



## What's happening in the Energy Division?

### Update on the CEF RD&D Program

Applicants were notified of their Phase 2 eligibility on October 9th. They have until November 13th to submit their full application. Information on the program is on the [RD&D webpage](#).

### Update on the CEF Grid Modernization Program

The [Grid Modernization](#) concepts were due on October 15. Eleven projects were submitted. Eligible applicants were notified October 30 and full applications are due on December 28.

### Apply **NOW** for Energy Efficiency and Solar Grants for Public Agencies

This program was opened for applicants on September 13. The application period closes December 31. There are two separate grant lines - \$7,129,500

for energy efficiency projects and \$1,697,500 for solar energy projects. The [Notice of Funding Opportunity](#) was updated on October 5, 2018.

### Fuel Mix Disclosure

The 2017 [fuel mix disclosure data](#) was sent to utilities for review in September. We will publish the final data and report in November and post it on the website.

### CEF Solar Deployment

The [Solar Deployment](#) program in the CEF is new this year. The Notice of Funding Opportunity went live on November 6. Applications are due December 3. Grants will be awarded for deployment of solar projects located in Washington state. Priority will be given to distribution side projects that reduce peak electricity demand. Projects must be capable of generating at least 500 kW of direct current generating capacity.

More information is on the [solar page](#).

### Project profiles for Clean Energy Fund projects

At CEF project close, we ask grantees to produce a project profile for the work that was funded. Part of the profile are the challenges and successes they encountered during the work. These can be found on the [Clean Energy Fund](#) page and on the [Grid Modernization](#) page.

### CEF Project in the News

King-TV featured the [Snohomish County PUD's Arlington Microgrid project](#) on October 15. The Clean Energy Fund program provided \$3.5 million towards this work. The project will provide back-up power to the Clean Energy Technology Center and the new

Snohomish County PUD office in Arlington. It features a 500kW solar array and a 500kW/1000kWh battery back-up system along with energy integration and connection to two other energy storage systems and a vehicle-to-grid component.

## Governor Proclaims Washington Weatherization Day 2018

Governor Inslee has recognized the work of the Low-Income Weatherization Assistance Program for the past 39 years in Washington State with an [October 30 proclamation](#) of Weatherization Day 2018.

New innovations and program expansions were made this year including:

[Weatherization Plus Health](#) was expanded to include 15 local agencies around the state with plans for service to 220 households.

Home Rehabilitation Loan Program was created to provide low-income rural residents help repairing homes to be ready for weatherization.

Lead remediation program was created with a one-time \$1 million state funding allocation to address lead problems with low-income housing sheltering young children with high lead levels.

## New Staff for Alternative Fuels and Vehicles

The State Energy Office welcomes Michael Breish into the Energy Division as an Energy Policy Specialist focusing on alternative vehicle fuels and transportation electrification. He is very excited to be returning to civil service and to help Washingtonians have access to cleaner, diversified, and more affordable transportation. Having worked with Energy Division folks in his previous role, he's already grateful to be working with passionate individuals who comprise a great team.

Michael has a background in energy policy, which started with his bachelor of science in atmosphere/energy engineering from Stanford University. His first job out of college was working for Boston Pacific, a consulting firm D.C. They provided expert witnessing, independent evaluation and support for New England and Mid-Atlantic utility commissions. While there he realized he wanted to work for a state government agency responsible for energy in the hopes of serving citizens in providing maximum public good.



He landed at the Oregon Public Utility Commission in Salem, where he spent three years learning about utility regulation, nuances of Pacific Northwest energy policy, and appreciating the small community that is the PNW energy scene. He was responsible for all of Idaho Power regulation, integrated resource planning, renewable energy planning and compliance, community solar and contributed to electric vehicle programming.

Michael moved to Seattle to be with his partner Andrew and was fortunate to take a job at the NW Energy Coalition where he was responsible for

carbon pricing, transportation electrification, DER planning and renewable natural gas. His first six months were spent working closely with the Alliance for Jobs and Clean Energy on what is now the 1631 initiative. He also focused extensively on

issues of equity and meaningful, accessible policy for vehicle electrification.

Michael loves riding his bike all over Seattle and also enjoys hiking, camping and the other standard PNW outdoor activities.

## Green Power for State Operations

Washington State government took a big step toward their emission goals when Gov. Inslee announced that eight state agencies will purchase 100,000 [mWh](#) of electricity from state wind and solar projects.

It is estimated that this will save the agencies \$15,000/year on their electric bills and reduce emissions by 22,000 metric tons per year. [See the full story on Medium.](#)



## Local Weatherization Agency Supports Centralia Community Transition

Our Community Action Council – Lewis, Mason, Thurston County local weatherization agency was just awarded \$700,000 in its second 3-year grant from the Community Weatherization Fund to pro-

vide low-income weatherization in Lewis and South Thurston counties.

The competitive grant is part of a \$55 million package of transition assistance to the Centralia area to help in the transition to the closing of the TransAlta coal plant.

Read the [TransAlta press release](#).

Watch a [video](#) to see how the CAC-LMT work is benefitting communities in Lewis and S. Thurston counties.

## Solar Decathlon Student Competition

The US Dept. of Energy opened the [Solar Decathlon student competition](#) in October with applications due from college teams by November 6th. Videos of past competitions can be found at <https://www.solardecathlon.gov/>

Here are a few video links:

<https://www.youtube.com/watch?v=JtO23FnJxTw>

<https://www.youtube.com/watch?v=rcGDoreAA60>

<https://www.youtube.com/watch?v=gt1sBsVK52M>

<https://www.youtube.com/watch?v=NN7p3jvjD7M>

## A Season of Smoke

A video from NASA on the wildfires in western North America during 2018. <https://www.youtube.com/watch?v=gofLu9wWbv4&feature=youtu.be>

## River & Snow Pack Report

**Observed Oct. stream flow** at The Dalles: 92% of average.

**Observed Sept. precipitation** above The Dalles: 71% of average.

**Est. 2018 Final runoff at The Dalles** (Jan.—August):

119.5 million acre-feet

118% of normal

**Estimated regional snow-pack:** n/a

**Federal hydropower generation** in Sept.:

5,604 aMW

5-year average: 6,372 aMW.

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

82%

5-year average: 82.1%.

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Rather read the highlights on a blog?  
We're at <http://www.commerce.wa.gov/energy-blog/>

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## Energy Price Overview

**Petroleum:** Spot market crude oil prices reached a daily high for the year (to-date) in early October, then declined by 10 percent by the last day of the month: Oct. 5<sup>th</sup> \$76.40 down to \$67.0 per barrel on Oct. 29<sup>th</sup>. The decrease in spot price is being attributed to concerns about trade, reduced growth in Asian demand and rising inventories. The average West Texas Intermediate price for the month of October was \$71.68 per barrel.

**Transportation Fuels:** Transportation fuel prices at the national level were largely unchanged during October: gasoline down about 3 cents, diesel up by 9 cents per gallon. Diesel prices typically increase during October/November as home heating oil purchases and freight traffic increase before the holiday season. The national average gasoline price is about 32 cents per gallon higher than last year at this time. National gasoline and diesel at the end of October were \$2.81 and \$3.36 per gallon respectively. In Washington state average gasoline and diesel prices increased following the brief closure of two of the state refineries following an explosion and fire that closed an Enbridge pipeline in British Columbia (more on this event in the natural gas section). Relative to the last week of the previous month state gasoline and diesel prices were 13 and 10 cents per gallon higher: Gasoline \$3.52 per gallon, diesel at \$3.62 per gallon.

**Natural Gas:** The average Henry Hub natural gas price for October increased nearly 10 percent to \$3.24 per MMBtu as residential and commercial demand began to increase. On October 9<sup>th</sup> there was an explosion and fire on the Enbridge T South pipeline near Prince George British Columbia. The Enbridge T South is a dual pipeline system, but both pipelines were closed following the event. The surviving pipeline was re-activated a few days after the explosion, but at a reduced capacity. This pipeline delivers natural gas into the Williams

pipeline system that supplies much of Washington state demand. Flow into the Williams pipeline at Sumas was essentially zero for a few days, which resulted in many industrial customers with interruptible contracts being cut off, or partially cut off, from natural gas supply. Two of the Washington state oil refineries briefly shutdown because of reduced or no natural gas supply. Natural gas in storage was called on to balance the system for several days. Puget Sound Energy asked customers to voluntarily reduce consumption. Enbridge announced that the ruptured pipeline had been repaired and would be back in service by November 2<sup>nd</sup> or 3<sup>rd</sup> at a reduced capacity factor. Due to reduced supply from Canada natural gas prices at the Sumas hub rose from about \$3 in September to \$7 to 8 per MMBtu. National gas storage levels increased 48 Bcf last week and are at 3,143 Bcf: about 17% below the 5-year natural gas storage average for this time of the year. Gas storage in the Pacific region, in part because of the storage draw following the pipeline explosion, was 25% below the 5-year average.

**Electricity:** Northwest hydropower generation was slightly lower in October compared to September, which is a typical seasonal pattern, but generation was nearly equal to the 5-year average for the month, despite the warmer and drier 2018 summer. The above average snowpack of the winter of 2017-18 has kept reservoir levels at typical levels for this time of year: See River & Snowpack information below. The Mid-Columbia spot (peak) market price increased sharply, relative to September, from \$29 to \$46 per MWh. The October average is \$20 per MWh higher than the average price observed in October 2017. Most of the price increase was due to the Enbridge T South natural gas pipeline closure which resulted in reduced power supply, due to the idling of several natural gas fired power plants in Washington State.

# Energy Headlines

## Electric

[Over 500—8th graders participate in ultimate energy experience](#)—NBCRightNow

## Renewables

[Hydropower Bill Overwhelmingly Clears Senate, heads to President's Desk](#)—POWER

[Combined Wind & Solar Made Up at Least 20% of Electric Generation in Ten States in 2017](#)—USEIA

[Message from Hurricanes Michael and Maria: Renewable energy makes more sense than ever](#)—USAToday

[45 years after oil embargo, U.S. renewable energy production has tripled](#)—Solar Power World

[T-Mobile to power Washington headquarters with 100% renewables](#)—Wind Power Engineering & Development

[Department of Energy announces \\$46 million to improve resiliency of solar generation](#)—Energy.Gov

[High Tech: These crews keep a close eye on massive wind turbine blades](#)—GE Reports

## Electric Vehicles

[Here's Which States Are Best for Owning an Electric Car](#)—Forbes

[The potential impact of electric vehicles on global energy systems](#)—McKinsey & Company

[Leading the charge: Battery-Electric Locomotives will be pushing US freight trains further](#)—GE Reports

## Health

[Chips and salsa and LEAD? - WA Dept. of Health](#)

## Carbon & Climate

[Poll: Nation's first carbon fee leading among voters](#)—Crosscut

[Climate change apathy, not denial, is the biggest threat to our planet](#)—The Guardian

## Clean Energy

[Report: 83,000 Washingtonians work in clean energy; clean energy industry now bigger employer than #Boeing \\$BA, #Microsoft \\$MSFT, #Amazon \\$AMZN](#)—Investorideas.com

## Other

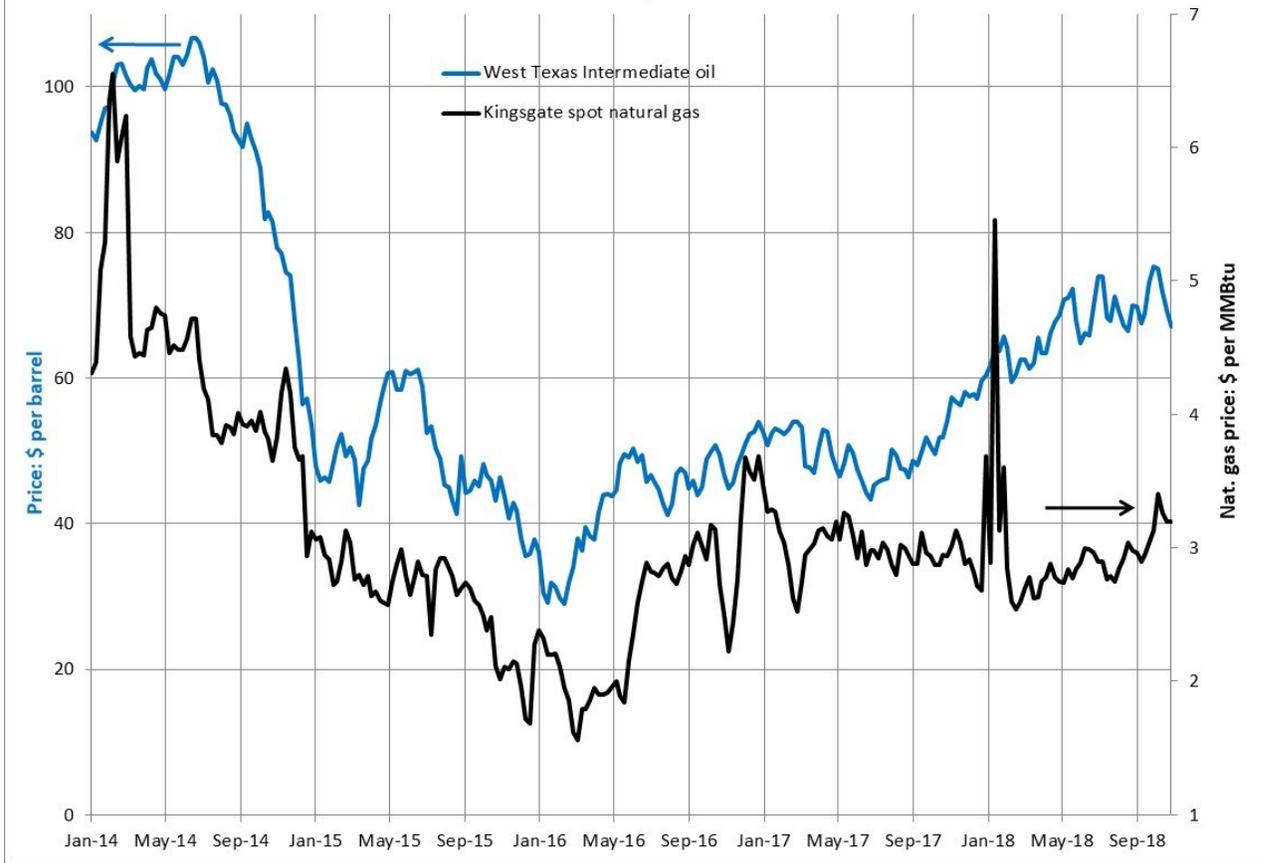
[Boeing backed hybrid plane start-up gets an engine supplier](#)—CNBC

[The Little Reactor that could — WA State nuclear plant continues to break records](#)—Forbes

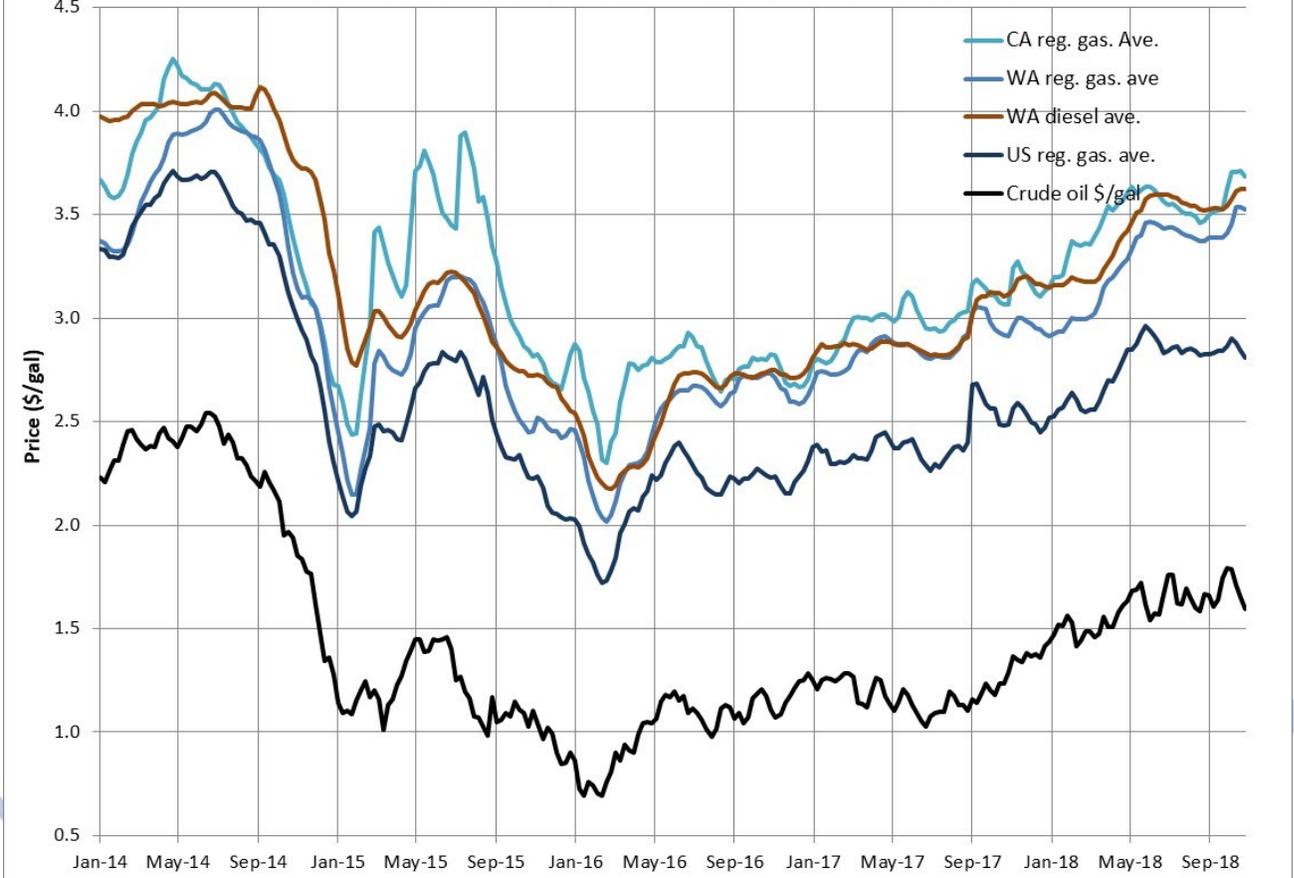
## Energy Leadership Summit

Over 300 people attended this year's Energy Leadership Summit. Speaker presentations can be found on the [summit website](#).

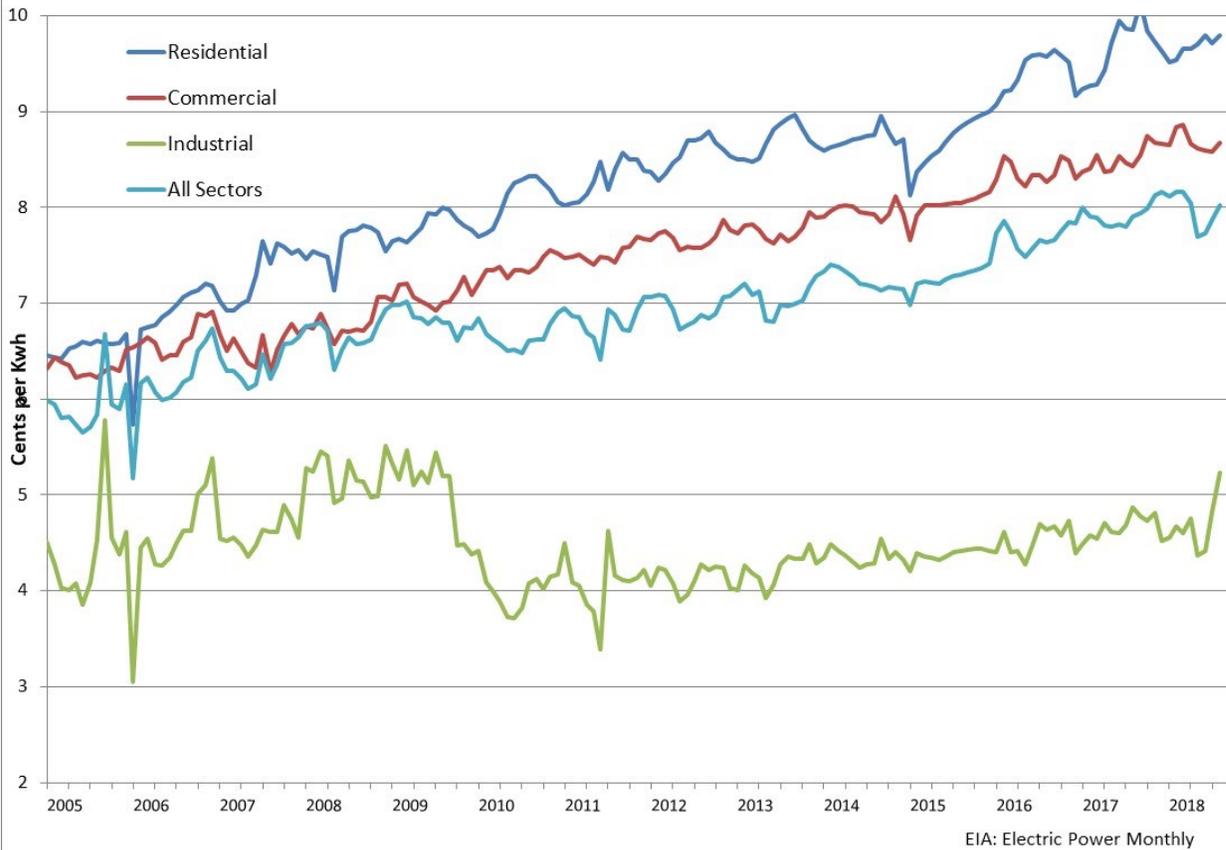
**West Texas Intermediate Oil and Henry Hub Natural Gas: Jan. 2014 - Oct. 2018**



**Retail Gasoline and Diesel Prices: Jan. 2014 - Oct. 2018**



### Washington State Electricity Rates by Sector: Jan. 2005 - Aug. 2018



<b>Energy Price Summary, October 2018</b>	<b>Current</b>	<b>Month Ago</b>	<b>Year Ago</b>
Monthly Range at Mid-C (Peak: \$ per MWh)	23-150	22.8-40.3	19.6-35
Average Mid C price (Peak hours \$ MWh, current month)	45.6	28.9	25.4
Electricity WA Ave. Retail: August (cents/kWh)	8.02	7.87	7.90
Natural gas Kingsgate spot price (next day: \$ per million BTU)	2.25	2.45	2.25
Natural gas Sumas futures price (next month \$ per million BTU)	2.40	2.32	2.50
Natural gas Sumas monthly average: August (\$ per million BTU)	2.28	2.05	2.49
Natural gas H.H. futures (NYMEX next month: \$ per million BTU)	3.18	2.86	2.88
E85 (national average: \$ per gallon gasoline)	2.85	2.83	2.47
Ethanol (CBT next month contract: \$ per gallon)	1.28	1.32	1.45
Corn (CBT next month contract: \$ per bushel)	3.63	3.68	3.48
Petroleum, West Texas Intermediate futures (\$ per barrel)	71.7	69.9	51.6
Seattle gasoline price (\$ per gallon, last week of the month)	3.45	3.44	3.09
U.S. gasoline price (\$ per gallon, last week of the month)	2.83	2.86	2.48
Gasoline futures (NYMEX next month: \$ per gallon)	1.97	2.02	1.64
State diesel price (\$ per gallon, last week of the month)	3.52	3.52	3.11
Heating oil futures (NYMEX next month: \$ per gallon)	2.34	2.23	1.79
U.S. residential propane price report (\$ per gallon)	3.35	NA	2.27
<b>Clean Cities: Alternative Fuel Price Report, July 2018</b>	<b>Current qtr US avg</b>	<b>Current qtr west coast</b>	<b>Last qtr avg west coast</b>
Ethanol E85 (\$ per gas gallon equiv.)	3.06	3.81	3.52
Biodiesel B20 (\$ per diesel gallon equiv.)	3.12	3.12	3.08
Biodiesel B99-100 (\$ per diesel gallon equiv.)	3.91	4.06	3.93
Compressed Natural Gas (\$ per gas gallon equiv.)	2.22	2.47	2.48
Propane (\$ per gas gallon equiv.)	3.85	4.04	4.21



## U.S. Energy Information Administration

- [Annual Energy Outlook 2018](#)
- [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](#)
- [U.S. Wind Turbine Database](#)

## Federal Funding Opportunities

[DE-FOA-0001959: RFI—National Wind Technology Center Facility and Infrastructure Investments](#)—no deadline

[Request for Information DE-FOA-0001978 High-Efficiency Internal Combustion Engine Development](#)

[DE-FOA-0001861 Explore use of data and technology on phasor measurement units deployed across the nation’s bulk power electric systems.](#) Submission deadline is November 9, 2018, 8 pm ET.

[DE-FOA-0001987 The Advanced Systems integration for Solar Technologies—Situational Awareness and Resilient Solutions for Critical Infrastructure.](#) Letter of Intent due November 14, 2018, 5 pm ET. Applications due December 7, 2018.

[DE-FOA-0001998 Transformational Sensing Capabilities for Monitoring the Subsurface.](#) Due December 3, 2018

[DE-FOA-0001993 Notice of Intent to Issue Funding Opportunity](#)—University-based R&D associated with combustion turbines in combined cycle applications.

## Events Coming Soon

[The R&D 100 Conference](#)—Orlando FL, Nov 15-16

[Northwest Clean Affordable Energy Conference](#)—Portland OR, Nov 15

[Smart Cities: Critical Infrastructure Protection—Opportunities and Challenges](#)—Seattle, Nov 28

[2018 Conference on Health, Environment and Energy](#)—New Orleans LA, Dec 3-5

[2019 National Home Performance Conference & Trade Show](#)—Chicago IL, April 1-4

Regional Power Flow		
Intertie	Average	Direction
California (AC+DC)	4,086 mw	export to California
Canada (BC)	17 mw	export to Canada
Total	4,103 mw	export

River Data		
Data for Nov. 7	Outflow (kcfs)	Ave. outflow for last 10 years
(Snake) Lower Granite	19.1	24.9
(Columbia) The Dalles	67.9	84.9