



Co-funded by the European Union



Report on legal analysis

a comprehensive analysis of the policy and legal frameworks related to renewable hydrogen and vehicle-to-X (V2X) technologies

Introduction

The increased share of renewable energies, which is primarily attributable to renewable electricity, and the resultant decentralised electricity generation, will consequently lead to an increased requirement for more flexible electricity grids. Renewable hydrogen and bidirectional recharging (vehicle-to-x or vehicle-to-grid [V2G]) of electric vehicles offer a means to provide networks with the aforementioned flexibility while simultaneously reducing CO2 emissions in the sectors.

Enhanced collaboration between EU and non-EU countries offers significant potential for innovation but necessitates overcoming issues such as differing regulations, infrastructure compatibility, effective incentives and governance challenges. The aim of the table below is to provide an initial overview and, above all, to compare the policy and legal situation of the respective countries in a very brief way.

EU member states show varying levels of progress in developing legal frameworks. Robust policies are needed with clear incentives, infrastructure plans, and integration into renewable energy goals, but differences in national priorities and regulatory standards challenge harmonization and crossborder collaboration In recent years, the European Union has undertaken a comprehensive revision of numerous strategies, financial incentives and legal regulations in energy and climate matters. This process has been characterised by a notable commitment to the expansion of renewable energies. The legislative change is based on the fact that the implementation of renewable energies into the existing energy system requires a major legal adaptation process to remove legal barriers and obstacles and thus pave the way for the progressive application of renewables.

European perspective

L G A The European Green Deal is a major policy determining the future of the European Union by establishing the long-term vision of climate neutrality as a response to the challenges posed by climate change. This includes the transformation of the energy and the transport sector by several different initiatives.

Clean energy for all Europeans package the package consists of 8 new laws: energy performance in buildings, renewable energy directive, energy efficiency, Regulation on the Governance of the Energy Union and Climate Action and 4 laws on the electricity market.

The EU's Hydrogen Strategy supports the EU Green Deal by making hydrogen an investment priority and promotes the hydrogen ecosystem across Europe.

Fit for 55 is a package designed to support the EU Green Deal to reduce EU's greenhouse gas emissions by 55% by 2030.

The Sustainable & Smart Mobility Strategy supports the implementation of the EU Green Deal to make all transport modes more sustainable.

The RePower EU Plan seeks to transform the EU's energy system by lessening the dependency on Russian fossil fuels.



National perspective

The aim of this table is to provide an initial overview and, above all, to compare the policy and legal situation of the respective countries in a very brief way. It provides a first impression of the direction the state is heading concerning hydrogen and/or V2X, detailed information on the status of the policy and legal situations is described in Legal Analysis found on the Danube Indeet webpage. We have studied 6 aspects of the development of the policy and legal situation, why are they relevant is explained below.

The existence of a **national hydrogen strategy**, and more importantly its content, shows that the state is considering hydrogen in its energy system or has even taken the first steps towards a hydrogen economy.

If a country sets **strategic or even legal targets for hydrogen production**, this symbolises a commitment to this specific technology. In addition, it is possible to estimate the extent to which hydrogen should be used and the specific sectors where it can be used.

A **mobility strategy** provides information on how the specific state sees the design of future mobility. The existence of such a strategy often means that the state also sees potential for innovation in this sector.

The inclusion of alternative fuels in the mobility strategy shows a government's ambition to reduce the share of CO2 emissions in this sector as well as increasing the share of renewable energy sources.

Directive (EU) 2019/944 introduced the definition of **energy storages** into EU electricity law for the first time. This includes electrolysers, but also electric vehicles when performing bidirectional recharging processes. The classification as energy storage systems has a number of consequences, such as restrictions for grid operators in connection with energy storages. It is therefore relevant to know whether EU countries have implemented the directive and whether non-EU countries have similar regulations.

Bi-directional recharging is still a relatively new technology, but it can have a positive impact on the energy system. The mentioning of V2G in the law suggests that first steps are already being taken to implement this technology in the country and ensure the operation of it within the legal framework.

	National hydrogen strategy	Hydrogen specific targets (strategic and/or legal)	Mobility strategy	Including alternative fuels	Definition of energy storage	Bi-directional recharching mentioned
Austria						
Bosnia and Herzegovina						
Croatia						
Czechia						
Germany			2 Canada			
Hungary						
Montenegro		<u>n</u>		1		
Romania		a <u>i</u>				
Serbia	4					
Slovakia			6			
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Legend:	1-12	Yes, it exists		No, does not exist		Partially exists part of other locuments etc



Danube Indeet

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Integrated and decentralised concept rethinking energy and transport systems based on renewable energy in the Danube region

https://linktr.ee/danubeindeet https://interreg-danube.eu/projects/danube-indeet

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