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Bioenergy in the Ukraine

OVERVIEW

Over the past years, Ukraine has been often spotlighted as one of the significant areas for expanding and consolidating renewables' production for the European energy market, particularly bioenergy. This owes to the massive yet largely untapped sustainable biomass potential of the second largest European country, extending on more than 600.000 sq. km, of which about 70% are very fertile agricultural lands and 17% forests.

Ukraine exports agricultural commodities and wood pellets globally and is an important provider on rapeseed and sunflower feedstock for European biodiesel production. The size of the domestic market could be sufficient to justify large investments in bioenergy, including biofuels, yet the perduring tensions with Russia as well as the current energy mix, the socio-economics and the policy framework are not supporting domestic expansion, while they might not hinder enlarged exports of feedstock. Moreover, and notwithstanding the above, according to IEA, Ukraine is largely self-sufficient, with almost 65% domestic production (largely owing to nuclear and domestic fossil fuel production). However, it heavily relies on oil imports (above 80%), which could be a trigger to foster biofuels production. There is convergence in assessing the contribution of renewables at about 5% in the energy mix, that is almost doubled in electricity production, but still quite lower than the trajectories set out in the NREAP. Apparently, the current trend is to foster bioenergy as a substitute mostly for natural gas, which is being facilitated by the phasing out from subsidies and the overall size on the sector (approx. 50% of TFEC vs. about 20% of the transport sector).

Most of the detailed biomass assessments date back some years now (or build on past statistical data), yet there is some convergence in estimating that agricultural and forestry residues for energy production could deliver about 10-15% of TPES in the future energy mix. Bioenergy is currently approximately 4% of TPES, where the overall target for renewables is 17% in 2030. However, most of current use refers to heating at the household level and biogas production in verticalized agri-businesses, while biofuels contribution to the transport sector is still very marginal. Most ambitious scenarios would imply significant efforts in the modernization of the primary sector, accompanied by appropriate investment. Among factors that could foster positive developments are the need to secure more energy self-sufficiency vis-a-vis the perduring tensions with Russia, formerly the primary provider of energy products.

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However, to date the gap in energy supply is being mostly filled with imports from other providers (and "facilitated" by significant drop in overall consumption).

The long-lasting conflict in the easternmost regions and the confrontation with Russia are cyclically destabilizing society and the economy since almost a decade, impacting the energy market. Economic crises, demographic changes, long-term effects of the transition to market economy, decline of obsolete industries combined with limited investment capacity brought to a 20% drop in domestic energy production in the past two decades according to IEA, while TPES fell by 30% and the final consumption of electricity is back to the year 2000 values. Owing to the COVID-19 pandemic and related impacts on the economy, the green tariffs system is stalling, thus affecting the overall outlook for both ongoing and planned investments. On the other hand, the current scenario could represent a real opportunity for the take-off of bioenergy, particularly in the heating and transport sectors. Electricity production is covered for about 70% with nuclear capacities, while the country still relies on oil gas imports. In both cases, biomass could play an important role, even though the current contribution to the energy mix is limited.

BIOFUELS POLICY, REGULATIONS, MARKET DEVELOPMENT

Ukraine	
Population	42 million
GDP (per capita)	$3.700
TFC	51.5 Mtoe
Transport in TFC	10 Mtoe
Biofuels in TFC	2.1%

Ukraine is an EnC contracting party since 2011, thus committing to aligning to the Acquis Communautaire in energy-related matters through a complex and gradual adaptation of the legislative framework and market structure. To bridge gaps with European partners, particular emphasis is made on decarbonization and climate targets. Consequently, a rather ambitious NREAP was adopted in 2014; the latest progress report issued in April 2020 shows that its implementation progresses are slower than planned: the share of RES was 7% in 2018, which is almost 1/4 less than the scheduled 9,1%, while it should have been 11% of the gross final energy consumption in 2020; the transport sector had a mandatory 10% target set for the same year, while it is currently approximately five times lower. In the attempt to foster domestic production of biofuels, a comprehensive amendment law that adjourned mandatory blending targets has been discussed in Parliament but did not pass the first reading. Certification schemes for feedstocks are in place. After some good take-off in domestic bioethanol production in the 2010s, driven mainly by state-owned distilleries, this trend is now descending due to the lack of demand for bioethanol among producers of mixed petroleum products. According to the cited EnC progress report, a non-supportive regulatory framework brought to halting domestic biodiesel production and notwithstanding the relevant potentials deriving from rapeseed cultivation. The current trend seems to favour biogas and solid biofuels production, which require less investment and better support the Ukrainian government's efforts to reduce dependency on imports for heating.

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ADVANCED BIOFUELS DEMO AND R&D PROJECTS

Despite Ukraine is being spotlighted as a critical player in the consolidation of bioenergy in Europe, be it a feedstock provider, a medium-sized market or a biofuel exporter, few concrete developments have occurred recently, if any at all. Indeed, the country's instability due to the conflicts in the easternmost regions and the tensions with Russia represents a significant limit, while missing links in the regulatory framework fail to incentivize the domestic biofuels market. Partially, this reflects the difficulties that the current advanced biofuels production business model is experiencing throughout Europe. On the other hand, the trend in biomass-for-energy-use seems to be shifting towards technologically less advanced options that seem to be more seizable and readily deployable, such as biogas and solid biomass.

LINKS

- Ministry of Energy and Environmental Protection (MEEP) https://mepr.gov.ua/en/
- Bioenergy Association of Ukraine (UABIO) https://uabio.org/en/
- https://www.iea.org/reports/ukraine-energy-profile
- https://www.energy-community.org/implementation/Ukraine.html
- https://www.oecd.org/eurasia/competitiveness-programme/eastern-partners/Snapshot-of-Ukraines-Energy-Sector-EN.pdf

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