EDC COMMUNIQUE

March, 2020 | Issue No. 64

In this issue

Editorial

Energy Security amidst National Emergency

Mr. Anjal Niraula

CEO

GHAM POWER NEPAL PVT. LTD.

AN EDC MEMBER ORGANIZATION

The Covid-19 pandemic has brought the entire global economy to a grinding halt. All sectors have been severely impacted and Nepal's electricity network is no different. It will take us some time to recover from this lockdown's economic damage, but this is also an opportunity to evaluate how robust our infrastructure is to handle a crisis like this and how we can design our future systems to handle them better.

The real impact of the pandemic is still being felt and understood, but the following issues still matter the most to guarantee the energy security of our country.

Can't Afford Loadshedding during Crisis Response

The first thing that surfaced out during this crisis is that maintaining energy security should be the primary objective of any country. Imagine having to live through covid-19 pandemic during the times of loadshedding when all essential services including hospitals and communication centers relied on backup power, and we were all scavenging diesel to operate our generators. It does seem quite scary and now you appreciate even more the significance of what Mr. Kulman Ghising and his entire team at NEA have achieved in the last few years. Having "reliable and stable" access to electricity is one of the fundamental prerequisites to combat any significant crisis in a nation.

Thinking beyond Generation

Historically, a stable electricity grid is associated with having adequate supply to meet the demand. In the past couple of years, we have managed to achieve this, albeit with a significant portion of our supply being imported from India. With our domestic generation capacity on the rise, we are not very far off from being truly self-sufficient for our electricity needs.

But the imports do not stop at electricity. Getting households to switch to electricity in the kitchen would slash the import of cooking gas, which costs the country a whopping Rs 35 billion annually. Then, there is fuel for vehicles which also needs to be imported from India. What if we had more and more electrical vehicles that ran using Nepal's own electricity? There is a tremendous opportunity in increasing energy security by increasing generation capacity to reduce importing fuels.

But ensuring sufficient generation is only the first step towards ensuring reliable power supply. While often we think about power outages as moments when demand exceeds supply, this also works the other way round. When demand suddenly drops and we are not able to regulate supply, power outages can still happen. Regulating demand is the foundation of a modern electricity grid that will complement the distribution automation system that would lead to a stable and efficient electricity infrastructure.

Digitization and Data Analysis to Regulate like Champ

However, this is easier said than done. Our current distribution grid has a manual data collection system that is prone to errors. The failure rate within the distribution transformers is quite high and NEA has no mechanism to monitor their performance. The capacity of some substations is also overloaded during certain times of the day and there is no basis to monitor these changes in real time. With modest and unreliable data, it is difficult to ensure the reliability of the energy supply through such substations. As the saying goes –"You cannot manage what you cannot measure" and before reliability can be improved, we need to measure error points accurately.

Over the last few months, NEA has in fact begun the digitization efforts by installing digital smart meters. Through this effort, we are now able to monitor consumption at a scale, understand our demand patterns and introduce many smart capabilities to leverage this data to introduce demand side management.

Understanding our demand patterns will also be critical to introduce new loads to the existing

distribution system. Introducing clean cooking alone is expected to double the household electricity consumption. This increase in demand is expected to happen during peak hours of mornings and evenings when the electricity grid would be constrained. To manage this demand better, we also need to introduce diverse compensating loads (like electric vehicles, HVAC's) that operate at different times of day than mornings and evenings.

Distributed Generation and Beyond

Another possible way for NEA to enable smarter regulation could be to incorporate distributed assets such as solar and storage into its distribution network. There has been significant evidence from research around the world that shows that distributed systems help reduce network losses, minimize peak power flows, and increase system efficiency. If storage assets are maintained at strategic locations, then they can help ramp the electrical power up and down as needed to effectively tackle the instant demand fluctuations, and also improve the power supply's reliability and stability. Storage could further help introduce redundancy to these distribution networks and also stabilize the grid.

When we envision our electricity grid of tomorrow, RELIABILITY should be the key consideration. And it is high time for all energy sector players to look into this critical issue and bring this to the attention of all stakeholders and policymakers alike.

MEMBER UPDATES

March, 2020

BO2 invests in Saral Urja Nepal Pvt. Ltd.

As an institutional investment partner, BO2 has concluded a new round of equity investments in Saral Urja Nepal Private Limited (SUN), a privately held distributed energy services company in Nepal. SUN has pioneered distributed rooftop under 'RESCO' model in Nepal and BO2 investment will now position the firm for 1.5 MW of distributed rooftop system. This private sector movement will help Nepal bring diversification to the energy mix. It will also attract many other players to jointly increase participation of distributed solar in nation's energy mix.

SUN helped pioneer solar rooftops in Nepal under a commercial model that allows customers to avoid the upfront investment. The company is using its long term energy service contracts to do more than supply renewable energy (RE), and are using the platform of distributed RE to help customers manage their energy use through a combination of Produce, Reduce & Offset- "Saral PRO" - a pathway for cost reductions and sustainability for energy users in Nepal.

MEMBER UPDATES

March, 2020

Completion of 200kWp solar installation at Chitwan Medical Teaching Hospital

Gham Power Nepal completed the 200 kWp solar installation at Chitwan Medical College Teaching Hospital (CMCTH). The medical institute will now be able to save millions of rupees in energy costs in the long run. Located at Bharatpur, CMCTH provides quality healthcare services to approx. a quarter of a million people a year with more than 1500 patients every day. The solar system will power various medical equipment and assist in providing health services.

GLOBAL PERSPECTIVE

29th March, 2020

HOPE IN THE HORIZON: HOW COVID-19 CAN SHAPE THE FUTURE OF ENERGY

2020 is a significant year. For a start, it marks the beginning of a new decade and a new chapter in the time horizon. At the start of 2020, the Chinese ushered in the Lunar New Year of the Rat. The Rat is the first of the 12 animals cycle of the Chinese Astrology. In this regard, 2020 is truly a year of new beginning.

The Pandemic

However, little did we know that the year of the Rat can be so disruptive. At the time of writing this blog, most parts of the world are either in partial or complete lockdown due to the widespread of COVID-19 outbreak. As such, I have more time to ponder over how this pandemic is shaping the future, particularly the future of energy. And time is an interesting dimension of life. According to John Archibald Wheeler, time is what prevents everything from happening at once. True. But I concur with Amy Harder that in recent days everything seems to happening "all at once". At least the bad ones: the global economic crisis, the eroding price of oil, the loss of jobs, the loss of life, and for most of us, the need to stay at home just to save the world.

What insights do we gain out of the pandemic?

After a cup of coffee and much gazing into the clear blue skies from my balcony, here are my thoughts:

Decarbonization

Because of the pandemic, pollution and CO2 emissions in countries with heavy reliance on fossil fuel have witnessed a sharp drop. News source reported that China's CO2 emissions was likely to have dropped by 25% just four weeks after the Chinese Lunar New Year while researchers in New York told the BBC their early results showed carbon monoxide mainly from cars had been reduced by nearly 50% compared with last year. And that's the good news. For a moment in time, we have the privilege to enjoy living in a cleaner air environment.

But the bad news is that this is only temporary. Once the economy picks up, its back to polluted air. But clean air is possible. With deep electrification of other sectors such as transportation and energy intensive industries, we can achieve this. In fact, there is a strong trend that shows that deep electrification is taking place. A presentation by EPRI in a recent webinar organized by IRENA showed that efficient electrification can have growth up to 52% from 2015 to 2050 under

the Transformational Scenario in the United States (Exhibit 1). While this represents a positive trend, how will the recent plummeting price of oil impact this transformation?

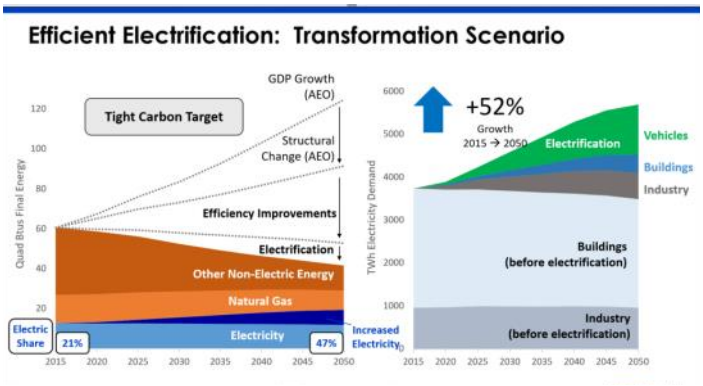
Double whammy of Plummeting Oil price

It's been more than two weeks since I last drove my little red car. The world has witnessed plummeting oil price in recent weeks caused by the severe drop in demand due to COVID-19 pandemic that puts a halt in non-essential travels including driving on road. Aside from the pandemic, the oversupply is exacerbated by the trade war between Saudi Arabia and Russia. With such low oil price and government's shift of focus to revive the economy, will this impede energy transition? In fact, some analysts are of the view that the low oil prices offer opportunities for governments to reform their fuel subsidies without significant impact to consumers. In Malaysia, it is projected that such subsidy removal can result in an estimated savings of RM6 billion by the government. This presents an opportunity for governments to carry out a subsidy swap from fossil fuel to green energy. In fact, this opportunity can be meted out in stimulus economy packages that are very much in need to revive a flagging economy.

Transitioning towards a green economy

Economic Stimulus Package: By now most governments have developed and announced their economic stimulus packages and some have even announced a series of packages that commensurate with the severity of the pandemic situation. As governments round the world took turns to announce their economic stimulus packages, we are reminded that economic stimulus packages should embody means to a sustainable end rather than an end by itself.

Screenshot of IRENA's webinar: Presentation by EPRI



Economic package is costly and yes, the Iron Lady was right. Governments are duty-bound to make the best use of taxpayers' money. If the economic stimulus package is well developed, this could help shape a more sustainable economy that also aligns with the climate agenda. The COVID-19 pandemic is somewhat of an accelerated snapshot of what a climate crisis could possibly be like in the future. This crisis includes resource scarcity such as food, medical needs, and jobs. Much like the COVID-19, the climate crisis will imply a struggle for basic human survival.

Making the best use of Creative Disruption

According to Dr Fatih Birol, the economic stimulus package provides government an excellent opportunity to accelerate energy transition. In fact, several countries have already included this measure. For instance, Malaysia's economic stimulus package encompasses the roll-out of 1,400 MW of solar photovoltaic (PV) to be awarded with an estimated private capital investment of nearly RM5 billion and

an opportunity to create 25,000 jobs. Australia's economic stimulus package also includes tax deduction incentives for solar PV for the commercial and industrial sectors. Such measures leverage on the fact that solar PV rooftop market provides significant employment and the rapid decline in the cost of solar electricity can help the economy to rebound in a manner which aligns with the climate agenda. This is an opportune moment to apply Joseph Schumpeter's creative destruction theory for a timely disruptive and yet a positive transition towards a greener economy.

Digitalization

Without a shadow of a doubt, the combination of electricity and internet have become a critical platform for many of us to communicate while observing social distancing. Digitalization has become our window to the outside world and connects us in a virtual manner so non-essential business operations can continue to operate remotely, daily news can be communicated to the public and online social communications help us to remain connected with distant loved ones.

It is essential that during times like this, knowledge continues to grow through webinars and virtual conferencing. It is also times like this when digitalization and automation of offices, especially the manufacturing and their supplier chains, be implemented as part of a sustainable business continuity plan. Within the electricity sector, digitalization will continue to underpin and shape the future of energy. Intelligent building energy management systems coupled with the rise of solar prosumers enabled by innovative policies such as (virtual) net metering can help consumers to reduce their electricity bills in moving towards a more affordable and greener living. This can also help to reduce government's obligation to bear discounts in regulated electricity tariff in future crisis as the sun will always shine regardless of any situation.

23rd March, 2020

TOYOTA AND HINO TO JOINTLY DEVELOP HEAVY-DUTY FUEL CELL TRUCK

Toyota City, Japan, March 23, 2020—Toyota Motor Corporation (Toyota) and Hino Motors, Ltd. (Hino) have agreed to jointly develop a heavy-duty fuel cell truck, and to proceed with initiatives toward its practical use through verification tests and other means.

Toyota and Hino are determined to take proactive action toward resolving global environmental issues as one of the most important corporate tasks. The two companies have declared ambitious goals to reduce CO2 emissions by 2050 and are developing electric vehicle technologies for widespread use in society. In order to achieve further reductions in CO2 emissions, major improvements will be required in the environmental performance of heavy-duty trucks, which account for about 60 percent of the total CO2 emissions from commercial vehicles in Japan.

For the electrification of commercial vehicles, the optimum powertrain must be adopted to ensure both outstanding environmental performance

and just-right practicality as a business vehicle in terms of cruising range, load capacity, and other aspects depending on the usage. Heavy-duty trucks are typically used for highway transportation; therefore, they are required to have sufficient cruising range and load capacity as well as fast refueling capability. For this reason, fuel cell vehicles that run on hydrogen with its higher energy density are considered effective.

The heavy-duty fuel cell truck in this joint development project is based on Hino Profia, and is being developed taking maximum advantage of the technologies both Toyota and Hino have cultivated over the years. The chassis is specially designed with the optimum packaging for a fuel cell vehicle, and steps are being taken through comprehensive weight reduction to ensure a sufficient load capacity. The powertrain is equipped with two Toyota fuel cell stacks that have been new developed for Toyota's next Mirai and includes vehicle driving control that applies heavy-duty hybrid vehicle technologies, developed by Hino. Also, cruising range will be set at approximately 600 km, aiming to meet high standards in both environmental performance and practicality as a commercial vehicle.

Toyota and Hino have positioned hydrogen as an important energy source for the future and have worked together on developing technologies and spreading and innovating fuel cell vehicles for over fifteen years since their joint demonstration trials of the fuel cell bus in 2003. Going forward, Toyota and Hino will further strengthen its partnership and accelerate efforts toward the realization of a hydrogen society.

5th April 2020

And So It Begins: World's 11th Biggest Economy Pitches Renewable Energy for COVID-19 Recovery

The COVID-19 outbreak has provided one last opportunity for fossil fuel stakeholders to beat back the renewable energy revolution. One especially interesting example is the notorious Keystone XL tar sands oil pipeline. The once-dormant project suddenly sprang into action last week, while protesters have been sidelined by the virus. That may be so, but the window for fossil fuels is already narrowing and it's about to slam shut. Key US states are already taking action to accelerate their renewable energy plans, virus or no virus.

World's 11th-Largest Economy Hearts Renewable Energy

One key state is New York State, which by some measures would be the world's 11th-largest economy if it was an independent country. On Friday, April 3, New York announced the passage of enabling legislation for its new clean power plans. If that date rings a bell, April 3 is the same day that seven top oil and gas executives went to the White House to discuss the plight of their industry. If that's not a clapback, nothing is.

Along with the now-familiar goal of creating

jobs and fighting climate change, the new clean power plan makes the connection between renewable energy and economic recovery from the COVID-19 crisis.

To that end, the so-named Accelerated Renewable Energy Growth and Community Benefit Act creates the nation's first ever "Office of Renewable Energy Siting." The idea is that more private sector investment will be attracted more quickly, by tailoring the state's approval process to fit renewable energy projects. The legislation also provides for reducing financial risk, helping to attract more private sector dollars that might otherwise go elsewhere.

In addition, the legislation takes grid planning and transmission into account.

Renewable energy developers anticipating a willy-nilly land rush may want to hold their horses, however. The new legislation provides for environmental oversight and community benefits. It also incentivizes renewable energy projects that repurpose abandoned commercial sites, brownfields, landfills, former industrial sites, and other abandoned or underused sites.

Walking The Climate Walk & Chewing The COVID-19 Gum

In announcing the new plan, New York seems determined to prove that it can walk and chew gum at the same time — in other words, that the public health crisis is not an opportunity to move backwards on climate action.

"We continue to act aggressively to protect the environment and our communities through our ongoing programs to reduce the greenhouse gas emissions that contribute to climate change," said New York State Environmental Commissioner Basil Seggos, even as the state continues an all-hands-on-deck effort to stop the spread of COVID-19.

A Renewable Energy Model For Other States To Follow

Don't be surprised if other states embark on a similar plan to speed up renewable energy development.

The problem is that conventional siting and permitting processes are primarily designed for large, centralized fossil fuel power plants (hydropower being a key exception). Today's wind and solar industries, in contrast, are characterized by a wide range of outputs, applications, and siting opportunities.

The pump is already primed for the idea to spread. New York is on the advisory board of the newly launched 100% Clean Energy Collaboration, a state-based effort that includes California as well as New York and other clean power leaders. The new initiative was announced by the Clean Energy States Alliance on, you guessed it, April 3.

New York was also previously tapped by the US Department of Energy to lead a national consortium to accelerate wind energy development, so there's that.

Speaking of the Energy Department and wind energy, New York and CESA were not the only ones trolling the oil and gas industry last week. The Energy Department also did its part, with not one but two separate press releases announcing new wind energy initiatives.

As for the Keystone XL pipeline, developer TC Energy (aka TransCanada) seems to have bitten off more than it can chew.

The company seemed on the verge of restarting construction last week, only to push the date back to the middle of April.

For that effort, all they got was this lousy downgrade from Moody's, which cited significant "environmental, social and governance" issues that could bleed over from the Keystone XL project to impact the company's financial stability as a whole.

Moody's sour outlook is not an outlier. Leading global investors began dumping fossil fuel stocks before the COVID-19 outbreak and the hurt isn't over yet.

If Keystone XL is the canary in the fossil fuel coal mine, it ain't over until it's over. But come on, it's over.

MEMBERS




MBK JCL

RASUWAGADHI
HYDROPOWER CO. LTD.
रसुवागढी हाइड्रोपावर कं.लि.
2011 A.D.

IDS
ENERGY



ARUN VALLEY
HYDROPOWER DEVELOPMENT CO. LTD
PRIVATE SECTOR INITIATIVE FOR HYDROPOWER PROJECT DEVELOPMENT

Himalayan
Infrastructure Fund

dantakali
Hydropower Pvt. Ltd.

Reliable
Hydropower Pvt. Ltd.

DIBYASWARI
HYDROPOWER LTD.
ESTD. 2007

Bhujung
Hydropower

NIC ASIA

CHHYANGDI
Hydropower Ltd.

सरल उर्जा
Simple Energy

SHIVA BHRIKUTI HYDROPOWER (P) LTD.
2062


bpc
BUTWAL POWER
COMPANY LIMITED

WIND
POWER NEPAL


Dudhkoshi Power Company Pvt. Ltd.
Kathmandu

RARA
HYDROPOWER
DEVELOPMENT
COMPANY

Gham
Power

CHF

NMB

LOTUS ENERGY
Solar Energy Systems

SANVI€Nergy

Peak Power
NEPAL

SUNFARMER
Powered by SunEdison Rural Energy Fund

Global IME Bank
The Bank For All

PRIME BANK LTD.

HBL
Himalayan Bank Ltd.

NABIL BANK

MEMBERS

ICTC energy

AKRAKRALA HYDROPOWER

UMH UNITED MODI HYDROPOWER

HIGH HIMALAYA HYDRO Construction Pvt. Ltd. (3HC)

COMTRONICS PVT. LTD.

Liberty Energy Company Ltd. लिबर्टी ईनर्जी कम्पनी लि.

EVEREST EQUITY

nhe

SM EVEREST ELECTRICITY PVT. LTD. NEPAL

TW TRANSWELD TRANSFORMER

WAIBA

TSN

NHA Nepal Hydropower Association

SUSHMIT ENERGY

ANK ANAK HYDRO POWER CO. PVT. LTD

Crystal Power Development Pvt. Ltd.

Sunbridge SOLAR NEPAL

CENTURY BANK सेञ्चुरी बैंक

COSMIC ELECTRICAL

NEUPANE LAW ASSOCIATES

NYADI HYDRO

ABHINAWA LAW CHAMBERS advocates & legal consultants SINCE 1981

HEC Kathmandu, Nepal 2003

Laxmi Bank

PARTNERS

Investment Board of Nepal
Government of Nepal

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

Contact Office

RM 316/3 F Chinese Overseas Scholars Venture Building, South District
Shenzhen Hi-tech Industry Park,
Shenzhen, China

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.

Click to visit