

Source: The Kathmandu Post; 3 March 2018

Hydro-powered dreams

Nepal can be a pioneer in the hydropower sector if it is to consider policy consistency

SAJAL MANI DHITAL

The state owned power utility, Nepal Electricity Authority (NEA) was able to mitigate hours long power cuts and introduce various activities under the banner “Ujjyalo Nepal Abhiyaan”. It was able to reduce net loss and consequently improve its financial performance. Likewise, the NEA was able to manage demand and supply effectively and efficiently, as well as augment transmission and distribution facilities. The situation in the last fiscal year, i.e. FY 2016/17, improved with load curtailment restricted only to the industrial consumers, that too at the time of system peak. This positive and progressive change can be attributed to a number of Independent Power Producers (IPPs), increase in import of electricity from the southern neighbour, losses reduction and demand side management. The Khimti-Dhalkebar transmission line also played a crucial role as the imported power was transmitted to Kathmandu on a continuous basis. However, the NEA should now prioritise adopting result oriented, effective and efficient methods by advancements in technology like grid automation and smart grid/smart meter, online payment, and underground cabling, to name a few.

Curbing losses

As per the annual report of the NEA for FY 2016/17, the total amount of the electricity generated by NEA’s hydropower plants was 2,305.17 GWh (Giga Watt hour), an increase of 8.06 percent from the previous year’s generation of 2133.4 GWh. Likewise, for the last fiscal year, the total energy import from India was 2175.04 GWh, an increase of 22.35 percent as compared to 1777.68 GWh imported the previous year. The increase in the imports can be attributed to the functioning of cross-border transmission lines and increasing demand during the dry season. The total power purchased from IPPs in the last fiscal year increased by 52.39 percent to 1777.24 GWh from 1166.24 GWh the previous year. In the review period, the total energy available in NEA’s system also increased by 23.25 percent to 6257.73 GWh amongst which the NEA’s own share was 36.84 percent. IPPs and the import from India contributed 28.40 percent and 34.76 percent respectively. Ten new projects of IPPs with a combined capacity of 116.61 MW (Mega Watt) started commissioning in FY 2016/17. The total IPP projects amounted to 60 with a combined capacity of 441.05 MW.

The financial status of the NEA in the review period showed an operating surplus. The total operating expenditure amounted to Rs45,572.09 million, an increase of 26.28 percent from the previous year’s figure of Rs36,087.53 million, mainly due to an increase in power purchase cost and high administrative expenses. However, the power utility was able to generate a total revenue of Rs50,229.48 million. As a result, the NEA was operating in a surplus of Rs4657.39 million. The net loss was below Rs1 billion (Rs978.92 million) and the nation-wide drive to reduce system losses showed a positive result. The decrease in financial losses can be mainly attributed to reduction in average rate of power imports, increment in retail tariffs, reduction in system losses, uninterrupted supply of power in major cities and partial endorsement of financial restructuring. However, the amount of losses that persist are not of an acceptable standard. The authority should come up with strategies to reduce operational costs and system losses.

Areas for reform

Considering Nepal’s Run-of-River (RoR) hydropower system, the power utility should focus on Peaking Run-of-River (PRoR) and reservoir projects, as per the generation mix defined in ‘National Energy Crisis Mitigation and Electricity Development Decade Concept/Action Plan,

2072'. A mixture of electricity imports from India and power generated by domestic solar and biomass system would be the best energy mix for the short term. The long term strategy of the NEA should be focused on power quality, reliability and energy security. There should be a sufficient supply of electricity to consumers to their satisfaction. It is crucial for the NEA to sustain itself as a business organisation with reasonable financial returns for further investment portfolios. Likewise, the power utility should also prioritise integrated resource planning including imports. Only then can the country be self-reliant on electricity. Strategies to increase self-generation and maximise sales as well as adjust the electricity tariff to cover the cost of services would help to improve the financial health of the authority. Mobilisation of additional resources would ensure additional revenue.

Distribution system augmentation is a must for a demand supply equilibrium and is an area for investment. There is a dire need of a transmission backbone of 400 KV (Kilo Volts) or above to evacuate the generated electricity from the load centres to the substations. Power trading is likely to be a challenge for NEA. The integrated Nepal Power System may experience wet energy surplus and dry energy deficit situation in the days to come. In order to overcome this, cross border trading and energy banking need to be promoted. The cross border transmission lines will enhance the power wheeling possibility across the border and also promote energy banking and import/export opportunity. Once the hydropower projects that are currently under construction start commissioning, manufacturing industries and business complexes need to be in place to tap the generated electricity. In addition, solar power and electrical energy storage battery system could be a pilot project in the coming years. If the surplus energy generated in the wet season can be stored, it can be used in the dry season when the country is likely to face energy deficit. This can help reduce import to a great extent and possibly promote export opportunities.

Moreover, the state owned power utility should be considering energy levelling by increasing domestic energy demand during off-peak hours. It should also be working towards capacity building for efficient operations and implementations of projects along with building hardware and software infrastructure to increase income and improve morale health of the organisation. Considering the federal structuring, the NEA should be establishing autonomous regional distribution offices in the respective provinces. The Ministry of Energy, in coordination with the NEA, should introduce more development action plans like 'Nepal ko Paani Janata ko Lagaani' and create a conducive environment to attract both domestic and foreign investments in the hydropower sector of Nepal as the demand of electricity is soaring in South Asian region. Nepal can be a pioneer in the hydropower sector if it is to consider policy consistency, institutional reformism, investment friendliness, financial restructuring and transparency.

Dhital is a graduate from the University of Delhi

Source: The Himalayan Times; 7 March 2018

New hydropower project being constructed in Bhojpur; ongoing project takes pace

NIROJ KOIRALA

Two hydropower projects are taking shape in the eastern hilly district of Bhojpur. One project is already under-construction while the other is going to begin construction works.

With an investment of over one billion rupees, Taksar-Pikhuwa River Hydropower Pvt Ltd, with a capacity of eight megawatts, is about to begin construction works. The company is constructing the hydropower plant with an investment of Rs 1.5 billion, as informed by Founder Chairman Ambika Prasad Dhakal. He further informed that the project is going to be constructed at Sitkel Behere of Bhojpur Municipality-12, and the hydropower project construction is targeted to be completed by April 2020.

Likewise, Pikhuwa River Hydropower Project — the under construction hydropower project — situated at Paluwa of Bhojpur Municipality-6 of the district has also picked up pace.

The under-construction project of five megawatt capacity, construction of which has been on-going with the investment of Eastern Hydropower Company, has picked its pace of construction works in the past one year.

The Eastern Hydropower Company had begun the construction of the Pikhuwa River Hydropower Project in BS 2066 after taking government approval for 2.5-megawatt capacity. The company, which had the intention of increasing the project capacity, had not been able to take the construction work forward for sometime. It has, however, picked up pace in the past one year after receiving permission to increase the capacity to five megawatts.

Project's Chief Engineer Roshan Shah said that though the company and Nepal government has a power purchase agreement (PPA) valid till BS 2076, works are going on to complete the construction and start production by BS 2075. He further added that around 40 percent dam-related work is only remaining, and other works related to tunnel construction have already been completed.

The construction company has indicated that in total 70 percent works have been completed on the Pikhuwa River Hydropower Project and the construction is expected to be fully completed before the PPA deadline, with the support that has been received from the stakeholders, according to Dipen Rai of the project.

The project with an investment of 1.14 billion rupees is currently employing around 400 labourers from Nepal and India, who work at the project site.

Source: The Kathmandu Post; 7 March 2018

IBN directors to decide fate of West Seti hydro

BIBEK SUBEDI

The fate of the West Seti Hydropower Project, which was thrown into doubt after its potential developer China Three Gorges Corporation (CTGC) said it would not go ahead with the scheme if the power purchase rate was not increased, will be decided at an upcoming meeting of the board of directors of Investment Board Nepal (IBN).

IBN has not decided what its next step will be, and wants to get a fresh mandate from its board which is chaired by the prime minister. During a meeting with IBN on Sunday, the Chinese company reiterated that the 750 MW storage project would not be bankable at the power purchase rate fixed by the government and asked the board to guarantee a 17 percent return on the project. As per the power purchase rate made public by the Energy Ministry in January 2017, reservoir-type projects like the West Seti will get Rs12.40 per unit during the dry season which lasts from December to May, and Rs7.10 per unit during the wet season which lasts from June to November.

The Chinese developer has also asked IBN to allow hydropower projects to sell electricity in convertible currency for a period of more than 10 years. As per the existing guideline, hydropower projects can sell electricity in convertible currency for a period of up to 10 years or until the project has repaid foreign debts, whichever is earlier.

CTGC's demands have left IBN in a difficult position as state-owned power utility Nepal Electricity Authority (NEA), the sole buyer of electricity in the country, has clearly stated that it will not entertain a revision of power purchase rate. "We have now decided to take the issue to the board meeting of IBN which is chaired by the prime minister," said a reliable source at IBN. "The board's decision on the issue will be our official position regarding the project."

West Seti has been in limbo since CTGC subsidiary CWE Investment Corporation and IBN signed a memorandum of understanding (MoU) to construct the hydropower project in August 2012. It took more than five years to sign a joint venture agreement between CTGC and NEA, its venture partner in the project.

As per the MoU, the Chinese company will have a 75 percent stake in the joint venture company while the NEA will hold the rest of the shares. The West Seti Hydropower Project will extend across Baitadi, Bajhang, Dadeldhura and Doti districts, and is expected to generate 2.8 billion units of electricity per year. The estimated construction time of the project, which will have a 207-metre tall dam, is six and a half years.

The scheme will cost \$1.8 billion including interest charges incurred during the construction period and \$1.4 billion excluding interest charges, according to the NEA. The two partners will invest in the project through their proposed joint venture company, West Seti Hydropower Project Development Limited.

Source: The Kathmandu Post; 9 March 2018

Province 2 has lowest generation capacity

BIBEK SUBEDI

Province 2 among the seven provinces has the lowest electricity generation capacity in the medium term accounting for a mere 0.2 percent of the country's total power generation capacity in the near future. Nepal's power generation is expected to reach 9,429.94 MW in the medium term. This figure has been computed on the basis of the power purchase agreements (PPA) signed by hydropower projects with the Nepal Electricity Authority (NEA), the state-owned power utility and sole buyer of the energy produced in the country.

Hydropower projects based in Province 2 in the southern plains have signed PPAs for only 18 MW.

Meanwhile, Province 4 with 125 upcoming power projects takes the top spot, accounting for 35.77 percent of the country's total power generation capacity in the medium term. The total installed capacity of the projects located in the province stands at 3,373.81 MW.

Likewise, Provinces 3 and 1 with estimated installed capacities of 2,861.46 MW and 2,132.31 MW respectively are in the second and third positions. Provinces 6, 7 and 5, with estimated capacities of 642.65 MW, 248.65 MW and 36.76 MW respectively, bring up the rear.

The NEA has signed PPAs with 232 power projects and is conducting negotiations with another 159 projects, Managing Director Kulman Ghising said.

"The NEA has signed PPAs with 232 power projects with a combined installed capacity of 3,988.64 MW and they are at different stages of construction," said Ghising. "Some projects have already started construction while others are in the process of arranging financial sources."

The remaining 159 power projects with which the NEA is holding talks have a combined installed capacity of 5,441.3 MW. "Our plan is to conclude PPAs with these projects as soon as possible so that their construction is expedited," said Ghising.

The developments show that Nepal is on track to achieving energy sufficiency in the near future, and being in a position to export electricity to neighbouring countries in the future. Currently, power projects with a total installed capacity of more than 1,000 MW are in operation while peak electricity demand stands at around 1,250 MW.

As all the power projects except Kulekhani I and II with a combined capacity of 92 MW are run-of-the-river types, electricity generation drops by around 50 percent during the dry season, and Nepal becomes heavily dependent on energy imported from India to remain free from power cuts.