

South Caucasus united by common electricity grid

With more than 26,000 rivers, Georgia is rich in hydropower potential. However, the limited capacity of the country's electricity transmission grid prevent this natural advantage from translating into major economic benefit.

The **Black Sea Energy Transmission System**, a project supported by the EU-funded **Neighbourhood Investment Facility (NIF)**, is set to bring change. The €300 million project will help connect the power grids of the Southern Caucasus countries and increase electricity exports to Turkey and Europe, while bolstering energy security in the region.

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Text and photos by **Maia Edilashvili**

Tbilisi – In the 1990s, work on Georgia's high voltage electricity grid was abandoned in the midst of the post-independence turmoil. Now, it will soon be in full swing again, the key to a significant new role for Georgia.

While the previous projects focused on strengthening the domestic power system, the new one envisions the rehabilitation and construction of a 315 km high voltage grid connecting the Georgian and Turkish power networks. This opens the door to new investment in electricity generation and makes Georgia a regional hub for energy trade, according to Deputy Energy Minister of Georgia Mariam Valishvili.

The 500/400 kV line will link Zestaponi in western Georgia with Gardabani near the Azerbaijani border via Akhaltsihke, close to Turkey. The project also includes construction of a back-to-back converter station in Akhaltsikhe which is necessary to establish a synchronous link with the Turkish grid at Borcka.

"Turkey is facing a demand-supply mismatch and everybody expects this gap to grow," says Michael Andres, Director of Sector Coordination for the South Caucasus, Energy/Transport of KfW, the German Development Bank, one of the major donors for the project.

Joining forces

The project, dubbed the largest venture in Georgia's power sector, is supported by several international finance institutions: KfW has al-

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■ Michael Andres, Director Sector Coordination South Caucasus, Energy/Transport of KfW, German Development Cooperation at KfW's Tbilisi office, pointing at the map, saying that there is potential to make the Black Sea Energy Transmission System a regional network, embracing also Azerbaijan and Armenia.

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located €100 million (€75 million loan plus €25 million grant), the European Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB) have earmarked €160 million (€80 million loan each), and the Neighbourhood Investment Facility (NIF), has provided an €8 million grant. The Georgian government, too, will cover expenditure of €20-40 million.

Created in 2008, the NIF is an innovative financial instrument of the European Neighborhood Policy, aiming to help the Eastern and Southern neighbours finance big infrastructure investment when they fail to get direct funding from the private sector. The idea is to create a partnership, attract grant aid from the European Commission and EU member states, and use them to leverage loans from International Finance Institutions and contributions from the partner states. Last year, €99.7 million of NIF grants generated a total contribution from European finance institutions of around €2.5 billion. According to Richard Weber, Deputy Director-General of EuropeAid, after 18 months of operation, the NIF's global portfolio stands at some €9 billion.

For the Georgian project, the NIF grant, made available in late 2008, has been "a huge success", said Andres, adding that this contribution allowed the launch of technical preparations more than one year before the agreement for full financing was concluded in April 2010. In particular, the NIF's €8 million has been used to pay the engineering and consulting company Fichtner for the technical appraisal, developing the conceptual design and budgeting. The company will supervise the project implementation. Remaining funds of up to €3 million will finance specific measures defined to mitigate environmental impacts of the line construction. Technical preparations have been completed, and the tender process is now underway. Construction works started in July. In May 2012, the line will be at least partly operational and is due to reach full capacity a year later.

Increased stability and trade

Hydropower accounts for 85% of Georgia's electricity, enough for domestic needs. The country imports electricity only in winter, while exporting surplus power in summer.

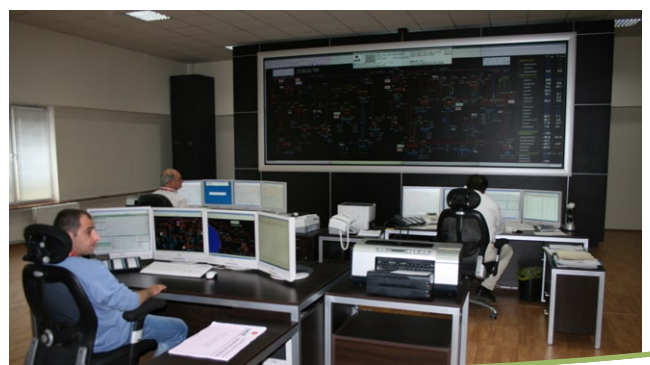
The new transmission line will help diminish seasonal electricity losses: during heavy rains the hydro power plants get more water than they can cope with, so the water is spilled. "When the big plants start operation and we have this line, we'll be able to prevent the losses and boost exports," said Sul Khan Zumburidze, Chief of the Rehabilitation Department of Georgian State Elektrossystem (GSE), the state owned electricity transmission company, which will own and operate the grid through its subsidiary Energotrans.

The new line will have a capacity of up to 1,000 MW, excessive for Georgia's current demand, but pertinent in the face of increasing investment. "By 2018 the big hydro power plants will have been constructed, and this line will be fully utilised," Valishvili said.

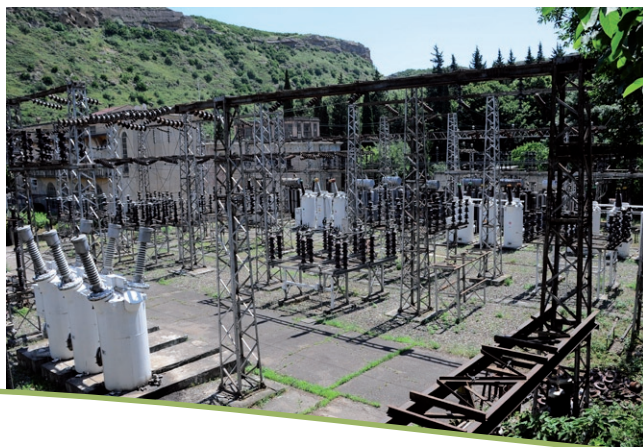
Last year, Georgia saw construction start of several new hydro power plants, including Namakhvani HPP with 1.5 billion kW/h annual capacity (Turkish-Korean investment). These plants, the government hopes, will allow to export up to 4 billion kW/h electricity, com-

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■ The premises of the central dispatching centre of the Georgian State Elektrossystem (GSE), the state-run electricity transmission company in downtown Tbilisi. The centre is in charge of Georgian power grid's operating management.



■ The substation at Zahesi hydro-power plant, located in Mtskheta region near Tbilisi that has an average annual capacity of 160 million kW/h. Hydropower accounts for 85% of Georgia's electricity, which is enough for local needs.



pared to 1.2 billion kW/h planned for 2010. This will be around 15% of total generation, making electricity the top export commodity.

"If you look at this line you will see the potential to make this Black Sea Energy Transmission System a regional network embracing also Azerbaijan and Armenia," Andres explained. Connecting the network to the Turkish grid, he added, will offer a unique export opportunity. "If all the connections become operational the three [South Caucasus] countries together might be able to export to the EU or Iran and can also exchange energy [among themselves]," he said.

The project will also hugely benefit domestic consumers in terms of urgently needed grid stabilization. Most of Georgia's hydro resources are concentrated in western Georgia, while the east hosts the majority of large industrial enterprises,

making an efficient transmission system critical for the stability of supply. Thus far, transportation of electric power relies on one single 500 kV line; in case anything happens to this line large parts of Georgia will be blacked out. The addition of a second line under the Project will prevent this. Zumburidze is optimistic: "Sudden disruptions of electricity supply to the capital, Tbilisi, and other eastern Georgian regions will be ruled out."

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Neighbourhood Investment Facility (NIF)

The NIF is an innovative instrument of the ENP that brings together grant funding from the European Commission and the EU Member States and loans from European Public Finance Institutions.

Participating countries

Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Occupied Palestinian Territory, Syria, Tunisia, Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, Ukraine

Objective

It aims to mobilise additional funding for infrastructure projects in the Neighbourhood area. The NIF focuses on the key sectors of energy, environment and transport while also providing support to SMEs development and social sector infrastructures. By encouraging joint European operations, the NIF thus paves the way for concrete donors' coordination, division of labour and harmonisation of procedures.

Find out more

NIF website http://ec.europa.eu/europeaid/where/neighbourhood/regional-cooperation/irc/investment_en.htm

NIF fiche www.enpi-info.eu/maineast.php?id=321&id_type=10

Timeframe

2007-2013

Budget

€ 700 million

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