

EDC COMMUNIQUE



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Editorial

Prospect of Grid—Tied PV Solar in Nepal

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PROJECT MANAGER

UTILITY SCALE GRID-TIED SOLAR PROJECT

NEPAL ELECTRICITY AUTHORITY

AN EDC MEMBER ORGANIZATION

At present, the Integrated Nepal Power System (INPS) is supplied mostly by Run of the River (ROR) type hydropower plants. This is the main reason why Nepal Electricity Authority (NEA) has to import electricity from India to meet seasonal change in demand and supply. Further, in the dry season (winter), the water level in the river decreases which results in the decreased electricity generation from the ROR hydropower plants to about 40% of that during wet season. This reduced generation aided by increase in demand during winter, has been a serious concern for electric load management in Nepal. The solution to reduce this problem is to have an adequate, sustainable and diverse energy mix that would support to achieve better energy security for the country.

Moreover, with abundant solar radiation throughout the country, grid-tied PV solar can be an effective solution to cater the power demand during the daytime by diversifying the energy mix. Further, by using the grid tied PV solar during daytime, it can act as a complementary solution to the existing and under construction daily peaking hydroelectricity plants owned by NEA and its subsidiary companies. Also, large capacities of daily peaking hydropower plants are under construction which emphasizes the immense opportunity for grid tied PV solar in Nepal considering the fact that government of Nepal has a policy of integrating 10% power from solar and wind in the INPS. Furthermore, in addition to creating jobs and contributing to our national economy, the following objectives can be achieved by promoting utility scale grid tied PV solar electricity industry in Nepal:

Energy Security: Use of indigenous resource (solar) can help diversify energy mix and reduce the country's dependence on any single source, particularly imported fossil fuels, thereby mitigating against supply disruptions and price fluctuation risks.

Economic Benefits: Grid-tied PV Solar has potential to not only be economically competitive with conventional supplies on a least-cost basis but also to reduce the cost of electricity of the utility to facilitate essential competitive advantage for the country to attract foreign investment.

Social Equity: Nepal's present low per-capita consumption of electricity can be elevated by better renewable energy penetration. Issues relating to social equity - such as equal rights and access for all

citizens to modern, reliable and affordable electricity as envisioned by Goal No. 7: Affordable and Clean Energy of the Sustainable Development Goals & improved human development indicators - can also be addressed significantly through effective renewable energy uses.

Environmental Protection: Local environmental and health impacts of unsustainable and inefficient traditional biomass and fossil fuel-powered electricity generation can be largely reduced through clean, renewable energy alternatives. Similarly, displaced greenhouse gas emissions carry significant global climate change benefits, towards which Nepal has pledged action under the UN Framework Convention on Climate Change.

Globally, in countries with regulated competition, the utility scale grid tied PV solar projects are becoming cheaper with time. In Nepal, despite some efforts from the government with introduction of regulatory mechanism and some tax & duties related interventions, the market realized cost is relatively high as compared to the neighboring markets. Following are some of the possible avenues to be addressed to reduce the market realized cost in Nepal:

Royalty: Water can be used for other activities such as irrigation, drinking water and using water for hydro has upstream and downstream impact. However, sunshine on a particular plot may not be charged any royalty as the sun on particular plot does not impact other plots. Additionally, the sunshine not used on a plot will be totally wasted. Hence, royalty on solar electricity should be treated differently than royalty on hydroelectricity.

De-licensing and promotion: Any generating company may be allowed to establish, operate and maintain a grid-tied PV solar generating plant without obtaining a license if it complies with the technical standards relating to connectivity with the grid. This will encourage Foreign Direct Investment as has been experienced in India. Further, efforts to encourage and attract international bidders who are currently investing in India has to be made. The geographic nearness with India is a strategic advantage to Nepal and this can be achieved if we have policy interventions and business environment at par if not more investment friendly than that being practiced in India.

Financing Modality: Currently, banks in Nepal only invest in infrastructure projects for collateral deposited by the promoters. This discourages investment as there is risk associated to private property for any loss the company may incur. With project financing, promoters can do business without risking their private property. Moreover, the ever-fluctuating interest rate has been a serious hurdle for investment as promoters are uncertain on sudden rise in the interest rate which will hurt their profit projection. Further, as the interest rates from the international financial institutions are very low even after factoring costs like hedging for foreign exchange risks the government should facilitate a mechanism to encourage foreign lending agency.

Concept of solar park: The scattering of solar power projects leads to higher project cost per MW and higher transmission losses. Individual projects of smaller capacity incur significant expenses in site

development, constructing separate transmission lines to nearest substation and in creation of other necessary infrastructure. Also, it takes a long time for project developers to acquire land, obtain statutory permits, etc. which delays the project. Further, the solar park is a focused zone for development of solar power generation projects, by providing developers an area that is well characterized, properly infra-structured and where the risk of the projects can be minimized as well as the facilitation of the statutory permits from a single desk with authority & accountability to decide compromising of all government agencies involved so that all issues of the investors can be solved under one roof. Further, transparent process and easy procedures to be made public and online approval of permits if possible, to ensure paperless working environment.

Solar policy: Presently in Nepal, there is no dedicated solar policy for grid tied PV solar. This may distract many investors due to perception of uncertainty of continuation by government in the sector. Hydro and solar electricity generation cannot be looked from the same perspective as they are distinctly different in nature. The hydro requires detail study whereas solar is more like farming with very less environment and social issues. Also, solar is for a fast track nature of electricity generation and if delayed with procedural hassles, it may yield in added cost of generation.

In this way, by focusing on aforementioned avenues, market realized cost of grid-tied PV solar in Nepal can be reduced.



EDC ACTIVITIES

27th December, 2019

Executive Committee Meeting held at EDC Office



EDC executive committee meeting was conducted on 27th December 2019 at EDC office, Heritage Plaza to discuss about plans to organise Nepal Energy & Infrastructure Summit 2020. Present in the meeting were Chairman Mr. Sujit Acharya, Head of the committee Mr. Kushal Gurung, committee members Mr. Semanta Dahal & Mr. Aashish Chalise and CEO Ms. Itnuma Subba.



EDC ACTIVITIES

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Tender, Bids and Notices related to Hydro and Energy segments in Nepal

Month: December 2019

S.No.	Notice Publisher	Description	Published Date	Notice Category	Product Service
1	Remit Hydro Limited, Maharajgunj, Kathmandu	Construction of Access Road, Necessary Protection Works and Bailey Bridge Abutments	12/31/2019	Tender	Construction/ Building
2	Tamakoshi Hydropower Company Limited, Thapathali, Kathmandu	घरभाडामा लिनेसम्बन्धी	12/31/2019	Proposal	Real Estate
3	Tamakoshi Jalvidyut Company Limited, Tamakoshi V Hydroelectric Project, Kathmandu	Construction of Prefabrication House	12/31/2019	Tender	Construction/ Building
4	Remit Hydro Limited, Maharajgunj, Kathmandu	Design, Supply, Delivery and Installation of Bridge	12/30/2019	Tender	Construction/ Building
5	Rastriya Prasaran Grid Company Limited, Anamnagar, Kathmandu	Financial Proposal Opening	12/28/2019	Notice	Other Product/ Services
6	Betan Kamali Sanchayakarta Hydropower Company Limited, Durbarmarg, Kathmandu	Correction Notice	12/28/2019	Amendment Notice	Other Product/ Services
7	Upper Tamakoshi Hydropower Limited, Gyaneshwor, Kathmandu	Amendment to Invitation for Prequalification	12/27/2019	Amendment Notice	Other Product/ Services
8	Betan Kamali Sanchayakarta Hydropower Company Limited, Durbarmarg, Kathmandu	Opening of Price Bids	12/25/2019	Notice	Other Product/ Services
9	Uttar Ganga Power Company Limited, Head Office, Durbarmarg, Kathmandu	Consulting Services for Review of Feasibility Study Report, Preparation of Detailed Engineering Design and Bidding Documents for Project Construction	12/22/2019	Proposal	Other Product/ Services
10	Upper Tamakoshi Hydropower Limited, Gyaneshwor, Kathmandu	Construction of Track	12/20/2019	Tender	Construction/ Building
11	Raghuganga Hydropower Limited, Myagdi	Supply and Delivery of Vehicle	12/8/2019	Tender	Automotive / Vehicles
12	Madhya Bhotekoshi Jalavidyut Company Limited, Maharajgunj, Kathmandu	Provide Internet Services	12/6/2019	Quotation	Communication/ Telecommunications

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TenderNotice
COMING



MEMBER UPDATES



Ghampower has developed a new version of their smart meter after several tests and iterations. The smart meter measures several environmental and agricultural parameters with the help of various sensors, provides real-time operational data and can even work in low network areas. As a result, rural smallholders can receive data driven agri-advisory services at the tip of their fingers.



Sanjen Jalavidyut Company Limited (SJCL), a company promoted by Chilime Hydropower Company Limited (CHPCL) was established in 2010 AD. The company has planned to develop two hydroelectric projects, Sanjen (Upper) Hydroelectric Project (14.8 MW) and Sanjen Hydroelectric Project (42.5 MW) in cascade, with its own equity and loan from financial institutions of Nepal as the first initiative. Status of Sanjen (Upper) Hydroelectric Project:

Civil Works: Contract Agreement for Civil Works was signed with M/S ECI BGCCPL J/V. Overall progress 75%.

Electro-Mechanical Works: Contract Agreement for Electro-Mechanical Works was signed with M/S Dongfang Electric International, China. Overall progress 65%.

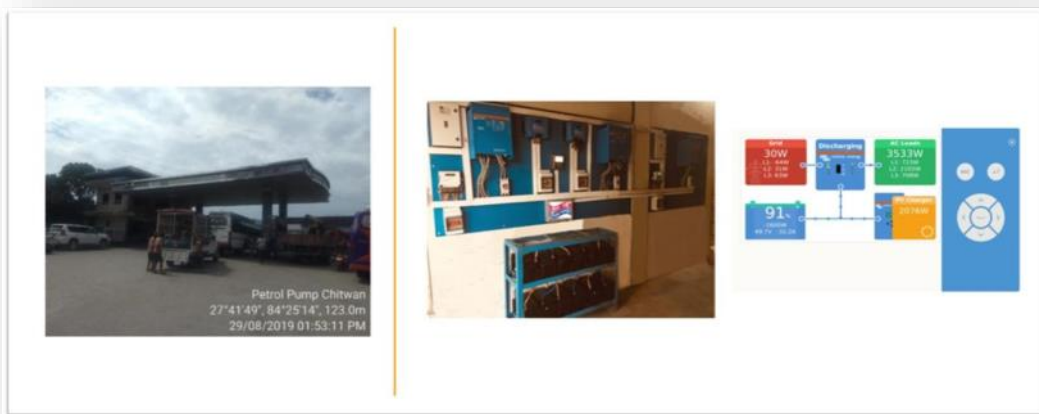
Hydro-Mechanical Works: Contract Agreement for Hydromechanical Works was signed with M/S Nepal Hydro & Electric Ltd, Nepal. Overall progress 80%.



MEMBER UPDATES



Ghampower is excited to share that our solar mini-grid project of capacity 50kWp in Hilepani has been successfully completed and handed over to the user committee. The mini-grids will be powering a total of 246 households, schools, health posts, etc. #ProjectHilepani is financially supported by Asian Development Bank (ADB), Alternative Energy Promotion Center - AEPC, and the user community.



Nepal's busiest Petro station was facing erratic supply from the grid, use of diesel generator, unbalanced load distribution, voltage fluctuation from grid supply side – a Victron system was installed – 5Kva*3 inverters (3 phase system) with 12 unit of storage and 8 kW solar module. The Petro station has not used diesel generator for a month now. A 3-phase stabilizer was installed for smooth grid supply and to balance the load. No hassle of Net metering, as very smart system has been in place which can be remotely monitored and managed.



NEPAL'S PERSPECTIVE

7th January, 2020

BANGLADESH AGREES TO PAY 7.7 CENTS PER UNIT FOR UPPER KARNALI POWER

Bangladesh has formalised its pledges to buy electricity from the 900-MW Upper Karnali hydropower project in Nepal which is currently being developed by India's infrastructure giant GMR Group, opening the door for the first-ever trilateral power trade.

In the latest landmark development, the Cabinet Committee on Public Purchase of Bangladesh has given the nod to import power at a rate of 7.71 cents per unit for a period of 25 years, according to Dhaka Tribune. The decision was made on Wednesday.

Kulmeet Sharma, GMR appointed project head of Upper Karnali in Nepal, confirmed the development.

The tariff rate, a major sticking point in past discussions between the Indian developer and Bangladeshi energy officials, is around 2.5 cents less than what GMR Energy had offered to Bangladesh.

This will now help GMR to arrange funds for the construction of the power plant because the lender will approve credit only if a market for the electricity to be generated by the project is secured.

"It was a much-awaited development and now a letter of intent from Bangladesh is expected within 4-5 weeks," said Kulmeet Sharma, GMR

appointed project head of Upper Karnali. "After the project receives the letter of intent, it will open the doors to make financing arrangements to build the power plant in western Nepal."

According to Sharma, the project has been unofficially holding talks with potential lenders including local banks and multilateral agencies and with a formal offtake agreement in hand, it will gear up the required processes and also clear bottlenecks pertaining to land acquisition.

As per the proposal cleared by Bangladeshi officials, the energy-hungry country will pay out a massive Tk381.60 billion (equivalent to Rs511.69 billion) over 25 years to procure 500 megawatts of electricity.

Nepal will receive 108 MW out of the remaining 400 MW for free while GMR plans to sell the rest to the government of the Indian state of Haryana.

A principal agreement on the commercial terms of the power purchase agreement excluding tariff rates was reached between the Bangladesh Power Development Board and GMR last year and negotiations had been struck over the rates since then.

According to an official close to the

situation, the two parties were in disagreement, probably because of the ‘high rate’ proposed by the developer.

The export-oriented Upper Karnali project has a high price tag due to surcharges placed on the use of Nepali and Indian transmission grids. As the developer is required to relay energy using Nepali and Indian infrastructure, it will have to pay wheeling charges to both Nepal and India. Apart from the charges, the loss of electricity in long-distance transmission is also usually high.

Power-hungry Bangladesh signed a memorandum of understanding (MoU) with India’s NVVN to import electricity from the Upper Karnali scheme via India during Bangladeshi Prime Minister Sheikh Hasina’s visit to India in April 2017.

As Indian laws don’t allow private

developers to export electricity produced in third countries over Indian transmission lines, Bangladesh signed an MoU with the state-owned cross-border electricity trading agency while GMR was a witness.

In absence of a power purchase agreement, the Indian developer has already sought deadline extensions for financial closure twice from Investment Board of Nepal, the facilitating agency.

GMR Energy and the government signed a memorandum of understanding on building the plant in 2008.

As of September 2019, the developer has not been able to acquire 12 hectares of unregistered and unidentified land parcels, out of planned 49 hectares and is awaiting forest clearance permits from four community forest groups.

30th December, 2019

PROVIDE EASY LOANS FOR EV CHARGING STATION

Nepal Rastra Bank has directed banks and financial institutions (BFIs) to give priority in issuing loans to establish charging stations for the promotion of electric vehicles (EVs) in the country.

The central bank recently issued a directive to BFIs which has listed establishment of charging stations for EVs as a priority area for disbursing loans as government aims to increase electricity generation and simultaneously increase the use of electric vehicles too.

The directive also states that hydropower is a renewable energy and will play a vital role in the public transport sector, hence BFIs need to

accord priority to providing loans for the construction of charging stations.

The government is working with the goal of promoting the use of electric vehicles.

It is aiming to increase the volume of electric vehicles across the country by 30 per cent within the next 10 years. Meanwhile, Nepal Electricity Authority has also initiated the process to construct 50 charging stations in Kathmandu valley and along major highways.

Earlier, the Ministry of Energy, Water Resources and Irrigation had drafted a plan to set up more than 200 EVs charging stations to

prioritise electric vehicles to maximise the use of electricity.

On August 29, the ministry had prepared the ‘operational guideline of electric vehicle and establishment of charging stations’. As per the guidelines, NEA will be responsible for giving

approvals to set up charging stations, ensure uninterrupted power supply and monitor their security and leakage.

The power utility will also be responsible for determining service charge, testing and authenticating the charging stations, among others.

22nd December, 2019

CHINA READY TO PURCHASE ELECTRICITY FROM NEPAL

The government of China has agreed to purchase electricity produced in Nepal. During a joint technical meeting between Nepal Electricity Authority (NEA) and State Grid Corporation of China (SGCC) on Saturday, the Chinese government has signed an agreement to purchase electricity from Nepal after the construction of Nepal-China cross-border transmission line. The SGCC is the state-owned electric utility monopoly of China.

As per the agreement, both countries will trade power through the cross-border transmission line.

According to Komalnath Atreya, chief of Ratmate (Galchhi) - Rasuwagadhi — Kerung Transmission Line Project, the agreement paves the way for power trade between the two countries. “The load-follow study of the project will start within the next two weeks. A joint team of NEA and SGCC will conduct the study,” he said, adding that the cross-border transmission line is a priority for China as well.

The 400-KV project is the first cross-border transmission line with China. The completion of the

project will also pave the way for Nepal to sell electricity to Bangladesh.

The transmission line will be 400-KV double-circuit in the Nepali side and 500-KV double-circuit on the Chinese side. The pre-feasibility study of the project to be constructed from Kerung of China to Ratamate of Nepal has been completed.

There will be 214 towers in the transmission line. According to Atreya, the feasibility and environmental study should be completed within two years. The draft report of the feasibility study was submitted on March 17, 2019.

The study report has the details about the number of towers, locations to install the towers, river areas, and national park areas, among others. The substation on the Nepali side will be located at Ratamate, whereas in the Chinese side the substation will be placed at Jilong County of Tibet.

The distance of the transmission line from Rasuwagadhi border point to Ratamate is 70 kilometers. The cross border transmission line is targeted to be completed within six years.

The project is being handled by the Department of Project Development under Nepal Electricity Authority.

Atreya further added that the SGCC and NEA had agreed to jointly prepare the detailed project report (DPR). This is the first cross-border transmission line with China, while Nepal has 11 cross-border transmission lines with India.

The northern neighbor, under its Belt and Road Initiative (BRI), is aiming to expand

transmission lines with seven continents within 2030. After Nepal is connected to China with the transmission line, it will connect India and other Asian countries.

The cross-border transmission line with China will be constructed in government-to-government (G2G) model, as per a bilateral pact signed during Chinese President Xi Jinping's state visit to Nepal in October.

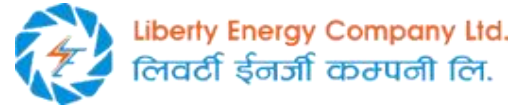


MEMBERS





MEMBERS

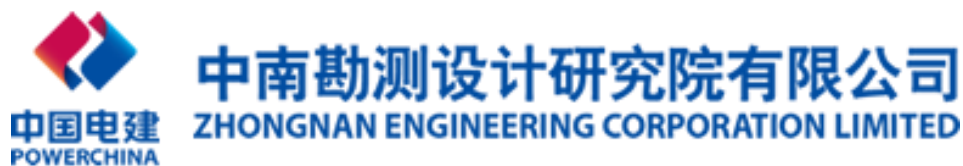




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Energy Development Council (EDC) is a non-profit umbrella organisation of the entire energy sector of Nepal established to ensure every Nepali has access to energy and energy security by promoting favourable policies and investments. EDC consists of Energy Developers, Energy Associations, Energy Consumers, Energy Financiers and other funds, Consumer Institutions, Energy Contractors from both private and government sectors involved in hydropower, solar, wind and other renewables, generating more than 80 percent of the nation's total electricity.



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