Position Paper

Strategy on Energy System Integration

Hydrogen Strategy

July 2020

Context

In the context of the two challenges brought about by the COVID-19 pandemic, the one related to the public health, but especially the economic challenge, the European Commission strengthened its policy of supporting the Green Deal. More than ever, Europe and the Member States must prioritise the most efficient, sustainable and cost-effective ways for the decarbonisation of the economy. The renewable energy, especially the wind and photovoltaic energy, offer today not only the cleanest and sustainable energy production modality, but also the cheapest one. Moreover, the renewables accelerate the process of electricity decarbonisation, of the heating and transport sectors, having the potential of creating an important number of high-qualification jobs in the Member States.

RWEA greets the publication of the Strategy for Integrating the Energy Systems and the Hydrogen Strategy, these being the necessary elements for the acceleration of the decarbonisation process and energy transitions, offering o panning basis for the development of solutions that would address the significant challenges of the transformation of the energy systems during the next years.

RWEA supports the central idea of the Strategy on Energy System Integration, based on which, by the direct electrification of the final energy consumption from sectors such as transport and heating, as well as of certain industrial processes, the renewable energy offers a proven and scalable solution for the decarbonisation of over 60% of the final energy consumption at the European level. However, in order to reach a higher decarbonisation level, there is also a need for other solutions for the sectors in which the decarbonisation is more difficult, and the renewable hydrogen, produced by electrolysis powered by renewable energy, becomes thus essential, according to the Hydrogen Strategy.

The key points of the Strategy on Energy System Integration

The Strategy and Energy System Integration contains key elements which Romania will have to adopt in order to develop a modern infrastructure, to have a sustainable and competitive industry, to create jobs and offer clean energy to its citizens:

1. Creating of a circular energy system that would promote the energy efficiency and improve the synergies between the energy infrastructures
    a. A new planning, with a holistic approach, of the wide-scale and local infrastructure, maximising the capacity of the current one, avoiding the “lock-in” effect and the potential “stranded assets”, that would include alternatives to the extension of the grid, aiming to increase its flexibility, such as the *demand side management* and storage solutions. A new approach at the level of PDRET carried out by Transelectrica, more integrated, that would take into account the integration of sectors, becomes essential.

b. A more efficient use of the power grids and a strengthening both at the distribution and transport level, also taking into account the potential of ports (e.g. Constanța Port) to be nodal points for the integration of the energy to be produced offshore.
c. The acceleration of the investments in infrastructures and grids (electrical, gas and heating) that are smart, digitised and efficient, based on renewable sources. The digitalisation process is essential for a more efficient integration of the renewable energy in the energy system.

2. Acceleration of the use of energy from renewable sources
    a. Recognising the barriers for developing the energy production from renewable sources (administrative, regulatory, financing, etc.) and addressing them, as it was mentioned in the MEEMA document presented in May, together with PATRES.
    b. Encouraging of the development of new generation capacities for renewable energy (including offshore), as well as encouraging the use of renewable energy in the building heating and cooling sector (by using the heat pumps), in transport (electrical mobility, direct or indirect electrification of the road, railway and naval sectors) and in certain industrial sectors. Developing a grid code for supporting the flexibility by *demand side* solutions.

3. Promotion of hydrogen and other renewable fuels for the sectors which are difficult to decarbonise
    a. Developing the primary and secondary legislation necessary for the development of technologies based on hydrogen at the national level.
    b. Creating of support schemes for the production of green gas and imposing national targets for the final raw energy consumption for 2030.
    c. Promoting and financing integrated projects, pilot projects and industrial clusters, neutral from the point of view of carbon emissions

4. Adapting the energy markets and the infrastructure to an integrated energy system, where the consumers and investors will be able to opt for the solution that corresponds best to their needs, based on the prices that reflect the real cost and efficiency.
    a. Ensuring a taxation system of the *level playing* field type between the various energy vectors and getting in line the taxation modality of the energy and electricity products with the environmental and climate policies of the European Union.
    b. Harmonisation of the taxation of hydrogen storage and production, avoidance of the double taxation.
    c. Elimination of the direct and indirect subsidies for fossil fuels and the drafting of a plan for the elimination of the coal-based energy production capacities.

Key points of the Hydrogen Strategy

The Strategy proposes a framework that would enable the development of the clean hydrogen production in Europe, and this could have several applications in the decarbonisation process, being thus the key-element for the integration of sectors. The economic revival plan of the Commission identifies hydrogen as an investment priority for encouraging the economic growth and resilience, the creation of new jobs and the consolidation of the status of leader of EU at the world level. The Strategy identifies and prioritises the renewable hydrogen, produced by electrolysis, using electric energy from wind and photovoltaic sources, as being the most compatible option with the EU objectives regarding the climatic neutrality. In order to become one of the beneficiary states, Romania will have to start, as soon as possible, the development of a hydrogen strategy at the national level for 2050, that would mainly focus on the following aspects:

1. The renewable hydrogen, produced by water hydrolysis, using electric energy from wind and photovoltaic sources, is the method of obtaining hydrogen in line with the EU objectives regarding the climatic neutrality
    a. The weight of hydrogen in the European energy mix will increase from less than 2% today, to ca. 13-14% in 2050, generating investments between 180 and 470 billion euro, according to the document of the Strategy, which quotes data from IRENA, FCH-JU and BNEF.
    b. Between 2020 and 2024, there will be installed more than 6 GW capacities for the production of renewable hydrogen by electrolysis, with a production of up to 1 million tons, a significant opportunity for developing such an industry at the national level.
    c. Between 2025 and 2030, the installed electrolysis capacities will be of at least 40 GW, related to a production of up to 10 million tons of renewable hydrogen, becoming thus competitive as regards the cost. At the same time, the electrolysis systems will be used for balancing the energy systems and the increase of their flexibility. After 2030, the technologies based on renewable hydrogen will reach the maturity and will be developed at a large scale for supporting the sectors which are difficult to decarbonise.
    d. The renewable energy production capacities must increase significantly in order to support this development, while more than a quarter of the renewable energy will be used for producing renewable hydrogen by 2050.

2. Developing an investment agenda for renewable hydrogen
    a. Romania may attract a considerable part of the necessary investments by 2030 at the EU level (between 24 and 42 billion euro for electrolysis systems and between 220 and 340 billion euro for energy production capacities that would ensure their supply with renewable energy). The investments in the hydrogen transport, distribution and storage are estimated to be of 65 billion euro.

    b. There is a need for identifying a flow of viable investment projects, Romania being able to benefit from funding from multiple sources for supporting hydrogen: InvestEU, Modernisation Fund, Innovation Fund and the Just Transition Fund.

c. The accession to the European Clean Hydrogen Alliance must be a government priority, together with the proposal of projects for IPCEI Hydrogen.

3. The simulation of the demand and production of renewable hydrogen
   a. One of the immediate applications of hydrogen is the industry, where the renewable hydrogen can replace the use of the fossil fuel in refineries, ammonia production, new forms of methanol production, or for replacing the fossil fuels in the steel production process.
   b. The encouraging of the use of hydrogen in the field of transport for reaching the ambitious decarbonisation targets undertaken by PNIESC, possible by setting up a minimum quota of renewable hydrogen: for the beginning within the captive fleets (busses, commercial fleets), long distance freight transport, and the next steps being the encouraging of the use of hydrogen in the railway, naval and maritime transport. On long term, hydrogen is also a solution for the decarbonisation of the air transport.
   c. The increase of the renewable hydrogen production by a framework that would instate *market-based* support schemes that are transparent, with competitive procedures, or with the use of CCfD (carbon contracts for difference). At the same time, Romania must use the funding instruments available at the EU level for stimulating the renewable hydrogen production, such as: InvestEU, Modernisation Fund, Innovation Fund and the Just Transition Fund, Next Generation EU.
   d. The existing natural gas infrastructure can be used for injecting a substantial hydrogen component, contributing thus to the decarbonisation of the industrial processes and the heating sector.
   e. Developing a legislative and regulatory framework, as well as market rules, for the infrastructure dedicated to hydrogen.
   f. Putting to use the opportunities of regional cooperation with the neighbouring countries, for hydrogen production.
   g. Promoting the activities of research and development of the hydrogen-based technologies, with the involvement of the private sector.

What does RWEA intend to do?

Therefore, RWEA – Romanian Wind Energy Association, together with the member companies of the Association, expresses its wish to share the existing *know-how* and to become an important partner of MEEMA for developing hydrogen-based technologies in Romania, by involving the Association in the following short-term actions:

- Increasing the renewable energy production capacity that would support the development of the renewable hydrogen at the national level
- Proposing principles for creating a dedicated scheme for supporting the production of green hydrogen and the stimulation of its consumption, including in case of the injection in the natural gas networks
- Participation in the process of drafting a hydrogen strategy at the national level, that would take into account the perspective of year 2050
- Involvement in the European Clean Hydrogen Alliance and promoting the projects within IPCEI Hydrogen
- Active participation in the process of creating a national legislative and regulatory framework for the hydrogen-based technologies
- Proposing, in the next 9 months, of a large-scale pilot project (of MW magnitude) for renewable hydrogen production using electrolysis fuelled by wind energy (onshore or offshore), by the Innovation Fund or the Modernisation Fund. The project can be developed in partnership with the relevant authorities and companies (ANRE, Transelectrica, ISCIR, etc.) in order to represent the real basis of drafting the primary and secondary regulatory framework for hydrogen-based technologies at the national level
- Proposal of integrated projects (renewable capacities and hydrogen) in the calls launched for the Innovation Fund and Modernisation Fund
- H_2 Made in Romania: Active involvement, together with MEEMA, for locating a part of the production chain of the hydrogen-based technologies (electrolysis systems, transport equipment, charging stations, storage, etc.) in Romania