



The year 2021 confirmed that **commodity prices** and **geopolitical context** as major uncertainties affecting the energy sector. These issues are not new, but they are affected the decarbonization process in many ways. The commodities' rising prices are boosting the inflationary trend due to a faster recovery from the pandemic crisis especially in Asia. The unexpectedly high demand for gas (especially Liquid Natural Gas, LNG) from East Asia led to the highest spot prices ever for LNG.

Some geopolitical issues, as well, are seriously troubling the gas markets due to the Russia-Ukraine crisis, driving the European countries to a significant lack of gas supply. As usual, the markets worry about uncertain perspectives, and this is the case for the risk of a conflict inside the Ukraine involving Russia and NATO. Ukraine is also a transit for natural gas exported from Russia to EU and the block by German Court of North Stream 2 offshore Baltic pipeline is adding uncertainty to the gas supply expected in EU. Related to the high gas prices and potential restrictions on gas exports to EU, is the fact that some countries have returned to coal for power generation. This, of course, collides with the aim of decarbonization.

**Renewables** are the first top *action priority* to address the Italy's two greatest *critical uncertainties* - **commodity prices** and **geopolitics**. On the one hand, renewables decrease fossil fuels imports while lowering the energy value chain footprint on the planet. On the other, they reduce the volatility of country's energy prices, which are exposed to gas price instability. In fact, "the clean energy transition is the best insurance against price shocks in the future, and needs to be accelerated" (European Commission, Communication on Energy Prices, October 2021). Italy is working steadily towards climate targets through the implementation of **renewables**. Between 2008 and 2020, wind and photovoltaic capacity in Italy increased by 87.5% and at the end of 2021 more than 33 GW of wind and photovoltaic (PV) plants have been installed (Terna). Notwithstanding this marked growth, more effort is needed to meet the new binding EU target of a 55% emission reduction by 2030: the PNIEC targets of installing 40 GW of new wind and PV capacity will therefore need to be revised upwards to at least 70 GW (Terna, Development Plan, 2021). In this context Collective self-consumption (AUC) and Renewable Energy Community (REC) can play a decisive role in accelerating the ongoing energy transition process. In Italy, the transitional legislation and the transposition of the REDII directive provide excellent development opportunities for RECs: the NRRP has allocated 2.2 billion euros to boost the development of RECs for initiatives carried out in municipalities with less than 5,000 inhabitants.

In this context it is also urgent to simplify authorisation procedures and permits for renewable installations and make them uniform across the country: in this regard, the World Energy Issues Monitor confirms that **market design and regulations** and **climate change management** are key to achieve the targets.

The second top *action priority* is **digitalisation**, which is the best driver for electrification as it allows greater grid flexibility, and other important mechanisms such as demand response. In this context the country is perceived as well equipped to face cyber security risks.

The survey also shows that the common perception among the Italian experts interviewed is that the energy transition can have a significant positive impact on both **economic growth** and "**future of work**". The National Recovery and Resilience Plan (NRP) indeed strongly interlinks economic recovery from the Covid-19 pandemic with measures aimed at boosting energy transition. To be successful, however, the energy transition should leave no one behind: for example, low-income households should pay **affordable energy bills** and be incentivized to improve the **energy efficiency** of their homes. Furthermore, the NRP estimates that 2.4 million new green jobs will be created in Italy by 2050 (Italy's NRP, 2021), consistently crafting sustainability skills through up-to-date education and training/reskilling programs: secondary schools and universities should take a leading role in this process, promoting STEM (Science, Technology, Engineering and Math) and sustainability careers at large – as it is the case of the first Italian PhD program in Sustainable Development and Climate Change (SDCC) launched last November – while ensuring diversity and inclusion.

Italy is becoming a leader in an integrated model of sustainable mobility which, through the improvement and innovation of distribution networks, integrates traditional fuels with new fuels and carriers such as electricity, biofuels, methane/bio-methane in compressed and liquid form. In parallel, the challenge of transport sector

decarbonisation offers the opportunity for the development of innovative supply chains such the one related to hydrogen.

**Hydrogen** is a matter of critical uncertainty: its large-scale implementation is hindered by the still high cost of the production technology and by regulatory gaps; moreover, the actual contribution of this energy carrier to achieving carbon neutrality is increasingly the focus of a lively debate. However, it is clear that if hydrogen is produced in a decarbonized way (e.g. from renewables), it can effectively contribute to achieving long-term climate goals. Conversely, **nuclear** ranks lowest both among critical uncertainties and top action priorities in Italy.

## TESTING PERSPECTIVES WITH THE WEC ITALY MEMBER COMMUNITY

The emerging findings for the Action Priorities and Critical Uncertainties drawn out three overarching themes to summarise the country's current energy landscape:

1. Renewables Energies, also favoured by the spread of Collective self-consumption (AUC) and Renewable Energy Community (REC), are at the centre of the ongoing energy transition process. To realise this course there is the urgent need to improve and simplify authorisation procedures, which must address regulatory and social aspects in an integrated manner also favouring a cultural evolution regarding the acceptability of new projects and new plants both on a national and regional-local scale.

2. Digitalisation is confirmed as a top priority for the country as it is vital to improve energy security and sustainability. Investments in disruptive digital technologies can bring outstanding benefits in fundamental sectors such as data management, cyber security, energy efficiency, electric grids, variable renewables, and storage systems.

3. An important area of opportunity will be the diffusion of hydrogen in final energy consumptions. In addition to the green hydrogen, this process will also require the contribution of blue hydrogen as an instrument that will favour the creation of a hydrogen market and the lowering of overall costs. In this area the national industrial legacy will play an important role.

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