/15), **The Act on Environmental Protection and Energy Efficiency Fund** (OG 107/03, 155/14), **Decree on the**

Fees to Encourage the Production of Electricity from Renewable Energy Sources and CHP (OG 128/13), and bylaws which represent implementing acts of these Acts.

Planning in the Energy sector, under the Energy Act (OG No. 68/01, 177/04, 76/04, 76/07, 152/08, 120/12), is the responsibility of the Government of the Republic of Croatia which, based on the Energy Strategy, recommends long term basis of energy policy, and based on Article 9 adopts long-term and annual energy balances. The Energy Act obliges regional and local self-government to draft development documents in which they plan for needs and energy supply manner. The Government fulfils the absence of the institutional framework and administrative capacity due to the coordination of planning at the government, regional and local level.

The Croatian legislative framework regarding cogeneration and renewable energy resources is in compliance with the *Acquis Communautaire*, and contained in primarily the Energy Act (OG 68/01, 177/04, 152/08, 120/12), Electricity Market Act (OG 177/04, 76/07, 76/07, 22/13), the Act on the Regulation of Energy Activities (OG 120/12) and **Act on Government Incentives** (OG 47/14), as well as a package of bylaws adopted in 2012, which regulate the system of incentives based on guaranteed electricity redemption price.

National Action Plan for Renewable Energy Sources to 2020 has been prepared in 2013 by the former Ministry of Economy. This last rendering of the national action plan is the update in the former document initially prepared along the described National Energy Strategy in 2009, but after Croatia became a full member of the European Union, the new Plan was drafted pursuant to the template from the Directive 2009/28/EC. The National Renewable Energy Action Plan to 2020 stipulates a national renewable energy target in the Republic of Croatia of 20 percent of the final direct energy consumption in 2020. Directive 2013/18/EC from May 2013 expanded Part A of Annex I of Directive 2009/28/EC with targets to be met by the Republic of Croatia.

The Republic of Croatia has chosen to use RES in line with the principles of sustainable development. The Energy Strategy has set the following objectives concerning RES:

- increasing the share of RES in the gross final consumption of energy to 20% in 2020, while the sectoral objectives are as follows:
 - 35% share of RES in the production of electricity, including large hydroelectric plants;
 - 10% share of RES in transport;
 - 20% share of RES in heating and cooling.

Regarding biomass within the national action plan, it is mostly being regarded as a part of the future district heating systems. To 2020, an increase in the use of RES in district heating and cooling systems is expected, from the current 1.1 PJ to 2.9 PJ. District heating based on RES is primarily expected in smaller urban centres with up to 10,000 residents, in areas rich in forest biomass and areas with geothermal sources. In these areas, district heating systems and the infrastructure (network) have not yet been developed, such that development will begin from the very beginning. It can be assumed that new district heating systems will be developed in 10 to 15 cities. By 2020, the construction of about 30 km of the district heating infrastructure

(network) can be expected. The document reproduces the same planned numbers regarding the total energy use from biomass as well as planned capacity of new power plants from the National Energy Strategy. National action plan also mentions the Tariff system for the production of the of electricity from renewable sources prescribing the level of tariff items categorised by installation capacity and by the type of technology used for electricity production. Solid biomass fuelled plants in the group of plants with capacity to 1 MW inclusive are divided into plants with a capacity to 300 kW inclusive and plants with capacity greater than 300 kW. The level of tariff items is greater for solid biomass plants with lower installed capacity. The condition for plants fuelled by biogas and biomass in achieving tariffs and concluding contracts on the purchase of electricity with a market operator in a manner that the minimum total annual efficiency of the plants is 50% in the transformation of primary energy fuel in the delivered electricity and produced useful heat.

Tariff system and fees for production of energy from the renewable energy sources are regulated by the **Decree on the Fees to Encourage the Production of Electricity from Renewable Energy Sources and CHP** (OG 128/13) and **Tariff system for the production of electricity from renewable sources of energy and cogeneration** (OG 133/13, 151/13, 20/14 and 100/15). The latter states that market operator (HROTE mentioned previously) makes contracts on purchasing electric energy until the planned production of electric energy by RES and cogeneration plants within the year 2020 surpasses the values (listed here only for biomass) of 120MW in the case of solid biomass (forest, agriculture and waste) and/or 70MW for biogas. **Thermal Energy Market Act** (OG 80/13, 14/14, 102/14 and 95/15) governs the measures for the safe and reliable supply of thermal energy, thermal energy for the use of heat for heating and cooling, conditions for obtaining concessions for the distribution of thermal energy, or concessions for the construction of distribution networks, rules and measures for the safe and reliable activities of production, distribution and supply of thermal energy in heat systems and measures for achieving energy efficiency in heat systems.

Additionally, **Ordinance on the use of renewable energy sources and cogeneration** (OG 88/12) lists all conditions and possibilities for the use of RES and cogeneration: planning, administrative procedures (permits) and also the entry into the RESCPP (Register of projects and plants) for the use of renewable energy sources and cogeneration and eligible producers. The adoption of the Ordinance on the use of renewable energy sources and cogeneration is not regulated by the Electricity Market Act (OG 22/13 and 102/15), so the key aspects of the ordinance are governed by other regulations. The ordinance makes a distinction of solid biomass (also including waste) power plants in several groups; below 1MW installed capacity the plants are divided with the 300kW limit. Power plants using solid biomass (including waste) with installed capacity over 1MW are divided into 4 groups ($\leq 2\text{MW}$, $> 2\text{MW}$ and $\leq 5\text{MW}$, $> 5\text{MW}$ and $\leq 10\text{MW}$, $> 10\text{MW}$). Cogeneration facilities are in the same manner divided into two groups with further subdivisions based on the installed capacity: $\leq 1\text{MW}$ (subdivided by the 30kW threshold) and $> 1\text{MW}$ (subdivided by 35MW threshold).

The following paragraph lists various general acts related to the biomass production and handling. **Agricultural Land Act** (OG 39/13 and 48/15) defines agricultural land, regulates agricultural land management, protection and usage of such land, land conversions and related

fees, management of state-owned agricultural land etc. Agricultural land in Croatia is arable land, gardens, meadows, pastures, orchards, olive trees, vineyards, fish farms, reeds, wetlands and other land that, with acceptable economic cost, can be put to the purpose of agricultural production. Forest land not covered with forest or land covered with initial or degradation forest types (maquia, garigue etc.) and which are suitable for agricultural production are also considered as agricultural land. **Forest Act** (OG 140/05, 82/06, 129/08, 80/10, 124/10, 25/12 and 94/14) regulates the overall forest management, cuttings, forest monitoring, financing, usage rights for planting perennial plantations on forest land without tree cover, forest infrastructure issues etc. Only marked trees can be cut, the markation is done by the licenced personnel. In general, clear cutting is prohibited as is branch cutting, collecting and removing moss, humus, peat etc. All activities at forest land need to be done in accordance to forest management plans. **Ordinance on forest management** (OG 79/15) defines all relevant conditions and purpose of all forest management plans (for both private and state forests etc.). Since all activities at forest land need to be done in accordance to forest management plans, the latter gives this Ordinance significance. **Regulation on the procedure and criteria for servitude of forest and forest land owned by the Republic of Croatia aimed for perennial plantation** (OG 121/08) Defines the procedures, criteria and fees relevant for receiving the usage right to establish perennial plantation on state owned forest land without tree cover or on forest land with degraded form of forests (maquia, garigue, shrub etc.). The relevant ministry and Croatian Forest Ltd. creates a list of forests and forest land at which the servitude right for growing perennial plantations can be established. Perennial plantations refer to vineyards, orchards and olive trees. The servitude right can go up to 50 years.

Finally, there are also **renewable energy loans**, issued by the Croatian Bank for Reconstruction and Development (HBOR). In accordance with the provisions of the **Environmental Protection Act** (OG 80/13 and 78/15), the State is bound to support and finance projects aiming at environmental protection. The HBOR is obliged to support projects aiming at environmental protection. On this basis, the HBOR has launched the Loan Programme for Environmental Protection, Energy Efficiency and Renewable Energy, which supports investments in primary sources, such as initial funding, land, buildings, equipment and devices.

2.2.4.3 Regulatory framework in the field of Danube logistics and biomass handling in inland ports

The legal framework for inland waterways and ports has been defined by the Act on Inland Navigation and Inland ports, which was set out in 2014, as well as the line of relevant sub acts.

Owing to the fact that the ports are the assets of public interest, it is desirable for the state to withhold certain forms of control of managing the ports in order to carry out the relevant development policy of ports efficiently. In particular, it is related with the attainment of the ownership of land and port infrastructure in the port area. The organisational and managing model of public inland ports is basically characterised by the division of management and administration, and commercial port operations. Organisational-administrative functions are

allocated to port authorities while commercial port operations are allocated to commercial companies following the specific permits for the performance of port operations throughout a determined period of time. The prerequisite for successful implementation of so called “landlord” model, which is applied in Croatia, is the full control over the basic infrastructure within the port area including the riverside, port territory, land surface in the port area, roads and railway, and public utilities system.

The port authority has a role of a regulatory body, dealing with the overall port activities and port operations in order to ensure competitive conditions of a port, equal status of the port clients, fair treatment of shippers using port and maximal utilisation of port potential. In the ports and piers open for public transport, admittance and port services are provided for all clients/users under the same conditions and payment for the service delivered by port operators. Publicity is obtained through a transparent practice of port operators which is based on the contracts signed between the parties, application of the port tariffs available to the public and determined in advance.

To increase cargo volume transported by inland waterways the Operational Programme Competitiveness and Cohesion 2014 – 2020 defines goals and measures that need to be conducted in order to achieve reduction of overall pollution caused by traffic and profile IWT as most acceptable way of transportation.

Key challenges in the development of the TEN-T inland waterways network in Croatia are the lack of integration and varying market demand across the system, and the low levels of navigability. The network needs to be modernized in a coherent and integrated way in order to improve navigability of the corridors; efficiency and safety of inland ports, and the development of inter-modal nodes that link to other modes of transport i.e. port connectivity. The three most developed inland waterways in Croatia are the Danube, Sava, and Drava, with the former classified as a VI c class water route of international importance. Since the Danube river is freely navigable and the Transport Strategy does not envisage further development of Drava navigability beyond Osijek. The focus is on Sava river which is navigable to a limited level on the 380km of 562 km. Improvement of Sava navigability will, thus, be a precondition to other investments on this waterway.

One of the major concerns when developing waterways concerns the protection of the environment. Activities need to be proportional to the attainable, realistic goals and environmentally sustainable without major negative impacts. By improving accessibility throughout the inland waterways TEN-T network/corridor this specific objective will ensure more resource-efficient transit of freight through Croatia, increased sustainability, reduced greenhouse gases and contribute to the creation of a Single European Transport Area. The increase in cargo transport on inland waterways will cause an increase in the amount of CO₂ emissions as well as emissions of other pollutants such as NO_x, SO₂ and dust, according to increased transport and type of cargo, without taking into account the increasing energy efficiency and reducing emissions of pollutants. On the other hand, it is reasonable to assume that IW will take over some of cargo currently transported by road and in this way could have positive overall environment effect, although, not drastic one given the expected gradual

development of IW sector. Impact on air quality will be minimal, so it is expected in the environment on almost the entire length of the waterways will remain air quality category I.

In the ports of inland waterways, handling of cargo is defined by the **Act on Inland Navigation and Inland Ports** (OG 109/2007, 132/2007, 51A/2013 and 152/2014), within the section port activities - transport services which include loading, unloading, transshipment, transfer and stacking freight, warehousing, storage and transport operations depending on the type of cargo.

Inland waterway transport is defined by the **Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway** (CMNI).

If not treated as a dangerous goods, biomass is subject to the general regulations on handling and storage that are valid for all other types of cargo, basically not special requirements except those that are related to handling requirements in order prevent cargo from damaging and provide safe environment for handling personnel, surroundings and nature protection. Biomass, if not stored outside, can be stored in sheltered or closed storage, but such warehouse conditions have to be within the special requirements prescribed in Study on potential threat assessment. For each warehouse that is meant to be used as biomass storage it is obligatory to prepare this kind of study, but in line with **Fire Protection Act**.

If the biomass has any characteristic specified in the **Dangerous Goods Transport Act**, it may be classified as dangerous.

Article 4, paragraph 1, item 1 of the **Dangerous Goods Transport Act** (OG 79/07) defines the term "dangerous substances", which reads as: dangerous goods are goods, cargo, materials, materials and objects that are in the provisions of the contract referred to in Article 3 of this Act shall be divided into: explosive substances, gases, flammable liquids, **flammable solids**, self-ignition substances, substances which in contact with water release flammable gases, oxidizing substances, organic peroxides, poisons, infectious substances, radioactive substances, corrosive substances and other dangerous substances. Hazardous substances are also waste, preparations, radioactive and nuclear materials if they meet the conditions for classification into hazardous substances in terms of the provisions of the contract referred to in Article 3 of this Act.

It follows that, in the case of carriage and transshipment of all types of cargo, particularly cargo which can be declared as dangerous, transport of such cargo in inland navigation must comply with the provisions of the following regulations:

- European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (AND)
- Dangerous Goods Transport Act (OG 79/07)
- Ordinance on the Carriage of Dangerous Goods by Inland Water (OG 106/08)
- Act on Inland Navigation and Inland Ports (OG 109/07, 132/07, 21A/13, 152/14)
- Fire Protection Act OG92/10
- Ordinance on handling hazardous substances at the port area of Vukovar port MC 06-12/08
- Occupational Safety Act (OG 71/14, 118/14, 154/14)

2.2.4.4 Summary of existing policies

Table 12: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Croatia.

Applicable value chain components	Policy	Valid dates	Summary
Biomass supply	Forest Act	From 01.01.2015.	- regulates the overall forest management, cuttings, forest monitoring, financing, usage rights for planting perennial plantations on forest land without tree cover, forest infrastructure issues
Biomass supply	Ordinance on forest management	From 03.07.2015.	- defines all relevant conditions and purpose of all forest management plans (for both private and state forests etc.)
Biomass supply	Regulation on the procedure and criteria for servitude of forest and forest land owned by the Republic of Croatia aimed for perennial plantation	From 20.10.2008	- defines the procedures, criteria and fees relevant for receiving the usage right to establish perennial plantation on state owned forest land without tree cover or on forest land with degraded form of forests
Biomass supply	Agricultural Land Act	From 03.04.2013 and amendments from 30.4.2015	- defines agricultural land, regulates agricultural land management, protection and usage of such land, land conversions and related fees, management of state-owned agricultural land etc.
End use	Energy Act	From 31.10.2012	- governs measures for the safe and reliable supply of energy and its efficient production and use, acts establishing and pursuant to which energy policy and energy development planning are implemented, execution of energy activities, on the market or as public services, and fundamental issues in the execution of energy activities
Markets	Electricity Market Act	From 22.2.2013. and amendments from 25.09.2015	- governs the manner of performing energy activities in the areas of electricity and the production of electricity, the transmission of electricity, distribution of electricity, supply of electricity and organisation of the electricity market

End use	Act on the Regulation of Energy Activities	From 31.10.2012	- governs the establishment and implementation of the regulation system for energy activities, aimed, among other things, at promoting the efficient and rational use of energy, entrepreneurship in the field of energy, investments in the energy sector and environmental protection
Markets	Thermal Energy Market Act	From 28.06.2013. and final amendments from 04.09.2015	- governs the measures for the safe and reliable supply of thermal energy, conditions for obtaining concessions for the distribution of thermal energy, or concessions for the construction of distribution networks and measures for achieving energy efficiency in heat systems
End use	Act on Renewable Energy Sources and High-efficiency Cogeneration	From 18.09.2015	- defines planning and incentives of the production and end use of the electric energy produced by RES plants and high high-efficiency cogeneration plants, also prescribing the general guidelines for conducting auctions for RES support in Croatia
End use	The Act on Environmental Protection and Energy Efficiency Fund	From 22.12.2014	- defines the role and actions by The Fund for Environmental Protection and Energy Efficiency which awards interest-free loans, investment grants/subsidies and donations, to renewable energy projects through a tendering process
End use	Decree on the Fees to Encourage the Production of Electricity from Renewable Energy Sources and CHP	From 23.10.2013	- determines the manner of use, the amount, calculation, collection, allocation and payment of fees that are designed to encourage the production of electricity from RES
Market	Tariff system for the production of electricity from renewable sources of energy and cogeneration	From 6.11.2013. final amendments from 18.9.2015	- defines the tariffs for the production of electricity from RES and cogeneration
End use	Ordinance on the use of renewable energy sources and cogeneration	From 01.08.2012	- lists all conditions and possibilities for the use of RES and cogeneration: planning, administrative procedures (permits) and also the entry into the RESCPP for the use of renewable energy sources and cogeneration and eligible producers

Logistics	Dangerous Goods Transport Act	From 01.01.2008	<ul style="list-style-type: none"> - prescribes conditions for the transport of dangerous goods in certain branches of transport, the obligations of the persons involved in the carriage, the conditions for packaging and vehicles, the conditions for the appointment of security advisors and the rights and duties, the competence and conditions for conducting the training of persons involved in the carriage, government bodies in connection with such transportation and oversight over the law enforcement
Logistics	Ordinance on the Carriage of Dangerous Goods by Inland Water	From 17.09.2008	<ul style="list-style-type: none"> - defines method of carrying dangerous goods by inland waterway vessels and boats intended for economic purposes - regulates handling hazardous substances in ports and defines conditions and manner in which the loading and unloading of dangerous goods in ports and the manner of preventing the expanding of expired oils shall be carried out - determines the manner and conditions for the training of persons for the handling and transport of dangerous goods
Inland port	Act on Inland Navigation and Inland Ports	From 22.12.2014	<ul style="list-style-type: none"> - regulates navigation on inland waters of the Republic of Croatia, safety of navigation on inland waters, legal status, method of managing waterways and inland ports
Various	Fire Protection Act	From 24.07.2010	<ul style="list-style-type: none"> - fire protection system includes fire protection planning, fire protection measures, organization of fire protection subjects, fire protection financing, and many others with focus on protection of life, health and safety of people and animals the safety of material goods, the environment and the nature with socially and economically acceptable fire risk
Inland port	Ordinance on handling hazardous substances at the port area of Vukovar port	From 01.11.2006	<ul style="list-style-type: none"> - regulates handling with dangerous goods within the Vukovar port area
Various	Occupational Safety Act	From 14.06.2014	<ul style="list-style-type: none"> - regulates safety at work, especially national policy and activity, basic principles of prevention and protection rules, obligations of employers, rights and duties of employees, activities related to safety at work

2.2.5 Czech Republic

2.2.5.1 Regulatory authorities

Table 13: Regulatory authorities in the field of bioenergy and logistics in Czech Republic.

Authority	Abbr.	Field of activity
Ministry of the Environment	MŽP	<ul style="list-style-type: none"> - nature and landscape protection - conservation of agricultural land - national environmental policy
Ministry of Industry and Trade	MPO	<ul style="list-style-type: none"> - National Industry Policy, Trade Policy and Energy Policy - Integrated Raw Materials Policy and the use of mineral resources
Energy Regulatory Office	ERÚ	<ul style="list-style-type: none"> - in charge of price controls of energy prices - support of the use of renewable and secondary energy sources and combined heat and power generation - supervision over markets in the energy industries
State Environmental Fund of the Czech Republic		<ul style="list-style-type: none"> - support of projects in the field of environmental improvement
Ministry of Finance of the Czech Republic	MFČR	<ul style="list-style-type: none"> - central government body responsible for the State Budget, financial markets, taxes etc.
Ministry of Agriculture of the Czech Republic		<ul style="list-style-type: none"> - public administrative authority for agriculture, the water sector, food processing industry and forestry
Czech Biomass Association	CZ BIOM	<ul style="list-style-type: none"> - largest professional organisation to support the development of bioenergy in the Czech Republic
Ministry of Transport of the Czech Republic		<ul style="list-style-type: none"> - central government authority in matters of transport - responsible for the formation of state policy in the field of transport and in scope for its implementation

2.2.5.2 Regulatory framework in the field of bioenergy

The **Energy Act** (Act No. 458/2000 Coll.) entered into force in 2001. It defines the conditions for business activities, state administration and regulation in energy sub-sectors. The act supports renewable energy sources and sets conditions for the obligatory purchase of electricity and heat

which is produced from renewable energy sources through the installation of the Energy Regulation Office.⁷⁰

The **Act on Promoted Energy Sources and on Amendment on Some Laws** (Act No. 165/2012 Coll.) targets multiple renewable energy sources. This act sets a connection to the transmission or distribution system of electricity generating plants and purchases such electricity which is produced from renewables energies.⁷¹ This act superseded the former Act on the Promotion of the use of Renewable Energy Sources (Act No. 180/2005) which set up the legal basis for the renewable electricity market and conditions of support for the purchase and registration of electricity production from renewable resources.⁷²

The **State Energy Policy** of the Czech Republic aims to increase the use of renewable energies. It is in charge since 2004 and has been last amended in 2015. The State Energy Policy targets to increase the contribution from renewable energy sources to the total primary energy supply to 15-16% until 2030 and to 17% in electricity consumption. It is considered that biomass will have the largest share at the growth rate of all renewables.⁷³

As part of the **National Renewable Action Plan** it is envisaged to increase the share of renewable energies in gross final energy consumption to 13.5% until 2020. The share in heating and cooling is supposed to reach 14%, which is also the target to be reached for electricity generated from renewable energy sources. Furthermore it is stated that 11% of the energy demand in the transport sector shall be provided by renewable energy sources.⁷⁴

The **Biomass Action Plan** for the period from 2012-2020 describes the focus and measures for an effective and efficient use of biomass in the Czech Republic for the generation of energy. The plan aims to contribute to increase the share of renewable energies at the gross final energy consumption to 13.5% as stated in the National Renewable Action Plan.⁷⁵

2.2.5.3 Regulatory framework in the field inland waterway transport and biomass handling in inland ports

The **Government Resolution No. 449/2013** sets the strategy for the transport policy for the period from 2014-2020. Among other it aims to increase the share of renewable energies in total energy consumption in the transport sector to 10% in accordance with EU agreements. As a part of the logistics services the freight transport shall be shifted from road transport to multimodal

⁷⁰ <https://www.iea.org/policiesandmeasures/pams/czechrepublic/name-21483-en.php> (last access 08.05.2017)

⁷¹ http://www.eru.cz/documents/10540/473304/165_2012_AJ.pdf/5e2856ee-dbb6-4e0f-891a-ef771f5511cf (last access 08.05.2017)

⁷² http://www.czrea.org/files/pdf/en/zakony/RES_act_english.pdf (last access 08.05.2017)

⁷³ <https://www.iea.org/policiesandmeasures/pams/czechrepublic/name-22031-en.php> (last access 08.05.2017)

⁷⁴ <https://www.iea.org/policiesandmeasures/pams/czechrepublic/name-39468-en.php> (last access 08.05.2017)

⁷⁵ <http://eagri.cz/public/web/mze/zivotni-prostredi/obnovitelne-zdroje-energie/biomasa/akcni-plan-pro-biomasu/akcni-plan-pro-biomasu-v-cr-na-obdobi.html> (last access 08.05.2017)

transport systems in order to reduce negative impacts on the environment. Regarding the transport volumes the share of waterborne transport in the Czech Republic is rather low, mainly due to insufficiently reliable infrastructure. Therefore as part of this resolution the conditions are aimed to be improved to let waterborne transport become a part of regular combined transport lines.⁷⁶

Act No. 114/1995 Coll. covers regulations regarding waterway management, operation of ships on inland waterways, responsibilities of administrative authorities etc. Among others, it also regulates the handling of dangerous goods on inland waterways.⁷⁷ Since its implementation this act has undergone several amendments.

Act No. 455/1991 Coll. (Trade Act) regulates the conditions of trading on various levels, including trading on inland waterways. Through **Act No. 358/1999** the acts on inland navigation (Act No. 114/1995 Coll.) and the Trade Act have been amended in 1999.⁷⁸

2.2.5.4 Summary of existing policies

Table 14: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in the Czech Republic.

Applicable value chain components	Policy	Valid dates	Summary
Biomass market/ Energetic use	Energy Act (Act No. 458/2000 Coll.)	Since 2001	Supports renewable energy sources; sets conditions for the purchase of electricity and heat produced from renewables
Biomass market/ Energetic use	Act on Promoted Energy Sources and on Amendment on Some Laws (Act No. 165/2012 Coll.)	Since 2012	Targets multiple renewable energy sources; regulations for the renewable electricity market
Biomass market/ Energetic use	State Energy Policy	Since 2004	Defines targets to increase the share of renewable energies at the total primary energy supply
Biomass market/ Energetic use	National Renewable Action Plan	Since 2010	Describes envisaged share of renewables in gross final energy consumption
Biomass market/ Energetic use	Biomass Action Plan	Since 2012	Measures for the use of biomass for energy generation purposes

⁷⁶ https://www.dataplan.info/img_upload/7bdb1584e3b8a53d337518d988763f8d/b13-00298_ministerstvo_dopravy_2014_2020_eng-05_1.pdf (last access 05.05.2017)

⁷⁷ <https://www.zakonyprolidi.cz/cs/1995-114> (last access 05.05.2017)

⁷⁸ <https://esipa.cz/sbirka/sbsrv.dll/sb?DR=SB&CP=1999s358> (last access 08.05.2017)



Logistics	Government Resolution No. 449/2013	Since 2014	Sets the strategy for the transport policy from 2012-2020
Logistics	Act on Inland Navigation (Act No. 114/1995 Coll.)	Since 1995	- covers regulations regarding inland navigation; amended by Act No. 358/1999
Logistics	Trade Act	Since 1992	Regulates trading on various levels

2.2.6 Germany

2.2.6.1 Regulatory authorities

Table 15: Regulatory authorities and other key institutions/networks in the field of bioenergy and logistics in Germany.

Authority	Abbr.	Field of activity
Federal Ministry for Economic Affairs and Energy ⁷⁹	BMWi	<ul style="list-style-type: none"> - formulation and implementation of energy policy - support of export activities for renewable energy technologies
Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety ⁸⁰	BMUB	<ul style="list-style-type: none"> - regulates climate policy - nuclear safety - waste management - renewable energy policies - project-oriented funding - opportunities for R&D in the field of bioenergy
Federal Ministry of Food and Agriculture ⁸¹	BMEL	<ul style="list-style-type: none"> - policies in the agricultural, forestry and rural development sector - sustainable use of renewable resources - supports R&D in the field of bioenergy
Federal Office for Agriculture and Food ⁸²	BLE	<ul style="list-style-type: none"> - inspection services ensure the compliance with EU agricultural and fisheries policy - licensing office for private control facilities - collection of data and prices on agriculture and nutrition for statistical purposes
Federal Network Agency ⁸³	BNetzA	<ul style="list-style-type: none"> - promotes effective competition in the regulated sectors electricity, gas, telecommunications, post and railways - non-discriminatory network access

⁷⁹ <http://www.bmwi.de/Navigation/EN/Home/home.html> (last access: 21.03.2017)

⁸⁰ <http://www.bmub.bund.de/en/> (last access: 21.03.2017)

⁸¹ http://www.bmel.de/EN/Homepage/homepage_node.html (last access: 21.03.2017)

⁸² http://www.ble.de/EN/00_Home/homepage_node.html (last access: 21.03.2017)

⁸³ https://www.bundesnetzagentur.de/cln_1412/EN/Areas/Energy/Companies/Companies-node.html (last access: 21.03.2017)

German Environment Agency ⁸⁴	UBA	<ul style="list-style-type: none"> - in laboratories, simulation systems and measuring stations UBA collects and analyzes its own environmental data and those from third parties - advise policy and work on legislative proposals - information in the field of environmental protection
Federal Ministry of Transport and Digital Infrastructure ⁸⁵	BMVI	<ul style="list-style-type: none"> - responsibility for all aspects of German road, rail, waterways and aviation policy - roll-out of the digital infrastructure
Waterways and Shipping Administration ⁸⁶	WSV	<ul style="list-style-type: none"> - maintenance and upgrading of the waterways (23,000 km² maritime waterways and 7,350 km inland waterways)

2.2.6.2 Regulatory framework in the field of bioenergy

The requirements of the EU RED and the FQD are implemented into German legislation with the **Biofuel sustainability ordinance** (Biokraftstoff-Nachhaltigkeitsverordnung -Biokraft-NachV-) and the **Biofuels Quota Act**.

Established in 2009, the **National Biomass Action Plan** (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit 2009) aims to provide a concept to significantly increase the bioenergy share in Germany's energy supply while adhering to sustainability criteria. The plan provides information how the German government expects to reach its legally binding 2020 target of 18% share of renewable energy in their total energy consumption, as required by Article 4 of the RED.

An increased use of biomass has to be realized, but always in an efficient and sustainable manner. The following criteria apply:

- contribution to reducing GHG;
- contribution to other environment policy goals, e.g. biodiversity conservation, soil fertility and preventing water and air pollution;
- protection of valuable landscapes like the Natura 2000 sites (in Europe), High Conservation Areas (international) and areas which enjoy protected status, particularly those that function as major carbon sinks;
- contribution to securing energy supply;
- viability;
- contribution to employment and value creation, especially in rural regions;
- contribution to socio-economic development in developing countries;

⁸⁴ <http://www.umweltbundesamt.de/en/the-uba> (last access: 21.03.2017)

⁸⁵ <http://www.bmvi.de/EN/The-Ministry/Federal-Minister-State-Secretaries/federal-minister-and-state-secretaries.html> (last access 10.05.2017)

⁸⁶ <http://www.bmvi.de/EN/The-Ministry/Responsibilities-Structure/responsibilities-and-structure.html> (last access: 10.05.2017)

- consideration of conflicting claims.

Main objective of the **National Action Plan**⁸⁷ of 2010 is to advance the development of renewable energies. The overall goals of Germany's energy and climate policy have not been changed in the last seven years and can be summarized as follows (cf. Progress Report 2015)⁸⁸:

- reduction of GHG emissions by 40% by 2020, 55% by 2030, 70% by 2040 and by 80 to 95% by 2050, compared to reference year 1990;
- reduction of primary energy consumption by 20% by 2020 and by 50% by 2050;
- increase of energy productivity of 2.1% per year compared to final energy consumption;
- reduction of electricity consumption by 10% by 2020 and by 25% by 2050, compared to 2008;
- reduction of heat demand in buildings by 20% by 2020, while primary energy demand is to fall by 80% by 2050 (compared to 2008);
- renewable energy shall achieve an 18% share of gross final energy consumption by 2020, 30% by 2030, 45% by 2040 and 60% by 2050;
- by 2020 renewable energy shall achieve a share of at least 35% in gross electricity consumption, 50% by 2030, 65% by 2040 and 80% by 2050.

The **Climate Action Plan 2050** is the first governmental document which illustrates the needed corporate actions to achieve a Greenhouse-Gas-neutral Germany. The development of such a plan has already been defined in the current coalition agreement of 2013. In 2015 the dialogue with the German Environment Ministry, the federal states, municipalities, associations and the public began. In the course of this broad dialogue process, the climate protection plan 2050 has been developed, which includes, among other things, climate change goals for individual industries⁸⁹.

The **Action Plan for the Material Use of Renewable Resources** of 2009 (BMEL)⁹⁰ complements the Biomass Action Plan. It aims at a shift from an industry dependent on fossil resources to a bio-based economy geared to raw materials grown in fields and forests. The use of biomass shall not be limited for generating energy. Material use of biomass is supposed to become more important in the future.

The **Renewable Energy Sources Act**⁹¹ (EEG) has existed since April 2000 and has been continuously developed since then. It remains to be the central control instrument for the expansion of renewable energies. The aim of the EEG is to transform the energy supply and to increase the share of renewable energies in the field of power supply at least 80% by 2050.

⁸⁷ <http://ec.europa.eu/energy/en/topics/renewable-energy/national-action-plans> (last access: 21.03.2017)

⁸⁸ <https://ec.europa.eu/energy/en/topics/renewable-energy/progress-reports> (last access: 21.03.2017)

⁸⁹ <http://www.bmub.bund.de/themen/klima-energie/klimaschutz/nationale-klimapolitik/klimaschutzplan-2050/> (last access: 19.07.2017)

⁹⁰ <http://www.bmel.de/EN/Agriculture/RenewableResources/Texte/FossilZuBiobasiertweb14.html?nn=313228> (last access: 21.03.2017)

⁹¹ http://www.gesetze-im-internet.de/eeg_2014/ (last access: 21.03.2017)

On 13th October 2016 the new EEG 2017 has been adopted. Up to now, producers of electricity from renewable energies have received a state-approved remuneration for each kilowatt hour. Since 1st January 2017 the amount of this subsidy has been determined by tendering on the market. Therefore producers of electricity have to take part in biddings. Those who demand the least for the economic operation of a new renewable energy facility are financially supported.

The second innovation is that the EEG 2017 ensures that the expansion of renewable energy production goes hand in hand with the expansion of the electricity grids in Germany.

Further changes are:

- tenders from 2017 on for funding of biomass plants, except for plants ≤ 150 kW;
- from 2017 to 2019 150 MW per year and from 2020 to 2022 200 MW per year (gross) will be invited for tenders;
- plants > 150 kW can participate;
- all existing plants (incl. ≤ 150 kW) can apply to receive an extended funding of 10 years, if electricity is produced flexibly and in line with the demand;
- cost efficiency: new biomass plants > 150 kW and existing plants with extended funding are subjected to demands in flexibility in order to produce electricity in line with demand. This lowers costs of the electricity system;
- biogas plants receive funding for only half of the hours per annum. The Federal Ministry of Economic Affairs and Energy (BMWi) assumes that these plants produce [electricity] in such periods in which the wholesale price is high due to a great demand and scarce availability of wind and sun energy.

In the **Renewable Energies Heating Act**⁹² (EEWärmeG), amended 20th October 2015, the target of meeting 14 % of the heat market demand with renewable energy sources by 2020 is defined. The EEWärmeG aims to facilitate a sustainable development of energy supply and further development of technologies generating heat from renewable energy sources.

The **Market Incentive Programme** ("Marktanreizprogramm", MAP)⁹³ is an integral part of the EEWärmeG and has become a central funding instrument for heat supply from renewable energies. The programme offers support for the use of renewable energy sources for heat⁹⁴:

- the installation of solar collector systems
- small systems for solid biomass heat production
- photovoltaic systems at schools and universities
- biogas systems
- large biomass systems

⁹² http://www.gesetze-im-internet.de/eew_rmeg/ (last access: 21.03.2017)

⁹³ <http://www.erneuerbare-energien.de/EE/Navigation/DE/Foerderung/Marktanreizprogramm/marktanreizprogramm.html> (last access: 21.03.2017)

⁹⁴ http://www.measures-odyssee-mure.eu/public/mure_pdf/household/GER32.PDF (last access: 21.03.2017)

- hydro systems
- deep geothermal systems

The programme is handled by the KfW promotional bank and by the Federal Office of Economics and Export Control (BAFA).

In January 2016 the revised **Combined Heat and Power Act** (KWKG) entered into force. The aim is to increase electricity generation from CHP plants, to support the launch of the fuel cell sector and funding for construction and expansion of heating and cooling systems. The law intends to contribute to an increase in electricity generation from CHP up to 110 TWh by 2020 and 120 TWh by 2025⁹⁵.

The **Ordinance on the Generation of Electricity from Biomass**⁹⁶ (BiomasseV) of 21st June 2001 regulates, which substances are classified as biomass, which technical procedures for electricity generation from biomass fall within the scope of application of the Act and which environmental requirements have to be met when generating electricity from biomass.

The requirements of the RED are implemented into German legislation through the **Biofuel Sustainability Ordinance** (Biokraftstoff-Nachhaltigkeitsverordnung -Biokraft-NachV-) and the **Biomass Sustainability Regulation** (Biomassestrom-Nachhaltigkeitsverordnung -BioSt-NachV-).

The purpose of the **Biomass Electricity Sustainability Regulation** (BioSt-NachV)⁹⁷ of 23th July 2009 is to ensure the sustainability of the generation of electricity and heat from liquid biomass. According to this regulation, liquid biomass, which is used for electricity generation, can only be reimbursed if it is produced in compliance with binding sustainability standards. For the basic remuneration under the EEG, requirements for the management of agricultural biomass cultivation areas have to be considered and a positive greenhouse gas balance must be proved.

The **Biofuels Sustainability Regulation**⁹⁸ (Biokraft-NachV) of 1st January 2011 is intended to ensure the sustainability of biofuel production. For this reason only biofuels are calculated for the biofuel quotas, which meet certain requirements for environmental protection and sustainable agriculture. Biofuels that do not meet these sustainability standards can neither be tax-favored nor attributed to the biofuels quota.

The **Biofuels Quota Act**⁹⁹ (BioKraftQuG) of 1st January 2007 declares to add a certain percentage of biofuels to all petrol and diesel fuels placed on the market. The share of biofuels is

⁹⁵ <http://www.kwkg2016.de/aktuelles-kwk-gesetz-2016/neuregelung-des-kwk-gesetzes.html> (last access: 19.04.2017)

⁹⁶ http://www.bmub.bund.de/fileadmin/bmu-import/files/english/pdf/application/pdf/biomasse_verordnung_en_bf.pdf (last access: 21.03.2017)

⁹⁷ <http://www.gesetze-im-internet.de/bundesrecht/biost-nachv/gesamt.pdf> (last access: 21.03.2017)

⁹⁸ <http://www.gesetze-im-internet.de/biokraft-nachv/> (last access: 21.03.2017)

⁹⁹ https://www.bgbl.de/xaver/bgbl/start.xav?start=%2F%2F%5B%40attr_id%3D%27bgbl109s1804.pdf%27%5D#_bgbl_%2F%2F%5B%40attr_id%3D%27bgbl109s1804.pdf%27%5D_1490282216132 (last access: 21.03.2017)

continually increasing. In 2009 the law was amended. Therefore the quotas for diesel and gasoline are only valid until 2014. From 2015 the quotas refer to the greenhouse gases avoided by biofuels (2017: 4.5% saving of GHG).

2.2.6.3 Regulatory framework in the field of Danube logistics and biomass handling in inland ports

Generally, shipping and waterways have to be looked at as a system, meaning that without a network of waterways, transport of goods and passengers by the means of ships would not be possible. Therefore, an understanding of the transshipment regulation framework can only be gained by looking at the legislation on waterways. The main characteristics of the interconnected system “waterway – ship transport” are a broad and interconnected water traffic network, the option to transport bulk goods and an environmentally friendly, save and economical way of transport.

In order to give a consistent overview of the framework regulating and governing inland waterway navigation and logistics in Germany and on the German Danube in general, and of all kinds of biomass feedstock and intermediary transshipment and handling in particular, these two aspects will be presented in two separate sub-chapters.

Political & regulatory framework for inland water navigation in Germany: Authorities, laws and regulations

The political and regulatory landscape in Germany pertaining to inland waterway navigation and logistics can be described as multi-faceted due to the dependency of river geography. Rivers as main inland waterways often cross borders between countries, but they also cross domestic borders between the different Bundesländer. A number of administrative bodies and authorities as well as a broad spectrum of regulatory and legislative documents are in place structuring the waterway navigation and transshipment on German federal waters.

Here, a systematic approach will be used by first looking at the main federal national regulation and then moving on to the specifics accounting for Danube inland navigation in Germany, which is governed by international legislation. As ENERGY BARGE only focusses on transshipment of goods on inland routes, only regulations and legislation pertaining to these sectors will be considered in this overview.

In Germany, the main federal national legislation on inland waterway navigation and waterway management is governed by the **Federal Ministry for Transport and Digital Infrastructure** (Bundesministerium für Verkehr und digitale Infrastruktur, BMVI). The dominating law in this context is the **Federal Law for Inland Waterways** (Bundeswasserstraßengesetz), which was first passed in 1968. This legal document lays down the definition of federal inland waterways as well as federal sea waterways. According to the document, federal inland waterways are all waterways that serve transport purposes. All waterways falling under this definition are listed in the annex of the legal text. In sum, the German federal inland waterways amount to a length of

7.300 km. According to the EU classification for inland waterways, 70 % of the German federal inland waterways have international relevance. The navigable German Danube stretch, amounting to 213,1 km between the end of the Main-Danube channel in Regensburg and the Austrian border at Jochenstein, also belongs to this category. Although the waterways stretch across different Bundesländer, the Federal Republic of Germany is the owner of all federal waterways. The Bundesländer may use the services of the waterways free of charge. Everybody abiding by the laws of inland water navigation is allowed to navigate a water vehicle.

The federal authority, in charge for the execution of German inland waterway navigation legislation and responsible for the maintenance and management of the inland waterways and their infrastructure, is the **Federal Inland Waterway and Shipping Administration** (Wasserstraßen- und Schifffahrtsverwaltung des Bundes, WSV). Besides its function to facilitate transport within the boundaries of environmental protection, the federal waterways also serve the function of providing places for recreation of the broad public at and on the waterways, e.g. via water sports options. The WSV has to ensure the harmonisation of both functions.

Thus, the two main objectives for inland waterway management are:

- Ensuring mobility and transport;
- Protect the environment.

As its main service and communication instrument for all stakeholders involved in the inland waterway system, the WSV uses ELWIS, the electronic waterway information system. Here, information such as water levels, lock status, accidents etc. can be acquired on an up-to-date basis.

Due to the German federal system, the WSV is organized in a General Direction located in Bonn and regional divisions in the Bundesländer.

The second important national legislative document governing German inland waterways and the shipping navigation thereon in particular is the **Federal Law on Inland Waterway Navigation** (Binnenschifffahrtsgesetz), published in 1895. Due to a drastic change in cargo types, volumes and the general function of waterways, this law has been novelized a number of times. It mainly governs aspects of ship/vessel ownership, correct labelling of ships, aspects of liability in case of accidents, rights and obligations of skippers, etc.

Important documents not having the legal character of a law but of a regulation to be mentioned are the **Inland Waterway Regulation** (Binnenschifffahrtsstraßenordnung) and the **Danube Navigation Police Regulation** (Donauschifffahrtspolizeiverordnung). Generally, shipping on the German Danube underlies German Federal law and sometimes regional regulation (in Bavaria: Bayerische Schifffahrtsordnung, Bavarian Shipping Regulation). All Danube neighbouring countries have signed the so-called Belgrade Convention regulating the Danube shipping in 1948. Germany has entered the Belgrade Convention in 1999 and is represented in the Danube Commission and its working groups via the WSV, southern division.

In terms of stakeholders, besides the national and regional authorities mentioned, there are a number of business associations in the realm of inland navigation in Germany. The most important ones here are the **Federal Association of German Inland Waterway Navigation** (Bundesverband der Deutschen Binnenschifffahrt), the **Federal Association of Public Inland Ports** (Bundesverband öffentlicher Binnenhäfen), and the **German Logistics Association** (Deutscher Logistik- und Speditionsverband).

Political & regulatory framework for biomass handling in inland ports

Similar to the legal landscape regarding inland waterway navigation, also the political and regulatory framework regarding freight and cargo logistics and handling is quite diverse, as it has to cover a wide range of cargo types, as well as a number of stakeholders such as skippers, shipping companies, various types of port companies, logistics companies, agents etc.. Generally, topics of goods logistics and handling are mainly covered by trade law.

Therefore, a brief overview of the relevant international and German inland vessel freight and inland port legislation is provided. Thereafter, biomass and bioenergy intermediary goods as a specific type of cargo are covered. It however has to be stated that there are no relevant national or regional general legal provisions for biomass and bioenergy feedstock in particular. Rather, the general transport and handling provisions for goods on inland vessels and in inland ports stands in the focus. Most biomass logistics-specific regulations in place pertain to other parts of the supply chain, e.g. for the transport from the place of harvest to the first conversion step via trucks or agricultural vehicles (e.g. differentiation between agricultural or forestry biomass transport or commercial biomass transport).

Germany ratified the **Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway** in 2007. In German national as well as in EU law, most inland water freight logistics topics are regulated under trade and customs law and mainly cover aspects of security for people, goods and the environment as well as liability issues. These pertain both to loading, stowing and discharging of goods in port areas as well as to the actual freight carrying process aboard of vessels. The regulations between shipping, carrying and receiving party in German law are laid down in the German Commercial Code (Handelsgesetzbuch, HGB).

In German inland navigation, there are no specific generally accepted terms and conditions for transport and carriage. Rather, the shipping companies themselves have general business terms regulating their businesses with customers. An in Germany broadly accepted regulatory framework regulating transshipment and transport on inland vessels are the **International Conditions of Loading and Transportation on Inland Navigation** (Internationale Verlade- und Transportbedingungen für die Binnenschifffahrt) issued by the Association for European Inland Navigation and Waterways in 1999. This document lays down the conditions for the entire cargo transport process on inland vessels in 25 paragraphs but has no legislative status.

Along the Bavarian navigable Danube, there are two kinds of inland ports: firstly, these are public ports owned by the Free State of Bavaria via its daughter organisation Bayernhafen Gruppe. These ports are: Regensburg and Passau. Secondly, the ports in Kelheim, Straubing and Deggendorf are owned by municipalities or a group of municipalities. Within these ports,

besides the legislative documents mentioned above, own port regulations apply which have been issued by the respective port authorities. Mostly, these documents entail general provisions such as scope, terms and definitions, specific provisions for vessel traffic and port operations, e.g. permission to enter the port, regulations for loading and unloading, registration, etc., and additional provisions on security topics, pest avoidance, issues of cleanliness etc. Also, port fee regulations for the vessels are laid down. There are fees for the vessels themselves as well as for the cargo that is being transhipped. The cargo fee depends on the type and weight of the cargo.

Cargo types to be loaded, stowed and unloaded in German ports are systematically organized in a cargo type register, the so-called **Register of Goods for the Transport of German Inland Waterways** (Güterverzeichnis für den Verkehr auf deutschen Binnenwasserstraßen), published by the WSV on behalf of the Federal Transport Ministry in 1986. The goods are systematized according to main cargo types and then further specified.

Biomass feedstock for bioenergy production and bioenergy intermediary goods as relevant within the ENERGY BARGE project are classified under the main groups 0, agricultural and forestry goods and related goods, 1, other food- and feed goods, 8, chemical goods. Especially group 0, according to the Danube Commission is the second largest cargo group transported on the Danube, making this type of cargo particularly important for inland water navigation business as a whole.

In general, it can be said that the majority of the project-relevant cargo types do not fall under the category of dangerous goods regulated under the German **federal law for the transport of dangerous goods** (Gefahrgutbeförderungsgesetz) and the **regulation for the transport of dangerous goods on road, rail and inland waters** in place since 2009 on the basis of the classification of groups of dangerous goods under the UN Recommendations on the Transport of Dangerous Goods. This can particularly be said for dry goods transported on dry cargo vessels. Liquid and gaseous intermediary products can pose an exception. Generally, feedstock characteristics such as (self-)ignitability or danger of explosion, are decisive for a classification of a dangerous good under the international ADR treaty which lays out rules and conditions for the transport, storage and labelling of most hazardous or dangerous goods.

Also, the biomass type itself and its specific physical characteristics are decisive for the cargo-requirements. Depending, on whether the cargo is solid, liquid or gaseous, the requirements for handling equipment, storage, the vessel itself and security aspects differ.

2.2.6.4 Summary of existing policies

Table 16: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Germany.

Applicable value chain components	Policy	Valid dates	Summary
Political objectives, GHG reduction, sustainable biomass production	National Biomass Action Plan	2009	- targets for reducing GHG - sustainability criteria
Political framework for renewable energies	Action Plan for the Material Use of Renewable energy	2009	-complements Biomass Action Plan - shift from industry dependent on fossil resources to biobased economy
Political framework for renewable energies	National Renewable Action Plan	2010	- development of renewable energies overall goals of Germany's energy and climate policy
Political framework for renewable energies	Climate Action Plan 2050	14th November 2016	- actions to achieve a Greenhouse-Gas-neutral Germany in 2050
Political framework for renewable energies	Renewable Energy Sources Act (EEG)	April 2000; amended 13th October 2016	- central control instrument for the expansion of renewable energies
Political framework for renewable energies	Renewable Energy Heating Act (EEWärmeG)	7th August 2008; amended 20th October 2015	- energy supply and development of technologies generating heat from renewable energies
Political framework for renewable energies	Combined Heat and Power Act (KWKG)	1st April 2002	- increase electricity generation from CHP plants
Biomass supply	Ordinance on the Generation of Electricity from Biomass (BiomasseV)	21st June 2001	- classification of biomass substances
Biomass production	Biomass Sustainability Regulation (BioSt-NachV)	23th July 2009	- environmental requirements for producing liquid biomass

Biofuel production	Biofuels Sustainability Regulation (Biokraft-NachV)	1st January 2011	- environmental requirements for producing biofuel
Biofuel production	Biofuels Quota Act (BioKraftQuG)	1st January 2007; amended 18th June 2009	- share of biofuel in petrol and diesel fuels
Biomass handling and transport on inland waterways	Bundeswasserstraßen-gesetz	In place since 1986	- Federal law defining types of domestic waterways in ownership of the German federal state and regulations pertaining to it
Biomass handling and transport on inland waterways	Binnenschifffahrtsstraßen-ordnung	In place since 2011	- general common regulations for traffic on all German inland waterways including provisions regarding environmental protection
Biomass handling and transport on inland waterways	Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway	Ratified by Germany since 2007	- international convention on the rights and obligations of the shipping, carrying, and receiving parties involved in the transport of cargo goods on inland vessels
Biomass handling and transport on inland waterways	Handelsgesetzbuch, fourth part, Freight	in place	- German federal law regulating the entire freight process independent of the transport mode and transport good, laying down rights and obligations of the involved parties
Biomass handling and transport on inland waterways	Gefahrgutbeförderungs-gesetz	In Place since 1975	- German federal law stipulating the legal framework for the transport of dangerous and hazardous goods
Biomass handling and transport on inland waterways	Verordnung über die inner staatliche und grenzüber-schreitende Beförderung gefährlicher Güter auf der Straße, mit Eisenbahnen und auf Binnengewässern	In Place since 2009	- German regulation regulating the conditions under which dangerous and hazardous goods can be transported on road, rail and inland waterways



Biomass handling and transport on inland waterways	Güterverzeichnis für den Verkehr auf deutschen Binnenwasserstraßen	In place since 1986	- systematic register and classification of goods that can be transported on inland waterways via inland vessels and transhipped in inland ports, including all types of relevant biomass feedstock groups used for bioenergy generation
Biomass handling and transport on inland waterways	Internationale Verlade- und Transportbedingungen für die Binnenschifffahrt	In place since 1999	- non-governmental document regulating terms and conditions for the different commercial parties involved in shipping goods on inland waterways

2.2.7 Hungary

As a Member State of the European Union, the adopted common legislation and long-term strategic objectives set out several tasks for Hungary in the field of bioenergy. The Renewable Energy Directive (RED) of the European Parliament and of the Council specified a legally binding obligation for Hungary to ensure a 13 percent minimum share of renewable energy in gross final energy consumption by 2020. As part of the Europe 2020 Strategy aimed at energy and climate policy, Hungary is committed to increase its rate of renewable energy sources consumed to 14.65%, and a maximum 10% increase in greenhouse gas emissions (compared to the 2005 level) by 2020 in the sector outside the scope of the EU Emissions Trading Scheme, and aimed at a 92 PJ primary energy savings target value, which, taking the year 1990 as a basis, is a 16.2% saving.

2.2.7.1 Regulatory authorities

Table 17: Regulatory authorities in the field of bioenergy and logistics in Hungary.

Authority	Abbr.	Field of activity
Ministry of National Development ¹⁰⁰		- responsible for drafting laws and regulations related to climate policy, the promotion of biofuels and other renewable energies for transport, the use of renewable sources for generating electricity and heat and increasing energy efficiency and energy saving
Ministry of the Interior ¹⁰¹		- responsible for authorisation in spatial planning - in collaboration with other authorities, the Ministry of Interior oversees tasks related to settlement development, planning and the functioning of settlements, which also include construction affairs and the supervision of public space
Ministry for National Economy ¹⁰²		- responsible for the general planning of Hungarian economic policy and the implementation of strategy for the national economy - prepares climate and energy policy plans with a view to sustainable development, and it supervises and directs Hungary's international economic relations on the basis of a strategy for foreign economic affairs
Ministry of Agriculture ¹⁰³		- formulates government measures that relate to agricultural development, and supervises food retail chains, environmental protection, and agricultural economy

¹⁰⁰ <http://www.kormany.hu/hu/nemzeti-fejlesztési-minisztérium> (last access: 26.04.2017)

¹⁰¹ <http://www.kormany.hu/hu/belugyminisztérium> (last access: 26.04.2017)

¹⁰² <http://www.kormany.hu/hu/nemzetgazdasági-minisztérium> (last access: 26.04.2017)

¹⁰³ <http://www.kormany.hu/hu/földművelésügyi-minisztérium> (last access: 26.04.2017)

Hungarian Energy and Public Utility Regulatory Authority ¹⁰⁴	HEA	<ul style="list-style-type: none"> - regulatory body of the energy and public utility market, supervising the national economy's sectors of strategic importance - the Authority's responsibility covers licensing, supervision, price regulation, tariff-and fee preparatory tasks in the fields of electricity, natural gas, district heating as well as in water utility supply, besides pricing of public waste management services
Ministry of National Development, Office of the Minister of State for Transport Policy ¹⁰⁵		<ul style="list-style-type: none"> - legal successor of the former National Transport Authority ("Shipping Authority") (until 2016) - the first instance shipping authorities of Hungary acts with national competence for water transport administrative affairs - ensure with administrative means the safety, the lawful and professional participation in water transport of persons, assets, facilities, organization and companies acting there as well as water areas serving for water transport (tracks), briefly the establishment and maintaining the safety guarantees of shipping
Government Office of the Capital City Budapest		<ul style="list-style-type: none"> - responsible as shipping authority in waterway freight transportation affairs
Hungarian Trade Licensing Office ¹⁰⁶		<ul style="list-style-type: none"> - implements national authoritative tasks related to the Common Commercial Policy of the EU
National Directorate General for Disaster Management, Ministry of the Interior	NDGDM	<ul style="list-style-type: none"> - protecting the lives and the property of the population living in Hungary and insuring the safe operation of the national economy and protecting the elements of the critical infrastructure - It is a highly important public safety task; therefore NDGDM is a law enforcement body with a national competence¹⁰⁷

¹⁰⁴ <http://www.mekh.hu/home> (last access: 26.04.2017)

¹⁰⁵ <http://www.kormany.hu/en/ministry-of-national-development> (last access: 26.04.2017)

¹⁰⁶ <http://mkeh.gov.hu/> (last access: 26.04.2017)

¹⁰⁷ http://www.katasztrofavedelem.hu/index2.php?pageid=szervezet_intro&lang=eng (last access: 26.04.2017)

National Inspectorate General for Industrial Safety		<ul style="list-style-type: none"> - responsible for tasks related to industrial safety, include four main functions: the supervision of hazardous plants, the control of the transportation of dangerous goods, the protection of critical infrastructures, and averting nuclear accidents - it operates the official monitoring system of the air, road, rail and water transportation of dangerous goods, including the on-site supervision of the preparation of transports - detailed regulations are outlined in Government Decree 312 of 2011 (XII. 23.)¹⁰⁸ which contains the procedures of the controlling and imposition of fines regarding rail and water transportation of dangerous goods.; it also declares that the logistic companies must submit a notification about the transportation of dangerous goods to the competent county's Directorate for Disaster Management
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2.2.7.2 Regulatory framework in the field of bioenergy

Renewable energy sources (RES) play an increasingly important role in the Hungarian consumption mix. The share of RES in the energy mix rose from 2.2% in 2004 to 9.5% in 2014, the main contributor being biomass based power generation. Hungary's agro-ecological characteristics are excellent for the competitive production of biomass. Hungarian agriculture is able to produce biomass suitable for energy production in excess of meeting food and feed needs in the long term, in a sustainable manner and at competitive prices. The theoretical potential of energy sources of biological origin (bioenergy) could exceed as much as 20% of the energy source demand estimated for 2020, and bioenergy-based electricity production can be planned well in advance, and is also controllable.

At the moment, the following regulatory frameworks are existing in the field of bioenergy:

- A. Hungary's Renewable Energy Utilisation Action Plan (time frame: 2020);
- B. New Széchenyi Plan (time frame: 2020);
- C. National Energy Strategy (time frame: 2030, with an outlook to 2050);
- D. EU 2020 objectives in Hungary's National Reform Programme (time frame: 2020);
- E. Energy Efficiency Plan I, II, III (time frame: 2020);
- F. METÁR.

¹⁰⁸ <http://net.jogtar.hu/> (last access: 26.04.2017)

Hungary's Renewable Energy Utilisation Action Plan¹⁰⁹

Legal status: Government Decision No 1002/2011 (I.14.) on certain tasks relating to Hungary's Renewable Energy Utilisation Action Plan.

The key areas of Hungarian renewable energy policy are the following in the above mentioned action plan:

- Security of supply.
- Environmental sustainability and climate protection.
- Agriculture and rural development.
- Development of a green economy.
- Contribution to Community goals.

Established common legislation and long-term strategic objectives set out and order several tasks to be performed by Hungary as member of the EU in the field of renewable energy use. The third climate and energy package of the European Union aims at mitigating greenhouse gas emissions by 20%, increasing energy efficiency by 20%, as well as increasing the use of energy originating from renewable energy sources to 20% within the gross final consumption of energy, and within this, its increase to 10% concerning transport, as set out in Directive 2009/28/EC of the European Parliament and of the Council by 2020 on European Union level. The National Action Plan was drawn up in a form in accordance with the format set out in the Directive of the European Parliament and of the Council and the Commission Decision on the relevant uniform template. As mentioned previously, the NEEAP sets an objective of 14.65% by 2020, which exceeds the obligatory minimum target number, as a realistic objective in accordance with national interests. Renewable energy sources contribute widely to the achievement of national economic targets (job creation, GDP increase, security of supply, etc.); therefore the increase of their use to the full potential constitutes a strategic aim.

New Széchenyi Plan¹¹⁰

Legal status: Government Decision No 1163/2010 (VIII.04.) ordered the preparation of the New Széchenyi Plan.

The most important strategic aspects of the New Széchenyi Plan are: the dynamic expansion of employment, the maintenance of financial stability, the establishment of conditions for economic growth, and the improvement of competitiveness. The New Széchenyi Plan determines seven programmes based on the breakthrough points of the Hungarian economy:

1. Healing in Hungary – Health industry
2. Renewal of Hungary – Development of green economy

¹⁰⁹ http://2010-2014.kormany.hu/download/6/b9/30000/RENEWABLE%20ENERGY_REPUBLIC%20OF%20HUNGARY%20NATIONAL%20RENEWABLE%20ENERGY%20ACTION%20PLAN%202010_2020.pdf (last access: 26.04.2017)

¹¹⁰ www.kormany.hu (last access: 26.04.2017)

3. Home projects and Residential property programme
4. Business development – Development of business environment
5. Science – Innovation – Growth
6. Breakthrough in employment
7. Transport – Transit Economy

The development of green economy is in line with the most important strategic goals of the energy and climate policy of Hungary and the EU in order to optimise the joint realisation of security of supply, competitiveness and sustainability as primary goals while also taking into account long-term aspects. The priority areas of the green economy development programme set governmental measures in relation to various climate- and energy-related objectives.

National Energy Strategy¹¹¹

Legal status: The Parliament of Hungary adopted the Strategy on 3 October 2011.

The main goal of the Energy Strategy is the decrease of energy dependency by energy efficiency, high ratio of renewable energy sources, nuclear energy and joining to the European energy infrastructure.

The most important theses of the Energy Strategy for competitive, sustainable and secure supply:

- Energy saving.
- Increase of renewable and low-carbon energy production (For sustainable supply the ratio of renewable energy in primary energy use is expected to rise from the current 7% to 20% by 2030. The growth path to be realised by 2020 (the target to be achieved is a 14.65% share) is described in detail in Hungary's Renewable Energy Utilisation Action Plan).
- Modernisation of community district heating and individual thermal energy production (The coverage of district heating will be extended from the current 15% to 22–25% by increasing technical service standards).
- Energy efficiency improvement in transport and the decrease of its CO₂ intensity
- Green industry, renewable agriculture
- Strengthening the role of the state.

National Reform Programme¹¹²

Legal status: Hungary's National Reform Programme has been drawn up in accordance with the Convergence Programme.

Within the framework of the Europe 2020 Strategy, Hungary contributes to the achievement of the five quantified headline targets set out at a European Union level by fulfilling national commitments that also reflect Hungary's own characteristics and priorities. Hungary can only

¹¹¹ <http://2010-2014.kormany.hu/download/7/d7/70000/Hungarian%20Energy%20Strategy%202030.pdf> (last access: 26.04.2017)

¹¹² http://ec.europa.eu/europe2020/pdf/csr2016/nrp2016_hungary_en.pdf (last access: 26.04.2017)
Project co-funded by European Union funds (ERDF)

respond adequately to the impact global climate change has on economic and social development, to energy demand that has been increasing globally and to the unpredictable changes of fossil fuel prices if it can create an economic model in which energy savings, energy efficiency, intensive renewable energy utilisation and a focus on the exploitation of own resources play a crucial role.

Energy Efficiency Plans¹¹³

Legal status: The European Commission adopted the Communication on the Energy Efficiency Plan 2011 on 8 March 2011. Concrete legislative proposals were submitted by the Commission in June 2011.

Hungary achieved its objective during the Hungarian Presidency of the European Council, i.e. the conclusions of the European Council on the Energy Efficiency Plan were adopted on 10 June 2011 at the Energy Council. The European Commission adopted the Communication on the Energy Efficiency Plan 2011 on 8 March 2011. The two fundamental elements of the energy policy of the European Union that represent prerequisites of sustainable development are energy efficiency (primarily via energy savings) and the increase of the use of renewable energy.

Hungary supports the general objectives of the EU's Energy Efficiency Plan 2011, especially as regards the following:

- the exemplary role of the public sector in energy efficiency improvement;
- the inclusion of new energy consumption and production areas, since this would result in a coverage of the whole supply chain;
- the assistance and means to be provided for by the European Commission for the development of national energy efficiency programmes;
- the high priority of small and medium enterprises.

Hungary has included in the second NEEAP the breakdown and calculation of objectives regarding energy savings according to the abovementioned proposed sectoral targets and measures. Hungary's National Energy Efficiency Action Plan III was adopted by the Government Decree 1601/2015 (IX.8.). Parallel with the introduction of Directive 2012/27/EU of the European Parliament and of the Council on Energy Efficiency, the major measures which were determined are in the document. The action plan aims to determine the method for meeting the obligations of 2020 defined by the Renewable Energy Directive and put forward the sector objectives and measures based on the updated energy consumption forecast, similarly to the National Framework Plan of the Installation of Alternative Fuels Infrastructure.

METÁR (Renewable Support Scheme)¹¹⁴

In Hungary, the Government traditionally supports renewable energy production with a Feed-in Tariff System and guaranteed price. On 13 June, 2016, the Parliament of Hungary enacted the

¹¹³ https://ec.europa.eu/energy/sites/ener/files/documents/hungaryActionPlan2014_en.pdf (last access: 26.04.2017)

¹¹⁴ Gullai, P. (2017). Rövid ismertető a METÁR-ról. Magyar Energetika, Year XXIV, Issue 2; page 26-27.
Project co-funded by European Union funds (ERDF)

Renewable Energy Support System (METÁR) the new regulatory and support scheme for electricity generation from renewable energy sources, which may help to achieve the above ambitious aims. METÁR consists of a mandatory off-take regime and a “premium support” regime, both of which will be differentiated on the basis of the energy resources applied, production methods, nominal capacity of the power plant, efficiency of energy transformation and the date of development of the relevant power plant. The introduction of the new legislation also means that the KÁT system is gradually changed to METÁR, with a transitional period, until the termination of the last effective agreement which includes KÁT, but not later than year 2045. The key feature of the new support scheme, is that the producers of renewable energy receive the aid as a paid premium over the market reference price (e.g. the average price of the regulated market).

2.2.7.3 Regulatory framework in the field of Danube logistics and biomass handling in inland ports

The Hungarian section of the Rhine-Danube Core Network Corridor, meaning the river Danube, is not only the most important but practically the only inland waterway route for freight transportation in Hungary. The Hungarian Danube section has a length of 417/275 rkms (left/right bank), and several ports are located along the river. The Hungarian inland ports are distributed along the length of the Danube, which flows through the country from north to south. There are eight inland ports: Győr-Gönyű, Komárom, Budapest-Csepel, Dunaújváros, Paks, Baja, Mohács, Szeged.

TEN-T serves as the backbone network for long distance freight transport in the economy of the European Union. The designated network covers some quarter of the public road network (74 500 km) and some half of the railway network (78 600 km) in the member states. At the same time it includes major airports and navigable inland waterways (IWW), river and maritime ports.

National policies and strategies

National Transport Infrastructure Development Strategy

Legal status: Government Decree No. 1486/2014. (VIII. 28.)¹¹⁵ on National Transport Infrastructure Development Strategy adopted the Programme which was prepared by the National Development Ministry in 2014.¹¹⁶

It contains the following goals:

- Cooperation of the sub-sectors – Including water transport;
- Coordination of the travel- and transport chain;

¹¹⁵ <https://net.jogtar.hu/> (last access: 26.04.2017)

¹¹⁶

<http://www.kormany.hu/download/b/84/10000/Nemzeti%20K%C3%B6zleked%C3%A9si%20Infrastrukt%C3%BAra-fejleszt%C3%A9si%20Strat%C3%A9gia.pdf> (last access: 26.04.2017)

- Improvement of the continuation and reliability of the transport system.

One of the key intervention areas is the navigability of the Danube. The water transport infrastructure requires urgent actions. The competitiveness of the Danube shipping is closely linked to the waterways' development; it assumes the supervision of the river ports' network and the development of the port infrastructure and network connections. Further goal is to increase the modal split of the national waterborne transport.

Regarding freight transport, the document names the following goals:

- Increase of transport service level and efficiency

The meeting of reasonable transport demands requires the ensuring of corresponding supply. The purpose of this objective is the improvement of the supply side with the development of service level and efficiency. The breakdown below determines the targets needed to the attainment of this objective: through better transport service and through the improvement of the physical transport system elements. In the frame of objective „Increase of service level and efficiency” formulated on level 2 the following partial goals can be determined:

- Improvement of transport services

Coordinated supply and development of transport services in order to ensure better accessibility for the people and for the economic actors, influencing by this the transport demands.

- Improvement of physical transport system elements

Improvement of transport infrastructure in order to increase the level and to ensure the satisfaction of transport demands on the long run, to improve the inter-regional accessibilities and to ensure the more efficient and sustainable operation of the transport system.

White Paper – Transport Development Strategy 2007-2020

Transport Development Strategy (TDS)¹¹⁷ prepared by the Ministry of Economy and Transport in 2007 is the revision of the national transport policy. The Hungarian transport policy documents have been formulating in a way to support and develop environmental friendly transport means (freight and passenger traffic) as important political goals – indeed, this has become of paramount importance since the accession to the EU of the country.

The Strategy declares that Hungary promotes combine modes in inland waterway freight transport, which are completed by comprehensive logistic services and information systems. The TDS presumes that the volume of inland waterway freight transport is significantly increasing on the Pan-European transport corridor VII, the Rhine–Main–Danube Canal network,

¹¹⁷http://www.pestmegye.hu/images/2014/agazati_strategiak/Egyseges_Kozlekedesfejlesztesi_Strategia_2007_2020_Feher_konyv.pdf (last access: 26.04.2017)

due to the enlargement of the EU. Trade flow can be stimulated by the increasing East-West commercial activity, such as port developments in the Adriatic Sea and the Black Sea generated by the vivid commercial activity between the EU and China.

Integrated Transport Development Operational Programme – ITDOP

Integrated Transport Development Operational Programme¹¹⁸ determines five priority axes for the 2014-2020 programming period. Among these, priority axis 2, “Improving International (TEN-T) railway and waterway accessibility” covers waterway network development on Danube financed from the Cohesion Fund. Creating priority axis on improving TEN-T railway and waterway access financed by the Cohesion Fund is reasoned by modernisation obligations of EU Trans-European Transport Network. Commission highlights in its position paper that Hungary should focus on finishing sections belong to TEN-T core network.

National Development 2030 – National Development and Regional Development Concept

Legal status: It was approved by the Parliamentary Decision No. 1 of 2014 (I.3.).¹¹⁹

Based on the country's social, economic, sectoral and regional development needs, the National Development and Regional Development Concept (NDRDC) projects long term scenario and vision as well as development policy aims and principles. Based on these, it sets national policy priorities for the 2014-2020 programming period.

The Concept lists river navigation as an idle, yet unused option. Improving the Danube's role in the national and international water transport, as well as establishing inland port network by applying EU standards are all highlighted among development policy tasks.

Logistics Sector Policy Strategy (2014-2020)

Legal status: Government Decree No. 1670 of 2013 (IX. 25.)¹²⁰ adopted the Strategy¹²¹. The direct preface to drafting the strategy was the need of the Ministry for National Economy for the compilation of sectoral strategies. In addition to their own active professional participation, IFKA Industrial Public Benefit Not-for-profit Ltd. and Logistics Consultation Forum made it possible to mobilise and involve professional organisations.

The primary goal of preparing the Logistics Sector Policy Strategy (2014-20) was to come up with a strategic plan accepted by both the Government and the trade and harmonised with the related strategies as well as international expectations, treating logistics properly for its economic weight, which, if implemented, may make a substantial contribution to increasing employment and capital expenditure as well as improving Hungary's competitiveness.

¹¹⁸ <https://www.palyazat.gov.hu/download.php?objectId=53466> (last access: 26.04.2017)

¹¹⁹ http://regionalispolitika.kormany.hu/download/b/c9/e0000/OFTK_vegleges_EN.pdf (last access: 26.04.2017)

¹²⁰ <https://net.jogtar.hu/> (last access: 26.04.2017)

¹²¹ <http://ifka.hu/uploads/content/doc/projects/logistic-sector-strategy-en.pdf> (last access: 26.04.2017)

The comprehensive goal of the logistics strategy is to increase the contribution to be made by the logistics sector to competitiveness at corporate and national economy level in line with its expected weight in national economy by promoting the development of logistics resources, networks and innovation in Hungary in the 2014-2020 period.

As regards the water transport network, the logistics sector expects constant navigability of the Danube. Using the Danube for transport and shipping purposes is important also for the purposes of the Danube-Main-Rhine waterway system, meaning that water management and river regulation should be integrated and coordinated at international level - which is also key for environmental and flood protection purposes as well as for tourism.

National Shipping Strategy

Legal status: the Strategy is not approved yet, only a draft version is available, made in 2012 by Ministry for National Economy.¹²²

According to the National Shipping Strategy basic goods of the waterborne transport are bulk cargo in Hungary. Considerable transport volume growth could be attained by shifting container goods onto waterways. One of the development and system rebuilding elements is port infrastructure improvement and modernization. Shipping can take part in the freight transport as an element of multimodal logistics chain. There are a few Western European examples which prove that the best serving conditions provided by centres combining water-, road- and railway. However, in Hungary there is a lack of these hub centres. In the future container terminals along the Hungarian section of the Danube need to be developed.

National legislation

In Hungary the legislation of inland shipping and ports is ruled by the EU's expectations, conventions and directives. The main elements of the legislation are the following:

Belgrade Convention Regarding the Regime of Navigation on the Danube

The agreement signed at Belgrade, 18 August 1948 is the comprehensive regulation of Danube shipping. The freedom of inland waterway transport on the Danube is realised in the Danube Convention, in as much as transport along the Danube is not subject to duties, quotas or authorisation, with the exception of cabotage. Transport between ports of one country for vessels sailing under a foreign flag is authorised only according to the legal provisions of the Danube country in question. With rights come obligations; the member states of the Danube Convention are required to maintain their section of the Danube in a navigable condition for river-going and seafaring vessels.

It was codified in the Hungarian legislation by **Act No. XIII of 1949**.¹²³

Act No. CXIV of 2000¹²⁴ contains the modifications of the Convention dated on 26 March 1998.

¹²² http://2010-2014.kormany.hu/download/c/eb/a0000/NHS_20120919.pdf (last access: 26.04.2017)

¹²³ <https://net.jogtar.hu/> (last access: 26.04.2017)

Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway (CMNI)

Budapest Convention is an international convention that unified the legal provisions governing contracts for the crossborder transport of cargo on inland waterways for the first time in 2001. In general, the Convention contains regulation relative to

- The liability of the carrier in case the cargo is lost or damaged, as well as
- Circumstances or situations that allow for an exemption from liability.

The Convention applies to all contracts of carriage for transporting cargo by inland waterway across borders. It regulates the general rights and obligations of the contracting parties, primarily those of the carrier, the consignor and the consignee. The Budapest Convention was concluded on June 22, 2001, and entered into force on 1 April 2005. It was ratified by Hungary by **Act No. CXLI of 2005**.¹²⁵

European Agreement on Main Inland Waterways of International Importance

The Agreement recommends the requirements for existing waterways, modernisation and construction of waterways in Europe. It was signed on 19 January 1996, and ratified in Hungary by **Government Decree No. 151 of 2000**¹²⁶ on inland waterways with international importance.

Act XLII of 2000 on traffic (transport) on waterways (the “Shipping Act”)

In Hungary, **Act No. XLII of 2000**¹²⁷ on traffic (transport) on waterways (the “Shipping Act”) regulates shipping activity. The Act shall apply to navigation and to facilities, to shipping vessels, and to water ways and harbours in waters under Hungarian jurisdiction. The Act prescribes the duties of the State and of local governments in respect of navigation management, governs the registration and classification of shipping vessels, provides measure for safe navigation, licensing and restriction of navigation, establishes fines for offenders of law, regulates the case of accidents and rescuing.

The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)

The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) was done at Geneva on 26 May 2000 on the occasion of a Diplomatic Conference held under the joint auspices of the United Nations Economic Commission for Europe (UNECE) and the Central Commission for the Navigation of the Rhine (CCNR). It entered into force on 29 February 2008.

ADN consists of a main legal text (the Agreement itself) and annexed Regulations and aims at:

¹²⁴ <https://net.jogtar.hu/> (last access: 26.04.2017)

¹²⁵ <https://net.jogtar.hu/> (last access: 26.04.2017)

¹²⁶ <https://net.jogtar.hu/> (last access: 26.04.2017)

¹²⁷ <https://net.jogtar.hu/> (last access: 26.04.2017)

- ensuring a high level of safety of international carriage of dangerous goods by inland waterways;
- contributing effectively to the protection of the environment by preventing any pollution resulting from accidents or incidents during such carriage; and
- facilitating transport operations and promoting international trade in dangerous goods.

The Regulations annexed to the ADN contain provisions concerning dangerous substances and articles, provisions concerning their carriage in packages and in bulk on board inland navigation vessels or tank vessels, as well as provisions concerning the construction and operation of such vessels. They also address requirements and procedures for inspections, the issue of certificates of approval, recognition of classification societies, monitoring, and training and examination of experts.

Act No. III of 2009¹²⁸ contains the text of the Agreement in English and in Hungarian.

Act No. LXXXIV of 2015¹²⁹ is the most up-to-date version of the Regulations attached to the Agreement.

Decree No. 50 of 2002 (XII. 29.) GKM of the Ministry of Economy and Transport on the construction, utilization, management and closing down of harbours, ferry ports and of other navigation facilities

This Decree¹³⁰ shall apply to the construction, extension, modernization, classification, utilization, management and closing down of harbours, ferry ports and of other navigation facilities. Any of the activities falling under this Decree must be authorized. The various authorization procedures are regulated in detail in Chapter II. Navigation facilities are registered with the authorizing offices. Annexes 1-3 provide detailed rules regarding the various types of facilities. Annex 4 determines the content of requests for authorization.

Decree No. 17 of 2002 of the Ministry of Transport and Water Affairs declaring as navigable those natural and artificial surface waters that are suitable or can be made suitable for navigation

This Decree¹³¹ applies: to rivers, channels, lakes and to constructions on them situated in the national territory and determined in this Decree; to their maintainer and to the competent transport and water management authorities. Waters must be classified in one of the categories listed in Annex 1. Classified waterways are listed in Annex 3. Waterways must be classified into navigation zones taking into account meteorological factors and the characteristics of waves (Annex 5). This Decree determines also the minimum number of emergency ports along waterways, prescribes the keeping of a registrar of waterways, determines requirements regarding waterways and waterworks, as well as their maintenance and operation, and

¹²⁸ <https://net.jogtar.hu/> (last access: 26.04.2017)

¹²⁹ <https://net.jogtar.hu/> (last access: 26.04.2017)

¹³⁰ <https://net.jogtar.hu/> (last access: 26.04.2017)

¹³¹ <https://net.jogtar.hu/> (last access: 26.04.2017)

regulates the registration of investment, maintenance and operational costs disbursed for waterways.

2.2.7.4 Summary of existing policies

Table 18: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Hungary.

Applicable value chain components	Policy	Valid dates	Summary
Biomass supply	71/2007. (IV. 14.) FVM decree on arboreal energy plantations in Hungary.	since 2007	- the decree defines the method of planting and rooting out ligneous energy crops as well as the types of producible energy crops; it also designates the responsible authority
Biomass production	Act No. XXXVII of 2009 on forests, on the protection and management of forests	since 2009	- provides a comprehensive frame for forestry management and forest protection
Biofuel production	Ministry of Rural Development Decree 42/2010. (XII. 20.) on the territories of sustainable production of raw materials for the purpose of biofuel production	since 2010	- detailed rules of territorial detachment for sustainable production of biofuels
Biomass supply, GHG reduction	Decree No. 343/2010. (343/2010. (XII. 28.) Government Decree No. 343/2010 on the conditions and certification of sustainable biofuel production	since 2010	- this Decree sets out the requisites of sustainable production of biofuel, provides rules regarding the sustainable production of biomass and the certification of sustainability; establishes the biofuel greenhouse gas emission database
Biomass supply	Decree 42/2010. (XII. 20.) VM of the Ministry for rural development regarding the default areas for production of biofuel raw materials	since 2011	- the decree 42/2010. (XII. 20.) stipulates that arable land qualified for Single Area Payment Scheme (SAPS) is permitted for the production of raw materials for biofuels by default
Political framework for renewable energies, Political objectives	Decree of the Hungarian Energy and Public Utility Regulatory Authority No. 17/2016. (XII. 21.) on the extent of operational support for renewable electricity	since 2017	- establishes a technology specific support period and defines the supported amount for renewable electricity in conjunction with the feed in and premium tariff regulation

Political framework for renewable energies	Act No. XVIII of 2005 concerning district heating services and implementing Decree No. 157/2005 (VIII. 15.)	since 2005	- this Act shall be applied to all legal relationships in connection with heat production, conveying, provision and utilization through the district heating system
Political framework for renewable energies	Government Decree No. 273/2007. (X. 19.) on the Implementation of Act No. LXXXVI of 2007 on Electric Energy)	since 2007	- the government decree regulates the implementation of the incentive scheme for renewable energy generation
Political framework for renewable energies	Government Decree No. 389/2007 (XII.23.) on the obligatory dispatch and purchase of electricity generated from waste or from renewable energy sources and combined heat and power	entry into force 2008	- the decree establishes a framework for the dispatch of and payment for electricity generated from renewable energy sources and waste
End use/markets; Logistics, GHG reduction	Act No. CXVII of 2010 on the promotion of renewable energy in the transport sector and the reduction of greenhouse gases in the transport sector)	since 2010	- the purpose of this Act is to reduce the impact on climate change of energy consumption of transportation activities and respect the principles of sustainability during biofuel production
End use/markets; biofuel production	Decree on quality requirements of motor propellants 30/2011. (VI.28.)	since 2011	- quality requirements of fuels
End use/markets; Political framework for renewable energies	Government Decree No. 309/2013. (VIII.16.) on the certification of origin for electricity from renewable energy sources and highly efficient combined heat and power	since 2013	- prescribing the procedure for issuing guarantees of origin for electricity from renewable sources and highly efficient combined heat and power
End use/markets	Act CLXXXV of 2012 on waste.	since 2013	- the purpose of this Act is the protection of the environment and human health - mitigation of environmental impact, the efficient management of natural resources, the reduction of the impact and improvement of efficiency of the use of resources, as well as the prevention of waste and its harmful effects

End use/markets; Political framework for renewable energies	Regulations for household sized power plants <50 kV (HMKE)	Entry into force 2014	- informs about the regulations applying to household sized power installations
End use/markets	Act No. LVII of 2015 concerning energy efficiency	since 2015	- the purpose of this Act is to identify actions aiming to achieve national energy efficiency goals and, to this end, to ensure the comprehensive energy supply and energy use efficiency, to reduce energy costs for end users and preserve environmental resources for future generations
End use/markets	Distribution Regulation – Regulation on the access to the distribution grid (amendment No. 10 of 23 August 2016)	since 2016	- definition of the technical criteria for household-sized power installations in order to connect to the distribution grid
End use/markets; Sustainable biomass production	Government Decree No. 165/2016. (VI. 23.) on the feed-in tariff for renewable electricity and the premium tariff	entry into force 2017	- the decree replaces the feed-in tariff decree 389/2007, which remains valid for applications before 31. December 2016
Multiple/undifferentiated	Act No. LIII of 1995 on the General Rules of Environmental Protection	since 1995	- promotes the reduced use, burdening and contamination of the environment, the protection of human health, the improvement of quality of life, the conservation of natural resources and their sustainable management and renewal
Multiple/undifferentiated; GHG reduction	The Act LX of 2007 on Enforcement of Framework Convention on the UN Framework Convention on Climate Change and Kyoto Protocol	since 2007	- this Act applies to natural and legal entities operating in the field of reduction and/or absorption of greenhouse gas emissions
Multiple/undifferentiated	Government Decree No. 273/2007. (X. 19.) on the Implementation of Act No. LXXXVI of 2007 on Electric Energy	since 2007	- the government decree regulates the implementation of the Act on Electric Energy

Multiple/undifferentiated	Act No. LXXXVI of 2007 on Electric Energy	since 2008	- the Act establishes the legislative framework for the obligatory feed-in of electricity produced from renewable energy sources at a subsidized tariff; the introduction of certificates of origin in Hungary is also stipulated by Act LXXXVI/2007 on electricity
Multiple/undifferentiated	Decree 59/2008. (IV. 29.) of FVM on detailed rules of the action programme concerning the protection of waters against pollution caused by nitrates from agricultural sources and on the order of data reporting and registering	since 2008	- this Decree applies to all agricultural activities in nitrate sensitive areas and with regard to data supply and registration, also to companies and private persons keeping animals outside of nitrate sensitive areas, all except for private persons keeping animals for household needs
Multiple/undifferentiated	Government Decree No. 306/2010. (XII. 23.) of the Government on the Protection of Air	since 2010	- this Decree applies to those entities whose activities, facilities or products pollute or may pollute the air
GHG reduction	Decree on avoidance of GHG-emission 36/2010. (XII.31.)	since 2011	- the decree 36/2010. (XII. 31.) sets the rules for calculating GHG emissions in full conformity with the RED
Multiple/undifferentiated	Decree of the Hungarian Energy and Public Utility Regulatory Authority No. 10/2016. (XI. 14.) on the application of system use charges, grid connection and special charges	since 2017	- establishes regulations for system use charges, connection charges and special charges as well as exceptional regulations of payment for electricity from renewable energy sources
Political framework for renewable energies	Decree of the Hungarian Energy and Public Utility Regulatory Authority No. 17/2016. (XII. 21.) on the extent of operational support for renewable electricity	entry into force 2017	- establishes a technology specific support period and defines the supported amount for renewable electricity in conjunction with the feed in and premium tariff regulation (Decree No. 165/2016. (VI. 23.))
Logistics	Act No. XIII of 1949 and Act No. CXIV of 2000 about the publishing of Belgrade Convention Regarding the Regime of Navigation on the Danube and its Protocols	1949	- the freedom of inland waterway transport on the Danube is realised in the Danube Convention, in as much as transport along the Danube is not subject to duties, quotas or authorisation, with the exception of cabotage

Logistics	Act No. CXLI of 2005 about Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway (CMNI)	2005	- the Convention applies to all contracts of carriage for transporting cargo by inland waterway across borders; it regulates the general rights and obligations of the contracting parties, primarily those of the carrier, the consignor and the consignee
Logistics	Government Decree No. 151 of 2000 on inland waterways with international importance	2000	- the European Agreement on Main Inland Waterways of International Importance recommends the requirements for existing waterways, modernisation and construction of waterways in Europe
Logistics	Act No. XLII of 2000 on traffic (transport) on waterways (the "Shipping Act")	2000	- it regulates shipping activity; the Act shall apply to navigation and to facilities, to shipping vessels, and to water ways and harbours in waters under Hungarian jurisdiction
Logistics	Act No. III of 2009 and Act No. LXXXIV of 2015 about the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN)	2009	- the regulations annexed to the ADN contain provisions concerning dangerous substances and articles, provisions concerning their carriage in packages and in bulk on board inland navigation vessels or tank vessels, as well as provisions concerning the construction and operation of such vessels.
Logistics	Decree No. 50 of 2002 (XII. 29.) GKM of the Ministry of Economy and Transport on the construction, utilization, management and closing down of harbours, ferry ports and of other navigation facilities	2002	- this decree shall apply to the construction, extension, modernization, classification, utilization, management and closing down of harbours, ferry ports and of other navigation facilities
Logistics	Decree No. 17 of 2002 of the Ministry of Transport and Water Affaires declaring as navigable those natural and artificial surface waters that are suitable or can be made suitable for navigation	2002	- this decree determines also the minimum number of emergency ports along waterways, prescribes the keeping of a registrar of waterways, determines requirements regarding waterways and waterworks, as well as their maintenance and operation, and regulates the registration of investment, maintenance and operational costs disbursed for waterways

2.2.8 Moldova

2.2.8.1 Regulatory authorities

Table 19: Regulatory authorities in the field of bioenergy and logistics in Moldova.

Authority	Abbr.	Field of activity
Agency for Energy Efficiency ¹³²	AEER	<ul style="list-style-type: none"> - implement state policy in energy efficiency and renewable energy sources - participate in drafting national programmes, action plans and normative acts - develop minimum Energy Efficiency requirements for devices and equipment - provide consulting and informational assistance
Institute of Power Engineering of the Academy of Sciences of Moldova ¹³³	IPE	- governmental organisation carrying out research in the energy sector
Carbon Finance Unit	CFU	- develop the institutional abilities for the implementation of the Kyoto Protocol and the Convention-Framework of the United Nations Organisation on climate change
Ministry of Transports and Road Infrastructure ¹³⁴		- regulatory authority for roads, road transport, river transport, air transport, railway transport

2.2.8.2 Regulatory framework in the field of bioenergy

The **Energy Strategy of the Republic of Moldova until 2030**¹³⁵ of 2012 provides concrete guidelines for Moldova's energy sector development, with the main goal to provide the required basis for economic growth and improved social welfare. This time the Government of Moldova has identified a strategic vision and the country's strategic opportunities within the rapidly changing energy environment in the region of Central, Eastern and Southern Europe including Russia and the Caucasus region. As the foundation of its Strategy, the Republic of Moldova has laid down a clear option to integrate into the European Union and its internal energy market. The overall strategic goals for 2013 – 2030 are defined. The specific goals for 2013-2020 are outlined: (i) security of energy supply (ii) integration in the European energy market. For the period 2021-2030 different goals are set: (i) Developing renewables and long-term CCS availability (ii) Energy efficiency expansion (iii) Smart grid introduction.

¹³² <http://www.aee.md/en/> (last access: 09.05.2017)

¹³³ <http://www.ie.asm.md/en/home> (last access: 09.05.2017)

¹³⁴ <http://www.mtid.gov.md/en> (last access: 09.05.2017)

¹³⁵ <http://komorasns.cz/assets/attachments/EnStrategy-MOLD-draft310512.pdf> (last access: 04.05.2017)

Activities dedicated to reduce energy intensity on the national economy are written down on the **Law on Energy Efficiency**¹³⁶ of 2010. Moreover the impacts of the energy sector on the environment shall be reduced with these regulations.

The **Green for Growth Fund**¹³⁷ (GGF) set up in 2009, is a fund especially for the region Southeast Europe. Responsible authorities are: European Investment Bank (EIB), KfW Development Bank (KfW), European Commission (with the European Investment Fund as Trustee), German Federal Ministry of Economic Cooperation and Development (BMZ), European Bank for Reconstruction and Development (EBRD), International Finance Corporation (IFC) and Netherlands Development Finance Company (FMO). The main goal is to advance energy efficiency and renewable energies through the reduction of energy consumption and CO₂ emissions. Therefore non-financial institutions with projects concerning those issues are funded. GGF also offers technical assistance facility for capacity building of partner institutions. Moreover companies are supported in form of energy audits or energy efficiency and renewable energies project implementation.

The **Moldovan Sustainable Energy Financing Facility** (MoSEFF) of 2013 provides credit lines to partner banks in Moldova. These banks on-lend the money to business and municipalities wanting to realize projects in the field of energy efficiency and small-scale renewable energy projects. MoSEFF is part of the European Bank for Reconstruction and Development's Regional Energy Efficiency Programme for the Western Balkans (REEPWB).

The **National Renewable Energy Action Plan**¹³⁸ of 2013 is a key document concerning energy policies in the Republic of Moldova. It aims at fulfilling the main strategic objectives: increasing the security of energy supply, sustainable development and climate change abatement. The Plan defines the sectoral targets:

- 20% Renewable Energy Sources contribution to the energy consumption;
- 10% Renewable Energy Sources in electricity;
- 10% Renewable Energy Sources in transport;
- 27% Renewable Energy Sources for heating and cooling.

The National Renewable Action Plan also sets up the required legislative, regulatory and administrative actions to achieve those targets.

¹³⁶ <http://lex.justice.md/md/335818/> (last access: 04.05.2017)

¹³⁷ <http://www.ggf.lu/about-green-for-growth-fund/> (last access: 04.05.2017)

¹³⁸ <https://www.energy-community.org/pls/portal/docs/3044025.PDF> (last access: 04.05.2017)

2.2.8.3 Regulatory framework in the field of Danube logistics and biomass handling in inland ports

The **Code on Commercial Navigation**¹³⁹ of 1999 sets the framework for the transport on waterways in Moldova. It is divided into several sections and covers the following topics: general regulations for shipping, requirements for the ship and crew, shipping and insurance of goods, limitation of liability and the behaviour in case of maritime accidents.

There are currently no specific requirements on transport and storage with regard to biomass.

2.2.8.4 Summary of existing policies

Table 20: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Moldova.

Applicable value chain components	Policy	Valid dates	Summary
Political framework for renewable energies	Energy Strategy of the Republic of Moldova until 2030	2012	- guidelines for energy sector development
Energy saving	Law on Energy Efficiency	2010	- reduce energy intensity on the national economy
Funding	Green for Growth Fund	2009	- funding in the field of energy efficiency and renewable energies
Funding	Moldovan Sustainable Energy Financing Facility	2013	- funding in the field of energy efficiency and renewable energies
Political framework for renewable energies	National Renewable Energy Action Plan	2013	- key document for energy policies in Moldova
Logistics	Code on Commercial Navigation	1999	- framework for transport on waterways

¹³⁹ http://www.law-moldova.com/laws/rus/codex_torgovogo_moreplavania_ru.txt (last access: 09.05.2017)

2.2.9 Montenegro

2.2.9.1 Regulatory authorities

Table 21: Regulatory authorities in the field of bioenergy and logistics in Montenegro.

Authority	Abbr.	Field of activity
Energy Regulatory Authority of Montenegro ¹⁴⁰	RAE	- regulating the energy sector in Montenegro
Ministry of Economy ¹⁴¹		- political framework in the field of renewable energies
Maritime Safety Department of Montenegro ¹⁴²		- ensure safety and security of navigation
Ministry of Transport and Maritime Affairs ¹⁴³		- political framework in the field of transport and maritime affairs

2.2.9.2 Regulatory framework in the field of bioenergy

The **Decree on feed-in tariffs**¹⁴⁴ of 2011 aims at supporting small-scale RES-E plants. Fixed rates for selling the produced electricity shall enforce this kind of power generation.

The **Green for Growth Fund**¹⁴⁵ (GGF) set up in 2009, is a fund especially for the region Southeast Europe. Responsible authorities are: European Investment Bank (EIB), KfW Development Bank (KfW), European Commission (with the European Investment Fund as Trustee), German Federal Ministry of Economic Cooperation and Development (BMZ), European Bank for Reconstruction and Development (EBRD), International Finance Corporation (IFC) and Netherlands Development Finance Company (FMO). The main goal is to advance energy efficiency and renewable energies through the reduction of energy consumption and CO₂ emissions. Therefore non-financial institutions with projects concerning those issues are funded. GGF also offers technical assistance facility for capacity building of partner institutions. Moreover companies are supported in form of energy audits or energy efficiency and renewable energies project implementation.

¹⁴⁰ <http://regagen.co.me/en/o-agenciji/> (last access: 08.05.2017)

¹⁴¹ <http://www.mek.gov.me/en/ministry> (last access: 08.05.2017)

¹⁴² <http://pomorstvo.me/eng/> (last access: 08.05.2017)

¹⁴³ <http://www.msp.gov.me/en/library?query=Transport&sortDirection=desc> (last access: 08.05.2017)

¹⁴⁴ <http://www.sluzbenilist.me/PravniAktDetalji.aspx?tag=%7B285329EE-EF8F-4E05-AD23-E5CE34B9E8F5%7D> (last access: 08.05.2017)

¹⁴⁵ <http://www.ggf.lu/about-green-for-growth-fund/> (last access: 04.05.2017)

The new **Regional Energy Efficiency Programme for the Western Balkans (REEPWB)**¹⁴⁶ of 2013 supports the participating countries to achieve their sustainable energy objectives as set out in their National Energy Efficiency Action Plans. REEPWB has the following key aspects:

1. Policy dialogue: provides assistance to set up regulatory framework and to overcome market barriers
2. Credit line framework for local financial institutions
3. Direct financing for investments in medium-scale renewable energy and energy efficiency improvements in industrial enterprises

The Western Balkans sustainable energy direct financing facility¹⁴⁷ of 2006 (last amended 2012) aims at stimulating investments in energy efficiency and use of renewable energy. The facility is open to small and medium enterprises or to project developers. The implementation of the following characteristics shall be the main focus for the applicants: (i) industrial energy efficiency (ii) renewable energy projects (iii) energy efficiency in the public sector.

The **Law on Energy**¹⁴⁸ of 2013 provides the legal framework and regulates issues in the field of renewable energy production. Rules for the guarantee of origin are established as well as the implementation of high efficiency cogeneration. Furthermore research and determination of renewable energy sources are described.

The **Law on Energy Efficiency** of 2014 sets the method for the efficient use of energy and it describes measures to improve the energy efficiency.

The **National Renewable Energy Action Plan**¹⁴⁹ of 2014 is an important document concerning energy policies in Montenegro. It defines the national target of 33% share of energy from renewable resources in gross final energy consumption by 2020. The Plan also defines the sectoral targets:

- 51.4% Renewable Energy Sources in electricity;
- 10.2% Renewable Energy Sources in transport;
- 38.2% Renewable Energy Sources for heating and cooling.

¹⁴⁶ http://www.ebrd.com/downloads/research/factsheets/343_REEPWB.pdf (last access: 08.05.2017)

¹⁴⁷ <http://www.websedff.com/index.php?id=25> (last access: 08.05.2017)

¹⁴⁸ <http://www.mek.gov.me/en/ministry/activities/146777/National-Action-Plan-for-the-Use-of-Energy-from-Renewable-Sources-is-adopted.html> (last access: 08.05.2017)

¹⁴⁹ <http://www.mek.gov.me/en/ministry/activities/146777/National-Action-Plan-for-the-Use-of-Energy-from-Renewable-Sources-is-adopted.html> (last access: 09.05.2017)

2.2.9.3 Regulatory framework in the field of inland waterway transport and biomass handling in inland ports

Montenegro has limited inland waterways transport, which is currently regulated under the same provisions as maritime transport.¹⁵⁰

The inland navigation of Montenegro as well as its maritime navigation is regulated through the Yugoslav **Law on Maritime and Inland Navigation** (Official Gazette of the Federal Republic of Yugoslavia 12/98).¹⁵¹

Within the **Law on Transportation of Dangerous Substances** (Official Gazette of Montenegro 05/08) regulations regarding the transport of those respective substances on inland waterways are defined in the Article 87-93.¹⁵²

2.2.9.4 Summary of existing policies

Table 22: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Montenegro.

Applicable value chain components	Policy	Valid dates	Summary
Political framework for renewable energies	Decree on feed-in tariffs	2011	- support of small-scale RES-E plants
Funding	Regional Energy Efficiency Programme for the Western Balkans	2013	- funding in the field of renewable energies and energy efficiency
Funding	Green for Growth Fund	2009	- funding in the field of energy efficiency and renewable energies
Funding	Western Balkans sustainable energy direct financing facility	2006; amended 2012	- stimulating investments in energy efficiency and use of renewable energy
Political framework for renewable energies	National Renewable Energy Action Plan	2014	- key document for energy policies in Montenegro

¹⁵⁰ https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/pdf/montenegro/screening_reports/screening_report_montenegro_ch14.pdf (last access 15.05.2017)

¹⁵¹ http://www.esiweb.org/pdf/montenegro_answers-to-the-ec-questionnaire/Chapters%2011-21/Chapter%2014%20%20Transport%20policy/Answers%201.pdf (last access 15.05.2017)

¹⁵² http://www.vertic.org/media/National%20Legislation/Montenegro/ME_Law_transportation_dangerous_substances.pdf (last access 15.05.2017)

Political framework for renewable energies	Law on Energy	2013	- provides legal framework
Energy saving	Law on Energy Efficiency	2014	- efficient use of energy
Inland navigation	Law on Transportation of Dangerous Substances	2008	- regulations for the transport of dangerous substances
Navigation	Law on Maritime and Inland Navigation	1998	- inland and maritime navigation

2.2.10 Romania

2.2.10.1 Regulatory authorities

Table 23: Regulatory authorities in the field of bioenergy and logistics in Romania.

Authority	Abbr.	Field of activity
Romanian Energy Regulatory Authority	ANRE ¹⁵³	- settlement of the regulatory framework and the secondary legislation
Ministry of Energy ¹⁵⁴		- drafting the National Energy Strategy of Romania, including in one provision the principles for the promotion of biomass; completing and updating the Law 220/2008, which is the essential Law for the promotion of the renewable energy sector - currently preparing the new legislation on biomass (and biogas), as biomass is officially declared Romania's top priority. While the new law is still under preparation, at the moment there is no further information or details available in relation to any provisions related to biomass heating
Ministry of Environment ¹⁵⁵		- responsible for the national policy in the field of environment
Ministry of Waters and Forests ¹⁵⁶		- strategies and rules applicable to forestry waste - issuance of the Certificates of Origin for biomass feedstock
Ministry of Agriculture and Rural Development ¹⁵⁷		- regulatory framework concerning energy crops
Ministry of Regional Development, Public Administration and European Funds ¹⁵⁸		- responsible for attracting the city halls in financing RES projects (including biomass heating) and involvement in adopting new technologies. For example, one city hall in Romania, Suceava, has already built a biomass plant for DH production
Ministry of Transport ¹⁵⁹		- regulatory framework concerning management of ports and waterways, the use of public transport infrastructure and the conduct of shipping activities in ports and inland waterways

¹⁵³ www.anre.ro (last access 03.05.2017)

¹⁵⁴ <http://energie.gov.ro> (last access 03.05.2017)

¹⁵⁵ www.mmediu.ro, (last access 03.05.2017)

¹⁵⁶ www.apepaduri.gov.ro, (last access 03.05.2017)

¹⁵⁷ www.madr.ro, (last access 03.05.2017)

¹⁵⁸ www.mdrap.ro, (last access 03.05.2017)

¹⁵⁹ <http://mt.gov.ro>, (last access 03.05.2017)

Regional authorities		<ul style="list-style-type: none"> - civil legislation part of the licensing process (construction, infrastructure), pre- and feasibility studies, etc. - the technical parameters of the energy production plant, as well as the environmental and/or other special approvals (issued by the specialized bodies in the relevant ministries) are annexed to the construction authorization
Romanian Association of Biomass and Biogas ¹⁶⁰	ARBIO	<ul style="list-style-type: none"> - promoting the exploitation of Romania's biomass potential and the development of biomass projects in the country as well as identifies the problems of the biomass project developers and sustains and represents them in their contacts with the authorities - currently ARBIO is involved in the drafting of the new Thermal Law in Romania and supports inside the working group, formed by the Ministry of Energy, the necessity of adopting specific legislation dedicated to biomass (and biogas), by presenting and advocating the sectors proposals
Romanian Association of Producers of Pellets and Briquettes ¹⁶¹	APPBR	<ul style="list-style-type: none"> - promote the benefits of the production and use of wooden pellets and briquettes, and provide a favourable legal and investment framework for the development of these activities in the country
Union of Romanian Inland Ports ¹⁶²	UPIR	<ul style="list-style-type: none"> - Association of Romanian inland ports, non-governmental and non-profit, European Federation of Inland Ports member - its mission is to study general problems of development and prognosis, which inland ports are interested in, especially the transportation problems, port transshipment and goods storing and promotion of joint positions towards these problems at national level and in behalf of the Romanian inland ports
Employers' Organization Port Operator ¹⁶³		
National Federation of Harbour Unions ¹⁶⁴	FNSP	

¹⁶⁰ <http://www.arbio.ro>, (last access 03.05.2017)

¹⁶¹ <http://peletibrichete.ro>, (last access 03.05.2017)

¹⁶² http://www.danube-ports.ro/ports_en.html, (last access 03.05.2017)

¹⁶³ <http://www.aaopf.ro>, (last access 03.05.2017)

¹⁶⁴ <http://www.fnspc.ro>, (last access 03.05.2017)

2.2.10.2 Regulatory framework in the field of bioenergy

National Renewable Energy Action Plan (NREAP)

The target of energy from RES in gross final energy consumption for 2020 is 24%, whereas the target for the RES share to the gross final consumption of heating and cooling is 22.05%. The target for the share of solid biomass to the gross final consumption of heating and cooling is 20.99% in 2020.

The estimation of the total contribution of DH in RES heating and cooling is 1,300 ktoe which corresponds to a share to the total consumption of heating and cooling of 7.1% in 2020.

According to the 2nd progress report of Romania (2014), the actual contribution of solid biomass for the RES share in heating and cooling in 2011 and 2012 exceeds the estimated targets according to the NREAP. However, the target on DH has not been achieved.

The shares established for biomass heating are on track because of Romania's particularity that a large part of rural population burns fire wood for household purposes. However, one of the impediments for the investors in biomass technologies is given the fact that ANRE establishes the level of the subventions (the Green Certificates granted to producers) each year, while the licensing and construction process for a biomass plant exceeds the 1 year period by far.

Main regulatory / legal framework

- The transposition process of the RES Directive in Romania began with the publication of the **Law 139/2010** concerning the promotion of renewable energy production. Law 139/2010 modified and completed the Law 220/2008 and Law 23/2014.
- **Law 23/2014** approved the Government Emergency Ordinance **57/2013** amending and supplementing Law 220/2008 for the establishment of the promotion system for energy production from RES.
- **Law 220/2008** created the legal framework to expand the use of renewable energy and provided for the: system to promote the generation of electricity from RES; trade of green certificates; achievement of mandatory quotas by the suppliers; duties of the competent Ministry; trade of electricity produced from RES; monitoring and reporting the development and the operation of the green certificates market; etc.
- **Law 139/2010** transposed a number of articles of the RES Directive. The rest of the articles are transposed by subsequent governmental decisions. The **Decision 935/2011** promoting the use of biofuels and bioliquids transposed several articles of the RES Directive and reconfirmed biofuels blend rates. The **Decision 1232/2011** approved the Regulation on the issuance and monitoring of guarantees of origin for the electricity produced from RES while the **Order 1341/2012** approved the Procedure for the issuance of guarantees of origin for the biomass from forestry and related industries. **Order 136/2012** describes certification processes and documentation requirements attesting that the biofuels meet the sustainability criteria. **This Order (136/2012) was the final step in the process of transposing the RES directive into national legislation.**

- **Law 325/2006** sets the general rules for DH systems. According to this law, all DH systems have to be public property, but the operation can be licensed to a specialized private company or to a public - private joint venture. The DH company purchases heat from any producer (public or private), transports, distributes and supplies it to consumers. In relation to heating from RES, the Law promotes high efficiency cogeneration.
- In addition, Romania adopted in 2010 its **National Renewable Energy Action Plan**. According to the NREAP, the estimated gross final consumption of RES for heating and cooling is **4,038 ktoe** for 2020, while the estimated final energy consumption from solid biomass in RES heating and cooling is **3,845 ktoe** for 2020.
- It is noted that even if the RES Directive has been transposed into the national legislation, in practice there are some missing elements into the national regulatory framework regarding the Certificates of Origin for organic biomass from waste and the Green Certificates scheme.
- ARBIO's law proposal for the establishment of the promotion system for energy production from renewable resources, biomass, biogas, geothermal energy.
- ARBIO's law proposal aimed to support investments for promoting energy crops.

Licensing / permitting procedure

There are no legal provisions specific to the production of heat from RES, only provisions concerning cogeneration included in the Decree no. 48/2014 and concerning the accreditation of projects for the production of electricity from RES. The only specific requirement for heating is the obligation to obtain a License from ANRE.

Certification / quality improvement

Currently in Romania, there are no certification requirements/standards for primary supply of solid biomass. It is noted that the equipment of the biomass heating projects has to bear the CE marking.

Moreover, there are not in place any certification requirements / schemes for installers and planners or any quality and efficiency improvement programs targeted at DH systems and/or biomass plants.

Support schemes / policies

- **Government Decision no. 216/2017** a new state aid scheme aimed to support investments for promoting energy production from less exploited renewable resources, namely biomass, biogas, geothermal energy ("**New Support Scheme**"). The New Support Scheme is applicable until 2020 and has a total allocated budget of EUR 100,630,588 (85% ensured from the European fund for regional development and 15% ensured from the state budget). The support scheme is focusing only to the construction of new projects without any subventions regarding the operation of the projects.
- A producer of energy with cogeneration from RES may opt only for one of the two general subvention schemes available:

- for the high efficiency cogeneration, the cogeneration bonus – applicable up to 2023
- The Green Certificates scheme, for a period of 15 years from the start of the plant. Following the Emergency Government Order no. 24/2017 that modifies the law 220/2008, the expiration of the Green Certificates has been expanded from 12 months from the day of issue till the end of 2032.

Currently, the Chamber of Deputies in Romania has approved a proposal for a New Bioenergy Law (Number of Decision: 853/27-12-2016) and is up to Parliament to approve or not the proposal in the forthcoming period. The proposed Bioenergy Law aims to support the creation of 300 MW of projects in Romania.

2.2.10.3 Regulatory framework in the field of Danube logistics and biomass handling in inland ports

- Maritime and inland waterways transport in Romania is regulated by **OG no. 42/1997** on maritime and inland waterways transport. This ordinance establishes specific rules applicable to maritime and inland waterways transport, the organization of the institutional system in this area and the bodies forming part of the system, specific rules for the safe development of navigation as well as specific rules for ships, their staff.
- **Government Ordinance no. 22/1999** regarding the administration of ports and inland waterways, the use of the naval transport infrastructure belonging to the public domains as well as the unfold of the naval transport activities in ports and inland waterways.
- **Order of the Minister of Transport and Infrastructure (OMT) no. 1286/2012** for the approval of the Regulation on the hiring of the shipping infrastructure belonging to the public domain of the state and is conceded to the port and / or inland waterway administrations, as subsequently amended and supplemented.
- Danube River Navigation Regulation, 2103 edition, approved by OMT no. 859/2013 and modified by **OMT no. 624/2015**.

2.2.10.4 Summary of existing policies

Table 24: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Romania.

Applicable value chain components	Policy	Valid dates	Summary
Biomass supply, End use/markets	Law 220/2008		<ul style="list-style-type: none"> - created the legal framework to expand the use of renewable energy and provided for the system to promote the generation of electricity from RES - trade of green certificates; achievement of mandatory quotas by the suppliers; duties of the competent Ministry; monitoring and reporting the development and the operation of the green certificates market;
Biomass supply, End use/markets	Law 139/2010		- concerning the promotion of renewable energy production
Biomass supply, End use/markets	Law 23/2014		- the establishment of the promotion system for energy production from RES
Biomass supply, End use/markets	Order 136/2012		- describes certification processes and documentation requirements attesting that the biofuels meet the sustainability criteria
Biomass supply, End use/markets	Law 325/2006		- sets the general rules for DH systems
Biomass supply, End use/markets	Emergency Government Order no. 24/2017		- modifies the law 220/2008, the expiration of the Green Certificates has been expanded from 12 months from the day of issue till the end of 2032
Biomass supply, End use/markets	Chamber of Deputies - Number of Decision: 44/01-02-2017		- approved a proposal for a New Bioenergy Law that it aims to support the creation of 300 MW of projects in Romania
Biomass supply, End use/markets	Government Ordinance (GO) no. 216/2017 - "New Support Scheme"		- new state aid scheme aimed to support investments for promoting energy production from less exploited renewable resources, namely biomass, biogas, geothermal energy
Danube logistics	GO no. 42/1997		- maritime and inland waterways transport in Romania regulation

Danube logistics	GO no. 22/1999		- administration of ports and inland waterways, the use of the naval transport infrastructure belonging to the public domains as well as the unfold of the naval transport activities in ports and inland waterways
Danube logistics	Order of the Minister of Transport and Infrastructure (OMT) no. 1286/2012		- for the approval of the Regulation on the hiring of the shipping infrastructure belonging to the public domain of the state and is conceded to the port and / or inland waterway administrations, as subsequently amended and supplemented
Danube logistics	OMT no. 624/2015		- Danube River Navigation Regulation

2.2.11 Serbia

2.2.11.1 Regulatory authorities

Table 25: Regulatory authorities in the field of bioenergy and logistics in Serbia.

Authority	Abbr.	Field of activity
Energy Agency of the Republic of Serbia ¹⁶⁵	AERS	<ul style="list-style-type: none"> - development of the energy market - setting of energy and service prices - integration into regional and European energy markets
Ministry of Agriculture and Environmental Protection ¹⁶⁶		<ul style="list-style-type: none"> - strategy and policy for the development of agriculture and food industry - environmental protection
Ministry of Construction, Transport and Infrastructure ¹⁶⁷		<ul style="list-style-type: none"> - infrastructure management - water transport and safety of navigation
Ministry of Mining and Energy ¹⁶⁸		<ul style="list-style-type: none"> - strategy and policy development of mining - energy policy and planning of energy development (including renewable energies) - environment protection and climate protection in the energy sector
Provincial Secretariat for Energy, Construction and Transport ¹⁶⁹		<ul style="list-style-type: none"> - energy, rational consumption of energy - investment and research and development programmes in the field, among others, of bio fuels and all forms of renewable energy sources

2.2.11.2 Regulatory framework in the field of bioenergy

In 2013 Serbia adopted its **National Renewable Action Plan**. Until 2020 the overall target of renewable sources in gross final energy consumption amounts to a share of 27%. For Heating and Cooling a share of 30% by renewable energy sources is targeted. Electricity shall be

¹⁶⁵ <http://www.aers.rs/Index.asp?l=2&a=1> (last access 11.05.2017)

¹⁶⁶ <http://www.mpzss.gov.rs/ministarstvo/nadleznost/> (last access 11.05.2017)

¹⁶⁷ <http://www.mgsi.gov.rs/cir/node/5170> (last access 12.05.2017)

¹⁶⁸ <http://www.mre.gov.rs/latinica/ministarstvo.php> (last access 12.05.2017)

¹⁶⁹ <http://www.vojvodina.gov.rs/en/provincial-secretariat-energy-construction-and-transport> (last access 12.05.2017)

generated at least by 36.6% through renewable sources. In the transport sector the aim is to reach 10% of the energy demand met by renewables.¹⁷⁰

The **Energy Law** (RS Official Gazette, No. 145/2014) regulates the Serbian energy sector. The main objective is to guarantee a secure, reliable and qualitative energy supply. This also includes that a safe supply to the customers is ensured. Furthermore a basis for the construction of new energy facilities as well as the promotion of renewable energy sources is part of the Energy Law.¹⁷¹

In 2016 the Ministry of Mining and Energy published its **Energy Sector Development Strategy**. It outlines the Serbian target for the period by 2025 with projections by 2030. Strategic goals for the use of renewable energy sources are defined and based on the current situation several strategic actions to increase the share of renewables are set up.¹⁷²

2.2.11.3 Regulatory framework in the field of Danube logistics and biomass handling in inland ports

Serbia's targets for the development of its water transport sector are defined in the **Development Strategy on Waterborne Transport of the Republic of Serbia, 2015-2025**. Besides the aim to renew and improve the national fleet it also defines objectives for the development of the economic potential of ports and harbours or regarding the development of inland waterways.¹⁷³

The **Law on Navigation and Ports on Inland Waters** (Official Gazette of RS, No. 73/10 and 121/12) regulates, among others, different safety concerns regarding inland navigation and cargo loading, tonnage measurements of vessels as well as prevention measures of pollution of inland waters from vessels.¹⁷⁴

¹⁷⁰ https://www.energy-community.org/portal/page/portal/ENC_HOME/DOCS/2144185/0633975AD1CE7B9CE053C92FA8C06338.PDF (last access 11.05.2017)

¹⁷¹ <https://www.iea.org/policiesandmeasures/pams/serbia/name-31201-en.php> (last access 11.05.2017)

¹⁷² <http://www.mre.gov.rs/doc/efikasnost-izvori/23.06.02016%20ENERGY%20SECTOR%20DEVELOPMENT%20STRATEGY%20OF%20THE%20REPUBLIC%20OF%20SERBIA.pdf> (last access 12.05.2017)

¹⁷³ http://www.mmediu.ro/app/webroot/uploads/files/2015-03-19_Notificare_Serbia.pdf (last access 15.05.2017)

¹⁷⁴ http://uprava-brodova.gov.rs/registar_stage/en/o-nama/ (last access 15.05.2017)

2.2.11.4 Summary of existing policies

Table 26: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Serbia.

Applicable value chain components	Policy	Valid dates	Summary
Political framework for renewable energies	National Renewable Energy Action Plan	2013	- development of renewable energies overall goals of Serbia's energy and climate policy
Energy sector	Energy Law	2011	- securing a secure, reliable and qualitative energy supply
Energy sector	Energy Sector Development Strategy	2016	- strategic actions for the energy sector until 2025
Inland navigation	Development Strategy on Waterborne Transport of the Republic of Serbia, 2015-2025	2015	- strategy for the Serbian's water transport sector
Inland navigation	Law on Navigation and Ports on Inland Waters	2010	- determination of structural and technical seaworthiness of vessels, safety and survey

2.2.12 Slovakia

2.2.12.1 Regulatory authorities

Table 27: Regulatory authorities in the field of bioenergy and logistics in Slovakia.

Authority	Abbr.	Field of activity
Ministry of Economy of the Slovak Republic ¹⁷⁵	MoE SR	<ul style="list-style-type: none"> - preparing overall energy strategies and concepts - development of overall energy country policy - certification of the compliance of an investment plan with the long-term concept of Slovakia's energy policy - certification of the compliance of the planned construction of a system of heating facilities or parts thereof with the long-term concept of Slovakia's energy policy
Ministry of Agriculture and Rural Development of the Slovak Republic ¹⁷⁶	MoARD SR	<ul style="list-style-type: none"> - central government authority in charge of agriculture and forestry sectors - management (via related state agency) distribution of
Ministry of the Environment of the Slovak Republic ¹⁷⁷	MoEnv SR	<ul style="list-style-type: none"> - environmental Impact Assessment (EIA) of investment plans
Ministry of Transport, Construction and Regional Development of the Slovak Republic	MoTCRD SR	<ul style="list-style-type: none"> - central government authority in charge of building authorities - central government authority in charge of logistics and transport, responsible for legislation and regulation
Regulatory Office for Network Industries	RONI	<ul style="list-style-type: none"> - business licensing, regulation of access to energy distribution network, pricing policy - create conditions that stimulate market competition - Promote competition - protect consumers against dominant market players - allow regulated entities to earn reasonable rate of return on investment - ensure reliable, efficient, and good quality provision of energy
Transport Authority	TA SR	<ul style="list-style-type: none"> - state administrative body with nationwide competence for railways, other guided transport, civil aviation and inland waterway transport

¹⁷⁵ <http://www.economy.gov.sk/aboutus-tzz/129946s> (last access 30.05.2017)

¹⁷⁶ <http://www.mpsr.sk/en/> (last access 31.05.2017)

¹⁷⁷ <http://www.minzp.sk/en/> (last access 31.05.2017)

Building authorities		- spatial planning and planning permission
Slovak Innovation and Energy Agency ¹⁷⁸	SIEA	<p>- the role of the Slovak Innovation and Energy Agency (SIEA) acts as the advisory body of the Ministry of Economy as well as to the Regulatory Office and is involved in creation of the legal framework and its harmonization with the EU energy acquires</p> <p>- the organisation now participates in policy development on a regional level, as well as providing advice on conditions that support the environmentally-responsible use of energy (http://www.sea.gov.sk/index.htm)</p>

2.2.12.2 Regulatory framework in the field of bioenergy

Basic legislative framework of the Slovak Republic regarding RES is based on EU legislation, mainly directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources (including relevant amendments, e.g. Directive (EU) 2015/1513, related mainly to biofuel).

Legislative field of renewable energy sources (including bioenergy) is regulated by several laws and regulations.

As similar to other EU Member States, common legislation rules, as defined in EU directives, are implemented at national level via all levels of legislation, whether directly (when legally applicable) or mainly through primary legislation – in a form of acts with general nationwide application approved by the National Council of the Slovak Republic (i.e. Energy Act no 656/2004 Z.z.). Secondary legislation follows the primary legislation and is issued in a form of acts focused on specific areas (i.e. Act on RES support no 309/2009 Z.z.) or Governmental deeds, ordinances and resolutions, regulating executive application of different acts (such as RONI Ordinance no 24/2013 so called “Electricity and Gas market rules”). Tertiary legislation is largely made up of documents and rules of the participating entities and regulatory bodies, such as decisions of Regulatory office for Network Industries on particular pricing, technical rules and or particular connection and operational approvals.

Key Slovak legal regulations for RES promotion and application include:

- Act No. 656/2004 Coll. on Energy Sectors / Energy Act – defines general operating and regulating principles for energy sectors, including all areas and energy sources. This act defines regulation principles, sets basic of independent regulation office and outlines basic requirements for energy providers and operators.
- Act No. 657/ 2004 Coll. on Heat Energy Sector - main regulatory act heat energy sector, including requirements for operators and producers. The Act outlines pricing and

¹⁷⁸ <http://en.siea.sk/> (last access 31.05.2017)

technical regulatory principles. Partially combined (heat-electricity) circle technologies are also covered by this act.

- Acts No. 276/2001 Coll. and 250/2012 Coll. on Regulation in Network Industries set up in details operations and competences of independent Regulator Office for Network Industries and Board for Regulation – both are an independent regulatory bodies for all kind of network industries, including production, transmission and distribution of electricity, gas, heat and water and sewage distribution.
- Act No.309/2009 Coll. on Supporting renewable sources of energy and highly effective combined production is the key act set up in line with EU regulations, which defines ways of subsidy and support of production of electricity from RES, electricity produced by highly efficient combined methods and production of biomethane. It covers way of support for all types of production, including all types of biomass.
- Act no. 24/2006 Coll. on Environmental Impact Assessment – setting up requirements and regulations for EIA and related executive procedures
- Regulation No.221/2013 Coll. amended by Regulation No. 226/2015 Coll issued by Regulatory office for Network Industries (URSO) on determination of price regulation in electroenergy sector, setting up electricity prices, different components of pricing and pricing strategy for RES. This regulation sets details of electricity production regulations, including details of calculations, technical and reporting requirements in order to operate production including support and subsidies.
- RONI Ordinance No. 24/2013 setting rules and regulation of national market with electricity and gas trading, including detailed requirements for market access
- Act No. 326/2005 Coll. on Forests, defines general regulations concerning forests, including wooden biomass production and utilization.
- Act No. 220/2004 Coll on protection and utilization of agricultural land, regulates general utilization and management of agricultural land, its utilization and production of agriculture products including biomass.

2.2.12.3 Regulatory framework in the field of Danube logistics and biomass handling in inland ports

Logistics and transportation of biomass products are not specifically regulated in Slovakia. However, general regulatory framework is applicable consisting mainly out of the following acts and agreements, which are regulating water inland water transport on Danube river.

Main International agreements and conventions:

- European Agreement on Main Inland Waterways of International Importance (AGN) 1966. It is coordinated plan for the development and construction of a network of inland waterways.
- European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN), Geneva 2000 Consist from A, ensuring a high level of safety of international carriage of dangerous goods by inland waterways. B, contributing

effectively to the protection of the environment by preventing any pollution resulting from accidents or incidents during such carriage. C, facilitating transport operations and promoting international trade in dangerous goods.

- Belgrade Convention regarding regime of navigation on the Danube river 1948 Desirous of providing for free navigation on the Danube in accordance with the interests and sovereign rights of the Danubian States and in order to strengthen the economic and cultural relations of the Danubian States among themselves and with other nations.
- Bratislava Convention of 1955 on the General Conditions of Carriage of Goods on the Danube
- Budapest Convention on the Contract for the Carriage of Goods by Inland Waterway (CMNI)* 2001 Harmonization of legal regimes with a view to the development of transport by member States of the Central Commission for the Navigation of the Rhine and the Danube Commission in collaboration with the United Nations Economic Commission for Europe.
- International agreement between the Government of Czechoslovakia and Austria on regulation of Danube inland waterway transport (Vienna, 1955)
- International agreement between the Government of Czechoslovakia and Germany on inland waterway transport (Prague, 1988)
- International Agreement between the Government of Slovakia and Croatia on inland waterway transport (Copenhagen, 1998)
- International Agreement between the Government of Slovakia and Romania on inland waterway transport (Bratislava, 2003)
- International Agreement between Czechoslovakia and Hungary on the trade and waterway transport (Prague, 1963)

Main Slovak nationwide legislation:

- Act No 338/2000 Coll on inland waterway transport
- General agreement about waterway transport is based on Bratislava Agreement. This agreement includes all necessary information about waterway transportation. (Bratislava, 1990)
- Act No 364/2004 Water Agreement. Creates a conditions for protection of waters including water ecosystems and waters directly affected to ecosystems in the country, preservation and improving water status, efficient, economical and sustainable use of water, management of river and improving the quality of environment and his components, decreasing adverse effects of floods and droughts, ensuring water flow functions and safety of water structures.

2.2.12.4 Summary of existing policies

Table 28: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Slovakia.

Applicable value chain components	Policy	Valid dates	Summary
All	Energy policy of the Slovak Republic	2014 – 2020	<ul style="list-style-type: none"> - increase share of RES on total gross energy production to 14% share in Slovakia (as a confirmation of previous goals based on EU directives) - it is intended to ensure the sustainability of the Slovak energy sector to contribute to the sustainable growth of the national economy and its competitiveness - the introduction of progressive transport systems, creating logistics centres, increasing terminal capacities of combined transport, improving technical and technological equipment at terminals and improving cooperation between the individual elements of combined transport all serve to increase the share of intermodal transport in the overall transport
All	Strategy of the Energy Security of the Slovak Republic	2009-2020 (outlook 2030)	<ul style="list-style-type: none"> - 14% share of RES sources in 2020 and up to 24% share in 2030 - complete analysis of opportunities to diversify the sources and transportation routes for crude oil and natural gas
All	National Action plan for RES	2010-2020	<ul style="list-style-type: none"> - target installed capacity and produced energy from OZE at 2,746 MW / 8,000 GWh in 2020, of which 280 MW / 1,710 GWh from biomass
All	Rural Development Program 2014-2020	2014-2020	<ul style="list-style-type: none"> - support of rural development also by support of agriculture and forestry biomass production
Fuel producers	Government deed no. 246/2006 Z. z.; Financial regulations	2006	<ul style="list-style-type: none"> - obligatory usage of biofuel

General end-users / households	Concepts of heat energy development	2009 – 2015	- support of RES energy sources for households – more generally applied only since 2015 and later by introduction of subsidies for investments in RES (geothermal, solar panels, biogas boilers, etc.)
Investors and energy producers	Act č. 309/2009 Coll on RES support	2009	- support of RES producers by supportive tariff structure
Producers of agriculture biomass		2009	- direct supply of biomethan to natural gas distribution network - since 2011 guarantee of sale prices and guaranteed sales
Forestry producers		2011	- support of fast growing trees production and wood based energy materials
Investors and producers	Structural EU Fund support: Operating program (OP) competitiveness and economic growth, OP Environment	2014 - 2020	- targeted projects in area of support of RES production and utilization in commercial sector, heat production from RES

2.2.13 Slovenia

2.2.13.1 Regulatory authorities

Table 29: Regulatory authorities in the field of bioenergy and logistics in Slovenia.

Authority	Abbr.	Field of activity
Ministry of Infrastructure ¹⁷⁹		<ul style="list-style-type: none"> - infrastructure in the areas of rail, road, air and maritime transport, inland navigation and transport infrastructure - efficient energy use and renewable energy sources - transport policies
Energy Agency ¹⁸⁰		<ul style="list-style-type: none"> - promotion of electricity from renewables and cogeneration - electricity and natural gas market - regulation of the supply of heat and other energy gases
Ministry of Agriculture, Forestry and Food ¹⁸¹		<ul style="list-style-type: none"> - agriculture, forestry, rural development etc.
Ministry of Economic Development and Technology ¹⁸²		<ul style="list-style-type: none"> - trade policy - regional development - wood industry

2.2.13.2 Regulatory framework in the field of bioenergy

In 2014 the new **Energy Act** entered into force (Official Gazette of RS, No. 17/2014). It transposes a number of EU directives concerning energy efficiency, electricity, gas market and renewable energy sources.¹⁸³

The **Action Plan for Energy Efficiency** sets targets for period 2014-2020. In accordance with the requirements of the Energy Efficiency Directive (2012/27/EU), Slovenia aims to raise the energy efficiency of the energetic use on national by 20% until 2020.

In 2010 Slovenia adopted its **National Renewable Action Plan**. Until 2020 the overall target of renewable sources in gross final energy consumption amounts to a share of 25%. For Heating and Cooling a share of 31% by renewable energy sources is targeted. Electricity shall be

¹⁷⁹ http://www.mzi.gov.si/si/o_ministrstvu/ (last access 15.05.2017)

¹⁸⁰ <https://www.agen-rs.si/web/en/tasks-of-the-energy-agency> (last access 15.05.2017)

¹⁸¹ http://www.mkgp.gov.si/si/delovna_podrocja/ (last access 15.05.2017)

¹⁸² http://www.mgrt.gov.si/en/areas_of_work/ (last access 15.05.2017)

¹⁸³ <https://www.agen-rs.si/web/en/legislation> (last access 15.05.2017)

generated at least by 39% through renewable sources. In the transport sector the aim is to reach 10.5% of the energy demand met by renewables. In order to achieve those target, Slovenia established different measures, e.g. support of demonstration projects, energy savings and efficiency measures in new and renovated buildings or feed-in tariff schemes.¹⁸⁴

2.2.13.3 Regulatory framework in the field of inland waterway transport and biomass handling in inland ports

The **Inland Waterways Navigation Act** (Official Gazette of RS, No. 30/02) regulates the safety of inland navigation and setting out the conditions to be met by operating vessels, ports and other places to access the river basin district.¹⁸⁵

The **Decree on the Implementation of Protective Measures in Ports and on Ships** regulates the manner, the organization and the authorities which are responsible for the implementation of protective measures on ships and port facilities.¹⁸⁶

2.2.13.4 Summary of existing policies

Table 30: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Slovenia.

Applicable value chain components	Policy	Valid dates	Summary
Political framework on energy	Energy Act	2014	- transposes EU directives concerning energy efficiency, electricity, gas market and renewable energy source
Energy Efficiency	Action Plan for Energy Efficiency	2014-2020	- objective is to raise the energy efficiency by 20% until 2020
Energy generation from renewable energies	National Renewable Action Plan	2010	- increase the use renewable energy sources by 2020
Inland navigation	Inland Waterways Navigation Act	2002	- regulation for the navigation on inland waterways
Inland navigation	Decree on the Implementation of Protective Measures in Ports and on Ships	2004	- regulates all concerns regarding protective measures on ships and port facilities

¹⁸⁴ <https://www.iea.org/policiesandmeasures/pams/slovenia/name-40144-en.php> (last access 15.05.2017)

¹⁸⁵ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=ZAKO3301> (last access 15.05.2017)

¹⁸⁶ <http://www.pisrs.si/Pis.web/pregledPredpisa?id=URED3390> (last access 15.05.2017)

2.2.15 Ukraine

2.2.15.1 Regulatory authorities

Table 31: Regulatory authorities in the field of bioenergy and logistics in Ukraine.

Authority	Abbr.	Field of activity
State Agency of Energy Efficiency and Energy Saving of Ukraine ¹⁸⁷	SAEE	<ul style="list-style-type: none"> - main regulator of energy development - defines classifications and procedures of activities in energy production - provides discussion about current legislation - work on strategy of energy development
Ministry of Regional Development, Construction and Housing ¹⁸⁸		<ul style="list-style-type: none"> - developing and implementing national regional policy in the area: energy efficiency, renewable energy and fuels, land management
National Commission for State Energy and Public Utilities Regulation ¹⁸⁹	NCSEPUR	<ul style="list-style-type: none"> - regulation of activities in the area of electricity, including power plants of all types - supervising natural gas markets - oil and oil products - pricing and tariff policy for energy - recycling and disposal of waste
Ministry of Energy and Coal Industry of Ukraine ¹⁹⁰		<ul style="list-style-type: none"> - provides technical conditions and concluding agreements on the connection of renewable energy facilities to power networks
Ministry of Ecology and Natural Resources of Ukraine ¹⁹¹		<ul style="list-style-type: none"> - reviews ecological concerns and approves construction plans for renewable energy facilities
Ministry of Infrastructure of Ukraine ¹⁹²		<ul style="list-style-type: none"> - central body of executive power in the areas of transport, roads, postal service and infrastructure

¹⁸⁷ <http://saee.gov.ua/en> (last access: 03.05.2017)

¹⁸⁸ <http://www.minregion.gov.ua/> (last access: 03.05.2017)

¹⁸⁹ <http://www.nerc.gov.ua/> (last access: 03.05.2017)

¹⁹⁰ <http://mpe.kmu.gov.ua/minugol/> (last access: 03.05.2017)

¹⁹¹ <http://www.menr.gov.ua/> (last access: 03.05.2017)

¹⁹² <http://www.mtu.gov.ua/en/> (last access: 10.05.2017)

2.2.15.2 Regulatory framework in the field of bioenergy

The **Law on Energy Saving**¹⁹³ (1st July 1994; last amendment 9th May 2015) sets up legal, economic, social and ecological grounds for energy saving for all enterprises, associations and organizations located in the territory of Ukraine and as well as for citizens. With this law the relationships between economic entities, and also between the state and physical and legal entities in the field of energy saving should be regulated. This includes:

- extraction, processing, transportation, storage, production and use of fuel and energy resources
- introduction of incentives for enterprises, organizations and citizens to invest in energy saving
- application of energy saving technologies
- design and production of less energy intensive machinery and technological equipment
- securing responsibility of legal and physical entities in the energy saving sphere

The **Law On Alternative Energy Sources**¹⁹⁴ of 20th February 2003 presents definitions of key terms on alternative energy. Basic principles of the state policy in the field of alternative energy sources are: (i) increase of the amount of generation and consumption of renewable energy; (ii) maintenance of environmental security due to reduction negative environmental impact in the process of construction and operation of renewable energy sources; (iii) protection of human health at the objects of renewable energy generation at all stages of energy generation, transportation and distribution; (iv) scientific substantiation for the promotion of alternative energy sources; and (v) rational consumption of energy and energy saving.

The purpose of the **Law On Combined Heat and Power (Cogeneration) and Waste Energy Potential**¹⁹⁵ of 5th April 2005 (amended 7th July 2011) is the establishment of a legal base for improving fuel efficiency in the processes of energy production and other industrial processes. Main goal of this policy is to create legislative framework and to facilitate:

- improvement of energy efficiency during energy production processes;
- development and application of CHP technologies;
- improvement of reliability and security of supply;
- investment in the creation of the CHP plants.

Adopted on 14th January 2000, the **Law on Alternative Types of Fuel**¹⁹⁶ (last amendment 2012) introduces the framework for financial mechanisms to stimulate biofuels and other alternative fuels that are not necessarily renewable in order to stimulate their increase up to 20% of the total amount of fuel consumption in Ukraine by 2020. It describes the basic principles of state policy in the field of alternative energy sources and it describes characteristics

¹⁹³ <http://zakon4.rada.gov.ua/laws/anot/en/74/94-%D0%B2%D1%80> (last access: 10.04.2017)

¹⁹⁴ <http://zakon2.rada.gov.ua/laws/show/555-15> (last access: 10.04.2017)

¹⁹⁵ <http://zakon1.rada.gov.ua/laws/show/2509-15> (last access: 03.05.2017)

¹⁹⁶ <http://zakon1.rada.gov.ua/laws/show/1391-14> (last access: 12.04.2017)

of liquid, gaseous and solid biofuels, as well as specifics of the relations in the field of production and utilization of biofuels.

The **Law On Electric Power Industry**¹⁹⁷ (1997) prescribes a mechanism to promote production of electricity from alternative energy sources. In particular, it provides so-called "green" tariff for electricity produced from biomass and biogas.

The Ukrainian **NREAP** of 2014 sets the energy targets for 2020:

- Overall target: 11% of share of energy generated from renewable sources in gross final energy consumption;
- Heating and Cooling: 12.4% of demand met by renewable energy sources;
- Electricity: 11% of electricity demand met by electricity generated from renewable energy sources;
- Transport: 10% of energy demand met by renewable energy sources.

The regulation on **approval of the Action Plan for the Implementation of the Directive 2009/28/EU** determines the decision to reduce greenhouse emission. It sets limits for growing bioenergy plants and assesses social sustainability of biofuels.

The regulation on **approval of energy strategy of the Ukraine for the period until 2030** is a long term planning document approved in 2013. Its goal is to increase the share of renewables in the country's energy mix.

The **amendments to the Law of Ukraine on Heat Supply**¹⁹⁸ of 22th September 2016 promote the heat production from alternative energy sources. It is proposed to public institutions and regional administrations. The tariff for heat and electricity produced from alternative resources is set at 90% level compared with standard resources.

The **National Strategy and Action Plan for Agriculture and Rural Development for 2015-2020**¹⁹⁹ provides a policy framework to reform the agricultural sector in the Ukraine. The overall objective is to increase agricultural competitiveness and promote rural development in a sustainable manner in line with EU and international standards. Therefore 10 strategic priorities were set:

1. Business climate, fight against corruption, and setting up of a stable legal framework in line with EU and international standards, in particular by implementing the EU-Ukraine Association Agreement
2. Land reform
3. Institutional reform of the Ministry of agrarian policy and food and related state agencies and state owned enterprises

¹⁹⁷ <http://zakon1.rada.gov.ua/laws/show/575/97-%D0%B2%D1%80> (last access: 03.05.2017)

¹⁹⁸ <http://zakon4.rada.gov.ua/laws/annot/2633-15> (last access: 03.05.2017)

¹⁹⁹ <http://minagro.gov.ua/en/node/15990> (last access: 03.05.2017)

4. Food security
5. Taxation
6. Agri-food production chain development
7. Rural development – revitalisation of rural areas
8. Access to international markets, trade policy and export promotion
9. Research, education and advisory services
10. Environment and management of natural resources, including forestry and fishery

2.2.15.3 Regulatory framework in the field of Danube logistics and biomass handling in inland ports

The **Rules on Navigation on Inland Waterways** of Ukraine, approved by the Ministry of Transport of Ukraine on February 16, 2004 No. 91 (amended in 2016), define the rules of navigation on inland waterways of Ukraine.²⁰⁰

The draft for the **Law on Inland Waterways Transport** aims to set up a strategy for the development of Ukrainian river ports. Furthermore it defines regulations for the admission of foreign ships in Ukrainian inland waterways for the transport of both passengers and cargo.²⁰¹

2.2.15.4 Summary of existing policies

Table 32: Policies, technical and sustainability standards, government strategies influencing bioenergy and logistics in Ukraine.

Applicable value chain components	Policy	Valid dates	Summary
Energy saving	Law On Energy Saving	1 st July 1994; amended 9 th May 2015	- legal, economic, social and ecological grounds for energy saving for enterprises, associations and organisations
Political framework for renewable energies	Law On Alternative Energy Sources	20 th February 2003	- presents basic principles of the state policy in the field alternative energy sources
Political framework for renewable energies	Law On Combined Heat and Power (Cogeneration) and Waste Energy Potential	05.04.2005; amended 07.07.2011	- improving fuel efficiency in the processes of energy production and other industrial processes

²⁰⁰ <http://zakon3.rada.gov.ua/laws/show/z0872-04> (last access 15.05.2017)

²⁰¹ <http://mtu.gov.ua/files/Zakypivli/Waterways%20Presentation%20the%20Netherlands%20Conference.pdf> (last access 15.05.2017)

Political framework for renewable energies	Law On Alternative Types of Fuel	14.01.2000; amended 2012	- framework for financial mechanisms to stimulate biofuels and other alternative fuels
Political framework for renewable energies	Law On Electric Power Industry	1997	- prescribes mechanism to promote production of electricity from alternative sources
Political framework for renewable energies	National Renewable Action Plan	2014	- overall goals of Ukraine's energy and climate policy
Political framework for renewable energies	Action Plan for the Implementation of the Directive 2009/28/EU	2014	- sets limits for growing bioenergy plants; assesses social sustainability of biofuels
Political framework for renewable energies	Energy strategy	2013	- increase the share of renewables in the country's energy mix
Political framework for renewable energies	Law of Ukraine on Heat Supply	2016	- promote heat production from alternative energy sources; proposed to public institutions and regional administrations
Political framework for renewable energies	National Strategy and Action Plan for Agriculture and Rural Development from 2015-2020	2015	- policy framework for reforming the agricultural sector
Logistics	Rules on Navigation on Inland Waterways	2004	- framework for the navigation on inland waterways

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