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EDITORIAL

Mr. Ram Prasad Dhital
Executive Director , Alternative Energy Promotion Center (AEPC) Nepal
An EDC Member Organization

Dear Reader,

Energy is a major driver of not only economic development but also human development and environmental sustainability. In Nepal, the energy mix is characterized by the dominance of traditional biomass sources (firewood and agricultural residue) with about 77% of the total energy consumption in Nepal met through it. Likewise, 20% of energy consumption is met through commercial sources (petroleum products, electricity and coal). Renewable energy contributes about 3% to this energy mix.

As the country relies on a single power generation source of run-of-river hydropower (accounting 91% of 852 MW cumulative installed capacity), the state is facing a steady power crisis since 2005. In the last year, Nepal made steady progress in easing load shedding in major cities primarily through load management and electricity imports from India. Currently Nepal imports more than 380 MW from India through its cross border transmission lines. However, this arrangement is not sustainable and prone to risks and vulnerabilities. There is need of short, medium and long-term energy planning to have reliable, secure and sustainable electricity provided to households, businesses and industries. Energy diversity is very important component from the prospective of energy security of the country.

As is said frequently, “don’t put all your eggs in one basket". Power generation mix is a very essential strategy for Nepal. Due to effects of cli-

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mate change, the flow in the rivers is decreasing every year. Thus relying only on run-of-river hydropower may not be a very wise option. Energy mix has been also emphasized by the "National Energy Crisis Mitigation Plan and Ten Year Electricity Development Plan 2016". It has envisioned energy scenario of 40-50% from reservoir-type or pump storage hydro, 15-20% from peaking run-of-river hydro, 25-30% run-of-river and 5-10% from other renewable energy sources like solar/wind.

There is a huge potential for distributed renewable energy systems in Nepal that could contribute to meet the national electricity demand. The contribution of renewable energy generation in the power generation mix will be environmentally friendly and reduces the dependency of imported oil products. In the same context, the Government has put renewable energy on top priority to combat the present energy crisis and impending issues on energy security. It has also taken steps to provide clean lighting and cooking solutions to all by 2017 and also joined the SE4ALL by 2030 initiative to assist Nepal's graduation from Least Development Country (LDC) to Developing Country by 2022.

The last two decades of RE promotion has primarily focused on technology promotion. Nepal has made significant progresses on that front. However, after so many systems promoted in the country, the issues of sustainability, applicability and impact is at the core of discussions these days. Studies have shown that smaller systems pose their own challenges to adequately address these issues. Smaller systems, although very vital in places like Nepal, is mostly seen as a transitionary form of energy provision and it is very difficult to be adapted into the mainstream energy mix of the country. There are increasing number of cases where community electrification systems, especially from micro hydro, are shutting down due to arrival of national grid in the project area. Similarly, operation of the promoted systems are always a challenge in case of community owned systems due to lack of know-how and other local constraints. In many cases, it is also observed that "everybody's property is nobody's property," resulting in local conflicts and raising serious issues on sustainability and proper functionality of the systems. Building on the experiences and achievements of the decades, up-scaling of technology, ensuring sustainability and grid connection of promoted off-grid systems seem to be the only way renewable energy can maintain its vibrancy and play a significant part in the lives of the people, and consequently contribute towards national development.

On the financing aspect of large scale renewable energy promotion, the active participation of the private sector and financial institutions is crucial. There is a need of private energy developers to actively drive the sector that ensures investment and professional management. The role of the government is also very critical with the responsibility of creating a conducive environment for private and banking sector to participate through appropriate and acceptable policy formulation and facilitation. It is high time policies regarding Grid

Interconnection, Renewable Portfolio Standard, Net Metering and Feed-in-Tariff are prepared and implemented if the private and banking sectors are to consider entering into renewable energy sector.

It is worthwhile to remember that Nepal Oil Corporation has levied NRs. 5/litre in Petrol, Diesel and Aviation Fuel as tax for infrastructure development for 1200MW BudhiGandaki Hydro Project. In the same manner, the government can generate funds by allocating a certain percentage of VAT/tax collected from imported fossil fuel for renewable energy investment. Based on current prices, allocating 2% of collected VAT/tax from fossil fuel could finance generation of 116 MW solar/wind power plant within the next 10 years which is enough to meet the 5-10% contribution in the national energy mix. Another estimation shows NRs. 7.13 billion per year could be generated if 25% of collected annual VAT/tax on fossil fuel is allocated for renewable energy investment. As Central Renewable Energy Fund (CREF) is already established and functional, the generated fund can be channeled and administered through CREF for which institutional strengthening is necessary.

We are at a crucial juncture considering State-restructuring and devolution of power to the local level. The present scenario calls for more coordination among stakeholders, including intergovernmental agencies, development partners and private sector for up-scaling and streamlining renewable energy development activities in the national energy mix. It is the right time to develop an integrated energy policy to incorporate both off-grid and on-grid energy systems.■

EDC ACTIVITIES

EDC Delegation Visits Hunan Vanguard Group, China

Energy Development Council has been invited by China's large State-owned enterprise Hunan Vanguard Group Co. Ltd , Mr. Mrigendra Bhurtel and Ms. Itnuma Subba from EDC had an opportunity to visit the factory and observed the various hydro equipment's.The company has 120 years of producing energy equipment with existing assets of USD100 million. EDC also extended invitation to the General Manager Ms. Xiang Kun to participate in the upcoming "Nepal Power Investment Summit-2017" this year on November.■

Visit to Indrawati –3 Hydro Hydro Plant

Ms. Itnuma Subba, Executive Manager of EDC has been invited recently by Sedicon India Private imited to visit Indrawati—3 Hydro Power Plant, Sindhupalchowk to see the performance of their sluicers technology installed in the desander

and also discussed with the plant team to learn the efficiency of the system in removing sediments. Mr. Pandey, Chairman of the Hydro Power Plant told that the system is good and has saved the cost of turbine repairment which would be otherwise be damaged by the coarse sediments.■

Meeting with IBN

Mr. Sujit Acharya, Chairperson of EDC and Ms. Sumika Chhetri, Executive Assistant of EDC had meeting with Mr. Maha Prasad Adhikari, CEO of IBN on 25 July, 2017 and extended invitation to be the government organizer in the upcoming Nepal Power Investment Summit, NPIS taking place in Nov 10th to Nov 12th at Hyatt Regency.

He has verbally expressed his consent and a formal letter of acceptance is awaited. IBN was also the government organizer of NPIS organized by EDC last year in 2016 .■

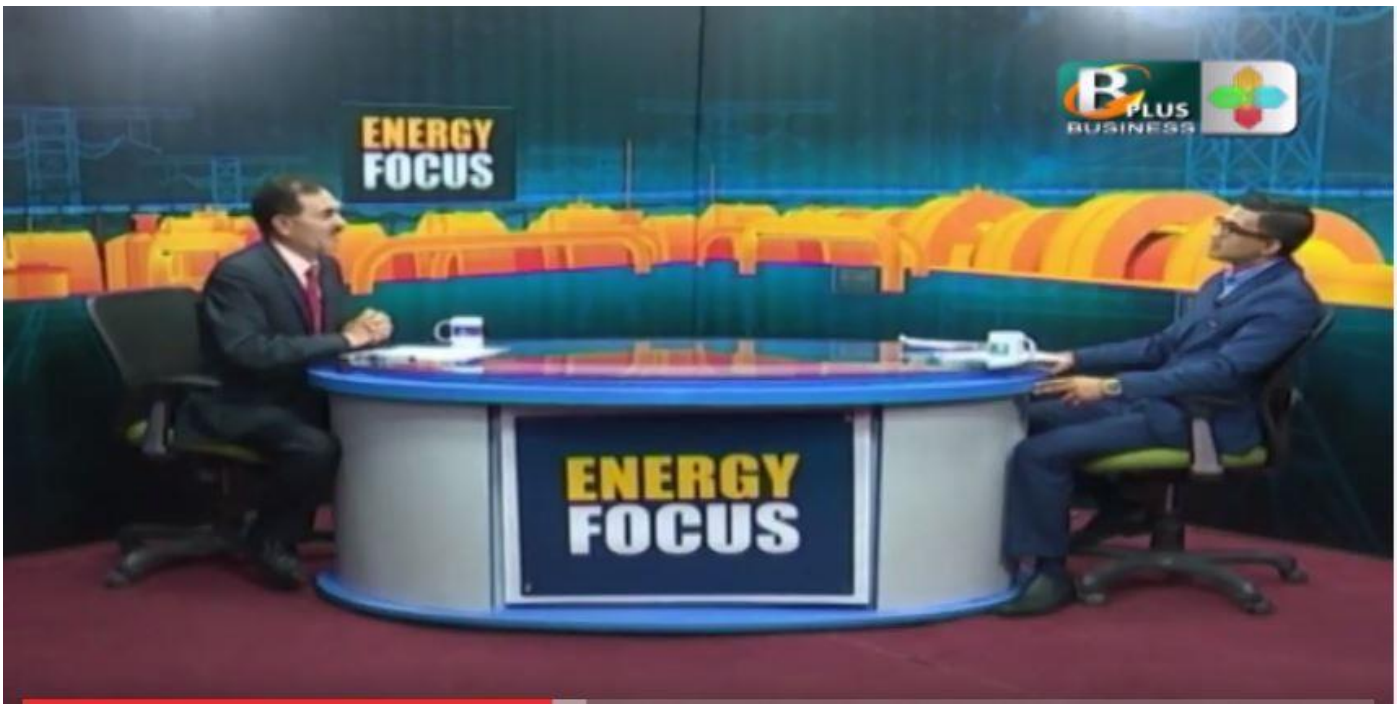
Meeting with CEO of Prime Bank

EDC met CEO of Prime Bank Mr. Narayan Das Manadhar on August 2, 2017 who was also accompanied by Mr. Li Bibei, Director of Hunan Construction Engineering Corporation, Hunan Province, China.■

Invitation in a meeting by Everest Equity

EDC Delegation had been invited to join the meeting organized by Everest Equity, one of the EDC's Corporate member on August 2, 2017. The discussion was about how to bring EPC and financing from China. Ms. Li Bibei, Director of Hunan Construction Engineering Corporation conversed about their service in EPC and financing and expressed interest in Nepalese market.■

Interview of Mr. Sujit Acharya, Chairperson of EDC in "Energy Focus" in Business Plus.

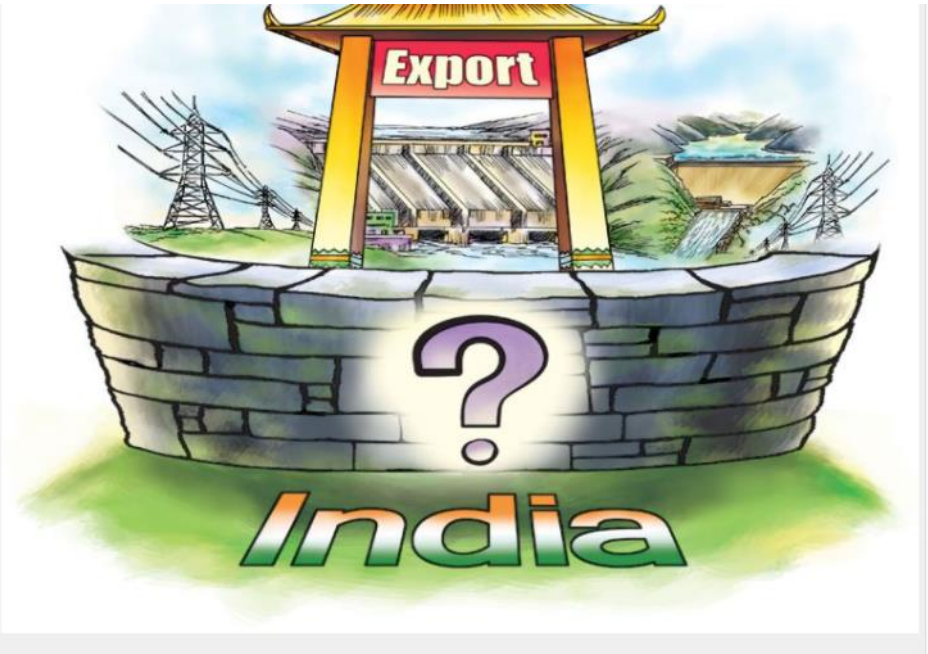


On 31st July Chair person of EDC Mr. Sujit Acharya had an interview in Business Plus Television focusing on current situation of energy sector. According to him Investment Board of Nepal in present context can play the main representative role in energy sector for sustainable development and to be self sufficient and self reliant nation. ■

The full interview is provided at the link: *https://www.youtube.com/watch?feature=youtu.be&v=7g44hAn-Zok*

MEDIA COVERAGE

New regulation may stunt the growth of hydropower sector



The strict regulation framed by Central Electricity Regulatory Commission (CERC) of India on cross border trade of electricity has made things difficult for electricity exporters from Nepal to export electricity to India and other neighbouring countries (Bangladesh, Bhutan and Myanmar) in the near future. Currently, India has been conducting cross border trade of electricity with Bangladesh, Bhutan and Nepal under bilateral Memorandum of Understanding (MoU) and Power Trade Agreement (PTA). However, the recent regulations introduced under the 'Guidelines on Cross Border Trade of Electricity' issued by India's Ministry of Power (MoP), indirectly works in favour of hydro projects with Indian investment and those funded by the government of concerned countries and forces stringent restrictions upon private power generators and directly hampers the growth of the hydropower sector of Nepal.

Proposed regulation

The proposed regulation is a worrying factor for Nepali hydropower developers as it shrinks the involvement of the private sector. The regulations ask for INR 10 million per megawatt (MW) as bank guarantee from companies to utilise India's transmission network and only those hydropower projects that can generate 50 MW and above will be permitted grid connectivity to export electricity to the Indian market.

Under the regulation, generation projects that are fully owned by the government of concerned countries and projects owned by private companies with 51 per cent or more Indian entities ownership are eligible to participate in cross border trade of electricity after obtaining one-time approval from the Designated Authority in India. But any other power generation projects that do not fulfil the above mentioned requirements will have to obtain approval on case to case basis to export electricity.

Even though the regulation has been framed with the objective of promoting consistency, transparency and predictability in regulatory approaches, Nepali power developers are against the regulation and claim that it

puts their investments at risk. According to Shailendra Guragain, President of Independent Power Producers' Association, Nepal (IPPAN), the regulations should have been introduced to conceptualize a mechanism for free and efficient power trade. Citing that the regulation has threatened the participation of the Nepali private sector, he said, "We think that the regulation is biased and comes as a shock for the Nepali investment sector. It violates the basic principles of bilateral trade and puts India on the driving seat. Any trade agreement must result in a win-win situation for the concerned parties but the proposed regulation does not adhere to such ideals." He further says, "If this regulation is implemented, the Indian government will be able to export electricity from Nepal only through companies with Indian ownership."

Current status

It is estimated that Nepal has the potential to generate over 40,000 MW of economically feasible electricity per year. However, this potential remains to be realised. Despite domestic consumption being negligible Nepal has been importing electricity from India so far. In the fiscal year 2015/16 when peak demand reached 1,385.30 MW, Nepal purchased 34.48 per cent of electricity from India, as per the data provided by Nepal Electricity Authority (NEA). According to Prabal Adhikari, Spokesperson of NEA, in the last fiscal year (2016/17), demand for electricity reached 1,275 MW and Nepal has been importing 250 MW from India out of which 100 MW comes from Dhalkebar-Muzzaffarpur Cross Border Transmission Line. Meanwhile, NEA has been generating 385 MW from its hydropower projects and purchases 340 MW from independent power producers. Yet there is a deficit of 300 MW which results in load shedding. As of July 4, 2017, NEA has conducted Power Purchase Agreements (PPA) with 60 independent hydro power projects that are capable of producing 441 MW of electricity. Besides these projects, 151 independent hydropower projects with the capacity of producing 2932.6 MW are under construction. According to NEA load forecast, the system peak load will reach 3688.7 MW by 2028 but the annual report of fiscal year 2015/2016, shows that there are only 41 grid substations. This data reflects the status of electricity consumption in the country and how the figures still run at a deficit stressing on the need for proper physical and bilateral infrastructure for the hydro sector to reach its full potential.

Sujit Acharya, Chairperson of Energy Development Council, says, "The cost of producing electricity in Nepal is very high. So, the domestically produced electricity is not economically feasible to sell in the Indian market where the cost of production is less. However, if the cost of production is reduced then the produced electricity can be consumed within the country by reducing the import of petroleum products and increase the use of electric commodities."■

Source: https://thehimalayantimes.com/perspectives/new-regulation-may-stunt-growth-hydropower-sector/

TU researchers claim to have converted CO2 into energy

A team of professors and researchers of the Department of Biotechnology at Tribhuvan University (TU) have claimed to have made a breakthrough by converting carbon dioxide (CO2) into an energy source without using solar light.

The team of TU scientists also claimed that their preliminary finding has laid the ground for producing fuel without using crops such as sugarcane and cereals. The researchers involved in the finding claimed that avoiding the use of consumable products will help in saving arable areas.The team said the Dark Reaction of CO2 Reduction Method can trap the carbon in a dark reaction to convert Co2 into energy which they claimed as an important achievement in the field.

Krishna Manandhar, head of the department, announced in the presence of students, faculties, researchers and journalists that the preliminary research findings were first of its kind made by an academic institution in the country. However, both the motive and the method of this finding were not disclosed. Pramod Aryal, a senior scientist and visiting professor at TU, said, “We have so far not published it even in any academic journal because we do not want to give away the specific details of the research which could be patented by other multinational companies.”The research conducted by the Department of Biotechnology consisting eight members along with its students showed a new way of creating bio-fuel through dark reaction of CO2. Speaking at the press conference, senior scientist Aryal said, “While creating various forms of fuel, cultivable land goes to waste. So, this new way will save a large area of cultivable land.” Ethanol, a form of fuel, requires sugarcane or cereals in huge amounts. The land taken by these crops to produce fuel could be used to cultivate something else if bio fuel is created using CO2 reduction.

According to Aryal, using the Dark Reaction of CO2 reduct they will be able to trap the band in a dark reaction convert it into energy. “Normally, plants use photosynthesis where they use sunlight to trap CO2 but with this new method we have been able to trap carbon without sunlight,” said Aryal. The energy then created from that trapped carbon using the reaction can be used to potentially create fuel such as diesel, aviation fuel and kerosene. The Department of Biotechnology started the research in 2011. “We have been involved in this from 2011 but around two years ago we started to get involved in creating energy from carbon,” said Manandhar.

Manandhar said that through the use of rice chaff after combustion could be used as a substitute for urea used in solid. New yeast strains have also been identified which could be used to create alcoholic beverages.

Manandhar also revealed that they had found the serotype 1

Dengue Virus common in 2016 using molecular and immunological tools. It was also revealed that a specific type of Dark Fever called cutaneous leishmaniasis, not common in Nepal, had been found in their research alongside its causative agent. The mutation process of Haemophilia, a bleeding disorder, was also researched in collaboration with the International Center for Genetic Engineering in New Delhi, said Manandhar. Another finding was on the use of medicinal plants for actively battling diseases, mainly Dark Fever. Various bio-active compounds of these herbs were isolated to find out which part of the plant is effective in the remedies. Antibiotic resistance was another issue raised at the press meet. Aryal said that antibiotics are getting less effective in the country owing to the drug-resistant bacteria. They have worked on Bacterio Phage, a virus which only infects bacteria but not humans nor animals, to work on improving sanitation at hospitals by spraying the disinfectant. Aryal said, "We have only discovered a lead molecule to work on the drug-resistant bacteria."■

For more information please visit: http://www.myrepublica.com/

NEPAL'S SCENARIO

Small scale hydropower is changing lives in Nepal

Water sustains life, offers us refreshment and covers around 71 percent of our planet's surface, according to the U.S Geological Survey.

In Nepal, some communities are looking to harness the energy water produces with micro-hydropower systems.

According to the Nepal Micro Hydropower Development Association, over 3,300 micro hydro plants are providing energy to villages around the country.

In one area, a local community has been making use of a micro hydropower unit since 2008. The impact has been significant.

"The source of water here is really good," Taranath Poudel, president of the Nisikhola II Micro Hydropower Project, told CNBC's Sustainable Energy."Now, we can give the villagers light and the industries power," Poudel went on to add.

Non governmental organization Practical Action has been helping to set up micro-hydropower plants in Nepal. The benefits, according to its director for Nepal, have been clear.

"We are trying to make sure that it has got adequate, productive and social end use," Achyut Luitel, the charity's Nepal director, said.

"Which means, during the day time we can introduce some micro enterprising works. With that, they can enter into different kinds of businesses, which can generate employment," Luitel added.■

Source: https://www.cnbc.com/2017/02/23/small-scale-hydropower-is-changing-lives-in-nepal.html

Nepal imports 13 times more than it exports

Nepal has been forced to increase imports due to low domestic productivity stemming from labour problems and failure to promote import substitution industrialisation.

As per the figures of the Trade and Export Promotion Center (TEPC) for the first 11 months of this fiscal year, the country has been spending Rs13.3 on imports for every rupee of export earnings.

The TEPC's statistics shows that the ratio of the country's imports to its exports stands at 1:13.3. The ratios in the fiscal years 2015-16 and 2014-15 were 1:11 and 1:8.9 respectively. This means that Nepal is forced to divert a huge chunk of its foreign exchange reserves earned from other sources such as remittance and tourism to pay for imported goods.

The widening gap between imports and exports is revealed by surging import expenses and sluggish export earnings.

During the review period, the country's export earnings inched up 5.8 percent to Rs67.35 billion while the import bill leapt 28.1 percent to Rs893.09 billion. As a result, Nepal's trade deficit over the period swelled by 30.3 percent.

Anup Bahadur Malla, former chairman of the Export Promotion Committee of the Federation of Nepalese Chambers of Commerce and Industry, said lack of government focus on boosting domestic production had resulted in the current situation.

He added that soaring costs of raw materials in the international market had also pushed up the country's import bills. "The actual gap between import and export values should be greater than what is shown in the official data as there is under-invoicing of imported goods," he said.

Former commerce secretary Purushottam Ojha blamed the government's inability to implement trade and industrial policies effectively for the yawning gap between imports and exports. "Despite the introduction of trade and industrial policies, the government has failed to implement them effectively to boost production sectors," he said.

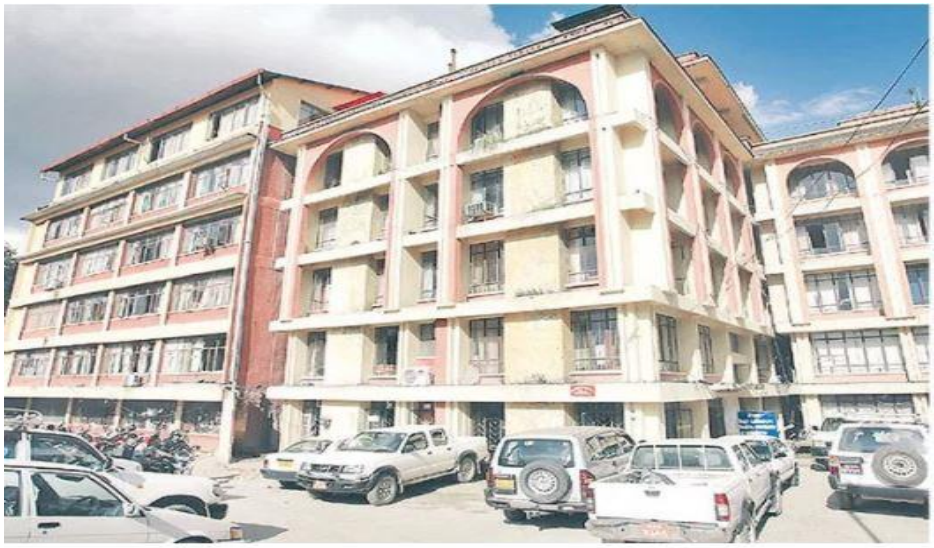
Petroleum products, iron and steel, machinery and parts and transport vehicles and parts account for 40 percent of the total import expenses. Nepal spent Rs112.02 billion on buying petroleum products, making them the country's largest import.

Similarly, the country spent Rs93.65 billion on iron and steel, Rs74.62 on machinery and parts and Rs73.72 billion on transport vehicles and parts.

Meanwhile, the country witnessed a nominal rise in earnings from 10 exportable goods in the list of 27 major export items. Export earnings from woolen carpet, the largest export item, dropped 8.3 percent to Rs6.72 billion. Likewise, major export products such as readymade garments and cardamom recorded low export figures.■

Source: *http://kathmandupost.ekantipur.com/news/2017-07-08/nepal-imports-13-times-more-than-it-*

NEA reduces losses by 88pc to Rs970m



The Nepal Electricity Authority (NEA) has been able to reduce its losses radically by controlling power leakage and hiking the tariff.

The state-owned power utility posted a net loss of Rs970 million in the last fiscal year, a whopping 88 percent drop from the previous fiscal year's Rs8 billion.

The NEA had projected a net loss of Rs7.6 billion at the beginning of the last fiscal year, but its performance surpassed expectations.

Meanwhile, revenues increased significantly to Rs40 billion in the last fiscal year, up Rs8 billion from the Rs34billions. The major reason behind the surge in income is the hike in the tariff.

"The weighted average tariff rate increased by 9 percent contributing an additional Rs5 billion to our cash flow," said Kulman Ghising, managing director of the NEA.

Apart from the increased charges for electricity, another reason behind the NEA's improved financial statement is its relentless drive to control electricity leakage under the leadership of Ghising.

The NEA slashed electricity leakage by around 3 percentage points in the last fiscal year, resulting in savings of at least Rs2 billion.

According to the annual report for the fiscal year 2015-16, leakage had reached as high as 25.78 percent of the total supply at the end of the last fiscal year.

The NEA was able to cut leakage following a nationwide campaign to prevent power theft and the arrest of some its errant employees.

The NEA's new Managing Director Kulman Ghising moved to control energy theft and leakage after taking office in mid-September 2016.

The Ministry of Energy had told Ghising to cut electricity leakage by 1 percentage point when he was given the job. Ghising in turn delegated responsibility to the regional chiefs to cut losses by the same proportion.

The NEA's Janakpur distribution centre was able to cut leakage to 32.61 percent in mid-January 2017 from 52.33 percent during the same month a year ago, according to the authority.

Likewise, the Biratnagar distribution centre's losses came down to 16.7 percent from 19.78 in the same period.

The authority's distribution cen-

tres in Hetauda, Butwal, Nepalgunj and Pokhara have also been able to cut electricity leakage.

Similarly, a reduction in the NEA's administrative expenses has been another reason behind the fall in losses. Although administrative costs were expected to total Rs7 billion, they stood at Rs6 billion.

Also, the NEA was able achieve some savings by cutting down on imports of high-priced energy and buying a greater quantity of cheaper power.

Cheaper imports through the Dhalkebar-Muzaffarpur cross-border transmission line were increased and imports from Bihar state-controlled entities were decreased.

The cost of the electricity imported over the Dhalkebar-Muzaffarpur line stands at IRs3.60 per unit. However, the electricity imported through other cross-border transmission lines is purchased from entities controlled by state governments and costs much more, or well above IRs5.50 per unit.

NEA proposes power tariff hike

Nepal Electricity Authority (NEA) has proposed to raise electricity tariff by an average of 16 percent. An NEA board meeting held two weeks ago had forwarded the new tariff structure to the Electricity Tariff Fixation Commission (ETFC), the entity which is authorized to raise electricity price.

If the commission approves NEA's proposal, customers consuming less electricity might have to pay less than what they are now paying, while industrial customers may see tariff hike of around 20 percent.

NEA has proposed to reduce minimum charge for electricity consumption to Rs60 per month from existing Rs80.

The minimum charge covers electricity consumption of up to 10 units per month. Currently, the threshold for minimum electricity consumption has been fixed at 20 units.

If NEA's proposal is endorsed, tariff for consumption of 10 to 40 units of electricity will also be revised to Rs7 per unit.

NEA has also proposed to impose a tariff of Rs12 per unit for electricity consumption that exceeds 400 units a month.■

Source: http://kathmandupost.ekantipur.com/news/2017-07-31/nea-reduces-losses-by-88pc-to-rs970m.html

GLOBAL PERSPECTIVE

Import Power From Nepal and Bhutan: Bangladesh Experts

As Bangladesh power demand is increasing, Bangladesh's power experts are calling the government to import more power from neighbors including Nepal and Bhutan.

As Bangladesh power demand is increasing, Bangladesh's power experts are calling government to import more power from neighbors including Nepal and Bhutan.

Bangladesh now imports 600 megawatts of power from India and is seeking to buy more from hydropower-rich Nepal and Bhutan as well. However, Nepal is currently itself importing over 300 MW power from India.

Given the current state of construction of hydropower, Nepal however will have surplus energy during the rain session from 2020. If things go as now, Nepal will have more than 600 MW surplus powers in 2020.

However, there is a problem of connectivity. With no regional greed, Nepal and Bangladesh have to rely on Indian grid. Maximum effort should be given on neighbours who use renewable energy sources, said M Tamim, a former energy adviser.

"We get all the renewable energy benefits without losing any land," he said at a discussion in the capital's Lakeshore Hotel, pointing to falling prices of green energy in India.

According to Bangladesh leading paper Daily Star, the views was expressed in a program organized by the Dhaka Chamber of Commerce & Industry (DCCI) on "Energy Security 2030: Challenges & Opportunities".

Tawfiq-e-Elahi Chowdhury, the energy adviser to the prime minister, said he had positive talks with Myanmar on bringing gas before the latter's elections in 2015.

He said he was hopeful of establishing energy cooperation with Myanmar, which is sitting on large reserves of gas.

The expert also said the government should allow the private sector to import power from India, breaking away from the public sector monopoly. Standard Chartered Bank Bangladesh Chief Executive Officer Abrar A Anwar said Bangladesh would require about $15 billion for its energy sector.■

Source: https://www.spotlightnepal.com/2017/07/31/import-power-nepal-and-bhutan-bangladesh-experts/

Solar Paint and Clean Energy

A team from RMIT University has developed a paint that could turn our walls into an energy source.

RMIT University researchers developed a new compound for paint that can produce hydrogen fuel. The University News website reported about the solar paint recently. Lead researcher, Dr. Torben Daeneke told RMIT News that when they mix their compound with titanium oxide particles, it creates a sunlight-absorbing paint that creates hydrogen fuel from solar energy and moist air. Titanium oxide is already commonly found in wall paint that creates the white pigment.

The paint absorbs the moisture from the air, and then splits the water vapour into hydrogen and oxygen. The compound responsible for this action can be compared to silica gel, the packets used to absorb moisture you might find in your electronic packaging but with the bonus of separating the water molecules.

One of the advantages to this new discovery is that there is no need to be close to water. Daeneke has stated that anywhere that has water vapour in the air can produce the fuel, and the water doesn't have to be clean or filtered. This means that remote areas far from water can still do their part in producing energy. As well as areas that are hot and dry, but close to water. The water will absorb under the hot sun allowing the paint to absorb it.

Touted as one of the cleanest forms of energy; hydrogen energy is versatile. It can be used in fuel cells and in conventional combustion engines as an alternative to fossil fuels.■

Source: ***http://www.spartacapital.com/solar-paint-and-clean-energy***

A Brighter Future for Electric Cars and the Planet

There is simply no credible way to address climate change without changing the way we get from here to there, meaning cars, trucks, planes and any other gas-guzzling forms of transportation. That is why it is so heartening to see electric cars, considered curios for the rich or eccentric or both not that long ago, now entering the mainstream.

A slew of recent announcements by researchers, auto companies and world leaders offer real promise. First up, a forecast by Bloomberg New Energy Finance said that electric cars would become cheaper than conventional cars without government subsidies between 2025 and 2030. At the same time, auto companies like Tesla, General Motors and Volvo are planning a slate of new models that they say will be not only more affordable but also more practical than earlier versions. And officials in such countries as France, India and Norway have set aggressive targets for putting these vehicles to use and phasing out emission-spewing gasoline and diesel cars.

Skeptics may see these announcements as wishful thinking. After all, just 1.1 percent of all cars sold globally in 2016 were electrics or plug-in hybrids. And many popular models still cost much more than comparable fossil-fuel cars.

The skeptics, however, have consistently been overly pessimistic about this technology. Electric cars face challenges, yet they have caught on much faster than was thought likely just a few years ago. There were two million of them on the world's roads last year, up 60 percent from 2015, according to the International Energy Agency. The cost of batteries, the single most expensive component of the cars, fell by more than half between 2012 and 2016, according to the Department of Energy. Tesla has indicated that it can produce batteries for about $125 per kilowatt-hour. Researchers say the cost of electric cars will be at parity with conventional vehicles when battery prices reach $100 per kilowatt-hour, which experts say is just a few years away. ■

Source: https://www.nytimes.com/2017/07/18/opinion/a-brighter-future-for-electric-cars-and-the-planet.html

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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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