

Washington State Energy Office News

Sept 2016



Monthly News
Energy Review



Who owns the wind? We do, Wyoming says, and it's taxing those who use it



Is Burning Trees Still Green? Some
Experts Now Question Biomass



Energy & Climate Articles

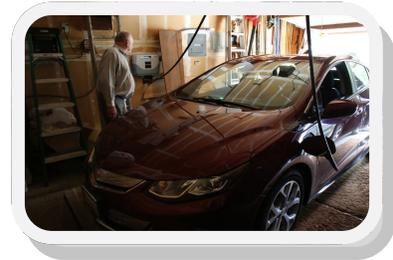
Click on graphics to access articles



Unanimous vote bans oil facilities in Vancouver



Weighing CarbonWA's Tax Swap Ballot Initiative



Why Home Solar Panels No Longer Pay in Some States



El Nino is gone, but Earth's record heat is sticking around



Climate scientists are under attack from frivolous lawsuits



The Winds Are Changing for Renewable Energy



Wind power fiercer than expected



\$100 Million Added for LIHEAP as Supporters Seek More



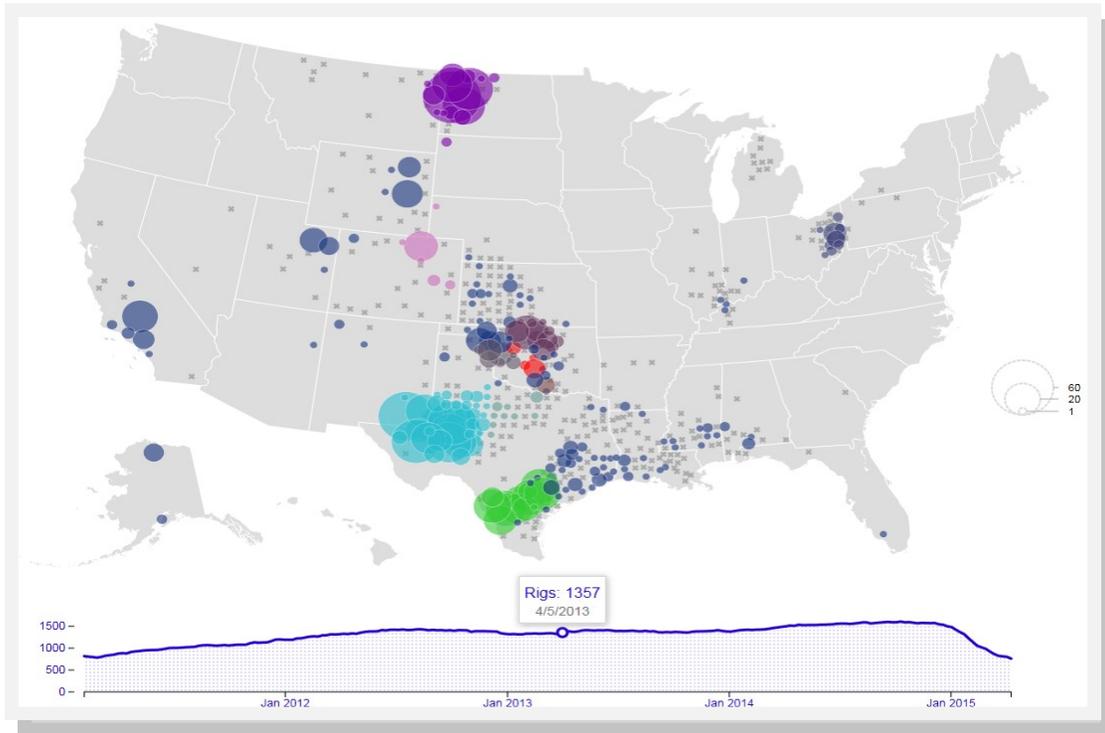
Senators strike deal to move forward on sweeping energy bill



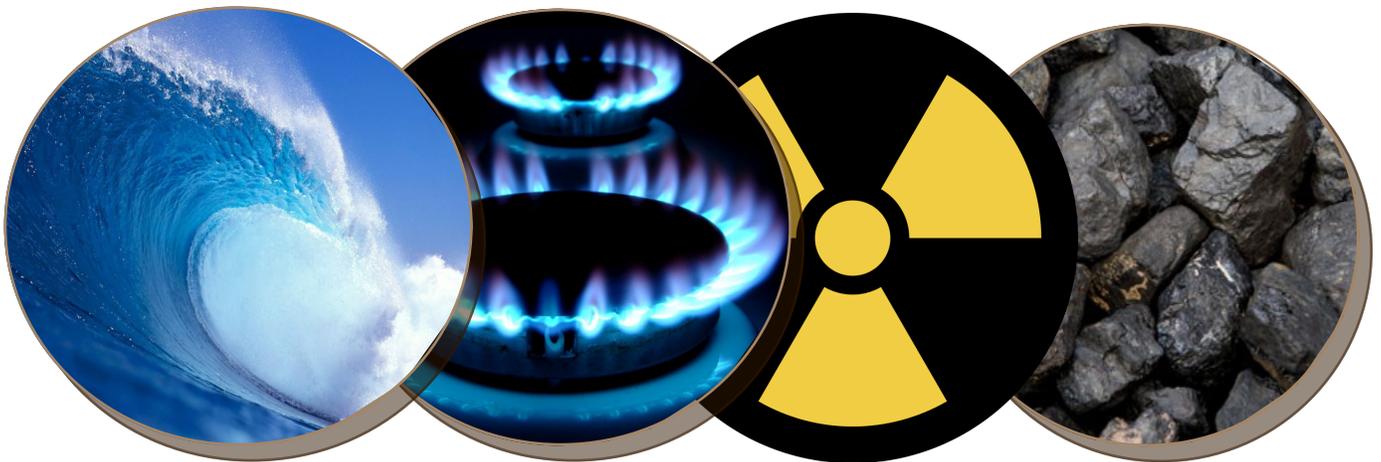
Energy & Climate Video/Graphics

Click on graphics to access articles

Watch Four Years of Oil Drilling Collapse in Seconds



Coal, Gas, Nuclear, Hydro? How Your State Generates Power

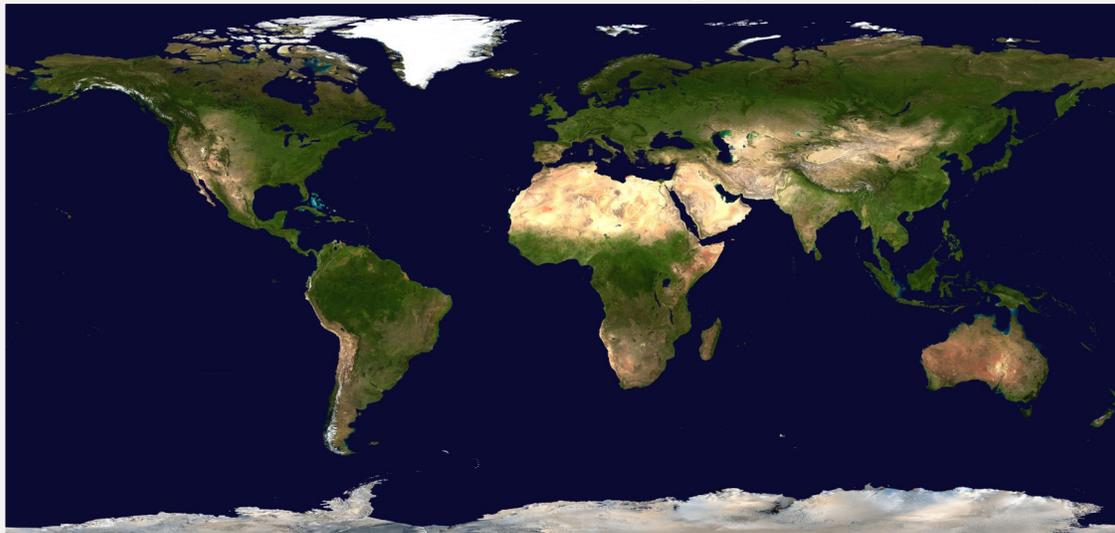




Energy & Climate Video/Graphics

Click on graphics to access articles

A Short History of Global Emissions from Fossil-Fuel Burning (1750-2010)



The Hottest Year on Record





Energy & Climate Video/Graphics

Click on graphics to access articles

ENERGY.GOV

How much **energy** do you use?

See how much energy someone like you used in 2012.

SELECT STATE

U.S. AVERAGE

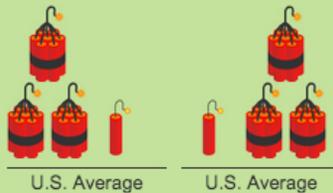
148,600,000 BTU

That's like the energy in:



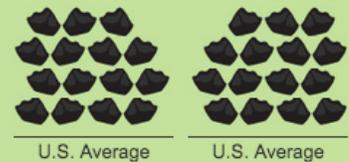
31,226 burritos

0 burritos above the U.S. Average.



165,033 sticks of dynamite

0 sticks above the U.S. Average.



15,370 lbs. of coal

0 lbs. of coal above the U.S. Average.





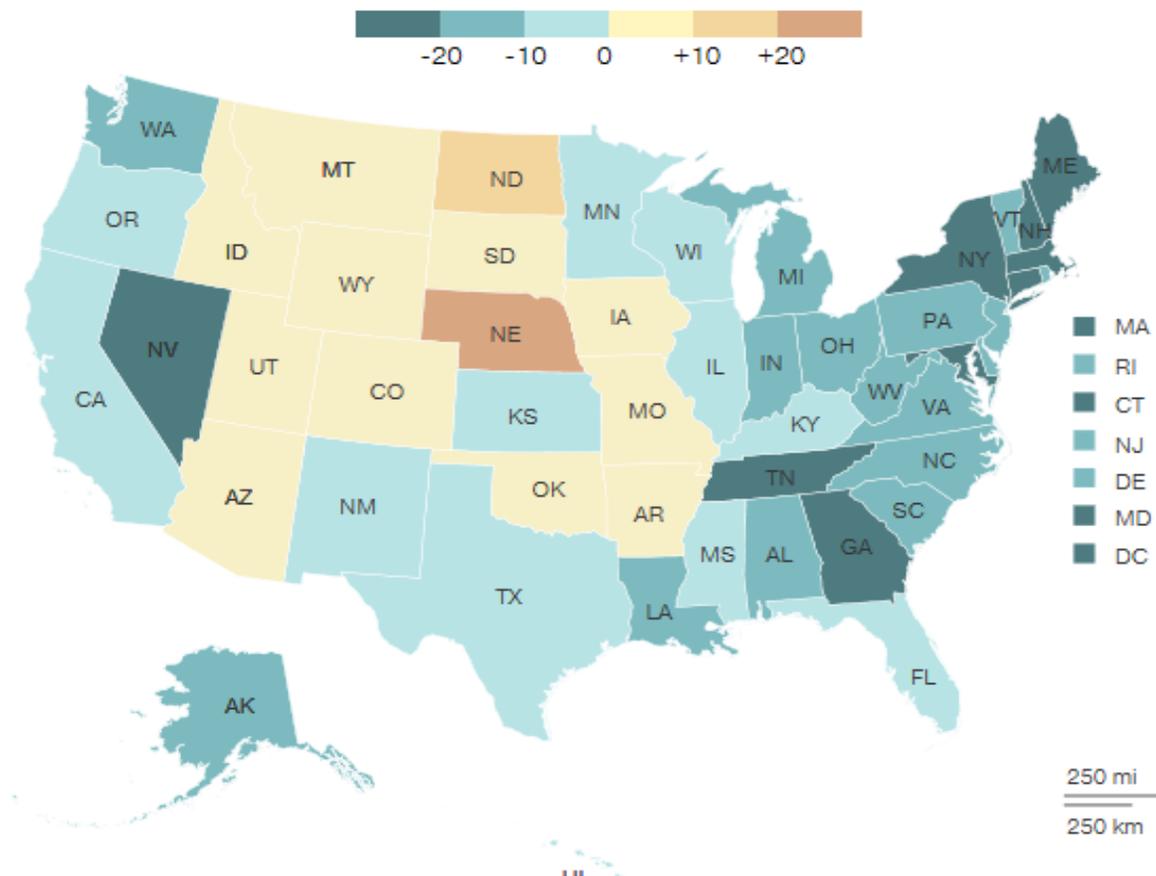
Energy & Climate Video/Graphics

Click on graphics to access articles

THE BLOOMBERG INNOVATION INDEX



These 13 U.S. States Saw Carbon Pollution Go Up Over a Decade





Crude by rail



[Editorial: Oil Train Blockade? The Spokane City Council is Tilting at Windmills. Spokesman Review](#)

[Business Group Emerges to Back Vancouver, WA Oil Terminal. Portland Business Journal](#)

[Protest against Crude Oil on Grays Harbor Draws Hundreds. Aberdeen Daily World](#)

Renewable Energy



[The Surprisingly Bright Future of America's Forgotten Renewable Energy Source: Water. Washington Post](#)

[Greens Warn against GOP Bill Promoting Wood-Burning Power Plants](#)

[The Winds are Changing for Renewable Energy](#)

[How Utilities are Fighting Back on Solar Power](#)

[Big Solar is Leaving Rooftop Systems in the Dust](#)

[Why Should Only the Weather Get Solar Panels?](#)

Energy Efficiency



[Google Cuts Its Giant Electricity Bill with DeepMind-Powered Artificial Intelligence. Bloomberg News](#)

[Energy Guzzlers No More: Data Centers Finally Using Less Electricity, New Study Finds. San Jose Mercury News](#)

[US Senators Strike Deal to Move Forward on Sweeping Energy Bill \(The Hill, Washington](#)

Miscellaneous



[Century-Old Bond for Aluminum Smelters & Utilities Falls Apart. Bloomberg News](#)

[Op/Ed: Economist's Attack on Columbia Generating Station Got It Wrong. Oregonian](#)



Carbon Pricing



[Opinion: Audubon Backs I-732 to Fight Climate Change – It’s Better than Nothing](#)

[‘Way Too Many Problems’ With State’s Carbon-Reduction Rule, Critics Say.](#)

[Does I-732 Really Have a “Budget Hole”? – No—the tax swap is about as revenue-neutral as it can get.](#)

[California Governor Proposes Extension of Cap-And-Trade Program to 2050.](#)

[Canada Moves on Carbon Tax—US Won’t Follow.](#)



River & Snow Pack Info

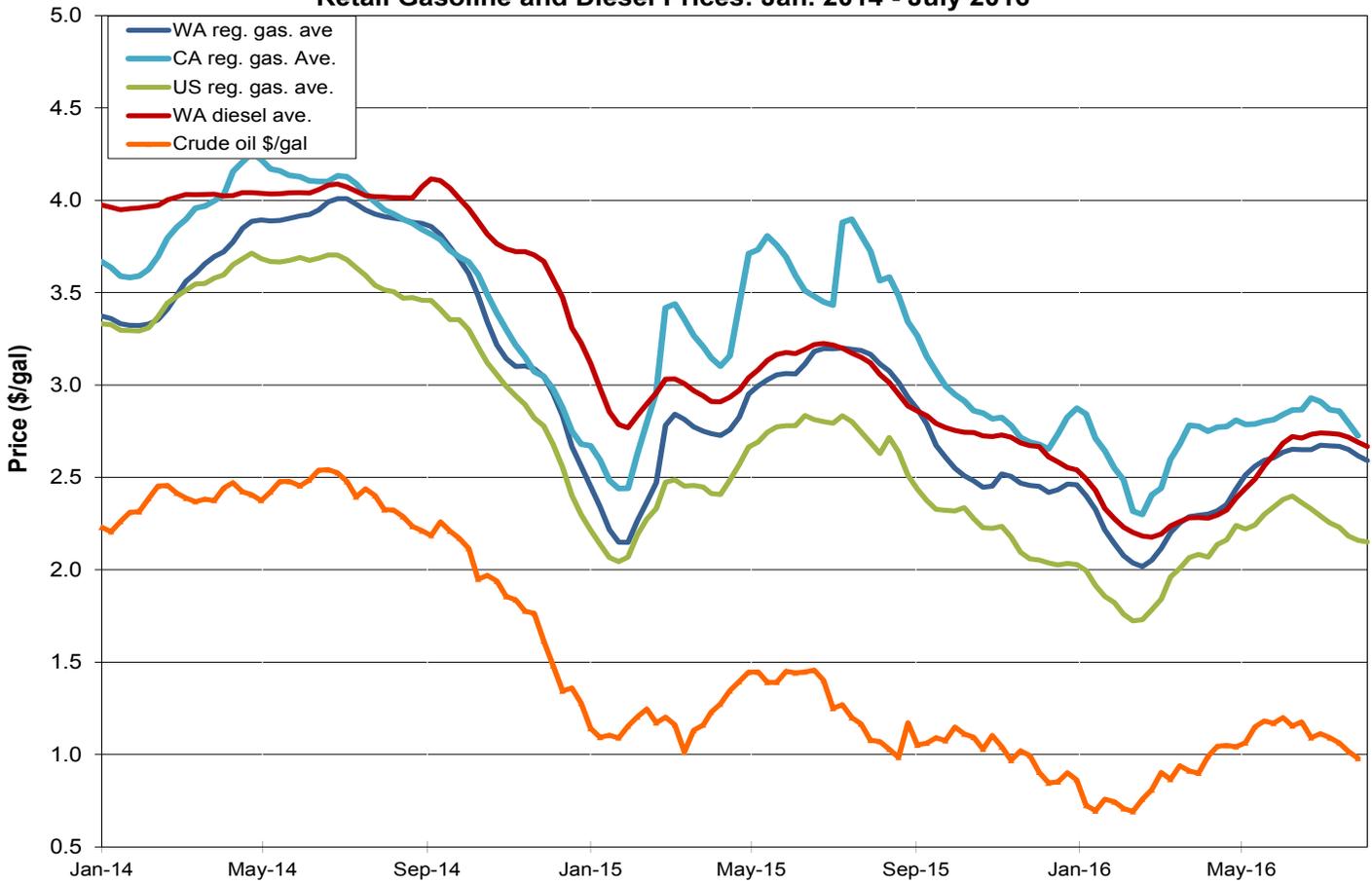
- Observed July stream flow at The Dalles: 68% of average.
- Observed July precipitation above The Dalles: 104% of average.
- Est. 2016 Final runoff at The Dalles (Jan.—July): NA
- Estimated snowpack NA
- Federal hydropower generation in June. : 8384 aMW, 2011-2015 average: 9995 aMW.
- Reservoir content (Libby, Hungry Horse, Grand Coulee, Dworshak): June. 92%, 5-year average: 94%.

River Data

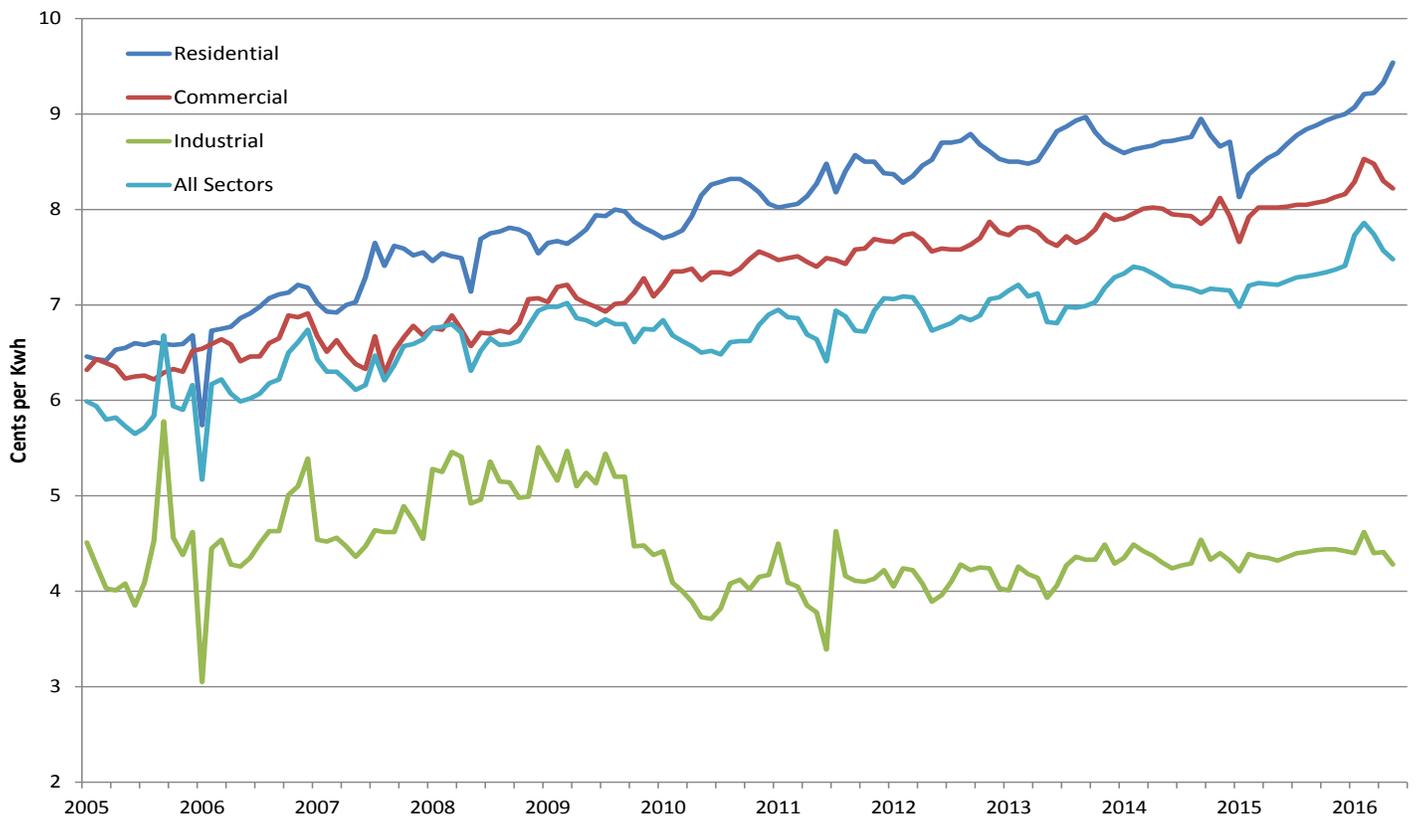
| Data for May 29 | Outflow (kcfs) | Ave. outflow for last 10 years (kcfs) |
|-----------------------|----------------|---------------------------------------|
| (Snake) Lower Granite | 25.5 | 30.0 |
| (Columbia) The Dalles | 119.2 | 142.5 |



Retail Gasoline and Diesel Prices: Jan. 2014 - July 2016



Washington State Electricity Rates by Sector: Jan. 2005 - May 2016





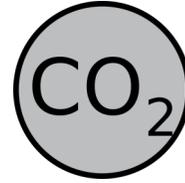
Recent Reports: Energy and Climate Change



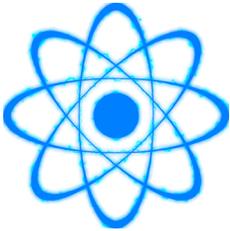
This Week in Petroleum



Washington drought



U.S. Energy-Related Carbon Dioxide Emissions



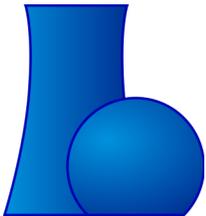
Monthly Energy Review



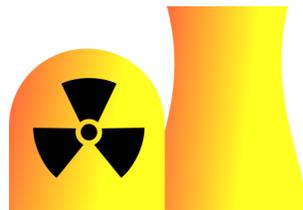
Short-term Energy Outlook



Annual Energy Outlook



Clean Power Plan for Existing Power Plants



Analysis of the Impacts of the Clean Power Plan



State Of The Climate 2014



Quadrennial Energy Review



The Quadrennial Technology Review



Draft Seventh Power Plan, NW Council

Energy Price Overview

Petroleum: Crude oil prices decreased from mid June through July finally stabilizing in the \$41-42 range this last week. Global inventories of crude oil remain high and summer fuel demand will peak in a few weeks. Canadian oil sands production has started to recover following the extensive wildfires and evacuation of Fort McMurray Alberta in May.

Fuels: Right on schedule transportation fuel prices peaked around the July 4th holiday weekend, and have been declining since. As of last week, national (average) gasoline prices were 17 cents lower and national diesel were 8 cents per gallon lower relative to the last week of the June: national gas and diesel were \$2.16 and \$2.35 per gallon respectively. Washington state average gasoline price for the same period was 3 cents lower relative to the previous month at \$2.62 per gallon, while diesel decreased 4 cents to \$2.69 per gallon.

Natural Gas: Natural gas prices have increased this summer due to hot weather and increased electricity demand for AC cooling. The price for month a head NYMEX natural gas increased to \$2.78 per MMBtu. Locally, the average July natural gas spot price at the Kingsgate hub rose to \$2.35 per MMBtu. Nationally, the elevated AC demand caused a rare summer natural gas storage withdrawal of 6 Bcf last week. Gas storage levels are 3,288 Bcf, about 16.4% above the 5-year storage average at this time of the year: 2 months ago storage was running 37% ahead of the 5-year average. Gas storage in the Pacific region is running 2.5% below the 5-year average.

Electricity: July was a typical month with spot electricity prices rising due to increased electricity demand in California from AC demand. The July average spot price was \$29.7 per MWh, about \$9 more than the previous month and \$6 less than for July 2015. Because of the early snowmelt this spring river flows in the Snake and Columbia River are lower than normal: see River Data on page 7. Fortunately July was slightly wetter than normal and the weather in the PNW has cooled considerably; consequently demand for electricity is lower. The other table on page 7 shows that reservoir levels at the federal dams are near normal levels

| Energy Price Summary | Current | Month Ago | Year Ago |
|---|-----------------------|-------------------------------|--------------------------------|
| Monthly Range at Mid-C (Peak: \$ per MWh) | 17-85 | 13.5-35.5 | 22-99 |
| Average Mid C price (Peak hours \$ MWh, current month) | 29.7 | 20.8 | 35.9 |
| Electricity WA Ave. Retail: May (cents/kWh) | 7.48 | 7.57 | 7.21 |
| Natural gas Kingsgate spot price (next day: \$ per million BTU) | 2.48 | 2.47 | 2.43 |
| Natural gas Sumas futures price (next month \$ per million BTU) | 2.47 | 1.95 | 2.25 |
| Natural gas Sumas monthly average: May (\$ per million BTU) | 1.35 | 1.39 | 2.32 |
| Natural gas H.H. futures (NYMEX next month: \$ per million BTU) | 2.78 | 2.63 | 2.83 |
| E85 (national average: \$ per gallon gasoline) | 2.16 | 2.35 | 2.81 |
| Ethanol (CBT next month contract: \$ per gallon) | 1.38 | 1.59 | 1.50 |
| Corn (CBT next month contract: \$ per bushel) | 3.36 | 3.67 | 3.71 |
| Petroleum, West Texas Intermediate futures (\$ per barrel) | 41.1 | 45.8 | 45.3 |
| Seattle gasoline price (\$ per gallon, last week of the month) | 2.67 | 2.69 | 3.21 |
| Gasoline futures (NYMEX next month: \$ per gallon) | 1.40 | 1.55 | 1.95 |
| State diesel price (\$ per gallon, last week of the month) | 2.69 | 2.73 | 3.12 |
| Heating oil futures (NYMEX next month: \$ per gallon) | 1.40 | 1.50 | 1.73 |
| U.S. residential propane price report (\$ per gallon) | NA | NA | NA |
| Clean Cities: Alternative Fuel Price Report, April 2016 | Current US avg | Current qtr west coast | Last qtr avg west coast |
| Ethanol E85 (\$ per gas gallon equiv.) | 2.39 | 2.98 | 3.08 |
| Biodiesel B20 (\$ per diesel gallon equiv.) | 2.27 | 2.54 | 2.79 |
| Biodiesel B99-100 (\$ per diesel gallon equiv.) | 3.09 | 3.09 | 3.73 |
| Compressed Natural Gas (\$ per gas gallon equiv.) | 2.02 | 2.32 | 2.40 |
| Propane (\$ per gas gallon equiv.) | 3.79 | 4.03 | 4.03 |