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In this issue

Editorial

Food Water and Energy: How Energy can drive agriculture modernization and improved food security in Nepal.

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AN EDC MEMBER ORGANIZATION

Increased access to electricity is often associated with increased sectoral activity in the economy. For Nepal's agricultural sector, this statement barely holds any truth. Rural Nepal, where agricultural activities are predominantly concentrated, saw a twelve-fold increase in electricity access between 1997 and 2016. The value added by agriculture in the same timeframe saw a mere twofold increase and even then, much of this growth can be attributed to access to farm inputs, not the productive uptake of electricity.

To put it another way, the per capita energy consumption of

rural farmers has barely changed in more than 2 decades. The only difference between then and now is the medium with which they are consuming energy: 20 years ago, kerosene lamps used to light homes; now, fancier bulbs are used in place. But switching sources of lights rarely opens up economic opportunities for farmers.

Since productive end use of electricity is universally agreed as a precursor for agricultural development, capacity development of rural Nepalese farmers is a must at this point in time. One way to achieve this is by delivering optimal mechanization equipment at the right time. In a country where almost three quarters of the population engage in agriculture but a meager 5% or so have access to on-demand irrigation, traditional subsistence farming has led to extreme poverty and made rural smallholders increasingly vulnerable to the impacts of climate change, natural disasters and extreme weather events.

On demand irrigation is one of the major factor for agriculture modernization in Nepal. While most of the existing modern irrigation systems are based on diesel and AC pumps, high operational costs and intermittent/limited access of the national grid in the rural areas means off-grid solar based irrigation systems can be viable solutions to improve irrigation access for the farmers. Solar-powered irrigation pumps, as an example, increase farm income by 30-110%. Increased adoption of these irrigation tools along with other agro-processing equipment (that increase yield, produce quality and minimize harvest loss) could forever revolutionize Nepal's agriculture sector while contributing to food security, energy access and local economic growth.

As of late, we have seen several initiatives from government and development agencies that complement this. In FY 2018/19's budget, the Finance Minister introduced a $5 million fund to subsidize the cost of solar water pumping systems. The success of USAID's KISAN project to modernize Nepal's agriculture led the development agency to kick start KISAN II, a multimillion dollar project along similar lines.[5] AEPC, the nation's apex institution to oversee development of renewable technology, routinely subsidizes the energy need of Base of Pyramid farmers. And these are only examples of the large influx of public fund flowing into the energy-agriculture nexus.

While these are certainly strides in right direction, it is our belief that we can attain greater results with a more phased-wise and planned approach.

To provide some perspective, AEPC

subsidized the cost of more than a 1000 SPIS in 2018 alone. Although these subsidies helped a few smallholders, there are more than 12.3 million smallholders that require similar solutions. And following the current trend of directly subsidizing end-users, it will take us a substantial time to extend productive-end-use energy equipment to all 12.3 million smallholders.

At this point in time, we have a private sector that is more knowledgeable than ever before: learning from past operations has helped commercial suppliers test new products in the ground and positioned them to scale solutions. However, commercial suppliers, most of whom are SMEs, are in dire need of funding to scale-up these solutions. The public sector – governments and development agencies – on the other hand sits atop a mountain of unused funds which, when directed properly, can unlock scalable and sustainable growth in agriculture.

To attain scalable growth, public funds could be channeled to commercial suppliers who can in turn leverage their market understanding and position to scale-up solutions. This is not just our opinion but an international practice: more and more development agencies are moving away from direct subsidies and are prioritizing the development of private sector realizing the vast impact potential there. That way, the public sector would no longer function as a competitor to the private sector but as their enablers and complements. The private sector, to take greater ownership, has to move away from short term profiteering and focus on longer term gains by creating sustainable spaces to scale solutions.

Hence, poverty alleviation and improved food security require efforts to move away from subsistence farming by modernizing agriculture in Nepal, which in-turn is closely linked to the increased use of energy in the agriculture sector. To scale up productive end-use of electricity among rural farmers and as a consequence promote local rural development, we need to unlock the power of aligned incentives. And, the private and public sectors must operate hand-in-hand to achieve this.

EDC ACTIVITIES

9th August, 2019

Taking Nepal's Energy Sector Forward to International Best Practices

Mr. Sujit Acharya, Chairman of EDC was invited as a panelist by AIT Alumni Association Nepal (AITAAN) with patronage of Ministry of Energy, Water Resources and Irrigation (MoEWRI) in a one day seminar on "Taking Nepal's Energy Sector Forward to International Best Practices" on Friday, 9th August, 2019 at Lainchour Banquet. The seminar addressed pertinent issues regarding the present status and future perspective of energy sector development of Nepal and appropriate actions to be taken at the policy and implementation level. Other panelists in the session were Er. Dilli Bahadur Singh, Chairman, Electricity Regulatory Commission, Er. Madhu Prasad Bhetuwal, Director General, DoED, Er. Madhusudan Adhikari, Executive Director, AEPC, Mr. Kumar Pandey, Vice President, IPPAN and Dr. Sandip Shah, Managing Director, Dolma Himalayan Energy.

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

Month: August 2019

S.No.	Notice Publisher	Description	Published Date	Notice Category	Product Service
1	Power Transmission Company Nepal Ltd., Sanepa, Lalitpur	Optical Fiber Core on Rent	8/28/2019	Application	Electronics/ Electric Utilities
2	SJVN Arun-3 Power Development Company (P) Ltd., Khandbari, Nepal	Annual Civil Maintenance Works and Annual Maintenance of Lawn, Flower Beds, Horticulture Works etc.	8/22/2019	Tender	Other Product/ Services
3	SJVN Arun-3 Power Development Company (P) Ltd., Khandbari, Nepal	Annual Civil Maintenance Works and Annual Maintenance of Lawn, Flower Beds, Horticulture Works etc.	8/22/2019	Tender	Other Product/ Services
4	Syarpu Power Company Limited, Rukum (West)	Standing List for Suppl and Delivery of Office Items, Electrical Items and Consulting Services	8/22/2019	Standing List	Enlistment- Multiple Category
5	Tamakoshi Jalvidyut Company Limited, Tamakoshi V Hydroelectric Project, Kathmandu	Supply and Delivery of Vehicle Driver	8/13/2019	Tender	Other Product/ Services
7	SJVN Arun-3 Power Development Company (P) Ltd., Khandbari, Nepal	Construction of Pre-Fab Guest House, Office Building, Substation Control Room Building, Supply and Transportation of Power Cables, Imparting Skill Training etc.	8/9/2019	Tender	Other Product/ Services
8	SJVN Arun-3 Power Development Company (P) Ltd., Khandbari, Nepal	Construction of Pre-Fab Guest House, Office Building, Substation Control Room Building, Supply and Transportation of Power Cables, Imparting Skill Training etc.	8/9/2019	Tender	Other Product/ Services
9	Hydroelectricity Investment and Development Company Limited, Kathmandu	Shortlisting of Experts	8/8/2019	Short Listing Notice	Other Product/ Services
10	Peoples Hydropower Company Ltd., Kathmandu	Survey, Design, Engineering, Procurement, Manufacture, Test Before Supply and Site Delivery, Insurance, Storage, Installation, Testing and Commissioning of Transmission Lines	8/4/2019	Tender	Electronics/ Electric Utilities
10	Upper Tamakoshi Hydropower Limited, Gyaneshwor, Kathmandu	Construction of Exploratory Tunnels and Connecting Road	8/1/2019	Tender	Construction/ Building
11	Upper Tamakoshi Hydropower Limited, Gyaneshwor, Kathmandu	Cancellation Notice	8/1/2019	Notice	Other Product/ Services

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MEMBER UPDATES

Cosmic Electrical Engineering Associates Pvt. Ltd. has been awarded with one more contract of "Supply, Delivery, Installation/Erection, Testing and Commissioning of 11/0.4-0.23 kV Electrical Distribution Network at the Distribution area of Thoksila Urja Tatha Gramin Bikash Kendra, Belaka, Udayapur" under mission 'Rural Electrification' in association with Community Rural Electrification Department, Nepal Electricity Authority and Thoksila Urja Tatha Gramin Bikash Kendra, Belaka, Udayapur aiming to electrify around 5000 households.

MEMBER UPDATES

Pashupati Energy Pvt. Ltd. — Tungun-Thosne Khola Hydropower (4.36 MW) and Khani Khola Hydropower (2.0 MW)

Tungun-Thosne Khola (4.36 MW) and Khani Khola Hydropower Project (2.0 MW) are developed by Khani Khola Hydropower Company Ltd. in southern Lalitpur in Bagmati Rural Municipality ward No. 4 & 5. The projects are accessible from Kathmandu through Tikabahirav- Bhattedanda section of Kanti Lokpath. The power generated from the project was evacuated through a 3.5 km long 33 kV transmission line to the 33kv Malta Sub-station.

For Khani Khola Hydropower 2.0MW is a cascade project of Tungun-Thosne Khola Hydro. The power generated from the project was evacuated through a 1.5 km long 33 kV transmission line to the 33kv Malta Sub-station. Since then NEA failed to construct 33kv Mata Tirtha- Malta Transmission line and till Ashad 2076, 35.795-GWh energy from Tungun-Thosne Khola Hydro and 20.084 GWh energy from Khani Khola is spilled. On 2075/12/05, an alternative arrangement was agreed between NEA and Khani Khola Hydropower Company Ltd. with temporary power evacuation with 11 kv transmission line from Malta sub-station to Mandu Hydro SS and using Bagmati Small Hydropower SS (11kv/132KV) and 132 kv Transmission line of Mandu Hydropower Company Ltd. SS to Kulekhani. The total project cost is estimated to be Rs 126.2 crore and loan finance is provided by a consortium of Citizen-Civil-Global-Mega Bank.

MEMBER UPDATES

Pashupati Energy Pvt. Ltd. — Maya Khola Hydropower Project 14.9 MW

Maya Khola Hydropower Project one of the "***Super Six***" project initiated by NEA and is developed by Maya Khola Hydropower company in Dharmadevi Nagarpalika of Sankhuwasabha district in Province 1 of Nepal. Power purchase agreement was made with NEA on July 2012 and generation license was issued by DoED on 2074/3/25. The project area is easily accessible by Koshi Highway from Dharan and the project has developed around 11km of its road network for access to its various project components.

The total project cost is estimated to be Rs 250 crore and loan finance is provided by a consortium of Citizen-Civil-Century bank. The project will generate 81.56 GWh energy per year. The other civil and Hydromechanical works will start from September 2019. The project is to be completed by July 2020.

NEPAL'S PERSPECTIVE

30th August, 2019

EV Operation Guidelines Prepared

The taskforce formed by the government to formulate 'operational guideline of electric vehicle and establishment of charging stations' has submitted its report to the Ministry of Energy, Water Resources and Irrigation (MoEWRI).

Prabin Aryal, spokesperson for MoEWRI, said the committee, which was formed on February 25, has submitted its report and has suggested assigning Nepal Electricity Authority (NEA) to handle the regulation, management and other EV-related works.

As per Aryal, after the ministry approves the guideline, NEA will make the related regulations, handle management of the EV charging stations and working procedures.

NEA will then be responsible for giving approvals to set up the charging stations, ensuring uninterrupted power supply to the charging stations, monitoring its security and leakage, determining service charge, testing and authentication, checking the infrastructure-related issues, taxes and other EV-related issue in the guideline.

Aryal further informed that they have suggested NEA to provide electricity tariff in the charging stations as per the existing rate for domestic and 'other' customers for now.

Domestic consumers have been defined as households that are receiving electricity from 11 kVA transmission lines, 'other' consumers receive electricity from 33 kVA transmission lines, while industrial consumers receive electricity from above 66 kVA lines.

At present, the NEA is charging between Rs 4.15 and Rs 14 per unit for domestic and 'other' customers as per their electricity consumption during peak, offpeak and normal times. As per NEA,

households and 'other' customers that include small businesses are paying Rs 8.48 per unit on an average.

"However, the guideline will be flexible in terms of setting up the charging stations, which means companies selling EVs will also be allowed to instal them," he said.

"The final rate for the charging stations of EVs will be determined by Nepal Electricity Regulatory Commission," Aryal informed.

He further mentioned that hotels and restaurant owners will be allowed to establish charging stations within their premises, given than they meet the set criteria.

Lila Kumari Aryal, information officer at NEA, said the authority will start to make a working procedure and regulation guideline after formally receiving the 'operational guidelines of electric vehicles and establishment of charging stations' from the ministry.

Earlier, Minister for Energy, Water Resources and Irrigation, Barsha Man Pun, had said the government will instal more than 200 charging stations across the country to minimise the trade deficit and also for the betterment of the environment.

In December, the government had decided to buy 300 electric buses for public transportation.

"The operation cost of EVs is cheaper than fossil fuel-run vehicles, so the basic infrastructure of charging stations will be needed," Prabin explained.

Moreover, the private sector is also ready to operate EVs but without proper policy, they have stalled the operation works since last six months. Sundar Yatayat Pvt Ltd had bought two 40-seater electric buses and has placed an order for seven more for operation in Kathmandu Valley.

Even as the operational guideline is finally in place, the Ministry of Physical Infrastructure and Transport (MoPIT) is yet to set travel tariff for public EVs. This is despite the fact that the Department of Transport Management, which is responsible for fixing transport fee, forwarded their proposal to MoPIT around six months ago.

GLOBAL PERSPECTIVES

26th August, 2019

THAILAND AIMS TO BE SOUTHEAST ASIA'S POWER-TRADING MIDDLEMAN

Thailand is jump starting a decades-old plan to create a Southeast Asia electricity super-grid, and wants to be the power-trading hub at the center of it.

The nation is set to triple the amount of electricity from Laos that it resells to Malaysia, while encouraging infrastructure upgrades stretching from Cambodia to Myanmar necessary for cross-border power trading, said Wattanapong Kurovat, director general of the country's energy policy and planning office. The moves are part of Energy Minister Sontirat Sontijirawong's efforts to make Thailand's power system cleaner, cheaper and more efficient.

The trade is simple, Wattanapong said. Thailand would buy more electricity for its own national grid from Laos, which generates more than it needs from dams along the Mekong River and its tributaries. It would then have excess power in its own national grid that it could sell into Malaysia, Cambodia or Myanmar.

"We're trying to move quickly to become the center of the region's power grid," Wattanapong said in an interview in Bangkok. "We already have the capacity and the infrastructure to support the vision to become the regional hub."

The idea of connecting power plants and customers across Southeast Asia has been pursued for more than 20 years, but stymied by issues including lack of government coordination and infrastructure funding.

International grids are rare outside Europe, and require solving technical and legal hurdles in addition to building expensive infrastructure. The benefits of success include increased energy security and opportunities to develop untapped renewable resources, according to the International Energy Agency.

HUB BENEFITS

Thailand already has existing grid interconnection with Laos and Malaysia. Since last year, Malaysia has been buying 100 megawatts from Laos through Thailand, and is looking to increase the volume to 300 megawatts, Wattanapong said. As well, border towns in Cambodia and Myanmar have been buying small amounts of electricity from Thailand, but infrastructure upgrades are needed to reach the scale comparable to connections with Laos and Malaysia, he said.

Being a hub would bring myriad benefits, Wattanapong said. Thailand could earn additional revenue from transmitting electricity across its power lines, address occasional capacity oversupply, and make better use of its existing infrastructure and power plants. By using its grid more efficiently, the cost of electricity in Thailand would be cheaper over the long-term, he said.

Thailand could help spur movement toward a regional system by signing different bilateral deals with its neighbors, which would be easier than trying to negotiate a larger agreement all at once, said Bikal Pokharel, research director for Asia-Pacific power and renewables at Wood Mackenzie Ltd.

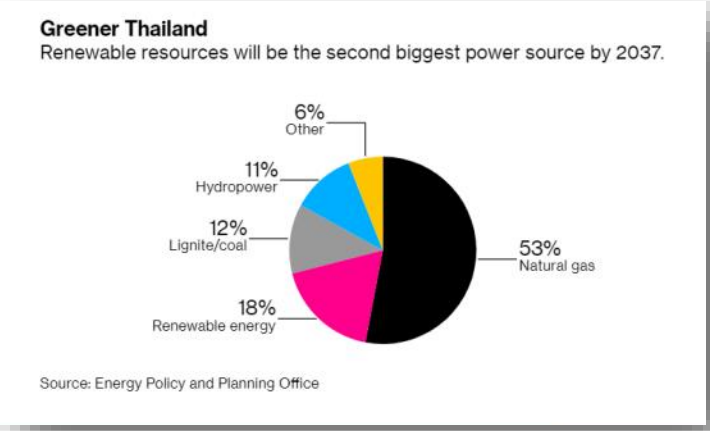
Improved interconnection could justify building large renewable projects in developing countries that otherwise wouldn't have demand to use them, such as hydropower in Laos or wind power in Vietnam, according to a 2017 IEA report.

HARMONIZATION, INVESTMENTS

"Thailand's push for regional energy trading could be a step to increase security of supply and system resiliency, particularly as falling costs and higher government targets increase the volume of variable renewable energy generation in the ASEAN region," said Caroline Chua, a BNEF analyst covering Southeast Asian power markets. "However, scaling up interconnection will require further regulatory harmonization and grid infrastructure investments which can be costly."

Meanwhile, Thailand's new minister is looking to revise its so-called Power Development Plan, a national energy guideline, and that could mean more renewable energy and electricity from small

from small generators.



By the end of 2037, about one-quarter of Thailand's electricity would come from so-called very small power producers, according to the plan. They would mostly generate electricity from biomass and solar plants for community use, and sell surplus power to the grid.

The country would also double the share of renewable energy and reduce shares of electricity generated from coal and natural gas, although the latter would remain the country's largest energy source.

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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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