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

Deliverable 3.2

Red flag report on National and EU regulations

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Basis of preparation

- Our work for this review commenced on February 2021 and this is the version of our report as of April 2021.
- This report has been prepared in accordance with our agreed engagement letter and scope of work.

Energy regulation Assessment

- Arup has carried out an independent energy regulation assessment based on the regulation identified in our previous report 3.1 for the European Union as well as specifically for Germany, Austria, Netherlands, Belgium-Flanders, Denmark, Sweden, Norway, Ireland and (United Kingdom WiP). Our assessment is based predominantly on a review of official primary national legislation.

Colour indications

- In our report, we have used the definition table (below) to allocate the level of risk and impact of the identified issues.

Risk Allocation	Description
Low	No risk/barrier has been identified at this time for a specific category, this means the regulation discussed does not present a barrier to implementation of a certain strategy/business model in the specific country discussed.
Medium	An issue has been identified that might represent a moderate risk/ barrier to implementation, which has been reviewed and sensitivities may have been suggested. The risk is considered manageable in the context of proposed sensitivities but may require ongoing monitoring and review or further information.
High	This represents a material and unmanageable barrier to implementation that would render a certain strategy/business model unfeasible

Contents:

Introduction and objectives

In the previous report, National and EU primary national legislation potentially applicable to NRA's in the area of energy production, have been identified in order to find the opportunities, obligations and possible barriers that NRAs would face relative to decarbonization and implementation of renewable energy projects within their assets.

In this report, a research and analysis have been carried out, at EU level and then in each of the target countries, of the previously identified 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.

The aim of this red flag report is to carry out a further analysis where, once having identified the applicable regulation and its implications, these are evaluated in further 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.

For this purpose, a detailed analysis on the applicable regulation for each of the countries has been conducted and potential risks and barriers for the project have been identified. The analysis has been structured based on the requirements made to the countries by the relevant EU legislation as listed below:

- Governance of the Energy Union and Climate Action (EU) 2018/1999
- Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001
- Common Rules for Internal Electricity Market: DIRECTIVE 2019/944

In the following slides an executive summary is presented organized by categories arising from the above-mentioned EU regulation, considering all the countries involved in the project, in order to provide a general overview on the potential barriers to implementation which have been identified. This is firstly done at a general level to provide a first comparison between the current status of the analyzed countries. After the executive summary, a country specific Red flag analysis has been provided with the main conclusions for each of the countries. Additionally, for more detailed information please refer to the Annexes 1 to 8, where a deeper review on the regulation of each country has been carried out.

European Framework

The Renewable Energy Directive 2018/2001, the Regulation on the Governance of the Energy Union and Climate Action 2018/1999 and the Internal Market for Electricity Directive 2019/944, 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. The red flag analysis has been organized by the requirements and targets set by each of these regulations and directives.

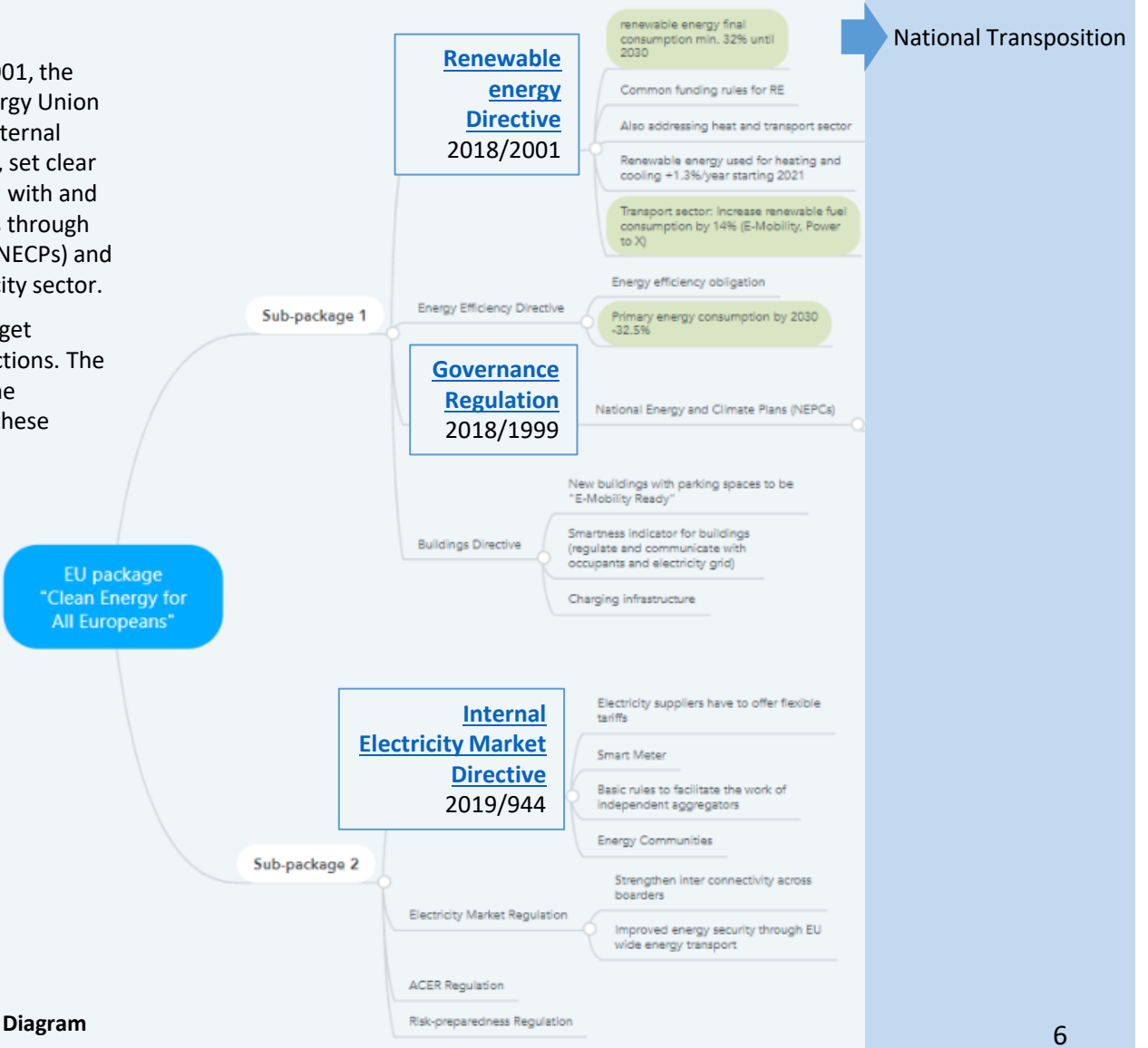

Figure 1: **European Relevant Regulatory Diagram**

Legislation	Topic	Summary of identified issues	Risk
Governance of the Energy Union and Climate Action (EU) 2018/1999	• **National long-term strategies** Member States are required to develop **national long-term strategies** and ensure consistency between these strategies and their national energy and climate plans.	• All the countries under study have presented long-term strategies to reduce the greenhouse gas emissions, all of them in line with the overall goals set by European Union decarbonization strategy according to the analyzed legislation . • On average, all of them have set targets for around 50% reduction of GHG emissions by 2030 and zero net emissions by 2050. These goals are ambitious and will be a positive driver to implementation of renewable energy projects in the road infrastructure.	

	• **National Energy and Climate Plans:**
	  • **Energy Security**
	  • **Internal Energy Market**
	
	Member States shall draw up **National Energy and Climate Plans** every ten years, the first of which should be submitted by 31 December 2019, covering the period 2021 to 2030 and paying particular attention to the 2030 targets for GHG emission reductions, renewable energy, energy efficiency and electricity interconnection.
		• All the analyzed countries have presented and National Energy plans (2021 to 2030) in order to get over the major climate challenges.
		• Most of them focus on implementing renewable energy and energy storage strategies, as well as green mobility and even Carbon taxes in the case of Denmark. The plans are ambitious and will be a positive driver to implementation of renewable energy projects in the road infrastructure.	

	• **2030 Framework for Energy and Climate for the Union objectives for GHG emission reductions, energy efficiency improvement, renewable energy use and renewable energy in electricity interconnection.**
	The 2030 Framework for Energy and Climate for the Union sets out the following objectives:
	  • A reduction of at least 40 % in economy-wide greenhouse gas (GHG) emissions
	  • At least 32.5% improvement in energy efficiency in 2030
	  • At least 32% share for renewable energy in 2030
	  • At least 15% share for renewable energy in electricity interconnection in 2030
		• Most of the countries have concrete strategies regarding green technologies such as electric mobility, energy efficiency and taxes implementation on CO2.
		• Electricity interconnection between the analyzed countries has been in place for many years and it is expected to grow in most of them as it brings flexibility to their respective energy markets.
		• On the other hand, some countries like Austria are struggling to comply with some of their targets such as GHG emissions that were still growing 1.8% in 2019.
		• In general, all the countries have set objectives more ambitious than the minimum set by the EU. These goals are seeing as a driver for the strategies to be implemented on this project.	

Executive Summary

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• **Binding Overall Union Target For 2030** Member States shall collectively ensure that the share of energy consumption in the Union from renewable sources is at least 32 % in 2030 and set national contributions to meet this target collectively as part of their integrated national energy and climate plans.	• All the countries are committed to achieve Union Target, even the ones that are not part of the agreement like Norway. Nevertheless, reaching 32% renewable energy by 2030 is ambitious and will require significant effort and investment to promote additional growth in renewable energy generation. Some countries like Denmark are struggling to comply with this target due to the increase of the final electricity demand. The commitments are a positive driver to implementation of renewable energy projects in the road infrastructure.	
	• **Support schemes for energy from renewable sources** In order to reach or exceed the renewable energy targets for the Union and each Member State's contribution, Member States may apply support schemes. Support schemes shall provide incentives for the integration of electricity from renewable sources in the electricity market and shall be designed to ensure that producers respond to market price signals and maximize their market revenues	• Most of the countries under study have many different support schemes that prove they are committed to achieving the targets set, prioritizing renewable energy projects and promoting decarbonization strategies. • Nevertheless, some potential barriers to the access to this support schemes have been detected in countries like Austria, where **the construction or extension of a PV plant on agricultural land or on grassland areas is not subsidized unless the area is specifically designated for the construction of PV plants. This could mean a potential risky for the project if the same legislation applies to roadside areas. Also in Germany, the processes to secure support from such schemes are increasingly difficult and competitive.**	
	• **Opening of support schemes for electricity from renewable sources from neighboring countries** DIRECTIVE 2018/2001 By 2023, the Commission shall carry out an evaluation of the implementation of this Article. That evaluation shall assess the need to introduce an obligation on Member States partially to open participation in their support schemes for electricity from renewable sources to producers located in other Member States with a view to a 5 % opening by 2025 and a 10 % opening by 2030.	• Some of the countries, like Germany, enable potential business cases for these project as they already include legislation that allows 5% of tendered capacity to come from other EU member countries. • On the other hand, some potential risks for- the project have been identified in countries like **Ireland** that **will potentially no longer be physically connected to the EU Internal Energy Market (IEM), following the exit of the UK from the EU.** • Furthermore, some potential risks have been identified in the **Netherlands**, **where renewable electricity production competes with other CO2 saving solutions (including CCS, geothermal and biofuels) for support schemes.**	

Executive Summary

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• **Administrative procedures, regulations and codes** Member States shall ensure that their competent authorities at national, regional and local level include provisions for the integration and deployment of renewable energy, including the signing of power purchase agreements (PPAs) **Member States shall remove unjustified barriers and facilitate the uptake of such agreements.**	• While most countries such as Ireland offer opportunities for the project, as they aim to develop effective policy tools to harness the significant potential of Corporate PPAs, some potential risks have been detected for countries like Austria, where **renewable PPAs are not specifically addressed by legislation. The lack of rules for renewable PPAs could pose a risk to the implementation of projects given that PPAs increase the bankability of projects and provide access to favorable financing conditions. (Country specific detail are explained further on the country level Red flag analysis)**	
	• **Simple-notification procedure for grid connections** Member States shall establish a simple-notification procedure for grid connections whereby installations or aggregated production units of renewables self-consumers and demonstration projects are to be connected to the grid following a simple notification to the distribution system operator.	• Several countries under study present some potential barriers to the project in this regard. This is the case of Germany, where projects with a capacity of more than 10.8 kW still must go through standard connection approval process, and Sweden, where the electricity utility supplier has the right to reject grid connection for plants up to and including 11 kW. • **Norway** deserves special attention in this matter as they are the only country studied which is **introducing access charges and charges related to the system's costs, as well as for other services, which represent a financial burden for the owner of the installation.**	
	• **Guarantees of origin for energy from renewable sources.** Member States shall ensure that a guarantee of origin is issued in response to a request from a producer of energy from renewable sources.	• Little potential risk can be attached to this matter since all the countries under study are already familiar with GOs- and they all have legislation for this purpose. • **Nevertheless, special attention must be payed to Germany, where electricity from projects that are subsidized by EEG is not allowed to issue GOs and could therefore not be commercialized as renewable electricity.**	
	• **Renewables Self-consumers** Member States shall ensure that consumers are entitled to become renewables self-consumers. Member States may apply non-discriminatory and proportionate charges and fees to renewables self-consumers. Member States shall put in place an enabling framework to promote and facilitate the development of renewables self-consumption. The renewables self-consumer's installation may be owned by a third party or managed by a third party for installation, operation, including metering and maintenance.	• **Special attention to Germany is required, as electricity produced and self consumed by NRAs from PV/Wind plants with a capacity of more than 30kW, will need to pay levies on the self produced & consumed energy. In projects that received subsidies from tendered auctions, no self-consumption is allowed at all. This could decrease the viability of potential business cases within this project.** • In some other countries such as Austria or Ireland, the lack of regulation on this topic rises some uncertainty for the projects. • Nevertheless, countries like the Netherlands, Denmark or Sweden encourage renewable self-consumption through fiscal measures and no restrictions for prosumers.	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• **Renewable energy communities** Member States shall ensure that final customers, in particular household customers, are entitled to participate in a renewable energy community.	• While some countries like the Netherlands or Austria promote and support Renewable Energy communities through specific legislation on this topic, some other countries like Germany, Norway or Ireland have developed no specific frameworks promoting and facilitating the development of renewable energy communities. If renewable energy communities are not allowed or defined, some potential business models based on these structures would not be viable.	
	• **Mainstreaming renewable energy in the transport sector** Each Member State shall set an obligation to ensure that the share of renewable energy within the final consumption of energy in the transport sector is at least 14 % by 2030.	• Ambitious targets has been set by **Ireland** aiming to reach **100% of new vehicle sales by 2030 to be electric.** However, slow uptake in EVs coupled with a slow rollout of associated charging infrastructure is a potential issue. • Special attention to **Norway,** where they succeed to **reduce by 14% the CO2 emissions from 2014 to 2019** using instruments such as CO2 tax or turnover requirements for biofuels. • In other countries like Austria or Germany there is yet no dedicated legislation at the moment for this matter. • The increase and mainstreaming of RES in the transport sector can be a significant driver and enabler of Renewable energy projects by the NRAs.	
	• **Calculation rules with regard to the minimum shares of renewable energy in the transport sector** To demonstrate compliance with minimum 14% **(potentially to be revised to 24%),** the share of renewable electricity shall be considered to be four times its energy content when supplied to road vehicles and 1,5 times its energy content when supplied to rail transport.	• For most of the countries no relevant issues were identified. • In Germany, according to the Electrification of transport and hydrogen strategy, **greenhouse gas emission reductions of 10% by 2026 and 22% by 2030 are planned.** • Norwegian hydropower may be considered unsustainable by the EU Commission, leading to an increase on the borrowing costs of Norwegian hydropower plants.	
	• **Other provisions on renewable energy in the transport sector** The Commission shall ensure that a Union database is put in place to enable the tracing of liquid and gaseous transport fuels that are eligible for being counted towards the amount of energy from renewable sources consumed in the transport sector. By 31 December 2021, Member States shall take measures to ensure the availability of fuels from renewable sources for transport including regarding publicly accessible high-power recharging points	• Most of the countries under study are currently promoting electric transport as well as natural gas and hydrogen. • **Norway** takes the lead one more time on this matter as they already have more than **550 fast charging station per 100 km** while they plan to **ban fossil fuel-based cars in 2025**. • Special attention to **Germany**, where **Greenhouse gas emission trading** shall enable **operators** of electric charging infrastructure **to capture additional income**. This would significantly boost charging infrastructure and **could positively influence the project**.	

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• **Aggregation Contract** Member States shall ensure that all customers are free to purchase and sell electricity services, including aggregation, other than supply, independently from their electricity supply contract and from an electricity undertaking of their choice.	• Most of the countries under study allow customers to sell and purchase of electricity under the aggregation figure. That is the case of Sweden or the Netherlands, where aggregation of consumption is automatically allowed in the energy system (multiside contracts). • Other countries like Norway or Germany have no regulations on this matter yet. Nevertheless, in the case of Germany some changes resulting from the Directive 2019/944 are expected to be enacted within Q3 2021.	
	• **Active customers** Member States shall ensure that active customers that own an energy storage facility: ◦ have the right to a grid connection ◦ are not subject to any double charges for stored electricity ◦ are not subject to disproportionate licensing requirements or fees; ◦ are allowed to provide several services simultaneously.	• Most of the countries support and encourage active customers through different instruments, such as **supporting in the construction phase** and **buying unused electricity** in **Norway** or **energy tax refunds in Sweden**. • Denmark expects positive business case for solar cells and battery solutions by 2025. • Other countries like **Austria or Ireland have no specific legislation** on Active customers as for now, but no potential barriers for the project have been identified.	
	• **Citizen Energy Communities** Member States shall provide an enabling regulatory framework for citizen energy communities. Member States may decide to grant citizen energy communities the right to manage distribution networks in their area of operation.	• No special legislation have been identified on this topic for most of the countries under study. • The situation differs in the cases of **Austria** and the **Netherlands**, where **Citizen Energy Communities already exist** and are defined on their legislation. • These communities with the right to manage distribution networks in their area of operation, could provide an interesting business cases for NRAs for projects in larger scale supplying several consumers adjacent to the NRAs assets	
	• **Demand Response Through Aggregation** Member States shall allow and foster participation of demand response through aggregation. Member States shall allow final customers, including those offering demand response through aggregation, to participate alongside producers in a non-discriminatory manner in all electricity markets.	• A **lack of legislation** on this matter has been identified for Nordic countries such as **Sweden or Norway**. **Austria** shows the same lack of legislation as of now. • On the other hand, countries like Germany, Ireland or The Netherlands have already developed specific legislation on this topic. In the case of **Germany**, 14a EnWG **reduces grid charges for consumers that participate in demand response.**	

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• **Integration Of Electromobility Into The Electricity Network** Distribution system operators shall not own, develop, manage or operate recharging points for electric vehicles, except where distribution system operators own private recharging points solely for their own use. Member States shall provide the necessary regulatory framework to facilitate the connection of publicly accessible and private recharging points to the distribution networks.	• Almost every country present in this report is strongly promoting Electromobility, being **Norway** the **world leader** in the phasing in of **electric cars** as a result of powerful electric car benefits. • Special **opportunities** for the project have been identified in the **Netherlands** where the government has forecasted that **1.7 million charging locations are required.** This means that load infrastructure should be tendered which is currently taking place already. • **Austria** differs to the rest of the countries under study as **no dedicated legislation** to promote the build out of charging stations has been passed as of now. This could have a **negative impact on the project** if charging is not promoted by the government.	
	• **Closed Distribution Systems** Member States may provide for regulatory authorities or other competent authorities to classify a system which distributes electricity within a geographically confined industrial, commercial or shared services site and does not supply household customers* as a closed distribution system.	• No regulatory frameworks concerning closed distribution systems were identified for most of the countries under study. • On the other hand, The Netherlands is promoting Closed distribution system operators exempting them from certain rules and regulations which public system operators need to comply to. • These closed distribution systems, could provide an interesting business cases for NRAs for projects in larger scale supplying several consumers adjacent to the NRAs assets	
	• **Connection Of New Generating Installations And Energy Storage Facilities** The transmission system operator shall establish and publish transparent and efficient procedures for non-discriminatory connection of new generating installations and energy storage facilities to the transmission system.	• Almost every country participating in this report already have legislation explaining all the necessary procedures when connecting new generation installations. • **A specific code for storage devices is also being designed at European level,** which will result in Grid Code modifications specific to Battery ESPS (Energy Storage Power Station). • In The Netherlands, grid connection may be refused or delayed when transport capacity is not available.	

All countries

Country specific Red flag analysis

1. Germany

Country specific Red flag analysis

Germany

Legislation	Topic	Summary of identified issues	Risk
Governance of the Energy Union and Climate Action (EU) 2018/1999	• National long-term strategies	• Germany has developed long-term strategies to achieve greenhouse gas neutrality by 2050. The German government is taking a technology neutral and innovation friendly approach. • The reduction targets for energy sector and transport sector was set at about 60% and 40% by 2030 compared to 1990, respectively. • A climate strategy for transport will address emissions from cars, light and heavy commercial vehicles and issues related to GHG-free energy supply, the requisite infrastructure and the interlinking of sectors (through electric mobility). The energy supply for roads and rail transport will be based on biofuels and as far as possible on electricity from renewable sources and other GHG-neutral vehicle fuels. • The identified measures will help implementation of low-emissions technologies in the transport sector and new business models which promote the use of renewables in the transport sector would be encouraged.	

	• National Energy and Climate Plans:
	  • Energy Security
	  • Internal Energy Market
		• Measures in the National Energy and Climate plan will help implementation of renewable energy sources in the transport sector.
		• The integration of renewable energy sources and transport infrastructure or transport area will contribute to the expansion of renewables, the sectoral coupling and the increased consumption of self-generated electricity (for lighting, for electric vehicles etc.)	

	• 2030 Framework for Energy and Climate for the Union objectives for GHG emission reductions, energy efficiency improvement, renewable energy use and renewable energy in electricity interconnection.	• The German government is pushing ahead with electric mobility and fostering the development of alternative fuels and digital transport technologies.
		• Potential non-compliances could be:
		  • The share of renewables in gross final energy consumption reached 19.3%[2] in 2020. However, the target was set to be about 30% by 2030.
		  • The transport sector holds the lowest share of renewable energy sources.
		  • CO2 emissions in the transport sector rose slightly in 2019 due to an increasing number of vehicles.
		• No potential barriers to the project have been identified.	

Germany

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Binding Overall Union Target For 2030	• Reaching 30% renewable energy by 2030 is ambitious and will require significant effort and investment to promote additional growth in renewable energy generation.	
	• Support schemes for energy from renewable sources	• Electricity generated from renewable energy sources is supported through a sliding feed-in premium determined in auctions for installed generation capacity according to "Erneuerbare Energie Gesetz" EEG (§22 EEG 2021). **Installations with a capacity less than 750 kW (wind and solar) or 150 kW (biomass) are exempted from the tender process (§22 EEG 2021).**	
	• Opening of support schemes for electricity from renewable sources	• §5 EEG 2021 already includes legislation that allows 5% of tendered capacity to come from other EU member countries. The share can be even higher for Offshore Wind farms. This would enable potential business cases for this project with neighboring countries.	
	• Administrative procedures, regulations and codes	• **Renewable Energy Communities as set out by the EU directive have not been implemented by Germany as of now.** However, issues affecting renewable power purchase agreements (PPA) have been resolved in 2021 and are expected to continue to make PPAs an increasingly attractive option for renewable energy producers and consumers.	
	• Simple-notification procedure for grid connections	• Projects with a capacity of more than 10.8 kW still must go through standard connection approval process. **This could potentially present a barrier as RE projects by the NRAs could easily exceed 10.8 kW.**	
	• Guarantees of origin for energy from renewable sources	• GOs are legislated in EEG. **Electricity from projects that are subsidized by EEG is not allowed to issue GOs.**	

Germany

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Renewables Self-consumers	• If electricity is produced and self consumed by NRAs from PV/Wind plants with a capacity of more than 30kW, they will need to pay levies on the produced & consumed energy. Using storage to shift energy to a different time is exempt from double charges. In projects that received subsidies from tendered auctions, no self-consumption is allowed at all. This could decrease the viability of potential business cases within this project.	
	• Renewable energy communities	• Renewable Energy Communities have not been addressed in the recent update of EEG 2021.	
	• Mainstreaming renewable energy in the transport sector	• This is currently being addressed by the Germany government and only a draft is available.	
	• Calculation rules with regard to the minimum shares of renewable energy in the transport sector	• In Germany, according to the Electrification of transport and hydrogen strategy, greenhouse gas emission reductions of 10% by 2026 and 22% by 2030 are planned. This is higher than the current minimum of 14% and could help PtX technologies.	
	• Other provisions on renewable energy in the transport sector	• Greenhouse gas emission trading in Germany shall enable operators of electric charging infrastructure to capture additional income. Revenues are estimated to be 20 to 60 cent per kWh of charged electricity. This would significantly boost charging infrastructure and could positively influence the project.	

Germany

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Aggregation Contract	• **The law changes resulting from the Directive 2019/944 have not yet been passed by the German government.** It is expected to be enacted within Q3 2021. This analysis is based on the assumption that the latest draft from BMWi will be passed in its current form. Definition of aggregators was introduced to EnWG 2021. Similar rules apply as for electricity suppliers.	
	• Active customers	• Necessary amendments have been included in EnWG 2021, many regulations already existed before.	
	• Citizen Energy Communities	• **No special legislation was passed to promote citizen energy communities.**	
	• Demand Response Through Aggregation	• In Germany, aggregators can now participate on the ancillary service market with the capacity of their final customers. This has been addressed in §41d EnWG. • § 14a EnWG reduces grid charges for consumers that participate in demand response. • Ancillary services are tendered in a non-discriminatory way with transparent rules through the website www.regelleistung.net. This has been addressed in §12h EnWG. • Final customers shall only reimburse the follow up costs of activation of demand response. This has been addressed in §41d EnWG.	
	• Integration Of Electromobility Into The Electricity Network	• Operators of charging stations in Germany need to notify the grid operator before connecting them to the grid. The rules for the connection have been published by VDE (Association of Electrical Engineers: https://www.vde.com/de/fnn/arbeitsgebiete/tar/tar-niederspannung/tar-niederspannung-vde-ar-n-4100 • Originally, German DSOs were not allowed to own any charging infrastructure. The EU directive now allows this, and the rules have been addressed in §7c EnWG.	
	• Closed Distribution Systems	• At the time of submittal of this report, no information was found available on this matter	
	• Connection Of New Generating Installations And Energy Storage Facilities	• Energy Storage Systems have a right to be connected to the grid. This has been addressed in §17 EnWG. The grid operator can charge the connection cost to the system operator.	

Germany

Issue	Observation	Comments and Key Conclusions	Risk

Additional Specific Legislation concerning RE and road infrastructure	• §48 Art. 1 Nr. 3c) aa) EEG 2021: PV plants receive guaranteed feed-in tariff of 6.01 cent per kWh if they are built within 200m of a highway. 15m minimum distance for plants is required.
	• § 9 Abs. 1 Nr. 1 Bundesfernstraßengesetz increases this distance to 40m if the local developmant plan does not state otherwise.
	• §48 Art. 2 EEG 2021 declares that PV plants on or at noise barriers receive guaranteed feed-in tariff at the following rates dependent on the installed capacity:
	  • Up to 10 kW: 8.56 cent per kWh,
	  • Up to 40 kW: 8.33 cent per kWh,
	  • Up to 750 kW: 6.62 cent per kWh.
	• These subsidies decrease over time depending on the actual build out according to §49 EEG.
	• PV on parking places 2022: 50 MW tender as a pilot
		• https://www.landtag-bw.de/files/live/sites/LTBW/files/dokumente/WP16/Drucksachen/6000/16_6926_D.pdf
		• https://openjur.de/u/2176844.html
		• https://landtag.nrw.de/portal/WWW/dokumentenarchiv/Dokument/MMD17-11267.pdf
		• https://www.martin-stuempfig.de/fileadmin/assets/Redaktion/PDFS/Downloads/2020/200518_SAN_Photovoltaik_bei_Laermschutzeinrichtungen_entlang_Strassen_Drs18_6947.pdf
		• https://www.landtag-bw.de/files/live/sites/LTBW/files/dokumente/WP16/Drucksachen/8000/16_8091_D.pdf
		• https://www.erikschweickert.de/umweltminister-unterstuetzt-vorschlag-erik-schweickerts-zum-bau-von-photovoltaik-anlagen-an-der-a-8/	

2. Austria

Country specific Red flag analysis

Austria

Legislation	Topic	Summary of identified issues	Risk
Governance of the Energy Union and Climate Action (EU) 2018/1999	• National long-term strategies	• In its national long-term strategies, Austria has set the goal to be climate neutral by 2050. Austria aims to increase the production from renewable energy by 60% from 2020 to 2030. By 2050, 49-67% of primary energy production aims to come from renewable sources. • The main strategies for the transport sector are to improve public transport services, optimize traffic, improve mobility management and take advantage of digital mobility services such as car sharing. Some alternatives such as the sector coupling in the transport sector are not addressed in the national long-term strategies.	

	• National Energy and Climate Plans:
	  • Energy Security
	  • Internal Energy Market
		• Austria aims to achieve a reduction of GHG emissions by 36% by 2030 compared to 2005.
		• The transport sector in Austria must reduce 7.2-Million-ton CO_2e compared to 2016, mainly through the development of public transport, e-mobility, mobility management and tax reform.
		• By 2030, the share of renewable sources must reach 46-50% in gross final energy consumption, 100% in electricity consumption and at least 14% is the transport sector, by using biofuels and promoting e-mobility.
		• Austria aims to invest in storage infrastructure, which in combination with road infrastructure could offer an opportunity to enhance the flexibility of the energy system.
		• Austria aims to simplify regulation, reduce bureaucracy and streamline procedures, particularly for infrastructure projects which are essential for the energy transition, potentially offering an opportunity for the project.	

	• 2030 Framework for Energy and Climate for the Union objectives for GHG emission reductions, energy efficiency improvement, renewable energy use and renewable energy in electricity interconnection.	• Austria is facing challenges to meet emission reduction targets and in 2019, Austria's total GHG emissions increased by 1.8% compared to the 1990 levels. • In Austria, measures to reduce emissions are implemented by different levels of government. The federal government is responsible for energy policymaking, taxation and financing issues related to the financial equalization between local authorities. At the regional level, the governments retain the competence for permitting of infrastructure, land use and zoning. **The coordination of different levels of government could potentially pose a challenge for the project.**	

Austria

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Binding Overall Union Target For 2030	• In Austria, the share of renewables has not changed significantly since 2009 (31%). Reaching 45-55% of gross final energy consumption by 2030 requires a more significant shift towards renewables in all sectors. This is ambitious and will require significant effort and investment to promote additional growth in renewable energy generation which provides an opportunity for this project.	
	• Support schemes for energy from renewable sources	• The new EAG 2021 (which has not yet been finally passed) will introduce market premiums aiming to lead to greater market integration of plants producing renewable electricity. Market premiums are granted either competitively (PV and biomass) or administratively upon application (wind power, hydropower, small biomass plants and biogas). • Among others, new PV plants and extensions are eligible for market premiums if they have a bottleneck capacity of more than 20 kWp and are installed on or adjacent to a building, on a railroad system or a landfill or are ground mounted. However, ground-mounted installation eligibility is restricted. **The construction or extension of a PV plant on agricultural land or on grassland areas is not subsidized unless the area is specifically designated for the construction of PV plants. Additionally, a discount of up to 30 % applies to the "applicable value" of ground-mounted installation. This could pose a risk to the project if this applies to roadside areas.**	
	• Opening of support schemes for electricity from renewable sources	• Not yet implemented, no direct impact to project.	
	• Administrative procedures, regulations and codes	• Self-consumption is addressed in the tax code (no tax on self-consumption) and by the grid operator. • **Renewable PPAs are not specifically addressed by legislation. The lack of rules for renewable PPAs could pose a risk to the project if they are to be financed without subsidies.**	
	• Simple-notification procedure for grid connections	• According to §EAG 17a, this simplified procedure will be introduced for up to 20 kW of installed capacity. There is no additional procedure for installations with up to 50 kW. This will most likely not impact the project since RE installations would be >> 50kW.	
	• Guarantees of origin for energy from renewable sources	• Guarantees of origin from renewable resources are legislated in §81 – 84 EAG. Austria complies with the EU directive and uses a national register for GOs. This register is controlled by E-Control (Austria's central energy authority) who is a member of the European Association of Issuing Bodies (AIB).	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Renewables Self-consumers	• The share of self consumption is defined in §5 EAG as the share of renewable energy that is used to cover one's own demand and is not fed into the public grid. • There is no tax on self-consumption of renewable generation and consumers are allowed and encouraged, via subsidies for investment, to use storage. • **Potentially, the focus on PV rooftop installations could limit ground mounted solar PV and wind in this project.** • No specific legislation has been developed addressing self-consumer installations owned or managed by third parties.	
	• Renewable energy communities	• §79 EAG introduces EEGs (Renewable Energy Communities) which can produce electricity from renewable energy sources and consume, store or sell this electricity, or act as an aggregator. • Members or shareholders of an EEG are natural persons, municipalities or small and medium-sized enterprises which must be located in the "proximity of the project". This proximity is defined by the use of network levels 5 – 7 or busbar in the transformer station and is thus relatively wide. In any case, consumption and transport of self-generated energy via grid levels 1 to 4 is not permitted. Transmission across network operators is also not admissible. • The main purpose of the EEG must not be financial profits, but primarily to provide environmental, economic or social benefits to its members or the area in which it operates. Participation in a Renewable Energy Community is voluntary and open. In the case of private companies' participation, it must not be their main commercial or professional activity. • The NRA could use the EEG as an instrument to share the generated electricity with regional consumers. This presents an opportunity for the project.	
	• Mainstreaming renewable energy in the transport sector	• Currently, there is no dedicated legislation in Austria targeting the mainstreaming of renewable energy in the transport sector.	
	• Calculation rules with regard to the minimum shares of renewable energy in the transport sector	• Currently, there is no dedicated legislation in Austria specifying calculation rules for the minimum share of renewable energy in the transport sector.	
	• Other provisions on renewable energy in the transport sector	• Not yet addressed in Austria's regulation.	

Austria

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Aggregation Contract	• Customers can become members of citizen energy communities (CEC) and Renewable Energy Communities (REC). Then they can engage with aggregation and other energy services. • The role of an independent aggregator has not yet been defined in Austrian law.	
	• Active customers	• Austria has no specific legislation on Active customers as of now.	
	• Citizen Energy Communities	• Citizen Energy Communities are defined in §16b ElWOG and enable the emergence of a new market participant at a national level in Austria that also includes other participants and stakeholders. • Unlike RECs, the CECs' production, distribution, and consumption of energy is not limited to renewable energy sources (but to electricity) and there is no requirement for an immediate proximity of the CECs members. • CECs are allowed to own and operate distribution grids according to §16d ElWOG with all responsibilities of a normal DSO.	
	• Demand Response Through Aggregation	• Austria has no specific legislation on Demand Response through Aggregation as of now.	
	• Integration Of Electromobility Into The Electricity Network	• Austria is planning to introduce new legislation which includes standards with regards to data exchange and price transparency. • No dedicated legislation to promote the build out of charging stations has been passed as of now. • **This could have a negative impact on the project if charging is not promoted by the government.**	
	• Closed Distribution Systems	• This has not been implemented by Austria. **This could expose the project to higher grid operating costs if they choose to use the generated electricity for self consumption.**	
	• Connection Of New Generating Installations And Energy Storage Facilities	• This is covered by §46 ElWOG for Distribution System Operators. • There is no legislation that applies to the Transmission System Operators.	

3. Ireland

Country specific Red flag analysis

Ireland

Legislation	Topic	Summary of identified issues	Risk
Governance of the Energy Union and Climate Action (EU) 2018/1999	• National long-term strategies	• Ireland has developed long-term strategies to achieve greenhouse gas neutrality by 2050. The Ireland government has developed the Climate Action Plan 2019 as a plan to tackle climate breakdown. • The reduction targets for greenhouse gas emissions was set at about 30% by 2030 compared to 2005 levels. Projections indicate, however, that non-ETS sector emissions will continue to increase against the required decarbonisation pathway to meet the country targets and this presents a substantial challenge for Ireland. • The Government supports the adoption of a net zero target by 2050 at EU level. The Climate Action Plan puts in place a decarbonisation pathway to 2030 which would be consistent with the adoption of a net zero target in Ireland by 2050. The Plan also commits to evaluating in detail the changes which would be necessary in Ireland to achieve this target. • In 2014 Ireland adopted a National Policy Position for an 80% reduction in CO2eq. emissions by 2050 compared to 1990 levels for the electricity generation, built environment, and transport sectors.	

	• National Energy and Climate Plans:
	  • Energy Security
	  • Internal Energy Market
		• Although EirGrid are achieving higher levels of non-synchronous power penetration, **in practice, grid connections, grid infrastructure and associated timelines prove challenging**. Significant investment is required in the grid infrastructure to facilitate future demand, including a fast-growing data centre market.
		• Plans are supportive of private sector input to diversify energy mix and increase security of supply. **However, future grid Capacity, grid connections could pose a risk.**
		• The new EirGrid, Integrated Single Electricity Market Project (I-SEM) addresses market integration and coupling, smart grids, aggregation, demand response, storage, distributed generation, mechanisms for dispatching, re-dispatching and curtailment, and real-time price signals. These are either already implemented or being implemented.	

	• 2030 Framework for Energy and Climate for the Union objectives for GHG emission reductions, energy efficiency improvement, renewable energy use and renewable energy in electricity interconnection.	• Renewable Electricity Support Scheme (RESS) frequency of auctions and eligibility of technology types, could potentially pose a barrier for the project. • Gas Networks Ireland is liaising with several European gas organisations evaluating the suitability of existing gas transmission and distribution networks to accommodate both hydrogen blends and 100% hydrogen. This is however, still in at the early stage. • Route to market and customer demand (who/where) are still unknown with Irish roadmap for hydrogen yet to be developed	

Ireland

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Binding Overall Union Target For 2030	• To achieve the overall 16% target, national sub-targets were set for heat (12%), transport (10%) and electricity (40%). Targets are ambitious, considering overall performance to date. Significant effort and investment will be required which should in theory, boost the viability of this project.	
	• Support schemes for energy from renewable sources	• Renewable Electricity Support Scheme (RESS) are an Enabling Framework for communities to participate in renewable energy projects and provide financial support to renewable electricity projects. • **Frequency of auctions and eligibility of technology types, could potentially pose a barrier for the project.** The volumes and frequencies of RESS auctions will increase to deliver on the 70% renewable electricity target by 2030 and ensure an appropriate enterprise/community mix to achieve an efficient delivery of renewables. There will be approximately six RESS auctions up to 2030. • **No subsidy scheme currently available for hydrogen which could a potential barrier for development of hydrogen-based technologies, electrolysers etc. as an alternative route to market.**	
	• Opening of support schemes for electricity from renewable sources	• **Following the exit of the UK from the EU, Ireland will no longer be physically connected to the EU Internal Energy Market (IEM).** • Targets aim to support further electricity interconnection to improve the functioning and flexibility of the national energy system, increasing the import route diversity. • As part of the design of the RESS, Ireland is committed to opening the scheme to participants from other European Member States with whom Ireland has a direct electricity connection, provided a co-operation agreement has been signed by both parties for physical delivery of green electricity.	
	• Administrative procedures, regulations and codes	• Ireland aims to develop effective policy tools to harness the significant potential of Corporate PPAs to meet at least 15% of Ireland's 2030 electricity demand from renewable sources, potentially offering an opportunity for the project.	

Legislation	Topic	Summary of identified issues	Risk

Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Simple-notification procedure for grid connections	• Ensures that renewable electricity grid connection policy is fit for purpose to deliver on renewable energy targets and community projects, and report annually on the timeliness of grid connection.
		• Enduring Connection Policy Stage 2 (ECP-2) open to all generating and storage technologies (greater than 0.5MW).
		• Micro-Generator is a source of electrical energy which operates in parallel with ESB Networks LV System and rated up to and including:
		  ◦ 25 amperes (6kW) at low voltage [230 volt] when the connection is single phase
		  ◦ 16 amperes(11kW) at low voltage [230/400 volt] when the connection is three phase
		• Conditions Governing the Connection and Operation of Micro-generation Policy	

	• Guarantees of origin for energy from renewable sources	• SEMO operates the registry for Guarantees of Origin in Ireland. SEMO is a member of the Association of Issuing Bodies (AIB) which facilitates the international exchange of Guarantees of Origin. GO procedures in Ireland are aligned with the EECS rules. • **Any renewable generator that is covered by an Irish government support scheme, will not receive a GO.** The generator will have the attributes of their generation transferred directly to the fuel mix of the supplier with whom they have their PPA. **Suppliers who have not entered a PPA, are free to purchase GOs that are issued to renewable generators that are not in receipt of PSO support. Such suppliers are free to acquire GOs from other EU Member States for use in their fuel mix disclosure.**	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Renewables Self-consumers	• **As of yet, there is a lack of definition around renewable self-consumers in Ireland**. The new Micro-generation Support Scheme, consultation currently ongoing, will establish a model for this.	
	• Renewable energy communities	• **As of yet, there is a lack of definition around renewable energy communities in Ireland.** The new Micro-generation Support Scheme, consultation currently ongoing, will establish a model for this.	
	• Mainstreaming renewable energy in the transport sector	• The target for Transportation & EVs is ambitious. In the transport sector, the CAP sets out actions to accelerate the penetration of electric vehicles aiming to reach 100% of new vehicle sales by 2030, so that 936,000 electric vehicles will be on the road by 2030. **However, slow uptake in EVs coupled with a slow rollout of associated charging infrastructure is a potential issue.** • Biofuels Obligation Scheme obligates fuel suppliers to reduce the carbon intensity of transport fuels by 6% by 2020. The Biofuels Obligation Scheme for the period 2021 to 2030 is in consultation phase. • The Hydrogen strategy roadmap yet to be developed in Ireland.	
	• Calculation rules with regard to the minimum shares of renewable energy in the transport sector	• At the time of submittal of this report, no information was found available on this matter.	
	• Other provisions on renewable energy in the transport sector	• Roll out of charging infrastructure and renewable refuelling infrastructure is poor. The EV charging network will have to increase to support the growth of EVs at the rate required, and develop fast-charging infrastructure to stay ahead of demand	

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Aggregation Contract	• Current market arrangements comply with the requirements for non-discriminatory participation for market participants engaged in aggregation. Market adjustments to facilitate more efficient forms of aggregation may be required and developed in the future.	
	• Active customers	• There is currently no clear current definition of Active Consumer in Ireland.	
	• Citizen Energy Communities	• Citizen Energy Communities will be addressed in the Micro-generation Support Scheme in Ireland 2021 - consultation currently ongoing.	
	• Demand Response Through Aggregation	• The new EirGrid, Integrated Single Electricity Market Project (I-SEM) addresses aggregation and demand response. • A Demand Side Unit or DSU is a single demand site or group of demand sites that can reduce their electricity consumption when instructed by the National Control Centre (NCC). Demand Side Units allow parties to bid demand reductions into the all-island wholesale Single Electricity Market (SEM). • There are two DSUs currently operational in Ireland providing up to 70 MW of demand reduction and there are a further four at various stages of the application process. All are DSU Aggregators who contract with individual demand sites and aggregate their demand response together to operate as a single DSU. • Demand Response Schemes currently in operation include Short Term Active Response (STAR) and Powersave.	
	• Integration Of Electromobility Into The Electricity Network	• The National Policy Framework on Alternative Fuels Infrastructure for Transport in Ireland sets out the need to develop publicly accessible fast chargers to support growth in electric vehicles (EVs). ESB ecars is currently expanding and enhancing the charging network across Ireland, in part funded by the Irish Government's Climate Action Fund.	
	• Closed Distribution Systems	• At the time of submittal of this report, no information was found available on this matter	
	• Connection Of New Generating Installations And Energy Storage Facilities	• EirGrid / SONI - Battery ESPS Grid Code Implementation Note aims to provide definitive guidance on the technical requirements for Battery ESPS and further elaborate on the applicability of specific clauses. • Further industry engagement regarding the treatment of energy storage (including Batteries) will take place via the FlexTech initiative. **A specific code for storage devices is also being designed at European level, which will result in Grid Code modifications specific to Battery ESPS.**	

4. The Netherlands

Country specific Red flag analysis

The Netherlands

Legislation	Topic	Summary of identified issues	Risk
Governance of the Energy Union and Climate Action (EU) 2018/1999	• National long-term strategies	• In June 2019, the Dutch government published the National Climate Agreement with the central goals of reducing greenhouse gas emissions in the Netherlands by 49% compared to 1990 levels by 2030 and 95% by 2050, and the target of 70% of all electricity produced in the Netherlands to come from renewable sources by 2030. • In relation to transport, by 2050, transport will emit no more harmful exhaust gases and CO2. Measures to meet this target include more charging stations for electric cars, development and production of sustainable fuels, 100% clean public transport buses, encouraging people to cycle.	

	• National Energy and Climate Plans:
	  • Energy Security
	  • Internal Energy Market
		• In November 2019, the Netherlands published the "Integraal nationaal energie en klimaatplan" (INEK). The INEK contains the main lines of the climate and energy policy for the next 10 years.
		• An important aspect of energy security for the Netherlands involves the possibilities for large-scale and long-term storage of renewable electricity.
		• The government is actively developing and optimizing electricity infrastructure to enable to growth of renewable energy and works on legislation to increase flexibility in the market.
		• In the field of electricity infrastructure, investments are being made to increase the domestic capacity of the national grid.	

	• 2030 Framework for Energy and Climate for the Union objectives for GHG emission reductions, energy efficiency improvement, renewable energy use and renewable energy in electricity interconnection.	• The Netherlands is implementing several measures that may benefit the project:
		  • A CO2 tax on the energy producers will support the electricity price which is beneficial for renewable energy producers.
		  • The decarbonization goals support production of biofuels with SDE++ which impacts the transport sector.
		  • Electrical transport requires infrastructure along the roads.
		  • The government will work on circular and sustainable tenders for earthworks and waterworks.
		  • The government has made agreements on sustainable inland shipping which might require infrastructure.
		  • Research and Innovation programs are running to support innovation on renewable generation on land.	

The Netherlands

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Binding Overall Union Target For 2030	• The Netherlands is focusing on achieving 27% as a contribution to the European target in the field of renewable energy by, among other measures, encouraging renewable energy on land up to 35 TWh and small-scale renewable generation up to circa 10 TWh by 2030. • The target for renewable energy in 2020 of 14% has not been reached despite the strong increase in solar and offshore wind production and did not exceed 11%.	
	• Support schemes for energy from renewable sources	• The Netherlands has various mechanisms to stimulate renewable energy, most importantly The Sustainable Energy Production Incentive Scheme (SDE++), Renewable Energy Scheme (HER). • The SDE++ focuses on emission reduction on Dutch territory only. The SDE++ will encourage the roll-out of market-ready and relatively large-scale CO2 reducing techniques including large scale renewable solutions such as wind and solar farms and biofuel production. The SDE++ is available up to and including 2025 for grants for renewable energy projects. • The aim of the HER is to achieve the energy targets for 2030 in a more cost-effective manner through innovative projects. • The Climate and Energy Innovation Demonstration Scheme (DEI+) is aimed at supporting pilot and demonstration projects that contribute to the cost-effective reduction of CO2 emissions by 2030 including support climate and circular projects.	
	• Opening of support schemes for electricity from renewable sources	• SDE++ has recently been amended, in the new system electricity production competes with CO2 saving solutions (including CCS, geothermal and biofuels). This could be a risk on the project. • SDE++ is not available anymore after 2025, the government believes no subsidy would be required by that time.	
	• Administrative procedures, regulations and codes	• The Netherlands does not currently have a specific policy for PPAs but will review the policy changes the relevant articles require. • PPAs are commonly traded and contracted in the market, barriers with respect to more suppliers and balance responsible parties at the same connection have been addressed in the new energy law. • Impact to the project: PPAs are offered in the market. More than one supplier and balancing party possible means more flexibility with contracting PPAs with other parties than own supplier.	
	• Simple-notification procedure for grid connections	• At the time of submittal of this report, no information was found available on this matter	

Issue	Observation	Comments and Key Conclusions	Risk
	• Guarantees of origin for energy from renewable sources	• The Netherlands has one of the most active markets on GoOs with strong demand from customers and high market prices. • The Dutch government does not exclude subsidized energy sources but ensures the value of the GoO is corrected with the subsidy (SDE++ system) • Only request are considered from installations within the Netherlands. • There is no minimum capacity set in the legislation.	
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Renewable self consumers	• The Netherlands currently encourages **renewable self-consumption** through a fiscal measure for solar panels among **domestic consumers.** • There are no restrictions to self consumption with respect to green energy claim or subsidy.	
	• Renewable Energy Communities	• The draft Energy law 1.0 facilitates energy communities and local cooperation's which could act as consumer or as producer and supplier to its members.	
	• Mainstreaming renewable energy in the transport sector	• The objectives of the Energy for Transport legislation are to increase the share of renewable energy (such as biofuels) in transport and to reduce greenhouse gas emissions from transport fuels. • The Ministry of Infrastructure and Water Management (IenW) is currently preparing the transposition of the mobility part of the revised European Renewable Energy Directive (RED2) for the period 2022-2030. **The new Environmental law and the new Energy for Transport decree are currently under review.** • In the existing system, the Energy for Transport obligations are met by a market mechanism. **Companies that physically supply renewable energy to transport can register their deliveries in the Energy for Transport Register. The registrants thus create Renewable Fuel Units or "Hernieuwbare Brandstof Eenheden" (HBEs), which stand for 1 gigajoule of renewable energy.** • **HBE's are tradable and the value can add to a business case of gasoil produced with green hydrogen rather than grey hydrogen.** • **We expect GoOs will be replacing HBEs or the systems will be aligned, at the moment this is not clear yet.**	
	• Calculation rules with regard to the minimum shares of renewable energy in the transport sector	• No pertinent issues have been identified. Source Certiq, Wetsvoorstel energiewet 2.7.3-7	

The Netherlands

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Aggregation Contract	• In the Netherlands, aggregation of consumption is automatically allowed in the energy system (multiside contracts).	
	• Active customers	• PPA and a supply agreement can be contracted independently which increases the opportunities in the market. If the PPA seller wants to sell to a (group of) households, this would not require a supply license. • Energy storage facilities are facilitated in the energy laws. They can support with grid services. The new energy law does not integrate hydrogen and heat yet, therefore hybrid projects such as green power to hydrogen is not covered in law yet but taken care of in pilots and strategy (hydrogen strategy). • Integration of storage with energy production could be relevant to the Project, we do not see obstacles for batteries. For hydrogen it is too early stage to comment on requirements in law.	
	• Citizen Energy Communities	• Local partnerships already exist in the Netherlands, often in the form of energy cooperatives. The draft Energy law 1.0 facilitates energy communities and local cooperation which could act as consumer or as producer and supplier to its members.	
	• Demand Response Through Aggregation	• Clients can contract demand response services via an aggregator or directly with a supplier. • The Aggregator may provide this flexibility to the TSO for electricity for balancing purposes. In that case, the aggregator must qualify as a balancing service provider' (BSP). Pursuant to the Regulation (EU), the TSO has to drafted requirements for that. • Currently aggregators are already offering demand response to the TSO but mainly for large consumers.	

The Netherlands

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Integration Of Electromobility Into The Electricity Network	• The National Agenda Charging infrastructure (NAL) is part of the Climate Agreement. The ministry of I&W is responsible for managing the agenda. In this it is foreseen that 1.7 million charging locations are required. • Since 2014, Rijkswaterstaat offers the possibility to develop charging stations at the stops along the highways. It is forecasted that along the highways 2900 fast chargers (including 115 for trucks) are required by 2030. • Currently 3 publicly available hydrogen fuelling stations are built as a pilot, the ambition is to have 50 hydrogen fuelling stations by 2025. In this Rijkswaterstaat works together with H2Platform and WaterstofNet. • In the new energy law, actions and activities related to the construction of electric charging are no longer among the permitted activities of infrastructure groups. • For the Project this means that load infrastructure should be tendered which is currently taking place already.	
	• Closed Distribution Systems	• Closed distribution system operators are exempt from certain rules and regulations which public system operators need to comply to.	
	• Connection Of New Generating Installations And Energy Storage Facilities	• A transmission or distribution system operator shall offer up on request to connect an installation and connect a client within reasonable terms, unless the transport capacity is not sufficient in its system. When transport capacity is not available, grid connection may be refused or delayed. More options are available for example cable pooling.	

Issue	Observation	Comments and Key Conclusions	Risk

Additional Specific Legislation concerning RE and road infrastructure
 	
PROCUREMENT ACT
	• The Procurement **Rules for Works (aanbestedingsregelement)** 2016 (ARW) apply to contracts for works of contracting authorities, the value of which is below the European threshold values. The ARW is broadly in line with the 'European' **procurement rules** (part 2 of the Procurement Act). Like the Procurement Act, the ARW contains general rules and specific procedural rules.
	• A contracting authority should in principle apply the open or restricted procedure.
	• In addition, the ARW contains specific regulations for each tender procedure. These include rules for
	  • the periods to be observed
	  • the conditions to be imposed (including the award criteria and eligibility requirements) and
	  • the assessment of the tenders.
	• The main purpose of these regulations is to ensure that contracting authorities act in a non-discriminatory, transparent and proportionate manner. The Proportionality Guide also applies to ARW tenders. The ARW refers to specific passages from the **Proportionality Guide.**
	
	• A contracting authority may deviate from the provisions of the ARW. If it does deviate from the regulations, it must give reasons for doing so. Considerations of proportionality, in particular will play a role in this. For example, it will not always be proportionate to use a (non-)open procedure. That procedure involves substantial costs for both the contracting authority and the tenderers. Under such circumstances it is not proportionate to use an open or restricted procedure, but to put the contract on the market in a different way. For example, a contract with a value of a few thousand euros can be awarded by private treaty.
		• According to the ARW the ministry has to tender for procuring electricity. Therefore it is not allowed to directly contract a PPA with a developer on its premisses since that would be a private agreement and not publicly tendered.
		• The same would apply for GoOs.
		• Exemptions are possible, this should be looked into in further detail.	

Source Energiewet 1998 artikel 23 -4, Wetsvorstel energiewet 3.4.8 Toelichting 2.2E

The Netherlands

Issue	Observation	Comments and Key Conclusions	Risk

Additional Specific Legislation concerning RE and road infrastructure
Spatial planning and permitting
	• 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 Permit Act ("MER") sets rules for permits and environment.
	• The Nature Conservancy Law sets limitation on Nitrogen emissions which is detailed in a proposed Act on Nitrogen Reduction ("wetsvoorstel stikstofreductie en natuurverbetering").
	• A new wind or solar farm usually requires a **Spatial Procedure** and a P**ermitting Procedure**. In order to determine which procedure should be followed, it must first be assessed which permits are required. It is also necessary to review whether a new **Zoning Plan** (or a land-use plan) is required. On this basis, the competent authority can be determined.
	• Other permits may be required in addition to an **Environmental Permit (MER)**. Some examples of permits required are:
	• A **water permit** (competent authority: water board, district water board, etc.)
	• A **Nature Conservancy permit** (competent authority: provincial authority)
	• A **Flora and Fauna Act exemption** (competent authority: Minister of Economic Affairs)
	• Ultimately it is the developer who must ensure that he has all the permits required for a wind farm. The municipality must ensure that the local community is involved and is given sufficient opportunity to have its say. Against this background the municipality may decide to adopt a Structural Concept first.
	• For the Spatial permit, the request is tested against the policy:
	  ◦ National Spatial Vision which includes the vision to develop the infrastructure required for a renewable energy system (windfarms >100 MW).
	  ◦ Local Renewable Energy Strategies (RES) in which regions have developed a strategy with locations for wind and solar production locations as part of the Climate Agreement.
	  ◦ Provincial Environmental vision, with more detailed spatial and landscape strategy and connection possibilities (5-100 MW).
	  ◦ Municipal spatial vision which also reflects the national climate ambitions (<5 MW).
	• The permit also sets rules for safety, noise, hight (airports), shadow flicker and distance.
		• For the Project the project should fall within the plans and strategy of the local or regional spatial plans and follow detailed rules on safety and distances to other buildings.
		• It should be carefully investigated which locations are therefore allowed.	

https://iplo.nl/praktijksituaties/windturbines/toelaten/

5. Belgium - Flanders

Country specific Red flag analysis

Legislation	Topic	Summary of identified issues	Risk
Governance of the Energy Union and Climate Action (EU) 2018/1999	• National long-term strategies	• Belgium is a federal state, where the decision-making power is shared between a Federal government, three Regions (Wallonia, Flanders and the Brussels Capital Region) and three Communities (the Flemish, the French and the German-speaking Community). **Federal state:** • Interfederal Energy Pact: Reaffirms Belgium's commitment to the Paris Agreement by putting particular emphasis on the transition to a low-carbon society. The Energy Pact outlines objectives for Belgium's energy system by 2050, setting various energy transition targets. The Pact also gives an insight into the 2030 energy mix. • Federal Energy and Climate Plan • Federal Energy Strategy • Electricity Act 1999 **Flemish Region:** • Flemish Climate Policy Plan 2021-2030, • Flemish Energy Plan 2021-2030, • Flemish Energy and Climate Plan 2021-2030 • VREG	
	• National Energy and Climate Plans: • Energy Security • Internal Energy Market	In the Belgian National Energy and Climate Plan (NECP) covers all five dimensions of the Energy Union: • **Dimension energy security:** Energy security is one of the major challenges facing Belgium in the short and medium term. Information is provided in relation to reinforcing diversification and system flexibility and reducing import dependency. Attention is given to the increasing dependence on gas, renewable energy and energy imports considering the nuclear phase out. • **Dimension internal energy market:** The internal energy market plan would benefit from including a concrete aim for 2030. Belgium will have already surpassed the electricity interconnection level for 2030, with a level of electricity interconnectivity of 21% in 2020.	
	• 2030 Framework for Energy and Climate for the Union objectives for GHG emission reductions, energy efficiency improvement, renewable energy use and renewable energy in electricity interconnection.	• **Dimension decarbonization:** Reduction in GHG emissions: Reduce its GHG emissions by 35% by 2030 compared with 2005 levels for non-ETS sectors. Renewable energy: A contribution is set in terms of the proportion of renewable energy it uses. The EU target is 32% by 2030. • **Dimension energy efficiency:** Belgium has set its contribution to the EU target of 32.5% by 2030.	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Binding Overall Union Target For 2030	Belgium proposes an 18.3% share of energy from renewable sources in gross final consumption of energy in 2030 as contribution to the EU renewable energy target for 2030. This level of ambition is significantly below the objective set by the EU for 2030.	
	• Support schemes for energy from renewable sources	• Develop a policy framework for the crowdfunding of investments in renewable energy generation: production of a solar guide. • Expand low-cost energy loans. • Support mechanism for the production of renewable energy: operating support through green certificates (around EUR 1.1 billion on an annual basis). • Low-interest or interest-free loans for a specific target group needing financial support (EUR 55 million per year) and encouragement for banks to grant energy loans. • System operator incentives for solar water heaters (around EUR 4 million per year). • System operator incentives for heat pumps and water heaters with heat pumps (around EUR 3 million and EUR 1.8 million per year respectively). • Encouragement of small- and medium-sized wind turbines through investment aid (EUR 4.2 million per year).	
	• Opening of support schemes for electricity from renewable sources	The North Seas Energy Cooperation (NSEC) seeks to create synergies, avoid incompatibilities between national policies and foster joint strategies. As regards to measures, Belgium benefits from the NSEC in several ways. The work in the NSEC provides a platform for exchange of best practice regarding the design of support schemes	
	• Administrative procedures, regulations and codes	• Develop standard specifications to encourage public authorities to allow third parties to install photovoltaic systems on the roofs of their public buildings. • Introduction of a single environmental permit rather than separate environmental permit and planning permission. • Simplify the opportunity for involvement in order to achieve the minimum contribution of renewable energy.	
	• Simple-notification procedure for grid connections	• Remove the restriction preventing extensions to photovoltaic systems from being authorised within 36 months. • Increase the minimum contribution of renewable energy in new-builds from 10 kWh/m² to 15 kWh/m² from 2017	
	• Guarantees of origin for energy from renewable sources	Producers who want to apply for GOs, send their application to: their electricity distribution system operator (Fluvius) for electricity from solar PV panels (≥ 10 kW, link in Dutch); the Flemish Energy Agency (VEA) for all other electricity	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Renewables Self-consumers	• There is no clear definition of a renewable self-consumer in Flemish legislation, in spite of the lack of a proper definition, self-consumption has been regulated for a long-time in Flanders.Households that have PV panels on their roof are now called prosumers by the grid operator and the regulator. • In order to sell electricity to the grid, the self-consumer must have a meter that gives a distribution system operator (DSO) or a supplier precise data on self-production and consumption (quarterly meter, taking measures every 15 min) and the amount injected in the grid. • Flanders introduced a **prosumer grid tariff** (Technical Regulation, 2015) reducing benefits for prosumers (who must pay, depending on the installed capacity, a prosumer tariff between 80 and 113Euros per kW as a fee for the use of the grid). This tariff can be avoided by switching to a self-consumption scheme	
	• Renewable energy communities	• There are no special rules for communities on generation, consumption, storage and selling of RE. Different consumers cannot operate a private grid and balance production and demand on a common level, since every household is required to choose an energy supplier in the market. It is forbidden to exchange surplus electricity directly between neighbours, RECs would therefore be restricted to business models that do not include these activities. • CECs are possible due to the 'Green Certificates' policy, which implies that an energy producer (who could be also self-consuming the generated power) will be able to prove that a certain quota of the electricity supplied was generated through renewables • Belgium currently hosts several active energy cooperatives which can be considered CECs, such as Eco-Power, with around 48.000 members	
	• Mainstreaming renewable energy in the transport sector	• Flanders includes targets for clean vehicles. Under "clean" they include hybrids and biofuels, which are not clean. It is mentioned that least half need to be zero emissions. There are insufficient specific measures for aviation and shipping. Wallonia is not as specific.	
	• Calculation rules with regard to the minimum shares of renewable energy in the transport sector	• In the WAM scenario, the strategic measures involve reducing the number of vehicle-kilometres. For passenger transport and light-duty vehicles, this will reduce the number of vehicle-kilometres by 15% from 2015. For heavy goods vehicles, the number of vehicle-kilometres will be 14% higher in 2030 than in 2015. Bus traffic will remain stable to 2030.	
	• Other provisions on renewable energy in the transport sector	• From 2025, the Flemish Government will purchase or lease only zero-emission passenger cars (BEV or FCEV). • In addition, the Flemish Government will work on the following aspects: roll-out of the charging infrastructure needed; actions aimed at changing user behaviour; limited financial incentives; reduction in the work of entities; cycling infrastructure; mobility studies; option to propose framework contracts for environmentally friendly vehicles, etc.	

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Aggregation Contract	• 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).	
	• Active customers	Flemish Region has committed to promote active consumer as follows: • Developing a regulatory framework for active customers and local energy communities • Setting the thresholds and developing a framework to assist local energy communities	
	• Citizen Energy Communities	• **No special legislation was passed to promote citizen energy communities.**	
	• Demand Response Through Aggregation	**Spot Market:** Access for Demand Side Response is possible, but several conditions need to be fulfilled to participate **Intraday Market**: Access for Demand Side Response is possible, but several conditions need to be fulfilled to participate **Balancing Market**: Access for Demand Side Response In Belgium, it is possible to participate: • A. via a **supplier** (insofar the latter is interested in the flexibility of his consumers, which seems to be in some cases a problem in Belgium); this is also possible for those consumers that are their own supplier/BRP • B. via a **third party** flexibility service provider: currently already possible for FCR and mFRR (but not aFFR), Elia is revising its balancing products to further improve and extend this • C. **directly** for the **ICH** (Interruptibility contract) product. Capacity to transition to other products as much as possible	

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Integration Of Electromobility Into The Electricity Network	• Promotion of low-emission and zero-emission vehicles for individuals and company and bus fleets, installation of charging infrastructure, and encouragement of innovation in order to green goods transport. • Charging of PHEVs will be encouraged, with the electricity consumption being monitored and incentive measures being introduced, if necessary, to increase this charging.	
	• Closed Distribution Systems	• The rules governing access to the Elia grid change whenever a grid user connected to the Elia grid becomes the manager of a closed distribution system (CDS). According to the principle of third-party access, the manager of the CDS must enable users within his network to choose their own supplier and access responsible party (ARP).	
	• Connection Of New Generating Installations And Energy Storage Facilities	Elia's business activities are governed by European, national and regional legislation. • https://www.elia.be/en/company/legal-framework	

6. Denmark

Country specific Red flag analysis

Denmark

Legislation	Topic	Summary of identified issues	Risk
Governance of the Energy Union and Climate Action (EU) 2018/1999	• National long-term strategies	• The Danish Government wants to reduce Green House Gas (GHD) emissions by 70 % by 2030 and intends to be zero emissions by 2050.	

	• National Energy and Climate Plans:
	  • Energy Security
	  • Internal Energy Market
		• The National energy and climate plan does not have national objectives for reducing the energy import dependency of third countries, since these dependencies are limited due to the diversification of energy sources and the production of oil and gas within Denmark.
		• The Danish Government has announced that by 2030 Denmark can have more than 1 million green cars, a new gas strategy and a roadmap for smart energy, as well as significant increase of heat pumps in heating sectors of Denmark. This is expected to provide a basis for increasing flexibility through increased demand response and energy storages.
		• '20_Introduktion til elmarkedet' states that the Danish electricity grid is physically integrated with our neighboring countries through five electricity connections abroad. The connections that go to Sweden, Norway and Germany, are operated and owned jointly by Energinet and the system operators of the neighboring countries concerned, where Holland is also connected since 2019.	

	• 2030 Framework for Energy and Climate for the Union objectives for GHG emission reductions, energy efficiency improvement, renewable energy use and renewable energy in electricity interconnection.	• Renewable energy sources are promoted with economic measures, including use of energy and CO2 taxes on fossil fuels and through the Public Service Obligation Schemes (PSO). The Danish PSO levy will be phased out during a period of 5 years (2017-2022). • Intra-day market coupling in the Nordic Market and between East Denmark and Germany via Kontek-interconnector has been in place for many years. Furthermore, interconnection between West Denmark and Germany has been replaced by implicit intra-day market coupling (also known as XBID). • Denmark cooperates with the other North Seas Energy Cooperation countries on the possibilities for concrete cooperation projects. • Furthermore, Nordic TSOs work closely together on Nordic grid development and have developed a Nordic Grid Development plan 2017.	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Binding Overall Union Target For 2030	• According to the European Energy agency, the annual increase in the share of energy from renewable sources has decreased in recent years, due to the increase in final energy consumption. If energy consumption from all sources continues to increase, it could jeopardize the achievement of both renewable energy and energy efficiency targets at EU level.	
	• Support schemes for energy from renewable sources	• Renewable energy sources for heating purposes are exempt from the tax obligations on the production, supply and use of energy sources. The use of biogas for heating purposes is supported through a direct tariff. • Access of electricity from renewable energy sources to the grid shall be granted according to the principle of non-discrimination. With regards to the use of the grid, renewable energy shall be given priority. • The Renewable energy law ensures support of electricity production from wind turbines, solar cells, biogas, biomass and gasification gas as well as wave power.	
	• Opening of support schemes for electricity from renewable sources	• The set threshold for the importation of RES limits the market and thus the affecting the production of green energy.	
	• Administrative procedures, regulations and codes	• Ørsted has signed a corporate power purchase agreement (CCPA), a long-term electricity purchase agreement for large corporate customers which helps increase the production of renewable energy while reducing corporate CO2 emissions, strengthening the company's sustainable profile and providing cheaper electricity.	
	• Simple-notification procedure for grid connections	• For Plants up to and including 11 kW (A1), the electricity utility supplier has the right to reject grid connection for any plant which is not three-phase. • For plants 50kW and above (B), the net-metering is calculated on an hourly basis. Energinet.dk determines whether the conditions for net-metering are met and which type of net-metering will apply. • For solar energy installations up to 50 kW the plant has to be connected to a private supply system. • For solar energy installations > 50 kW the plant has to be connected to a private supply system or located at the place of consumption.	
	• Guarantees of origin for energy from renewable sources	• Environmentally Friendly Electricity from hydro power and wind power is documented through Guarantees of Origin, the so-called Recs certificates. • The Guarantees of Origin are certified by an auditor and are therefore proof for the electricity consumption being covered by renewable energy. At the same time, Energi Danmark issues a proof for Environmentally Friendly Electricity.	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Renewables Self-consumers	• Electricity producers using all or part of the electricity produced for their own needs are totally or partly exempt from paying Public Service Obligation (PSO) on this electricity. The PSO is a charge levied to support renewable energy. • Net–Metering. The metering system does not enable any remuneration to the residential prosumer but provides for a compensation scheme between the excess of electricity generated and fed into the grid and the electricity purchased in other periods where the needs for electricity might be greater. • Prosumers in Denmark, are able to sell electricity back to the national grid provided they have requested (and obtained) the net settlement to Energinet.dk. • New installations that produce electricity from renewable sources have the right to be connected to the grid. Energinet and the network companies cooperate to ensure this network access. • In Denmark, electricity from renewable sources is mainly promoted through a premium tariff and net-metering. • The net-metering regulation allows certain plant operators exemptions from paying the PSO. The exemptions depend on the installed capacity and renewable technology.	

	• Renewable energy communities	• Four policy measures were introduced by the Promotion of Renewable Energy Act 2009 that were specifically aimed to reach the renewable energy targets and enhance local acceptance of wind turbine projects, notably:
		  • A compensation scheme to neighbours;
		  • A co-ownership scheme;
		  • A community benefit scheme (green scheme);
		  • A guarantee fund for local ownership initiatives.	

	• Mainstreaming renewable energy in the transport sector	• The Act on Sustainable Biofuels obliges importers and producers of petrol and diesel to meet a defined quota of biofuels (§ 3 par. 1 Act 674/2011). Obliged fuel suppliers may pass on this obligation to other companies (§ 3 par. 5 Act 674/2011).	
	• Calculation rules with regard to the minimum shares of renewable energy in the transport sector	• No relevant issues were identified.	
	• Other provisions on renewable energy in the transport sector	• Denmark is currently promoting electric (866 recharging stations with 1749 recharging points), compressed natural gas and hydrogen mobility (10 hydrogen refueling points).	

Denmark

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Aggregation Contract	• The law for electricity paragraph 28 states that 'Energinet' in collaboration with the Minister of Climate, Energy and Utilities and the other collective electricity supply companies shall, ensure that the public obligations are met.	
	• Active customers	• '*De Frie Energiselskaber*' states that decentralized energy planning in the form of storage and local energy production - including especially household solutions, where consumers both use and produce electricity - will have a greater impact on the overall energy system from now on. *Energinet* has, for example, assessed that there may be a positive business case for solar cells and battery solutions by 2025.	
	• Citizen Energy Communities	• **Citizens' energy communities do not exist in Danish legislation**, but there are still certain principles in Danish legislation that are relevant. An electricity consumer is guaranteed a free right to choose an electricity supplier through the Electricity Supply Act. • Energinet explains the market in a their '20_Introduktion til elmarkedet' The liberalization of the electricity sector introduced competition between producers and supplier. These players trade together in the wholesale market. Due to its status as a natural monopoly is the transmission network not open to competition. The transmission network is therefore owned by the state through *Energinet*. Because the transmission network constitutes the physical platform for the wholesale trade in electricity - it is through the transmission network that the buyer and seller exchanges electricity - it is *Energinet* that sets the framework for this trade.	

Denmark

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Demand Response Through Aggregation	• Today 'model 0' is in use, this model is primarily aimed at those players who want - or have already taken on - the obligations in relation to being an electricity supplier / balance responsible in the market, and who through their current market role have close contact with the consumer. 3 other models are in the pipeline for the Danish marked. This can be seen in 13_Markedsmodeller for aggregatorer • Because the aggregator deals directly with Energinet without a balance responsible party, exemption is granted for the fundamental electricity market principle that all consumption and generation must be assigned to a balance responsible party.	
	• Integration Of Electromobility Into The Electricity Network	• '19_Ladestanderbekendtgørelsen' states that new built buildings with parking spaces must be prepared for charging stations for electric and hybrid cars.	
	• Closed Distribution Systems	• There are no specific mention about a closed distribution system in the 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.	
	• Connection Of New Generating Installations And Energy Storage Facilities	• EnergiNET has provided a detailed and transparent description for the procedures for connection for installations.	

7. Sweden

Country specific Red flag analysis

Legislation	Topic	Summary of identified issues	Risk
Governance of the Energy Union and Climate Action (EU) 2018/1999	• National long-term strategies	• Swedish energy and climate policy is compatible with the ambitions of the Energy Union's five dimensions. • The long-term target for Sweden is zero net greenhouse gas emissions by 2045 at the latest. After 2045 Sweden is to achieve negative net emissions.	

	• National Energy and Climate Plans:
	  • Energy Security
	  • Internal Energy Market
		• Policies put in place to support the National Energy and Climate (ENCP) Plan include a C02 tax, an energy tax and cooperation with other European national grid companies through the European Network of Transmission System Operators for Electricity (ENTSO-E).	

	• 2030 Framework for Energy and Climate for the Union objectives for GHG emission reductions, energy efficiency improvement, renewable energy use and renewable energy in electricity interconnection.	• Sweden's 2030 target for greenhouse gas (GHG) emissions reduction is 40% compared to 2005, with a an efficiency increase of 50% and a 65% share of renewable energy.
		• Sweden's interconnectivity exceeds 15% and is projected to reach 27%.
		• Sweden intends to increase the flexibility of the national energy system, in particular by means of deploying domestic energy sources, demand response and energy storage.
		• Sweden does not have any national targets for market integration but has taken the following measures:
		  • Flexiblity: The SmartGrid Forum has produced a strategy to increase flexibility in the electricity system with smart grids.
		  • Market intergration and coupling: The Nordic countries (Denmark, Norway and Sweden) have decided to intensify their cooperation on the Nordic balancing process and have developed a model for the balancing of the Nordic power system in the future — the Nordic Balancing Model (NBM).
		  • The Electricity Act: when determining how much the grid operators may charge customers, account must be taken of the extent to which their operations are compatible with or contribute to the efficient use of the grid. This provision is intended to encourage grid operators to make it easier for customers to provide services which allow better demand response, for example by using new technical solutions	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Binding Overall Union Target For 2030	• The Swedish Climate Policy Council began its work in 2018.The Council is a cross-sectoral expert body tasked with assisting the Government with an independent evaluation of whether the combined policy decided by the Government is compatible with the climate targets.	
	• Support schemes for energy from renewable sources	• Several major climate initiatives have been launched, such as the Klimatklivet initiative (the Climate Leap), this includes a reduction obligation, a bonus system for new light vehicles, the urban environment agreements, and the industrial green investment aid programme Industriklivet (the Industrial Leap) are now in place. These reforms define the transition that Sweden aims to achieve. • The electricity certificates system: The aim of the electricity certificates system is to stimulate the growth of renewable electricity. The system was introduced in Sweden in 2003 and has been operated jointly with the other Nordic countries since 2012. • Storing energy can increase the efficiency of the energy system. A grant for storage of self-generated electrical energy was introduced in November 2016 to enable customers to store more of their self-generated energy. It provides financial support for private individuals installing storage systems. • Regulation No. 2009:689 authorises grants for the installation of on-grid photovoltaic installations. The installation works must have commenced on 1. July 2009 or later and be completed by 31 December 2020 (§ 2 par. 3 Regulation No. 2009:689). • Quota system. The main incentive for the use of renewable energy sources is a quota system in terms of quota obligations and a certificate trading system. The Electricity Certificates Act obliges energy suppliers to prove that a certain quota of the electricity supplied by them was generated from renewable energy sources. Energy suppliers shall provide this evidence by presenting tradable certificates allocated to the producers of electricity from renewable sources. • Tax regulation mechanisms. Electricity generated from wind energy is eligible for tax privileges consisting in a reduction of the real estate tax as defined in the Act on the Federal Real Estate Tax. Electricity produced in electricity generators with a capacity lower than 50 kW is not taxable. In case of electricity generated from wind, wave and solar this capacity margin is higher as authorised by the Energy Tax Act. Since 2015, a tax reduction for the micro production of renewable electricity is in place.	

Sweden

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Binding Overall Union Target For 2030	• The Swedish Climate Policy Council began its work in 2018.The Council is a cross-sectoral expert body tasked with assisting the Government with an independent evaluation of whether the combined policy decided by the Government is compatible with the climate targets.	
	• Opening of support schemes for electricity from renewable sources	• Cross-border cooperation: Two implemented joint support schemes (the joint electricity certificate market set up between Norway and Sweden, and the joint auction for ground-mounted solar photovoltaic (PV) energy between Denmark and Germany) • However, electricity certificates for each megawatt-hour (MWh) of green electricity produced are reserved to green electricity production installations located in Sweden.	
	• Administrative procedures, regulations and codes	• The Swedish solar electricity market has raised concerns regarding the existing regulations and support systems and claims that they are designed to favor primarily residential owners and small systems and tends to limit the expansion of solar electricity in Sweden. Therefore, the upper limit for tax exemption has been lifted as an obstacle to the ongoing expansion. The Swedish government has announced it will exempt all PV systems up to 500 kW from the payment of tax on electricity generated by renewable energy power generators. Currently, the size limit is 255 kW. • It is not clear if there are any directives in place within Sweden for PPAs.	
	• Simple-notification procedure for grid connections	• It is mandatory to notify the grid operator when a PV system is connected to the grid, the grid operators should have all the grid-connected PV systems within their grid area registered, and they are obliged to share this information with the Swedish Energy Agency.	
	• Guarantees of origin for energy from renewable sources	• The Authorised Issuing Body for EECS-GO in Sweden is Energimyndigheten (EM). Sweden is a member of the AIB. • The guarantees of origin may be issued only for electricity which has been measured and reported to the authority by the Government (account-keeping authority). • Only one guarantee of origin may be issued per unit of energy. A unit of energy should include a megawatt hour of electricity.	

Sweden

Legislation	Topic	Summary of identified issues	Risk

Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Renewables Self-consumers	• Renewable self - consumers are defined as "final customers who generate renewable electricity for their own consumption, and may store and sell self-generated renewable electricity, provided that, for non-household renewable self-customers. Renewable self-consumer in Sweden are entitled to the following:
		  • The electricity generators that fulfil the requirements of the Electricity Certificates Act (2011:1200) receive an electricity certificate for each megawatt hour (MWh) of electricity they generate, which they can then sell on the open market.
		  • A grant for storage of self-generated electrical energy was introduced in November 2016 to enable customers to store more of their self-generated energy.
		  • Tax reduction for microgeneration of renewable electricity; To make it easier for private individuals and companies to invest in generating renewable electricity for their own use, microgenerators have been compensated for the surplus they feed into the grid since 2015.	

	• Renewable energy communities	• DSOs' mandates include setting grid tariffs. Regulation in Sweden, Denmark and Finland allows for flexible tariffs as long as they are non-discriminatory. • To help increase individual customers possibility to store their own produced electricity the Swedish Government has introduced a direct capital subsidy for energy storage owned by private households.	
	• Mainstreaming renewable energy in the transport sector	• Act (2010:598) provides the sustainability criteria for biofuels and bioliquids that are used in Sweden.	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Calculation rules with regard to the minimum shares of renewable energy in the transport sector	The issues below have been identified. • In order to promote biofuels produced from waste and residues, these fuels are double counted against the ten-year goal of the Renewable Energy Directive. • The renewable part of the electricity used in the transport sector is promoted in the calculation method. The electricity that Sweden reports is used by rail traffic. Use of electricity for cars, etc. in road traffic or other modes of transport is not reported as these data are not available in the official statistics.	
	• Other provisions on renewable energy in the transport sector	• Decreasing battery costs offers an interesting solution by coupling charging stations with an appropriately sized energy storage system. • DSOs cannot legally own and operate storage devices, which should be run by the charging station owner. In turn, charging stations that take advantage of storage devices could be granted connection, while conventional systems not. The system could help charging station owners to decrease costs.	

Sweden

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Aggregation Contract	• In October 1995 the Swedish Parliament decided to revise the Electricity Act of 1902 and introduce a completely open electricity market. The new Swedish regulations came into force on 1 of January 1996. The open market therefore allows customers to sell and purchase of electricity.	
	• Active customers	• Under Chapter 11, Section 13 of the Energy Tax Act (1994:1776), consumers have been able to apply for an energy tax refund on electricity drawn from a licensed grid, stored and then fed back into the same licensed grid, since 1 January 2019. This is to avoid unintentional double taxation. • The conditions and fees for use of the grid shall be non-discriminatory (Chapter 1 § 5 in connection with Chapter 4 § 1 par. 2 Electricity Act). • To promote energy services, the Swedish Energy Agency is currently working as a contact point, providing relevant information to customers and suppliers.	
	• Citizen Energy Communities	• There is no identified framework for Citizens' energy communities in Sweden, however CECs do exist and in the absence of Swedish specific frameworks, these then the follow the recommendations by the Eurelectric.	

Sweden

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Demand Response Through Aggregation	• Framework for aggregator participation in the electricity market is underaway. • In the Nordic countries there is the lack of direct regulation on third party access and hence no rules that influence third parties' contribution to demand response. This may pave the way for third parties offering automated services on electricity usage.	
	• Integration Of Electromobility Into The Electricity Network	• Research focuses on the critical issues affecting consumer demand for EVs, namely cost, battery range, infrastructure development and environmental performance. The motivational determinants of consumer demand are examined in greater detail by applying the diffusion of innovations theory developed by Rogers (1995). • Although demand for EVs does exist in Sweden, it remains confined to a small number of early adopters and niche markets.	
	• Closed Distribution Systems	• DSOs cannot legally own and operate storage devices, which should be run by the charging station owner. In turn, charging stations that take advantage of storage devices could be granted connection, while conventional systems not. On the other hand, the system could help charging station owners to decrease costs.	
	• Connection Of New Generating Installations And Energy Storage Facilities	• The Electricity Act states that holders of network concessions are obliged to connect the lines and plants of others to their own network on reasonable terms and to transmit electricity on reasonable terms regardless of who the owner of the power is. This also applies to the price charged for transmission services.	

8. Norway

Country specific Red flag analysis

Norway

Legislation	Topic	Summary of identified issues	Risk
Governance of the Energy Union and Climate Action (EU) 2018/1999	• National long-term strategies	• The Norwegian government has committed to cooperating with the EU to reduce emissions by at least 40 % by 2030 compared to 1990 levels. • Norway is targeting a 50-55% reduction by 2030. • The government have the principle that polluters must pay; therefore, it costs to emit greenhouse gases in Norway. More than 80% of greenhouse gas emissions in Norway either have a fee or are part of the common European quota system EU-ETS.	

	• National Energy and Climate Plans:
	  • Energy Security
	  • Internal Energy Market
		• A Norwegian climate plan for 2021 to 2030 was released in January 2021 Norway climate plan 2021-2030.
		• The electricity sector in Norway is divided into 5 different areas and all of them are fairly eco friendly. These areas are connected to all of their neighbors, specifically Norway and Sweden, Norway and Denmark, Norway and Finland and Norway and Russia, diversifying their energy sources and supplies.
		• From January 1st 2012, Norway became part of a common electricity certificate market with Sweden.
		• Hydropower storage has for many years contributed to a flexible Nordic electricity system. As wind and solar gains significance, hydropower flexibility becomes ever more valuable. The research project HydroFlex, aims to develop new technology that facilitates highly flexible operation of hydropower stations, such as high ramping rates, frequent start-stops, and the option to provide a wide range of system services.	

	• 2030 Framework for Energy and Climate for the Union objectives for GHG emission reductions, energy efficiency improvement, renewable energy use and renewable energy in electricity interconnection.	• In the Norwegian Climate cure, it is stated that all regions have high ambitions and works hard to reduce the GHG emissions, use more renewable energy (e.g. in the district heating). • The Energy efficiency is not as directly included however it is part of their 'emission budget' that gives a 50% reduction. • Norway has test sites for CCS and a governmental strategy that aims to develop CCS technologies. The Norwegian continental shelf is suited for CO2 storage and is already used to store CO_2 from the Gudrun, Sleipner, and Snøhvitgas fields.	

Norway

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Binding Overall Union Target For 2030	• Norway is not part of this agreement, however together with Sweden have a goal of renewable power of 28.4 TWh corresponding to the electricity consumption of more than half of all Norwegian households.	
	• Support schemes for energy from renewable sources	• Enova, owned by the Ministry of Climate and Environment, have multiple support schemes.	
	• Opening of support schemes for electricity from renewable sources	• The Nordic power market is based on an advanced market model. Developments in EU power market legislation have been behind the Nordic model, and until recently had little say in Norwegian regulation. Since the adoption of the third energy market package, EU legislation has become so comprehensive that this picture is about to change. At the same time, the Nordic model is still an important source of inspiration for developments in the EU.	
	• Administrative procedures, regulations and codes	• All electrical plants that produce energy, such as a hydropower plant or wind power plant and that transfer energy, i.e. power lines, must have a permit from the authorities. In order to obtain a license, the overall benefits for society must outweigh the disadvantages. Extensive requirements are set for applications for development. • PPAs are negotiated between counterparties. However, there are standard categorizations for PPAs used in the industry, such as short-term or long-term to indicate the length of time, or on- and off-site to indicate whether the energy production facility is located in the same place or near the buyer or is located elsewhere. place. In addition, there are financial PPAs that do not involve physical delivery	
	• Simple-notification procedure for grid connections	• No simplified procedure for grid connection of renewables is available in Norway	
	• Guarantees of origin for energy from renewable sources	• Guarantees of origin for energy from renewable sources are provided by Stattnett, the owner and operator of the grid.	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Renewables Self-consumers	• Enova, (a company owned by the Norwegian Ministry of Petroleum and Energy), provides incentives in the form of payment of a % of the cost of installation plus a fixed cost per kW of installed power up to 15 kW or per m2 up to 25 m2. Likewise, excess solar energy fed back into the grid can be sold and is exempt from VAT and other taxes. • However, a report by Accenture and WWF concluded that it costs around 70% more to acquire a solar panel in Norway compared to Denmark and Sweden. • No specific frameworks promoting and facilitating the development of renewables self-consumption were identified.	
	• Renewable energy communities	• No specific frameworks promoting and facilitating the development of renewable energy communities were identified.	

	• Mainstreaming renewable energy in the transport sector	• The Norway climate action plan, states that emissions from transport have been reduced by 2.5 million tonnes of CO2e from 2014 to 2019, amounting to a reduction of 14% during that period.
		• *Nasjonal transportplan 2022–2033* have set out some targets based on improvements in technological maturity :
		  • new passenger cars and light vans will be zero-emission vehicles by 2025
		  • new city buses will be zero-emission vehicles or use biogas by 2025
		  • by 2030, new heavier vans, 75 per cent of new long-distance buses and 50 per cent of new lorries will be zero-emission vehicles
		  • by 2030, the distribution of goods in the largest city centers will be almost zero emissions.
		• The key instruments for cutting emissions from the transport sector include the CO2 tax, turnover requirements for biofuels and various requirements for the use of zero- and low-emission technology.	

	• Calculation rules with regard to the minimum shares of renewable energy in the transport sector	• The EU Commission's proposal for technology-specific criteria may result in certain parts of Norwegian hydropower being considered unsustainable, potentially reducing the opportunities for obtaining risk-taking capital for future investments in Norwegian hydropower. They state that worst case is that the borrowing costs of Norwegian hydropower plants will be able to increase.	
	• Other provisions on renewable energy in the transport sector	• Norway has more than 550 fast charging station per 100 km. The sale of fossil fuel-based cars will banned in 2025 and requirements for the public purchase of zero emissions will go into force in 2022 and extended in 2025.	

Norway

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Aggregation Contract	• No Norwegian regulations related to Directive 2019/944 were identified. However, certain sectors expressed concerns over EU's energy package 4, which was considered to interfere with business and be undemocratic. Opposition asked for the regulation not to be included in the EEA agreement.	
	• Active customers	• The Norwegian Ministry entitles active consumers by providing supporting in the construction phase and buying unused electricity. • Norwegian power supply customers are free to purchase and sell electricity. Plus costumers at Enova or other power suppliers are connected to the grid, so that unused electricity is resold.	
	• Citizen Energy Communities	• No specific frameworks enabling citizen energy communities were identified.	
	• Demand Response Through Aggregation	• No regulatory frameworks promoting the participation of customers through aggregation were identified.	
	• Integration Of Electromobility Into The Electricity Network	• Norway is the world leader in the phasing in of electric cars as a result of powerful electric car benefits. Electric and hybrid cars accounted for about 60 percent of new car sales in 2017. However, the transport sector accounts for 60% of emissions in the so-called non-quota sector. • The number of EV charging points differs in each region. The government encourages municipalities to provide sufficient charging infrastructure, which is currently available in most areas at an average 18 vehicles per charging station. • Many municipalities are also developing charging and shore power systems for ferries and ships.	
	• Closed Distribution Systems	• No regulatory frameworks concerning closed distribution systems were identified.	

	• Connection Of New Generating Installations And Energy Storage Facilities	• In Norway 98% of all the electricity production is from renewable and climate friendly sources:
		  • Hydroelectric power: 129 TWh (96%)
		  • Wind power: 1,9 TWh (1,5%)
		  • Thermal power: 3,3 TWh (2,5%)
		The regulations that underpin connection of new installations and energy storage facilities, is difficult to find as it does not seem a common practice because of the power landscape that Norway has.	

9. United Kingdom

Country specific Red flag analysis

Legislation	Topic	Summary of identified issues	Risk
Governance of the Energy Union and Climate Action (EU) 2018/1999	• Note on Brexit	• As of 31 January 2020, the UK has left the EU, and therefore will not contribute to EU targets or be bound by the Effort Share Regulation after the Transition Period ends. Nevertheless the subjects discussed here will follow the same structure as for the EU countries.	
	• National long-term strategies	• In Dec 2020, the PM announced a new ambitious target to reduce the UK's emissions by at least 68% by 2030, compared to 1990 levels. • Additionally, Climate change policy is devolved to Wales, Scotland and Northern Ireland, although the UK government retains control over many policy areas as defined in the UK's Integrated National Energy and Climate Plan. • The Environment (Wales) Act 201651 requires Welsh Ministers to reduce emissions in Wales by at least 80% in 2050. • Scotland's climate change legislation requires Scottish Ministers to reduce emissions in Scotland to net-zero by 2045, with interim targets of 56% reduction (from a 1990 baseline) by 2020, 75% reduction by 2030, 90% reduction by 2045 and annual targets for each other year to net-zero.	

	• National Energy and Climate Plans:
	  • Energy Security
	  • Internal Energy Market
		• The UK government's ambition for interconnector capacity is set out in the CGS, which states that project assessments to date indicate at least a further 8.1GW of interconnection by the early to mid-2020s will be in consumers' interests, in addition to the 5GW currently operational and 4.8GW that is currently under construction.
		• The Great Britain electricity system is currently connected with north-west Europe via 4GW interconnector capacity – 2GW with France, 1 GW with Belgium and 1GW with the Netherlands. 1GW of interconnection also links Great Britain and the Single Electricity Market (SEM) on the island of Ireland.	

	• 2030 Framework for Energy and Climate for the Union objectives for GHG emission reductions, energy efficiency improvement, renewable energy use and renewable energy in electricity interconnection.	• In the UK's Integrated Energy and Climate Plan it is stated that all regions have high ambitions and works hard to reduce the GHG emissions along every sector with a global target of reducing UK GHG emissions around 68% by 2030, compared to 1990. • The Energy efficiency is directly included. The UK's 2032 pathway, as set out by the CGS (Clean Growth Strategy), would result in changes in fuel consumption across the whole economy. In total, the 2032 pathway would reduce final consumption by around 14% in 2032 relative to projected energy consumption under existing polices • Wales has targets to produce 70% of the electricity used from renewable sources by 2030, and of 1GW of locally owned renewable energy capacity by 2030. • In terms of interconnection capacity, in addition to the 5GW already operational, 4.8GW of capacity is already in construction, and a further 8.1GW is progressing through regulatory process. This is expected to increase UK's level of interconnection by 2030.	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Binding Overall Union Target For 2030	• As of 31 January 2020, the UK has left the EU and will therefore not contribute to EU targets or be bound by the Renewable Energy Directive after the Transition Period ends. • However, to comply with the country commitments under the Withdrawal Agreement with respect to the NECP, the UK has set out a proportion of renewables in final energy consumption in 2030 of between 22%-29%,	
	• Support schemes for energy from renewable sources	• The Feed-in Tariffs (FIT) scheme was introduced to England, Wales and Scotland on 1 April 2010, under powers in the Energy Act 2008. The intention was to encourage deployment of micro-scale and small-scale low-carbon electricity generation (up to 5MW), particularly by organisations, businesses, communities and individuals that have not traditionally engaged in the electricity market. This scheme was nevertheless closed to new applications from 31 March 2019. Support schemes are now in the form of Contracts for Difference (CfD) explained below.	
	• Opening of support schemes for electricity from renewable sources	• **The Contracts for Difference (CfD) scheme**: was introduced in GB in 2014 and is the UK government's main mechanism for supporting new low-carbon electricity generation projects. A CfD is a 15-year private law contract between a low-carbon electricity generator and the Low Carbon Contracts Company (LCCC), a UK government-owned company. Planned continuation of CfDs for new low-carbon capacity after 2020 until 2035. • **Renewable Heat Incentive (RHI):** The government announced in the Budget this year that RHI will be extended for another year to 2022, with a new Low-Carbon Heat Support Scheme replacing the RHI from April 2022. The government has followed this up with a consultation on a Clean Heat Grant that would provide £4,000 to consumers to cover a proportion of the costs of heat pump or biomass boiler installation.	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Administrative procedures, regulations and codes	• Energy companies are legally required to be licensed by the Office of Gas and Electricity Markets (Ofgem) to operate in the market. Trading occurs within GB, but also with European partners over electricity interconnectors. • The Smart Systems and Flexibility Plan and Progress Update set out key measures that the UK government, Ofgem and/or industry will take to **remove policy and regulatory barriers to storage, with the aim of creating a best in class regulatory framework.** • The UK has a relatively healthy short-term PPA market for renewables which a number of policies have facilitated, however there has been limited growth in the long-term PPA market. The design of the Renewables Obligation encouraged suppliers to sign PPAs as a way of securing the corresponding certificates (ROCs). Similarly, the Contracts for Difference scheme, being based on wholesale market price, prompts PPAs to be signed which will provide revenues corresponding to market reference price for the CfD.	
	• Simple-notification procedure for grid connections	• No simplified procedure for grid connection of renewables is currently available in the UK	
	• Guarantees of origin for energy from renewable sources	• The Renewable Energy Guarantees of Origin (REGO) scheme: The Government will ensure that Great Britain and Northern Ireland will continue to issue REGOs and accept Guarantees of Origin (GoOs) from EU member states from 1 January. This will allow electricity suppliers in the UK to continue to use REGOs and EU GoOs to comply with their fuel mix disclosure obligations.	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Renewables Self-consumers	• In December 2018, the UK government proposed to introduce a new market-led Smart Export Guarantee (SEG), which aims to ensure that eligible small-scale low-carbon generators who export electricity to the network can receive payment for it. This received Parliamentary approval in June 2019 and came into force on 1 January 2020. • The UK government is working to support small scale electricity generation as the cost of these technologies approach market competitiveness, by introducing the Smart Export Guarantee. This ensures that the owners of various low-carbon technology projects can access the electricity market and receive payment for any electricity they export. This is a market-led approach with no set prices and is designed to be compatible with smart meters that are being rolled-out across Great Britain and the growth of small-scale electricity storage.	
	• Renewable energy communities	• As part of the Local Energy Programme, the Rural Community Energy Fund (RCEF) re-opened in May 2019 offering £10 million to support rural communities in England to develop renewable energy projects. RCEF offers grants for feasibility studies and pre-development of the project up to the point where there is an investable business case, and it is being delivered by the five Local Energy Hubs. • The Scottish Government is committed to continuing to empower Scottish communities, supporting the development of innovative and integrated local energy systems and networks. There is already a flagship scheme in place to support the growth of community and local energy throughout Scotland; the Community and Renewable Energy Scheme (CARES). This scheme, which is delivered locally by Development Officers based throughout Scotland, is a one stop shop offering free independent advice and funding options to support communities in taking forward projects or taking a stake in commercial schemes. • Up to £4.5 million is available to applicants through CARES in 2020/21. This support includes: • Enablement grants of up to £25,000 • Development loans and grants of up to £150,000 • Capital grants of up to £150,000	

Legislation	Topic	Summary of identified issues	Risk
Promotion of the use of Energy from Renewable Sources DIRECTIVE 2018/2001	• Mainstreaming renewable energy in the transport sector	• OLEV (Office for Low Emission Vehicles) work across UK government to support the early market for (Ultra Low Emission Vehicles) ULEVs. OLEV provides support to position the UK at the global forefront of ULEV development, manufacture and use. • The UK government's investment in low-carbon vehicles has a primary aim of saving carbon which is met through a combination of energy efficiency and low-carbon energy sources. The energy savings presented are the net final energy saving. Two schemes run to incentivise low-emission light vehicles (one for vans and one for cars). These cover new cars and vans, with type approval and meeting certain performance criteria, with CO2 emissions below 75g/km. • According to the Government's Road to Zero strategy, at least 50% — and as many as 70% — of new car sales and up to 40% of new vans will be ultra low emission by 2030.	
	• Calculation rules with regard to the minimum shares of renewable energy in the transport sector	• The UK Government has designed different scenarios for the sectoral share of renewable energy in final energy consumption and according to all of them the country should meet a share of 16% of renewable energy for the Transport sector by 2030.	
	• Other provisions on renewable energy in the transport sector	• The UK government's ambition for decarbonising road transport and developing zero and low emission vehicles is clearly set out in recent strategies, including the Road to Zero, CGS and Industrial Strategy. • By 2040, the UK government expects the majority of new cars and vans sold to be 100% zero emission and all new cars and vans to have significant zero emission capability. By 2030, the UK government wants to see at least 50% and as many as 70% of new car sales to be ultra-low emission, and up to 40% of new van sales.	

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Aggregation Contract	• In July 2017, BEIS and Ofgem published the Smart Systems and Flexibility Plan.136 The plan outlines the underlying principles of the approach to enable the transition to a smart and flexible system and sets out 29 actions for the UK government, Ofgem and industry to implement. The actions are split across three core themes and one of these says as follows: • "Ensuring markets fairly reward flexibility and smart solutions – for example, enabling access of aggregators to the balancing services." • Aggregation contracts are currently possible in the UK and commonly used by consumers with supply points spread around the country.	
	• Active customers	• In June 2019, following two public consultations, the UK government introduced legislation to implement the 'Smart Export Guarantee' scheme (SEG), which provides export tariffs for a variety of small-scale, low-carbon energy generation technologies for UK homeowners. Specifically, the SEG covers: • Solar panels (photovoltaic systems) • Hydropower • Wind power • Anaerobic digestion • Micro combined heat and power (CHP) The total capacity for the first four categories cannot exceed 5MW to qualify for the SEG. For Micro CHP, on the other hand, the max is 50kW.	
	• Citizen Energy Communities	• These exist under the figure of Community energy which has grown steadily in the UK over the past two decades. There are around 300 projects, providing renewable energy to their communities and use the profits generated to support local social programmes. • A policy framework to provide greater support for community energy, outlined by the former Department for Energy and Climate Change, was shelved in 2015. There has since been a gradual reduction caused by the end of the feed-in tariffs.	
	• Demand Response Through Aggregation	• Demand side providers can deliver services by either reducing their demand or taking advantage of onsite generation. It is possible to participate for: • Large industrial and commercial customers; • Small to medium enterprises; and • Aggregators.	

Legislation	Topic	Summary of identified issues	Risk
Common Rules for Internal Electricity Market: DIRECTIVE 2019/944	• Integration Of Electromobility Into The Electricity Network	• In the UK, since 2012: • Annual EV uptake has increased from 2254 new registrations in 2012 to almost 175,000 in 2020 • The total number of public chargepoint connectors has grown more than 500%, now standing at over 16,000 across 5,600+ locations. • The number of rapid chargepoints has grown from to become now the largest rapid chargepoint network in Europe.	
	• Closed Distribution Systems	• A distribution exemption holder may apply to Ofgem for classification as a Closed Distribution System (CDS). Ofgem must agree to classify the distribution exemption holder if it considers that it meets the criteria laid down in regulations. Broadly, these criteria include that: • The distribution system is not used for the purpose of supplying electricity/gas to household customers (or supplies fewer than 50 employees of the exemption holder supplied from embedded generation); • The distribution system is used for distributing electricity/gas within a geographically self-contained industrial, commercial or shared services site and is not integrated into the national transmission or distribution network; • The distribution system is wholly or mainly used to supply integrated system users or the distribution exemption holder (or a person related to the distribution exemption holder).	
	• Connection Of New Generating Installations And Energy Storage Facilities	• Work is ongoing through both Ofgem and industry to implement various updates to grid codes to address this. For example, following consultation, Ofgem has approved changes to the Connection and Use of System Code (CUSC) that would result in the removal of Balancing Service Use of System (BSUoS) charges for energy taken from the grid by storage assets. Ofgem have also indicated that the new generation license for electricity storage facilities will set out which industry codes are to be adhered to by a storage operator and that it may not be necessary for some licensees under the proposed storage generation licence to sign up certain of these codes8 . This clarity should assist developers and investors in assessing the viability of potential projects.	