ICER Chronicle

Edition 11 Winter 2021

COP26
Climate & Energy Disruption

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Meet the Contributors

Jonathan Brearley

Jonathan Brearley became Ofgem's chief executive officer in February 2020. He has wide-ranging energy sector experience, having led electricity market reform as the director for energy markets and networks at the UK Department of Energy and Climate Change. He was previously director of the cross-governmental Office of Climate Change, where he led the development of the Climate Change Act. He holds a bachelor's degree in mathematics and physics from Glasgow University and a master's degree in economics from the University of Cambridge.

Regina L. Davis

Regina L. Davis is the director of communications and public affairs for the National Association of Regulatory Utility Commissioners. She served previously as the communications director for the Maryland Public Service Commission, where she was the primary spokesperson and media contact for the agency. At NARUC, she oversees a suite of creative and digital services, manages all press inquiries, helps plan meetings and events, supervises the association's social media channels, provides communications support for committees, and drafts talking points for leadership. Her background includes media and public relations, speechwriting, editing, university teaching, and magazine/journal production.

Regional Members Who Contributed to this Issue

North America

CAMPUT
Canada's Energy and Utility Regulators

NARUC
National Association of Regulatory Utility Commissioners

South America

ARIAE
Ibero-American Association of Energy Regulators

Africa

RAERESA
Regional Association of Energy Regulators for Eastern and Southern Africa

David M. Morton

David Morton was first appointed as a commissioner at the British Columbia Utilities Commission in Vancouver, Canada, in 2010 and was later appointed as the chair and CEO in December 2015. As chair and CEO, David is responsible for delivering on the vision of the BCUC—to be a trusted and respected regulator that contributes to the well-being and long-term interests of British Columbians. David is also vice chair of ICER, an executive member of CAMPUT and chair of its International Relations Committee, and co-vice chair of the NARUC Committee on International Relations.

Susanna Zagar

Susanna Zagar became chief executive officer of the Ontario Energy Board in Toronto, Canada, on October 1, 2020. She is an accomplished executive with a commitment to public service and a drive for strategic transformation. Over three decades she has held progressively senior roles in organizations that were all directly accountable to the public, most recently as the chief strategy, analytics & people officer at the Workplace Safety and Insurance Board and the associate deputy minister of infrastructure.

Ksenia Khromova

Ksenia Khromova is currently director of wholesale energy markets surveillance at the French energy regulator. Since 2019, she has been chair of a surveillance policy task force at the Agency for the Cooperation of Energy Regulators. Before that, she worked on renewable energy subsidizations, energy investment projects, and support policies for French overseas departments. She earned her engineering degree with honors from Bauman Moscow State Technical University of Russia, and a postgraduate master's degree in France from École Polytechnique, École des Mines, and École des Ponts.

Isaac Vivian Kinhonhi

Isaac Vivian Kinhonhi is a manager of planning and research at the Electricity Regulatory Authority of Uganda. He has more than 10 years' experience in renewable energy, planning, energy pricing, financial modeling, business analysis, and research. He holds a master of science degree in quantitative economics from Makerere University and a master of commerce degree in development finance from the University of Cape Town.

Europe

CEER
Council of European Energy Regulators

MEDREG
Mediterranean Energy Regulators

ERRA
Energy Regulators Regional Association

Asia

SAFIR
South Asia Forum for Infrastructure Regulation

Other Regional Members of ICER

AFUR African Forum for Utility Regulators
AEMC Australian Energy Market Commission
EAPIRF East Asia & Pacific Infrastructure Regulatory Forum
OOCUR Organization of Caribbean Utility Regulators
RERA Regional Electricity Regulators Association of Southern Africa

From the Chair

In this issue of the *ICER Chronicle*, Jonathan Brearley, the CEO of Ofgem, Great Britain's energy regulator, reflects upon the recent COP26 Conference in Glasgow, Scotland (page 10). He reminds us that while the international community continues to make progress on addressing climate change, the agreements so far are insufficient for success—that is, to ensure that global temperatures do not rise more than 1.5 degrees centigrade above pre-industrial levels. In other words, he reminds us—governments, policy makers, and, yes, energy regulators—that we have much more work to do.

Managing an energy transition is, of course, no easy task. In this issue, readers can learn of four distinct examples of regulators addressing complex issues as they transition to cleaner energy resources.

On page 19, Regina Davis of NARUC describes the challenges in the U.S. of building new electric transmission lines and upgrading existing lines, all of which will be needed to move new renewable resources to load centers. Federal and state regulators in the U.S. face what she calls "an often-complex web of regional issues, not to mention concerns over state versus federal jurisdiction."

On page 14, David Morton, the chair of the British Columbia Utility Commission and vice chair of ICER, discusses the complexities of determining the value of rooftop solar in relation to the electric grid, to ensure that costs and benefits are assigned fairly between the customer and the utility.

His fellow Canadian, Susanna Zagar, CEO of the Ontario Utility Board, on page 16 makes the case that if regulators are to successfully guide an energy transition, they themselves must innovate, and offer utilities and others a place to test new ideas and business models.

And on page 31, S K Chatterjee, chief of regulatory affairs at India's Central Electricity Regulatory Commission, discusses the technical challenges involved in integrating intermittent resources into the electric system in a developing country committed to increasing its non-fossil fuel energy capacity by 500 gigawatts by 2030.

The issues regulators face are many and highly complex. It is all the more challenging because many regulators lack the resources and expertise to make meaningful progress, and would benefit from hearing the experiences of those who have gone before them or who are confronting similar issues. To help, Ofgem, with the support of the International Energy Agency, the World Bank, and the International Renewable Energy Agency, announced at the COP26 summit the launch of the Regulatory Energy Transition Accelerator, an initiative to assist regulators from around the globe as we work to reduce the carbon emissions of the energy services we regulate.

At its Dec. 7, 2021, meeting, the Steering Committee of ICER formally approved ICER's partnership with the Accelerator. As I noted during its virtual launch, the Regulatory Energy Transition Accelerator will be a hugely important initiative for ICER's member organizations and their respective member countries. As we confront the energy transition in the midst of climate change, it is imperative that we have the ability to share our experiences, and to learn from others as we go forward. It is this communication among those in our regulatory community that will indeed facilitate and accelerate the transition that we are charged with leading.

I commend Ofgem's Brearley and others for their hard work in creating this global initiative, and I am proud to support it.

David Danner, ICER Chair, Chair of the Washington Utilities and Transportation Commission

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ARIAE News Brief

Chile's Data Transparency Initiative

Chile's National Energy Commission (CNE) is revamping its open data initiative—a multi-year effort to make Chile's energy data and information more accessible and more transparent. This year the regulator has updated its open data blockchain certification process to be more user-friendly. CNE is also working on a website refresh, as well as updates to several mobile apps that bring the vast expanse of Chile's energy information right to Chilean consumers' fingertips in an easily accessible, digestible format.

It all began in September 2015 when CNE, Chile's energy regulator, announced the launch of what would be the very first open data website in Latin America's energy sector. With only high-level direction from Chile's central government and starting from scratch, CNE has created a platform with up-to-date reports, energy law, and datasets spanning Chile's renewable and non-renewable energy generation, statistics on the power system, marginal cost information, and more—all backed by blockchain technology.

"This system seeks to deliver relevant information online in the fastest way," says Kiumarz Goharriz, head of CNE's Department of Information, Statistics, and Citizen Participation. "The blockchain gives the guarantee that the content has not been modified. Blockchain is a huge, decentralized network—on one hand, we lose some control of the content, but on the other hand, we guarantee we haven't modified, for example, the renewable energy generation statistics, and, if we do, users can trace the modification we are making."

The blockchain update was completed in September, but Kiumarz Goharriz's team has more work to do on other aspects of the open data initiative: the regulator's annual report comprising a 10-year review of Chile's entire energy sector is expected in late 2021 or early 2022, the website refresh is expected in 2022, and the team is revamping various energy mobile phone applications offering information such as geo-tagged gasoline prices to tens of thousands of users.

Stay tuned for more updates from Chile, or follow along on your own here: http://energiaabierta.cl/?lang=en.

CAMPUT News Brief

Ontario's New Approach to Natural Gas Planning

Integrated resource planning is a planning strategy that evaluates and compares demand-side and supply-side alternatives to pipeline infrastructure in meeting natural gas system needs. The process identifies and implements the alternative, or combination of alternatives, that is in the best interest of the utility and its customers, taking into account reliability and safety, cost-effectiveness, public policy, optimized prioritization, and risk management.

The Ontario Energy Board issued a decision and order on July 22, 2021, on an Enbridge Gas application requesting policy guidance on its integrated resource plan (IRP) proposal. In its decision, the Ontario Energy Board established a first-generation Integrated Resource Plan Framework that provides direction on a new IRP assessment process Enbridge Gas must follow to determine the best approach to meeting its distribution and transmission system needs.

This first-generation framework requires Enbridge Gas to more thoroughly consider alternatives to traditional pipeline infrastructure projects than it has historically—including demand response and geo-targeted demand-side management programs. In addition, Enbridge Gas must ensure Indigenous groups and stakeholders are engaged in IRP activities.

A new Ontario Energy Board staff-led technical working group will be established to provide input on general IRP guidance and any pilots or plan applications that Enbridge may bring forward. The working group will also review and comment on Enbridge's draft annual report on its IRP activities, prior to Enbridge filing the final report with the Ontario Energy Board.

Keep an eye on new updates related to the natural gas framework here.

CEER News Briefs

ACER, CEER Publish 10th Annual Market Monitoring Reports

Since 2012, the EU Agency for the Cooperation of Energy Regulators (ACER) has been tasked with monitoring the development of EU internal electricity and gas markets. Together with the Council of European Energy Regulators (CEER), ACER publishes annual market monitoring reports. This year, the reports were produced in close cooperation with the Energy Community Secretariat, an international organisation of EU and non-EU countries to extend the EU internal energy market into Southeast Europe.

The reports present the main findings of a thorough monitoring exercise as well as recommendations on how to overcome identified barriers and improve EU energy markets. This year's publication covers 2020 data for the EU member states and, for selected topics, Energy Community contracting countries.

Market monitoring reports consist of three volumes:

- the electricity wholesale market volume, which assesses the functioning of the internal electricity wholesale market;
- the gas wholesale market volume, which assesses the functioning of the internal gas wholesale market; and
- the energy retail and consumer protection volume, which evaluates retail market performance across the EU and identifies relevant best practices in promoting competition to benefit end consumers.

Find all volumes here.

This year's reports were presented during webinars. Find presentation recordings here.

Phase II: One Year Promoting the Clean Energy Transition in Eastern Partnership Countries

The EU4Energy Phase II initiative, funded by the EU with a total budget of €8.5 million, is jointly implemented by CEER, the International Energy Agency and the Energy Community Secretariat in the six Eastern Partnership countries: Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova, and Ukraine. The programme highlights the importance of collaboration and cooperation between the EU, implementing partners, and beneficiary institutions in implementing reforms and bringing concrete benefits to citizens.

Phase II of the programme launched on January 1 to provide assessments and support for the alignment of national legislation, policy, and regulations within the EU and the broader Energy Community. The programme also aims to improve energy data capabilities and enhance data collection and monitoring, while assisting the Eastern Partnership countries in evidence-based energy policy design.

The COVID-19 pandemic did not keep the project from holding the kick-off conference, during which participants developed an action plan for the duration of the programme through 2024.

Capacity building during meetings, workshops, trainings, and regional networking strengthened expert knowledge-sharing and the creation of best practices in energy sector regulation. The programme also focuses on cross-cutting issues such as women's and girls' empowerment in energy and the education of school children.

Groebel Reappointed as CEER President

Annegret Groebel was reappointed for her second 2.5-year term as CEER president in July. Groebel is director of international relations at the German Regulatory Authority for Electricity, Gas, Telecommunications, Post and Railway, where she has worked since 1998. She has served as CEER president since January 2019. Before her appointment as president, she served as vice president and board member of CEER since 2012.

Groebel is supported by four vice presidents, Jean-Laurent Lastelle (France), Koen Locquet (Belgium), Wolfgang Urbantschitsch (Austria), and Pedro Verdelho (Portugal).

Annegret Groebel

Photo courtesy of CEER

ICER Congratulates New Women in Energy Vice Chair

Andrea Lenauer

At its Dec. 7 meeting, the ICER Steering Committee installed Andrea Lenauer as vice chair of ICER's Women in Energy initiative. Lenauer is a senior international relations advisor at the Austrian regulatory authority, where she has put a lot of energy and passion into international cooperation for 18 years. Lenauer has been a pioneer in the energy community, acting as head of section for the Energy Community Regulatory Board and, since 2016, she has shared her knowledge with mentees in the ICER Women in Energy programme. Lenauer joins Women in Energy Chair Kathleen Riviere, executive director of the Organisation of Caribbean Utility Regulators, to plan and lead ICER's Women in Energy work.

ERRA News Brief

ERRA Hosts Women-in-Energy Webinar Events

On Sept. 9, the Energy Regulators Regional Association for the Central European and Eurasian region hosted its second webinar in a series of Women-in-Energy focused career discussions titled "My Career Story." The discussions are meant to encourage mid-career women to successfully continue on their careers in the energy industry. Participants learn from guest speakers' stories, including what drives them to find success and advice they may offer colleagues. The September meeting speakers included Paula Conboy, board member of PJM and former chair of the Australian Energy Regulator; Annette Verschuren, chair and CEO of NRStor Inc.; and Audrey Zibelman, vice president of X's Electric Grid Moonshot. The discussion was moderated by Andrea Lenauer, senior international relations advisor at the Austrian regulatory authority E-Control.

Paula Conboy

Annette Verschuren

Audrey Zibelman

MEDREG News Briefs

Using Regulation as a Tool for the Integration of Renewable Energy Sources

As countries take measures to respond to climate change in the Euro-Mediterranean region and set ambitious renewable energy source objectives, energy regulators have specific responsibilities to oversee the implementation of renewable integration policies alongside their traditional regulatory role.

Based on a longer MEDREG report exploring regulatory tools to integrate renewable energy sources into the grid published in early 2021, MEDREG developed a digital card on "Regulation as a Tool for the Integration of Renewable Energy Sources." The publication presents and promotes new regulatory schemes and models such as self-consumption (the use of power generated on site by an energy consumer to reduce, at least in part, the purchase of electricity from the grid) and peer-to-peer electricity trading, which can be used to accelerate and increase the integration of renewables in the decarbonisation of the energy sector.

The short publication provides recommendations on how energy regulators can prepare for the energy transition and offers information on the risks and limitations of energy regulation tools.

MEDREG Trains Members on the Digitalisation of Energy Markets and the New Role of Consumers

During a two-day online training in October, MEDREG introduced its members to the challenges that digitalisation will bring to the drafting of regulations for this new technological era. The workshop addressed four main concepts: flexibility, open data platforms, data usage and cybersecurity, and the growing role of consumers in shaping energy markets. The discussions were animated by contributors from public institutions, regulators, research centres, and the private sector—all renowned experts in the field of digitalisation.

New Video Illustrates Regulatory and Business Tools to Facilitate Renewable Goals

A brand-new video, "Towards the Mediterranean green energy transition," raises awareness of innovative regulatory and business models that have proved their effectiveness to drive the sustainable energy transition in the Mediterranean and achieve clean, reliable, functioning, and fair electricity and gas markets. The video focuses on auction systems and mini grids.

Mediterranean Energy Regulators Debate Hydrogen's Role in Fostering Sustainable Gas Markets

On November 3, presidents of national energy regulatory authorities from around the Mediterranean gathered virtually to discuss the growing importance of hydrogen in the transition to sustainable gas markets and to discuss their roles as regulators in promoting this zero-carbon energy source.

Green hydrogen has benefited from unprecedented political, investment, and research momentum, with related policies and projects expanding rapidly around the world. With this workshop, the presidents of Mediterranean regulatory authorities sought to understand the technological and economic challenges of incorporating this clean energy source in gas markets. These leaders also began considering support mechanisms and initiatives to overcome these challenges and facilitate the green transition at national and regional levels.

This high-level workshop followed a public consultation launched by MEDREG in February 2021 to explore design mechanisms that can foster a sustainable gas market. During this consultation, energy regulators identified hydrogen as an important new source of sustainable gas and expressed their desire to develop a strategy to promote its use.

See the event press release for more information.

NARUC News Briefs

NARUC Announces Virginia's Judith Jagdmann as New President

At the National Association of Regulatory Utility Commissioners (NARUC) Annual Meeting and Education Conference in Louisville, Kentucky, held in November, Virginia State Corporation Commission Judge Judith Williams Jagdmann was elected as the new president.

Jagdmann succeeds Commissioner Paul Kjellander, of the Idaho Public Utilities Commission. Connecticut Commissioner Michael Caron is the first vice president and North Dakota Commissioner Julie Fedorchak is the second vice president, with Commissioner ToNola Brown-Bland of the North Carolina Utilities Commission remaining as treasurer.


Photo: Andrew Melnykovich / NARUC

President Jagdmann delivering installation remarks in Louisville, Kentucky.

The conclusion of the meeting marks the beginning of the second year of NARUC's three-year theme, *Connecting the Dots: Innovative/Disruptive Technology and Regulation.* In her installation remarks, Jagdmann said that it's important to focus on sharing NARUC's resources and analyses with members more widely to ensure that efforts "are not siloed."

Current challenges facing U.S. regulators such as rapidly evolving advancements in technology, customer expectations, decarbonization, electrification, cyber security, supply chain, and an aging infrastructure are among the issues that will continue to be addressed. "NARUC is not here to tell you what to do, but to assist you with analysis and information," she told members.

Photo: Andrew Melnykovich / NARUC

Members representing state commissions on the Joint Federal-State Task Force on Electric Transmission address attendees at the NARUC Annual Meeting in Louisville, Kentucky.

A Joint Effort Marks a New Day for U.S. Transmission Infrastructure

A much-anticipated meeting of a U.S. Joint Federal-State Task Force on Electric Transmission, led by NARUC and the U.S. Federal Energy Regulatory Commission (FERC), was held on the final day of NARUC's Annual Meeting and Education Conference in November.

The Joint Federal-State Task Force on Electric Transmission represents a first-of-its-kind initiative in the United States. The 10 state-level members (two representatives from each NARUC region) and four federal commissioners covered topics such as desired outcomes from the task force, incorporating state perspectives into regional transmission planning, and next steps.

FERC Chairman Richard Glick observed the "significant demand for additional investment in electricity transmission" and cited a host of things pushing the need (e.g., state policy, consumer demand, and weather issues) to make the grid more resilient. He added that some issues come within FERC's jurisdiction and others within state jurisdiction and "there's no need to look at this as a FERC issue or a state issue."

See related feature on U.S. transmission on page 19.

Save the Dates: 2022 USAID ICER Tariff Toolkit Webinar Series

Primer on Rate Design

February 3, 2022, 08:00 am ET
Presenters: Brian Edmonds, Hisham Choueiki (NARUC) and case study guest speaker
Register here.

This primer is a resource for electricity regulators and utilities outlining the fundamental principles of cost-reflective rate design and describing key rate design processes. Additionally, it offers regulators and utilities a practical guide for adopting, reviewing, and assessing rate structures based on core principles, international case studies, and widely accepted practices.

The primer can be found here.

Primer on Depreciation

March 3, 2022, 08:00 am ET
Presenters: VIS Economic & Energy Consultants and case study guest speaker
Register here.

This primer is designed to assist energy regulators working in emerging economies with building their understanding and knowledge of key concepts related to depreciation. It presents key factors affecting allowed depreciation costs as well as alternative approaches and regulatory considerations when determining allowed depreciation in the context of cost-reflective tariffs for regulated entities operating in monopolistic market segments (e.g., network companies).

The primer can be found here.

Primer on Communications

April 7, 2022, 08:00 am ET
Presenters: Hisham Choueiki (NARUC) and case study guest speaker
Register here.

The objective of this primer is to guide utility service regulators around the world in the development of communications strategies for engaging members of the public and key stakeholders.

The primer can be found here.

RAERESA News Brief

Egypt's Race for Renewables and Reliability

Written by Rezk Ahmed, Egyptian Electric Utility & Consumer Protection Regulatory Agency

Power demand in Egypt is steadily increasing along with the country's economic and population growth. But frequent power outages, caused by various issues such as generation shortages and fuel difficulties, have become a major social issue.

The main consumer of electricity in Egypt is the residential sector, which accounts for 42 percent of total consumption, followed by the industrial sector at 28 percent. Residential energy consumption has been steadily increasing in recent years due to two factors, according to Egypt's Ministry of Electricity and Energy: First, is the expansion of residential compounds and new communities throughout the country. The second is the increased use of domestic appliances, particularly air conditioners during hot weather.

The Egyptian Electric Utility & Consumer Protection Regulatory Agency, known as EgyptERA, traces its history back to 1997. The agency's mandate is to regulate, supervise, and control all matters related to electric power activities, whether in generation, transmission, distribution, or consumption. The regulator must do this in a way that ensures availability and continuity of supply at the most equitable prices, taking into consideration environmental protection, the interests of the electric power consumers, and the interests of the sector's production, transmission, and distribution providers.

Thermal power generation, mostly oil and natural gas, accounts for approximately 90 percent of the power generation in Egypt. But the dynamic growth of Egypt's population, which is estimated to be one of the fastest growing populations in the world at about 1.3 percent per year, is increasing demand and stretching the country's major resources. Both economic and population growth, beginning at the turn of the new millennium, have led to an increase in consumption of about 3 percent per year. The growth in demand coincided with a significant drop in the country's oil refinery output beginning in 2009.

In light of these challenges, the Ministry of Electricity has implemented many measures to improve energy efficiency and conserve fossil fuel sources, without compromising the provision of electricity to all users.

Examples of the general rules and regulations that have been issued to improve the performance and prevent disruption include those stimulating the production of electricity from renewable energy sources, encouraging investors and investment projects in the production and distribution of solar energy, encouraging investors and investment in electrical sector projects, and encouraging the reuse of waste energy.

Egypt's generation capacity has been increased through a so-called fast track plan, which includes the installation of many gas units. Egypt has discovered and is exploiting huge natural gas reserves around the country, which drives its emergence as a key player in the region's natural gas production and export. In addition, Egypt plans to attain 20 percent renewable energy meeting peak load by 2022 and attain 42 percent renewable in aggregate generation by 2035.

Photo: Dmitri Kalvan / Shutterstock

Moving Forward from COP26

The CEO of Ofgem, Great Britain's energy regulator, explores the challenges and promises of the COP26 climate summit in Glasgow and whether regulatory cooperation will help us maintain the goals of the Paris Accords.

COP26 President Alok Sharma addresses summit leaders in Glasgow.

Written by Jonathan Brearley, CEO, Ofgem

Climate change is one of the greatest challenges we face. It is a global problem that needs global solutions to keep the collective ambitions of the Paris climate goals in reach. This November, world leaders, experts, and activists came together in the UK, in the city of Glasgow, for the COP26 climate change conference. The challenges and the expectations were huge, and, one month after the conference, we can now reflect on the outcomes.

Courtesy of Ofgem

Commitments were made on deforestation, methane emissions, and electric vehicles. Negotiators closed some of the outstanding questions for the Paris Agreement rulebook and carbon markets. Coal was explicitly mentioned in final agreement for the first time and, while the lack of commitment to a total phase-out of coal is disappointing, there is now a clear path; the end of coal is in sight. In addition to announcements at COP26, earlier this year China committed to peak coal use by 2025 and promised to back no new coal-fired power projects abroad. We are already witnessing a global movement. In many countries, it is now cheaper to generate electricity from renewables. An International Renewable Energy Agency (IRENA) report published this summer found that nearly two-thirds of renewable projects globally were cheaper than fossil fuel equivalents.

Many are disappointed that the COP26 agreement did not go further. All of the commitments reached at the conference added together do not limit global temperature rise to 1.5 degrees Celsius, the goal we need to reach to avoid catastrophic climate change. However, the commitments do get us closer to maintaining 1.5 degrees than we were before. Negotiators agreed to rachet up ambition next year at COP27 in Egypt to keep the 1.5 degrees goal alive. Ambitious goals are crucial, but an important and successful focus of the COP26 Presidency was pressing ahead with real economy action. The launch of the Green Grids Initiative – One Sun One World One Grid at COP26 was all about collaborating to achieve smart, interconnected grids, and ensure that targeted funding is in place to support them.

Creating a Global Grid

The Green Grids Initiative - One Sun One World One Grid, launched at the COP26 conference, is an initiative to create a more interconnected global grid. Together, governments, regulators, financiers, institutions, companies, legislators, and researchers will seek to:

1. Invest in solar, wind, storage, and other renewable energy generation in locations with plentiful renewable resources for supporting a global grid.
2. Build long-distance cross-border transmission lines to connect renewable energy generators and demand centres across continents, including mutually beneficial cross-border power trading arrangements.
3. Develop and deploy cutting edge techniques and technologies to modernise power systems and support green grids, integrating billions of rooftop solar panels, wind turbines, and storage systems.
4. Support the global transition to zero emissions vehicles by using electric vehicles to help improve grid flexibility.
5. Attract investment into solar mini-grids and off-grid systems to help vulnerable communities gain access to clean, affordable, and reliable energy without grid-access in their own areas, enhancing socio-economic development and a resilient power supply for all.
6. Develop innovative financial instruments and market structures and facilitate financial and technical assistance to attract low-cost capital, including climate finance, for global solar grid infrastructure.

Courtesy of Ofgem

World leaders in energy regulation launched the Regulatory Energy Transition Accelerator during a COP26 virtual event.

The cooperative role of energy regulation in a global energy transition

At Ofgem, Great Britain's energy regulator, we know the pivotal role energy regulators play in facilitating real economy action on decarbonising energy systems. We wanted to seize the opportunity of COP26 to show the crucial role of energy regulators across the world in the energy transition and give regulators the tools they need to move rapidly towards decarbonised systems. Energy regulators globally are grappling with many of the same challenges, but too often we don't have the resources to reach out to each other and share our solutions.

That is why I was proud to launch the Regulatory Energy Transition Accelerator, which will build the capacity of energy regulators to turn their governments' climate ambitions into real-world action. The accelerator was launched together with over 20 regulators from around the world, NGOs, and the International Energy Agency (IEA), IRENA, and the World Bank. With these partners on board, we can utilise their expertise, connections, and resources to help chart a course for a faster energy transition, delivered at the least cost.

Global regulatory challenges for cooperative solutions

It was exciting to see my counterparts from other energy regulators speak during our COP26 accelerator launch event not only about the challenges they face, but also some of the innovative solutions that they have found. Although there are different circumstances around the world, we do face common chal-

lenges that none of us have all the answers to—yet. Together we can find them. Through talking to other regulators, it is clear that some of these challenges include:

- Increasing the use of renewables and integrating them into systems resilient to climate change and extreme weather,
- Exploring how networks can be interconnected and more flexible,
- Finding solutions to increase energy storage,
- Digitalising energy systems and collecting vital data for a responsive and smart network, and
- Paving the way for the electrification of transportation while making personal electric vehicles more accessible and affordable.

Through the Regulatory Energy Transition Accelerator, we hope to enable energy regulators from around the world to learn from others' experiences and bring forward new thinking. Regulators will identify priority areas for knowledge sharing, co-development, and capacity building to make a real impact on the ground, and the work programme will seek to align with wider global action. The accelerator is open to all interested regulators from all countries, and we hope to welcome more participating energy regulators as the accelerator takes shape. It is crucial that this is done in an inclusive way; regulators from different regions, from developing and developed economies—no matter how big or small their organisations are—have valuable experiences that we can all learn from.

Get In Touch

Anyone interested in finding out more about the Regulatory Energy Transition Accelerator and how to get involved can ask the ICER secretariat to be put in contact with relevant colleagues in Ofgem, as well as visit the website retatheaccelerator.org.

Developing partnerships across regions and global organisations

I was delighted that Dave Danner, chair of the International Confederation of Energy Regulators, spoke at the launch of the Regulatory Energy Transition Accelerator. It is important that the accelerator works together with ICER and the regional energy regulator networks, with all of the valuable connections and convening power that they have. Our goal is to be able to use the knowledge products produced by the accelerator to stimulate more discussion about the energy transition in ICER working groups and at the World Forum on Energy Regulation. We hope the information collated by the accelerator secretariat will help guide regulator networks and their members to projects and programmes that are of interest to them.

With the partnerships we have put in place, we think the accelerator has a great chance of success. The UK government has committed to provide seed funding for the set-up and coordination of the accelerator for the first year. We will now work on the governance structures with our partners and fellow steering committee members: the IEA, which is providing the accelerator's administrative functions, IRENA, and the World Bank. As the beneficiaries of this work, regulators will be well represented in the steering committee. Once the first annual work programme has been agreed, we hope that specific projects will start being delivered beginning in April 2022.

Achieving current and future climate goals means thinking entirely differently about how we power the planet we all share, and how we approach this challenge together. We need to act quickly to switch away from fossil fuels while maintaining secure supplies and keeping the costs of the transition fair and affordable. In the long-term this will also better shield us from the unprecedented commodity price shocks we are seeing today. Our path to a greener, fairer future lies in how we work together—not just regulators, but everyone who shares in the vision to keep our climate ambitions within reach; for our people and the planet.

Visit Ofgem's COP26 website to view recordings of past events here: https://www.ofgem.gov.uk/green-fair-future-ofgems-cop26-programme.

Rooftop Solar and Engaging with Public Stakeholders

Canada's regulators from British Columbia to Ontario respond to evolving energy industry goals, including decarbonization and access to regulation, in myriad ways.

Photo: ©Katy Pack / Shutterstock

Net Metering Controversy: A Canadian Regulator's Approach

As distributed energy resources play an increasing part in the energy transition, regulators grapple with new and evolving rate structures to manage supply and demand.

Written by David Morton, Chair & CEO, British Columbia Utilities Commission

Before 2004, on warm sunny days when customers rooftop solar panels were generating more electricity than needed, customers received no compensation for energy fed back into the grid. This energy was, in effect, "gifted" to the utility. This obviously put small-scale distributed generation at a disadvantage compared to larger grid-connected

generation and was an issue British Columbia needed to address.

A net metering rate offered a simple solution to this problem—energy fed into the grid by a customer could be offset against volumes later purchased from the utility, with the customer only charged for the net difference. In addition, if a customer generated more electricity than they had used in the year, they were compensated at the estimated market value for the excess.

In 2004 the British Columbia Utilities Commission (BCUC) approved Canada's first net metering rate for BC Hydro, a vertically integrated, provincial government-owned utility. This simplified billing approach worked well because low-cost hydropower meant that the residential retail rate, a bundled charge recovering both generation and network costs, was 6.05 ¢/kWh, whereas the cost of new generation was 5.4 ¢/kWh. The energy credit received by the customer under the net metering rate of 6.05 ¢/kWh therefore approximated the value of the energy being fed into the grid (5.4 ¢/kWh).

However, concerns are now being raised that customers on net metering rates are not making a fair contribution to the cost of the grid.

Evaluating net metering rates

In 2012, the BCUC identified a need to articulate clear objectives for the net metering program to help assess whether net metering rates are 'just and reasonable'. The BCUC adopted the following evaluation framework for BC Hydro's 2012 application to update the net metering rate (BCUC (2012), BC Hydro Net Metering Decision, p. 23).

Net Metering Evaluation Framework

1. The net metering rate should not impose any unnecessary economic or other barriers to ratepayers seeking to install small-scale clean distributed generation.
2. The net metering rate should not incur any substantial cost on the utility.
3. Interconnections must be safe, but interconnection rules must not be excessive or burdensome.

The 2012 net metering evaluation approach was therefore focused on supporting economic effectiveness and efficiency. However, the BCUC was silent on how to achieve these goals and the implications and ramifications of meeting or not meeting them. This article considers what economic efficiency and effectiveness may look like.

A key consideration in assessing whether the net metering rate is supporting economic efficiency is to compare the net metering energy credit (6.05 ¢/kWh in 2004) to the market value of energy (5.4 ¢/kWh in 2004). However, an energy credit set higher than market value may not necessarily result in overinvestment in distributed generation as there may be other market barriers faced by the customer (for example, lack of access to financing).

Other economic and public interest considerations can include overall network benefits, resiliency, environmental benefits, government policy, and the simplicity benefits of the net metering rate.

An economic evaluation of the net metering rate by the regulator is therefore not a simple process and requires regulatory judgement. However, trying to assess whether a net metering customer is making a "fair" contribution to the cost of the grid without using an economic efficiency lens would be even more difficult and subjective.

Evaluation approaches focused on promoting economic efficiency and effectiveness support innovation, and this is expected to promote longer term economic benefits to all customers.

An evolving net metering structure

Since 2012, the BCUC has periodically asked BC Hydro to report back on the net metering rate, including a comparison of the estimated value of the electricity fed into the grid by net metering customers with the energy credit received under the net metering rate.

The 2020 Net Metering Evaluation report filed by BC Hydro showed that, while the market value of generation has declined significantly in the last few

years due to an energy surplus in BC and the declining cost of wind and solar generation, retail electricity rates have risen. In BC, the value of energy fed into the grid has dropped to 3.2 ¢/kWh for Fiscal Year 2020, while the average energy credit received by customers under the net metering program for this energy is 10.7¢/kWh (Fiscal Year 2019).

BC Hydro's 2020 Net Metering report concluded that, as participation in the net metering program is expected to grow, there is a need to change the net metering rate to address cross-subsidization and set an economically efficient rate. The BCUC will review BC Hydro's net metering rate design application once it is filed.

In summary, the net metering evaluation framework articulated by the BCUC in 2012, with its focus on economic effectiveness and efficiency, can assist in addressing the net metering controversy by providing a useful roadmap for regulators assessing the fairness of net metering rates in their jurisdictions.

Redefining a Regulator: Concrete Steps Toward Modernization

Stakeholder engagement as a key tenet of the Ontario regulator's plan to enable energy sector modernization.

Written by Susanna Zagar, CEO, Ontario Energy Board

When I joined the Ontario Energy Board (OEB) in the fall of 2020, I focused squarely on our path to becoming a modern, responsive, and relevant regulator.

That is no small feat for an organization whose mandate is as far-reaching as the OEB: We regulate 61 electricity distributors and two natural gas distributors in a province that is 1.5 times the size of Texas and three times the size of Germany.

The entities we regulate provide electricity to almost 5.3 million residential, commercial, and industrial customers and provide natural gas to more than 3.7 million customers.

The OEB has existed, in one form or another, for more than 60 years.

Our early work to modernize, as reported in these pages last summer, included creating a new governance structure and having an independent, third-party undertake a full financial review of the OEB. More importantly, OEB set a concrete goal of becoming a top regulator, demonstrating best-in-class attributes in all of our undertakings.

Modernizing stakeholder engagement

One of the most crucial ways in which we've changed is by increasing the quantity and quality of our stakeholder engagements.

We've created a stakeholder engagement framework and launched two new standing committees: The Energy [X] Change is an advisory group of senior executives who can help us define emerging priorities on the big issues such as electrification, carbon reduction, and engagement with Indigenous communities. The Adjudicative Modernization Committee advises our chief commissioner, specifically around increasing transparency in our processes and creating greater efficiency and certainty for regulated entities and the customers they serve.

We are also using our Framework for Energy Innovation and our Distributed Energy Resources Connections Review to engage Ontario's energy sector to understand gaps and how we can deliver needed improvements. The former is being developed by a group of more than 20 individuals representing utilities, conservation groups, consumer groups, and distributed energy resource providers who are united in creating a plan for utilities' usage of these technologies and integration workstreams. The latter, being conducted by another working group of external stakeholders, focuses specifically on distributed energy resource connections. Their work involves determining whether, for example, the growth in electric vehicles is going to require us, as the regulator, to make adjustments to the connection rules. They're also examining risks to system reliability posed by these technologies and their connections. The work of these two groups will enable the utility sector's emerging energy marketplace.

Innovating regulatory experimentation

This fall, we began to overhaul our Innovation Sandbox, too. The sandbox was initiated in February 2019 as a place where utilities and other companies that are interested in energy-related innovation can test new ideas, products, services, and business models. The OEB provides sandbox applicants customized regulatory guidance and relief from certain regulatory requirements, if needed. We are also undertaking a new partnership with Ontario's Independent Electricity System Operator, seeking proposals for innovative projects that may raise challenging regulatory issues. We've worked hard to make the sandbox processes and outcomes transparent, simple, and convenient for innovators, and we're looking forward to helping sandbox projects succeed.

Photos courtesy of OEB

OEB's Innovation Sandbox project has inspired innovative projects in the energy space.

Our work to enable project Green Button, an initiative of the provincial government, is another way we're enabling and providing transparency to the sector. The project brings together distributors and third-party technology providers to give customers access to their utility data. The project grants customers access to their utility data or authorizes the automatic, secure transfer of their data from their utility to apps or third parties. Access to this data can help Ontario households and businesses to better understand and manage their electricity bills.

Using Surveys to Inspire Growth

OEB's work in stakeholder engagement was partly spurred by a stakeholder survey conducted by an independent research firm last fall. The survey revealed unacceptably low satisfaction rates, by any standard, and inspired OEB to work harder to regain the trust of the entities we regulate and our other stakeholders. A follow-up survey was issued this fall, and a summary of results will again be shared widely when they're available.

Authentic diversity, equity, and inclusion and democratizing the workplace

Finally, our evolving stakeholder relationships wouldn't be authentic or successful if they weren't based on real change within our own organization. One of the most important areas in which that change is occurring is related to our diversity, equity, and inclusion initiatives. Earlier this year, the OEB created its first corporate statement on diversity, equity, and inclusion. That work included adopting an Indigenous land acknowledgement, which is delivered authentically at the beginning of OEB meetings and events.

We're also reforming the culture of work for all in the OEB organization. Over the past year, the OEB has held countless executive-led and staff-driven virtual events. The sessions have helped to broaden our perspectives across the organization and provide a true forum for dialogue. We believe in "walking the talk." We know we can't deliver accountability and transparency to Ontario's energy sector unless we live those values inside of our organization.

Our shift to enterprise-wide announcements and discussions on the Microsoft Teams platform has added another layer of democracy to our workplace, as all employees are invited to share news about accomplishments or feedback on OEB events. For instance, following the two-day CAMPUT fall conference in October, members of our 20-person delegation shared their takeaways via Microsoft Teams for all colleagues to read. There were no silos and no filters: Anyone could post, and anyone could respond. The result was an ability to learn from each other and extract maximum value out of our participation in CAMPUT.

These are just some of the ways that Ontario's energy regulator is modernizing and delivering public value.

As we continue to execute against our strategic plan and business imperatives, my message to our external stakeholders and everyone inside the organization is simple: The OEB works for the energy sector, not against it. Our vision is to be trusted and recognized for enabling Ontario's growing economy and improving the quality of life for the people who live here. And while much has been done, we also know that we're just getting started!

OEB Tips For Indigenous Land Acknowledgment

Indigenous land acknowledgments are formal statements, often taking place before public events, that recognize and honor the Indigenous people who historically stewarded an area and called it home. OEB offers the following tips for developing and presenting land acknowledgments.

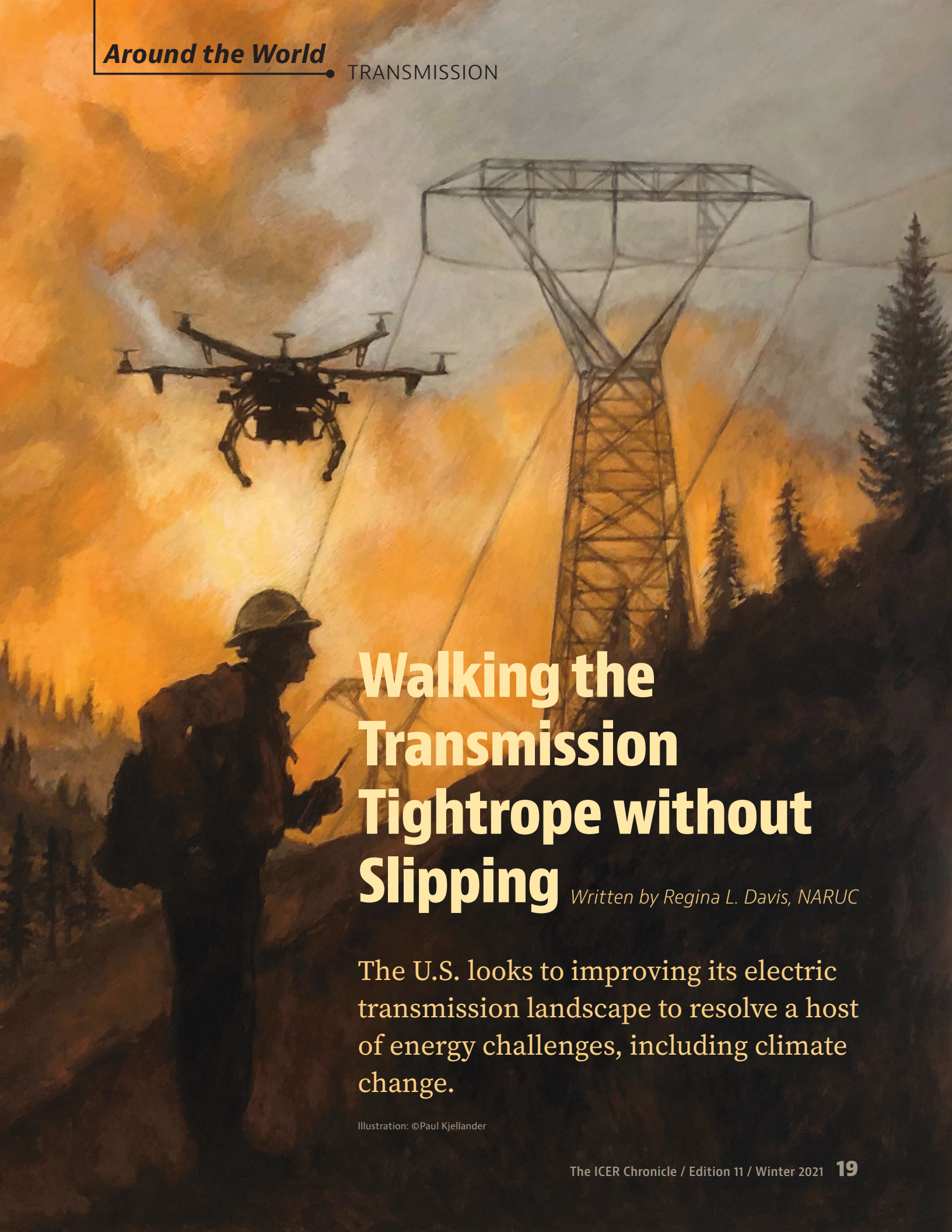
#1 Create an employee-led team to develop the land acknowledgment. OEB's team consisted of employees from human resources and public affairs as well as the Canadian registrar's office.

#2 Consult with knowledgeable subject matter experts. The OEB team consulted with such organizations as Indigenous & Northern Affairs Canada and the Canadian Centre for Diversity and Inclusion.

#3 Conduct an audit of other organizations' land acknowledgments. The OEB team requested acknowledgments from other high-profile organizations, such as the University of Toronto and the City of Toronto.

#4 Be specific. The OEB's land acknowledgment is specific to the OEB, referencing our Toronto headquarters.

#5 Make it authentic. When someone recites the land acknowledgment, they should pace themselves and really consider the words they are saying.



Walking the Transmission Tightrope without Slipping

Written by Regina L. Davis, NARUC

The U.S. looks to improving its electric transmission landscape to resolve a host of energy challenges, including climate change.

Illustration: ©Paul Kjellander

In the United States, energy issues—particularly those related to climate change and renewable energy—are the focus of the new President Biden Administration's set of national priorities. Many of the new energy-related technologies and innovations are predicated on understanding the effects of climate change and the ability to move toward a reliance on less carbon-based sources of energy.

At the COP26 meeting in Glasgow, President Biden promised to "double down on clean energy deployment and adapt promising new clean-energy technologies." Bringing that pledge to fruition will require a much stronger collaboration between state regulators, who are charged with working in the best interests of their communities, and federal regulators, who are advancing a broader set of policy goals.

A Varied National Landscape

How state utility regulators and policymakers view the concept of climate change, establish energy goals, and respond to energy disruptions and new technologies are as varied as the United States itself. The National Association of Regulatory Utility Commissioners (NARUC) has five regional affiliates: The New England Conference of Public Utilities, the Mid-Atlantic Conference of Regulatory Utility Commissioners, the Southeastern Association of Regulatory Utility Commissioners, the Mid-America Regulatory Conference, and the Western Conference of Public Service Commissioners. Although there may be some similarities in some of the issues they face, there are unique differences in their responses—even within a region.

Commissioner Ellen Nowak of the Public Service Commission of Wisconsin, president of the Mid-America Regulatory Conference, believes a focus toward renewables will change the energy industry most in her region.

"Like most areas of the country, the generation mix is moving away from carbon-based fuels to renewable fuels. This brings unique challenges to affordability, reliability, siting, land resources, and the like," she said.

Similarly, within the Southeastern Association of Regulatory Utility Commissioners (SEARUC) footprint, Puerto Rico Energy Board Commissioner Lillian Mateo-Santos, president of the affiliate, says "the increased adoption of electric vehicles is resulting in a heightened focus on electric infrastructure to accommodate this increased load, all with an eye towards the safe, reliable, and affordable provision of electric service. Secondly, similar to electric vehicle adoption, innovations in distributed energy resources are resulting in more [of those resources] in utility resource planning, both on the utility and customer side of the meter."

SEARUC, she added, is also grappling with more frequent and severe weather events, "whether that be hurricanes, tornadoes, or the cold weather events of 2020 that impacted the Southeast. With these events in mind, it is imperative that state regulators monitor their impacts on public utility infrastructure, both now and moving forward, as we look to ensure the safe, reliable provision of public utility service."

Decarbonization is also a major issue in New England states, as it "challenges the reliability of the electricity system because more prevalent use of cleaner technologies, such as electric heating and electric vehicles, increases demand and load on an aging power grid," said the New England Conference of Public Utilities President Matt Nelson of the Massachusetts Department of Public Utilities.

"In New England, the interconnection of some new clean energy generation projects has stalled due to the reliability challenges associated with load growth," he added. "As states and utilities increasingly adopt renewable energy and climate targets, regulators need to design processes to not only ensure that these projects can proceed in an expedited manner, but also to ensure that our electrical grid can integrate them in a safe and reliable manner."

The Charge for Better, Stronger Transmission

Moving toward the Biden Administration's goal of cleaner energy and accelerating decarbonization has many challenges, not the least of which is the need for more electric transmission. Most analysts agree that an essential aspect of responding to climate change and decreasing reliance on carbon-based energy will be increasing transmission.

Achieving the goal of adding more transmission and upgrading an infrastructure network that was largely built more than 50 years ago is a tall undertaking. In its overview of how electricity is delivered across the country, the U.S. Energy Information Administration writes that, "older, existing transmission and distribution lines have reached the end of their useful lives and must be replaced or upgraded."

Federal and state regulators will need to balance

competing interests and an often-complex web of regional issues, not to mention concerns over state versus federal jurisdiction. The country's new trillion-dollar infrastructure package includes transmission siting provisions that, NARUC and many state regulators contend, overstep federal authority.

One measure aimed at not only unpacking the myriad transmission issues and bridging the chasm is the Joint Federal-State Task Force on Electric Transmission, a first-of-its-kind initiative between members of the U.S. Federal Energy Regulatory Commission (FERC) and 10 NARUC commissioners (two from each of NARUC's five regions).

Photo: Andrew Melnykovych

Maryland Public Service Commission Chairman Jason Stanek co-chairs the task force and understands these challenges.

"Much of our transmission grid was developed in the 1950s and 1960s, with a projected life of 50 years—and some grid infrastructure is over 100 years old," he explains. "Without additional investment, our nation's grid will struggle to meet demands that it was never designed to handle. Further, policies designed to decarbonize our power production and efforts to electrify transportation and other sectors will only further strain an aging and outdated grid."

The task force held its first meeting in November at the NARUC Annual Meeting and Education Conference. FERC Chairman Richard Glick credited NARUC's immediate past president, Paul Kjellander, with helping to bring the task force to fruition.

Noting the current state of the energy landscape, Glick said during his opening comments during the meeting that, "We're in the midst of an enormous transition. We [Glick and Kjellander] sat down and talked about how we can work better on transmission issues, and we came up with the task force."

The task force initiative aligns well with NARUC's three-year focus on innovation and disruptions, introduced by Kjellander in 2020 during his installation as NARUC president.

"NARUC's multiyear theme positions our association well to help regulators grapple with the rapidly evolving energy landscape," says Kjellander, who leads the Idaho Public Utilities Commission.

"As customer demand for cleaner energy resources increases, the need to deploy innovative technologies to serve growing load and replace carbon-laden resources will dominate our conversations. *Connecting the Dots: Innovative/Disruptive Technologies and Regulation* will be a theme that will provide a platform we can build on for the future," he adds.

Because that future depends on new transmission, the federal-state joint task force has its work cut out. At the November meeting, Glick highlighted the various reasons pushing significant demand for new investment in transmission, which include "state policy, consumer demand, weather issues to make the grid more resilient but also issues related to climate change and the need to access remotely located cleaner energy resources."

Constructive dialogue between state and federal utility regulators is critical to this effort due to the complex and intertwined state/federal jurisdiction over the planning, siting, and development of interstate transmission lines, according to Jason Stanek, the Maryland regulator and task-force co-chair.

The matter of jurisdiction has been a bone of contention between state and federal regulators. FERC's and court dockets are replete with filings from NARUC asserting infringements on state authority. Hopefully, the task force will help allay some of those issues with respect to electric transmission and the members can come to a meeting of the minds.

"Having a forum where federal and state counterparts can communicate openly will facilitate the identification of challenges and solutions early on," Stanek says. "And that's precisely the goal of the new Joint Federal-State Task Force on Electric Transmission—to promote meaningful collaboration while

also driving consensus on some issues and, hopefully, compromise on others. Additionally, progress in this joint dialogue can further strengthen state and federal relations in this area."

"There's no need to look at this as solely a FERC issue or solely a state issue," said Glick at the meeting.

Framework for Engagement and Customer Focus

As the nation becomes more accustomed to the idea that climate change is more than a notion but a grim reality, understanding the effects on the consumer, creating public education resources, and providing greater transparency have become even more important for regulators and utilities alike.

New England Conference of Public Utilities President Matt Nelson of Massachusetts sees the challenges for regulators as a direct link to climate change and, because "climate concerns are driving New England states' energy policy goals, the regulatory and infrastructural challenges that we must navigate to facilitate these goals are a response to those climate concerns."

Commissioner Ellen Nowak of the Public Service Commission of Wisconsin, president of the Mid-America Regulatory Conference, says her region is seeing a lot more public engagement in their processes, adding "This is an opportunity for us as regulators to educate the public about what we do and what the energy transition means to their lives."

As for the transmission task force, there is a concerted effort to make the process transparent. Task force meetings are open to the public for listening and for observation. Although only 10 state members are on the task force, state commissions, the general public, and stakeholder groups may suggest topics for discussion at the meetings.

Part of the responsibilities of task force members will be to conduct outreach to other commissioners and commissions in their regions to ensure the task force receives a broad view of the regional issues.

All eyes are watching state actions, federal policies, and the role of the task force in getting the country where it needs to be.

"Today's energy landscape will continue to evolve, and our infrastructure must be ready to handle these changes," says Stanek.

Regulators provide their take on disruptions — Are these disruptions good, bad, worrisome? Does disruption necessarily mean innovation?

Disruptions, when correctly managed, ordinarily bring beneficial results. They generally bring innovation that could be in the public interest. Nevertheless, all disruptions must be observed carefully to avoid pitfalls that could have adverse impacts. **Commissioner Lillian Mateo Santos, Southeastern Association of Regulatory Utility Commissioners**

While change can be worrisome, it can also be an opportunity, and I think that is how the industry is treating it. The changes are coming primarily for three reasons: (1) societal and political desire to make changes; (2) tax incentives; and (3) government mandates. **Commissioner Ellen Nowak, Mid-America Regulatory Conference**

Accelerated decarbonization policies present an opportunity to examine our existing laws and policies to ensure that renewable energy generation is built to ensure that energy can match demand, in terms of both potentially evolving load shapes and delivery to load centers. **Chairman Matthew H. Nelson, New England Conference of Public Utilities**

A Success Story:

Attracting Private Sector Investment in Uganda's Electricity Supply

Uganda responds to climate change even as it develops and reforms its power sector.

Written by Isaac Vivian Kinhonhi, Uganda Electricity Regulatory Authority

Uganda is a landlocked country in Eastern Africa, sitting west of Kenya, south of South Sudan, east of the Democratic Republic of Congo, and north of Rwanda and Tanzania. It is in the center of Africa's Great Lakes region. According to the Uganda National Bureau of Statistics, as of June 2021, Uganda's population was estimated to be 41.5 million. Uganda's inflation rate sits at 2.8 percent, and its annual GDP growth rate is 3.4 percent, despite COVID 19 challenges.[1] The level of electricity access to the national grid stood at 19 percent by the year 2019.

One of the major objectives of Uganda's electricity reforms in the late 1990s was attracting private investment. These reforms took place against the backdrop of an already old and constrained electricity infrastructure, very low electricity access estimated at around 10 percent, and several operational inefficiencies.[2]

Following the implementation of the electricity reforms of 1999, the Electricity Regulatory Authority (ERA) was put in place to oversee all activities for the whole of the electricity supply industry in Uganda. In an effort to ensure the sustainability of the electricity industry through investments, the ERA—with support from key stakeholders like Uganda's Ministry of Energy and Mineral Development and other development partners—implemented key interventions over two decades to support and attract private investment in the country.

These interventions included developing a feed-in tariff to support renewable energy, a global financing mechanism to support renewable investments in Uganda, the standardization of power purchase agreements, regulatory transparency, and more. Today, Uganda offers a success story of a liberalized power market, even as it continues to grow.

The Implementation of Renewable Energy Feed-in Tariffs

To address the issue of attracting private investment into the power sector, in 1999 the Ugandan Government unbundled the Uganda Electricity Board, inviting private sector participation in Uganda's generation and distribution segments. In doing this, Uganda also created a national regulator and developed incentives such as concessional loans and sovereign guarantees to investors.

Recognizing the important role that renewable energy sources can play in the country's generation mix, Uganda took another critical step in 2007, instituting a Renewable Energy Policy to diversify the energy supply sources and technologies in the country.

1 Key Economic Indicators, 122nd Issue: Quarter Four 2020/21 https://www.ubos.org/wp-content/uploads/publications/10_2021KEI_122nd_Issue_Q4_2020-21_-(Apr-Jun).pdf

2 http://www.gsb.uct.ac.za/files/UgandasPowerSectorReform

Kakira Sugar co-generation was part of Uganda's GETFiT program.

Nkusi hydro power plant was part of Uganda's GETFiT program.

REFiT is an energy policy focused on supporting the development and dissemination of renewable power generation. In a feed-in tariff scheme, providers of energy from renewable sources, such as solar, wind, bagasse, or hydro, receive a price for what they produce based on the generation costs. This purchase guarantee is offered generally on a long-term basis, ranging from 5 to 20 years, but most commonly spanning 15 to 20 years.

Photos Courtesy of Uganda ERA

Access Solar Uganda was part of Uganda's GETFiT program.

Rwimi hydro power plant was part of Uganda's GETFiT program.

In particular, the policy aimed to increase the use of modern renewable energy from around 4 percent estimated in 2007 to 61 percent of the total energy consumption by the year 2017.[3]

The Government of Uganda set ambitious targets and created innovative financing mechanisms, such as targeted subsidies and a Renewable Energy Feed-in Tariff (REFiT)[4] policy, to meet the targets. The REFiT policy incorporated, as central tenets, a guaranteed but technologically differentiated purchase price over a fixed time-frame, tariff degression, guaranteed access to the grid, a purchase obligation of the system operator, and 20 MW caps on generation capacity to control consumer prices.[5]

In exercising its mandate, the ERA has reviewed and published feed-in tariffs at least six times since 2007. The routine reviews address key changes in the market, including technology, any new government policies that would impact the existing feed-in tariff, and any key concerns raised by prospective project developers and investors, such as return on investment, risk mitigation, and project lead time. The most recent feed-in tariff adjustment was completed in April 2021 to cover a period of two years.

Going Global

In 2013, Uganda ERA, in conjunction with the Government of Uganda and development partners, such as KfW investment group, the World Bank, the Royal Norwegian Embassy, UK AID, and the EU, came together and implemented an incentive program called the Global Energy Transfer Feed-in-Tariff (GETFiT).

This program was intended to address the hurdles that were blocking more private investment in the development of renewable energy generation projects in Uganda. The program consisted of the GETFiT Premium Payment Mechanism, a World Bank guarantee facility, and support to developers to acquire financing.

The latest annual report from GETFiT secretariat indicates that as of 2020, the program has helped to attract $455 million USD of private investment to Uganda's energy sector. Of the 17 renewable energy

3 The Renewable Energy Policy of Uganda 2007: http://energyandminerals.go.ug/downloads/RENEWABLE%20ENERGY%20POLIC9-11-07.pdf

4 Low Carbon Green Growth Roadmap for Asia and the Pacific Fact Sheet: https://www.unescap.org/sites/default/files/26.%20FS-Feed-In-Tariff.pdf

5 Electricity Regulatory Authority (2019). Uganda Renewable Energy Feed-in Tariff (REFIT) Phase 5 Guidelines: https://www.era.go.ug/index.php/resource-centre/regulatory-instruments/guidelines-and-standards

projects that were expected under GETFiT, 14 of have been completed, for a total of 122 MW commissioned out of the expected 158 MW.

Although the enrollment of new investors and developers under the GETFiT program was closed in 2015, there was notable growth of new license applications—over 40 percent—by the end of 2020. More than 20 projects are at various stages of development since the GETFiT program discontinued, even without the program's tariff premium and guarantees. This increase in interest can be markedly attributed to, among other things, reduced risk perceptions of the electricity supply industry in Uganda for private investors following the GETFiT and REFiT program implementations. As a result of the success in Uganda, GETFiT was rolled out in other countries including Zambia, Mozambique, and Namibia.

Developing Cost-Reflective Tariffs

Following the electricity reforms in Uganda in 1999, the ERA undertook the role of setting the electricity tariff across the entire electricity value chain. However, the consumer, until 2011, acquired electricity subsidies from the government of Uganda and therefore the regulator made minimal adjustments to the end-user tariffs.

But by 2011, the government was required to provide subsidies as high as 50 percent of the electricity end-user tariff to cover the financial revenue requirement across the entire sector value chain. This was due to rising costs of electricity generation, especially from expensive diesel-based generators that had been providing more than 40 percent of the national grid's energy needs since 2006. This continuous subsidy requirement put a strain on government coffers and consequently resulted in delayed payments by the government, poor credit ratings for Uganda's electricity industry (especially the system operator responsible for paying generators), as well as stifled the development of other priorities like new generation projects and electricity access. The inefficiencies in the sector were evident with poor revenue collection rates, high energy losses, and old and tired electricity infrastructure that called for private investment to attain some level of sustainability.

The ERA consequently spearheaded the increase of end-user tariffs by as high as 46 percent in 2012 to move closer to cost reflective levels. This was followed by the implementation of a quarterly tariff adjustment mechanism[6] designed to ensure that tariffs can recover all costs at all times by adjusting for changes in inflation, exchange rates, oil prices, and the energy mix. With a financially sustainable electricity sector, any investor would get reasonable assurance that they can recover all their investment even when there were key changes in the market.

Creating an Independent Power Transmission Framework

Uganda's ERA, in partnership with the World Bank, is now in the process of developing an Independent Power Transmission (IPT) framework. The framework should be in place as early as June 2022. The idea of developing the IPT framework was conceived on the notable need observed in Uganda for the private sector to advance the development of the transmission network, the sector first having been backed by Ugandan sovereign guarantees for debt default, the ERA's standardization of power purchase agreements, and various tax exemptions and waivers for renewable energy projects. Investment needs include power transmission lines from generators, power export lines, and network expansion.

According to the ERA's Least Cost Expansion Plan 2020-2030, $6 billion USD is required for national grid investment. Only around $3 billion USD has so far been committed by the government of Uganda and various development partners like the World Bank, the government of China, KfW, and others. A shortfall of close to $3 million USD was still unfunded as of mid-2021. This investment is required to support the movement of and demand growth for the excess generation on the national grid in the short- to medium-term.

A Bulwark of Regulatory Transparency

Among all these changes, the regulator in Uganda continues on the path of regulatory transparency by using various tools to ensure access to its work, including public tariff setting and the publication of regulator decisions and guidelines.

The ERA conducts tariff reviews for new license applications as well as annual and quarterly end-user tariff adjustments. During the tariff setting process,

6 https://www.era.go.ug/index.php/tariffs/tariff-adjustment-methodology

the ERA conducts public hearings. To further enhance transparency, separate engagements are conducted with some special interest groups like the Uganda Manufacturers Association, the Uganda Chamber of Commerce, the Millers Associations, and the Uganda Small Scale Industries Association. This is intended to gather key concerns regarding the tariff under review. Due in part to this engagement, the ERA has been in position to approve tariff increases that are as high as 46 percent when justifiable need arises.

The ERA has also put in place investment approval and verification guidelines in an effort to offer clarity on how an investment would be treated by the regulator. This level of clarity creates limited space for a licensee to challenge decisions made by the regulator and builds predictability for the investor on each dollar invested in the national infrastructure.

Milestones Achieved in Uganda's Electricity Sector (1999-2020)

Over the more than two decades since 1999, Uganda undertook continued intervention towards attracting private investment. It was envisaged that private investment would help the country boost generation capacity as well as technical, commercial, and operational efficiency in the generation, transmission, and distribution segments. **Table 1** highlights some achievements in the electricity sector of Uganda from 1999 to 2020.

Every country in the world aspires to be called an investors' destination of choice. Uganda, in its attempt to attract both local and international investors in the electricity sector, implemented the electricity reforms that culminated in the unbundling and the birth of an independent regulator. The regulator, in partnership with the government and other key stakeholders, has over the last two decades spearheaded various interventions to make Uganda a favorable investment destination, especially in the renewable energy space.

These innovations led to a significant rise in private investment in Uganda's electricity supply industry, particularly for electricity generation—growing from only three generation projects in 1999 to 45 generation plants by the end of 2020, of which 41 are from renewable sources and at least 40 are operated by private investors. In addition, the private investment in the distribution segment led to distribution efficiency, with losses reduced from 38 percent to 17 percent and collection rates increased from 63 percent to 99.3 percent over the period of 1999 to 2020. Moreover, the number of customers connected to the grid grew from 180,000 to more than 1.6 million—a feat to be proud of for sure.

Table 1: Achievements in the Electricity Subsector of Uganda (1999 to 2020).

Segment	Item	1999	2020
Generation	No. of plants	3	45 generating plants in operation, 17 plants under construction, 22 projects at feasibility. All renewables.
	Onshore intermittent sources (solar PV & wind)	0	4 solar PV plants with a total of 60 MW commissioned; 20 MW of solar PV and 20 MW of onshore wind under construction
	Installed capacity	280 MW	1,269 MW
Transmission	Network length	1,232 KM	3,101 KM
	No. of substations	12	25
	Energy generation	1,304 GWh	4,383 GWh
Distribution and Supply	No. of utilities	1	8
	No. of customers on the grid	180,000	1,643,288
	Total private investments	0	$3 billion USD
	Percentage of cost reflective tariffs	35%	95%
	Efficiency and distribution losses	38%	17.5%
	Electricity access	10%	57%
	Distribution/supply collection rate	63.0%	99.3%
	Network length	19,571 KM	52,088 KM

Daring to Go Further

Inspired by strong women, this author encourages other women in energy to dream big and forge their own paths.

Written by Ksenia Khromova, French Commission of Energy Regulation

I am of Russian origin, but for the last 12 years I have been working for the French Commission of Energy Regulation (CRE), moving up the ranks from a junior analyst position to my current role as director of wholesale markets surveillance.

I was born in a family of engineers and, other than my first early childhood dream to be a policeman, I have always wanted to become an engineer.

Early passions and career track

I was strong in mathematics and entered the oldest and most renowned engineering school in Russia—the Bauman Moscow State Technical University. Growing up in this mostly male universe, I had heard a lot of jokes about a woman's inability to perform the hard technical work of engineering. I aimed to prove the opposite. You can only imagine how happy I was to obtain an engineer's degree with honors.

During my last year of studies, I won a Renault Foundation scholarship that paid for two years of master's-level education on transportation and sustainable development from three prestigious French schools, as well as my living fees in Paris. Although I had just started studying the French language as my third language after English, I hopped on a plane to France one week after my graduation from Bauman. At the end of this second education, I absolutely wanted to gain working experience in France, and thus began my regulatory adventure at CRE!

I entered at CRE in 2009 as a junior analyst working on different types of renewable energy subsidies. Aware of this big opportunity in the midst of the economic crisis, I entirely dedicated myself to my task. When my senior colleague left CRE one year later, I found myself alone managing a portfolio worth several billions of euros in assets. It was a huge responsibility, and I had to devote a lot of my time to improving my knowledge. As a result, my professional skills grew significantly and, when the agency hired new analysts, I naturally took a senior position.

With the increasing interest from investment companies in the French overseas energy system (Réunion, Corsica, Martinique, etc.), my duties evolved to focus on developing decision proposals for CRE's Board to consider appropriate levels of subsidisation for these projects. The challenge was to find a suitable framework for addressing the need to invest in a large scope of energy projects, from power plants to storage to energy efficiency projects, while maintaining reasonable subsidy costs borne, at the end, by consumers. Soon, I began accompanying a CRE board member as a technical advisor for local audits covering as much ground as possible: inspection of power plants and the power grid, cost audits, and meetings with local public authorities, producers, and consumers.

This was a defining moment in my career as it really built my self-confidence. My proficiency was being recognised, and I had built very good relationships at work.

However, things had not always gone so smoothly. At CRE, I was entering a world that I did not know much about. Despite my engineering background, energy regulation was a new area to learn and I had an elementary knowledge of the energy sector. Another challenge was to accept being different. As a Russian in a French administrative authority, I often felt like a fish out of water! Everything was confusing for me, though I was young and willing to prove myself. I felt like I did not fit in. Today, looking back, this seems funny to me. I think I was actually afraid to be underestimated and, like many young women starting their careers, I didn't trust in myself.

But after my shy start, great times came: good memories, interesting people from different parts of the world, and a lot of hot topics to solve. I was liking my job and, when my manager left CRE, I applied to be a head of department. After several years in a senior analyst position, I felt ready to become a manager. My expertise and good recommendations obtained from my peers and colleagues encouraged me in my decision to try for advancement.

The reality turned out to be rather disappointing. Another candidate who had never worked on my department topics was appointed. I was deeply upset because I felt totally ready to succeed my manager. Still, the experience taught me a valuable lesson: Dare the impossible.

Mid-career development

Indeed, my new manager proved to be a good guy who was motivated to progress quickly in his new field. We found a good common understanding and, soon enough, the business ran as usual. Looking back, I know that I learned a lot from this time and I did not go unnoticed by my superiors.

When the opportunity for advancement again arose, I mustered my courage to apply for the position of head of the wholesale energy markets surveillance department. I was appointed, and I am very grateful to all the people who trusted in me.

But, my new position brought new doubts. Once

again, I felt out of place facing a new job, new colleagues, and new responsibilities as a team manager as well as different behaviours, new internal codes, and different ways of working. My internal voice told me: "I will never get there! I'm not ready."

I realize now that no one is ever "ready" to start anything new. I found my motivation, my energy, and my curiosity to learn. I started this new adventure with new interesting people, and I liked again what I was doing. Two years later, I was promoted to director of the wholesale markets surveillance division.

Success, found?

My days in the office are still long. In our surveillance mission, I like to think of my team and me as detectives in a big novel called *Wholesale Energy Markets.* Today I am very close to fulfilling my very first childhood dream of becoming a policeman. I am always looking to improve my knowledge and to find the best ways of doing things.

I have to thank my husband for his understanding. His support and that of my parents, even though they are far from me, has helped me a lot.

Looking back, I have also had good bosses, men as well as women. Some were mentors, whether they knew it or not, and I am very grateful to them for the lessons they taught me.

I see a lot of inspiring women both in my private and professional life. If I should speak about one of them, it would be our CRE board member, Catherine Edwige. We worked together on the energy issues of French overseas territories. She is a stylish woman from Martinique with an impressive path covering the fields of power generation, electrical networks, energy efficiency, and now regulatory issues. Watching how she works is very instructive. She shared with me an important lesson: We must bring meaning to what we do.

Women who choose careers in technical fields, be they energy or another, can find climbing the corporate ladder challenging. I have often heard that being organised and responsible is enough to succeed, but this is not the case. Our careers are personal challenges to be brave, to work hard, to manage a constant lack of time, and to fight back against the idea of perfection. Instead of blaming ourselves in search of unattainable perfection (I was not reactive enough, I could have said it better, etc.), we have to go forward being proud of the work we do and the individual strengths we have to offer. Above all, it is important to maintain a strong work ethic and a positive outlook and to be able to persevere when life hands you something unexpected. You never know who is watching your work and one day will believe in you.

We are not always responsible for what happens to us, but we are 100 percent responsible for what we do with our experiences. One piece of advice I would like to share: Do not waste energy to find who is at fault for failure, but look for opportunities to turn failure into a success. It is important to find your unique differences and to draw your own career path. We are always afraid of change. Fear of failure is one thing that prevents women from realising their potential. You can't win at games you don't play. Be reasonable, but take a chance on yourself. Create your own story!

Photos courtesy of Ksenia Khromova

CEER

Capacity Remuneration Mechanisms in the EU: Today, Tomorrow, and the Future Ahead

Authored by Tim Schittekatte and Leonardo Meeus

In a paper published in September 2021, researchers discuss the implementation of capacity remuneration mechanisms, or CRMs, in the European Union. Researchers first demonstrate that the costs of CRMs in the EU are significantly lower than in the United States. Next, researchers discuss how the EU's recent clean energy legislation, known as the Clean Energy Package, intends to limit the future role of CRMs by providing two thresholds to determine if CRMs are really needed: a European resource adequacy assessment and a national implementation plan to improve current electricity market design. In the event residual adequacy concerns persist, the Clean Energy Package also includes provisions to guide the design of a CRM. Finally, researchers discuss the role of the consumer in securing resource adequacy in the future.

To read the full paper, click here.

Are you a researcher with academic work to share?

Are you interested in submitting your academic research to the *ICER Chronicle?* The *ICER Chronicle* welcomes abstracts of recently published work to include in its "Hot Off the Press" section. Please contact your region's associate editor (listed in the masthead of this publication on page ii) for more information.

Photos courtesy of S K Chatterjee

The Clean Energy Transition in India

A conversation with S K Chatterjee, chief of regulatory affairs at India's Central Electricity Regulatory Commission. The views and thoughts reflected in this interview are Chatterjee's own and do not indicate the official stance of his employer or the government of India.

Interview compiled and edited by Kate Griffith

Sushanta Kumar, "S K," Chatterjee is the current chief of regulatory affairs at India's Central Electricity Regulatory Commission, where he specializes in public policy and regulation for renewable integration and market design. Chatterjee has a long history in India's power sector, with a particular focus on reforms. He was instrumental in the development of

India's 2003 Electricity Act, which laid the foundation for the country's current legislative and regulatory power sector regime, and has been working for India's central regulatory authority for more than 10 years. Here, Chatterjee discusses what he views as India's fundamental challenge in moving toward a non-fossil-fuel-based power system: balancing the country's investment in clean energy systems with its developmental goals.

What drives you to do the work you do at CERC? Do you have an internal mission, vision, goal, or direction that keeps you focused?

Job enrichment is what drives me to work at CERC. CERC is a knowledge-based organization. The process of regulation and adjudication involves intense intellectual discourse, which acts as fodder in one's quest for knowledge.

There is variety; there is a demand for out-of-the-box thinking in what we do here: Variety in that we deal with a wide gamut of regulatory activities involving generation, transmission, trading, grid security, power markets, sustainable development, and so on; out-of-the-box thinking in that one is expected to foresee how the power sector may change in the future and create appropriate regulatory frameworks that balance the interests of investors and consumers.

Yes, work-life balance is a major challenge, but it is an art that you learn as you move through your career.

Why energy? What is your personal interest in this topic?

To be honest, my choice of the energy sector came by accident. Being part of an organized service in the Government of India, I landed initially in the Ministry of Power, the government department dealing with national-level electricity policies. There, I developed an interest in the energy sector. As I delved deep into its nuances, I was immersed in the vastness of the energy sector. I realized that energy is one sector that—if you can reform or contribute to reform—you can bring about change in society and the economy at large.

What can you tell us about India's vision for a clean energy transition?

For India, clean energy transition refers to the energy sector's shift from fossil-fuel systems of energy production and consumption, including oil, natural gas, and coal, to alternate sources of energy. India's current focus is on renewable energy sources like wind and solar.

The increasing penetration of renewable energy into the energy supply mix, and improvements in energy storage are the key drivers of this energy transition. Green hydrogen and carbon capture, which are in the research and development stage at present, are India's planned future interventions and are expected to transform India's energy use in a big way.

India's vision for its energy transition is reflected in its 2015 declaration of nationally determined contributions as part of the Paris Agreement, under which India has developed a target of achieving 40 percent of its electric installed capacity with non-fossil fuel sources by 2030. The recent announcement by our prime minister during the COP26 meetings in Glasgow reiterates India's commitment to increase its non-fossil fuel energy capacity to 500 GW by 2030 and reinforces India's commitment to further accelerate its energy transition.

What are the challenges that a developing country like India faces in its energy transition?

Given the history of the Indian electricity sector, it is evident that India's focus has primarily been on energy availability and access.

India's power system has been dominated by conventional power sources like coal and long-term contracts. India still has a long journey of development ahead and needs to expand its infrastructure development and growth in various key sectors such as aviation, trade, and manufacturing.

For the energy sector, the focus is on renewable resources. However, renewables are highly intermittent and require flexibility in the power system. India will have to invest aggressively in flexible resources and technologies like storage and high-ramping technologies. This comes with additional costs, and making these costs equitable and less disruptive is a major challenge.

Another decarbonisation challenge before India is the trade-off between environmental gains and social and developmental benefits. It is crucial to create conditions for the energy transition to occur with the least damage to social and developmental goals.

How are national and international policies and regulations being designed to overcome these challenges?

India's energy transition must integrate large scale intermittent renewable energy into the system. Heeding to this, the Government of India has provided policy and fiscal support, and CERC has created the enabling framework to address the technical challenges posed by large scale, system integration of renewables. CERC has introduced a framework of forecasting, scheduling, and deviation settlement for wind and solar; introduced an ancillary services, or balancing services, mechanism; introduced a regulatory framework for flexing thermal generation; and introduced market mechanisms like India's Real Time Market, an integrated day ahead market, and the Green Term Ahead market that provide avenues for sale and purchase of green power in the market platforms.

India has also taken measures towards digitalization and smart grid development. We expect smart grid investments to provide better insight, in real time, on grid conditions and renewable generation. This is expected to help enhance renewable integration in the grid.

On the international front, India is leading efforts with the International Solar Alliance, implementing the Kigali Amendment to the Montreal Protocol to cut down the consumption and production of hydrofluorocarbons, participating in the International Coalition for Disaster Resilient Infrastructure, and participating in the Leadership Group for Industry Transition.

Are there any achievements that you would like to share?

India's renewable capacity, mainly wind and solar, has been growing consistently at 10 percent to 15 percent per year. It increased from about 20GW in 2010 to approximately 101GW in 2021.

Another important achievement to highlight is the significant reduction in India's wind and solar prices. Solar prices have declined significantly from as high as about 18 INR (Indian rupee) per kWh to approximately 2.5 rupees per kWh at present. This has been possible because of strong policy and regulations that have created appropriate markets for investors. I feel that India stands out as an example of capacity addition as well as efficient price discovery for renewable energy.

What would you most like other countries to know or understand?

India is a developing country.

We have developmental aspirations while we are concerned about climate change and energy security.

The biggest challenge for a developing country is to balance these competing demands. For example, firm fuel sources like coal are required to meet the growing energy need of our vast population, but we realize that we need to reduce our dependence on these fuel sources for the sake of protecting the environment.

Transitioning to alternate sources of energy production and consumption brings with it social and economic challenges such as job losses and stranded costs. We are seeking to address these issues by balancing the interests of all stakeholders.

We are encouraging efficiency improvement in the existing thermal generation fleet through performance-based regulation, mandating the future construction of highly efficient super critical generation plants, and incentivizing energy efficiency in the existing industry through the trading of energy saving certificates. We have been levying coal cess [taxes] and promoting renewable energy sources in a big way. We are creating appropriate market designs to optimize the power system costs, and, in some cases, the state-level governments are providing tariff subsidies to the vulnerable sections of society. Some energy costs are being passed on to the rate payers, while others are being socialized through taxpayers. India's journey towards energy transition sets out a good example for the world to emulate.

What would you most like to know or understand?

I would most like to hear of experiences, anywhere in the world, where a country has handled the issues that we are facing today during transition from a power system based on fossil fuels to one that is not. How are legacy contracts being treated? How are stranded assets and costs being addressed? How are power system imbalances resulting from variability of renewables being handled? How is development versus equity being managed?

What are you most looking forward to for the future? Why?

The energy transition is the need of the hour.

The current focus in India is on renewables. However, renewable energy has limited capacity value, and in order to achieve our long-term vision of the energy transition we need to explore other avenues like green hydrogen, carbon capture, and energy storage. We are in the research and development stage on these fronts, and we look forward to insights and breakthroughs in these technologies to eventually provision energy to consumers at efficient and affordable rates.

An Energy for Art

For U.S. regulator Paul Kjellander, who heads the Idaho Public Utilities Commission, his artistic expression has been a major part of life: from his youth through adulthood. In addition to commissioned pieces and this issue of the *ICER Chronicle*, his work can be found in books and magazines and 10 of Kjellander's paintings are in Idaho's capitol building. Although he has just stepped down as president of the National Association of Regulatory Utility Commissioners, he has stepped up his creative endeavors during the pandemic.

Interview compiled and edited by Regina L. Davis, NARUC

Here, we present a few glimpses into his work, his inspiration, and creative process.

How long have you been an artist?

For as long as I can remember, I've been drawing or painting. I had to petition my school board in rural Illinois to be allowed to create independent studies for art classes in my junior and senior years. Then I had the chance to study art in college, which included a trip to Italy. After that trip, art became one of my three undergraduate degrees (the other two were communications and psychology) and my emphasis was painting.

What inspires you?

Waking up every day inspires me the most. I usually wake up early in the morning and I like to have a project or two progressing at the same time. That way, I always have something creative to help me through my first pot of coffee. But I'll paint whenever I have a few hours—it's a good excuse to listen to music, a podcast, or even a webinar. I tend to use the time painting to work through any issues that might be on my mind. I really don't think about painting while I'm painting.

As far as inspiration, I have always been fond of the Renaissance and Baroque masters. One of my favorite painters is Caravaggio, who was brilliant in his ability to use dramatic lighting to tell a story. I also draw a lot from impressionists (Manet, Mary Cassatt, and Degas) and painters like Hopper, John Singer Sargent, and Winslow Homer.

I saw a coffee mug a few years back that proclaimed, "Matching Your Sofa is Not a Requirement for Good Art." In many ways, that inspired me to create what I thought was art—not necessarily what someone wanted to buy. That might be the reason that my gallery experience was short-lived.

Is there an illustration/painting of which you are particularly fond?

Caravaggio's "The Conversion of Saint Paul" is one of my favorites...

and Mary Cassatt's "Little Girl in a Blue Armchair" is a painting I always try to stand in front of when I make it to the National Art Gallery in DC. These two pieces have taught me a lot about painting and composition.

Do you think the pandemic made you more or less productive—or was there no difference?

Prior to the pandemic, I had taken on a couple of commissions and so I used the shut-down period to complete those paintings. Then Steve Mitnick from *Public Utilities Fortnightly* reached out to me to consider doing a magazine cover and that led to several covers and even a couple of book covers. The volume of work I was doing picked up significantly and I was actually able to incorporate painting into my daily life. I hadn't been able to focus on painting like this since I was a college student. So, I would have to say that the pandemic allowed me to rediscover the reason that I need to paint. And more importantly, it helped me integrate the creative outlet of painting into my daily life.

A few examples of the range of Paul Kjellander's artistic talent are included on these pages, which include a self-portrait, Street Market, Over the Rainbow, *and* Lineman.