

ENERGY COMMUNIQUE

EDITORIAL

PRIVATE SECTOR FOR RURAL ELECTRIFICATION

It is a welcoming news that the Government of Nepal has also considered rural electrification as a priority by allocating five billion rupees for the coming fiscal year 2018/19. We still have around 35% of population that are not connected to the national grid, and looking at the remoteness and low load factor of these population, decentralized energy system might be a better option to serve them. And so far government's another agency, Alternative Energy Promotion Center (AEPC) is catering these off-grid population by promoting community owned micro-hydro, solar mini-grid and wind-solar hybrid projects. However, most of these projects are facing serious issues during operation phase, and some of them are on the verge of shut down.

AEPC usually selects a contractor

to build these off-grid projects, which, when completed, is handed over to the community by setting up user group to run them. However, most of these user groups are poorly skilled and do not have reserve fund for repair and maintenance works. Once something goes wrong with their power plant, then the trouble begins, and they need to look for external support or else the project collapses. This growing number of sick projects is probably urging for a shift away from community-based model to more market-oriented business model. And arguably, a private sector run Energy Service Company (ESCO) model could be a way forward.

ESCO is an entity that would build, own, operate and manage the energy project. It is like a combination of both an Inde-



Mr. Kushal Gurung
Executive Committee Member, EDC
CEO, WindPower Nepal Pvt. Ltd.

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and Utility. ESCO concept for running off-grid projects are getting increasingly popular worldwide, and more so in our neighboring country India and Africa. As per this model, responsibility of running the power plant would shift from the community to a company who is technically more capable and have better means for raising capital.

There is already a provision in AEPC policy to encourage ESCO model, and couple of trail projects are operational too. As per the latest Renewable Energy Subsidy Program 2073, AEPC provides 60% subsidy for up to 100kW rural micro-grid projects- either from micro-hydro, solar or wind. They also have special provision for projects between 100 to 1000kW, for which it has collaborated with the World Bank and the Asian Development Bank. However, the response from private sector is very low. Biggest concern for private sector is the return on its investment and security of its investment. Even with 60% subsidy, the internal rate of return on equity (Equity IRR) of a rural microgrid is merely

around 8%,- if we were to invest 20% equity and rest 20% as a debt at 10% interest rate, and keep the electricity tariff at Nepal Electricity Authority (NEA) rate. The return from micro-grid is less than half than that from an on-grid hydro project, whose expected equity IRR would be more than 17% on average. Furthermore, as the client in micro-grid are usually communities living under the poverty line, the perceived risk of payment de-

There is already a provision in AEPC policy to encourage ESCO model, and couple of trail projects are operational too. As per the latest Renewable Energy Subsidy Program 2073, AEPC provides 60% subsidy for up to 100kW rural micro-grid projects- either from micro-hydro, solar or wind.

fault is higher, which could make the debtors and developers equally wary. While on-grid project provides legally binding power purchase agreement between the IPP and NEA and since NEA is a government entity, their odds of defaulting is considered relatively less, such that the banks provide debts based on project financing, i.e.



Picture Source: www.fotovoltainorditalia.it/idee/cosa-sono-le-esco-energy-saving-company

without extra collateral.

Nonetheless, experiences from off-grid projects show that replacing community-based model by ESCO model is the way forward for sustainability of the power plant as well as scalability of the business from one village to another. However, it would be very challenging to promote ESCOs under current scenario, as the return on investment from a micro-grid is perceived to be too low compared to the risk involved. Hence, there needs to be more incentives to attract private sector into the micro-grid business. Providing low interest rates on loan; collateral free debt finance; exemption on taxes and import duties on equipment needed for a micro-grid project are some such incentives that

could help to level the playing field.

Bringing in private sector to run micro-grids on ESCO model definitely looks a more sustainable solution for rural electrification.

Hence, government should take necessary steps to woo private investment. Moreover, it is a moral responsibility of the government to provide electricity for all, hence it should not shy away from providing subsidy

and tax incentives to make the rural electrification financially attractive for private sector-making it as lucrative as investing in on-grid hydro projects.

EDC ACTIVITIES

DFID delegation visits EDC

On 13th May 2018, Mr. Strahan Spencer, Senior Economist of Department for International Development (DFID), Dr. Shankar Sharma and Dr. Harimani Ghimire, Economic Policy Experts of DFID and Mr. Chandika Bhatta, Executive Director of Special Economic Zone (SEZ) Nepal visited Energy Development Council (EDC) for a roundtable meeting.



The meeting held was to discuss on importance of SEZ Nepal in promoting and establishing import substituting industries and current national policies. The meeting concluded with a general agreement to continue dialogues and discussions on promoting investment in clean energy and electric vehicles assembling industries in SEZ Nepal and on advocating for robust foreign investment policies in Nepal.

Mr. Sujit Acharya, Chairperson of EDC, Mr. Kushal Gurung, Executive Committee Head of EDC, Ms. Itnuma Subba, CEO of EDC and Mr. Manish Basnet, Executive Manager of EDC were present during the meeting.

EDC signs MoU with Kathmandu University

On 15th May 2018, EDC signed MoU with Kathmandu University (KU) to carry out a research on hydro potential of Nepal. This is the second stage of the earlier EDC's published book of "Inventory of rivers in Nepal" that has identified more than 11,000 river and rivulets. Dr. Damber Bahadur Nepali, Dean of School of Engineering from KU and Ms. Itnuma Subba, CEO from EDC signed the agreement. Mr. Sujit Acharya, Chairman, EDC, Mr. Manish Basnet, Executive Manager, EDC and Dr. Hari Prasad Neupane, Head, Department of Mechanical Engineering, KU were present during the signing.



EDC ACTIVITIES

EDC signs MoU with China Power International Cooperation Union



EDC has signed MoU with China Electric Power Construction Association, the Secretariat of China Power International Cooperation Union, Beijing. Both parties shall work to promote international electricity related cooperation and the development of electricity industry and to strengthen the relationships in this industry between stakeholders in both countries.

EDC welcomes new members

EDC heartily welcomes Gorkha Hydro & Engineering Pvt. Ltd., Neupane Law Associates and Cosmic Electrical Engineering Associates Pvt. Ltd. as its members.

Gorkha Hydro & Engineering Pvt. Ltd. is a Promoter Shareholder of Upper Chirkhwa (4.7 MW), Lower Chirkhwa (4.06 MW) & Shyam Khola (7.2 MW) Hydropower Projects. All 3 projects are located in Sadananda Municipality of Bhojpur district.



NEUPANE
LAW ASSOCIATES

Neupane Law Associates specializes in business law and dispute resolution. The firm has consistently been ranked by chambers & partners as Band-1 firm for business law in Nepal. The firm has advised the clients in many notable transactions and disputes for over 35 years.

Established in 2000, Cosmic Electrical Engineering Associates Pvt. Ltd. is one of the leading engineering companies in the energy sector with transmission, sub-stations, distribution and electrification as its core business area. The company has been certified with ISO 9001:2015 Certification for Quality Management, ISO 14001:2015 Certification for Environment Management, OHSAS 18001:2007 Certification for Occupational Health and Safety Management. Cosmic Electrical offers wide range of power engineering solutions from conception to completion with the scope of Engineering, Procurements & Construction (EPC).



EDC ACTIVITIES

The tender notice for the month of May

HARATI is an IT company, working in several technologies based products, services and provides online service portal (tendernotice.com.np). Following is a list of tender notice provided by HARATI for the month of May;

TenderNotice.com.np					
Tender, Bids and Notices related to Hydro and Energy segments in Nepal					
Date : May 2018					
S.No.	Notice Publisher	Description	Published Date	Notice Category	Product Service
1	Ministry of Energy, Water Resources and Irrigation, Budhigandaki Hydropower Project, Environment Compensation Distribution, Resettlement and Rehabilitation Unit (ECRRU), Gorkha	Construction of Office Building and Office Quarter Building	5/27/2018	Tender	Construction/ Building
2	Ministry of Water Resources and Energy, Budhigandaki Hydropower Project, Environment Compensation Distribution, Resettlement and Rehabilitation Unit (ECRRU), Gorkha	Consulting Services for Detailed Engineering Survey of Ring Roads	5/24/2018	Expression Of Interest	Consulting
3	Ministry of Energy, Water Resources and Irrigation, Alternative Energy Promotion Center (AEPCC), National Rural and Renewable Energy Programme (NRREP), Khumaltar Height, Lalitpur	Consulting Services for Detailed Feasibility Study for Interconnection of Micro Hydropower Projects	5/23/2018	Proposal	Consulting
4	Ministry of Energy, Water Resources and Irrigation, Alternative Energy Promotion Center (AEPCC), National Rural and Renewable Energy Programme (NRREP), Khumaltar Height, Lalitpur	Rehabilitation of Earthquake Damaged Micro Hydro Projects	5/10/2018	Tender/Quotation	Construction/ Building
5	Ministry of Energy, Water Resources and Irrigation, Department of Hydrology and Meteorology, Building Resilience to Climate-Related Hazards (BRCH) Project, Kathmandu	Establishment of Weather Presentation System	5/9/2018	Tender	Other Product/ Services
6	Chilime Jal Vidhyut Company Limited, Kathmandu	Rehabilitation of Chilime Hydropower Plant	5/7/2018	Tender	Construction/ Building
7	Ministry of Population and Environment, Department of Hydrology and Meteorology, Building Resilience to Climate Related Hazards Project (BRCH), Naxal, Kathmandu	Supply, Installation and Commissioning of Meteorological Equipment	5/5/2018	Tender	Other Product/ Services

MEDIA COVERAGE

The Himalayan

DIVERSIFY ENERGY MIX

Diversify energy mix

SMALL DISTRIBUTED RENEWABLE ENERGY SYSTEMS

Anish Chalise
Kathmandu

Nepal's energy situation has taken a U-turn in the last one and half years. We have come a long way from long hours of load shedding to a completely reliable supply through national grid. Though we still import up to 30 per cent of our electricity from India, we have managed to build proper infrastructure to do so in a more efficient manner.

hydrohighlight

This dry season we did not face any load shedding, at least in the urban areas. Does this mean that we are energy self-sufficient now? Our energy demand is estimated to rise to 18,000 MW in the next 20 years. It is time to think about diversifying our energy mix to achieve reliable, efficient and lower cost energy supply.

The developed world is moving away from centralised generation to distributed generation system. Nepal should start moving in the same direction. US energy mix now consists of 10 per cent renewable and is expected to constantly grow

Nepal's urban area is an ideal location for distributed renewable energy generators (DREG) or rooftop solar. One good aspect of rampant urbanisation is the availability of roof space to generate enough renewable energy to manage higher demand of big cities during day time. With cost of grid electricity prices ever rising, prospect of DREGs seems better than at any point of time. So, what are the barriers which can impede the scalability of DREGs?

CAPEX OR CAPITAL COST

The upfront investment for installing small scale renewable energy solution is high. Per KW cost of these systems is anywhere from 1.5-2 lakhs depending on the size. The price per KW does go down as the system size increases. During the long hour of load shedding days, customers had no choice but to install the solar battery back-up solution. They did not care much about the cost. But now, the grid supply is reliable. To invest large amount to save energy cost on a long run is a hard prospect to sell.

DELAY IN IMPLEMENTATION OF NET METERING

It has been almost a year since Nepal Electricity Authority (NEA) first came out with a policy to drive



net metering systems. Net metering is a process of managing your electricity bill by producing electricity in your own premise by DREGs and exporting excess energy which is not utilized by captive load back to the grid. The energy imported and exported are netted

thus your electricity bill reduces. Ministry of Energy has brought forward several policies. However, there seems to be a major lack of coordination between the ministry and NEA regarding net metering.

that the ministry and NEA are working independently without consultation. Apart from the policy level issues, NEA is missing the most important device necessary for net metering, the net meter, which is still in the process of procurement.

UNAVAILABILITY OF AFFORDABLE FINANCING

The only way we see DREGs net metering system scaling is with affordable easy financing. Though there have been many schemes for solar financing in the past, none have been effective. The subsidised interest rate keeps rising with the increase in bank's base interest rate.

THE SOLAR LEGACY

Customers have had a poor experience with solar in urban areas of Nepal. We have visited many households and institutions who have installed solar, the feedback has been the same everywhere. Managing the batteries has been a nightmare. There are grievances related to price and performance of the system as well. The service provided (or lack of it) has been appalling. Changing customers' perception that the new form of solar (grid tied) is different from

old battery backup system is a major challenge.

LACK OF INNOVATIVE INCENTIVE SCHEMES

The existing interest subsidy schemes have not been very effective. Capital subsidy schemes have also failed. The problem with capital subsidy is with delivery and fraud.

In many parts of the world innovative incentive schemes has played a big role in scaling of DREGs. To scale DREGs, Renewable Energy Service Companies (RESCOs) must play the role of aggregators of DREGs. If RESCOs can access similar incentive to that of hydro developers, DREGs have a great future. Subsidies must be fair and effective and contribute to adoption of the renewable energy by the masses. DREGs help the utilities the most. If the incentive is driven by the utilities, it will have a sustainable impact.

LACK OF RESCOs

There are many solar companies in Nepal, but they are all operating on a trader model rather than a RESCO model. Companies that are limited to traditional model have already or soon inevitably close shop. We need more innovative companies, operating on pure RESCO model. Companies that can think outside the box, take risk and deliver.



The author is CEO of Saral Ujya Nepal, an EDC member organization

Source: <http://epaper.thehimalayantimes.com/index.php?mod=1&pgnum=22&edcode=71&pagedate=2018-5-6&type=>

Assess Nepal's hydro power export potential

IT IS IMPORTANT TO CALCULATE WHETHER INDIAN POWER MARKETS OFFER OPPORTUNITIES FOR NEPALI ELECTRICITY EXPORTS

Bishal Thapa
Kathmandu

Nepal's power sector is looking at a period of excess supply. Nepal Electricity Authority (NEA) projects that within the next two years, supply will exceed demand. This will be a difficult situation for NEA. They are committed to purchasing all the electricity generated but without the demand from consumers, NEA will face rising financial losses. To overcome this, NEA wants to export the excess electricity to India.

NEA isn't the only one pegging their hopes on selling electricity to India. For decades, Nepali politicians and governments have promoted the idea of a prosperous Nepal through hydro-power exports. At a broad level, the idea of exporting electricity to India makes great sense. Nepal is rich in hydropower. India, one of the fastest growing economies in the world, needs electricity. It seems like a perfect match. Based on this, successive governments have drawn up plans for thousands of MWs — the latest goal is for 10,000 MW within the next 10 years.

Two large hydropower plants are being developed to export power to India. New cross-border transmission lines are being planned. There is no doubt that Nepal would benefit from selling electricity to India but does that mean Nepal is positioned to do so? Before we start walking down this alley, it is important to objectively assess whether Indian power markets really offer opportunities for large scale Nepali electricity exports. Many people believe that Nepal

should not export its hydropower but also consume it at home to promote domestic value-added growth. We need to overcome this type of false nationalism. Our hydro resources must be wisely used and if that means exporting to India, we should pursue it. But before we go down that path, are we confident that Indian power markets contain opportunities for large scale Nepali electricity exports? I don't have the answers. Nobody does. But it is important that we at least ask the right questions.



hydrohighlight

- Indian power markets are currently experiencing excess capacity. Approximately 40,000 MW of capacity is reported as stranded. Some 175 GW of renewable energy capacity is planned by 2022. Will electricity demand in India pick up so drastically over the next decade to create ample secure opportunities for Nepali hydro power exports?
- Most Nepali hydro power exports will come from run-of-the-river plants. These plants will have high seasonal variation —

lots of supply during the wet months and little over the dry winter months. Have Indian power markets achieved the maturity to offer differentiated electricity products that vary by season and time of day?

- Power prices are already very low in India. Most forecasts suggest that they will continue to remain low. The combination of low prices and excess supply has already created very high levels of bad debt in the Indian power sector: Will Nepali hydropower exports find enough sustained good prices to be meaningful?
- India also has adequate hydro power capacity. Close to 10,000

MW is already under construction. Why would Nepali hydropower be cheaper than Indian hydro power when all the equipment, technology, human capital and financial resources will have to be imported?

- The Nepal-India electricity trade potential remains a potential only within the ministries.



The author is Managing Director of Saral Ujya Nepal, an EDC member organization

It hasn't spilled over to the private sector. No one in the Indian private sector, other than those directed by the government, currently believes that Nepal is a reliable supply partner. If Nepal's promise of hydropower doesn't resonate outside of the foreign ministry, where is the real opportunity for export?

Even if the answers to these questions suggest that there is no real opportunity for Nepali hydropower exports to India, that doesn't mean we should not pursue it. If we believe hydropower export is our ticket to development, then we need to get real about it.

We can't export hydropower to India sitting on a hilltop in Nepal and hoping that the Indian envoy will show up with a bag full of cash to buy our exports. Nepal will have to take the fight into the Indian market place. We will have to create our own opportunities. Nepal must establish an energy trading firm in India. India's energy sector is an exciting market — perhaps not yet primed — but a solid long-term bet. We can't tap that market merely by looking at it through a telescope from Nepal. If you want to do business in India — set up an energy shop in India.

Source: <http://epaper.thehimalayantimes.com/index.php?mod=1&pgnum=22&edcode=71&pagedate=2018-6-3&type=>

NEPAL'S SCENARIO

Towards Provincial government announces plans to ban fossil-fueled vehicles in Kathmandu

“EDC’s sweet victory of 4 years of continuous lobbying and advocating in promoting the use of EV in Nepal thereby reducing the trade deficit and protecting the national sovereignty.”



The government of Province 3 has announced plans to ban fossil-fueled vehicles in key cities such as Kathmandu, Chitwan, Hetauda, Banepa, Dhulikhel and Panauti in the next ten years

According to the announcement made during the presentation of the government’s annual policy

and programmes, fossil-fueled vehicles won’t be allowed to ply after 2028. The government says that the plans have been introduced to encourage city dwellers to take up EVs as their means of transport.

This is the first time that the government has set a date for the transition to EVs in the country’s capital, which has been facing

unprecedented levels of pollution in the last few years. Around 60 per cent of pollution in Kathmandu can be attributed to vehicular traffic.

The adoption of EVs has also been linked with efforts to cut

down on a burgeoning trade deficit with India, from where Nepal imports petroleum worth millions of dollars.

Source: <http://english.onlinekhabar.com/provincial-govt-announces-plans-to-ban-fossil-fueled-vehicles-in-kathmandu.html>

Towards a brighter future

“A stable government and new players in energy generation could help Nepal meet its SDG target.”



Energy is not only a global goal at its own right but is also central to the 2030 Agenda for Sustainable Development. The Sustainable Development Goal (SDG7) targets include achieving, by 2030, universal access to affordable, reliable and modern energy services, increasing substantially the share of renewable energy in the global energy mix and doubling the global rate of improvement in energy efficiency.

A recent series of policy briefs launched in April 2018 at the United Nations showed that the world is not on track to achieving energy related Sustainable Development Goals. In the context of Nepal too, it's a long way ahead before we achieve the goals.

Energy and development

As of 2015, the electrifica-

tion rate in Nepal was only 75 percent. The population coverage by the national grid is even lower. The remaining 25 percent of the population i.e. more than 5 million people still lack access to basic electricity— depicting the supply and demand gap. In the rural areas, the electricity supply from the decentralized systems such as micro hydro, mini grids, stand alone or hybrid systems is limited. Mostly electricity is used for lighting, charging mobile phones and small equipment.

The picture is also dimmer when it comes to access to modern and cleaner cooking facilities. About 74 percent of the populations still use solid fuels for cooking, followed by LPG at 18 percent. Although the usage of LPG has increased rapidly during the last few years even in rural areas,

household's heavy reliance on traditional energy sources (solid fuels) remains unchanged.

Historically, economic development of a country is strongly correlated with its per capita energy usage, especially electricity. In 2015, the per capita annual electricity consumption in Nepal was only 140 kWh, the lowest in South Asia. But since Kulman Ghising as the director of Nepal Electricity Authority (NEA) has slashed the load shedding hours, this number is certainly projected to rise.

Electricity in Nepal is mainly generated through hydro with negligible share of solar and wind energy. The share of renewable energy in total final energy consumption as of 2015 was only about 12 percent.

Under the various constraints, ensuring access to affordable, reliable, and modern energy for all is a daunting task. However, given the formation of first stable government, the beginning of new era in NEA, private sector coming up strongly in power generation, grid connectivity expanding, and

alternative modern energy sources private sector in the upcoming dec- them would require fundamental being capitalized, the country has ade to fulfill the ambitious pledges policy shifts, unprecedented na- the strength to meet the targets. stated by Nepal in the NDC and the tional efforts and larger interna-

The way forward

The baseline report by Na- tional Planning Commission (NPC) proposed specific targets for SDG 7 by 2030. It includes accessibility of 99 percent households' to electric- ity, increasing per capita electricity to 1500 kWh and decreasing the commercial energy use per unit of GDP from 3.20 ToE/mRs to 3.14 ToE/mRs by 2030.

In the Nationally Deter- mined Contribution (NDC) communi- cated at the United Nations frame- work Convention on Climate Change (UNFCCC), Nepal stated its plan to regenerate 4000 MW of hydroelectric- ity by 2020 and 12000 MW by 2030. The construction of Nepal's largest solar plant of 25 MW in Nu- wakot funded by the Government and NEA, which is scheduled to be completed within a year, started in April 2018. This shows that the gov- ernment is heading towards a posi- tive direction to make the country more energy independent. Never- theless, tremendous efforts are necessary from the government and

NPC report.

The study by the Energy Effi- ciency Centre in collaboration with Federation of Nepalese Chambers of Commerce and Industry (FNCCI) depicts a significant potential in both electric and thermal energy saving in the energy intensive indus- tries of Nepal such as iron and steel, cement and others. Similarly, in the residential and commercial

residential buildings, there is signifi- cant potential in energy and cost savings with the replacement of conventional lighting with LED bulbs.

The impact of India's policy to ban all diesel and petrol vehicles by 2030, the worldwide trend of growth in electric vehicles and the increase in electricity supply in Ne- pal will also encourage the uptake of EVs in the Nepali transportation market in the upcoming years.

The SDGs consists of com- prehensive and challenging goals that require magnificent resources plus capacity enhancement to achieve them by 2030. Achieving

tional cooperation in action.

In the energy sector, it is important to have short term, me- dium term and long term plans and link the annual budgets and pro- grams to it along with credible fi- nancing strategy inclusive of the government, private sector, coop- eratives, NGOs and development partners. Although all SDGs are equally important, prioritising as

well as localising SDG 7 at sub na- tional level is important in the con- text of Nepal since it has strong syn- ergy with the GDP growth of the country. Mobilizing financial re- sources and meeting the financial gap, up scaling policy interventions to reach people, capacity develop- ment, and bolstering governance and delivery framework would be imperative to achieve the national target of sustainable energy for all.

Bhairahawa SEZ attracting investors in droves

With the signs of improvement in industrial environment of the country, the attraction to set up new industries in Special Economic Zone (SEZ) in Bhairahawa is growing in recent months. Smooth supply of electricity, incentives and facilities offered by the government, and stable political environment have encouraged businesspeople to open industrial enterprises in SEZ.

The over-subscription of slots in SEZ indicates the growing attraction in Bhairahawa SEZ. While the applications seeking slots in the Bhairahawa SEZ was nearly half than the number of offered plots earlier, the Special Economic Zone Authority (SEZA) received applications higher than the plots up for grabs.

“The number of applications for plots is higher than what we have offered in the latest notice,” said Chandika Prasad Bhatta, executive director of SEZA, said. “The plots would be offered to export-based industries through competition,” he added.

Out of 69 plots in Bhairahawa SEZ, 38 have been already occupied by various industries. The SEZA has

sought applications for remaining 31 plots for manufacturing industries. SEZA has received 38 applications for remaining 31 plots as at May 9, according to Bhatta.

He said that the SEZA will sign formal agreement with the eligible industries after short-listing them within 15 days. Most of the applicants are interested to open plants to produce footwear, cement, steel and pipe. The growing attraction to set up industries in SEZ in recent months is attributed to uninterrupted energy supply, incentives and benefits provided by the government, no need for land acquisition, and political stability in the country.

Bhatta told Republica that the collective commitment made by political parties from various forums in recent time has also boosted confidence of industrialists to set up manufacturing plants.

SEZA had sought application from interested tenants even before the government prepared SEZ Act and related bylaws. However, the SEZ Act and related bylaws have now been enacted, making the legal process more clear for industries

to set up their plants.

“There was a lack of laws and by-laws earlier. Now, the SEZ Act and related bylaws have been enacted, making the legal process simple for those interested to set up industries in SEZ,” added Bhatta.

The government adopted the concept of SEZ to attract foreign and national investments to establish industrial and business units that help to increase the country's exports.

Internal road, electricity, water supply, sewage system, petrol pump, weighing bridge, security, waste water treatment plant, among others, are the infrastructures available in SEZ.

Similarly, industrial units in SEZ can enjoy one-door policy for services starting from registration of enterprise to tax payment.

High land prices outside SEZ have also encouraged investors to set up industrial units in SEZ where rent and other costs are comparatively cheaper.

SEZA charges rental fee of Rs 20 per square meter per month for industries opened in Bhairahawa SEZ.

GLOBAL PERSPECTIVE

World's ABB launches world's fastest e-vehicle charger at Hannover Messe, strengthening its leadership in sustainable mobility

“Commercial launch of the Terra HP fast charger places ABB at the forefront of EV-charging technology”



By operating at powers of up to 350 kilowatts, the newest model from ABB, Terra High Power charger, adds up to 200 kilometers of range to an electric vehicle in just 8 minutes. The new charger is ideally suited for use at highway rest stops and petrol stations.

ABB chargers are being installed around the world, and they have recently been selected for use by Electrify America, the biggest electric vehicle infrastructure project to date in the United States. With more than 6,500 DC fast charging stations installed in 60

DC fast charging.

ABB's product portfolio, which includes charging technologies for electric cars, buses and trucks, as well as solutions for the electrification of ships, railways and cableways, firmly establishes it as a global champion in e-mobility. To further showcase its e-mobility leadership through its partnership with Formula E, the world's first fully electric international FIA motorsport series, a Formula E race car, and driving simulators will be on display to visitors to the ABB booth.

B&R, a leading solutions provider for machine and factory

automation worldwide, will be participating for the first time at the ABB booth, after being acquired in July 2017, and now integrated into ABB's Industrial Automation division as its global Machine & Factory Automation business unit.

Demonstrating its commitment to helping the international community address the opportunities and challenges of artificial intelligence and industrial automation, ABB will announce at the Hannover Messe a ground-breaking report with The Economist Intelligence Unit: "The Automation Readiness Index: Who Is Ready for the Coming Wave of Innovation?" The report

finds that even the best-prepared countries must develop more effective education policies and training programs.

Additional pioneering technologies across utilities, industries, and transport & infrastructure, highlight ABB's ability to bring electricity from any power plant to any plug and automate industries from natural resources to finished products. Other innovative solutions that will be on display at Hannover Messe 2018:

- B&R's ACOPOStrak, the intelligent, flexible transport system that's setting a new standard for smart-factory motion control in the era of mass customization, and B&R's Orange Box, an advanced analytics solution for brownfield assets, which enables users to access previously unreadable data from digitally isolated machinery.
- The EVLunic AC wallbox, available with from 4.6 kW to 22 kW of charging power, serving as a high quality, cost effective e-car charging point for home and business use, in addition to the

Terra HP line of public-network charging stations for electric vehicles.

- ABB Ability™ Power Transformer, with smart devices built into every ABB transformer to enable customers to remotely monitor vital parameters in real time for improved reliability and higher utilization of grid assets and power networks.
- ABB Ability™ Digital Powertrain, which ensures efficient operation of powertrain equipment, including drives, motors, bearings and pumps. A suite of monitoring services – including advanced analytics and maintenance planning – enables users to digitally “see” operational variables through an integrated, one-stop portal.
- ABB Ability™, the unified, cross-industry digital capability that empowers customers to know more, do more and do better – together. The complete list of 210 solutions is available in the new ABB Ability™ Solutions Catalogue, which is being launched at the event.
- STIR, the submersible trans-

former inspection robot, which makes it possible to internally inspect transformers without draining their oil, making the task safer and less expensive.

- Gas-insulated switchgear (GIS), which is celebrating its 50th anniversary this year. With over 30,000 installations worldwide, GIS uses pressurized sulfur hexafluoride (SF6) as its insulating gas instead of air, to enable safer electrical operations in confined spaces.
- ABB Ability™ Connected Services, unlocking a world of possibilities in diagnostics, monitoring, predictive maintenance and asset optimization, for up to 25 percent fewer incidents and 60 percent faster response and issue recovery times.
- YuMi®, the first truly collaborative dual-armed robot and SafeMove2, the safety solution that enables robots to safely share working spaces with human operators while reducing total investment by 30 percent.

Ather Energy rolls out charging points for EVs in Bengaluru

“Ather Energy, backed by India’s largest two-wheeler maker Hero MotoCorp Ltd and Tiger Global Management, said its charging points will be installed at cafés, malls, gyms and tech parks.”

Ather Energy Pvt. Ltd, a start-up electric scooter maker, launched its electric vehicle (EV) charging network called AtherGrid in Bengaluru on Monday. The firm expects to have 60 charging points in the city by year-end, ahead of launching its S340 electric scooter. Roughly \$1 million will go into setting up the charging network.

up
by



Ather Energy co-founder and CEO Tarun Mehta

“Ather Energy’s charging points were designed for two-wheelers but can be used to charge all EVs, including four-wheelers. For non-Ather Energy customers, charging from any of the AtherGrid points will be free for first six months to encourage EV adoption. The firm will double that benefit to 12 months of free charging for its own customers, i.e. those who buy its S340 scooter.”

Ather Energy, backed by India’s largest two-wheeler maker Hero MotoCorp Ltd and Tiger Global Management, said its charging points will be installed at cafés, malls, gyms and tech parks. The first 30 charging points will be set

the end of this month, the company encourage EV adoption. The firm added. “Infrastructure is where a lot will double that benefit to 12 of our time has been going, and the months of free charging for its own charging network is the biggest customers, i.e. those who buy its piece there. If you want to get your S340 scooter. Its own customers vehicles out, you need the infra- will get the option of installing an structure, the charging network, to AtherGrid charging point at their precede it and that’s why the charg- homes, too.

ing infrastructure is going live first, Customers can find the followed by the vehicle,” the firm’s nearest charging point and navigate co-founder and chief executive offi- to it using the company’s mobile cer Tarun Mehta said. app. The app will also help users

Ather Energy’s charging track charging status and payment points were designed for two- options will be integrated into it. By wheelers but can be used to charge the end of the year, the goal is to all EVs, including four-wheelers. For ensure that an EV customer is not non-Ather Energy customers, charg- more than 4km away from an Ather- ing from any of the AtherGrid points Grid charging point in Bengaluru, co will be free for first six months to -founder and chief technology offi-

Ather Energy had to deal with some regulatory hurdles that prohibit the installing of electric metres and re-sale of electricity, before it could launch its EV charging infrastructure. Last year, Mint reported that the company had raised the issue with the government. About a month ago, the government issued a clarification on this, Mehta said on Monday.

ing infrastructure is part of the company's multi-fold strategy for the roll-out of its S340 scooter. Other pieces of the strategy include focusing on a limited number of cities (starting with Bengaluru, followed by Chennai and Pune) and opening experience/testing centres. Mehta said. The company is well capitalised for the moment and has enough to see through its Bengaluru launch, he added.

Setting up adequate charging to cater to demand in the first year

Source: <https://www-livemint-com.cdn.ampproject.org/c/s/www.livemint.com/Companies/Lc7GlzCdxFgW1jGxHJHlIM/Ather-Energy-rolls-out-charging-points-for-EVs-in-Bengaluru.html?facet=amp&>

Solar To Surpass Wind In 18 Months, Become Fourth Largest Energy Capacity In The World

“Look out, wind – solar is about to catch you.”



Look out, wind – solar is about to catch you.

That's the headline from Frost &

Sullivan's recent analysis Global wind in global energy capacity starting in 2020, making it the fourth largest source of energy generation

largest source of energy generation behind coal, gas and hydro. Less than a year ago, solar surpassed nuclear energy to reach fifth place.

-“The 3D’s of Power – Decarbonization, Decentralization, Digitalization – continue to be underlying factors determining the global power market landscape”

-“The residential battery storage market will be the fastest growing in 2018 driven largely by the surge in the behind-the-meter residential deployments in the US, Germany, and Australia”

The report says increased battery energy storage capabilities, surges in merger and acquisition activities, and disruptive energy start-ups are the primary reasons the renewable energy sector is seeing this surge – and solar has, so

far, been the primary beneficiary of this energy capacity expansion.

The report also predicts that \$2.2 trillion will be invested in new energy capacity through 2021, including more than \$600 billion in the solar sector alone.

“To navigate through current trends and challenges, organizations must start embracing business models that enhance operational and process efficiency while reducing costs,” said Vasanth Krishnan, Energy & Environment Analyst at Frost & Sullivan. “Adopting disruptive digital solutions that focus on consumer needs will bring the organization closer to technological and efficiency transformation.”

The report also highlights several other global energy sector trends, including:

- The 3D’s of Power – Decarbonization, Decentralization, Digitalization – continue to be underlying factors determining the global power market landscape;
- The residential battery storage market will be the fastest growing in 2018 driven largely by the surge in the behind-the-meter residential deployments in the US, Germany, and Australia;

“Analyzing long-term scenarios and defining positioning strategies should be key focus areas for industry participants in the long term,” noted Krishnan. “Also, as the renewable and distributed energy markets mature, a large installed capacity of equipment will need to be serviced, offering attractive growth prospects within the operations and maintenance sector.”

Source: <http://www.solarwakeup.com/2018/05/17/solar-energy-capacity-surpass-wind/>

A 100% renewable grid isn't just feasible, it's already happening



Chinese workers check solar panels in Anhui province, April 13, 2017. CREDIT: STR/AFP/Getty Images

The ongoing debate around whether it's feasible to have an electric grid running on 100 percent renewable power in the coming decades often misses a key point: many countries and regions are already at or close to 100 percent now.

ables in these countries are hydro- power, wind, geothermal, and solar. renewable energy ... only wind, solar and hydro.” This was part of a test by the country’s State Grid Corporation to show a post-fossil-fuel future was practical.

According to data compiled by the U.S. Energy Information Administration, there are seven countries already at, or very near 100 percent renewable power: Iceland (100 percent), Paraguay (100), Costa Rica (99), Norway (98.5), Austria (80), Brazil (75), and Denmark (69.4). The main renew-

A new international study, which debunks many myths about renewable energy, notes that many large population regions are “at or above 100%” including Germany’s Mecklenburg-Vorpommern and Schleswig-Holstein regions, New Zealand’s South Island, and Denmark’s Samsø island. In Canada, both Quebec and British Columbia are at nearly 100 percent renewable power.

Bloomberg New Energy Finance (BNEF) has projected that by 2040, Germany’s grid will see nearly 75 percent renewable penetration, Mexico will be over 80 percent, and Brazil and Italy will be over 95 percent. BNEF was not looking at what could theoretically happen by mid-century if countries pushed as hard as required by the Paris Climate Accord. They were just

Last summer, China’s State-run Xinhua News Agency reported that “Qinghai Province has just run

for seven straight days entirely on renewable energy ... only wind, solar and hydro.” This was part of a test by the country’s State Grid Corporation to show a post-fossil-fuel future was practical.

Bloomberg New Energy Finance (BNEF) has projected that by 2040, Germany’s grid will see nearly 75 percent renewable penetration, Mexico will be over 80 percent, and Brazil and Italy will be over 95 percent. BNEF was not looking at what could theoretically happen by mid-century if countries pushed as hard as required by the Paris Climate Accord. They were just

looking at business as usual over the next two decades.

A study out earlier this month found, “Indonesia has far more than enough pumped hydro storage sites to support a 100% renewable electricity grid.” Storage is one of the most straightforward ways to integrate wind and solar power into the grid, to account for the times when the wind doesn’t blow or the sun doesn’t shine

Pumped hydro is by far the most widely used electricity storage system in the world. Water is pumped from a reservoir at a lower level to one at a higher level when there is excess electricity or when electricity can be generated at a low cost. Then, during a period of high electricity demand (and price), water in the upper reservoir is run through the hydroelectric plant’s turbines to produce electricity for immediate sale.

In the International Energy Agency’s 2012 Technology Roadmap: Hydropower, “Pumped storage hydropower capacities would be multiplied by a factor of 3 to 5,” by



Breakthrough solar panel can harvest power from raindrops – day or night

2050. The U.S. Department of Energy has projected that “domestic hydropower could grow from 101

gigawatts to nearly 150 gigawatts of combined electricity generation and storage capacity by 2050.”

And pumped hydro is but one of many strategies for integrating more renewables into the grid.

In 2016, NOAA researchers concluded that just with “improvements in transmission infrastructure” using existing technology, “the United States could slash

greenhouse gas emissions from power production by up to 78 percent below 1990 levels within 15 years while meeting increased demand.”

Energy Secretary Rick Perry’s own 2017 electric grid study found that “smart charging”

Source: <https://thinkprogress-org.cdn.ampproject.org/c/s/thinkprogress.org/a-100-percent-renewable-grid-isnt-just-feasible-its-already-happening-28ed233c76e5/amp/>

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