Impact of the Regulatory Framework on the Bioeconomy

This fact sheet discusses the energy sector as a part of the bioeconomy. It focuses on the regulatory framework and indicates obstacles which result from it. Recommendations to foster the transition towards renewables are collected from scientific literature and evaluated.

► Europeanization of the Energy Policy:
The energy sector is more and more regulated by European law. EU and national policies adapt to the global responsibility, implemented by the Paris Agreement [1].

Renewable Energy (RE): Based on an ambitious policy and regulatory framework as well as binding targets, the EU fosters the penetration of renewables. Renewable energy sources now represent at least 17.5% (January 2019) of the final energy consumption in Europe [7].

Germany:

- 2018, 37.8% (2008: 15.2%) of the total gross electricity consumption was covered by RE electricity, Goal 2040: 40-45%
- 2018, 13.9% (2008: 10.8%) of the total final gross energy consumption for heating and cooling was satisfied by RE heat
- 2018, 5.6% (2008: 6.0%) of the final energy consumption in the transport sector was covered by RE, Goal 2030: 30%
- Biomass accounts for 24% of renewable electricity generation, 87% of the renewables’ share in total heat and cooling consumption and 88% of the renewables’ share in final energy consumption in the transport sector (2017)
- REs ins Germany are affected significantly by the national regulatory framework

Electricity production from RE in Germany Total: 225.7 billion kWh (2018)

[data & graphic: Federal Ministry for Economic Affairs and Energy, BMWI, 2018] [8]
The Bioeconomy will be influenced positively by the increasing ambitions to combat climate change and the on-going Europeanization of the European Energy Policy. Policy makers aim to foster innovation in the field of bioeconomy. Anyway, a higher (natural) resource need increases both concurrence in-between the material and the energetic use of natural resources (e.g. wood) and environmental pressure (e.g. ILUC, soil water) in the countries where extraction and production occurs [2].

[Diagram showing relationships between energy policy, environmental sustainability, economic efficiency, import dependencies, resource extraction, and environmental pressure]
**REGULATORY FRAMEWORK ENERGY** (selection):

<table>
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<th>INTERNATIONAL</th>
<th>NATIONAL</th>
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**REGULATORY FRAMEWORK CLIMATE** (selection):

<table>
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<th>GOALS OF THE PARIS AGREEMENT:</th>
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<td>• keeping a global temperature rise well below 2 degrees Celsius above pre-industrial levels</td>
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<td>• pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius</td>
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<td>• strengthen the ability of countries to deal with the impacts of climate change</td>
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**REGULATORY FRAMEWORK: **

- **INTERNATIONAL**
  - 2020 Climate and energy package 2009
  - Electricity Taxation Directive 2003
  - Indirect land use change impacts of biofuels (ILUC Directive) 2015
  - Regulation on the Governance of the Energy Union and Climate Action 2018
  - Renewable Energy Directives 2009 RED I, 2018 RED II
  - Energy Performance of buildings 2010, 2018
  - Energy Efficiency Directive 2012, 2018
  - Electricity Market Directive 2009, 2019

- **NATIONAL**
  - Integrated Energy and Climate Programme 2008
  - Building code
  - Federal Regional Planning Act
  - Local / Municipalities Regulations

- **REGIONAL**
  - United Nations Framework of Climate Change 1994
  - Aarhus Convention 1998
  - Kyoto Protocol 2005
  - Doha Amendment 2012
  - IPCC Guidelines on Greenhouse Gas Inventories 2006
  - Paris Agreement 2015

**A more comprehensive overview of the legal framework will be provided on the SYMOBIO Homepage.**
The Clean Energy for all Europeans Package of 2016 updates the European energy policy framework substantially [6]. The package includes 8 legislative acts. 4 have been published in 2018 (see below), 4 are scheduled to be published in 2019.

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<th>New Legal Acts</th>
<th>Changes and Contents</th>
<th>Obstacles</th>
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- Instead: EU goal **32%** gross final consumption of energy by 2030 (Art. 3 RED 2018)  
**Instruments:**  
- pledge-and-review-system: National Plans (NECPs) are reviewed by the Commission. The Commission communicates recommendations | **The Governance System of the Energy Union is a soft and flexible control system, and the good will of the Member States is decisive for the success of the Governance System and the fulfilment of the EU Goals for the year 2030** [10,11]. |
| **Energy Efficiency Directive (EU) 2018/2002** | **New**: EU goal at least **32.5%** by 2030 (Art. 1 para. 1 EED)  
**Instruments:**  
- indicative national targets as contribution to the EU target  
- Member States shall achieve cumulative end-use energy savings (Art. 7) | **It does not ensure the fulfilment of the climate protection goals** [11,13]. |
| **Energy Performance in Buildings (EU) 2018/844** | **Goal**: highly energy efficient and decarbonised building stock by 2050 (Art. 2a)  
**Instruments:**  
- Member States are obliged to establish a long-term renovation strategy for renovation of buildings (Art. 2a)  
- Smart-home-Approaches: interoperability of the systems, smart readiness indicator, electromobility (Art. 8) | **Public participation is not specific enough**: Art. 10 & 11 of the Governance Regulation are vague [13]. |
| **Regulation on the Governance of the Energy Union and Climate Action (EU) 2018/1999** | **New**: Umbrella function: (uniform framework for the energy and climate policy of the EU)  
- aims to unify obligations which had been separated in different sectors until now  
**Instruments:**  
- requires long-term strategies (Art. 15)  
- requires integrated National Energy and Climate Plans (NECPs) (Art. 3)  
- the monitoring works through non-binding recommendations from the Commission (Art. 288 V TFEU) and a gap-filling-mechanism | **The new system does not provide any sanction mechanisms** (but: in extreme cases, infringement proceedings are possible) [12]. |
The non-binding character of international law and some legal acts of the EU make it difficult to enforce them.

But the enforcement of a legal act does not only depend on its binding character. The embedment into a context of financial instruments supports the implementation of a law and may substitute sanctions. Furthermore, court procedures contribute to the effective interpretation of a law and may support compliance. Generally, the introduction of legal acts or amendments show long-term effects. In the context of the EU energy policy national implementation of Acts are of importance.

Linking structural funds/ state aid to the Governance Regulation to fill up ambition or delivery gaps is a potential strategy to foster a sustainable energy and climate policy [10].

The authors of [10] see the European structural and Investment Funds (European Regional Development Fund, ERDF; European Social Fund, ESF; European Agricultural Fund for Rural Development, EAFRD) as a potential instrument for this purpose.

Bottom-Up Approaches
Litigation: Strategic Cases and Actio popularis are already an existing trend.

Actio popularis / class actions are control instruments for the implementation of Environmental Law. Fossil fuel-related projects face already resistance in court. The European Court of Justice supports the suability of the Environmental Law. Furthermore, strategic court cases which link climate change to human rights and aim at holding governments and greenhouse gas emitters accountable for climate change are seeing success. [9,13,14]
The increasing ambitions of the Paris Agreement require countries either to introduce new laws and policies, or to revise and strengthen their existing laws and policies. Countries already have to address issues of monitoring, reporting, and verification (MRV) in order to comply with the Paris Agreement; good conditions for the further development of the bioeconomy’s energy sector [9].

Energy Policy and Climate Policy merge more and more [12]. The Bioeconomy will be influenced positively by the increasing ambitions to combat climate change and the on-going Europeanization of the European Energy Policy. The governance of resources is tightly connected to energy and climate policies and through international trade it has an impact on environmental pressures [2].

Local differences in the extension of renewable energies depend on differences in regional regulations and federal climate laws influence the extension of RE. For that reason, the local level is important. Furthermore, decentralization of energy supply is one of the key drivers of the energy transition [1].

The revision of the Renewable-Energy-Directive (2018) requires the gradual decrease of the share of high indirect land-use change-risk biofuels, bioliquids or biomass fuels produced from food and feed crops to 0% until 2030 (Art. 26). The Directive prescribes that the Member States base their use of biomass on the principles of the circular economy and the waste hierarchy. The EU supports sustainable advanced biofuels like waste-based biofuels, but refuses food or crop-based biofuels. Some authors state that the sustainability criteria for bioenergy are not sufficient, especially when it comes to the energetic use of timber. [3,4].

Possible solutions

The coupling of State Aid with non-binding Law could boost projects which contribute to the transition to the bioeconomy [10].

Top-down approaches of the energy and climate policy are not ambitious enough to face global warming in a sufficient manner. New grassroots and local initiatives are increasing. Court procedures contribute to the effectuation of laws [9,13,14].

Conclusion & Forecast

In only two decades the number of climate laws and policies globally did rise from 72 (1997) to 1,500 (2018). The impact of climate policies on the energy policy and the promotion of renewables is expanding [8]. Furthermore, international ambitions are causing a legislative knock-on effect on national and even regional level. But still, the quantity of policies does not guarantee a sufficient approach against climate change and bottom-up approaches such as litigation do already complement legal acts. On European level, the further coupling of State Aid with Energy Law could have a notably impact on the energy sector and therefore on the bioeconomy.

SOURCES:

(Windmill Photo by Mike Erskine, CC0; Sky & Fielf Photo by Ákos Szabó, CC0)

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