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# Azerbaijan Plans Caspian-Black Sea Energy Corridor

## Transcontinental link would move clean electricity from Caucasus to Europe

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AZERBAIJAN NEXT WEEK WILL GARNER MUCH of the attention of the climate tech world, and not just because it will host COP29, the United Nation's giant annual climate change conference. The country is promoting a grand, multi-nation plan to generate renewable electricity in the Caucasus region and send it thousands of kilometers west, under the Black Sea, and into energy–hungry Europe.

The transcontinental connection would start with wind, solar, and hydropower generated in Azerbaijan and Georgia, and off-shore wind power generated in the Caspian Sea. Long-distance lines would carry up to 1.5 gigawatts of clean electricity to Anaklia, Georgia, at the east end of the Black Sea. An undersea cable would move the electricity across the Black Sea and deliver it to Constanta, Romania, where it could be distributed further into Europe.

The scheme's proponents say this Caspian-Black Sea energy corridor will help decrease global carbon emissions, provide dependable power to Europe, modernize developing

shaken by war. Organizers hope to build the undersea cable within the next six years at an estimated cost of €3.5 billion (US $3.8 billion).

To accomplish this, the governments of the involved countries must quickly circumvent a series of technical, financial, and political obstacles. “It’s a huge project,” says Zviad Gachechiladze, a director at Georgian State Electrosystem, the agency that operates the country’s electrical grid, and one of the architects of the Caucasus green-energy corridor. “To put it in operation [by 2030]—that’s quite ambitious, even optimistic,” he says.

## Black Sea Cable to Link Caucasus and Europe

The technical lynchpin of the plan falls on the successful construction of a high voltage direct current (HVDC) submarine cable in the Black Sea. It’s a formidable task, considering that it would stretch across nearly 1,200 kilometers of water, most of which is over 2 km deep, and, since Russia’s invasion of Ukraine, littered with floating mines. By contrast, the longest existing submarine power cable—the North Sea Link—carries 1.4 GW across 720 km between England and Norway, at depths of up to 700 meters.

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As ambitious as Azerbaijan's plans sound, longer undersea connections have been proposed. The Australia-Asia PowerLink project aims to produce 6 GW at a vast solar farm in Northern Australia and send about a third of it to Singapore via a 4,300-km undersea cable. The Morocco-U.K. Power Project would send 3.6 GW over 3,800 km from Morocco to England. A similar attempt by Desertec to send electricity from North Africa to Europe ultimately failed.

Building such cables involves laying and stitching together lengths of heavy submarine power cables from specialized ships—the expertise for which lies with just two companies in the world. In an assessment of the Black Sea project's feasibility, the Milan-based consulting and engineering firm CESI determined that the undersea cable could indeed be built, and estimated that it could carry up to 1.5 GW—enough to supply over 2 million European households.

But to fill that pipe, countries in the Caucasus region would have to generate much more green electricity. For Georgia, that will mostly come from hydropower, which already generates over 80 percent of the nation's electricity. "We are a hydro country. We have a lot of untapped hydro potential," says Gachechiladze.

## Azerbaijan and Georgia Plan Green Energy Corridor

Generating hydropower can also generate opposition, because of the way dams alter rivers and landscapes. “There were some cases when investors were not able to construct power plants because of opposition of locals or green parties” in Georgia, says Salome Janelidze, a board member at the Energy Training Center, a Georgian government agency that promotes and educates around the country’s energy sector.

“It was definitely a problem and it has not been totally solved,” says Janelidze. But “to me it seems it is doable,” she says. “You can procure and construct if you work closely with the local population and see them as allies rather than adversaries.”

For Azerbaijan, most of the electricity would be generated by wind and solar farms funded by foreign investment. Masdar, the renewable-energy developer of the United Arab Emirates government, has been investing heavily in wind power in the country. In June, the company broke ground on a trio of wind and solar projects with 1 GW capacity. It intends to develop up to 9 GW more in Azerbaijan by 2030. ACWA Power, a

Saudi power-generation company, plans to complete a 240-MW solar plant in the Absheron and Khizi districts of Azerbaijan next year and has struck a deal with the Azerbaijani Ministry of Energy to install up to 2.5 GW of offshore and onshore wind.

CESI is currently running a second study to gauge the practicality of the full breadth of the proposed energy corridor—from the Caspian Sea to Europe—with a transmission capacity of 4 to 6 GW. But that beefier interconnection will likely remain out of reach in the near term. “By 2030, we can’t claim our region will provide 4 GW or 6 GW,” says Gachechiladze. “1.3 is realistic.”

## COP29: Azerbaijan’s Renewable Energy Push

Signs of political support have surfaced. In September, Azerbaijan, Georgia, Romania, and Hungary created a joint venture, based in Romania, to shepherd the project. Those four countries in 2022 inked a memorandum of understanding with the European Union to develop the energy corridor.

The involved countries are in the process of applying for the cable to be selected as an EU “project of mutual interest,”

making it an infrastructure priority for connecting the union with its neighbors. If selected, “the project could qualify for 50 percent grant financing,” says Gachechiladze. “It’s a huge budget. It will improve drastically the financial condition of the project.” The commissioner responsible for EU enlargement policy projected that the union would pay an estimated €2.3 billion ($2.5 billion) toward building the cable.

Whether next week’s COP29, held in Baku, Azerbaijan, will help move the plan forward remains to be seen. In preparation for the conference, advocates of the energy corridor have been taking international journalists on tours of the country’s energy infrastructure.

Looming over the project are the security issues threaten to thwart it. Shipping routes in the Black Sea have become less dependable and safe since Russia’s invasion of Ukraine. To the south, tensions between Armenia and Azerbaijan remain after the recent war and ethnic violence.

In order to improve relations, many advocates of the energy corridor would like to include Armenia. “The cable project is in the interests of Georgia, it’s in the interests of Armenia, it’s in the interests of Azerbaijan,” says Agha Bayramov, an energy geopolitics researcher at the University of Groningen, in the Netherlands. “It might improve the climate of the

in the Netherlands. "It might increase the chance of them living peacefully together. Maybe they'll say, 'We're responsible for European energy. Let's put our egos aside.'"

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