

ENERGY COMMUNIQUE

EDITORIAL

ESSENCE OF RENEWABLE ENERGY

Renewable energy is a major contributor to the transition to the low carbon economy. It also addresses wider issues of sustainability, such as reducing pollution, improving energy security and enabling access to energy.

Energy services underpin almost all aspects of human activity. These services provide basic needs such as cooking, heating, and lighting. They fuel a range of industrial activities, and they sustain today's transportation and communication systems. For these reasons, the energy sector plays a vital role in the national policies of all countries. For developing countries, expanding and modernizing their energy sector is particularly important since the limited availability of energy constrains human and economic development. The lack of modern energy services can pre-

vent the realization of basic human needs like education, sanitation, health, and communication. Insufficient and unreliable power can also constrain industrial production. As countries become richer, energy consumption per capita rises correspondingly to satisfy increasing demand for energy services from both the industrialization process and rising living standards. Higher oil prices negatively affect all oil-importing countries, but hurt developing countries the most. They lack the resources and capabilities for developing and employing oil-efficient technologies. Moreover, these countries also have less financial and technical ability to use other alternatives to buffer against the impacts of high oil prices. An increase in the cost of oil imports, as a result of a price hike, is therefore more likely to destabilize trade balances, drive up inflation, and



Mr. Purna Bdr. Pariyar
Chief Executive Officer
Source & Solutions Pvt. Ltd.
An EDC Member Organization

INSIDE THIS ISSUE:

EDC ACTIVITIES	3
MEDIA COVERAGE	6
NEPAL'S SCENARIO	8
GLOBAL PERSPECTIVE	13
MEMBERS	21
PARTNERSHIP	23

undermine economic growth in developing countries.

Energy-poverty and the use of bio-fuels are also intimately linked with gender disparity and inequity. A majority of the 2.7 billion people living in poverty are women, with many of them spending long hours in survival activities. As discussed above, women and children are the primary gatherers of wood as fuel and other minor forest produce for household consumption. They also spend significantly more time and walk longer distances than men to collect firewood and water. The women in rural areas also spend long hours indoors, cooking and taking care of children, therefore they bear the brunt of the health problems associated with indoor smoke. Women are also the most vulnerable to energy scarcity, environmental damages, and adverse impacts of technological changes in the energy sector. Thus, the problem is not just one of energy economics or technology, but one of social justice .

The renewable energy sector is growing fast: about half of the new electricity-generating capacity added globally in 2008 and 2009 came from renewable energy addi-

tions. Renewable energy is expected to generate more jobs over the coming years in the energy sector as a whole.

Employment in fossil fuel, however, will drop as energy production turns greener. Fast deployment of new capacity at country or regional levels has led to skills shortages in technical occupations such as solar installers and electrical engineers, but also in more general occupations, such as sales and finance specialists, inspectors, auditors and lawyers. An efficient training system for renewable energy must be integrated within overall policies to support the growth of the sector.

It must also involve social partners in the design and delivery of training, retraining of workers and draw from a combination of practical and theoretical knowledge. Moving towards a greener economy is creating opportunities for new technologies, investment and jobs. At the same time, environmental change and in particular climate change has detrimental effects on certain economic sectors and can cause job losses. Identifying and providing the right skills for new and existing jobs can smooth tran-

sitions to greener economies and ensure that new opportunities benefit a broader share of society. The shortage of green-collar professionals with cutting-edge skills in energy efficiency, green engineering and green construction has already been identified in a number of countries as a major obstacle in implementing national strategies to cut greenhouse gas emissions or address environmental changes.■

EDC ACTIVITIES

Meetings Corner

During the month of November, EDC had various meetings for potential partnership in NPIS 2018. Some important ones were with the following companies:

- Andritz Hydro
- FLOVEL
- IFC
- International Centre for Hydropower, Norway
- NIU Nepal
- BYD

EDC Representative gives a keynote speech on 4th Annual China Energy Storage Conference and Exhibition

On December 1st, on behalf of Chairperson, Mr. Sujit Acharya, EDC Representative of China, Ms. Lily Zhang gave a keynote speech at world's largest energy storage conference held on Shenzhen, China from 30th November to 1st December. The conference held involved discussions surrounding the commercial development of energy storage in China and beyond. It was attended by more than 600+ leaders and experts of energy storage industry throughout the world and comprised of more than 40,000 audiences. The response from the audiences regarding Ms. Zhang's speech was very well-received and positive.

EDC welcomes a new member Himalayan General Insurance Co. Ltd.

EDC heartily welcomes, Himalayan General Insurance Co. Ltd. to be a member of its council. HGI is committed to providing cost-effective insurance with efficient claims handling. HGI strives to deliver superior services to their customers, sustained returns to stakeholders and progressive development to the employees.



EDC ACTIVITIES



EDC Chairperson interviewed by Business Plus

On November 8th, Mr. Sujit Acharya, Chairperson of Energy Development Council was interviewed by Business plus Television. Business Plus is a complete solution of each and every aspect of Nepalese and International economy, trade and market and it is a forum of Investors, Industrialists, and Traders and for the general public. The

interview talked about how much and on what level the political parties have envisioned on the development of hydropower in their manifesto. Mr. Acharya highlighted about how Nepalese election's results must focus on the energy and development sector of the nation. He also mentioned how the country will run mostly on electric vehicles fueled by Nepali electricity in 5 years. (Click the photo to view the full video.)



EDC's Round-table meeting with various embassies, development partners and

On November 17th, EDC invited various embassies; development partners its members for a Round-Table meeting at Calm, Tangalwood. Mr. Sujit Acharya, Chairperson of the Council updated and discussed about possible collaboration for the upcoming 2nd Nepal Power

Investment Summit (NPIS) 2018. With international media partners China Daily, Bloomberg and International Water Power & Dam Construction magazine it is taking to place on 27th - 29th January 2018 at Hotel Soaltee Crowne Plaza, Kathmandu.

The event saw presence of H.E. Ms. W.S. Pereira, Ambassador of Sri Lanka to Nepal. Other embassies such as the Royal Norwegian Embassy, Brazilian Embassy, Royal Thai and Bangladesh Embassy were also present in the Round-Table meeting. Other development organizations such as Department for International Development (DFID), United States Agency for International Development (US AID), Dolma Fund and EDC member organizations Wind Power Nepal and Everest Equity were also present in the meeting. Feedback upon the program schedule and suggestions to make the Summit successful was well received. The meeting ended on a positive note in providing a full support by all.

EDC ACTIVITIES**The tender notice for the month of November**

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 November;

TenderNotice.com.np

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

Date : November 2017

S.No.	Notice Publisher	Description	Published Date	Notice Category	Product Service
1	Upper Tamakoshi Hydropower Limited, Upper Tamakoshi Hydroelectric Project, Gyaneshwor, Kathmandu	Installation, Testing and Commissioning of Electrical Distribution Networks and Construction of Prefab Mesh Building	11/24/2017	Tender	Other Product/ Services
2	Ministry of Population and Environment, Alternative Energy Promotion Center (AEP), National Rural and Renewable Energy Programme (NRREP), Khumaltar Height, Lalitpur	Consulting Services for Detailed Feasibility Study of Micro Hydro Power Projects	11/22/2017	Proposal	Consulting
3	SJVN Arun-3 Power Development Company (P) Ltd., Khandbari, Nepal	Amendment Notice	11/21/2017	Amendment Notice	Other Product/ Services
4	Sanima Mai Hydro Power Limited, Naxal, Kathmandu	Auction Sale of Right Shares	11/20/2017	Tender	Auction
5	Jalvidhyut Lagani Tatha Bikas Company Ltd., Babarmahal, Kathmandu	Preparation of Documentary	11/18/2017	Proposal	Movies/ Music/ Entertainment
6	Tanahu Hydropower Limited, Thapathali, Kathmandu	Environmental and Social Management Service Provider	11/8/2017	Expression Of Interest	Consulting
7	Hydroelectricity Investment and Development Company Limited, Babarmahal, Kathmandu	स्थिर सम्पत्ती लिलाम विक्री	11/8/2017	Tender	Other Product/ Services
8	Ministry of Population and Environment, Alternative Energy Promotion Center (AEP), Khumaltar, Lalitpur	Rehabilitation of Earthquake Damaged Micro Hydropower Projects	11/1/2017	Tender	Construction/ Building

Powered By,

www.TenderNotice.com.np

TenderNotice

MEDIA COVERAGE

Distributed Renewable Energy, the Saviour

This time last year, Nepalese were very anxious about the load shedding schedule. There has been a drastic improvement in reliability of our electricity supply over the last year.

The world is moving away from excessive reliance on a single source of energy towards a diversified energy mix. Nepal's energy mix is very vulnerable with high dependence on hydro and imports. The latter, can stop flowing to Nepal with a click of a button from across the border. As the blockade of 2015 illustrated, the impact on our economy and daily lives are huge but we have very little control over supplies.

Are we going to lurch from one crisis to another by simply adapting to it? It is time we put meaningful solutions in place to address the key aspects of our energy vulnerabilities.

Nepal Electricity Authority (NEA) is seeking a variety of different solutions to maintain and improve the electricity situation of the country.

The only way to keep the country load shedding free this coming dry season is to import more from India. The other option NEA has is to rapidly add new renewable energy generation.

The emphasis has been on large solar power plants. Such plants are relatively large (in comparison to distributed) and feed into to medium or high voltage grid.

If real full project cycle costs are compared, large solar has become competitive against hydro. But Nepal hasn't evaluated the merits and disadvantages on large solar and considered whether the unitary emphasis on large solar is the correct strategy for today – it is not!

Large solar plants though feasible may not currently be the best short-term option for Nepal because of intermittency and the state of the grid. Most likely, large solar plants if introduced into the grid without corrective modifications will lead to forced curtailment of solar, similar and larger than that currently being witnessed in India. To absorb

solar, Nepal will have to make to substantial investments in modifying its grid network capabilities, which will offset the quick start benefits of solar.

The better option for Nepal's immediate energy crisis will be **Small Distributed Captive Solar Plants (SDCSP)**. SDCSP refers to solar energy solutions that are smaller, placed at the source of the load, produces electricity onsite, is first used for the on-site load and only the excess is exported to the grid.

The case for SDCSP is strong relative to centralized large solar plants. They help reduce technical and commercial losses (it is almost 40% in Nepal) because generation is used on site.

Large solar places a heavy toll on land. Very little non-agricultural is available for solar. Diversion of agricultural land has severe implications for livelihoods, local economy and food security. These concerns may be far more damaging than improved energy supply.

SDCSP have a much larger

economic multiplier than large solar plants because it offers more employment and enables a wider trade and service ecosystem to emerge. Large solar would concentrate the economic benefits in the hands of a few.

Large solar plants are highly dependent on government tenders, policies and processes. These processes are so slow that it nullifies the gains of quick-start to solar. On the other hand, SDCSPs can be installed independent of government. Once the net metering policy is made practical, anyone can easily install SDCSP at their site. Even without net metering or any policy, entities can generate their own electricity and use it for day time load (though they cannot export). My case is not SDCSPs will solve all energy problems. The problem of peak load, storage systems and many more will still need to be solved. But in today's context, SDCSPs makes more sense as an immediate solution to our immedi-

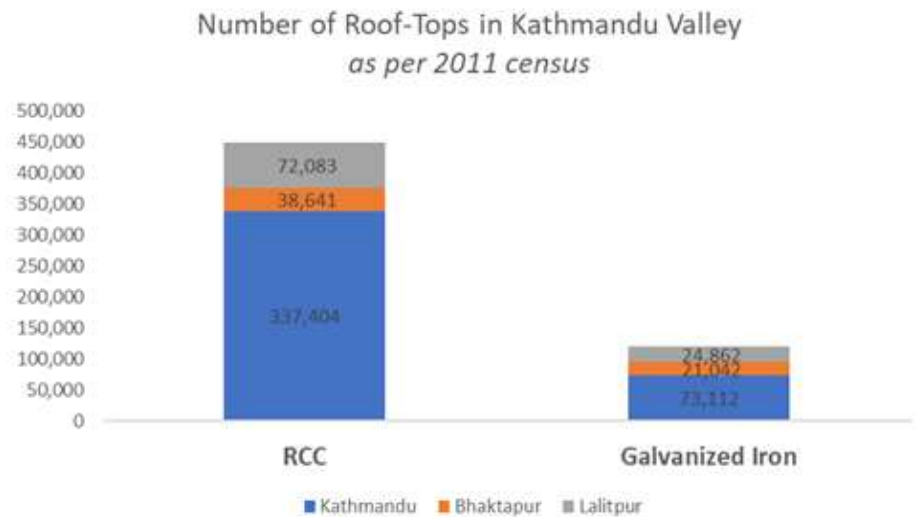


Figure 1 Kathmandu Valley Number of Roof-tops as per census 2011

ate problem.

As an Energy Service Company, we are focusing on awareness, marketing activities, financing and the right technology to encourage our customers to consider the benefits of roof-top solar even without government intervention. In most cases, on-site solar generation is highly profitable for end-users.

(To view the full article, please visit the link below.)■



The author is Mr. Aashish Chalise, Head of Operations at Saral Urja Nepal, an EDC Member Organization.

NEPAL'S SCENARIO

Universal access to electricity: Nepal on track to achieving target by 2030

84.9 percent of population has access to electricity

Micro-Hydro programme has emerged as a successful scheme

Close to achieving access to electricity above the other developing countries

Increasing the resources available for investment critical to meet SDG Goals 7



Nepal and Bhutan appear well on track towards achieving universal access to electricity by 2030, according to the latest report on transformational energy access of the Least Developed Countries (LDCs), which has reviewed 47 LDCs.

The 'Least Developed Countries Report 2017: Transformational Energy Access', published on Tuesday by the UN Conference on Trade and Development (UNCTAD), shows 84.9 percent of population in Nepal has access to electricity. According to the report, Nepal's

access to electricity in the urban areas has reached 97.7 percent of the total population in 2014, up from 94 percent of population in 2010. Likewise, in rural areas, access to electricity reached 81.7 percent of the population in 2014 from 62.1 percent in 2010. The report highlights that Nepal's micro-hydro village electrification programme has emerged as a successful scheme for scaling up the deployment of mini-hydro systems. The report said Nepal is close to achieving access to electricity above the other developing countries (ODCs) averaging 90 percent.

It said the 26- percent point improvement in electricity access in LDCs between 1990 and 2014 represents a greater absolute increase than the 20-point increase achieved by other developing countries (ODCs). Asian countries on the list of LDCs for 2017 include Nepal, Afghanistan, Bangladesh, Bhutan, Cambodia, Laos and Myanmar.

Achieving universal access to modern energy globally is therefore critically dependent on achieving it in LDCs, it said. "But for most of them, doing so by 2030—the target year for achieving the SDGs-

ACCESS TO ELECTRICITY IN ASIAN LDCs (IN %)					
Country	Access to electricity (total population)	Urban		Rural	
		2010	2014	2010	2014
Nepal	84.9	94.0	97.7	62.1	81.7
Afghanistan	89.5	82.8	98.7	32.4	87.8
Bangladesh	62.4	90.1	90.7	42.5	51.4
Bhutan	100	97.5	100	74.4	96.0
Cambodia	56.1	91.3	96.9	18.8	49.2
Laos	78.1	90.9	94.7	56.6	68.1
Myanmar	52.0	89.0	85.5	34.3	49.0

(Source: UNACTAD)

will be an enormous challenge.” Despite an impressive rate of progress in recent years, only four of the 47 LDCs could achieve universal access to electricity by 2030 without an acceleration of the rate of increase in access, while only seven more could do so even if they doubled their current rate of progress.

In nearly a quarter of the LDCs, by contrast, achieving universal access by 2030 would require the number of persons gaining access annually to be 10 times higher in the coming years than over the past decade, the report said. While the LDCs have made great strides in recent years, achieving the global goal of universal access to energy by 2030 will require a 350 percent increase in their annual rate of electrification, it said.

Increasing the resources available

for investment in LDCs’ electricity sectors will thus be critical to the fulfilment of Sustainable Development Goals 7 to achieve energy access to all.

Micro-Hydro electrification success hailed

KATHMANDU: Researchers and practitioners have proposed drawing lessons from Nepal’s Micro-Hydro Village Electrification success. The Micro-Hydro Village Electrification in Nepal, started in the early 2000s with the long-term financial support of large institutional donors, has emerged as a successful scheme for scaling up the deployment of mini-hydro systems, according to UNACTAD. Under the Rural Energy Development Programme of the United Nations Development Programme (UNDP), the village electrification project is aimed at deploying community-based micro-hydro systems rang-

ing from 10 kW to 100 kW. Project implementation was decentralised to local governments setting up micro-hydro functional groups in each targeted community. By 2014, more than 1,000 microhydro systems had been installed, with total generating capacity of 22 MW, providing off-grid electricity access to 20 percent of the population. (PR)

- 84.9 percent of population has access to electricity
- Micro-Hydro programme has emerged as a successful scheme Close to achieving access to electricity above the other developing countries
- Close to achieving access to electricity above the other developing countries
- Increasing the resources available for investment critical to meet SDG Goals 7

By 2014, more than 1,000 microhydro systems had been installed. (To view the full article, please visit the link below.)■

ADB appoints Khamudkhanov new country director for Nepal



Kathmandu: The Asian Development Bank (ADB) has appointed Mukhtor Khamudkhanov as new Country Director for Nepal.

Khamudkhanov will lead ADB operations in Nepal and oversee the formulation and implementation of ADB's Country Partnership Strategy, which aims to support the country's long-term development needs through infrastructure, human capital and private sector development, and regional integration and social inclusion.

"ADB has an extended development partnership with Nepal," said Khamudkhanov. "My priority is to build on that partnership, work closely with the government, and effectively coordinate our country office's extensive support to the government's development

agenda and poverty reduction efforts."

Khamudkhanov, an Uzbek national, joined ADB in 2001 and has since held numerous leading positions. Prior to this appointment, he served as Principal Energy Specialist in the Energy Division for South Asia at ADB headquarters in Manila, Philippines. From 2007 to 2011, Khamudkhanov was Senior Energy Specialist and prior to that he held a position of Senior Policy and Planning Specialist in the Strategy and Policy Department. He has also served as Deputy Director and Chief Expert in the Division for Cooperation with International Financial and Economic Institutions in the Cabinet of Ministers of Uzbekistan.

He holds a Ph.D. in Technology (Electrical Engineering) from Tash-

kent State Technical University, Uzbekistan, and a Master's degree in International Affairs (Economic Policy Management) from Columbia University, New York. He also holds a Master of Science degree in Financial Management from the University of London.

Khamudkhanov replaces the outgoing Country Director Kenichi Yokoyama, who served in Nepal from 2011 and is now Country Director at ADB's India Resident Mission.

Nepal is a founding member of ADB, which, to date, has provided the country with \$5 billion in public and private sector loans, technical assistance, and grants.

ADB, based in Manila, is dedicated to reducing poverty in Asia and the Pacific through inclusive economic growth, environmentally sustainable growth, and regional integration. Established in 1966, ADB is celebrating 50 years of development partnership in the region. It is owned by 67 members—48 from the region. In 2016, ADB assistance totaled \$31.7 billion, including \$14 billion in cofinancing.

(To view the full article, please visit the link below.)■

Un-interrupt the flow



The hydropower sector in Nepal is rapidly expanding with the pouring investments in hydropower projects and consistent management of generated electricity – more than 150 hydro projects from private sector are under construction with the combined capacity of more than 3,000MW along with other projects submitted to NEA for PPA with combined capacity of 5,500MW. As a result, the country is unburdened from the problem of load shedding that harshly affected people's life and stunted the industrial production within the country for a long time. However, Nepal is far away from being self-reliant in electricity generation especially in the light of the recent

political development as all hopes lie on the construction of big scale projects like Budhigandaki, West Seti, Upper Tamakoshi, *et cetera*.

Like every other productive sector in Nepal, the hydropower sector has not been able to fully operate under its true potential as it is also a victim of political instability, lack of leadership, unreliable environment for investment and ill-intended political interference. Instead of navigating a proper course for the growth of hydropower sector, the political leadership has further halted successive progress and incapacitated the bureaucratic channel through political lobbying. Therefore, it's high time that political establishments stop unwarrant-

ed intervention in the hydropower sector and develop proper policies to further strengthen the hydro sector in Nepal by ensuring that big scale projects are under operation and completed in stipulated time.

Fate of Budhigandaki project

The government has decided to use domestic investment for the construction of 1,200 MW Budhigandaki Hydro Power Project which is based on reservoir model. A cabinet meeting held on November 24 decided to form the project on Engineering, Procurement and Construction (EPC) model.

Earlier, the government had annulled the contract awarded to Chinese Gezhouba Water and Power (Group) Co Ltd (CGGC) for the construction of 1,200 MW Budhigandaki Hydro Power Project on November 12. Before that the Pushpa Kamal Dahal-led government had handed over the Budhigandaki project to the Chinese company with Minister for Energy Janardan Sharma signing a memorandum of understanding (MoU) on June 4.

The much-talked about hydro

project was supposed to be built in Engineering, Procurement, Construction and Financing (EPCF) model which ensures that Gezhouba itself generates the required fund for the project without any involvement of Nepal. Under this provision, the Chinese government had also agreed to provide fund to Gezhouba through the Export-Import Bank of China.

However, the MoU with the Gezhouba came under severe criticism over the decision to directly award the contract to Chinese firm with negative track record in Nepal by boycotting the competitive bidding process. Stressing that the assignment of contract to Chinese firm lacks transparency, breaches the legal procedure and Public Procurement Act, the parliament's Agriculture and Water Resources Committee and Finance Committee had ordered the government to scrap the MoU and focus on building the national pride project through national investment.

With the cabinet's decision to construct the Buddhigandaki project through domestic investment and technology, it is important to note that political willingness and com-

mitment is compulsory for the success of the project. Dinesh Kumar Ghimere, Joint Secretary at Ministry of Energy (MoE) said, "The contract with the Chinese company has been annulled and the government has decided to construct the Buddhigandaki project through domestic investment under the EPC model. A special committee will be formed to study the financial as well as technical aspects of the project and the project will further move ahead with the findings derived from the study carried out by the committee."

The project is expected to cost around Rs 260 billion as per the study conducted by French company, Tractebel Engineering. Meanwhile, Nepal Oil Corporation (NOC) has collected Rs 13 billion from consumers for the proposed project in the past 16 months. Former finance minister, Bishnu Paudel had included the provision in the annual budget of fiscal year 2016/17 to collect infrastructure tax of Rs 5 on each litre of diesel, kerosene, petrol and aviation turbine fuel sold for the Buddhigandaki project which was touted as the key project to solve energy crisis in

Nepal.

Speaking with the *THT Perspectives*, Shailendra Guragain, President of Independent Power Producers Association of Nepal (IPPAN), said, "The decision to develop Buddhigandaki project with national investment instead of depending upon foreign players is a positive development. It is important to note that previously the contract was awarded to the Chinese firm without adhering to the right procedure. Recently, the contract was scrapped in the form of political revenge which clearly exhibits the short sightedness and lack of seriousness in political leadership. So, political willingness and firm decision making is necessary for the completion of Buddhigandaki project."

(To view the full article, please visit the link below.)■

GLOBAL PERSPECTIVE

Can Japan burn flammable ice for energy?

Japan's relationship with the energy sector is, at best, complicated.

Having virtually no oil, coal or natural gas to fire its power plants, Japan was forced to import over 90% of its energy in 2014. It is the world's third largest importer of oil and coal, and the number one importer of liquefied natural gas.

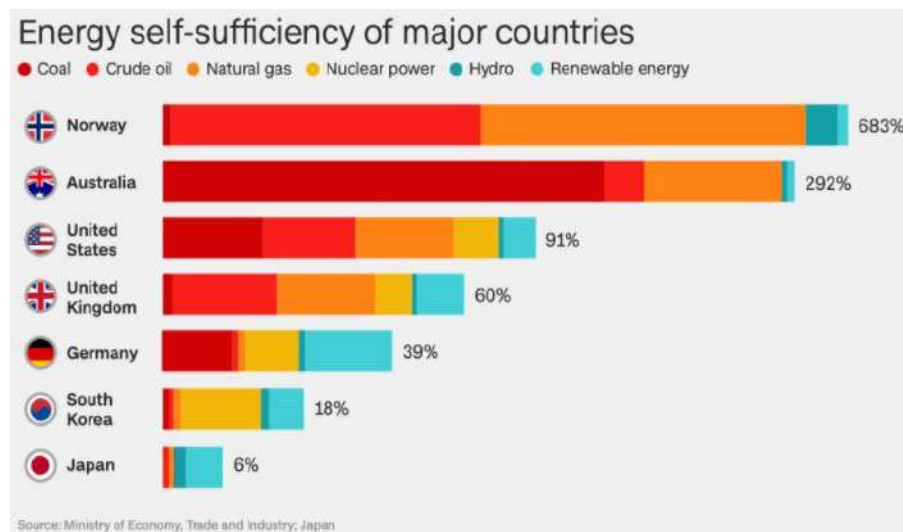
In 2016, its gas bill was \$28.9 billion.

Furthermore, its 50-plus nuclear reactors, once considered a brilliant solution to its energy resource dearth, today mostly stand idle following the devastating Fukushima Daiichi nuclear power plant meltdown, in 2011.

But Japanese scientists may have found an innovative end to the country's energy woes.

They are pioneering a new technology that could reshape the global energy industry. Even better, a technology that revolves around a resource which Japan has in abundance buried under the ocean.

The Japanese government wants



to burn "flammable ice" for energy.

A new type of energy

Worldwide there are up to 2,800 trillion cubic meters of methane-bearing gas hydrates – a frozen mixture of water and natural methane – according to the United States Energy Information Administration.

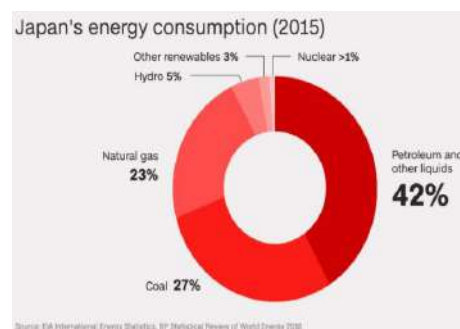
Vast reservoirs of this resource are found where high pressures and low temperatures combine – i.e. buried inside thick Arctic permafrost and under deep ocean floors.

Possibly the planet's last great source of carbon-based fuel, gas hydrates are thought to contain more energy than all the world's other fossil fuels combined.

So far though, no one is close to

being able to extract it commercially.

Japan is trying. Between 2002 and 2017, its government spent around \$1 billion on research and development, according to the Ministry of Energy, Trade and



Industry.

"There are two reasons the government wants to develop this technology," says Ryo Matsumoto, professor of geology at the Gas Hydrate Laboratory at Tokyo's Meiji University.

"The first is to secure energy resources – if they can exploit a domestic resource they will increase their energy security. The second is that they are trying to decrease carbon dioxide emissions from fossil fuels."

Natural gas consumption emits roughly half the amount of carbon dioxide that coal does.

"Because natural gas is a cleaner source of energy, Japan wants to increase the proportion of natural gas used in the entire energy structure."

different from something you might use to chill a cocktail, but the similarity stops there.

These ice crystals hold a remarkable quantity of natural methane gas. It is estimated that one cubic meter of frozen gas hydrate contains 164 cubic meters of methane.

Hold a match to the ice and the gas ignites so that instead of melting, it burns. The problem with gas hydrates is that the gas is hard to extract.

The first step, however, is to find

Japan Sea side," says Matsumoto.

Engineers have so far focused on Nankai Trough, a long, narrow depression 50 kilometers off the coast of central Japan, which had been extensively surveyed over many years.

Analysis of extracted core samples and seismic data has revealed that 1.1 trillion cubic meters of methane – enough to meet Japan's gas needs for more than a decade – lies below the floor of the trough.

First Extraction

In 2013, MH21 (Research Consortium for Methane Hydrate Resources), a Japanese government-funded research group that brings together industry experts, scientists and policymakers, conducted the world's first extraction tests.

The team positioned the drillship, Chikyu, over a formation called the Daini Atsumi Knoll that lies 1,000 meters under the sea, south of the Japanese city of Nagoya.

(To view the full article, please visit the link below.)■



A scientist holds marine natural gas hydrate trapped in icelike crystals, extracted from the seabed of the Shenhu Area of the northern South China Sea. Similar marine natural gas hydrates have been extracted from Japan.

Flammable ice doesn't look that different from something you might use to chill a cocktail, but the similarity stops there.

What is flammable ice?

Flammable ice doesn't look that

the hydrates. In Japan, that's not hard.

"Japan is rich in reserves within its exclusive economic zone on both the western Pacific Ocean side and along the eastern margin on the

Paris aims to eliminate gas-powered cars by 2030

Paris Mayor Anne Hidalgo said that reports she plans to ban all diesel vehicles from the French capital by 2024, and gas-powered cars and trucks by 2030, are inaccurate and that she hopes a new regime of incentives aimed at encouraging the use of electric vehicles will achieve her pollution-fighting goals.

“The future climate plan in Paris does not provide for a ban,” she said.

City hall is not talking about a “ban”, but it instead plans to put incentives in place to electrify its car fleet over the next decade to achieve the goal.

Christophe Najdovski, an official responsible for transport policy at the office of the mayor, announced the incentive program Thursday.

Najdovski told Reuters that the move “is about planning for the long term with a strategy that will reduce greenhouse gases.

“Transport is one of the main greenhouse gas producers...so we are planning an exit from combustion engine vehicles, or fossil-energy vehicles, by 2030,” he said.

According to Hidalgo, Paris has been working towards a climate-friendly air energy plan since November 2016. The plan will be submitted to the Paris Council in

November.

As part of the plan, Paris will be a

carbon neutral city by 2050 in all areas. The goal is to see the end of diesel engines in Paris by 2024 and petrol by 2030.

This is in keeping with the plan announced by Nicolas Hulot on July 9, 2017, to end the use of thermal vehicles throughout France by 2040.

However, Hidalgo stated, “No prohibition or penalty measures are included in this new climate plan for territorial energy in Paris. In order to achieve the goal of an end to thermal engines in 2030, we have decided to invest in the development of alternatives and in strengthening financial aid that enables individuals and professionals to purchase clean vehicles.

Indeed, the transport sector is in the middle of a revolution. In recent months, many car manufacturers have announced their decision to invest in electric vehicles and gradually disengage from diesel and petrol.”

The mayor went on to stress that public transport in the area is

growing rapidly and many cycling routes have been upgraded, encouraging more citizens to make use of bicycles.

Hidalgo concluded, “As a result, you are more and more likely to abandon the polluting car to use clean transport modes and the city of Paris will continue to accompany you and help you, to ensure that this evolution of transport modes is the best for you.”

(To view the full article, please visit the link below.)■

Honda to halve electric cars' charging time to 15 minutes



Honda CEO Takahiro Hachigo presents the Japanese automaker's latest electric concept car.

TOKYO – Honda Motor aims to roll out electric vehicles capable of 15-minute charging in 2022, cutting down one of the steepest hurdles to the expansion of battery-powered cars.

The Japanese automaker plans to release in that year a selection of fully electric cars that can run 240km on a single 15-minute charge. Most electric vehicles now available take at least twice that long to reach an 80% charge even using a high-speed charger.

Key to this plan is developing a new type of high-capacity battery that can handle the ultra-quick charging. The carmaker sources batteries for its electric-gas hybrid vehicles from Panasonic and others, but plans to create the new

batteries in collaboration with a partner to be chosen later. A lighter vehicle body and more efficient power control system will ensure the new cars can go farther on a single charge.

Before then, Honda plans to release mass-market electric vehicles in Europe in 2019 and in Japan the following year.

Fast chargers in Japan now provide a maximum output of 150kW, but industry plans call for raising that to 350kW starting in 2020. Europe is expected to have a network of several thousand 350kW charging stations by that year. Honda's next-generation electric vehicles will take advantage of this faster charging infrastructure.

Nissan Motor's new 2018 Leaf will also offer quicker charging times

than the current model and range 30% longer – more than 500km on a single charge. The automaker has a head start on Japanese rivals Honda and Toyota Motor in mass-market electric vehicles.

There were 470,000 electric vehicles on the world's roads in 2016, according to Tokyo-based research firm Fuji Keizai, making up 0.5% of the total. That share is expected to climb to only 4.6% by 2035. By offering faster charging and longer range, Honda hopes to give its electric cars an edge with everyday drivers.

(To view the full article, please visit the link below.)■

Microgrids, Solar, Energy Storage Could be foundation of Puerto Rico's Energy Recovery



The devastation wrought by Hurricane Maria in Puerto Rico is an ongoing humanitarian crisis that underscores the vulnerability of traditional power grids in the face of an unprecedented Atlantic hurricane season. While Texas and Florida both saw widespread electricity issues with Hurricanes Harvey and Irma, Puerto Rico was dealing with a bankrupt power utility and widespread transmission problems even before the first raindrop fell.

More than a week after the record-breaking storm, a full 95 percent of the island's 1.4 million power customers remain in the dark. Puerto Rico Electric Power Authority (PREPA), the main island electricity utility, estimates it has lost 80 percent of its transmission and distribution infrastructure.

According to the U.S. Department

of Energy (DOE), 47 percent of Puerto Rico's electricity comes from petroleum, 34 percent from natural gas, 17 percent from coal, and 2 percent from renewable energy.

What is less known is that the island territory has seen growing investments in solar, since it generates cheaper electricity than the aging oil and coal-fired power plants that provide the bulk of the territory's electricity and could provide consumer relief from the second highest electricity costs in the U.S. behind Hawaii.

According to the DOE, solar power is Puerto Rico's fastest growing renewable resource with 127 MW of utility-scale solar PV generating capacity and 88 MW of distributed (customer-sited, small-scale) capacity.

In June 2017, three-fourths of Puerto Rico's solar generation

came from utility-scale facilities and one-fourth from distributed solar panels on the islands' homes and businesses. The largest solar farm at Isabela has 45 MW of capacity and came into service between September 2016 and May 2017, doubling PREPA's solar generation over that period. It is not yet known how much damage the solar farm received as a result of Maria.

On Friday, Puerto Rico Gov. Ricardo Rosselló told reporters he was considering the rapid development of microgrids incorporating renewable energy and small-scale power plants and energy storage as a way to help the island recover more quickly and become more hurricane resistant.

"We can start dividing Puerto Rico into different regions. ... and then start developing microgrids," Rosselló told CNBC. "That's not

going to solve the problem, but it's certainly going to start lighting up Puerto Rico much quicker."

While the microgrid strategy may become an element of the future rebuilding effort, private industry and non-profits are moving ahead with their own plans.

Bloomberg News reported on Oct. 2 that Sonnen GmbH, a German provider of energy-storage systems, is planning to install microgrids to provide electricity for at least 15 emergency relief centers in hurricane-ravaged Puerto Rico.

The company began delivering its storage systems to Puerto Rico last week and expects to deliver at least one shipment each week as the island's ports reopen, the company said in an emailed statement Monday.

Additionally, Resilient Power Puerto Rico, a project of the Coastal Marine Resource Center (CMRC), was launched in the hours following Hurricane Maria's devastating strike on the island of Puerto Rico. Building on the model of the CMRC's successes with the Power Rockaways Resilience project after Hurricane Sandy, Resilient Power

Puerto Rico starts with nimble, targeted efforts to deliver solar generators to the most under-served areas of Puerto Rico.

The solar hubs will address the basic needs to charge up devices and tools, boost communications, filter water, and connect with neighbors in a space that is bright throughout the day and night. The solar hubs are being prototyped in Santurce (a district of San Juan), which will be scaled up to be based in Caguas, a city in the central mountain range of the island when they have more resources. These hubs, if effective, will be able to provide limited power to the residents of small towns around the island as the grid is restored.

The recovery from Maria's devastation is an opportunity to dramatically increase the availability of solar power and energy storage in Puerto Rico. Federal recovery funds should be earmarked for solar and energy storage to improve power generation and reduce Puerto Rico's reliance on the legacy power plants and island-crossing transmission lines, which

proved so vulnerable to the recent hurricane.

(To view the full article, please visit the link below.)■

Grids of the Future: Villages embracing 4th Industrial Revolution faster than cities



I was recently reading an article on the Grid of the Future where prosumers are both the producers and consumers of the power. It talks about how people will be able to use decentralized microgrids and not be dependent on centralized grid infrastructure for their energy needs. But if you look at the villages in rural India, Bangladesh and Africa, they seem to be already doing that.

Energy Innovation

Global Himalayan Expedition, a social enterprise from India is working towards providing energy access to the remote mountain communities. They are moving communities away from kerosene

(Pre-industrial Revolution) to the technology of the 4th Industrial Revolution using decentralized microgrids to power up their houses with the latest LED lighting technology.

Compared to cities, the villages are technologically more advanced than their urban counterparts. Utilizing direct current, the villagers are able to generate with a small solar panel and battery, enough energy to power up 10 LED lights, one street light, one LED TV, two fans and mobile charging points. And this load is less than a single tubelight that is shining in a New York subway station. To compare, a single tubelight is lighting up a small area in the subway station,

whereas the villager in Himalayas is lighting up her entire house with six to eight rooms and the streets outside with the same energy consumption. Don't be surprised if a villager says that she has more advanced lighting than a New Yorker.

With the focus on renewable energy and more sustainable way of feeding our energy needs, net metering comes along as a very viable option to promote renewable energy usage and the microgrids in the urban scenario.

Net metering allows people to feed energy back into the grid system, if generated using renewable energy, thereby reversing the house energy meter, resulting in less expenditure on the energy consumption. This option will reduce the stress on the grid infrastructure and incentivize the use of renewables, given the recent innovations in solar and drastic price reduction in the cost of energy generation using solar energy. India has been able to achieve a less price/watt for solar as compared to coal. Who could have imagined that 10 years ago?

Energy-sharing and Blockchain

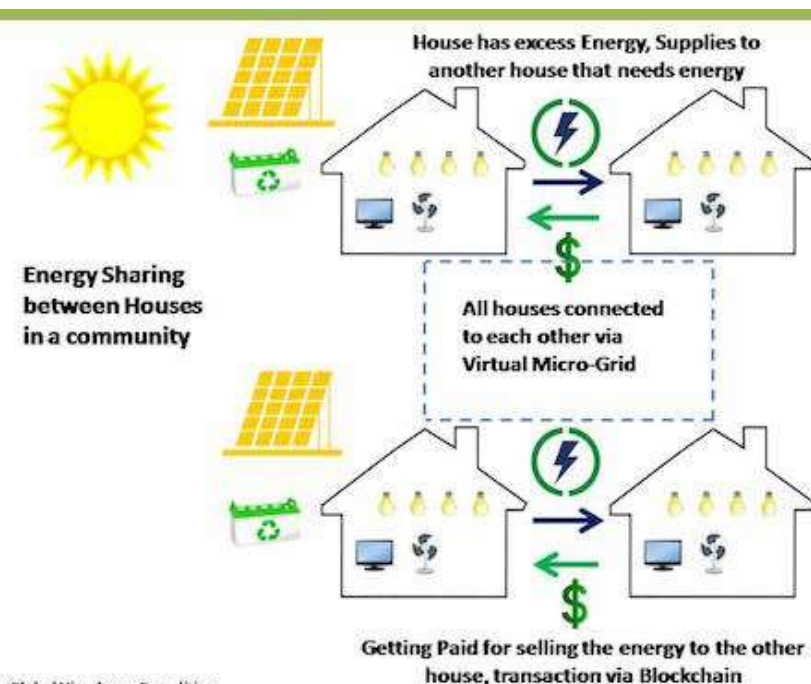
Imagine a world where houses can share energy within themselves. If you are producing excess energy, you can sell it to someone within your locality who has a demand for energy, maybe because there is a function at their home or they have guests so they need extra heating power. This energy sharing will truly revolutionize the sector as we know it, for if you are on vacation, you can basically sell all the energy that is being generated by your setup to the entire community, earning money while on vacation. Sounds science fiction, but this is where blockchain can transform the decentralized power generation. If everyone in the same community is connected together at a

local level, one owner can potentially produce more electricity because of excess production from his solar panels or less usage in the house, and sell it to the neighbor who needs excess energy.

The grids can be connected to each other via cloud into a virtual microgrid, with a real-time exchange of energy to guarantee that local production is consumed locally as well. Blockchain will allow transactions between these consumers to be settled through 'i-contracts' (intelligent contracts), which can choose for the customers where they can buy the excess energy from and how much excess they can buy from the different producers, and that transaction is registered on the blockchain.

This transaction is available to all the people in the blockchain network and makes sure that two different people cannot claim the same unit of energy produced and the corresponding monetary compensation. And this is being done at some basic level in the villages of Bangladesh, without blockchain as of now. Some companies have installed nanogrids that allow individuals to share their electricity with roughly a dozen other homes, of which some are equipped with solar panels and others not. Since homes equipped with solar home lighting often cannot even store all the energy they produce, while others don't have access to electricity at all, a few companies have come up with a solution that allows users to resell their excess energy to their neighbors in a peer-to-peer way. The transaction is done through mobile-based payments and a digital system that records the transaction from one house to the other.

(To view the full article, please visit the link below.)■



Global Himalayan Expedition

[EDC MEMBERS]



[EDC MEMBERS]



[PARTNERSHIP]



Investment Board of Nepal
Government of Nepal



中南勘测设计研究院有限公司
ZHONGNAN ENGINEERING CORPORATION LIMITED

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.

ENERGY DEVELOPMENT COUNCIL

Main Office

Heritage Plaza II (Block C & D), Kamaladi,

Kathmandu, Nepal

P.O Box no. 516

Phone: +977-1-4169116/4169117/4169118

Fax: +977-1-4169118

Email: info@edcnepal.org

Website: <http://edcnepal.org/>

Contact Office

RM 316/3 F Chinese Overseas Scholars Venture Building,
South District

Shenzhen Hi-tech Industry Park, Shenzhen, China



Click to visit