

# ENERGY COMMUNIQUE

## EDITORIAL

### Creating domestic electricity markets: An Immediate Need

For the past couple of years, things are moving in the positive direction in Nepal especially in the power sub-sector. As per Nepal Government’s plan and program in 2018, emphasis will be given to the development and expansion of hydroelectricity and all types of renewable energy to provide clean energy to all Nepali household within the coming three years and to avail electricity to all households as per demand within the next five years. Hydro and other energy-related projects will be implemented on priority and decade of 2018–2028 is to be celebrated as the **Energy Decade**. Besides, Ministry of Energy, Water Resources and Irrigation (MOEWRI) has also come out with the white paper in February 2018 focusing on power supply and electrification in the residential sector with slogans such as “ **One house, One energy house**” and “**One house, one electric cook stove**”. These slogans will be just slogans if concrete steps are not undertaken to implement them in time.

As per the annual report 2017/18 of Nepal Electricity Authority (NEA), the expected power addition will be around 2,000 MW combined from NEA and the Independent Power Producers (IPPs) within 2/3 years. This means that as per NEA, there will be surplus of power in wet season. But on the demand side, it seems things are moving very slowly. Marketing activities from the NEA are completely lacking even though there is a strong business opportunity for NEA to cash in. For the last of couple of years, due to enhanced technology innovation, thermal efficiency of electric cook stoves such as induction cooktops has improved tremendously to even above 80%, whereas LPG cookstoves remain at around 50 to 60% and traditional firewood cookstoves hovering around 10%. Furthermore, due to this efficiency measure and increase in domestic prices of other fuels, cooking on electricity has become the most economically efficient for the past several years. Consumers can save money by cooking on electricity



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Advisory Panel Member  
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#### INSIDE THIS ISSUE:

TRAINING WORKSHOP- “HYDROPOWER FINANCING & RISK MANAGEMENT”	4
USAID VISITS EDC	4
INTERVIEWS BY ENERGY FOCUS, BUSINESS TV	5
WELCOMING SUNBRIDGE SOLAR NEPAL	6

rather than on any fuels. But, unfortunately, of introduction of smart meters and smart making its distribution and transmission 80% of domestic consumers are deprived transmission lines, digitization of its lines reliable and resilient rather than of cooking on electricity as they have 5 network, optimization of its operations, focusing on power sales in the regional Ampere connections which are not suitable and use of Enterprise Resource Planning markets. Of course, Nepal has to keep the for cooking on electricity as induction (ERP) and says it is moving forward as option of regional trade of its surplus power cook tops have more than 1 kW power per the plan and programs of open but only after meeting its domestic capacity and their meters get tripped off if the Government of Nepal. But NEA seems demand.

they cook on these stoves. NEA should first to underestimate its load forecast in 2030 In a recently published paper, in focus on developing domestic markets that looks lower than the Government's order to substitute Liquefied Petroleum Gas rather than seeking opportunities outside plan of domestic consumption plan of (LPG) for cooking in the domestic markets the country for power sales, for it has to 10,000 MW. It is very noteworthy by electricity, Nepal needs around 2,000 hardly invest for switching customers from 5 that NEA's performance is improving MW by 2035. Of course, it does not cover Ampere to 15 Ampere or higher connection. and its profits are in the black for the enhanced use of electric appliances in Yes, of course, it has to get strongly the past two years since the change household sector for water heating, space involved in marketing activities in order to in top management. The reason heating and other end-uses provided the create awareness among customers and behind it is no doubt the increase in its supply become reliable and resilient. entice them to switch to high Ampere sales due to reduction in load-shedding Similarly, services sector such as hotels and connection because it will be beneficial to and power losses. Hence, rather than restaurants consume almost 50% of total customers as well as to NEA. For this, NEA current focus of sales in the regional LPG consumption in the country. We can has to revamp its current distribution markets, NEA should concentrate its imagine the increase in power needed to systems such as conductors and efforts on creating domestic markets for substitute LPG in the services sector that transformers. The current distribution sales—both in the domestic and other comes around the same as expected power systems are meant for lighting and low sectors like industries, services and demand for cooking in the household power purposes. There are news that transport. In a current visit to Biratnagar—sector. Furthermore, there are news that transformers are being burnt out Duhabi industrial areas, the author Sajha Yatayat and other transport frequently these days. Since there are no found very encouraging to know that one entrepreneurs are bringing in even large power cuts, people will try to steel industry is switching to electric electric buses to cater to the city dwellers' use household electric appliances more induction furnace in replacement of the mobility. The NEA's load forecast does not than before and if distribution capacity is conventional fossil fuels - based furnace count these issues and increases in not enhanced the result is of course and thus, requiring 20 MW for it. We can demand as its forecasting model is based frequent burnt-outs of transformers and imagine the requirements of power if all on historical data and does not take into distribution lines that happened quite the steel and cement industries were consideration the use of new energy frequently during trade blockade two years switching away to electrification from fossil efficient technologies in end-use services ago. fuels if the power supply becomes and switching to electricity from fossil fuels

NEA, in its annual report reliable and resilient. I think NEA must in the household, industries commercial 2017/18, talks about its future plan put priority on creating domestic demand, and services, and transport sectors.

Given all these issues and business and optimization in its network using smart are mentioned in the recent annual report opportunities, NEA or Distribution meters, net metering, smart distribution and 2017/18 of NEA, are to be implemented on Companies (DISCOs) if established need to transmission systems. Industries, services priority basis without delay for sustainable take following steps in order to and transport sectors will be using electric energy development and energy security in develop domestic electricity markets. equipment such as induction furnaces, Nepal. Nepal can substitute almost 50% of

First, NEA needs to revamp its electric boilers, electric cooking appliances, imports of petroleum products and coal, distribution systems because current and electric vehicles as they are thus creating a positive impact on degrad- distribution systems are meant for lighting economically efficient and produce less ing balance of payment situation of Nepal, and use of small electric appliances at the emissions but the power supply needs to be if Nepal Government, and NEA put priority household sector. If the household starts reliable and resilient. If NEA starts solar net on development of hydropower and other using electricity for cooking, using metering, almost 50% of the grid load in the renewable energy in the country. Otherwise, high- powered electric appliances such as domestic consumers can be reduced as all these hypes will fizzle out if timely washing machines, A/Cs, water heaters, consumers will be using solar rooftop PVs implementation is not carried out. micro-wave ovens and others in big for generating electricity themselves for low

numbers since load-shedding has virtually powered household electric appliances and stopped, the current distribution systems lighting and supplying surplus power to grid cannot bear out uses of these high powered that can be tapped by the neighboring electric appliances. Hence, NEA has to consumers. As per the projections from the immediately start switching the current 5 International Renewable Energy Agency Ampere connections in the domestic (IRENA), Rooftop solar PV power with battery consumer segment to a higher connections can become competitive with hydropower by of 15 A or higher without further transaction 2025. The extra grid load, thus generated, charges to consumers. NEA has to get into can be supplied to higher end consumer marketing activities such as advertisements segments such as hotels, restaurants, in the visual media for creating awareness services, industries and transport.

among consumers to switch to cooking on Third, NEA, once digitization electricity rather than on imported fossil activity is completed, can have time of the fuels, and enticing them because it has day tariff systems for even domestic become cheaper to cook on electricity consumers and services sector, and it will rather than any fuels without subsidy. These reduce the peak load during evening and marketing activities are both beneficial to morning periods and grid load will be consumers and the NEA since consumers smoothened out in the long run. will be saving their energy expenses Fourth, NEA can consider supply of and these activities will increase NEA's power in regional markets once it has met domestic sales and enhance its financial internal demand with reliable and resilient performance. supply.

Second, It must start digitization

These activities, some of which

## EDC ACTIVITIES

### USAID visits EDC

**O**n 9th October, 2018, Mr. Rob Taylor, Chief of Party, USAID Nepal Hydropower Development Program (NHDP) along with his team visited EDC office. Mr. Taylor discussed with Ms. Itnuma Subba, CEO, EDC, of the possible collaboration between USAID and EDC for conducting program on “Hydropower Financing and Risk Management”. USAID (NHDP) are willing to be one of the sponsors for the event. Mr. Hari Prasad Subedi, Electricity Sector Financial Specialist, NHDP, Ms. Pushpanjali Dhakal, Senior Procurement Officer and Office Administrator, NHDP and Mr. Samrat Roy, Senior



Manager, Deloitte were also present in this meet . They will also be sharing their expert knowledge on electricity sector regulator (ERC) and other important issues.

### EDC organizing 5 day training workshop on “Hydropower Financing and Risk Management”

**E**DC in association with International Centre for Hydropower (ICH), Norway and Nepal Bankers' Association (NBA) co-sponsored by USAID's Nepal Hydropower Development Project (NHDP) are organizing a five day training workshop on "Hydropower Financing and Risk Management" from 26th November–30th November, 2018 at Hotel Yak and Yeti, Kathmandu. The program aims to inform and capacitate the participants on hydropower project financing and how to identify and negate the associated financial risks for lenders, government, hydropower sponsors and insurance/ legal/ chartered accounting professionals.

Application is now open and available at: <http://www.ich.no/Detali/Courses/3633>. All applications for this training workshop needs to be filled through electronic application before **15th November, 2018**.

For more info & updates about the training, please do visit us at: [www.edcnepal.org/training-workshop/](http://www.edcnepal.org/training-workshop/)

## EDC ACTIVITIES

### Chairperson, EDC interviewed by Business Plus

**M**r. Sujit Acharya, Chairperson, EDC along with Dr. Govinda Raj Pokharel, Former Vice Chairperson, National Planning Commission was interviewed by Business Plus Television on 21st October, 2018. Current situation of energy sector development, impact of current policy and regulation on energy security and possibility of energy trade in future was the major topic of discussion during the program.



Mr. Acharya stressed that economy revolution could be achieved only through innovative approach via a visionary, gamechanging individuals. Mr. Acharya urged the need to reduce the number of procedural regulations that hinder the development of projects, stressing the need to cut regulation by 30%.

Source: <https://www.youtube.com/watch?v=k4Fzbe-33Cc&t=16s>

### Head of Executive Committee, EDC interviewed by Business Plus

**M**r. Kushal Gurung, Head of Executive Committee, EDC along with Er. Ganesh Shah, Former minister for Environment, Science and Technology was interviewed by Business Plus Television on 11th October, 2018. The program discussed about the current situation, challenges and opportunity in alternative energy sector in Nepal and emphasized on necessity of development of it for the energy



security of country. Mr. Gurung stated that progressive and sustainable rural electrification could be achieved by switching business model and subsidy delivery mechanism from current capital intensive subsidy to Energy Service Company (ESCO) based generation subsidy. Mr. Gurung stressed the need of implementation policy and technology for achieving the energy mix in Nepal and said that project cost is major factor that determines the ratio of alternative and hydro energy mix in national grid.

Source: <https://www.youtube.com/watch?v=sEaxn-p7p8&feature=youtu.be>

## EDC ACTIVITIES

### EDC welcomes Sunbridge Solar Nepal Pvt. Ltd. as a new member

**S**unbridge Solar Nepal Private Limited is a subsidiary company in Nepal of Sunbridge Solar LLC, United States. Sunbridge Solar are a globally-minded solar electric company based out of the Portland-Vancouver area. Our main emphasis is on designing and installing superior quality solar arrays for both residential and commercial settings in the Pacific Northwest. While we pride ourselves highly on our second-to-none installations here in Oregon and Washington, our goal for meaningful local and global impact is much broader than our bottom line. Having successful track experience in Portland – Vancouver, we started our subsidiary venture in Nepal with the aim of designing, developing and installing premium standard solar projects.





**EDC ACTIVITIES**

# TenderNotice.com.np

**Tender, Bids and Notices related to Hydro and Energy segments in Nepal  
Month : October 2018**

S.No.	Notice Publisher	Description	Published Date	Notice Category	Product Service
1	Raghuganga Hydropower Limited, Rahughat Hydroelectric Project, Kathmandu	Amendment Notice	10/30/2018	Amendment Notice	Other Product/ Services
2	Blue Energy Pvt. Ltd., Durbarmarg, Kathmandu	Execution of Civil Works	10/15/2018	Pre-Qualification	Construction/ Building
3	Tamakoshi Jalvidyut Company Limited, Tamakoshi V Hydroelectric Project, Thapathali, Kathmandu	Amendment Notice	10/11/2018	Amendment Notice	Other Product/ Services
4	SJVN Arun-3 Power Development Company (P) Ltd., Khandbari, Nepal	Supply, Transportation and Installation of Brand New Medical Items/Equipment, Brand New Television, Refrigerator, Chest Freezer, Washing Machine, Water Cooler, Electric Toaster, Inverter AC, Stabilizer etc.	10/10/2018	Tender	Other Product/ Services
5	Remit Hydro Limited, Babarmahal, Kathmandu	घर बहालमा लिन सम्बन्धी	10/4/2018	Proposal	Real Estate
6	Sanjen Jalavidyut Company Limited, Kathmandu	Standing List for Supply and Delivery of Office Accessories and Other Services	10/3/2018	Standing List	Enlistment-Multiple Category
7	Nepal Hydro and Electric Limited, Butwal	Galvanization of Steel Structures	10/3/2018	Tender	Other Product/ Services
8	Trishuli Hydropower Company Limited, Vansthali, Kathmandu	Procurement of Security Services	10/3/2018	Tender	Security
9	Trishuli Hydropower Company Limited, Vansthali, Kathmandu	Procurement of Security Services	10/2/2018	Tender	Security
10	Trishuli Hydropower Company Limited, Vansthali, Kathmandu	Procurement of Security Services	10/1/2018	Tender	Security

# MEDIA COVERAGE

## The Himalayan

### For a load-shedding free Nepal

06 | PERSPECTIVES

THE HIMALAYAN TIMES  
SUNDAY, OCTOBER 28, 2018

# ECONOMICS

## For a load-shedding free Nepal

**TO ENSURE STABILITY ON THE LOCAL ELECTRICITY GRID, SUPPLY AND DEMAND MUST REMAIN BALANCED**

Roshan Silwal  
Kathmandu

Citizens don't have to look at load-shedding schedule anymore thanks to Nepal Electricity Authority's (NEA) effort. But, can we be assured that we won't face load-shedding in the future? We don't have an answer. So, what can NEA and we do together to ensure a load-shedding free Nepal forever and after?

Demand Side Management (DSM) is one of the options implemented by the NEA to eradicate load-shedding. DSM is the process of modifying energy consumption using cost-effective conservation, efficiency and load management programmes to reduce the demand for and cost of energy services. In contrast to 'supply-side', a strategy which increases generation capacity by building new power plants, the purpose of DSM is to reduce energy use and to smooth out the daily peaks in electric energy demand to make the most efficient use of energy resources and to defer the need to develop new power plants.

To ensure stability on the local electricity grid, supply and demand must remain balanced in real time. DSM typically works

by inducing utility consumers to change their energy consumption habits and use energy-efficient appliances and equipment in the end use application. DSM is a resource option that complements power supply as well as cost savings. Meanwhile, reductions of environmental pollutions are also indirectly achieved through DSM.

As a DSM initiative, NEA at its end plans to reduce electricity losses to 10 per cent by 2020 from existing 25 per cent. It has plans to implement different programmes like automating the Distribution and Consumer Services (DCS), introducing smart metres and GIS-based monitoring of the energy supply and management. With this, technical and non-technical loss can be reduced. Similarly, NEA also plans to add new substations, transformers where ever required to curb the issue.

In the past, NEA has had to defend itself on the government's decision to buy LED bulbs from India's Energy Efficiency Service Limited (EESL). This initiation from NEA is a part of DSM, NEA is planning to procure LED bulbs and sell them to its 3.5 million customers in a bid to replace CFL

hydro highlight



and incandescent bulbs that are widely being used in households around the country. Such replacements, as claimed by the NEA, will save around 300 MW of energy during the peak energy consumption hours. The procurement process has stopped, now 300 MW shortages might hit us hard during the peak season. Who are to be blamed, is it the NEA team, procurement set or the suppliers who are working for their vested interest? Regardless, the entire nation must suffer.

As a citizen everyone should think on how an individual can

contribute by being energy efficient and saving energy. We can easily narrow the gap between demand and supply and decrease energy intensity in each sector by simple approaches towards energy conservation and efficiency through energy efficient technology and house-keeping habits.

#### ENERGY SAVING TIPS

##### Lighting

A lumen is the measurement of light output from a lamp, often called a tube or a bulb. All lamps

are rated in lumens. For example, a 100-W incandescent lamp produces about 1,350 lumens.

Another lighting term is efficacy which is the ratio of light output from a lamp to the electric power it consumes and is measured in LPW (lumens per watt).



The author is Managing Director of Comtronics Pvt Ltd, an EDC member organization

- Use of electronic ballast in place of conventional choke saves energy up to 20 per cent
  - Use of LED lamps in place of GLS lamp can save energy up to 70 per cent
  - Clean the lamps and fixtures regularly. Illumination levels fall by 20-30 per cent due to collection of dust
  - Use of 16W LED tube light instead of 40 W tubes light saves electricity by eight to 10 per cent
- Industrial sector**
- Energy management coil
  - Energy manager in the company
  - Energy audit done by accredited energy auditor
  - Use of standard machines and tools
  - Using modern and energy efficient technologies
  - Customer should be aware about of norms and standards of the product
- Agriculture sector**
- Using standard fuel-efficient pump sets
  - Proper installation of pump system
  - Strictly following the norms and standards for each equipment
- Domestic and commercial sector**
- Use of renewable energy like solar, wind, etc
  - Correct power factor
  - Use of efficient technologies like LEDs, etc
  - Switching off the unnecessary lights

Source: <http://epaper.thehimalayantimes.com/index.php?mod=1&pgnum=20&edcode=71&pagedate=2018-10-28&type=>



## NEPAL'S SCENARIO

### Electric buses in operation from Tuesday

*“Participation of private sector is necessary in expansion of electric bus service”*



Electric buses have been brought into operation in Kathmandu Valley from today with the joint initiative of Lumbini Development Trust and Sajha Yatayat. The management of the electric buses — which are disabled-friendly — will be carried out by Sajha Yatayat. He informed that Nepal Electricity Authority (NEA) would set up charging stations at 20 different places. Prime Minister KP Sharma Oli He said that government was committed to increasing the standard

According to the Executive Director of Sajha Yatayat, Bhusan Tuladhar, the bus service has begun operation under the South Asia Tourism Infrastructure Development Project supported by Asian Development Bank (ADB). Through this project, ADB has provided five buses of four-wheelers and motorcycles are plying out every day in Kathmandu Valley, of which two of the vehicles have been brought to Kathmandu to start operation and determine their functionality.

On the occasion, Prime Minister Oli stated, “It is necessary to emphasize the operation of electric buses during shortage of petroleum products,” adding thousands

Likewise, Minister for Culture, Tourism and Civil Aviation Rabinra Adhikari said that construction of Gautam Buddha International Airport—which is part of the ADB Project — would be completed within the next six months.

Source: <https://thehimalayantimes.com/kathmandu/electric-buses-in-operation-from-today/>



blockchain platform, WePower was forced to accept delays to transaction times during periods of high mining demand. Ethereum and other blockchain technologies. it has 100 percent smart meter coverage, so there is a common digital platform to

“Although the current platform and layer blockchain on and a standardized way

As a result, nearly 28 percent of its core features can run on Ethereum to share data, which is a roadblock in most transactions took longer than 10 minutes blockchain, to achieve WePower’s full other national environments,” he said.

and almost 9 percent took longer than an vision, number of different blockchains will Based on experience in Estonia, hour. be tested to find the best fit for large-scale WePower is now looking to further optimize

The balance between cost and infrastructure projects,” WePower said. its platform for large-scale commodity transaction confirmation times “has to be Despite this, Scott Clavenna, trading.

considered continuously” communicating chairman of Greentech Media at Wood The company said its system with the blockchain, WePower said. Mackenzie Power & Renewables, said the would eventually have to be scaled to

“While Ethereum is currently one project is “a pretty big deal.” five-minute energy market settlement of the most mature blockchain solutions The ability to work on a country-timeframes, millions of users and supporting smart contracts, a fully scale platform is key to testing how terawatt-hours of electricity.

decentralized application for large-scale blockchain could enable grid flexibility

autonomous usage is not yet feasible for services or any kind of localized

large-scale energy trading on the peer-to-peer power trading, he said.

blockchain,” WePower acknowledged. However, he noted, some aspects

Instead, the company said it would of the Estonian experiment might not be continue to work on “a hybrid solution” directly translatable to other markets.

while monitoring the development of “It’s a unique environment in that

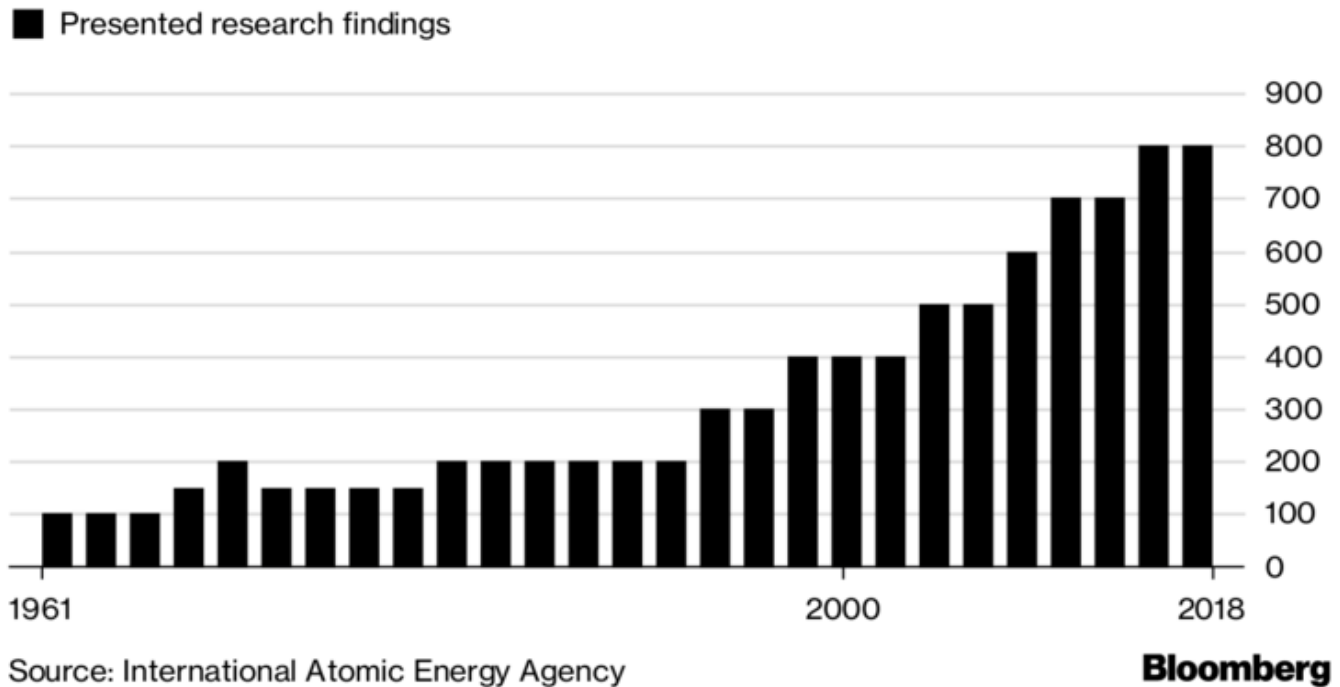
WePower eventually uploaded 26,000 hours and 24 terawatt-hours of aggregated production and consumption data to blockchain, and turned it into 39 billion smart energy tokens

Source: [https://www.greentechmedia.com/amp/article/wepower-is-the-first-blockchain-firm-to-tokenize-an-entire-grid?fbclid=IwAR2VxGD8WPX3K013leHvH5p8SxkaPqpfimaVR\\_iXZFhF5WpkECDqz7VBwfU](https://www.greentechmedia.com/amp/article/wepower-is-the-first-blockchain-firm-to-tokenize-an-entire-grid?fbclid=IwAR2VxGD8WPX3K013leHvH5p8SxkaPqpfimaVR_iXZFhF5WpkECDqz7VBwfU)

# Billionaires Chase ‘SpaceX Moment’ for the Holy Grail of Energy

## Fusion Discoveries Accelerate

Research has multiplied as private sector enters fusion landscape



Not long before he died, visionary Paul Allen traveled south of France for a personal tour of a 35-country quest to replicate the workings of the Sun. The goal is to produce clean, almost limitless energy by fusing atoms together rather than splitting them apart.

money into startups that are rushing to produce the first commercially viable fusion reactor long before the \$23 billion ITER program’s mid-century forecast. Jeff Bezos, Bill Gates and Peter Thiel are just three of the billionaires chasing what the late physicist Stephen Hawking called humankind’s most promising technology. Scientists have long known that fusion has the potential to revolutionize the energy industry, but the International Thermonuclear Experimental Reactor in Cadarache firsthand, to witness preparations “for the birth of a star on Earth.”

Allen wasn’t just a bystander in the hunt for the holy grail of nuclear power. He was among a growing number of ultra-rich clean-energy advocates pouring money into startups that are rushing to produce the first commercially viable fusion reactor long before the \$23 billion ITER program’s mid-century forecast. Jeff Bezos, Bill Gates and Peter Thiel are just three of the billionaires chasing what the late physicist Stephen Hawking called humankind’s most promising technology. Scientists have long known that fusion has the potential to revolutionize the energy industry, but the International Thermonuclear Experimental Reactor in Cadarache firsthand, to witness preparations “for the birth of a star on Earth.”

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Elon Musk’s reusable-rocket maker. “If you care about climate change you have to care about the timescale and not just the ultimate solution. Governments aren’t working with the urgency needed.” The company Allen supported, TAE Technologies, stood alone when it was incorporated as Tri-Alfa Energy two decades ago. Now it has at least two dozen rivals, many funded by investors with a track record of disruption. As a result, there’s been an explosion of discoveries that are driving the kind of competition needed for a transformational breakthrough, according to Mowry. One of the clearest measures of progress in the field was on display last week in Gandhinagar, India, where the



Vienna-based International Atomic Energy Agency held its biennial fusion forum. The conference highlighted a record 800 peer-reviewed research papers, 60 percent more than a decade ago.

Fusion itself isn't the problem. The tricky part is generating more energy than is used in the process. Such reactors have to mimic conditions found only in deep space, a much more complex and costly endeavor than fission. Heating plasma to temperatures higher than stars and then



containing the ensuing reactions inside cryogenic cooling vessels can require a million parts or more.

Even if commercial fusion takes longer than expected to achieve, many of the innovations produced along the way will prove lucrative on their own, according to IP Group Plc, a London-based investor in intellectual property. Research firms are already minting patents to protect their creations, from software that simulates plasma burning at

150 million degrees Celsius (270 million Fahrenheit) to a new type of magnet that has applications in health care.

"There'll still be significant residual value," said Robert Trezona, who oversees IP Group's investment in First Light Fusion Ltd., a company near Oxford University whose advisory board includes former U.S. Energy Secretary Steven Chu. "It would have been inconceivable for a small company like First Light to make advancements in fusion sciences 20 years ago."

One of the most ambitious

ventures is Commonwealth Fusion Systems, a company founded last year by six MIT professors. Backed by some of the biggest names in business, they're confident they'll

be able to produce a prototype of a so-called net energy reactor by 2025. The startup raised \$50 million in March from a group led by Italy's Eni SpA, one of several oil producers preparing for a carbon-neutral world. And last month it secured an unspecified sum from

Energy Ventures, a fund seeded by Gates, Bezos and fellow tycoons including Richard Branson, Ray Dalio and Michael Bloomberg, the majority owner of Bloomberg LP, the parent company of Bloomberg News. "The greater danger is not having anybody succeed than having everybody," Commonwealth Fusion CEO Bob Mumgaard said by phone from Cambridge, Massachusetts. "We need more smart

people driving very hard to crack this."

Still, ITER remains the best bet in

cheap energy on a massive scale, according to Nawal Prinja, a nuclear engineer at Aberdeen-based John Wood Group Plc and a featured speaker at the forum in India.

"They're coming up with all kinds of new ideas to make the industry more efficient, but turning ideas into a commercial station is a different story," Prinja said. Only ITER, Latin for "the way," has the resources needed to perfect the kind of reactor that can run entire cities, he said.

If so, many of today's fusion investors may not live long enough to benefit from the rollout. It's already taken ITER more than three decades just to lay the foundation of a machine designed to prove the viability of its concept. And it doesn't expect to have a reactor capable of powering a couple million U.S. households until sometime around 2050.

Tim Luce, ITER's chief scientist and Allen's host at the sprawling research facility about 50 kilometers north of

Marseille, dismissed criticism of the time



horizon. What the international effort is the tortoise and the hare and we're the finding more efficient ways to capture the Sun's energy than on trying to recreate it. trying to accomplish, he said, is simply too tortoise." Sun's energy than on trying to recreate it.

ambitious for any one actor in the private And then there's Musk, a serial innovator "We've got a giant thermonuclear sector. who thinks the whole fusion crowd is reactor in the sky," Musk said. "It shows up

"These other competitors have a vision for barking up the wrong tree. In a weed-and- every day very reliably. If you can generate doing something smaller, but I haven't seen whiskey podcast that went viral last month, solar panels and store it with batteries, you a compelling piece of physics that shows the Tesla and Solar City co-founder said can have it 24-hours a day." they can do it," Luce said. "It's the story of smart money like his is better spent on

Source: <https://www.bloombergquint.com/technology/nuclear-fusion-financed-by-billionaires-bill-gates-jeff-bezos>

## Ethiopia Launches \$7 Billion Energy and Road Projects

Ethiopia launches \$7 billion The 17 projects are the first PPP in Ethiopia watts Chemoga Yeda 1 and 2 hydropower public private partnership (PPP) projects since the Office of Ethiopian Public Private generation. that focus on new road construction Partnership is recently established. The projects also include several and energy development, said the The \$445 million 160 kilometers new solar power developments such as, the Office of Public Private Partnership. from Measo to Dire Dawa express road, Welenchiti and Weranso solar power

Out of the 17 projects the \$440 million from Adama to Awash 125 projects each generating 150 megawatts approved by the office 3 focuses on kilometers and \$230 million 72 kilometers with a total cost of \$330. transport while the remaining are from Awash to Measo are the road projects In addition, six other solar projects related to energy. The projects will be open expected to open for bidders, according to with generation capacity ranging from 100 to potential bidders and their Fana. The power projects includes, the \$1.2 megawatts to 150 megawatts and total implementation is expected to be started billion 424 megawatts Halele Warabessa construction cost of \$840 million will also this year, according to Fana Broadcasting, hydropower, \$984 million 798 megawatts be constructed in different parts of the which quoted Dr. Teshome Tafesse, the Dabus hydropower, the \$793 million 469 country, including cities like Mekele, Director of Office of Ethiopian Public Private megawatts Genale Dawa 5 hydropower Metema, Hurso and Metehara, among Partnership. generation and the \$729 million 280 mega- others.

Source: <http://newbusinessethiopia.com/ethiopia-launches-7-billion-energy-road-projects/?fbclid=IwAR1ssv6gpmmi46afdiCgM2lrIoTzqo5hSstFUJbuoGcyBfLvaVCtptXbtO>

## Australian government invests AU\$6m in EV charging network

***“A AU\$15 million 'ultra-rapid' electric vehicle charging network being built by Chargefox has received a AU\$6 million boost from the Australian government.”***

The Australian government has announced a AU\$6 million investment in an “ultra-rapid” electric vehicle (EV) charging network powered by renewable energy across the nation under the Renewable Energy Agency (ARENA). According to the government, the EV charging network will be deployed around Sydney and Melbourne; between Sydney, Melbourne, Canberra, Brisbane, and Adelaide; and across Western Australia.

pollution and better health outcomes for our communities,” Minister for Energy Australia will join Europe and the United States as the only Chargefox had launched business region with 350kW network, Jet Charge CEO Tim Washington said. “We have, as a country, trailed the world in high-powered charging infrastructure,” Wilson said. “Building on our six years’ experience, we have been able to bring together leading automotive brands, who will serve as Chargefox chair. automotive services, electricity network providers, infrastructure service providers,

Euroa, in Victoria, and Barnawartha and largest ultra – rapid electric vehicle and software providers to build one of the North, outside Albury Wodonga on the New (EV) charging network for modern most sophisticated EV charging South Wales–Victorian border, will be the EVs,” the company said. infrastructure projects in the world.”

The charging network will be A Senate inquiry into EVs in Australia had in August heard that the

The AU\$15 million EV charging network is being built by Chargefox, with charging stations with 350kW of power. citizens would improve if EV uptake plans to develop 21 charging stations The first two sites will feature four increased.

across the nation, each around 200km charging stations each, with Euroa's to be A report produced by the Association of Mining and Exploration

The charging stations are station storage while Barnawartha North Companies (AMEC) estimated that the designed to provide a range of 400km relies on 200kW of ground-mount solar. The lithium value chain, including raw materials or up to 80 percent capacity within latter site will also “feature landscaping and cells and battery packs, could increase 15 minutes of charging, with the [and] picnic facilities”, Chargefox said. from \$165 billion to \$2 trillion by 2025 if network to be worth AU\$15 million. “Each 350kW capable charging there were more EVs in Australia.

“Electric vehicles have the station will feature both CCS2 and “PMG has seen an opportunity to potential to lower transport costs, CHAdeMO plug standards. CCS2 can output use the growth of a new industry in Australia enhance fuel security, and increasingly up to 350kW, and the CHAdeMO can output and made the decision to take significant create more sustainable cities with less up to 200kW under the new high-powered action to become part of supply and value

chain for the EV market," a spokesperson EVs in Australia, including easier access Australia has 15 to 16 EVs per charging from the Pilbara Metals Group added. to lithium and nickel, as well as a point.

"We have a chance to be able to skilled workforce to tap into. The Senate had established a make high-quality, low-cost materials for According to McLean, Australia motion to form a select committee in June batteries specific to electric vehicles." should invest and set sales targets. this year to look into the economical,

Doctors for the Environment A report earlier this year, meanwhile, environmental, and societal benefits of EV Australia then told the Senate committee ranked Australia after Austria, Belgium, uptake, as well as the opportunities for EV that poor air quality causes 3,000 deaths a Canada, China, Denmark, France, Germany, manufacturing, supply, and value chain and year, with half of these attributed to vehicle Italy, Japan, Korea, Netherlands, Norway, how the federal government could work with emissions. Portugal, Spain, Sweden, Switzerland, the state governments to support EV targets.

Tesla senior manager Sam McLean United Kingdom, and the US in terms of EV additionally told the committee that there numbers.

would be advantages to producing its The report also revealed that

Source: [https://www.zdnet.com/google-amp/article/australian-government-invests-au6m-in-ev-charging-network/?fbclid=IwAR3UlcQI3GKH\\_kZE6LOkxebnezSWgvaxB81QzyqIdnMM1Gc9OH2i8r5EQ-s](https://www.zdnet.com/google-amp/article/australian-government-invests-au6m-in-ev-charging-network/?fbclid=IwAR3UlcQI3GKH_kZE6LOkxebnezSWgvaxB81QzyqIdnMM1Gc9OH2i8r5EQ-s)

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