

The foundation of Belarus' energy system consists of thermal power plants operating on cheap Russian gas, creating economic and political dependency.

- In Belarus thermal power and electricity production account for 38% of all CO<sub>2</sub> emissions.
- Heating comprises 30% of final energy consumption, while electricity constitutes 15%.
- Solar and wind energy generation made up 3.45% in 2020, with an additional 4% from biofuels, primarily wood.

## Reasons to reform Belarus' energy system:

**1. Belarus ranks among the top twenty most energy-dependent countries globally**, importing 83.8% of all consumed energy resources. While the construction of the Belarusian Nuclear Power Plant (BelNPP) helped to reduce gas consumption, it maintained dependence on Russia due to loans, fuel supply, and waste storage.

**2.** The global trend toward achieving climate neutrality renders **Belarus' carbon-intensive economy non-competitive** in Western markets due to environmental standards and carbon levies.

*The introduction of the EU's cross-border carbon regulation mechanism by 2026 is projected to lead to a 6.8% decrease in exports and a \$200 million decline in revenues (forecasted in 2020 at a price of €78 per ton of CO<sub>2</sub>). These losses will compound annually due to rising emission prices, the phasing out of free quotas, and the inclusion of new sectors.*

**3.** The existing system **artificially stifles the development of renewable energy sources (RES)**.

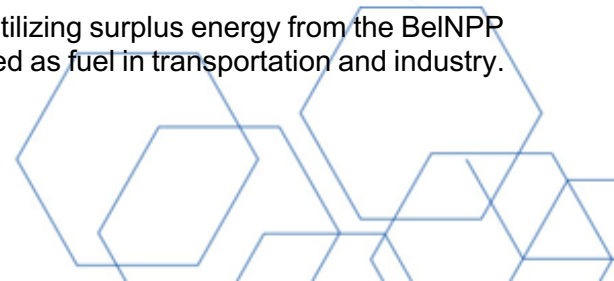
- During 2017-2019, received applications for capacity totaled 770 MW of RES, whereas allocated quotas were only 117.42 MW.
- Quotas for 2022-2023 were canceled, effectively prohibiting RES development.
- The target for RES integration, 9% of total energy consumption by 2030, is not ambitious. By 2020, it was at 7.8%, while the European Union's new goal is 42%.
- The construction of the BelNPP, intended to generate around 40% of all electricity, effectively imposed a moratorium on RES development. The BelNPP cannot compete with renewable energy due to frequent downtime and credit commitments.
- Low gas prices make RES projects less profitable for businesses, and the population lacks incentives for their adoption due to subsidies approximately 80% of heating costs.

**Renewable energy is the foundation of a green economy**, influencing various sectors such as industry, electric transportation, agriculture, waste management, construction, eco-tourism, and urban planning. According to the International Renewable Energy Agency ([IRENA](#)) and Belarusian experts, the country's greatest potential lies in:

- **Solar energy:** Annual solar radiation ranges from 1000 to 1170 kWh/m<sup>2</sup>, with the highest in the south and southeast, 10-20% higher than in Poland and Germany. Solar collectors have significant potential, supplying hot water for housing up to 7-8 months per year, saving up to 80% of costs.
- **Wind energy:** Average annual wind speeds exceed 6 m/s (at 100 m height) in almost all regions, reaching 8 m/s in the north, northwest, and near Minsk. The economic potential of wind energy is estimated at 7.9 billion kWh per year, surpassing the annual output of one reactor at the BelNPP.
- **Biogas:** Belarus produces 89 million tons of organic waste annually. The potential is 2.6 Mtoe, equivalent to 30 billion kWh, which can replace 2.9 billion cubic meters of gas and provide around 15% of consumed energy.

Additionally, Belarus can develop **small hydropower**, **biofuel** production (biodiesel, ethanol), various forms of **biomass** (pellets, fuel briquettes), heat and electricity generation from **non-recyclable waste** (incineration, gasification), and landfill gas collection.

**Hydrogen** production can effectively balance the energy system, utilizing surplus energy from the BelNPP and RES during peak generation. Hydrogen can be exported or used as fuel in transportation and industry.



## How to Develop Green Energy in Belarus?

The development of Renewable Energy Sources (RES) in Belarus should be based on principles of economic viability and consideration of environmental and community impacts. Incentives for industry growth will include market energy prices, carbon regulation, and green financing.

| Objective  | Practical Implementation   |
|--|--|
| <b>1. Establish Wholesale and Retail Electricity Markets</b>   |  |
| <ul style="list-style-type: none"> <li>- Separate activities of "Belenergo" organizations by function</li> <li>- Eliminate cross-subsidization of prices</li> <li>- Harmonize laws with EU standards</li> </ul>  | <ul style="list-style-type: none"> <li>- Ensure equal market conditions for all players</li> <li>- Remove administrative barriers for independent power producers</li> <li>- Create independent regulators and a system operator</li> <li>- Develop an energy verification system</li> <li>- Design a program to support vulnerable groups</li> </ul>  |
| <b>2. Develop Energy Infrastructure</b>  |  |
| <ul style="list-style-type: none"> <li>- Increase the share of electricity in final consumption</li> <li>- Regulate independent operators</li> <li>- Expand electric grids</li> <li>- Support research and innovation</li> </ul>   | <ul style="list-style-type: none"> <li>- Enhance electric grid capacity</li> <li>- Facilitate integration of small-scale producers</li> <li>- Increase energy storage and balancing capacity</li> <li>- Implement demand-side management and smart grids</li> <li>- Adapt the energy system to the EU grid</li> <li>- Promote local production of batteries, panels, solar collectors, wind turbines, inverters, etc., and related services</li> </ul>                 |
| <b>3. Expand Renewable Energy Sources Capacity</b>   |  |
| <ul style="list-style-type: none"> <li>- Set ambitious goals and development programs for RES</li> <li>- Ensure equal conditions for RES alongside other sources</li> <li>- Green financing for eco-friendly businesses</li> <li>- Integrate RES into new building construction</li> </ul> | <ul style="list-style-type: none"> <li>- Utilize heat pumps and solar-heated water floors for heating</li> <li>- Establish cogeneration parks (solar + wind + hydrogen)</li> <li>- Produce biogas from organic waste</li> <li>- Generate hydrogen during peak RES generation</li> <li>- Harness waste for heat and energy production</li> <li>- Develop small hydropower</li> <li>- Install solar panels and collectors on public and residential buildings</li> </ul> |

### *What to Do with the Belarusian Nuclear Power Plant (BelNPP)?*

*Conduct an audit and based on its results, develop a program for energy sector development considering the BelNPP or a plan for its decommissioning.*

### **Benefits for Belarusians**

Replacing fossil fuels with green energy will improve air, water, and soil quality, benefiting public health. Economic advantages include reducing the trade balance deficit, cutting energy import expenditures, expanding markets, and fostering industrial and service sector growth.

New jobs will be created in energy, industry, transportation, agriculture, and waste management. Citizens can earn income by selling surplus energy back to the grid and save on heating costs. Lastly, green energy will lower greenhouse gas emissions, ensuring economic and political independence.

### **Sources of Reform Financing**

Approximately 10% of all investments (around \$1 billion) are allocated to energy, and annual energy supply costs amount to about \$6 billion per year. **State investments should focus on infrastructure** and creating an attractive investment climate, **while private investments should drive capacity development**.

Financing sources could include the Economic Assistance Plan for Belarus, Eastern Partnership programs, UNDP, GEF, investments from EIB, EBRD, ADB, AIIB, other organizations, foreign and domestic businesses, and private individuals investing in RES integration.

