



What's happening in the Energy Division?

Update on Clean Energy Fund Programs

The [Research, Development and Demonstration](#) (RD&D) grant awards should be announced by May 31.

The [Grid Modernization](#) Program will be awarding grants to four electric utilities. The announcement will be on April 9.

[Electrification of Transportation Systems](#) (ETS)

Yesterday, the Department of Commerce hosted more than 60 attendees, both in person and by webinar and call-in, at an information session for people interested in helping to shape the important upcoming Electrification of Transportation Systems (ETS) Grants Program, supported by the Clean Energy Fund.

The ETS program will provide grants to Washington local governments and retail electric utilities for electric vehicle charging infrastructure. The program

aims to support eligible applicants in their respective electrification goals and address barriers to infrastructure deployment.



National Home Performance Coalition Conference

The 2019 National Home Performance Coalition (HPC) Conference and Trade Show was held in Chicago this past week. The conference was an exciting and informational experience for attendees, focusing on weatherization and networking opportunities. Washington State was represented by Department of Commerce em-

ployees Donn Falconer, Britt Pomush, Laura Viik and Vince Schueler from the WSU Energy Program. Washington's Weatherization Network had representatives from the Community Action Council of Whitman County, Metropolitan Development Council, Opportunity Council, Chelan Douglas Community Action, Yakima Valley Farmworker Clinic and the Building Performance Center.

Both Britt and Vince presented at the conference. Britt was on a panel discussing Washington State's Plus Health Program and its preliminary results, she also presented "Helping the Helper: Trauma Exposure in the Field", discussing compassion fatigue and weatherization workers. Vince presented on a panel titled "Energy and Health Program Integration-What's Working", evaluating delivery systems, costs and health results of

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the Weatherization Plus Health program.

Trade Magazine Profiles Weatherization Plus Health Partnership

It's always nice to get recognition for our work, especially when our ideas reach a broader audience.

The Energy Division Low-Income Weatherization Program's [Weatherization Plus Health](#) efforts got a nice dose of coverage this month in a cover article in the March 2019 [Healthy Indoors Magazine](#).

The article profiled the innovative partnership between our Pierce County Human Services local weatherization program and the Clean Air for Kids Asthma Program of Tacoma-Pierce County Public Health. Our collaborative model combines energy efficiency improvements with targeted indoor air quality upgrades and direct client education to help vulnerable low-income households struggling with asthma and COPD.

Initial results described in the article are very encouraging. Asthma patients in our client households experienced significant improvements in the management of their health, including reductions in the number of hospitalizations, a drop in their use of emergency rooms, and overall improved quality of life.

We're looking forward to expanding these services and further refining our collaborative models in the next several years. [Watch our](#)

[webpage](#) for more details.

Contact: Tim Bernthal,
tim.bernthal@commerce.wa.gov,
(360) 259-6330

Global Energy Solutions Summit

The National Governor's Association (NGA), along with the Embassy of Canada, Denmark and Australia, hosted a [two day summit](#) in Washington D.C., highlighting three emerging technologies: offshore wind, energy storage and carbon capture utilization and storage.

The summit examined how innovative activities and policies from each country foster deployment and development for these technologies. Attendees included the Governor of Connecticut, the newly appointed Ambassador of Denmark as well as high level representatives from federal and state governments, partner countries, industry and other non-governmental organizations.

Each technology had a dedicated program, with panels and discussion from top experts, and captured the different stages of maturity for each industry.

There was a special focus on how state level policy can advance these technologies, with a spotlight on the early adopters in the U.S.

The take home message for state governments? Policies, such as procurement targets and clean energy mandates, can go a long way to pushing deployment of projects and help drive the market by creating signals on pricing.

Vashon Bioenergy Farm Ribbon Cutting and Tour

The Farm's Ribbon Cutting and Tour is scheduled to be held on April 16, 2019.

Vashon Bioenergy Farm is a community-scale bioenergy system on Vashon Island. The project, through Impact Bioenergy, was funded under the Clean Energy Fund II for RD&D, Sustainable Energy Trust, King County Department of Natural Resources & Parks, and great partners on Vashon.

For every ton of "waste" that would otherwise have been long-haul exported, the NAUTILUS will generate upwards of 25 gasoline gallon equivalents and 200 gallons of probiotic plant food. The system will "upcycle" up to 4 tons of commercial food "waste" per day from the Island Spring Organics tofu factory and potentially others. This is enough to fuel a fleet or provide heat & power for more than 40 homes, all while improving soil for small farmers.

Dr. Lisa Brown confirmed as Commerce Director

[Dr. Lisa Brown has been confirmed by the Washington State Senate](#), to lead the Department of Commerce. Governor Inslee appointed her to the position in January 2019.

Energy Headlines

Renewables

[Bite-sized solar investment is coming to Snohomish County](#) —HeraldNet

[Quantum Dot Solar Cells are coming](#)—AltEnergyMag

[Cattle grazing gives way to big solar farm leases in Central Washington](#)—NW News Network

[Researchers measure near-perfect performance in low-cost semiconductors](#) – EurekAlert!

[U.S. solar installations to rebound in 2019 as prices plummet: Woodmac](#)—Reuters

[Oil-rich Norway could become Europe's 'green battery'](#) - Politico.eu

[Avista strikes deal to purchase wind energy from new facility in Washington State](#)—DailyEnergyInsider

Transportation

[Utilities Rev up the Electric Vehicle Renaissance](#) —Forbes

[Fill It Up With Hydrogen? Richland's PNNL Working to Make it Safer in Cars](#)—Tri-City Herald

[What First Responders Don't Know About Fiery Electric Vehicles](#)—Bloomberg

Carbon and Climate

[Tropical Tectonic Collisions May Have Unleashed Ancient Ice Ages](#)—LiveScience

[New study shows arctic warming contributes to drought](#)—Phys.org

[In Wyoming, a Contest to Capture Carbon and Save Coal](#)—NW PBS

[A deep ocean current shift gives 400-year notice of massive climate change](#)—Phys.org

[3-5° C temperature rise is now 'locked-in' for the Arctic](#)—UN Environment Programme

[Nearly 4,500 older brick buildings in Washington could be dangerous in a quake, new report says](#)—NW News Network

['Bowl of Jello effect' raises risk of tall buildings collapsing in Cascadia quake, scientists say](#)—Jefferson Public Radio

[Spin Control: Senate committee airs out a cap-and-trade proposal for Washington](#)—Spokesman-Review

[Fuel Producers, Consumers Take Sides on Washington's Debate Over Lower-Carbon](#)—NW PBS

Energy Efficiency & Health

[America's Light Bulb Revolution](#) —NY Times

Other

[New earthquake map shows Washington's at-risk buildings](#) —MYNorthwest

[Pacific Northwest sees highest daily natural gas spot prices in the U.S. since 2014](#)—US EIA

Washington State Department of Commerce
1011 Plum St SE, Mail Stop: 42525
Olympia WA 98504-2525

To sign up for the newsletter send an email to:
energy_policy@commerce.wa.gov
Rather read the highlights on a blog?
We're at <http://www.commerce.wa.gov/energy-blog/>



Energy Price Overview



River & Snow Pack Report

Observed Mar. stream flow at The Dalles: 74% of average.

Observed Mar. precipitation above The Dalles: 34% of average.

Est. 2019 Final runoff at The Dalles (Jan. – August) March:

84.5 million acre-feet

83% of normal

Estimated regional snow-pack: mid Jan. 104% of normal

Federal hydropower generation in Feb.:

7,552 aMW

5-year average: 10,221 aMW.

Reservoir content (Libby, Hungry Horse, Grand Coulee, Dworshak) in February:

64%

5-year average: 62%

Petroleum: Benchmark West Texas Intermediate (WTI) crude oil spot price increased modestly during March by \$3.3 per barrel and ending the month at \$59 per barrel. The average WTI price for the month of March was \$57.8 per barrel. During this time frame, the international Brent oil price increased from \$63.5 to \$66 per barrel. The increase in spot crude oil price is being attributed to continued OPEC efforts to reduce oil production and typical seasonal increase in demand for crude oil and associated fuels.

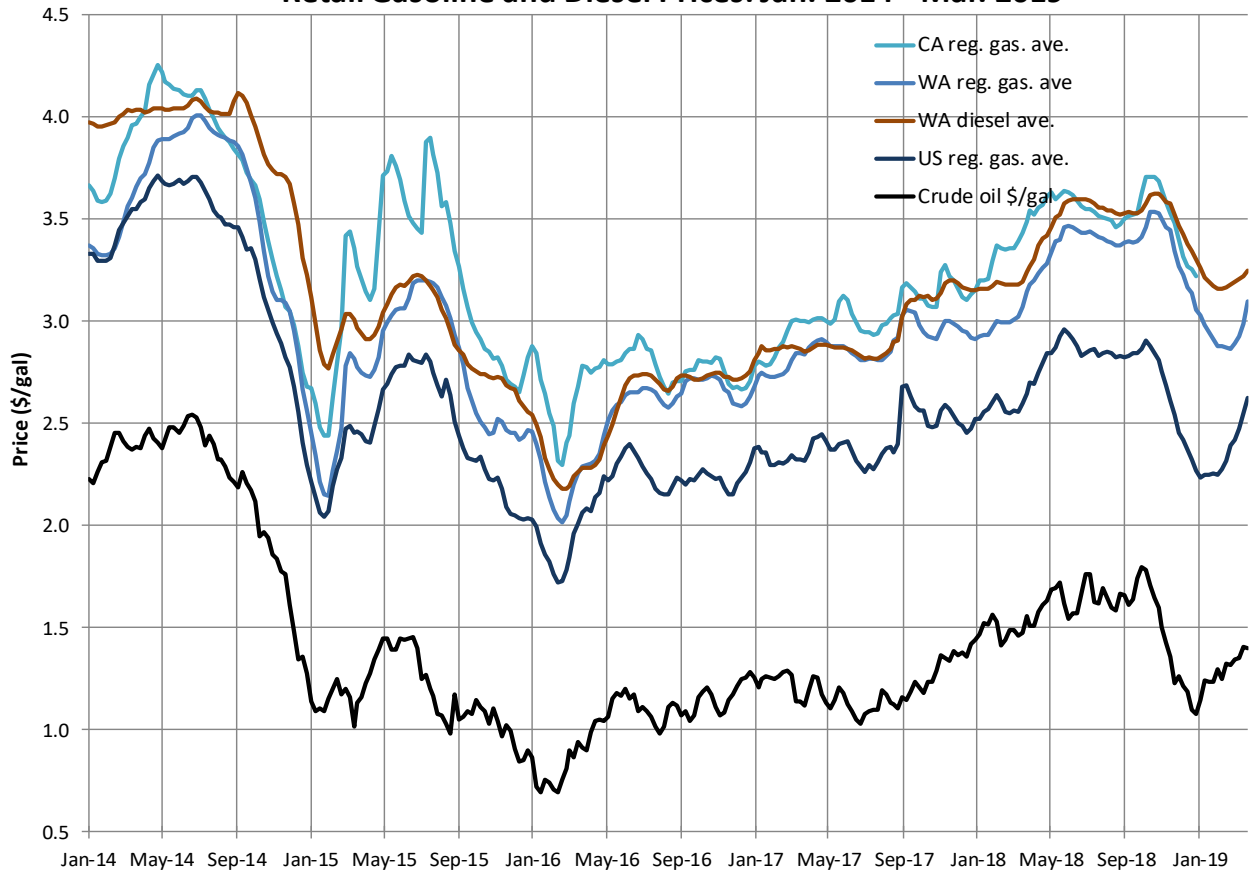
Transportation Fuels: The slow increase in crude oil prices over last three months has translated into an increase in transportation fuel prices at the national level and regional level. National gasoline and diesel prices at the end of March were \$2.62 and \$3.08 per gallon respectively. Diesel fuel continues to sell at a significant premium to gasoline, but gasoline prices increased more rapidly during March. The rapid increase in gasoline prices is due to the gradual switch to summer fuel blends, which for air quality reasons contain lower quantities of more volatile hydrocarbons such as butane and pentane. In Washington State, average gasoline and diesel prices also increased during March. Relative to the last week of the previous month, state gasoline and diesel prices were 23 and 8 cents per gallon higher: Gasoline at \$3.10 per gallon, diesel at \$3.25 per gallon. The chart

enclosed in the newsletter illustrates the trend in weekly average Washington state gasoline and diesel prices from 2014 through 2019; expressed in nominal dollars. Over the 5-year chart period fuel prices were high in 2014, reached a low during 2015-16 and have risen moderately over the last two years.

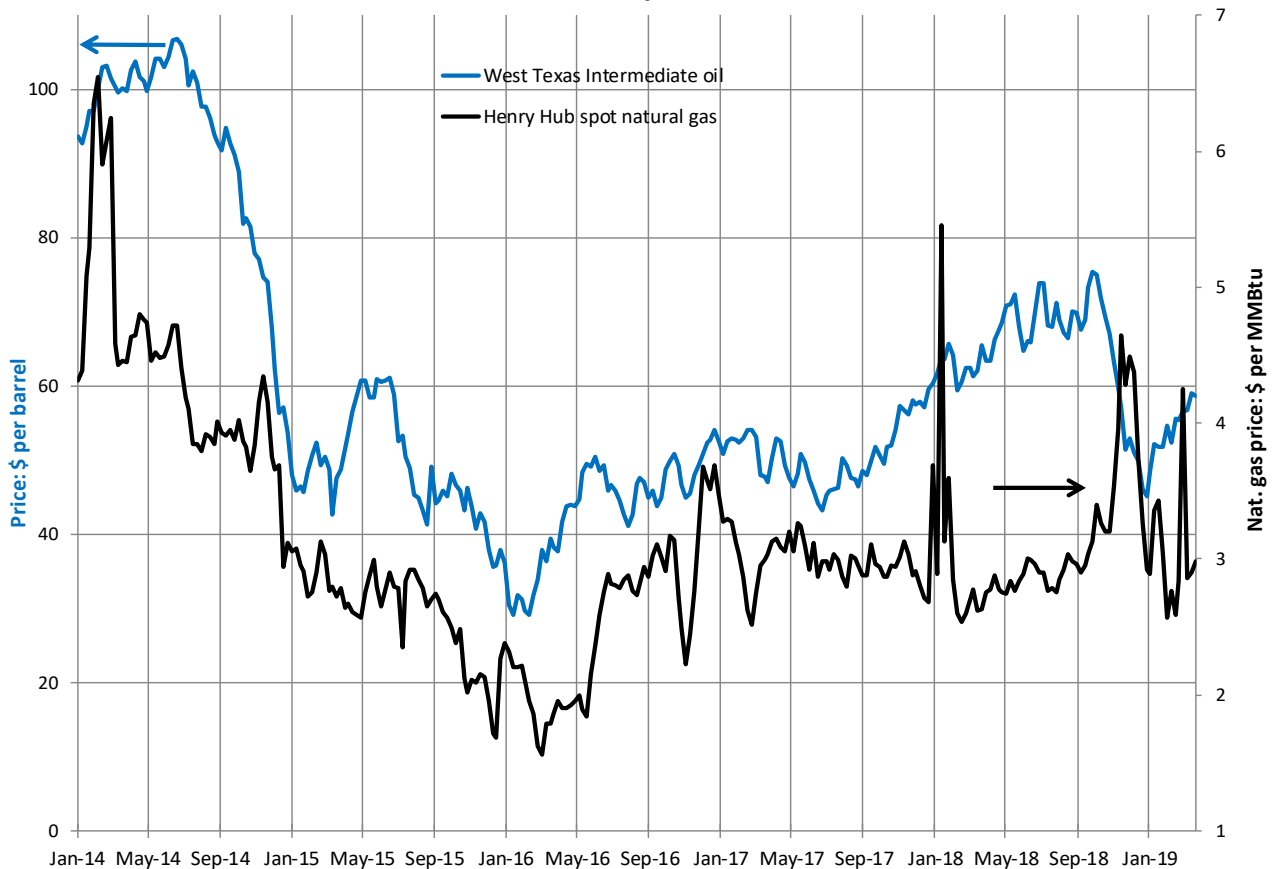
Natural Gas: The average Henry Hub natural gas price for March increased by 20 percent, relative to the previous month, to \$3.25 per MMBtu. The spot natural gas prices at Sumas decreased substantially during March as daily temperatures rose significantly relative to February: the March average price was \$3.7, versus \$18.5 per MMBtu in February. Nationally, the natural gas storage level declined by 36 Bcf to 1107 Bcf and is 33% below the 5-year average. In the Pacific region during March, space-heating demand was about average and the gas storage level increased slightly. Despite the March storage injection, Pacific region levels are 48% below the 5-year average.

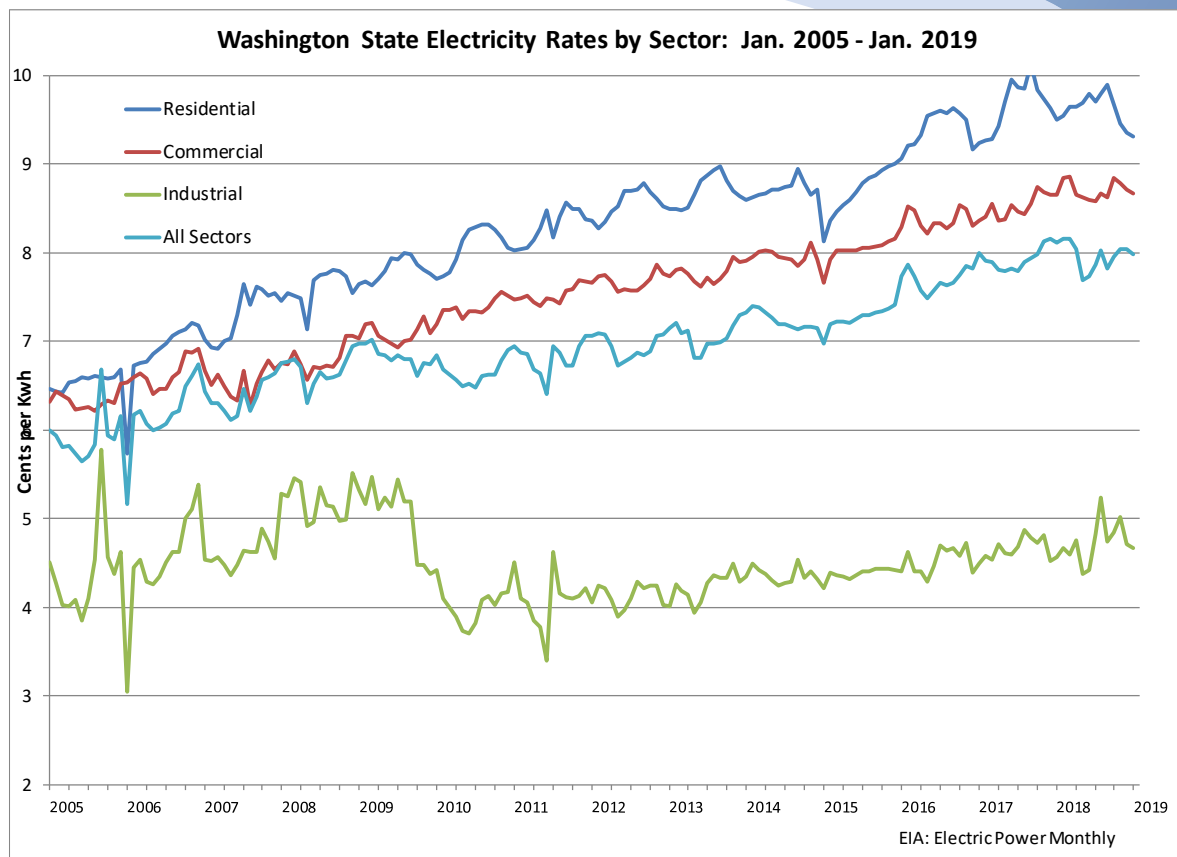
Electricity: The Mid-Columbia average spot (peak) market price for March declined sharply, relative to the February, as the weather shifted from cold to moderate: March average price of \$36.5 per MWh. River flows have picked up in March, as did regional hydropower generation: See river flow and power flow summary tables.

Retail Gasoline and Diesel Prices: Jan. 2014 - Mar. 2019



West Texas Intermediate Oil and Henry Hub Natural Gas: Jan. 2014 - Mar. 2019





| Energy Price Summary, March 2019 | Current | Month Before | Year Before |
|---|-------------------------------|-----------------------------------|------------------------------------|
| Monthly Range at Mid-C (Peak: \$ per MWh) | 18.5-109 | 45-165 | 13-33 |
| Average Mid C price (Peak hours, \$ MWh, current month) | 36.5 | 94.8 | 20.3 |
| Electricity WA Ave. Retail: January (cents/kWh) | 7.99 | 8.04 | 8.12 |
| Natural gas Sumas spot price (weekly ave : \$ per million BTU) | 2.58 | 32.30 | 1.93 |
| Natural gas Sumas futures price (next month \$ per million BTU) | 2.56 | 12.50 | 1.72 |
| Natural gas Sumas monthly average: January (\$ per million BTU) | 4.44 | 10.33 | 2.76 |
| Natural gas H.H. spot price (current month: \$ per million BTU) | 3.25 | 2.69 | 2.68 |
| Natural gas H.H. futures (NYMEX next month: \$ per million BTU) | 2.83 | 2.69 | 2.70 |
| E85 (national average: \$ per gallon gasoline) | 2.90 | 2.70 | 2.56 |
| Ethanol (CBT next month contract: \$ per gallon) | 1.38 | 1.34 | 1.45 |
| Corn (CBT next month contract: \$ per bushel) | 3.74 | 3.71 | 3.73 |
| Petroleum, West Texas Intermediate futures (\$ per barrel) | 57.8 | 54.5 | 62.8 |
| Seattle gasoline price (\$ per gallon, last week of the month) | 3.23 | 3.05 | 3.24 |
| U.S. gasoline price (\$ per gallon, last week of the month) | 3.00 | 2.79 | 2.64 |
| Gasoline futures (NYMEX next month: \$ per gallon) | 1.79 | 1.47 | 1.91 |
| State diesel price (\$ per gallon, last week of the month) | 3.25 | 3.18 | 3.24 |
| Heating oil futures (NYMEX next month: \$ per gallon) | 2.00 | 1.94 | 1.92 |
| U.S. residential heating oil price (weekly ave. \$ per gallon) | 3.22 | 3.20 | 2.82 |
| U.S. residential propane price (weekly ave. \$ per gallon) | 2.41 | 2.43 | 2.50 |
| Clean Cities: Alternative Fuel Price Report, Jan. 2019 | Current qtr US avg | Current qtr west coast | Last qtr avg west coast |
| Ethanol E85 (\$ per gas gallon equiv.) | 2.59 | 3.55 | 3.91 |
| Biodiesel B20 (\$ per diesel gallon equiv.) | 2.86 | 3.11 | 3.34 |
| Biodiesel B99-100 (\$ per diesel gallon equiv.) | 3.93 | 4.18 | 4.21 |
| Compressed Natural Gas (\$ per gas gallon equiv.) | 2.19 | 2.47 | 2.52 |
| Propane (\$ per gas gallon equiv.) | 3.99 | 4.22 | 4.08 |

U.S. Energy Information Administration

- [Annual Energy Outlook 2019](#)
- [Electric Power Monthly](#)
- [Monthly Biodiesel Production Report](#)
- [Monthly Crude Oil and Natural Gas Production](#)
- [Monthly Energy Review](#)
- [Monthly Solar Photovoltaic Module Shipments](#)
- [Natural Gas Monthly](#)
- [Petroleum Marketing Monthly](#)
- [Petroleum Supply Monthly](#)
- [Short-term Energy Outlook](#)
- [State Carbon Dioxide Emissions](#)
- [This Week in Petroleum](#)
- [WindIQ](#)—online database of wind projects

Federal Funding Opportunities

[DE-FOA-00020444](#) FY19 Commercial Trucks and Off-Road Applications FOA: Natural Gas, Hydrogen, Biopower and Electrification Technologies—concept papers due March 29, full applications due May 14

[DE-FOA-0002032](#) Energy Infrastructure Deployment on Tribal Lands—2019. Webinar on March 14, applications due May 1.

[DE-FOA-0002014](#) FY2019 Advanced Vehicle Technologies Research. Concept papers due May 1, Full application due June 19.

[DE-FOA-0002058](#) Front-end engineering design studies for carbon capture systems on coal and natural gas power plants. Full apps due May 13

[DE-FOA-0002064 Solar Energy Technologies Office 2019 funding program](#) Letter of intent due May 7, Concept papers due May 14, Full application due July 25.

[High Performance Computing for Energy Innovation](#)

Events Coming Soon

[Advanced Clean Transportation \(ACT\) Expo](#)—Long Beach, CA, April 23-26

[California Solar Power Expo 2019](#)—San Diego, CA, April 25-26

[Efficiency Exchange 2019](#)—Coeur d'Alene, ID, May 14-15

[AWEA Windpower 2019 Conference & Expo](#)—Houston, TX, May 20-23

[ees North America](#)—San Francisco, CA, July 9-11

[North American Smart Energy Week](#)—Salt Lake City, UT, Sept. 23-26

[6th National Conference on Next Generation Demand Response](#)—Boston MA, June 12-13

| Regional Power Flow (Feb. 28—Mar. 31, 2019) | | |
|---|--------------------|----------------------|
| Intertie | Average power flow | Direction |
| California (AC+DC) | 534 mw | Export to California |
| Canada (BC) | 1814 mw | Export to Canada |
| Total | 2348 mw | Total export |

| River Data | | |
|--------------------------|----------------|--------------------------------|
| Data for March 3 | Outflow (kcfs) | Ave. outflow for last 10 years |
| (Snake) Lower Granite | 77.5 | 77.4 |
| (Columbia) The Dalles | 185.6 | 219.8 |