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Draft SEA scoping report and its key results



Capacity-building workshop on development of hydrogen infrastructure, 25 February 2021, Kyiv, Ukraine

Scoping and Scoping Report

for the draft “Roadmap for production and use of hydrogen in Ukraine”



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- **Scoping** is the initial stage of the SEA process. It aims to determine the scope of further assessment
- This draft **SEA scoping report** summarizes the findings and conclusions of an initial assessment i.e.:
 - Preliminary analysis of the environmental and health baseline;
 - Identification of environmental and health policy objectives relevant for the Roadmap;
 - Identification of key environmental and health issues relevant to the Roadmap;
 - Formulation of initial recommendations to be considered in the draft Roadmap and further steps of its preparation;
 - Recommendations for further SEA steps, including
 - Analysis to be carried out / questions to be addressed in the next SEA steps;
 - Consultations with competent authorities and public participation in the SEA process of a draft Concept on hydrogen in line with Ukraine’s law on SEA.

Environmental and health baseline



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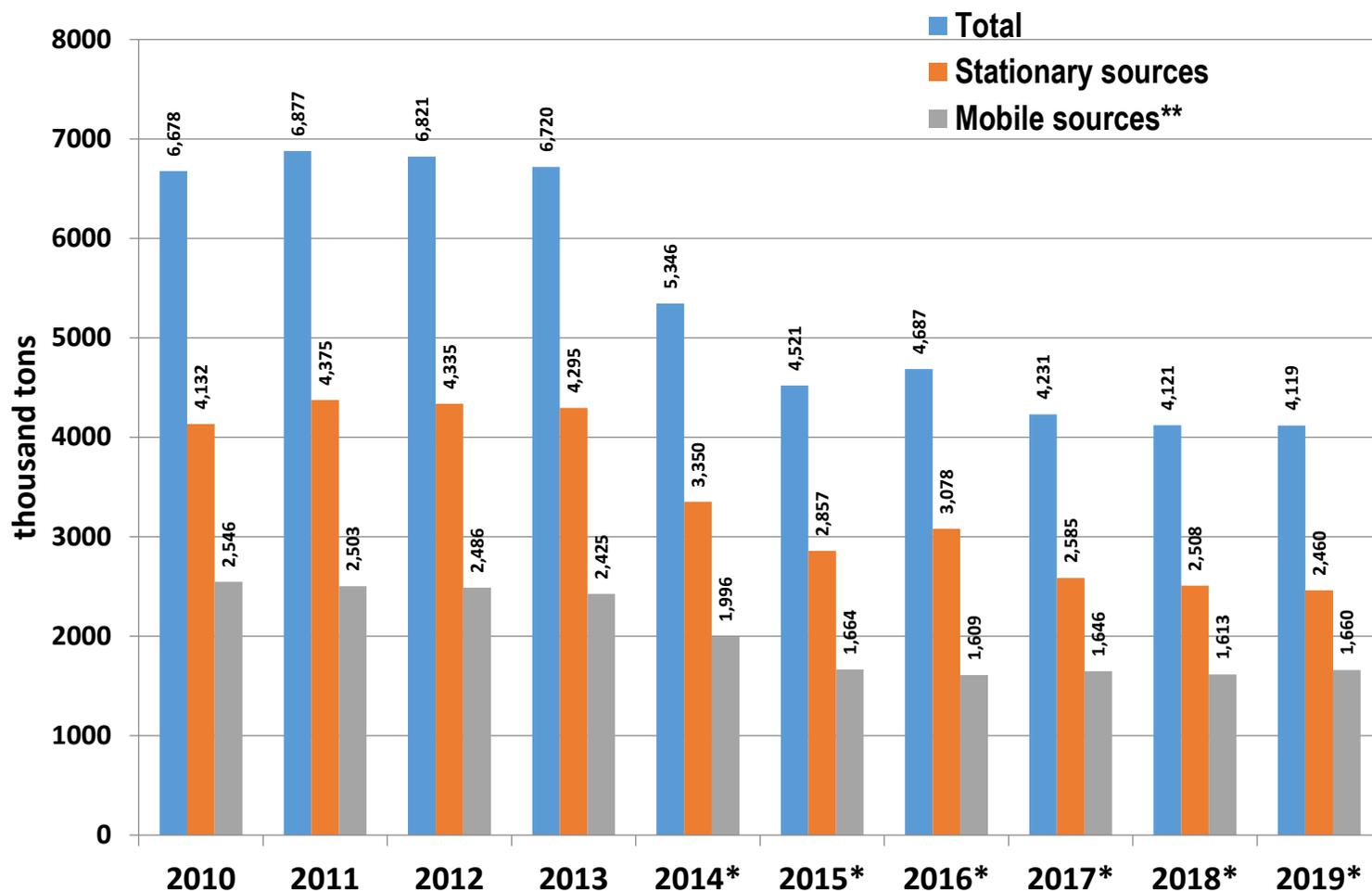
- The current status and the main trends for environmental and health aspects are a basis for an identification of the specific issues which may be relevant to the production and use of hydrogen
 - Ambient air
 - GHG emissions and climate change
 - Water resources and waste water
 - Land and soil
 - Biodiversity and ecosystems
 - Solid waste
 - Population and health
 - Livelihood and socio-economic aspects
 - Renewable energy sources
 - Transport

Dynamics of pollutant emissions into atmosphere in Ukraine

Example of the trend



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Environmental and health policy objectives relevant for the Roadmap



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- The identified environmental and health objectives will serve as a basis for the development of the reference framework for the policy evaluation of the Roadmap.
 - Ambient air
 - Climate change
 - Water resources
 - Land and soil
 - Biodiversity and ecosystems
 - Waste
 - Health
 - Livelihood/socio-economic aspects
 - Renewable energy sources
 - Transport

Main objectives stipulated by key national strategic documents and legal acts relevant to draft Roadmap and to SEA process

Extract from the table



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Strategic or legal document	Main objectives/targets
Ambient air	
Law of Ukraine "Basic principles (strategy) of state environmental policy of Ukraine until 2030" (2019)	<ul style="list-style-type: none"> - To reduce emissions of pollutants into the atmosphere from stationary sources (conditionally reduced to carbon monoxide, taking into account the relative aggressiveness of major pollutants) from 100% in 2015 to 85% in 2030 - To reduce emissions of pollutants into the atmosphere from mobile sources (conditionally reduced to carbon monoxide, taking into account the relative aggressiveness of major pollutants) from 100% in 2015 to 70% in 2030
Climate change	
National Transport Strategy of Ukraine for the period up to 2030 (order of the Cabinet of Ministers of Ukraine dated 30.05.2018 № 430-r)	<ul style="list-style-type: none"> - Reduction of greenhouse gas emissions into the atmosphere from mobile sources to 60% of the 1990 level, in particular due to an increase in the share of public transport and electric transport, electric buses, bicycles - Increasing the share of the use of electric vehicles and electric vehicles, in particular bringing the share of electric vehicles in domestic traffic to 75%, in 2030 - Increasing the level of use of alternative fuels and electricity to 50% by 2030 - Reduction of specific fuel consumption by 10 ton-kilometers by 30% by 2030
Water resources	
Concept of implementation of state policy in the field of industrial pollution	<ul style="list-style-type: none"> - To reduce discharges of polluted wastewater into water bodies in 2030 to 5% of total discharges compared to 15.7% in 2015

Identification of the environmental and health issues

Extract from the table



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Env & health aspects	Potential effects to be considered in the SEA
<p>GHG emissions</p>	<p><i>SMR using natural gas as feedstock</i></p> <ul style="list-style-type: none"> (-) By-product of SMR method is carbon dioxide. (-) For the implementation of endothermic SMR process burns about half of the initial gas. Burning natural gas contributes to GHG emissions. <p><i>Electrolysis</i></p> <ul style="list-style-type: none"> (+) Higher use of RES, facilitated by the hydrogen production needs, may lead to a reduction in energy produced from fossil fuels and thus to a decrease of GHG emissions (-) Use of conventional grid power would generate more GHG emissions than SMR with natural gas
<p>Water resources</p>	<p><i>SMR</i></p> <ul style="list-style-type: none"> (-) Recycled cooling water usually contains chemical treatment products used as biocides and to control corrosion <p><i>Electrolysis with RES using</i></p> <ul style="list-style-type: none"> (-) Production of hydrogen using electrolysis requires large amounts of water (+) The use of solar and wind energy may contribute to the decrease of fossil fuels for energy and thus the decrease in pollution and waste spills from fossil fuel facilities into water resources. (-) Offshore wind farm development (construction, exploitation, transportation and operation of wind farms) may cause lead to pollution of coastal waters (during transport and construction) and can affect sea currents and sea bed in coastal areas

Initial recommendations to be considered in the draft Roadmap

Examples



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- The main focus of the Roadmap and of the further planning steps should be placed on **green hydrogen** production, taking into account the ambitions of the Roadmap with regard to decarbonization of energy, industry and transport.
- The **turquoise hydrogen** can be a temporary solution until the use of renewable sources for the production of hydrogen is sufficiently expanded. A by-product of the production of turquoise hydrogen is solid carbon black.
- The transition from fossil fuels to a hydrogen-based economy imposes the need for entirely new skills for the development and implementation of new energy-related technologies. This in turn requires **new education programs** in universities and other relevant institutions to train technicians and engineers who will be responsible for the practical implementation of the new technologies, as well as the researchers who will develop these.

Proposed scope of SEA

Extract form the table



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Env & health aspects	The key issues to be addressed in SEA
Air	Possible changes of air emissions from the energy sector Possible changes of air emissions from the transport sector Air emissions from biomass use
GHG emissions	GHG emissions from hydrogen production (comparison of technology options) Possible changes of GHG emissions from energy sector (as a result of a reduction of energy production from fossil fuels)
Climate change	Likely consequences of the climate change regarding energy sector (both fossil fuels and RES)
Water resources	Water consumption for hydrogen production Water consumption related to solar energy Likely effects of SMR production on water quality Likely effects of offshore windfarms development on coastal waters Possible changes of water pollution from energy sector (as a result of a reduction of energy production from fossil fuels)
Land and soil	Possible changes of impacts of energy sector on land and soil (as a result of a reduction of energy production from fossil fuels) Likely effects of solar power plans on soil
Landscape	Possible changes of impacts of energy sector on the landscape (as a result of a reduction of energy production from fossil fuels) Likely effects of new pipelines for hydrogen transport Likely effects of new wind farms (both onshore and offshore)

Consultations and public participation



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Thank you

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to support green post-covid-19 recovery"

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