

CAUCASUS WIND POWER

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Athens Energy Summit
5 February 2025

Presentation by John Roberts,
Methinks
Jedburgh, Scotland UK

Azerbaijan's twin-track energy export policy

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- Expand gas exports in line with the Memorandum of understanding concluded with the European Union in July 2022.
- Develop renewables, both for domestic use and for export via a Black Sea submarine cable.

Gas: Expanding the Southern Gas Corridor; Capacity and Putative Azerbaijani Supply Sources

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SPARE CAPACITY:

SCP & SCP-X (Azerbaijan to Turkey)

4-5 bcma

TANAP (Across Turkey)

Nil

TAP (Turkey-Greece border to Italy)

Nil

BOTAŞ system (across Turkey)

Some

PROSPECTIVE CAPACITY EXPANSION to 2027

SCP & SCP-X

16

TANAP

16/10

SGC

10-12

PUTATIVE AZERBAIJANI SUPPLY SOURCES

- Renewable substitution

- Umid/Babek

- Absheron,

- Deep level ACG,

- Further development of Shah Deniz.

Theoretical expansion totals: c.20 bcma to Turkey;
10-12 bcma to SE Europe/Italy.

Source: Bowden & Roberts. Azerbaijan's Energy Transition in
Light of Cop 29. Oxford Centre for Energy Studies, October 2024.

Azerbaijan: Installed Capacity

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Total (2022 Data)	7,976.9 MW
• Electric and CHP plants –	6,652.3 MW
• Hydro power plants -	1,164.7 MW
• Wind power plants-	64.0 MW
• Solar power plants-	51.2 MW
• Solid domestic waste plant-	44.0 MW
• Biogas electric plants -	0.7 MW

Source: Nikoloz Kholodov, Ministry Of Economy And Sustainable Development Of Georgia, Tbilisi, 15 July 2024.

Azerbaijan Renewables 1: Operational, Under Way or In The Pipeline

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1. Operational

- Karabagh & Zanzegur hydro; 270 MW
- Garadagh solar plant; 230 MW

2. Under way

- 6 small hydroelectric plants in Karabagh and Zanzegur; 37.5 MW
- Absheron and Khizi wind farm, ACWA; 240MW
- MASDAR's three projects; 1,000 MW
- Bilasuvar Solar PV Project; 445MW
- Neftchala Solar PV Project; 315MW
- Absheron-Garadagh Onshore Wind Project; 240MW

3. In the pipeline

- The Shafaq (aka Sunrise) project in Jabrayil, BP; 240MW.
- Nakhichevan: A set of projects. Masdar and ACWA; 500 MW.

Source: Bowden & Roberts. Azerbaijan's Energy Transition in Light of Cop 29. Oxford Centre for Energy Studies, October 2024.

Azerbaijan Renewables 2 - Longer Term: Offshore Wind & 3.9 GW Black Sea Cable

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Longer Term Renewables— notably Caspian offshore wind

Masdar's potential 10 GW Projects: A June 2022 agreement envisages an initial 4GW phase comprising 1 GW of wind, 1 GW of solar, and 2 GW from an integrated offshore wind and hydrogen project. There are rights to develop a subsequent 6 GW of projects, with the scale indicating this would predominantly be from offshore wind.

ACWA's 2.5 GW wind projects: In February 2023, ACWA signed implementation agreements for 1 GW onshore wind, 1.5 GW offshore wind, and a battery energy storage project.

Fortescue's December 2022 12 GW framework agreement. This covers “up to 12GW of potential projects from renewable energy sources and green hydrogen production.”

A 3.9 GW Black Sea Cable (CESI PR on 10 January 2025):

“A standout initiative is the Green Energy Corridor, linking Azerbaijan, Georgia, Romania and Hungary. The project will develop a power transmission capacity of 3.9 GW through three HVDC cables spanning 3,000 km. By 2040, the project is expected to enable up to 40 GW of renewable energy capacity, facilitating the export of 30 TWh of green power and 17 TWh of green hydrogen annually, aligning with the EU's long-term energy objectives.”

Source: <https://www.cesi.it/news/2025/cesi-driving-global-energy-interconnections-for-a-sustainable-future/>

GEORGIA RENEWABLES: Installed Capacity and Potential

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Installed capacity (2023 Data)

Total:	4596 MW
Hydro Power Plant	3394 MW
Wind Power Plant	20.7 MW
Thermal Power Plant	1181.4 MW

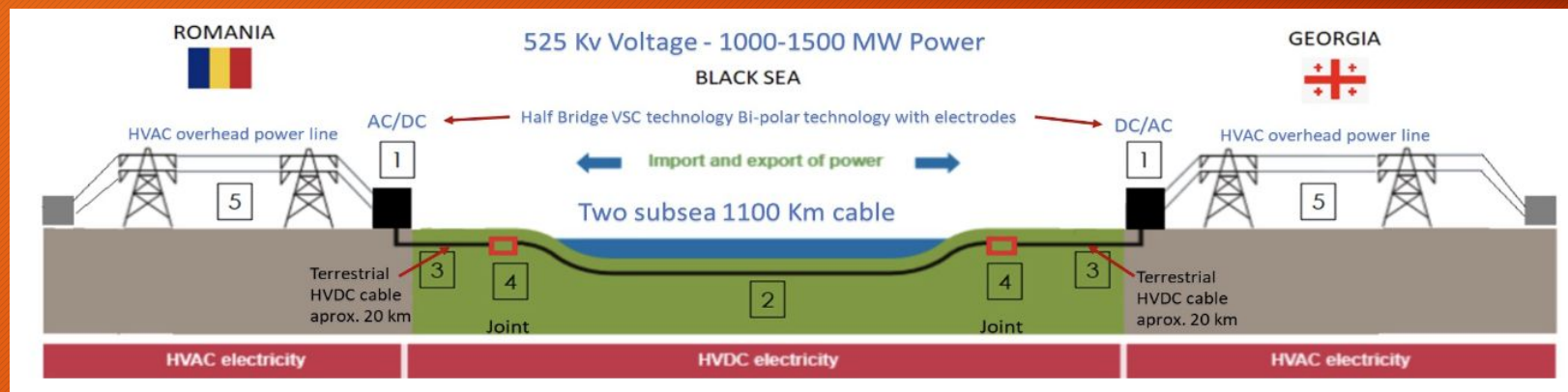
Source:
Nikoloz Kholodov, Ministry Of Economy
And Sustainable Development Of
Georgia, Tbilisi, 15 July 2024.

Renewables Potential:

- Hydropower – technically and economically viable potential of 30 TWh/year
- Wind potential was roughly estimated at 4 TWh/year
- Solar – sunshine days from 250 to 280 (1900 to 2200 hours)
- Geothermal - over 250 natural and artificial geothermal sources in 44 geothermal fields, more than 80% of which are in western Georgia. Geothermal water varies in temperature from 30°C to 110°C.
- Biomass potential

GEORGIA's Black Sea Submarine Cable Feasibility Study (July 2024 status)

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Source:
Nikoloz Kholodov,
Ministry Of Economy
And Sustainable
Development Of
Georgia, Tbilisi, 15 July
2024.

- The Black Sea Submarine Cable project aims to connect Georgia to Romania by power and fiber optic cables:
- Envisaged investment – 2,3 billion EURO
- Commissioning year – 2030
- Feasibility Study is underway implemented by Italian company CESI and will be finalized by the end of the year
- Hungary has been added to the Feasibility Study of the Project, Bulgaria has also stated its interest to become more actively involved in the project.
- Based on the Agreement on Strategic Partnership in the Field of Green Energy Development and Transmission joint venture has been created, comprising the Agreement member countries which will support further development of the project
- Project development will continue with further planned studies – Black Sea underwater geophysical and geotechnical studies

CESI: Consultant for Azerbaijan's energy transition

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MAIN TASK: A comprehensive assessment to provide the World Bank and Azerbaijan's Ministry of Energy with valuable insights and recommendations by identifying optimal areas for energy production, recommending specific projects, proposing transmission system upgrades, and assessing financial and market competitiveness, hence supporting Azerbaijan's transition to a sustainable and renewable energy future.

- Provide a detailed analysis and recommendations to facilitate the development of renewable energy sources in the country for the period 2023-2035.
- Explore and evaluate options for renewable energy development targets in Azerbaijan, identifying the optimal zones for hydro, solar, and wind power generation, both onshore and offshore.
- Estimate the potential for Azerbaijan to export surplus green electricity and the optimal transmission system investment program to be developed for properly integrating the targeted amount of RES generation.

Source: CESI. <https://www.cesi.it/news/2023/cesi-consultant-for-azerbajans-energy-transition/>

CESI: Black Sea Cable - INITIAL CONCLUSIONS

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- **GEORGIA, 13 August 2024:**

- "The Black Sea Submarine Cable Project is promising and feasible from both a technical and economic standpoint, according to the study, prepared by the Italian consulting company CESI and commissioned by the Georgian State Electrosystem with support from the World Bank and the Georgian Economy and Sustainable Development Ministry,"
Statement: Ministry of Economy and Sustainable Development, Georgia.

Source: Interfax. <https://interfax.com/newsroom/top-stories/105065/>

- **AZERBAIJAN, 12 November 2024.**

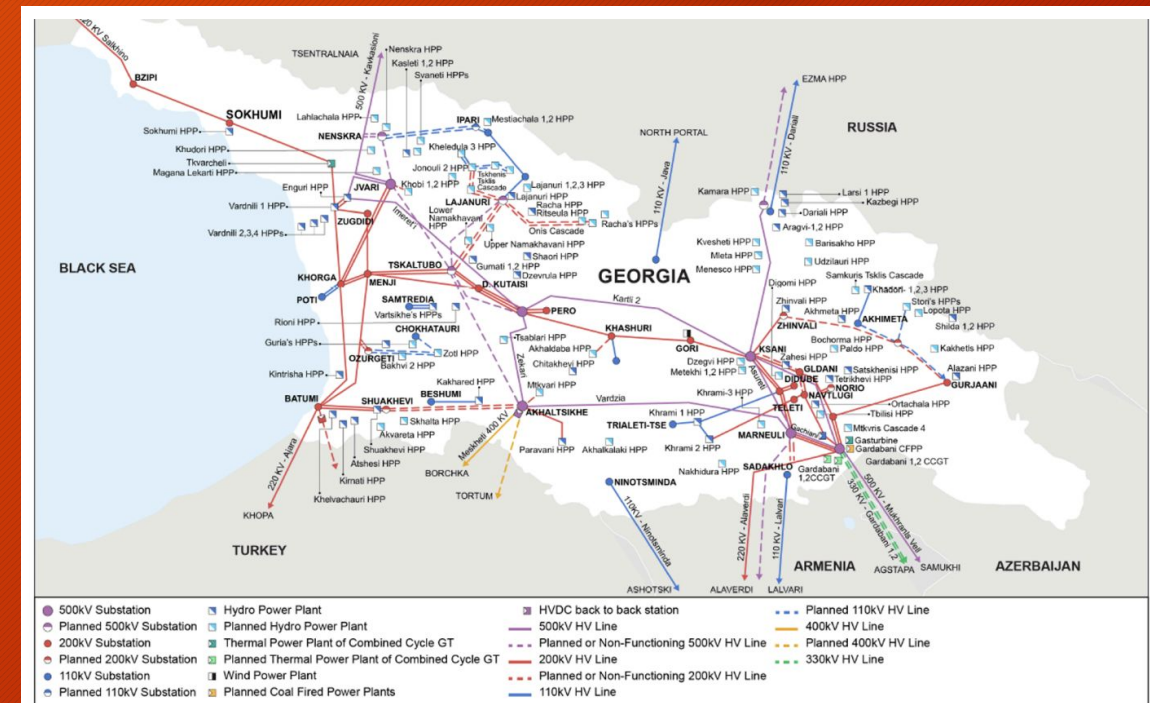
- At joint ministerial meeting in Baku during COP 29, CESI CEO Nicola Melchiotti, presents preliminary findings from its Feasibility Study. Melchiotti delivers “insights into projected green electricity and hydrogen infrastructure requirements, alongside the essential transmission frameworks needed to support this ambitious vision”

Source: <https://www.cesi.it/news/2024/cesi-ceo-joins-ministerial-meeting-at-cop29/>

Georgia: The Crucial Issue

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- The CESI report on Georgia's 1.3 GW Black Sea cable project
- The CESI report on Azerbaijan's 3.9 GW Black Sea cable project
- Georgia's relations with the European Union
- Energy Security



Map of the current transmission network. Source: International Energy Agency

Questions?

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