Energy

2020

Eighth Edition

Contributing Editors:
Michael Burns & Julia Derrick

glg global legal group

CONTENTS

Preface	Michael Burns & Julia Derrick, *Ashurst LLP*	
Angola	Ana Luís de Sousa, Joana Pacheco & Catarina Coimbra, *VdA*	1
Argentina	Agustín Siboldi, *O'FARRELL*	8
Austria	Dr. Thomas Starlinger, *Schima Mayer Starlinger Attorneys at Law*	22
Brazil	Fabiano Ricardo Luz de Brito & Ana Carolina Katlauskas Calil, *Mattos Filho, Veiga Filho, Marrey Jr e Quiroga Advogados*	29
Canada	Sharon Wong & Christine Milliken, *Blake, Cassels & Graydon LLP*	39
Chile	Rodrigo Ochagavia, Ariel Mihovilovic & Valentina Vizcay, *Claro y Cia.*	47
China	Jihong Wang, Chenxi Li & Dingduo Chen, *Zhong Lun Law Firm*	57
Finland	Andrew Cotton, Laura Leino & Suvi Kurki-Suonio, *HPP Attorneys Ltd.*	67
France	Jocelyn Duval, Chloé Dahéron & Noémie Lenormand, *Kalliopé*	75
Germany	Thoralf Herbold & Ilka Mainz, *GÖRG Partnerschaft von Rechtsanwälten*	85
Ghana	Dominic Dziewornu Kodzo Quashigah, Kweki Quaynor Ahlijah & Nana Takyiwa Ewool, *Reindorf Chambers*	97
Greece	Yannis Seiradakis & Eleni Stazilova, *Bernitsas Law Firm*	106
India	Hemant Sahai, Apoorva Misra & Dipti Lavya Swain, *HSA Advocates*	118
Ireland	Eoin Cassidy & Peter McLay, *Mason Hayes & Curran*	129
Israel	Dr. Tzipi Iser Itsiq, *Lipa Meir & Co*	146
Japan	Hajime Kanagawa & Yoshiko Nakayama, *Kanagawa International Law Office*	154
Korea	Chi-Hyoung Cho & YoungWoo Kim, *HMP Law*	167
Mozambique	Ana Luís de Sousa, Guilherme Daniel & Maria Gorjão Henriques, *VdA*	177
Philippines	Patricia A. O. Bunye, *Cruz Marcelo & Tenefrancia*	184
Portugal	Ana Luís de Sousa, Vanda Cascão & Isabel Valente Sanches, *VdA*	190
Russia	Rustum Kurmaev & Vasily Malinin, *Rustam Kurmaev & Partners*	198
South Africa	Lizel Oberholzer, Jarrett Whitehead & Kelsey Pailman, *Norton Rose Fulbright South Africa Inc.*	212
Sweden	Markus Olsson & Bruno Gustafsson, *Roschier Attorneys Ltd.*	221
Switzerland	Phyllis Scholl, *Baryon AG*	230
UAE	Matthew Culver, Randall Walker & John Geddes, *CMS (UAE) LLP*	237
United Kingdom	Julia Derrick, Antony Skinner & Justyna Bremen, *Ashurst LLP*	245
USA	Robert A. James & Stella Pulman, *Pillsbury Winthrop Shaw Pittman LLP*	261
Uzbekistan	Umid Aripdjanov & Kamilla Khamraeva, *Centil Law Firm*	272
Venezuela	Juan Carlos Garantón-Blanco & Federico Araujo Medina, *Torres, Plaz & Araujo*	280
Zimbabwe	Nikita Madya, *Wintertons*	297

USA

Robert A. James & Stella Pulman[1]
Pillsbury Winthrop Shaw Pittman LLP

Overview of the current energy mix, and the place in the market of different energy sources

U.S. energy consumption was 101 quadrillion British thermal units (Quads) in 2018, up from 97 Quads in 2017, according to the U.S. Energy Information Administration (EIA). Within that figure, the mix of sources and uses has been an active topic this year – in legislative chambers, along regulatory agency hallways, and on Presidential candidate debate stages.

Roaring renewables and the keys to further expansion

Renewable consumption was at record levels in 2018, constituting 11% of total U.S. energy consumption, up 3% from 2017. The increase was mainly driven by wind (up 8%) and solar (up 22%). Biomass consumption, including ethanol and biodiesel, was up slightly from 2017 levels, while hydroelectricity consumption was down. In April 2019, renewables reached a milestone by generating more electricity than coal for the first time in history.

Ambitious government carbon-free emissions goals, as well as clean energy policies adopted by large companies and utilities, continued to advance renewable projects. As of July 2019, eight states plus Puerto Rico and the District of Columbia had 100% renewable energy goals or mandates, in addition to 144 cities and counties. Advances in battery storage technology and economics are driving renewables in the direction of the continuous output required for baseload generation.

Large energy consumers are finding creative ways to support renewable projects. Virtual power purchase agreements (VPPAs) do not require the consumer to be connected to the generator; they offer greater price stability for the purchaser and a bankable offtake commitment for the project developer. However, key federal production tax credits for renewable projects face expiration in 2020, which would increase the cost of development capital and test the appetite for investment from other sources. The next generation of renewable projects, some in locations remote from customer bases, will also need to surmount transmission and land use constraints.

Natural gas – A bridge or a pariah?

The U.S. produced 91 billion cubic feet per day (bcf/d) of natural gas in 2018, up 7 bcf/d from 2017. That represents approximately 31% of primary energy sources. Much of this increase is associated with oil production in the Permian Basin of Texas and New Mexico.

Gas inventories have built up and the need for storage, transport and terminaling capacity continues apace. The U.S. became a net gas exporter in 2017 and that status will continue into 2020. In addition to cross-border pipelines, the U.S. Department of Energy (DOE) and the U.S. Federal Energy Regulatory Commission (FERC) have granted approvals for the

construction on the U.S. Gulf Coast of a large number of export liquefaction facilities. Domestic liquefied natural gas (LNG) export capacity will nearly double in 2019, from 3.6 to 7 bcf/d.

The U.S.-China trade disputes have resulted in many LNG cargoes heading for South Korea and Japan. World gas prices have been lower of late, so there is less of a spread driving the expansion of the trade in the short term.

Gas prices have continued at low historical levels – around US$2.35 per million British thermal units (MMBtu) in 2019. That figure has continued to spur growth in gas use in the electric generation and transportation sectors, displacing coal projects and accelerating the retirement of existing facilities.

Natural gas was once viewed with bipartisan eyes as a desirable baseload energy source – to wean this and other countries from the higher carbon dioxide (CO_2) emissions and costs of coal-fired generation. The term "bridge fuel" was routinely used, but natural gas is now a fiercely contested source. The favourable gas economics likewise compete with renewable generation, and gas is seen by some as another fossil fuel to be stopped in its tracks. California cities have prohibited gas hookups in new residential construction, and the Democratic Presidential candidates propose to eliminate gas as well as more carbon-intensive types of fossil fuel power generation within a matter of one, two or three decades.

Oil production and exploration

Liquid petroleum products continued to be the largest primary energy source in 2018, accounting for 36% of overall consumption, with most being used for transportation. Consumption was at its highest level since 2007, up nearly 500,000 barrels per day (b/d) from 2017, due primarily to increased demand from the industrial sector.

The Permian Basin continues to dominate oil production, accounting for more than 35% of total output in 2018. Although producers in the region have historically faced challenges in transporting crude to market, some of this pressure was relieved in 2019 by two pipeline capacity additions.

Certain federal lands have recently been opened for oil exploration, including the Arctic National Wildlife Refuge (ANWR) in Alaska. By the end of 2019, the U.S. Department of the Interior (DOI) plans to hold lease sales along ANWR's 1.6 million-acre (650,000-hectare) northern coastal plain, which is estimated to hold over 10 billion barrels of crude oil. However, some predict that interest in the lease sales may be lower than anticipated given the high drilling costs and current prices. Legal challenges have delayed seismic testing until at least 2020, increasing uncertainty and risk for potential bidders.

The Trump Administration also sought to open additional offshore tracts to oil exploration and production through a revised five-year outer continental shelf (OCS) leasing program for 2019-2024. The draft plan proposed opening over 90% of the OCS to energy leasing, including in areas that have not been offered for lease in nearly 40 years. However, a federal court ruling in March 2019 struck down the administration's effort to overturn drilling bans in the Arctic and parts of the Atlantic Ocean, resulting in DOI indefinitely delaying issuance of a final plan.

Coal challenges and carbon capture

Coal's share of the energy market declined by 4% in 2018 and is expected to decline an additional 8% in 2019. Much of the reduction in coal output has been due to new gas-fired generation and renewables.

There was an uptick in bankruptcies among coal producers in 2019, with four major

companies filing for bankruptcy in the first seven months. As of the beginning of 2019, more than half of the U.S. coal mines operating in 2008 were closed. These closures tracked the decreasing U.S. demand for coal, mitigated by exports. In addition, coal-fired power plants are under significant economic pressure. In 2018, plant owners retired more than 13 gigawatts (GW) of coal-fired generation capacity, which was the second-highest annual closure on record. On average, coal-fired units are being retired earlier and have a larger capacity as compared to units closed in prior years.

Major energy companies as well as entrepreneurial firms are investing in carbon capture, use and storage (CCUS) technology as a way to curb greenhouse gas (GHG) emissions associated with fossil fuels. Possible applications for the CO_2 captured from coal, petroleum and related sources include enhanced oil recovery, carbonated beverages, and growth of algae to produce biofuels and synthetic gasoline.

Nuclear developments

The domestic nuclear power sector continues to experience challenges. While relicensing has extended the lifetime of some facilities, and many are setting records for generation output, some plants are currently undergoing decommissioning. At least a dozen more are expected to be closed and decommissioning initiated within the next few years.

Decommissioning of nuclear power plants is increasingly being shifted to private entities with the requisite expertise, rather than remaining with the traditional plant operators. This structure has been promoted as being more efficient and cost-effective. There are at least six plants slated to use this third-party decommissioning model, pending approval from the U.S. Nuclear Regulatory Commission (NRC). To date, the NRC has been receptive to this approach upon a demonstration that the acquiring company can safely assume and execute the technical and financial obligations of the licensee.

The DOE is also working with the nuclear industry to advance small modular reactor (SMR) technology, which the agency views as a key part of its goal to develop affordable nuclear power options. The Carbon Free Power Project under review by the NRC aims to utilise SMRs to provide power across six western states. Aside from decarbonising energy portfolios, SMRs can ramp production up and down quickly to complement more intermittent renewable energy.

Changes in the energy situation in the last 12 months which are likely to have an impact on future direction or policy

Electricity storage

Perhaps no change in the energy landscape matters more than the prospects for sustainable growth in the deployment of storage resources for electricity. If renewable energy is to serve as a baseload generation source, storage will be needed at a scale far exceeding its current state.

Looking forward, energy storage continues to grow, with major deployments to the grid primarily by utility-scale projects. Over 300 megawatts (MW) of battery storage capacity were added to the grid in 2018, a number that was nearly matched in the first half of 2019 alone. Energy storage continues to be driven by state-level incentives. For example, California established a 2 GW capacity target by 2020, and New York has an even more ambitious target of 3 GW by 2030.

The federal government has also taken steps to integrate energy storage into the market with FERC Order 841 issued in early 2018. This Order required each regional grid operator to submit a plan to integrate storage into the wholesale market. However, FERC found each

operator's integration plan lacking, and issued deficiency notices to operators in early 2019. Several states, operators, and industry groups are challenging FERC's authority to issue Order 841.

From a technology standpoint, lithium-ion batteries continue to be the dominant technology for new installations, making up roughly 90% of the battery storage deployed. These assets are incremental to the larger base of pumped-water storage facilities and projects. Despite some pessimism that global production rates will not be able to meet the projected growth in battery demand, the lithium market currently is experiencing a glut in supply. Some experts continue to predict that alternative storage technologies such as flow batteries will be necessary to extend the time scale for storage and put renewable energy on a comparable level to the readily deployable and consistent conventional electricity sources.

Whether or not lithium batteries remain the market standard, most advanced battery technologies are dependent on rare earth minerals, which have been a target in the present U.S.-China trade dispute. Most rare earths are produced in China, and the U.S.'s sole rare earth mine currently relies on China to beneficiate the resource. This reliance on China has spurred the U.S. industry to prioritise autonomy, with a new U.S.-based separation system set to go online in late 2020. In addition, the federal government is calling for more prospecting and mining in the U.S. where rare earths have been detected, including on public lands that are not currently open to minerals extraction leasing.

Developments in government policy and strategy approach

Offshore wind: state initiatives and federal challenges

As states and private industry are increasingly focused on addressing climate change, offshore wind has emerged as a major component of many carbon-free initiatives. Six Northeast U.S. states have announced procurements qualifying for renewable energy credits and various forms of incentives. Current state policy commitments alone will require approximately 600 times more wind capacity than is currently available.

Despite its role as a cornerstone of many state carbon-free targets, the wind industry faces several challenges in 2020, particularly for offshore initiatives. This includes the expiration of federal production tax credits in 2020 that have made planned commercial-scale projects more attractive to large power customers entering into power purchase agreements, and to investors providing construction financing. In addition, the industry will continue to suffer from a lack of certainty surrounding the federal government's policy on tariffs, the absence of a firm leasing schedule for offshore tracts, and the recent decision the U.S. Bureau of Ocean Energy Management (BOEM) to halt offshore wind development on the East Coast pending a cumulative environmental impact review.

In July 2019, a group of U.S.-based wind tower manufacturers petitioned the U.S. Commerce Department and U.S. International Trade Commission (ITC) to impose tariffs against wind tower imports from certain countries, arguing that the foreign subsidised towers pose a threat to domestic manufacturers. A month later, the ITC agreed to continue its investigation into whether tariffs should be imposed after finding evidence indicating that U.S. manufacturers are being harmed. If tariffs are imposed, analysts estimate that the cost for wind projects in the U.S. could increase by as much as 10%.

The federal government has also been non-committal on OCS leasing schedules for wind developments. BOEM has pointed to numerous competing interests on the OCS – such as recreational fishing, vessel traffic, and military mission needs – as necessitating a slow and

deliberative process. To that end, BOEM has established several regional task forces to study a host of issues associated with offshore wind developments, but has not released a timetable for leasing. As of June 2019, there were 15 active commercial OCS leases in place for wind developments, all on the East Coast. BOEM anticipates that it will hold its first Pacific OCS wind lease sale off the coast of California in 2020, but it has not provided details of that or any other future potential sale.

In addition to the uncertainty surrounding future lease sales, developers who have secured offshore leases face unpredictability in the permitting process. The U.S.'s first large-scale offshore wind project was expected to begin construction at the end of 2019. However, in August 2019, BOEM ordered a new environmental review to study the cumulative impacts of several proposed offshore wind projects along the East Coast before allowing construction to proceed. This delay has caused concern within the industry about the federal government's commitment to renewable projects that may be viewed as competing with fossil fuels, and the feasibility of developing large-scale offshore wind facilities in the face of fluctuating requirements.

Vehicle efficiency and fuels standards

Vehicle efficiency standards in the U.S. were a major focus of activity in 2018 and 2019, with the Trump Administration announcing new rules to roll back Obama Administration regulations that required a 54.5 mile-per-gallon (mpg) fuel economy standard by 2025.

In response to the proposed rules, California announced pursuit of its own fuel efficiency regulations, and 13 other states agreed to follow. In July 2019, four major automakers announced a deal voluntarily to increase average fuel efficiency in cars and trucks to more than 50 mpg by 2026, in effect by-passing the Trump Administration's plan to freeze the standards at 2020 levels. Analysts observed that having one national standard was a very attractive prospect for the companies, which is what they were able to achieve through a deal with California. In addition, from a global perspective, many countries are pledging to reduce use of fossil-fuel vehicles in the coming decades. The Trump Administration is contesting the authority for California's arrangement with the automakers on a number of fronts.

The Trump Administration has also drawn criticism from the ethanol industry due to a large increase in exemptions that the U.S. Environmental Protection Agency (EPA) has granted to small refiners under the Renewable Fuel Standard (RFS). The RFS requires refiners to blend a percentage of ethanol into gasoline, but EPA can waive the requirement for small refineries that show financial hardship. In August 2019, EPA granted ethanol waivers to 31 refineries, which was more than four times the 2015 level. The ethanol industry has argued that exemptions issued during the Trump Administration have quadrupled, resulting in over 2 billion gallons of ethanol not being produced and several plants being mothballed.

Developments in legislation or regulation

EPA rulemaking and reversals

In June 2019, the EPA issued the final Affordable Clean Energy (ACE) rule, which replaced the Obama Administration's Clean Power Plan aimed at curbing CO_2 emissions from existing power plants. Dozens of states, cities, public health groups, and nongovernmental organisations (NGOs) have filed lawsuits to block the ACE, arguing that it fails to comply with EPA's obligations to regulate GHG emissions under the Clean Air Act. EPA has asked the court to expedite review of the consolidated actions in the hopes of receiving a favourable ruling before the 2020 Presidential election.

EPA also continued its efforts to roll back Obama-era methane rules that impacted oil and gas operations. In August 2019, EPA proposed a rule that would eliminate federal requirements for oil and gas operations to install technology to fix and detect methane leaks from wells, pipelines, and storage facilities. The rule is expected to be finalised in early 2020 following the public comment period.

Finally, EPA's coal ash rules remain in limbo, after having been found to be lacking by a court in 2018. Coal ash is one of the country's largest waste streams, and while it is officially classified as non-hazardous, it contains lead and arsenic concentrations that have leached from storage ponds and landfills. In August 2019, EPA published a proposed rule dealing with the use of coal ash as fill and with management of temporary coal ash piles. The rule package is the first of three expected revisions aimed at addressing the coal ash regulation deficiencies identified in the 2018 court ruling. Environmental groups criticised the proposed rule as further relaxing regulations surrounding coal ash, rather than strengthening protections.

The new contests over endangered and threatened species protections

In September 2019, the U.S. Fish and Wildlife Service (FWS) and U.S. National Marine Fisheries Service (NMFS) revised the Endangered Species Act (ESA) regulations. The revised rules are designed to accelerate agency determinations for listing and delisting of endangered or threatened species and allow the government to take economic impacts into consideration when making listing decisions or designating critical habitat. Importantly, the revised rules redefine "foreseeable future" in a way that will likely foreclose future listing or designation on the basis of climate change impacts, and eliminate automatic protections to species listed as threatened, as opposed to endangered.

These rule revisions come at a time when the government, NGOs, and the oil and gas industry are gearing up for litigation over protections for the dunes sagebrush lizard, which has habitat in some of the most productive parts of the Permian Basin. Listing the lizard as threatened or endangered under the ESA would limit oil and gas development in the area. Last year, NGOs petitioned the FWS to list the lizard as a threatened or endangered species and to designate critical habitat; the FWS declined. The groups are likely to challenge FWS's decision in court by the end of 2019.

In July 2019, a federal appeals court rejected the FWS's second attempt at a biological opinion and incidental take statement for the stalled Atlantic Coast pipeline project. In its opinion, the court rebuked the agency for failing to fulfil its responsibilities under the ESA to conduct a thorough and scientifically-sound review of the project's impacts on endangered species. A similar strategy is being pursued by several NGOs hoping to halt the Mountain Valley Pipeline project by arguing that the biological opinion issued by FWS failed to properly consider the project's impact on three endangered species. In August 2019, Mountain Valley developers announced that they would voluntarily stop construction activities that could impact the species, pending further FWS review.

Judicial decisions, court judgments, and results of public enquiries

Climate change litigation

Climate change lawsuits continued to press forward in numerous jurisdictions in 2019. As of September 2019, there were seven pending climate cases brought by state and local governments against fossil fuel companies. The cases assert a form of state common law nuisance and seek damages for interference in the use of public or private property. A major

battleground in the cases relates to whether jurisdiction over the claims lies in federal or state court, with the governments seeking to keep their cases in state courts and the companies fighting to have the matters heard in federal court. There has been a split in the federal district courts on this issue, resulting in appeals pending in several circuit courts.

The climate change lawsuit brought by 21 young people against the federal government also continued to move forward after the U.S. Supreme Court refused to grant the government's application for a stay in late 2018. The plaintiffs allege that the federal government has violated their constitutional right to a sustainable climate system by allowing fossil fuel companies to operate and by granting leases for minerals extraction on federal lands. In June 2019, the Ninth Circuit heard oral arguments on the government's interlocutory challenges including the question of plaintiffs' standing to bring the case.

Pipeline battles

Numerous oil and gas pipeline projects are the subject of lawsuits brought by various stakeholders – including private landowners, states and NGOs – challenging them on a variety of grounds.

Private landowners in the path of proposed lines are contesting an eminent domain strategy employed by many pipeline developers. Sometimes referred to as "quick take" eminent domain, federal courts have been allowing developers to seize private land immediately after FERC approval of the project, with compensation to be paid later – sometimes months or years later. Landowners challenge this practice, arguing that it exceeds the powers Congress granted to pipeline companies under the Natural Gas Act (NGA). In August 2019, a private landowner challenging use of this practice along the Mountain Valley Pipeline sought review by the U.S. Supreme Court. Although the Court has declined to hear similar "quick take" pipeline cases in the past, recent precedent on property takings without payment may place the present case in a different light.

Although private landowner challenges to the use of eminent domain under the NGA have so far not been successful, pipeline companies' power to seize state-owned property was rejected in a circuit court ruling in September 2019. The court found that the NGA does not give pipeline developers the right to condemn state-owned property, and the court expressed scepticism about whether the federal government could ever delegate this authority to a private party. If the ruling stands, it could effectively give states veto power over pipeline projects if developers cannot find alternative routes that do not involve crossing state-owned land. Analysts have observed that if national energy projects begin to get derailed by states, Congress will likely need to amend the NGA to provide direct eminent domain authority to FERC.

In August 2019, EPA proposed a regulation to curtail the states' ability to delay energy infrastructure projects under Section 401 of the Clean Water Act. Known as a Section 401 certification, the federal statute gives states the right to certify that projects comply with state water quality standards. Industry had expressed concern that states were using the Section 401 certification process to unreasonably delay and increase the cost of energy projects. If finalised, the new rule will prevent states from considering issues other than water quality in their certifications, and clarify that a state's one-year time limit for making its certification decision begins running when it has received a certification request, rather than a complete application.

In June 2019, NGOs received a favourable ruling from a circuit court, holding that the U.S. Forest Service did not have the authority to permit the Atlantic Coast Pipeline to cross the Appalachian Trail. Rather, the court found that the permit had to be approved by the U.S. National Park Service (NPS), which has stricter land conservation rules. The Atlantic Coast

developers petitioned the U.S. Supreme Court to review the decision. If the Supreme Court decides to take up the case, its decision is likely to have an impact on the Mountain Valley Pipeline, which is also planned to cross under the Appalachian Trail.

Major events or developments

Wildfires, utilities, and the PG&E bankruptcy

In 2019, the topic of climate change reverberated across the electricity industry with the bankruptcy of Pacific Gas & Electric (PG&E), due in large part to the catastrophic wildfires that decimated several communities in Northern California, resulting in deaths and causing tens of billions of dollars in property damage. More extreme weather conditions are becoming more likely and more severe, and the energy industry as a whole must manage the physical and financial risk of such events.

In the wake of the wildfires, utilities in California and elsewhere are considering mandatory power shutoffs in dangerous weather conditions, boosting vegetation management budgets, and evaluating restructuring, including divestitures to state and local governments. California policymakers are evaluating the state's inverse condemnation precedents, under which a utility may be held strictly liable for the wildfire damages, regardless of the precautions taken.

At the federal level, PG&E's bankruptcy has brought to the fore questions about the relative authority and jurisdiction of FERC and the bankruptcy courts on whether a utility may reject high-cost executory power purchase agreements (PPAs) in a bankruptcy. PG&E management has stated its intent to honour its PPAs, but project owners, especially of legacy renewable energy projects, are remaining vigilant.

Cybersecurity and blockchain in the U.S. energy industry

In the U.S., 90% of energy infrastructure is privately owned, which has resulted in a patchwork of varying information technology systems and security protocols. This leaves the whole energy sector – including the power grid, oil and gas pipelines, refineries, utilities, and governments – increasingly vulnerable to cybersecurity threats. Over one out of every ten electric utilities suffered at least one malware attack in 2019.

The DOE is leading efforts to pinpoint the most dangerous risks and prioritise defences to critical energy infrastructure. Significant gaps in information sharing remain, however, leaving the energy sector susceptible to more attacks. To help close these gaps, FERC strengthened its regulations in 2019 to require grid operators to report all attempts to penetrate systems so that information can be shared across the industry to help prevent future attacks. Additional regulations are being considered to extend mandatory cybersecurity and physical security rules to gas utilities, and legislation is pending to formalise cybersecurity oversight for the pipeline sector.

The advancement of blockchain and distributed ledger technology is also beginning to permeate the energy industry and is being explored by the DOE as a way to make refineries, utilities and the electricity grid less susceptible to cyberattacks. The blockchain applications being developed are aimed at preventing hackers from altering a facility's operational information, thereby thwarting disruptions in service or catastrophic failures. Future applications of blockchain or distributed ledger technologies may help secure energy transactions to protect process data at power plants, increase grid reliability, and create a more decentralised energy infrastructure.

Proposals for changes in laws or regulations

Green New Dealing

2020 is a Presidential election year, and energy and environmental issues are at the heart of the debates. The transformation of Democratic proposals has been rapid and dramatic, spurred by a broad consensus across the party that the global challenge of climate change requires the most urgent national response.

President Obama famously endorsed an "all of the above" strategy in which renewables and energy efficiency joined with U.S. oil and gas production. The fossil fuel aspect of his strategy has been discarded by candidates in favour of sweeping plans to decarbonise the American energy economy.

Democratic members of Congress introduced a non-binding resolution called the Green New Deal, calling not only for eliminating net GHG emissions in 10 years but also for guaranteeing jobs with family-sustaining wages and universal health care, affordable housing, and economic security. The Presidential candidates themselves have separated energy policy from the other goals, but they are no less ambitious on that score – calling for decarbonisation of electricity, or even all energy usage, by deadlines ranging from 2030 to 2050.

The costs of these initiatives are stated to be in the trillions, to be funded by retraction of tax cuts enacted in Republican administrations and large new taxes, including potential carbon pricing. The costs of not responding to climate change are also expressed in the trillions, and the candidates point to the creation of millions of green jobs as a result. Republicans have called attention to the costs and characterised the proposals as tantamount to socialism.

The practical aspects of decarbonisation have been given rather less attention. It is unclear how renewable generation and the associated transportation, distribution, building systems and vehicle infrastructure could replace existing investment in, or close to, the relevant time period. Nor is there clarity on how support for such legislation could be obtained in the U.S. Senate or other forums.

The campaigns will eventually transition from the intra-party primaries to the national stage. It remains to be seen how energy policy will be presented to that more diffuse electorate.

A carbon price by regulatory means?

The New York Independent System Operator (NYISO) is proposing a plan to put a price on CO_2 emissions in the power sector. The plan is intended to complement the climate legislation that was signed into law by New York's governor in July 2019, which requires the state to achieve 100% carbon-free electricity by 2040. Under the plan, the NYISO would attempt to incorporate the social cost of carbon into the wholesale energy markets by assigning a per-ton price for CO_2 emissions. The cost would be factored into electricity generators' offers to sell into the ISO market. Once completed, the plan will be submitted to FERC for approval under Section 205 of the Federal Power Act. Analysts predict that the proposal will raise questions at FERC, including whether an ISO should be allowed to influence public policy in this manner through its tariff.

Another issue that is causing significant debate within FERC and its regulated power markets is how to account for states' out-of-market subsidies. In the wake of the 2018 Calpine decision, in which FERC rejected PJM Interconnection LLC's proposal to change how its auctions are run to account for states' nuclear subsidies, FERC has not offered a fix of its own that grid operators can adopt. In July 2019, FERC ordered PJM to suspend

indefinitely a capacity auction that was planned to occur the following month. But the agency still did not offer any specific guidance on rules the operator should apply to future auctions. Pending further guidance from FERC, grid operators are left in an uncertain state. That state of uncertainty characterises much of the U.S. energy landscape for 2020.

* * *

Acknowledgments

1. The authors thank their Pillsbury colleagues Olivia Lugar in San Francisco and Ashleigh Acevedo in Houston for their assistance in preparing this chapter.

Robert A. James
Tel: +1 415 983 7215 / Email: rob.james@pillsburylaw.com

Rob James is co-leader of Pillsbury's Energy & Infrastructure Projects team, resident in the firm's San Francisco and Houston offices. His energy practice spans project development, M&A and joint ventures, construction and licensing matters in the U.S., Canada, Asia and South America. His experience extends to oil and gas production, LNG, pipelines, oil refining, conventional and renewable power generation, chemicals, and mining.

Rob has been recognised in *Chambers Global* (Energy) and in '100 Most Influential California Attorneys', *San Francisco & Los Angeles Daily Journal*. He is a member of the American Law Institute (ALI) and the State Bars of Texas and California (including its Public-Private Infrastructure, Real Estate and Business Law Sections). He received his J.D. from Yale Law School and his A.B. from Stanford University.

Stella Pulman
Tel: +1 713 276 7742 / Email: stella.pulman@pillsburylaw.com

Stella Pulman's practice is focused on crisis management, general environmental compliance, internal investigations, environmental, health and safety (EHS) management system reviews, and management of complex environmental liabilities. She regularly advises clients on matters involving environmental remediation, natural resource damage liabilities and restoration, hazardous waste management, and compliance with state and federal environmental laws.

Stella also has broad experience in water rights, eminent domain, and general commercial litigation. She is a graduate of the University of Nevada and the Tulane University Law School.

Pillsbury Winthrop Shaw Pittman LLP

Four Embarcadero Center, 22nd Floor | San Francisco, CA 94111-5998, USA
Tel: +1 415 983 1000 / Fax: +1 415 983 1200 / URL: www.pillsburylaw.com

www.globallegalinsights.com

Other titles in the **Global Legal Insights** series include:

- **AI, Machine Learning & Big Data**
- **Banking Regulation**
- **Blockchain & Cryptocurrency Regulation**
- **Bribery & Corruption**
- **Cartels**
- **Commercial Real Estate**
- **Corporate Tax**
- **Employment & Labour Law**
- **Fintech**
- **Initial Public Offerings**
- **International Arbitration**
- **Litigation & Dispute Resolution**
- **Merger Control**
- **Mergers & Acquisitions**
- **Pricing & Reimbursement**

Strategic partner: