

## Copeland Council in West Cumbria, UK Reconsiders Hosting a GDF

The Copeland Borough Council in West Cumbria, United Kingdom, announced November 4 that a Working Group has been formed to begin local engagement on whether Copeland could be a suitable location for a Geological Disposal Facility (GDF) for UK higher activity radioactive waste. The Working Group includes the Copeland Borough Council and Radioactive Waste Management (RWM), which is a public organization established by the government to be responsible for planning and delivering a GDF in the UK. RWM will study any proposed areas to see if a GDF could safely be built in the area.

The Working Group will engage citizens across the community to obtain their views, identify and propose a search area for further consideration in the search for potentially suitable sites and a willing host community. The Working Group will also be tasked with recruiting initial members for a Community Partnership that could take the process further forward.

Mark Cullinan, the Chair of the Copeland GDF Working Group said, “Today marks the first step in a journey of several years, to determine whether a Geological Disposal Facility is right for Copeland. The infrastructure investment potential represented by such a facility could be transformational for the eventual host community – both directly through the construction and operation of the GDF and also potentially significant multi-million pounds of additional investment – but, of course, it would have to be right for the area.”

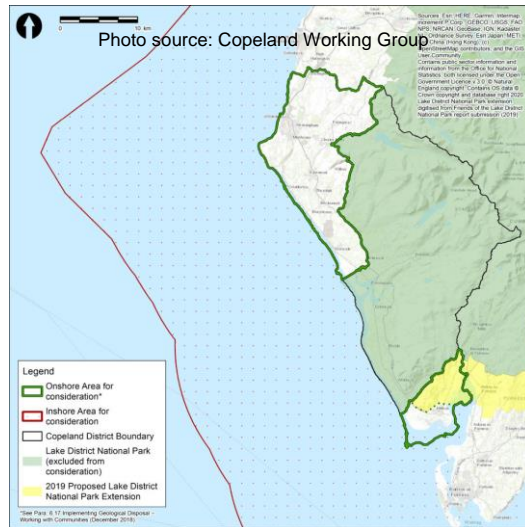
The geographical area to be discussed will initially cover all of the Copeland borough except for the Lake District National Park. The potential for underground facilities off the coast, access from land, will also be considered. The map in the image above is provided by the Working Group.

Councillor David Moore said, “Regardless of a final location for a GDF, the Copeland community is affected fundamentally as the vast majority of materials that would go for disposal are located here, and the Sellafield site will be at the

front end of the operational phase for decades to come.”

Trudy Harrison, a conservative Member of Parliament for Copeland, also noted that “Most of the material that would go into the GDF is already based here in Sellafield. A permanent place to deposit this material in Copeland would not only build on our heritage as the country’s nuclear experts, but it would also lay the ground for significant future investment in the region.” She added that a GDF “will be one of the biggest environmental protection projects of our lifetime...”

Years ago, councils in Cumbria County, and the boroughs of Copeland and Allerdale in west Cumbria had accepted a government invitation to “express an interest” in hosting a GDF. In January 2013, however, the Cumbria County Council voted against proceeding to the next stage of the process. Under previous agreements, parties at both the borough and county levels had to vote positively for the process to continue in West Cumbria. When the Cumbria Council voted to drop out, the process ended for all three communities.



An affirmative vote would have allowed the communities to proceed to Stage 4 in the siting process, which was to conduct “desk-based” geological studies in participating areas to find suitable sites. The expectation was that at the end of Stage 4, two candidate sites would be identified for detailed investigation.

The Cumbria County Council is a directly elected body. The website states that “The important decisions affecting the County are taken by the Cabinet,” which is made up of six Conservative Members, three Labor

Members, and one Independent Member. There are six District/Borough Councils in Cumbria, including Allerdale Borough Council, and Copeland Borough Council.

Ultimately, the Office for Nuclear Regulation (ONR) and the Environment Agency will review the designs for a GDF, the proposed site, and the science that informs them to be sure it protects people and the environment.

Additional information may be found here: <https://copeland.workinginpartnership.org.uk/>

# Top Story

## The importance of engaging stakeholders in spent fuel projects

Engaging stakeholders in spent fuel issues is one of many critical components of a successful spent fuel management program – no level of community or government can be overlooked if a project or program will have a chance of success. Spent fuel projects include the individual spent fuel storage facilities at reactor sites, commonly known as independent spent fuel storage installations or ISFSIs, while programs encompass a broader scope such as a national disposal facility or a national transportation program. Consolidated interim storage facilities, or CISFs, could be in both categories.

On October 30, Katrina McMurrian, Executive Director of the Nuclear Waste Strategy Coalition (NWSC), moderated an excellent, informative panel that also included Pamela Gorman-Prochaska of Xcel Energy, and Heather Westra of the Prairie Island Indian Community (PIIC) as part of the 2020 Decommissioning and Used Fuel conference.

McMurrian provided an overview of the current political landscape, which has not changed much over the last few years. One thing that did change this year, however, was that the Fiscal Year (FY) 2021 budget request did not include money for Yucca Mountain, unlike in previous years where money was requested but never appropriated. She said the Department of Energy (DOE) is exploring reprocessing and recycling of spent fuel, and is expected to issue a request for information on a basic design for a federal interim storage facility, which will likely be termed a “monitored retrievable storage facility” to be consistent with terminology in the *Nuclear Waste Policy Act*.

Not much has happened on the legislative front this year on legislation or appropriations, McMurrian noted, even though action on both permanent disposal and interim storage are supported by some members of Congress on both sides of the aisle; however, because spent fuel is currently stored safely at reactor sites around the country, there has been a general lack of urgency to tackle this issue, especially in an election year.

The PIIC is located about 35 miles southeast of Minneapolis/St. Paul on the Mississippi River, Westra said, with the Prairie Island ISFSI located about 600 yards from the nearest tribal residence. Westra described the change in relationship the PIIC has had over the years because of its proximity to the nuclear plant and the continued storage of spent fuel at the site. In the early 1990s, when Xcel Energy had to implement dry storage to keep the plant operating, the relationship between the PIIC and the utility was strained. The PIIC feared, and rightly so as it has turned out, that once spent fuel was authorized there, it would probably stay there for a very

## Industry Calendar

- December 2-3, 2020  
**NWTRB Fall 2020 Board Meeting --**  
<https://nwtrb.gov/meetings/upcoming-public-meetings>  
Online
- March 7-11, 2021  
**WM Symposia**  
<https://wmsym.org>  
Phoenix, AZ
- March 8-11, 2021  
**NRC Regulatory Information Conference**  
<https://nrc.gov/public-involve/conference-symposia/ric/>  
Online
- May 10-13, 2021  
**International Conference on Fast Reactors and Related Fuel Cycles**  
<https://iaea.org/events/fr21>  
Beijing, China
- November 30 – December 2, 2021  
**WNE – World Nuclear Exhibition 2020**  
<https://www.world-nuclear-exhibition.com>  
[https://www.world-nuclear-exhibition.com/Paris Nort Villepinte](https://www.world-nuclear-exhibition.com/Paris-Nort-Villepinte)  
Paris, France

Details are available at:

long time, and so far, that has come true. The PIIC was told it would be “short term” onsite storage; first they were told the waste would be reprocessed, then that it would go to a repository with fuel being moved there by 1998.

Today, the relationship between the PIIC and Xcel Energy is good as they work together to reach out to government officials on issues that affect them. Westra emphasized the importance of recognizing Indian tribes that are or could be affected by continued spent fuel storage or transportation. The United States has 574 federally recognized tribes (345 in the contiguous 48 states), and each one should be considered its own government, with a structure similar to a state. She said that too often, tribes are an afterthought, but should be contacted any time a state or local government is contacted about a project if there is a tribe in the vicinity of the project. One contentious issue over the years has been that even though the PIIC is adjacent to the nuclear plant, it receives no benefits from being a host community.

Gorman-Prochaska said Xcel Energy operates in eight states, with two nuclear power plants in Minnesota providing about 30 percent of the company’s generating capacity in the upper Midwest. Both nuclear plants have on-site dry storage. In Minnesota, in addition to the federal NRC licensing process and the state Public Utilities Commission (PUC) process, state law also requires legislative approval before permanent fuel storage is added. After a contentious battle in the courts over this law, the state legislature agreed to allow dry storage at Prairie Island, with conditions. One of those conditions still exists today, and that is that Xcel Energy has to pay

a fee into a renewable development account for each dry storage cask in service at both plants. At Prairie Island, for example, that fee is \$500,000 per cask, per year. The site now has 47 dry storage casks in use, so the utility is paying \$23.5 million per year into this state fund that is supposed to be used to enhance the production of renewable energy in the state, but it is used for a variety of projects.

Gorman-Prochaska also noted that Xcel Energy and the PIIC have worked on building and improving their relationship. Xcel Energy values the input and feedback of the PIIC, which is acknowledged as an important stakeholder. Both entities have the common goal of seeing the spent fuel moved offsite, whether it be to a consolidated interim storage facility or to a permanent repository.

**Transportation** – With the possibility of having two consolidated interim storage facilities obtaining an NRC license next year, spent fuel could start to be transported off reactor sites to one of these facilities as early as 2024. Gorman-Prochaska said that even with the “stellar” safety record of transporting spent fuel in the US and worldwide, communities along the transportation routes need to be engaged so trust can be built that these shipments will be made safely. Westra pointed out that DOE provides funding to states and tribes to start planning for federal shipments of spent fuel to a facility and has established the National Transportation Stakeholders Forum (NTSF). Within the NTSF are regional and tribal groups who have separate meetings but come together once a year to discuss transportation issues at a forum.

Westra stated that the applicants of the two CISO projects should engage with the states and tribes that will be impacted by the respective projects to provide factual information about what is being shipped and how. She said she learned in a recent symposium about the very robust transportation casks that will be used, and she emphasized that the general public needs to understand this.

## News Briefs – Non-US

### Finland notifies fuel suppliers of the intent to begin final disposal in the mid-2020s

The Finnish Radiation and Nuclear Safety Authority, STUK, said in a November 5 press release that it has notified the authorities in charge of radiation safety in the countries from which it procures its uranium fuel for nuclear power plants – mostly Russia, Australia, Canada, and the US, that Finland intends to begin the final disposal of spent nuclear fuel generated from its nuclear power plants in the mid-2020s. This notification is important because once the spent fuel has been emplaced in the permanent disposal facility, inspections of nuclear materials cannot be performed, so procedures related to such inspections must be specified before the initiation of final disposal.

STUK noted that it maintains a national database of nuclear materials and overseas nuclear safeguards. The International Atomic Energy Agency and the European Commission control Finnish operations to ensure they comply with the Nuclear Non-Proliferation Treaty. These safeguards ensure that nuclear materials are used only for peaceful purposes and do not end up in nuclear weapons.

One of the principles of nuclear safeguards is that the reported nuclear material must be physically verifiable; however, spent fuel assemblies deposited in a geological repository can no longer be verified so all verification measures must be completed before the material is emplaced in the repository.

STUK’s Head of International Cooperation, Elina Martikka, said, “STUK has developed several measurement methods for nuclear materials, which have been adopted internationally, and now we are creating procedures for new forms of supervision. Safeguards will continue in place when the final disposal facility is closed after approximately one hundred years. It is important that all parties can trust that the authorities have accurate information about the nuclear materials in final disposal and that this information will continue to be accessible to the next generations.” She added that she believes countries should “commit to their chosen nuclear waste management policy before they begin to use nuclear energy.”

All the spent fuel emplaced in the repository will be spent fuel that was discharged from Finnish nuclear power plants because since 1983, the law has prohibited the import or export of nuclear waste.

Posiva Oy, the nuclear waste management company in Finland, is building an underground final disposal facility for spent nuclear fuel, ONKALO, where spent fuel will be placed in the bedrock, approximately 450 meters below the surface, in sealed iron-copper canisters. A bentonite buffer will enclose the canister, and the tunnel into which the canisters will be emplaced will be backfilled with “swellable clay.”

Finland will become the first country in the world to begin placing spent nuclear fuel into a deep geological repository.

### Holtec and Hitachi-GE sign MOU for dry storage in Japan

Holtec International announced November 2 that it has executed a Memorandum of Understanding (MOU) with Hitachi-GE Nuclear Energy, Ltd. (Hitachi-GE), “to introduce and deploy Holtec’s canister-based dry storage and transport technologies for managing spent nuclear fuel in Japan.” While Hitachi-GE’s metal casks have been previously licensed and implemented in Japan for dry storage of spent fuel, Holtec said that its canister-based dry storage systems provide an “alternative option to the traditional spent fuel dry storage technologies currently used in Japan.”



Japan's dry storage technologies are "challenged by certain unique conditions such as regulator-mandated extremely low radiation limits, conservative regulatory release limits and extremely high seismic levels." Holtec's Senior Vice President of International Project, Rick Springman, said that the MOU "will synergize the expertise of both team members to offer a solution that addresses the unique conditions and regulatory regimen in Japan and the heightened need for stringent storage requirements focused on protecting public health and safety in the country."

The two companies believe that Holtec's HI-STORM UMAX (Universal Maximum shielding) storage technology is an "ideal candidate that can be optimized to meet Japan's industry needs" partly because its design can withstand "ultra-strong earthquakes." Holtec said the HI-STORM UMAX system is qualified for 2.12 g resulting horizontal and 1.0g concurrent vertical seismic loadings. Holtec also touted the "great resistance to tsunamis" of the HI-STORM UMAX, and the "easy and direct access to the canisters during maintenance, inspections and eventual transport offsite." The compatible transportation cask is the HI-STAR 190.

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## IAEA held workshop on global decommissioning challenges

Last week, the International Atomic Energy Agency (IAEA) held a four-day online Technical Meeting on Global Status of Decommissioning in which 40 participants representing 20 countries as well as the Nuclear Energy Agency (NEA) of the Organization for Economic Cooperation and Development (OECD), the European Commission, and the European Bank for Reconstruction and Development (EBRD) gathered. This meeting concluded the two-year project to receive feedback for an Agency initiative to catalogue and examine the status of major problems facing decommissioning programs around the world. During the meeting, experts discussed decommissioning strategies, timeframes, unexpected challenges, including resources needs related to both personnel and technology.

"The nuclear industry faces a challenge over the coming decades to decommission scores of facilities," said Mikhail Chudakov, IAEA Deputy Director General and Head of the Department of Nuclear Energy. "This multifaceted task must be implemented in line with high standards of safety, while also being cost effective, and address the social and environmental dimension for host communities. This task is urgent and necessary regardless of whether or not the countries involved plan to utilize again nuclear energy in the future."

Decommissioning and associated waste management programs will have increasing workloads in the coming decades as many of the world's 442 currently operating reactors will phase out of service and new reactors will need plans to fund their future decommissioning. Currently, a total of 189 power reactors have been shut down for decommissioning,

with 17 of them fully decommissioned. In addition, 130 fuel cycle facilities have been decommissioned as well as about 440 research reactors.

"Addressing the final stages of the lifecycle presents a range of challenges, some of which are specific to the national context and type of facility, and some of which are essentially generic," said Mike Guy of Sellafeld Sites Limited in the United Kingdom, who chaired the meeting. "In the former category are issues associated with specific waste types, such as the removal of sludges accumulated over many years in legacy storage facilities. The latter category includes issues such as the need to have available adequate financial resources, waste management systems and competent staff over timeframes which cover several decades."

Tatyana Ratiskaya of Rosatom, who chaired a meeting session, added, "Decommissioning strategies being implemented by facility owners are influenced by external considerations, such as national nuclear policy, radioactive waste management infrastructure developments, developments in the decommissioning market aimed at achieving greater efficiency, technological developments and the evolution of political and societal thinking on environmental issues such as sustainability and circular economy."

Participants in the technical meeting provided extensive feedback on the draft report for the Global Status of Decommissioning project, which is expected to be completed by the end of 2021 with publication shortly afterwards. The report should act as a helpful tool for those responsible for policy and for decommissioning programs in addition to the public and other stakeholders.

The IAEA assists countries to plan and implement decommissioning projects and develops related safety standards and Nuclear Energy Series publications as well as other reports on technical safety, organizes meeting of experts, collaborative project, scientific exchanges, training courses, and workshops. These are supported by resources such as eLearning platform and the International Decommissioning Network.

The IAEA plans to organize an international conference on decommissioning in 2023. The previous conference on that topic was held in Madrid in 2016.

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## 20th Dutch SNF shipment arrives in France

Orano announced November 4 that a shipment of 6.4 tons of spent nuclear fuel arrived by rail from the Netherlands at Orano's railway terminal in Valognes in the Manche region of France after departing November 3 from the railway terminal near the Borssele nuclear power plant, owned and operated by EPZ. The spent fuel will be treated at Orano's la Hague facility before recycling.

Orano TN operated the transport, which consisted of three shipping casks of spent fuel, and which complies with the applicable national and international regulations to guarantee safety and security. The type of cask used was compliant

with safety criteria defined by the IAEA and is designed to protect people and the environment “in all circumstances.”

Orano noted that this spent fuel transport is related to a contract with EPZ in 2011 for the recycling of 216 tons of spent fuel from the Borssele nuclear power plant. The corresponding intergovernmental agreement was published in 2013. Since the first contract was signed with EPZ in 1978, more than 372 tons have been delivered to the Orano la Hague plant and about 365 tons have been treated to date.

The spent fuel contains 96% of energy materials that can be recycled. The remaining 4% waste will be vitrified for a safe and stable packaging before the material is returned to the Netherlands in accordance with French law. The metallic structure of the spent fuel will be compacted before being packaged to be returned to the Netherlands as well.

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### Shipment of HLW to Germany is complete

International Nuclear Services (INS) announced November 4 that the six casks of vitrified high-level radioactive waste (HLW) that departed the Sellafield reprocessing in the United Kingdom on October 27 en route to Germany’s federal interim storage facility has been completed. The HLW is the result of reprocessing spent nuclear fuel from German nuclear power plants at the Sellafield site in West Cumbria (*SpentFUEL* No. 1334 October 30, 2020).

INS noted that the Vitrified Residue Returns (VRR) program, is an important part of the UK’s Nuclear Decommissioning Authority (NDA) strategy “to repatriate HLW from the UK, fulfill overseas contracts and deliver UK Government policy.”

## News Briefs – US

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### NRC authorizes increased spent fuel storage at the Prairie Island ISFSI

The Nuclear Regulatory Commission has approved a license amendment submitted by Northern States Power Company (Xcel Energy) on July 26, 2019 to amend the Special Nuclear Materials License No. SNM-2605 for the Prairie Island independent spent fuel storage installation (ISFSI) to increase the storage capacity and to approve the design of a new concrete storage pad to be built at the existing facility.

The ISFSI is currently licensed to use up to 48 TN-40 and TN-40HT casks (715.29 metric tons of spent fuel). The license amendment will increase the maximum amount of spent fuel that may be possessed to 1,049.60 metric tons of spent fuel assemblies, which corresponds to a storage capacity of 64 TN-40/TN-40HT casks. Xcel Energy will build a third concrete storage pad within the protected area south of the current eastern pad. The new pad will have the design capacity to store 24 TN-40/TN-40HT casks arranged in two parallel rows of 12 casks each. The addition of a third pad does not expand the ISFSI area, as it will also be inside the

security fence for the ISFSI. This expanded ISFSI will allow for the operation through the end of Prairie Island’s renewed operating licenses in 2033/2045.

The licensing change requests expansion equivalent to 16 additional TN-40HT casks, but the new pad will have a structural design capacity for 24 TN-40/TN-40HT casks, similar to the existing two pads. The new pad is designed to meet the licensing basis for the existing ISFSI.

The amendment was issued on October 30, 2020.

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### Closing the Byron Generating Station will result in the lost of 2,300 jobs, per report

Exelon Generation plans to close the Byron Generating Station in September 2021, and the Dresden Station by the end of November 2021. A report prepared by Northern Illinois University stated that the closure of Byron will result in a loss of about 720 jobs and \$97.5 million in employee compensation in a direct impact on the regional economy. Because every 100 jobs at the Byron Station supports 221 jobs in other sectors, the job losses would be felt across multiple industries, with close to 1,600 more jobs will be lost as a result of a reduction in the facilities purchases of goods and services from other industry sectors that support additional jobs and sales.

Byron’s total contribution to the regional economy is estimated to be \$487 million, with its direct contribution being over \$288 million. The plant’s closure could also lead to the loss of \$38 million per year in property tax revenue. The Byron Community School District issued a press release that quoted Superintendent Buster Barton as saying, “Quite simply, the impact would be enormous, rippling across this whole area.”

On October 20, the Ogle County Board adopted a resolution supporting the Byron Station that noted that nuclear power plants produce 52.2 percent of Illinois’ electricity and employ more than 3,200 people directly with almost 800 Byron Station employees living in Ogle and Winnebago Counties. If the plant closes, “carbon reduction efforts would backslide by release of 12 million metric tons of carbon dioxide annually...” The Board urged the State of Illinois “to support policies to preserved (sic) Illinois’ nuclear energy plants, because of their support for our local economy by creating thousands of jobs, strengthening the commitment to a pollution and carbon-free environment, and ensuring a more reliable electric grid for consumers and businesses; while creating a sustainable energy future for generations...”

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### Texas Governor opposes interim storage in Andrews County

Texas Governor Greg Abbott (R) wrote to the US Nuclear Regulatory Commission on November 3 to express his opposition to Interim Storage Partners’ (ISP’s) application to build and operate a consolidated interim storage facility

(CISF) in Andrews County, Texas. He said he has “consulted with numerous state agencies, including the Texas Department of Public Safety, the Texas Commission on Environmental Quality, and the Texas Department of Transportation.”

Governor Abbott did not provide any technical reasons why the NRC should deny the license application, just noted that Andrews County is in the Permian Basin Region – the largest producing oilfield in the world, and a “significant economic and natural resource for the entire country.”

Abbott alleged that the ISP facility “imperils America’s energy security because it would be a prime target for attacks by terrorists, saboteurs, and other enemies.” He pointed out that spent fuel is “currently scattered across the country at various reactor sites and storage installations,” and asserted that consolidating spent fuel in one location “would allow a terrorist with a bomb or a hijacked aircraft to cause a major radioactive release that could travel hundreds of miles on the region’s high winds,” emphasizing that this would shut down the oilfield. “The Permian Basin is already a target for America’s enemies, and granting ISP’s license application would paint an even bigger bullseye,” he charged.

“Spent fuel belongs in a deep geologic repository,” he said, as he raised the concern that the spent fuel could remain at the site on a permanent basis. He pointed out that “specialized emergency response equipment and trained personnel, as well as significant infrastructure investments” would be needed to transport the spent fuel to the site, adding that Texas has four counties that have passed resolutions prohibiting the transportation of spent fuel and high-level waste.

In conclusion, Abbott “respectfully and emphatically” asked the NRC to deny the license application.

### First shipment of uranium oxide reaches WCS

DOE’s Office of Environmental Management (EM) announced November 3 that the first shipment of depleted uranium oxide (DUO) product that recently departed from the Paducah Site in Kentucky has safely reached its final destination at the Waste Control Specialists (WCS) Federal Waste Facility in Andrews County, Texas. The DUO arrived in six storage cylinders in a specifically modified 55-foot railcar at the WCS facility. DUO is one of the two end-products of the DUF6 conversion process, with the other being hydrogen fluoride that is dispositioned elsewhere.

DOE’s DUF6 inventory resulted from five decades of uranium enrichment at US gaseous diffusion plants. More than 700,000 metric tons of the material is in storage at Paducah and the sister site near Portsmouth, Ohio. In the coming decades, some of the remaining inventory will be disposed in licensed offsite facilities and some will be reused.

### NWTRB will review information on DOE’s geologic disposal R&D program

The December 2 and 3 meeting of the US Nuclear Waste Technical Review Board will focus on the Department of Energy’s (DOE’s) “non-site-specific geologic disposal research and development (R&D) program.” Speakers representing DOE’s Office of Nuclear Energy (NE) and the national laboratories will describe DOE’s program, including its purpose, scope, goals, technical approach, and prioritization of activities. The detailed agenda will be available at [www.nwtrb.gov](http://www.nwtrb.gov) about one week before the virtual public meeting, and will have opportunities for public comment.

### Trump replaces FERC Chairman

President Trump named James Danly as Chairman of the Federal Energy Regulatory Commission (FERC) on November 5, according to a FERC press release. Danly will replace Neil Chatterjee. On October 15, Chatterjee proposed a policy statement that encouraged regional electric market operators “to explore and consider the benefits” of establishing a state-determined carbon price in wholesale electric markets. The *Washington Examiner* noted that Trump has looked to FERC to implement a pro-fossil fuel agenda. Chatterjee said in an interview with the conservative-leaning *Washington Examiner* that “perhaps” the Trump administration was retaliating against him for his recent actions. Danly opposed the carbon pricing move. Chatterjee has worked to boost FERC’s work on climate change.

#### Fridge Puns

If you should ever accidentally drop ice cubes on the floor, just gently kick them under the refrigerator. I mean what’s the harm? Pretty soon it’ll all be just water under the fridge.

#### Dog Chase

A police officer just knocked on my door and told me that my dogs were chasing kids on bikes. I looked at him skeptically and asked, “Officer, are you sure they were my dogs? My dogs don’t even own bikes.”

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