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# EU4ENERGY PHASE II



## Accelerating Market Integration of Renewables – Focus on Flexibility and Active Consumer

November 2025



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# GOALS AND COMMITMENT TO ENERGY TRANSITION



- To increase the share of renewable energy sources in total installed capacity of electricity to **30% by 2030. (expected to be 33.7% in 2027 and 38% in 2030 with currently implemented projects)**
- To reduce greenhouse gas emissions - **35% by 2030.**
- To reduce greenhouse gas emissions - **40% by 2050.**
- Net Zero Emission Zone in Karabakh and East Zengezur region



**UN CLIMATE  
CHANGE  
CONFERENCE  
UK 2021**



**COP29**  
Baku  
Azerbaijan

3 important energy initiatives were officially presented at the event – COP29

- ***Global Energy Storage and Grids Pledge***
- ***Green Energy Zones and Corridors***
- ***Hydrogen Declaration.***

## Active Role in Global Green Energy Agenda

- Azerbaijan joined Global Renewable and Energy Efficiency Pledge at COP28 in Dubai.
- Azerbaijan joined Global Methane Pledge in March 2024.
- The Energy Efficiency Fund was established in Azerbaijan, in March 2024.





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## TECHNICAL POTENTIAL

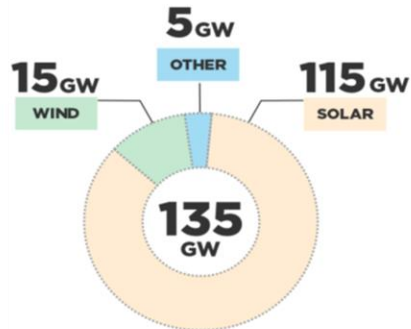
## ECONOMIC POTENTIAL

### ONSHORE

# 135 GW

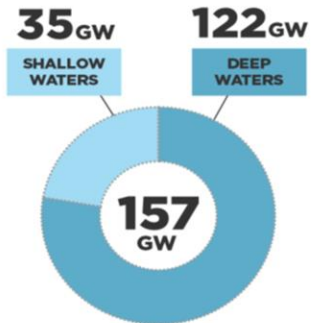


Including:  
Liberated territories **10 GW**  
Nakhchivan **5 GW**



### OFFSHORE

# 157 GW

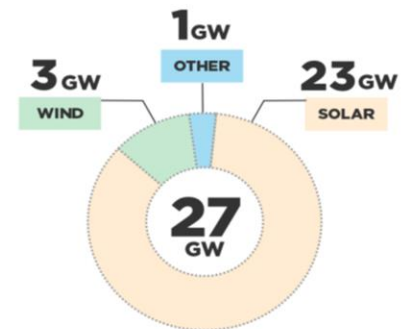


### ONSHORE

# 27 GW

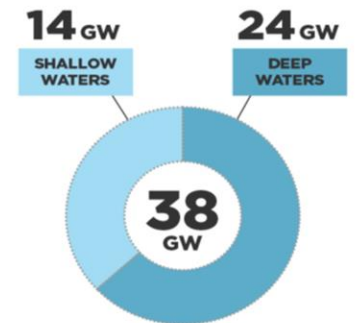


Including:  
Liberated territories **2.5 GW**  
Nakhchivan **1.5 GW**



### OFFSHORE

# 38 GW

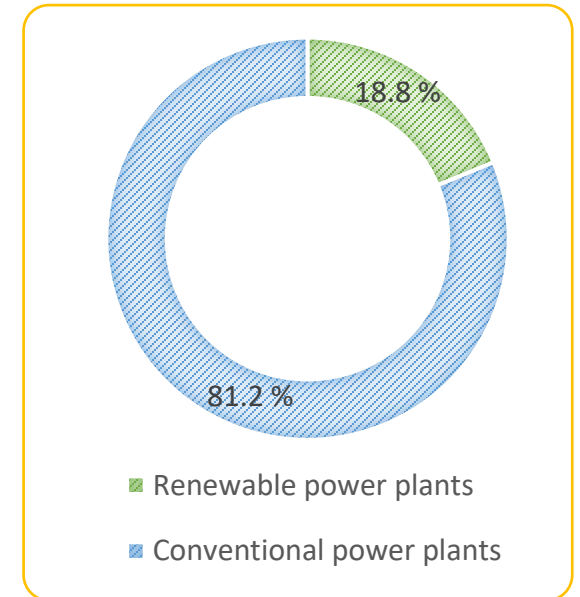
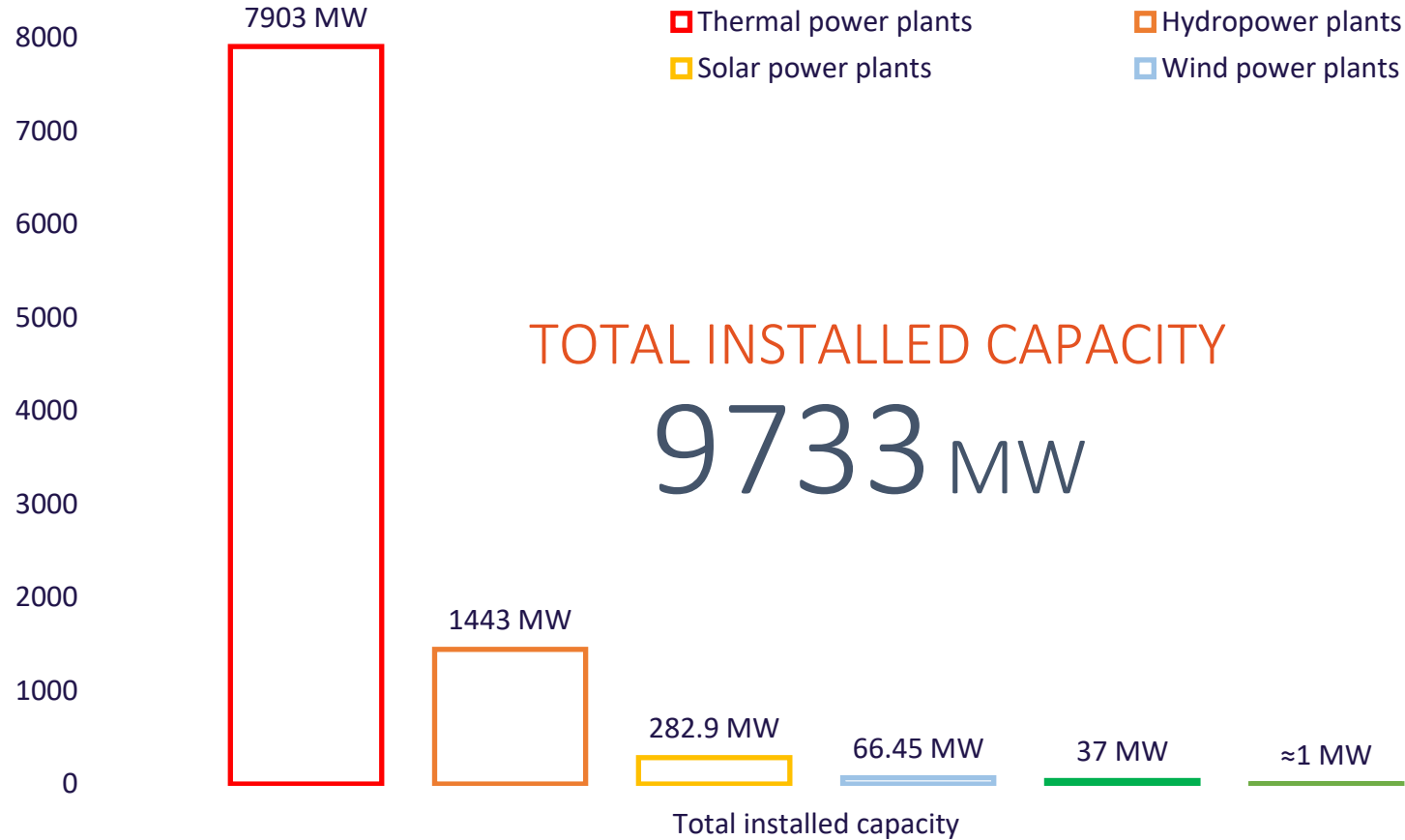




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# Power plants in AZERBAIJAN





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# Garadagh Solar PP

The Garadagh Solar PV Plant is the largest solar power plant in the Caspian region.



## Key Facts

- ☀️ **Capacity:** 230 MW
- 💰 **Total Investment:** 262 million USD
- ⚡ **Annual Electricity Production (AEP):** 500 million kWh
- 🔥 **Natural Gas Savings:** 110 million cubic meters
- 🌍 **CO<sub>2</sub> Emissions Reduced:** 200,000 tons per year
- 👉 **Official Inauguration Date:** 26 October 2023



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# Upcoming Renewable Energy Projects in Azerbaijan (2025–2027) PROJECTS



Capacity	Project	Type	Year	Developer
240 MW	Khizi–Absheron Wind Power Plant		2025	
445 MW	Bilasuvar Solar Power Plant		2026	
315 MW	Neftchala Solar Power Plant		2026	
240 MW	Shafag Solar Power Plant		2026	
100 MW	Qobustan Solar Power Plant		2026	
240 MW	Absheron–Garadagh Wind Power Plant		2027	
50 MW	SHAMS Solar Power Plant		2027	
50 MW	UFUG Solar Power Plant		2027	





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# “Green Energy Corridor from Azerbaijan to the EU”



Agreement on a strategic partnership in the field of green energy development and transmission between the Governments of the Republic of Azerbaijan, Georgia, Romania, and Hungary was signed on 17 December in Budapest



- Taking into account huge RE potential, OW energy could contribute to export perspectives of green energy from Azerbaijan to the European energy markets
- Green energy could be supplied from Azerbaijan to the EU energy markets through Georgia and then by underwater sea cable to Romania and Hungary with initial capacity of up to 4GW



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# REGIONAL INTERCONNECTORS



1



Caspian - Black Sea - Europe Green Energy Corridor - 4 GW

2



Central Asia - Azerbaijan Green Energy Corridor

3



East - West Green Electricity Corridor (Azerbaijan-Georgia- Türkiye-Bulgaria)

4



Azerbaijan (Nakhchivan) - Türkiye - Europe Green Energy Corridor - 1 GW





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# GRID INTEGRATION



- By 2027, it is planned to implement green energy projects with a total capacity up to 2 gigawatts.
- Based on analyses by the U.S. company “Tetra Tech”, Turkey’s “EPRA”, and Italy’s “CESI”, appropriate measures are currently being undertaken to strengthen the national grid and enable the maximum integration of renewable energy sources.





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# AZERBAIJAN SCALING-UP RENEWABLE ENERGY PROJECT (AZURE)

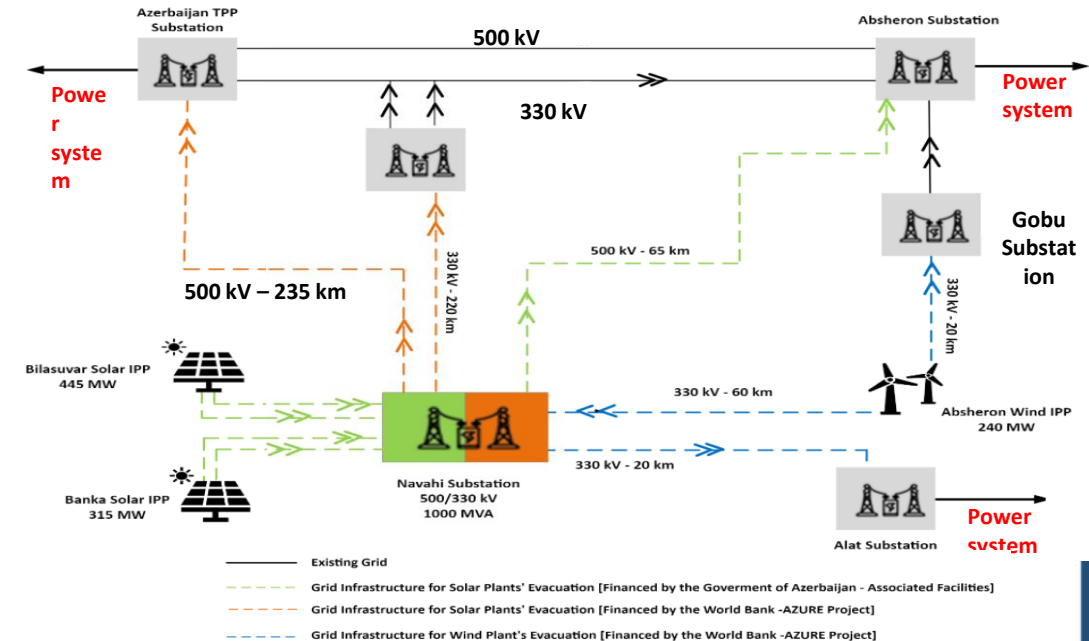


The World Bank has approved the “Azerbaijan Renewable Energy Integration Project (AZURE)” to enhance the country’s electricity transmission network and support the large-scale integration of renewable energy into the grid.



The project consists of three main components:

1. Connection of the 240 MW Absheron–Garadagh Wind Power Plant and other RE projects to the national transmission grid.
2. Construction of five new OHLs with varying voltages (500 kV and 330 kV) and lengths totaling over 550 km
3. Strengthening grid stability to enable the integration of an additional 1.8 GW of renewable capacity through private investment.





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# Integration of Battery Energy Storage



After conducting a static and dynamic analysis of the system, also taking into account the prospects of integrating  $\approx 2$  GW of renewable energy into the power system, it was found that battery-based energy storage systems are necessary to ensure overall reliability and stability

## Functions of BESS under TSO

- Rapid compensate for load flows of Derbend overhead line (330 kV)
- Participate in 1st and 2nd frequency regulation (or load flows regulation)
- Participate in reactive power compensation and voltage regulation
- It must improve the dynamic characteristics of the power system by providing synthetic inertia
- Ability to participate in meeting peak demand



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# Regulatory and Legal Framework



- Law of the Republic of Azerbaijan on the usage of renewable energy sources in the production of electricity (approved 31.05.2021)
- Legislation acts approved by the Cabinet of Ministers:
  - The auctions rules
  - Rules on supporting mechanisms for active consumers
  - Renewable Certificates Applications
  - Information System of Renewable Energy Sources





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# ACTIVE CONSUMER (PROSUMERS)



## Supporting Mechanisms for Active Consumers

*Approved September 2023*

- ⚡ Installed Capacity Limit: 150 kW
- ⌚ Registration Time: 20 days
- 💰 Tariff for Surplus Electricity: 0.085 AZN/kWh (0.042 USD/kWh excl. VAT)
- 🛡️ Tax Exemption: Income from surplus electricity sales by household active consumers (up to 150 kW) is tax-free

### 🏠 Active Consumer Rights:

- Generate electricity via solar panels, small wind turbines, or other renewable devices at home/business
- Consume generated electricity and export surplus to the grid
- Purchase electricity from the grid if needed
- Maximum power plant capacity limit: 150 kW (capacity limit of the construction facility)





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# Active Consumer Concept & Energy Balance



## 💡 Who is an Active Consumer?

- Generates electricity from renewable sources (e.g., solar panels ☀️).
- Consumes part of it and **sends the surplus to the grid** ⚡.
- Uses a **bi-directional meter** to record energy **imported and exported**.
- Aims to **reduce bills** and promote **clean energy**.

## ⚙️ Energy Balance Calculation

Formula:

$$B_n = B_{(n-1)} + (E_{\text{export}} - E_{\text{import}})$$

**B<sub>n</sub>** - Current month's energy balance

**B<sub>(n-1)</sub>** - Previous month's balance

**E<sub>export</sub>** - energy exported to the grid

**E<sub>import</sub>** - energy imported to the grid

## Rules:

✅ If export > import → consumer gains credit (balance increases).

⚠️ If import > export → balance decreases.

🔄 Balance is carried forward monthly until year-end.



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# CURRENT PROJECTS





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# ACTIVE CONSUMER IN AZERBAIJAN



At present, active consumers in Azerbaijan have a combined installed capacity of around 3 MW, and the national goal is to **expand this capacity to 50 MW** by 2030



**Thank you**

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