Supporting the implementation by NRAs of renewable energy technologies in the road infrastructure

Deliverable 3.1

Research and due diligence report on National and EU regulations

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Introduction and objectives

This report aims to identify the National and EU regulations, potentially applicable to NRA's in the area of energy production. By setting out and summarising the work done to identify the applicable regulations the report can act as a reference resource for the project team to help NRA's to identify their opportunities and obligations in this area and any potential risks, pitfall and barriers.

The categories of national and EU regulations examined in this report are:

- National & EU regulation applying to production, aggregation, grid injection and storage of renewable energy (limited to small to mid-scale renewables applicable to the NRAs lands environment).
- National & EU regulation regarding energy supply for government entities.

The methodology adopted is as follows: to firstly carry out research and analysis at an EU level and then to do the same exercise in each of the target countries of existing and foreseen regulation that conditions the generation and commercialization of electricity, both for self-consumption as well for distributed generation.

The analysis intends to identify if, how and where the countries have defined and regulated figures that could be used in the business models to be proposed for the NRAs in their aims such as:

- Demand Aggregators
- Closed distribution networks
- Renewable energy communities
- Charging infrastructure
- PPAs
- Others

The aim is that this report can be used as a baseline for further analysis which will be set out in the red flag report. The idea is that once the applicable regulations and their specific implications are identified they can be evaluated in detail to highlight the potential risks, pitfall and barriers that the NRAs could face in the area of energy generation with regard to adopting/using the business models identified in WP4.

Towards a Climate Neutral Europe

Timeline

European Green Deal

(includes Green Oath: do no harm)

2015

Paris Agreement

&

Energy Union Strategy

2016

Winter package: **Clean energy for all Europeans**

05/18 – 05 /19

Political agreement and entry into force of the following

11/2018

'Clean Planet for All'

2050 long-term strategy

In-Depth Analysis in Support of A Clean Planet for All

11/2019

European Parliament resolution on the climate and environment emergency (2019/2930(RSP)

12/2019

European Green Deal Investment Plan

Just Transition Fund

1. **Renewable Energy Directive (EU) 2018/2001 (RED II)**
2. Directive on Energy Efficiency (2018/2002)
3. **Regulation on the Governance of the Energy Union and Climate Action (EU) 2018/1999**
4. Energy Performance of Buildings Directive ((EU 2018/844)
5. **Internal Electricity Market Directive 2019/944**
6. Internal Electricity Market Regulation 2019/943
7. ACER (Agency for the Cooperation of Energy Regulators) Regulation 2019/942
8. Regulation on Risk-Preparedness 2019/941

National long-term strategies, National Energy and Climate Plans

★ These directives must be transposed to National Law by May 2021.

Figure 1: **European Relevant Regulatory timeline**

Timeline continued

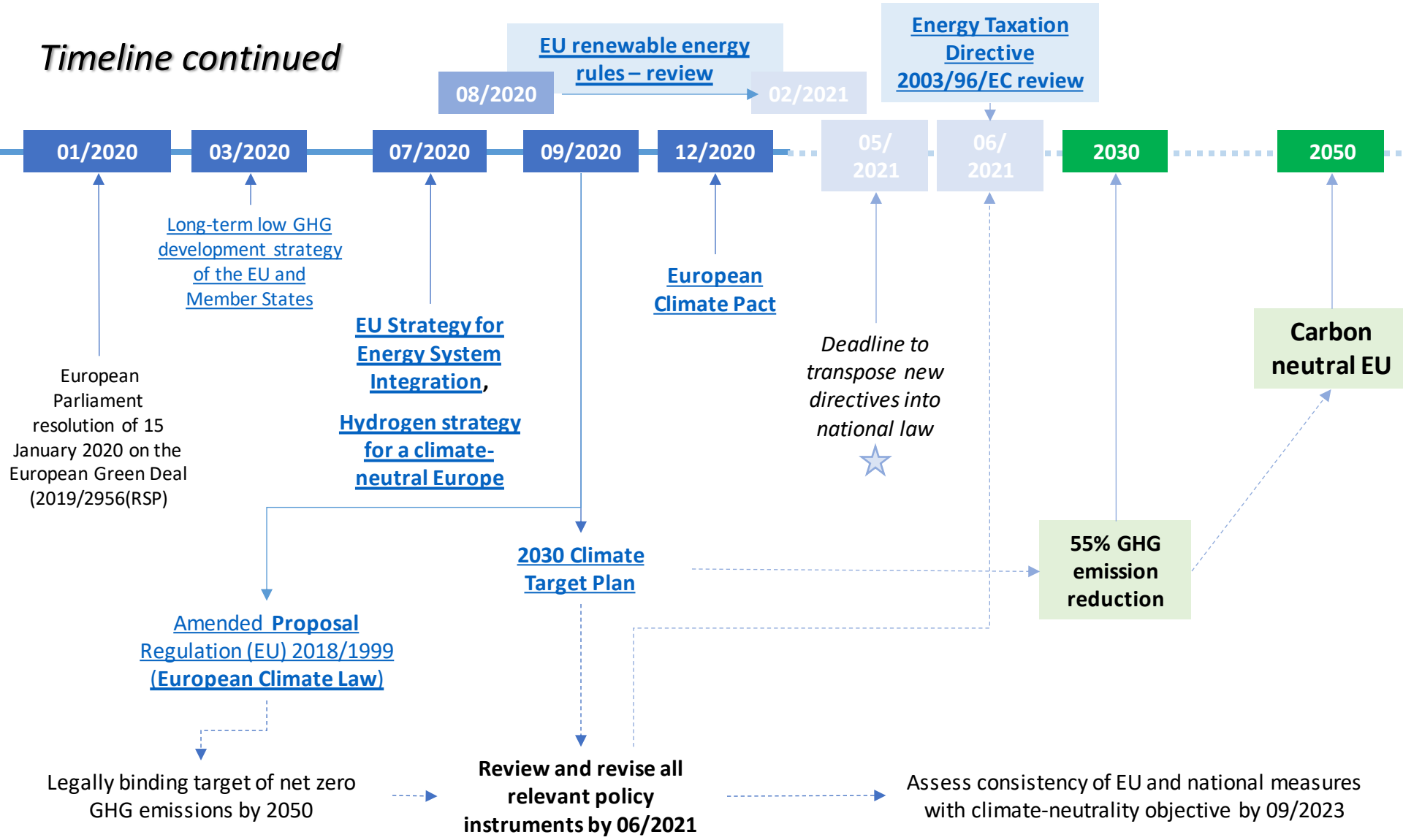

Figure 1: **European Relevant Regulatory timeline (cont.)**

Overview - From the Paris Agreement to a climate neutral Europe by 2050

In 2015, the EU, along with 194 other signatories, agreed to maintain global warming well below 2ºC and pursue efforts to limit it to 1.5ºC. Achieving carbon-neutrality by mid-century is essential in order to accomplish this objective and avoid the most catastrophic consequences of climate change.

In 2016, the Winter Package `Clean energy for all Europeans', put forth 8 proposals to facilitate the transition to a clean energy economy and reform the design and operation of the European Union's electricity market.

Between May 2018 and May 2019, political agreement was reached on eight proposals and they were enacted into law. Of the eight the following directives are relevant because they propose/define figures and targets which are relevant to the goals of this project:

- Renewable Energy Directive (EU) 2018/2001
- Regulation on the Governance of the Energy Union and Climate Action (EU) 2018/1999
- Internal Electricity Market Directive 2019/944

Soon after, the flagship plan for a climate neutral Europe, the European Green Deal, was presented in December 2019, following the Parliament's declaration of a climate emergency.

As part of a broader package of ambitious actions announced in the Commission's European Green Deal Communication, the Commission adopted its proposal for a European Climate Law, establishing the framework for achieving climate neutrality and amending Regulation with the legally binding target of net zero greenhouse gas (GHG) emissions by 2050 in March 2020. The proposal for a European Climate Law was later amended in September of the same year, in line with the 2030 Climate Target Plan, **to increase the emission reduction objective to 55% by 2030.**

As shown in the 2030 Climate Target Plan, this more ambitious target implies **increased greenhouse gas emission reduction efforts by all sectors**, and enhancement of renewables, which need to be enabled by various policies. All relevant related policy instruments, including energy directives and regulations included in the `Clean energy for all Europeans' package, **are set to be reviewed by the Commission by June 2021** which will consider taking the necessary measures, potentially including legislative proposals.

Energy Rules in the context of the European Green Deal & increased emission reduction objectives

With the European Green Deal (EGD), the EU is increasing its climate ambition and aims to become the first climate-neutral continent by 2050. To deliver on this, the Commission has pledged to make existing legislation fit for 55% emission reduction by 2030.

Reaching this target will require action by all sectors of EU economy, including:

- **investing in environmentally-friendly technologies**
- **supporting industry to innovate**
- **rolling out cleaner, cheaper and healthier forms of private and public transport**
- **decarbonizing the energy sector**
- ensuring buildings are more energy efficient
- working with international partners to improve global environmental standards

As part of these efforts towards increased ambition, the EGD announced the review and, where necessary, revision of energy and climate legislation.

The Green Deal and Renewable Energy objectives

As part of this review process, EU renewable energy rules are being analyzed to assess how Directive 2018/2001/EU (RED II) can contribute to an increased EU climate ambition and accelerate the transition to a more integrated energy system, in line with EU strategies for energy system integration and hydrogen put forth in July 2020. The Public Consultation period is expected to end in February 2021.

Current renewable energy objectives, as established in **Recast to 2030 (RED II) - Renewable energy directive 2018/2001/EU**, aim to achieve, by 2030:

- Overall EU target for Renewable Energy: 32%
- **Target for renewable energy consumed in road and rail transport: 14%**

Greenhouse gas savings thresholds in RED II			
Plant operation start date	Transport biofuels	Transport renewable fuels of non-biological origin	Electricity, heating and cooling
Before October 2015	50%	-	-
After October 2015	60%	-	-
After January 2021	65%	70%	70%
After January 2026	65%	70%	80%

Table 1: **Greenhouse gas savings thresholds in RED II**

Revised Objectives:

- Legislative proposals presented by 2021 will **review the current target of 32%** renewables in the EU energy mix by 2030.
- The EU Commission's Communication 'Stepping up Europe's 2030 climate ambition. Investing in a climate-neutral future for the benefit of our people' from September 2020 anticipates that, to meet increased climate ambition, renewable energy in the transport sector has to **increase to around 24%.**

Revised Regulation on the Governance of the Energy Union and Climate Action objectives

The **Regulation on the Governance of the Energy Union and Climate Action ((EU) 2018/1999)** sets out the necessary legislative foundation for reliable, inclusive, cost-efficient, transparent and predictable governance of the Energy Union and Climate Action (governance mechanism), which ensures the achievement of the 2030 and long-term objectives and targets of the Energy Union in line with the 2015 Paris Agreement on climate change. As part of this regulations**, member states are required to elaborate National Energy and Climate Plans (NECPs)** every ten years, the first of which (2021 to 2030) should pay particular attention to the 2030 targets for GHG emission reductions, renewable energy, energy efficiency and electricity interconnection

The aim of this initiative is to give Union consumers, including households and businesses, secure, sustainable, competitive and affordable energy, and to foster research and innovation by means of attracting investment, taking into account, at the same time, the need to preserve, protect and improve the quality of the environment and to promote the prudent and rational utilisation of natural resources.The ultimate objective of this Regulation is to promote the achievement of the general objectives of the Energy Union and, in particular, the specific objectives relating to the 2030 climate and energy policy framework, in the field of greenhouse gas emission reductions, energy from renewable sources and energy efficiency.

In this respect, and since this regulation only sets targets towards 2030, the Powering a climate-neutral economy: An EU Strategy for Energy System Integration already indicates that certain aspects will need to be reviewed and refocused in order to achieve the EU's energy and emissions targets for 2050. With the aim of reach this percentage, both **climate legislation and energy policies need to be revised** to achieve this increased ambition.

For example, a further extension of the ETS (Emission Trading System) to include emissions from road transport would offer significant benefits in terms of efficiency and administrative feasibility. The Commission therefore envisages to pursue such an integrated approach and to incorporate it in its legislative proposal. Policies and standards for renewable energy, energy efficiency and transport will be reviewed and, where necessary, new ones will be introduced.

In addition, in the course of 2021 the Commission will review and strengthen the CO2 standards for passenger cars and vans for 2030. In order to reach the overall goal of climate neutrality by **2050**, nearly all vehicles on the road must be **emission-free** by then. **The transition must be accompanied by the necessary installation of infrastructure for recharging and refueling these vehicles**.

The Green Deal and the Internal Electricity Market

The **Internal Market for Electricity Directive (EU) 2019/944** focuses on creating an internal market for electricity, key to accelerating the uptake of renewable energy, in which Member States integrate their national markets and system operators cooperate at Union and regional level.

Aiming to create an integrated competitive, consumer-centered, flexible, fair and transparent electricity market, the Directive establishes **common rules for the generation, transmission, distribution, energy storage and supply of electricity.**

The Clean Energy Package, including Directive 2019/944, laid the foundation to make electricity markets fit to integrate large amounts of variable electricity and the integration of flexibility from demand response and storage, while improving the market signals **to stimulate investments and empowering electricity customers.**

However, as described in Powering a climate-neutral economy: An EU Strategy for Energy System Integration, the current energy system, involving several separate energy value chains, which rigidly link specific energy resources with specific end-use sectors, is technically and economically inefficient. This model of separate silos leads to substantial losses and in the form of waste heat and low energy efficiency and cannot deliver a climate neutral economy.

An EU Strategy for Energy System Integration goes beyond the idea, included in Directive 2019/944, of facilitating the operation of electricity networks in relation to other energy networks of gas or heat, to defend a coordinated planning and operation of the energy system 'as a whole', across multiple energy carriers, infrastructures, and consumption sectors.

Acknowledging that energy taxation has a strong impact on the final price consumers pay, affecting type of energy consumed as well as consumption and investment patterns, the Energy Taxation Directive 2003/96/EC will be revised as part of the policy reform to deliver the EU's increased climate ambitions by June 2021.

The main objectives of the Directive revision are to align the taxation of energy products and electricity with EU 2030 and 2050 climate targets, and to preserve the single European energy market by updating the scope and structure of tax rates and rationalizing the use of optional tax exemptions and reductions. The public consultation period ended in October 2020 and the revision is expected to result in a proposal for a directive in the second quarter of 2021.

The following pages outline key steps and policy connecting the Paris Agreement to successive energy legislation, review stages and plans aimed at ensuring Europe is on course to achieve climate neutrality by 2050.

Transition to National regulation

European Framework

The Renewable Energy Directive 2018/2001, the Internal Market for Electricity Directive 2019/944 and, particularly, the Regulation on the Governance of the Energy Union and Climate Action 2018/1999, set clear obligations for member countries to align with and achieve EU energy and climate objectives through their National Energy and Climate Plans (NECPs) and national legislation regulating the electricity sector.

How this has been approached by the target countries is explained in the following sections (in progress).

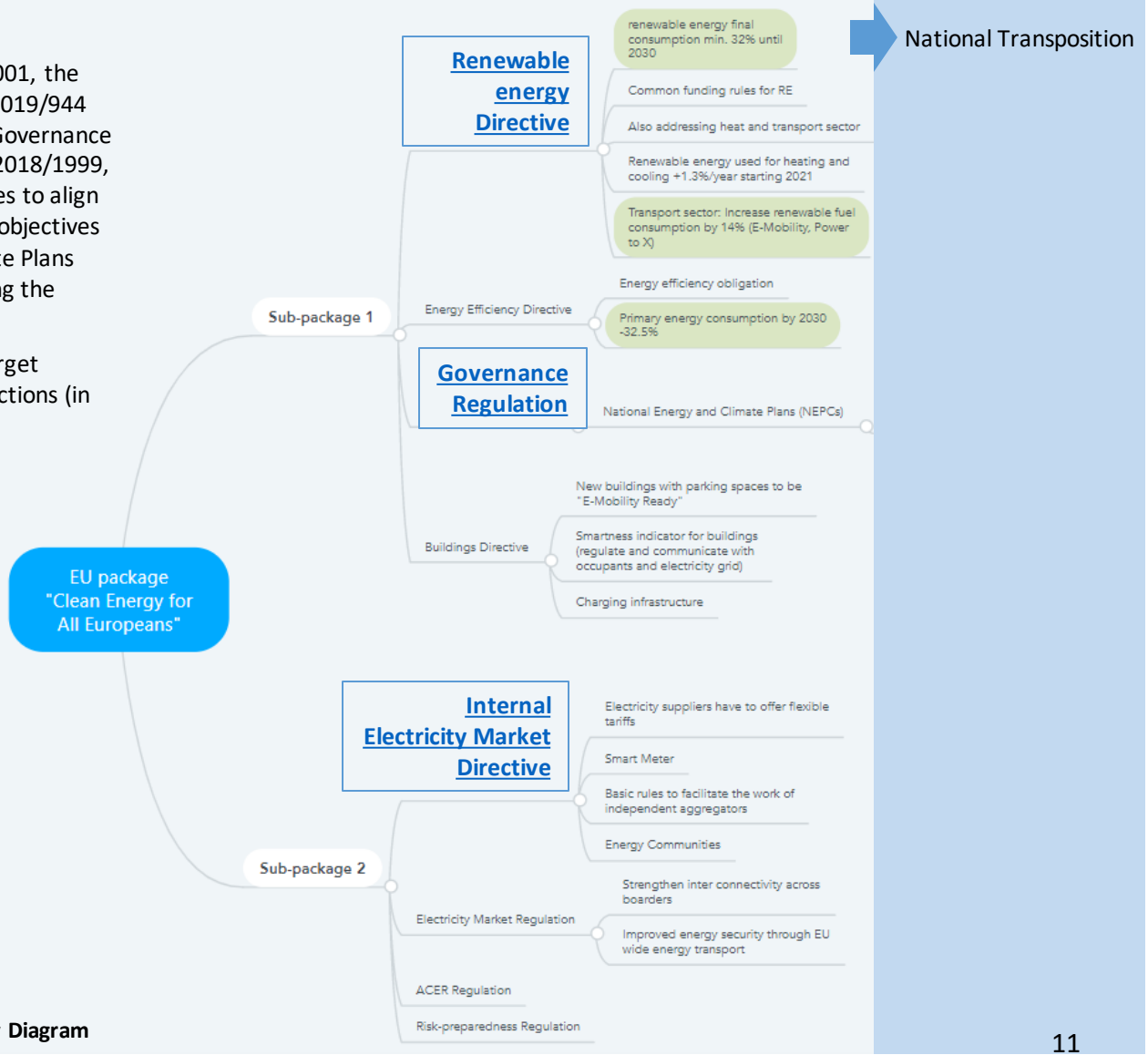

Figure 2: **European Relevant Regulatory Diagram**

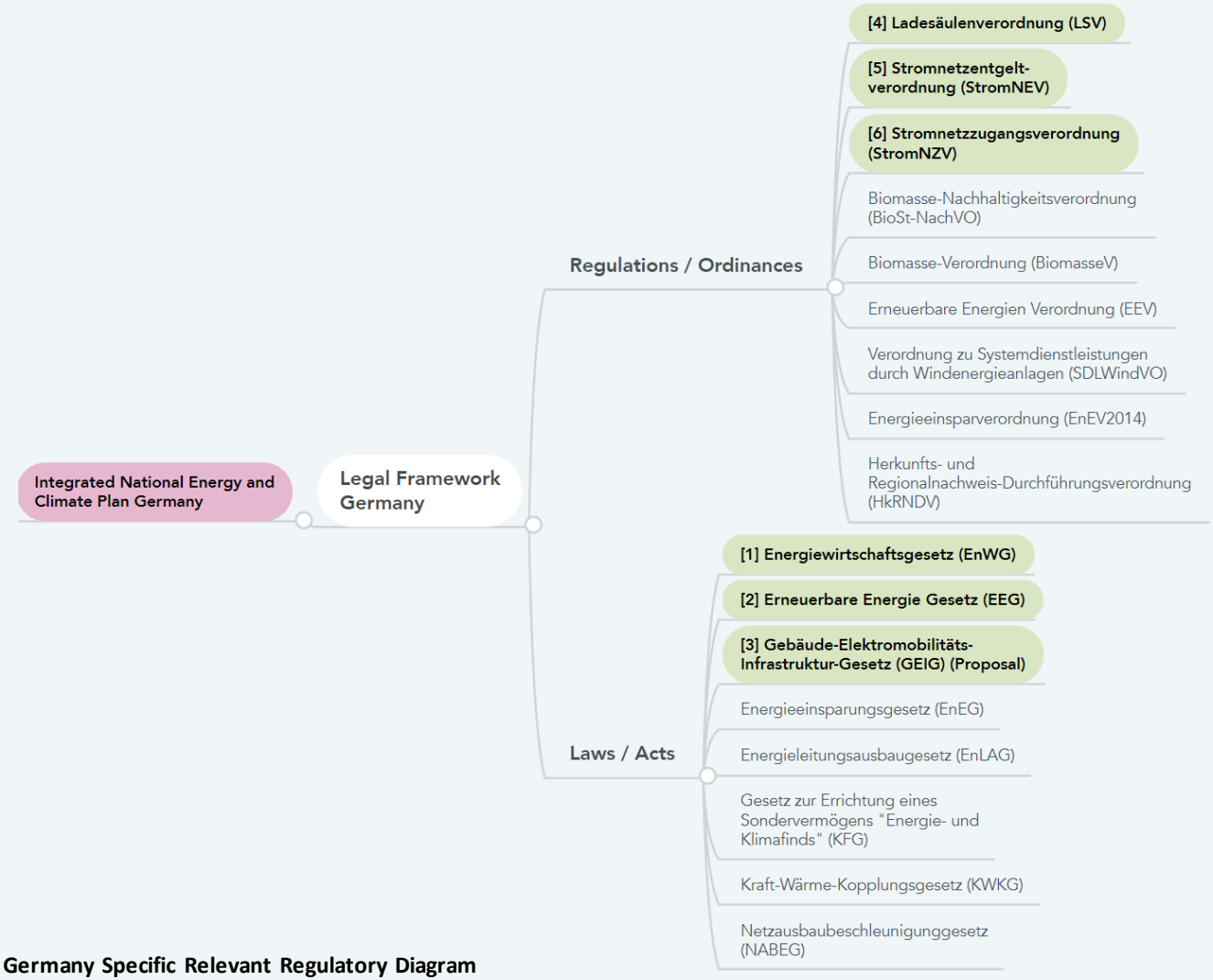

Figure 3: **Germany Specific Relevant Regulatory Diagram**

A. Relevant German Legislation with regards to the RED II Package

The most relevant laws in German legislation are the Energy Industry Act EnWG [1] and the Renewable Energy Sources Act EEG [2].

Energy Industry Act EnWG [1]

A framework policy to enhance competition, security of supply and sustainable energy production. It requires electricity labelling according to type of energy source, providing greater information on electricity sources to allow consumers to make informed decisions about suppliers.

Renewable Energy Sources Act EEG [2]

This Act (introduced in 2000, amended since several times) replaced the law on feeding electricity from renewable resources into the public grid of 1990. The Act has set a goal of generating 35% of electricity supply from renewable energy resources by 2020 (amended from 30% after the Fukushima disaster). Longer term targets include the share of renewable electricity at 40-45% by 2025, 55-60% by 2035 and 80% by 2050.

B. Relevant figures and structures to be defined

With respect to the relevant figures and structures to be defined, the respective legislation has been identified as follows:

Demand Aggregators: Limited financial benefits for demand response management on distribution grid level are organized through the EnWG [1]. The operating reserve markets are based on the EnWG [1], the EEG [2] for renewable suppliers and the Electricity Grid Access Ordinance StromNZV [6], several aggregators are already active on the German market.

Closed distribution networks & renewable energy communities: Currently no clear legal definition, citizen energy communities are defined in the EEG [2] and offer simplified access for small wind farm auctions. A framework for renewable energy communities is expected to be part of the amended EEG [2], but not present in the latest proposal.

Charging infrastructure: A proposal for the Building-E-Mobility-Infratructure Act [3] has been issued in 2020 and is being discussed by the German parliament. The technical standards for charging equipment are regulated in the Charging Infrastructure Regulation LSV [4].

PPAs: The legal framework for PPAs are primarily the EnWG [1], the EEG [2] and the Electricity Network Fee Ordinance StromNEV [5].

2. Austria

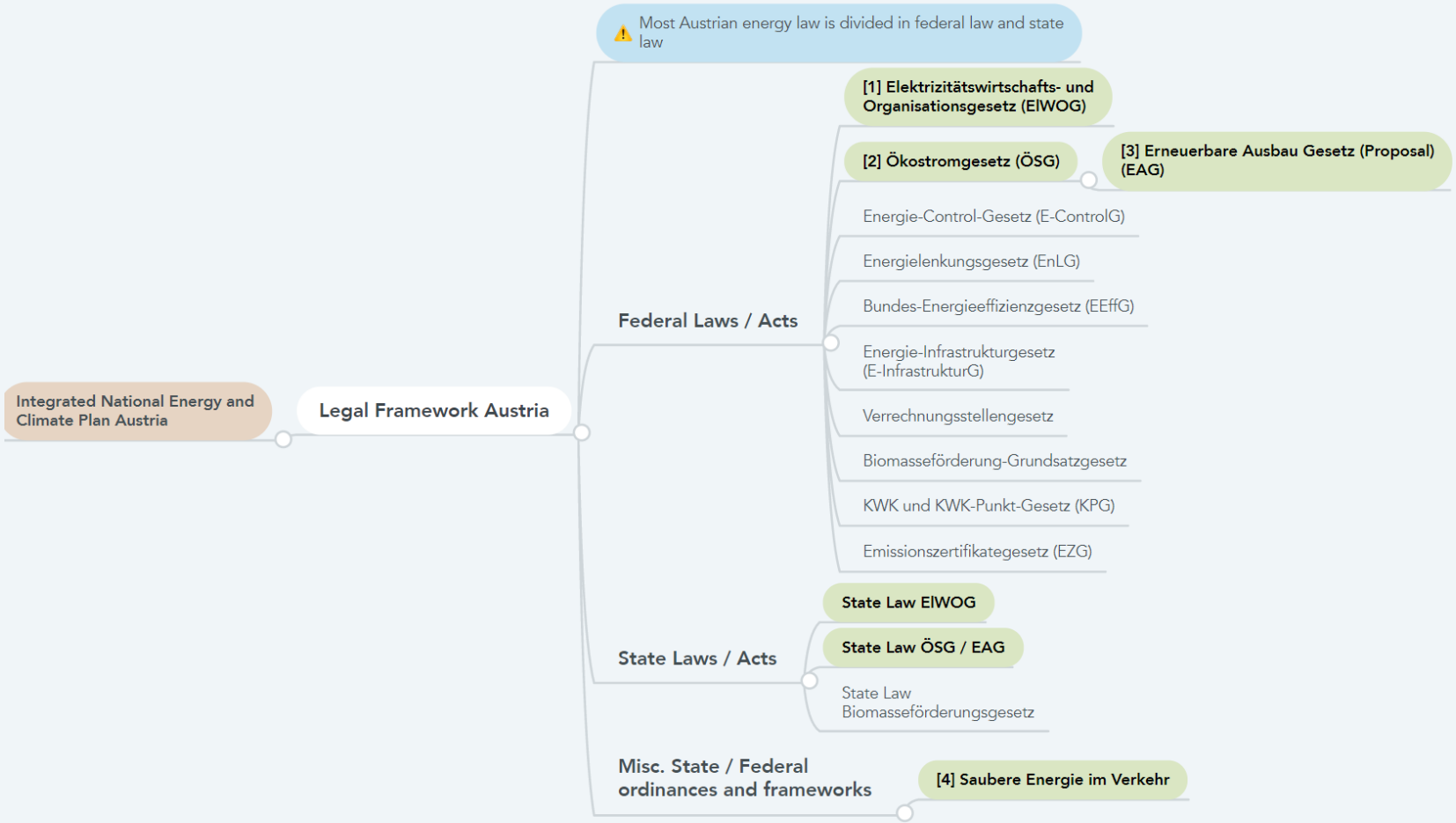

Figure 4: **Austria Specific Relevant Regulatory Diagram**

A. Relevant Austrian Legislation with regards to the RED II Package

The most relevant laws in Austrian legislation are the Electricity Act [1], the Green Electricity Act [2] and its replacement the Renewable Expansion Act [3].

Electricity Act ElWOG [1]

A piece of basic legislation to enact provisions on the generation, transmission, distribution and supply of electricity, as well as on the organization of the electricity sector. It further regulates the system charges and provides rules on billing, internal organization, unbundling and transparency of the accounts of electricity undertakings.

Green Electricity Act ÖSG [2] and Renewable Expansion Act EAG [3]

The Green Electricity Act aims to support the production of electricity from renewable energy sources through subsidized feed-in tariffs and investment grants. The Renewable Expansion Act [3] succeeds the Green Electricity Act [2] and has set a goal of generating 100% of electricity supply from renewable energy resources by 2030. The Renewable Expansion Act [3] is expected to come into force in early 2021.

B. Relevant figures and structures to be defined

With respect to the relevant figures and structures to be defined, the respective legislation has been identified as follows:

Demand Aggregators: Aggregation through e.g. renewable or citizen energy communities and access to operating reserve auctions is considered in the latest EAG proposal. [3]

Closed distribution networks & renewable energy communities: Renewable energy communities are defined in part 5 of the latest EAG proposal [3]. It also outlines the grid access, operation, billing and metering for those communities.

Charging infrastructure: The Clean Energy in Transport policy framework [4] outlines the expansion of charging infrastructure in Austria. Several strategies and frameworks on state level exist.

PPAs PPAs are already common practice in Austria, even though they are not mentioned in ElWOG [1] or ÖSG [2]. This is driven by renewable energy plants dropping out of the Austrian feed-in tariff schemes.

3. Netherlands

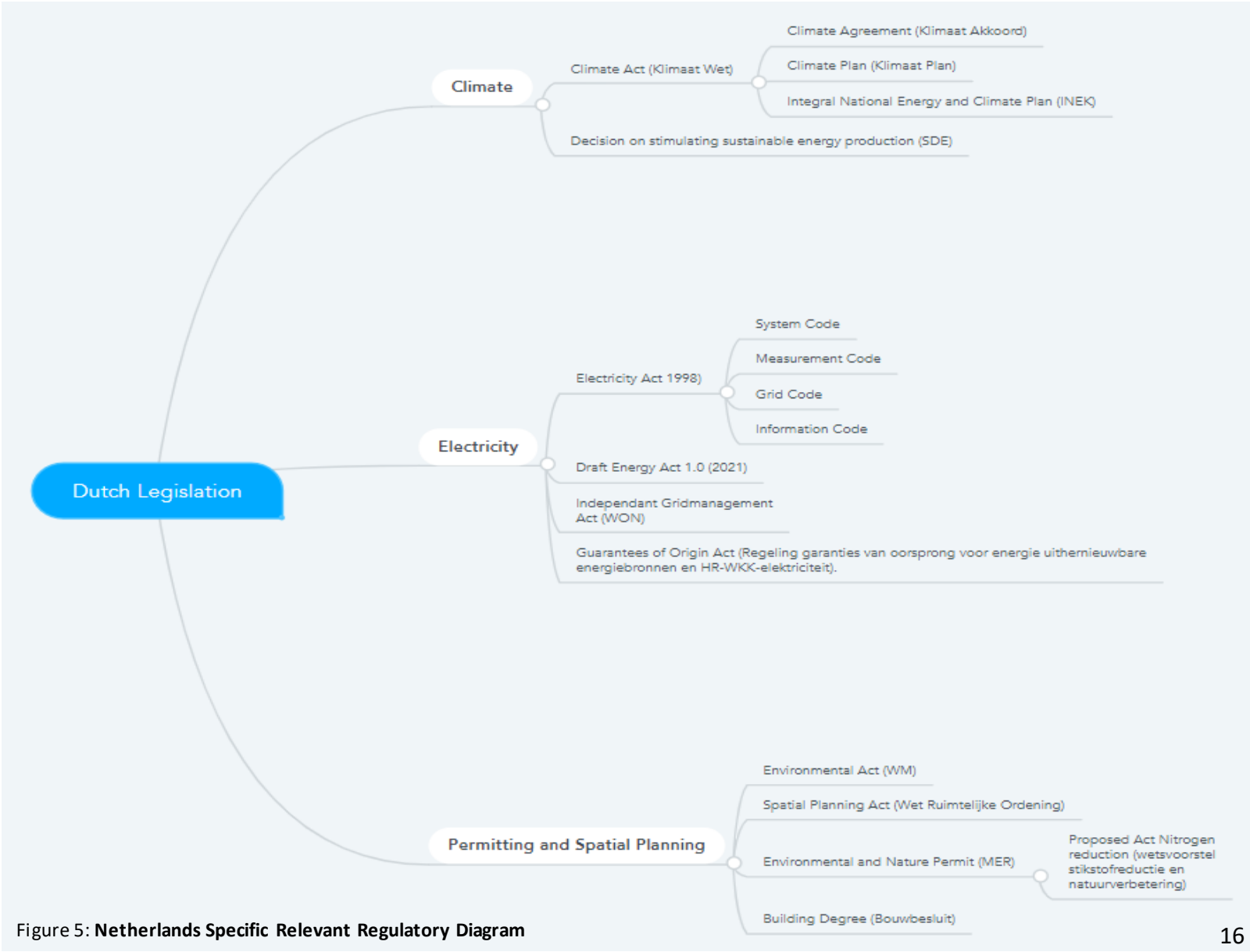

Figure 5: **Netherlands Specific Relevant Regulatory Diagram**

A. Relevant Dutch Legislation with regards to the RED II Package

The most relevant laws in Dutch legislation are the Climate Act, Energy Law and Environmental and Spatial plannings Acts.

- **Climate Act**

The **Climate Act** establishes the percentage by which the Netherlands must reduce CO2 emissions and follows international legislation Climate Agreement UN 1992, Kyoto-Protocol, COP21 Paris and the Green Deal. To achieve this goal, the government, businesses and civil society organisations have signed a **Climate Agreement ("Klimaat Akkoord")**. It also contains agreements that parties have made amongst themselves. The Climate Act also stipulates that the Cabinet must draw up a **Climate Plan("Klimaat Plan")**. The first Climate Plan will cover the period between 2021 and 2030. This plan contains the main lines of the policy with which the government intends to achieve the objectives of the Climate Act. The Climate Plan is updated every 5 years on the basis of current insights. After 10 years, a new Climate Plan will be drawn up**.** The EU is informed about the Dutch Climate Plan with the Integral **National Energy and Climate Plan ("INEK").** Subsidy to stimulate renewable production is regulated via the **Decision on stimulating sustainable energy production ("SDE").**

- **Energy Act**

The existing Electricity Act ("**Elektriciteitswet 1998**") will be replaced in 2021 by the **Energy Act ("Energiewet 1.0"**). The draft Energy Act merges the outdated Electricity and Gas Acts and further implements the European Clean Energy Package. In addition, the draft act implements agreements made in the Climate Agreement. The Energy Act sets general rules and structure for the electricity market, sets rules for suppliers and tariffs, protects position of consumers and guarantees connection and availability.

- **Acts on environment and spatial planning**

Different laws cover rules and regulations for spatial planning, environmental impact and permitting: The **Spatial Planning Act ("Wet Ruimtelijke Ordening"**) regulates locations for renewable development, **Environmental Act ("WM")** takes care of REDII implementation of CO2 certificates for transport, **Environmental Permit Act ("MER")** sets rules for permits and environment. The Nature Law sets limitation on Nitrogen emissions which is detailed in a **proposed Act on Nitrogen Reduction ("wetsvoorstel stikstofreductie en natuurverbetering").**

- **Separate laws will be integrated into one law (in 2022), the Environment and Planning Act ("Omgevingswet")**

B. Relevant figures and structures to be defined

With respect to the relevant figures and structures to be defined, the respective legislation has been identified as follows:

- **Demand Aggregators** in the current Electricity Act, demand aggregators are not defined, this will be addressed in new Energy Act. Also relevant is the Electricity System Code describing amongst others, rules for program responsible parties and demand response for grid management.
- **Closed distribution networks & renewable energy communities** Part of the Energy Act are the **Grid Code** describing regulation on private and public grids. The **Independent Network Operation Act ("WON"),** informally referred to as the 'Splitsingswet', is a law that, in addition to the Electricity Act, provides further rules on independent network operation. In this it is stated that no commercial activities (producing, supplying) are allowed for grid companies.
- **Charging infrastructure** With the revised EPBD III, there will be an obligation to install charging infrastructure for electric vehicles in the private built environment. This obligation will be laid down in the **Buildings Decree ("Bouwbesluit")** and must be considered during the development of building plans. The obligation will apply from 10 March 2020.
- **PPAs** the legal framework for PPAs is in the Energy Act, certification of green energy by the **GoO Act** ("**Regeling garanties van oorsprong voor energie uit hernieuwbare energiebronnen en HR-WKK-elektriciteit")**.

4. Belgium - Flanders

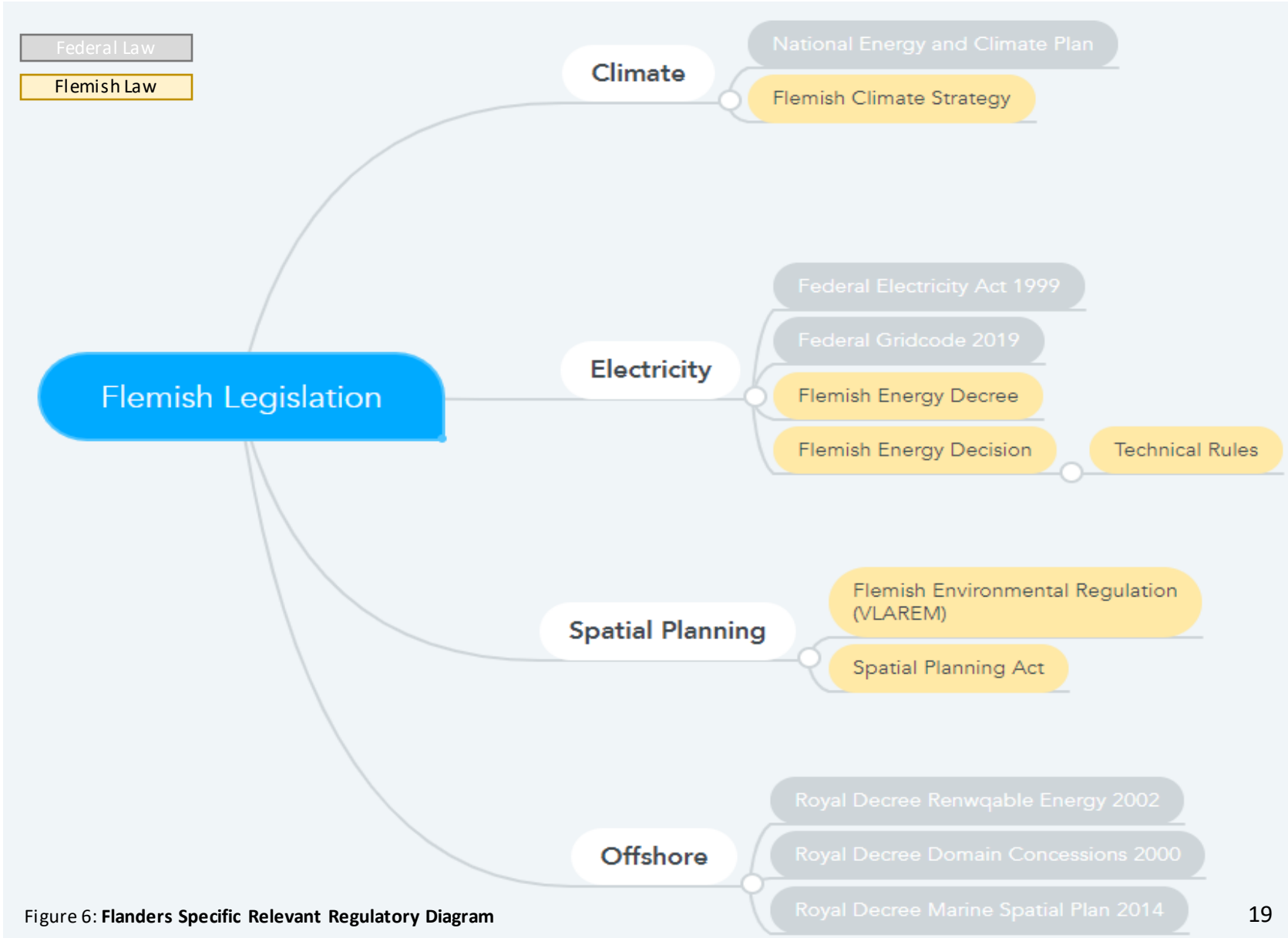

Figure 6: **Flanders Specific Relevant Regulatory Diagram**

A. Relevant Flanders Legislation with regards to the RED II Package

European legislation is integrated in federal (Belgian) legislation and by the Flemish Government in Flemish legislation. The most relevant laws in Flanders legislation are the Climate Act and Energy Act in addition to the Flemish energy and climate plan (Analogue to the NECPs).

- **Climate Act**

The Belgium federal government has together with the districts of Flanders, Walloon and Brussels agreed the **Belgian Integrated National Energy and Climate Plan** ("NEKP"). The Plan captures the Energy and Climate policy of the European Union which includes security of supply, competitiveness and sustainability. On that basis, the Flemish government has on 19 December 2019 agreed its **Flemish Climate strategy 2050** ("Vlaamse Klimaatstrategie 2050") which will be integrated and notified to the European Commission as part of the Belgian Climate Strategy 2050. Additional to the Belgian NECP there is a Flemish specific energy and climate plan (Vlaams Energie en Klimaatplan) 2021-2030

- **Energy Act**

In Flanders, both the region and the federal government are responsible for the electricity and natural gas markets. The federal government sets regulation for transmission, high voltage grid and non-renewable energy production. Federal energy law is captured in the **Electricity Act 1999** ("Wet Elektriciteit") and **Direction common rules internal elektricity market** ("Richtlijn 96/92/EG van 19 december 1996 betreffende gemeenschappelijke regels voor de interne markt voor elektriciteit (art. 20)")

The **VREG** (Vlaamse Regulator van de Elektriciteits- en Gasmarkt) is the Flemish regulator which is supervised by the Flemish Parliament that regulates the electricity and gas markets in the Flemish Region and is responsible for Green energy regulation. The energy law and regulations of Flanders are captured by the **Energy Decree and Energy Decision** ("Energiedecreet" and "Energiebesluit") and the **technical rules** ("Technische Reglementen").

- **Acts on environment and spatial planning**

Different laws cover rules and regulations for spatial planning, environmental impact and permitting for sustainable development: **Flemish Environmental Regulation** (VLAREM) and **Spatial Planning Act** (Decreet tot aanpassing en aanvulling van het ruimtelijke plannings-, vergunningen- en handhavingsbeleid).

B. Relevant figures and structures to be defined

With respect to the relevant figures and structures to be defined, the respective legislation has been identified as follows:

- **Demand Aggregators** ELIA is the national grid operator and responsible for balancing the transmission grid and to contract demand response services. The European Grid codes is described in **Federal Grid Code 2019** (Federale Netcode).
- **Closed distribution networks & renewable energy communities** Closed and private distribution networks are under the responsibility of the VREG and part of the Energy Decree.
- **Charging infrastructure** In Flanders, investments are being made to develop a network of charging points for electric vehicles. The network operators have been given a legal obligation ("**openbaredienstverplichtingen aan de elektriciteitsdistributienetbeheerders ter stimulering van de infrastructuur voor elektrische voertuigen")** to install a certain number of charging points. The VREG appoints the different distribution network operators. The national transmission operator is ELIA.
- **PPAs** the legal framework for PPAs and green power certification is the Energy Decree and Energy Decision of Flanders. Flanders has its internal green energy support certificate "steuncertificaat" quota system for suppliers.
- **Offshore** Although the north sea coast is geographically part of Flanders, the national regulator (Commissie voor de Regulering van de Elektriciteit en het Gas, **CREG**) is responsible for offshore wind concessions, permitting and green power certification. Concessions are captured in the **Royal Decrees Domain Concessions (2000), Renewable Energy (2002) and Marine Spatial Plan (2014).** The Flemish Department of Mobility is responsible for the ports and maritime access roads.

5. Denmark

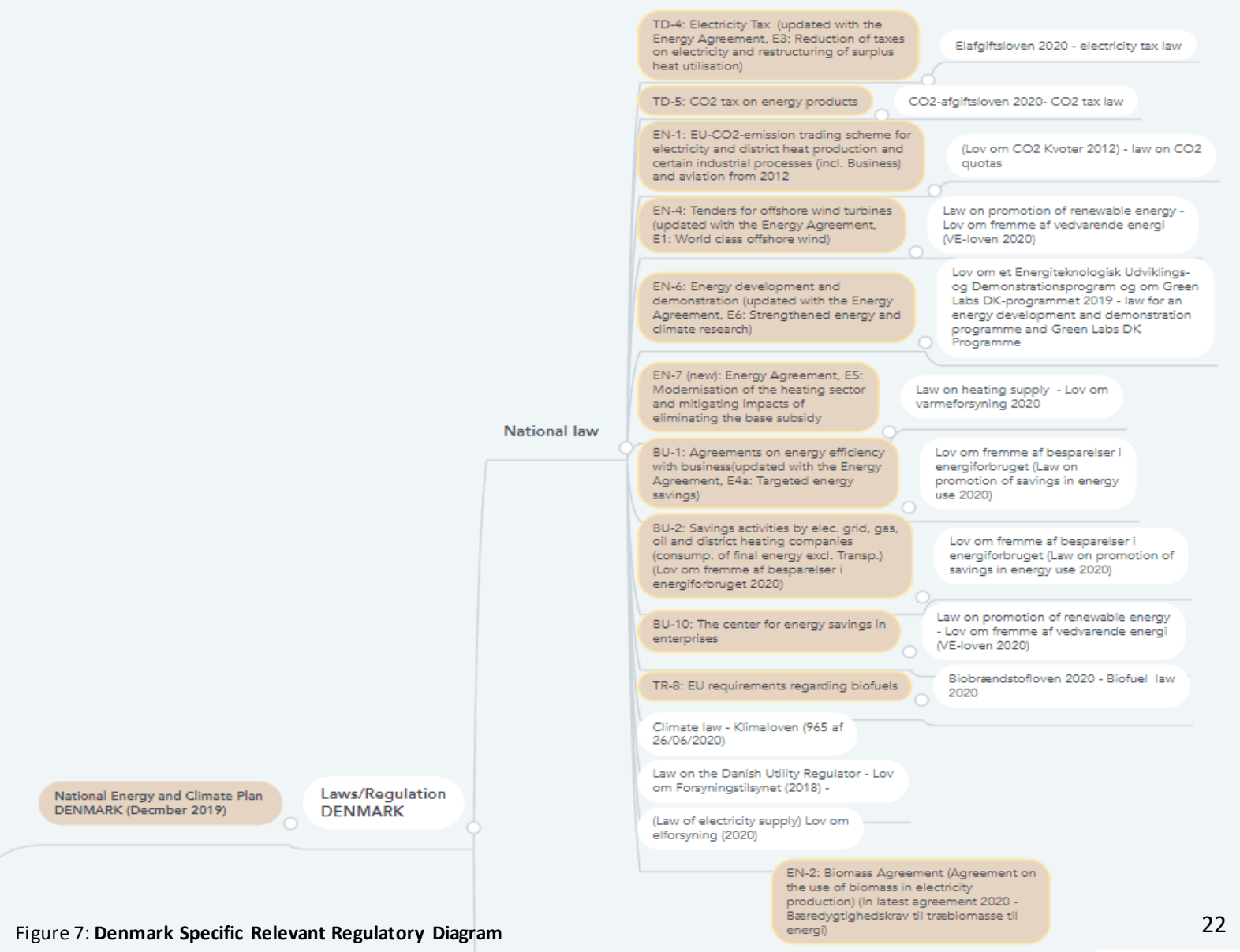

Figure 7: **Denmark Specific Relevant Regulatory Diagram**

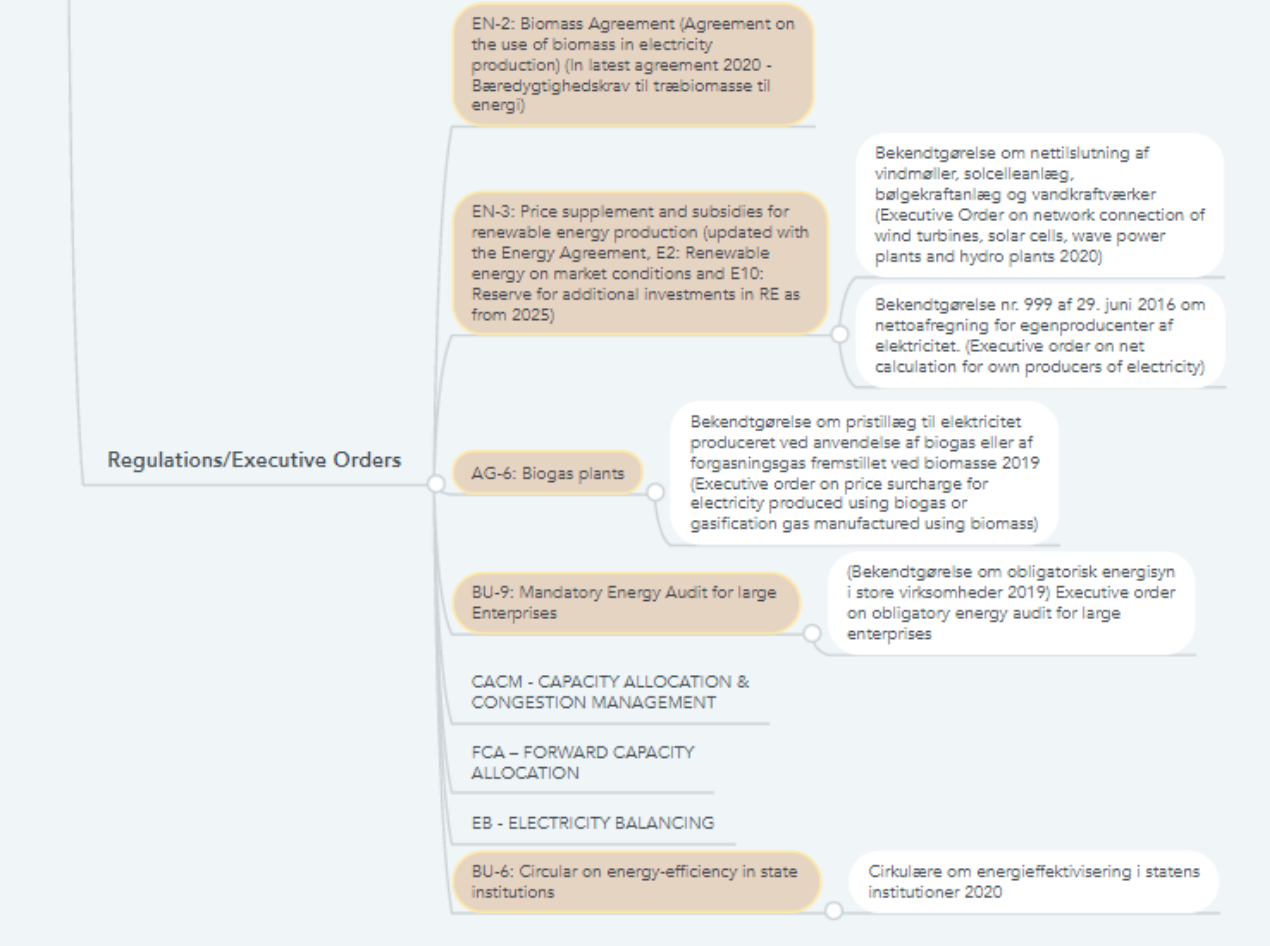

Figure 8: **Denmark Specific Relevant Regulatory Diagram (Continuation)**

A. Relevant Danish legislation is with regards to the RED II Package is:

- **Act on promotion of renewable energy - Lov om fremme af vedvarende energi ('VE-loven' 2020)**

The purpose of the Act is to promote energy production by using renewable energy sources in accordance with climate, environmental and socio-economic considerations with a view to reducing dependence on fossil fuels, ensuring security of supply and reducing emissions of CO 2 and other greenhouse gases.

- **Act on promotion of savings in energy use - Lov om fremme af besparelser i energiforbruget (2020)**

The purpose of the Act is to promote energy savings and energy efficiency among energy consumers in accordance with climate and environmental considerations and considerations of security of supply and the economy. It applies to efficiency and reduction of energy use in products, plants, processes and buildings, including plants for buildings' own supply of energy, and to information to energy consumers about energy consumption and energy-conscious behavior.

- **Electricity Supply Act - Lov om Elforsyning (2020)**

The purpose of the Act is to ensure that the country's electricity supply is organized and implemented in accordance with the considerations of electricity supply security, economy, environment and consumer protection. Within this objective, the law must ensure consumers access to cheap electricity and continue to give consumers influence over the management of the electricity sector's values.

- Several executive orders are connected to the above and to subsidies and pricing of renewable energy production, including:
    - Bekendtgørelse om nettilslutning af vindmøller, solcelleanlæg, bølgekraftanlæg og vandkraftværker (Executive Order on network connection of wind turbines, solar cells, wave power plants and hydro plants 2020)
    - Bekendtgørelse om nettoafregning for egenproducenter af elektricitet. (Executive order on calculation for own producers of electricity 2016)

B. Relevant figures and structures to be defined

With respect to the following figures defined/requested by the directives, legislation/regulation has been identified as follows:

- **Demand Aggregators:** law does not currently disallow but there is not yet a legal framework.
- **Closed distribution networks:** no specific mention in law. Most closely linked to the Executive order on net calculation for own producers of electricity - Bekendtgørelse nr. 999 af 29. juni 2016 om nettoafregning for egenproducenter af elektricitet.
- **Renewable energy communities:** law does not currently disallow these but there is not yet a legal framework.
- **Charging infrastructure:** is subject to the Act on infrastructure for alternative fuels 2017 (Lov om infrastruktur for alternative drivmidler).
- **PPAs:** Under discussion in Danish industry. No specific framework identified.

6. United Kingdom

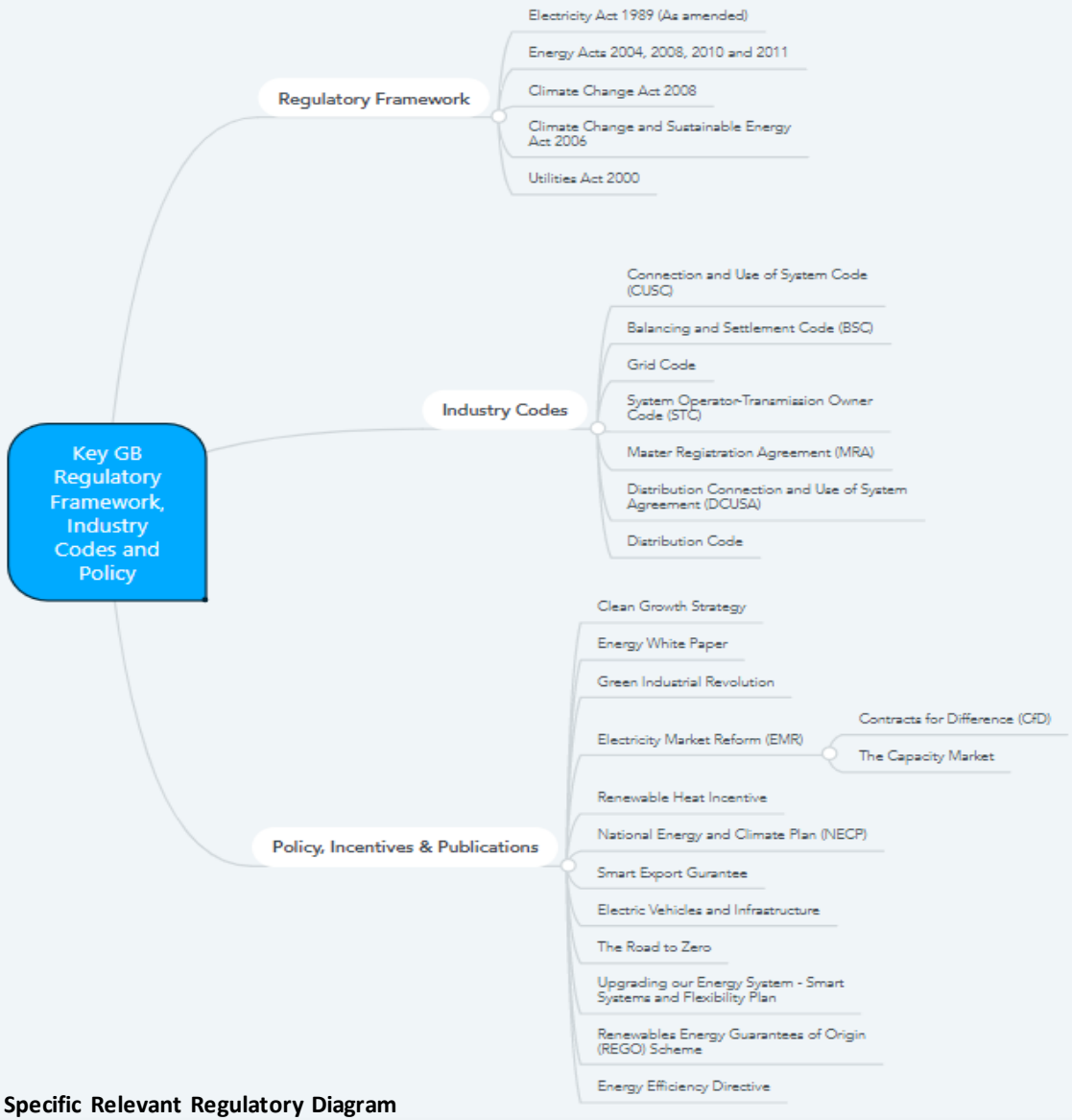

Figure 9: **U.K. Specific Relevant Regulatory Diagram**

A. Relevant GB Legislation with regards to the RED II Package

The most relevant laws in GB legislation are as follows:

The Electricity Act 1989 (as amended)

The primary legislation in GB on electricity, which established the key features of the regulatory framework in the electricity sector of GB.

Energy Act 2013

Set out decarbonization targets for the UK, and reforming the electricity market (the Electricity Market Reform)

Climate Change Act 2008 (as amended):

Sets out the UK's emission reduction targets that must be legally complied with ("Net Zero by 2050").

Climate Change and Sustainable Energy Act 2006

Set out aims to increase the deployment of heat and electricity micro-generation technologies in the UK.

Key Statutory Bodies

The key statutory bodies include:

- the Department for Business, Energy and Industrial Strategy (BEIS) – government ministerial department responsible is responsible for business, industrial strategy, and science and innovation with energy and climate change policy;
- Competition and Markets Authority (CMA);
- Office for Gas and Electricity Market (OFGEM) - the regulatory authority for the gas and electricity markets
- the Gas and Electricity Markets Authority (GEMA) - the governing body of Ofgem, the GEMA oversees work undertaken and provides strategic direction.

B. Key Industry Players

- National Grid is the transmission owner in England and Wales and also fills the System Operator role. Scottish Hydro Electric Transmission (SHET) own and operate northern Scottish transmission assets whilst Scottish Power Transmission own and operate the northern and central transmission assets in Scotland.
- Elexon is responsible for delivering the Balancing and Settlement Code.
- There are 6 Distribution Network Operators who own and operate the distribution networks across different regions in the UK (Electricity North West, Northern Powergrid, Scottish and Southern Energy, SP Energy Networks, UK Power Networks and Western Power Distribtuion).
- In terms of generation and supply there are those companies that both generate and supply electricity to consumers (Vertically Integrated Company's such as the "Big 6" e.g. Centrica, EDF Energy, E.ON, RWE npower, Scottish and Southern Energy and Scottish Power. There is also those company's who only generate (e.g. UK Power Reserve, EPH) and smaller suppliers and energy aggregators.

C. Key Industry Codes

Connection Use of System Code (CUSC)

The contractual framework for connecting to and using the National Electricity Transmission Systems (NETS).

Distribution Connection and Use of System Agreement

The contractual framework for connecting to and using the electricity distribution networks.

D. Key Policy, Incentives & Publications

National Energy and Climate Plan (NECP)

Although the UK has now left the EU, the government remains committed to building on the policies set out in the UK's NECP relating to renewables and energy efficiency.

Energy White Paper

In December 2020, the UK Government launched its Energy White Paper building on the Prime Minister's Ten Point Plan for a Green Industrial Revolution by outlining plans for transformation of transport, energy and infrastructure in order to delivery significant decarbonization of power in the 2030s and net-zero by 2050. The publication provides a lot of detail for stakeholders in terms of how energy and electricity will be transformed in the UK over the next 30 years.

The Road to Zero

Sets out the UK's strategy for cleaner road transport in order to delivery zero-emission transport by 2030 and the development of the required charging infrastructure and manufacturing capability.

Upgrading our Energy System – Systems and Flexibility Plan

Outlines how the government and Ofgem will work with industry (e.g. generators, aggregators etc.) to deliver a "smarter, more flexible energy system". This includes how barriers to smart technology (e.g. energy storage) will be removed, how smart homes and businesses will be enabled, and transforming energy markets to work for flexibility.

Electricity Market Reform

Government policy to incentivise investment in zero and low carbon electricity, ensure security of electricity supply and improve electricity affordability. The policy introduced bothe the Contracts for Difference (CfD) scheme and a Capacity Market (CM) in order to delivery on these aims.

PPAs

There is no specific legal framework for PPAs in GB, nevertheless they are allowed and have become common practice.

7. Ireland

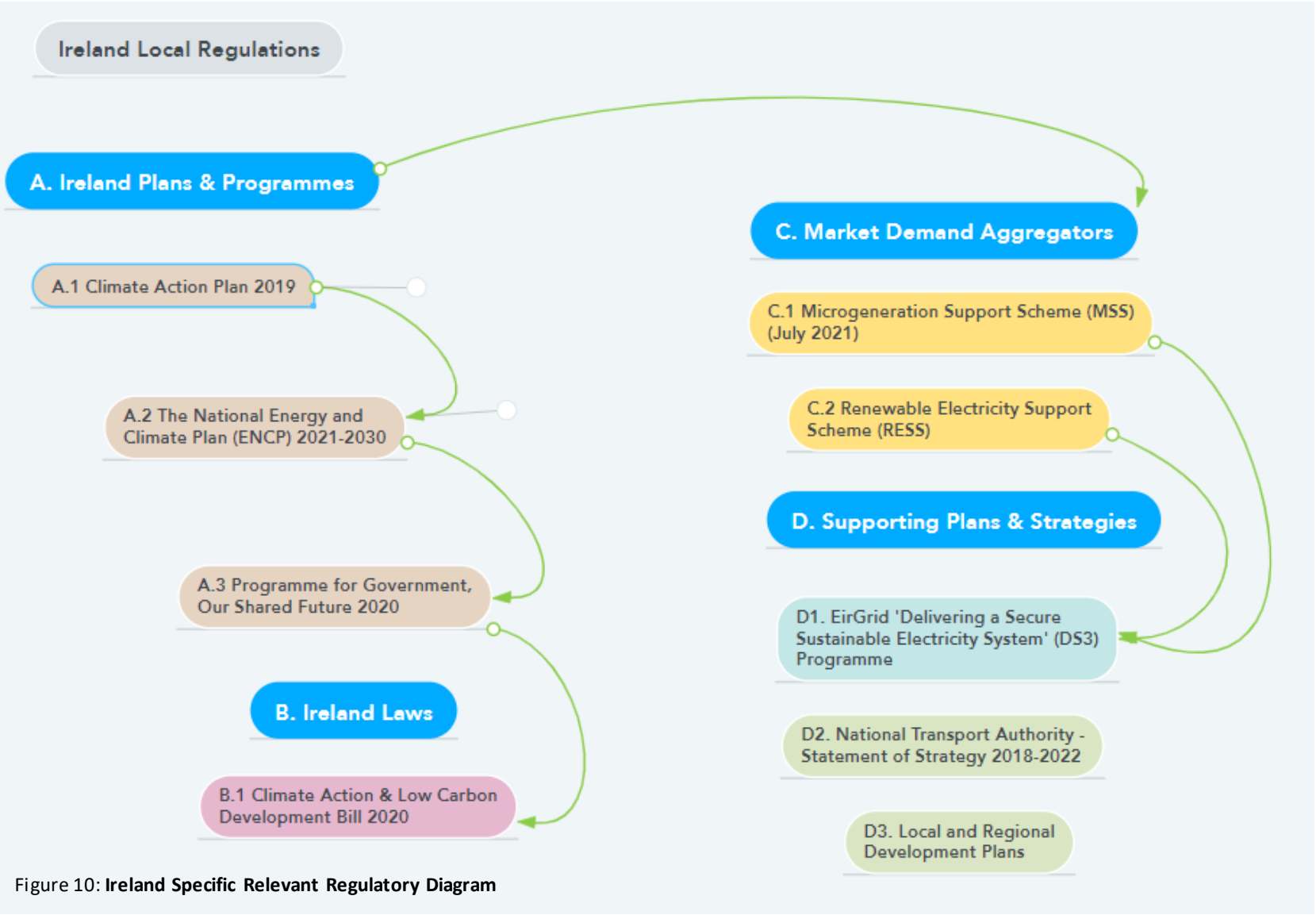

Figure 10: **Ireland Specific Relevant Regulatory Diagram**

A. Relevant Ireland Legislation with regards to the RED II Package

A.1 Programme for Government, Our Shared Future 2020

- Committed to higher level of ambition than NECP and EU effort sharing approach.
- Expanding and incentivising microgeneration, including roof-top solar energy.
- Increased target for the number of Sustainable Energy Communities.
- Prioritise microgeneration development, sell excess power back to the grid by June 2021.

A.2 The National Energy and Climate (NECP) Plan 2021-2030

- Addresses decarbonisation, energy efficiency, energy security, **internal energy markets and research**, innovation and competitiveness.
- Commitment to a 7% annual average reduction in GHG emissions between 2021 & 2030.
- Supporting customer participation in the energy system & enabling them to sell excess electricity back to the grid.
- Increase electricity generated from renewable sources to 70%.
- **15% of electricity demand by renewable sources contracted under Corporate PPAs.**

A.3 Climate Action Plan 2019

- Road map for policy on climate change between now and 2030 and also to 2050.
- Coherent support scheme for micro-generation with a price for selling power to the grid.
- Enabling people to sell excess electricity they have produced back to the grid.
- Community participation in renewable generation as well as community gain.
- Electricity market rules to enable micro-generated electricity to be sold to the grid.
- Transport targets to meet the required level of emissions reduction by 2030
- Increase the number of EVs to 936,000 & build charging network & infrastructure

B. Ireland Laws

B.1 Climate Action and Low Carbon Development (Amendment) Bill 2020

- Climate law which commits Ireland to net-zero carbon emissions by 2050
- Drive policies to achieve a 7% average yearly reduction in overall GHG emissions.
- Annual revisions of the Climate Action Plan & development of a National Long Term Climate Action Strategy once every ten years.

C. Ireland Market Demand Aggregators

C.1 Microgeneration Support Scheme (MSS) (Dept. of Climate)

- Individuals & communities to sell renewable electricity into the national grid by July 2021.
- Will enable people & communities to become active participants in the energy transition.
- Public consultation on the scheme is currently ongoing.

C.2 Renewable Electricity Support Scheme (RESS)

- An Enabling Framework for community participation through the provision of pathways and supports for communities to participate in renewable energy projects
- Provide financial support to renewable electricity projects
- Increasing technology diversity by broadening the renewable electricity technology mix

D. Ireland Supporting Plans & Strategies

D.1 EirGrid 'Delivering a Secure Sustainable Electricity System' (DS3) programme

- The aim of DS3 System Services is to put in place the correct structure, level and type of service in order to ensure that the electricity system can operate securely with higher levels of non-synchronous renewable generation and the integration and use of Smart Grid technologies allowing greater user participation in the power system.

D.2 National Transport Authority (NTA) – Statement of Strategy 2018-2022

- Optimal alignment of land use and transport policy and practice, enabling an increased proportion of travel by sustainable transport modes.
- Develop proposals for consideration by local authorities & regional assemblies in relation to land use that would best integrate with transport proposals.
- Formulate & publish guidance on various land use & transport topics to assist statutory bodies to deliver sustainable transport objectives.

D.3 Local & Regional Development Plans & Strategies

E. Power Purchase Agreements

Corporate PPAs are a well-established, proven concept in the energy market.