

May 2017 Connections

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of Electricity

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Tending the Grid

Idaho Power Balancing Operator Leader Kresta Davis-Butts leads a team of people who work around the clock to match electricity production with our customers' energy needs.

Balancing Electricity Supply and Demand is a 24/7 Job

Moving electricity from where it's generated to your home or business requires a complex balancing act that goes on 24 hours a day, every day.

Electricity is a constant, powerful force that affects nearly every aspect of our lives. But it can't be stored in large volumes, and excess energy doesn't just evaporate. It has to go somewhere.

That's where Idaho Power's Load Serving Operations team comes in. They balance a dizzying array of constantly changing

energy sources with the ups and downs of customer demand. Imagine a large water tank with thousands of spigots constantly being turned on and off. Coming into the tank are hundreds of hoses keeping the tank full. You have control of some of those hoses — but not all of them — and your job is to maintain a constant water level in the tank.

"It's really an art. You are constantly balancing the system, and every situation is so unique," said Kresta Davis-Butts, Balancing Operator Leader.

Every time someone plugs in a cell phone charger, starts an irrigation pump or switches off a light, the demand on the grid — called system load — fluctuates. Often, it happens behind the scenes, when a furnace fan turns on or a dishwasher completes its task, for example.

The amount of energy coming on to the system must match that system load every second of every day.

In the spring, overall demand for electricity is relatively low across our

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News Feed

Long-range Planning Process Enters Final Phase

Every two years, Idaho Power completes a 20-year resource plan for serving our customers' future power supply needs. This Integrated Resource Plan (IRP) is developed with input from an advisory council representing numerous customer groups via public meetings. The 2017 IRP will be submitted to regulators in June.



The plan's long-term focus provides time to identify resource needs and new investments. The two-year revision cycle allows us to respond to changing forecasts, technological advances and other shifts in the energy market. The result carefully considers the cost, reliability and environmental responsibility of existing and future power supply resources.

idahopower.com/irp

Understand Your Energy Use with myAccount

Just like Idaho Power load serving operators balance resources in real-time, you can keep an eye on your energy use anytime you want.

By signing up for myAccount, you can access your account information 24/7: view your bill, request service, set up Budget Pay or complete a Home Profile to understand how you're using energy. You can control your spending on energy and know what you are paying for, when and why. Know your house, know your use and know you are in control.

To register online at the Idaho Power website, look for the "myAccount" button on the left of the top navigation panel on the home page.

myAccount

idahopower.com/myaccount

Balancing Electricity *(continued from page 1)*

region, but the amount of energy being generated is high. Think of all the water that has been rolling down the Snake River since March, spinning hydro turbines, while spring breezes keep wind turbines churning, not just in Idaho but throughout the Northwest.

Idaho Power uses its own resources — 17 hydroelectric dams on the Snake River and its tributaries, three gas-fired plants and a share of output from three coal plants — to serve that electrical demand. Energy also comes from large wind, solar and geothermal projects that sell their energy to Idaho Power. Dozens of smaller projects push energy onto the grid, as well.

Additional energy can be purchased from outside of our area and delivered via high-voltage transmission lines. Energy also moves across Idaho Power's system. For example, another utility may move electricity from the Pacific Northwest to its customers in Utah.

Idaho Power controls many of the resources on our system. We have the ability to adjust the amount of energy coming from gas or coal plants. Usually we can adjust the output of hydro plants, too, although the volume of water going downstream this year has limited our ability to do that.

That's not the case for wind and solar projects; Idaho Power is required to purchase all of the energy these projects generate whether it is needed or not. This can limit our flexibility when trying to manage the system, especially when faced with a growing amount of energy from these sources that literally ramp up or down in seconds.

All of this coming and going is constantly monitored and managed from a large room full of video screens. Single workstations have up to a dozen video monitors, and an entire wall lays out Idaho Power's grid, showing the connections between substations and highlighting outages and other potential trouble spots.



Screens showing weather radar and forecasts are constantly being updated. The amount of wind and solar energy coming onto the system is displayed. The numbers tick up and down constantly as the weather changes.

“We manage the system with three goals: compliance, reliability and economic benefit for the company and our customers,” said Chris Nebrigich, Balancing Operator Leader. “Intermittent resources (wind and solar) make all three more complicated.”

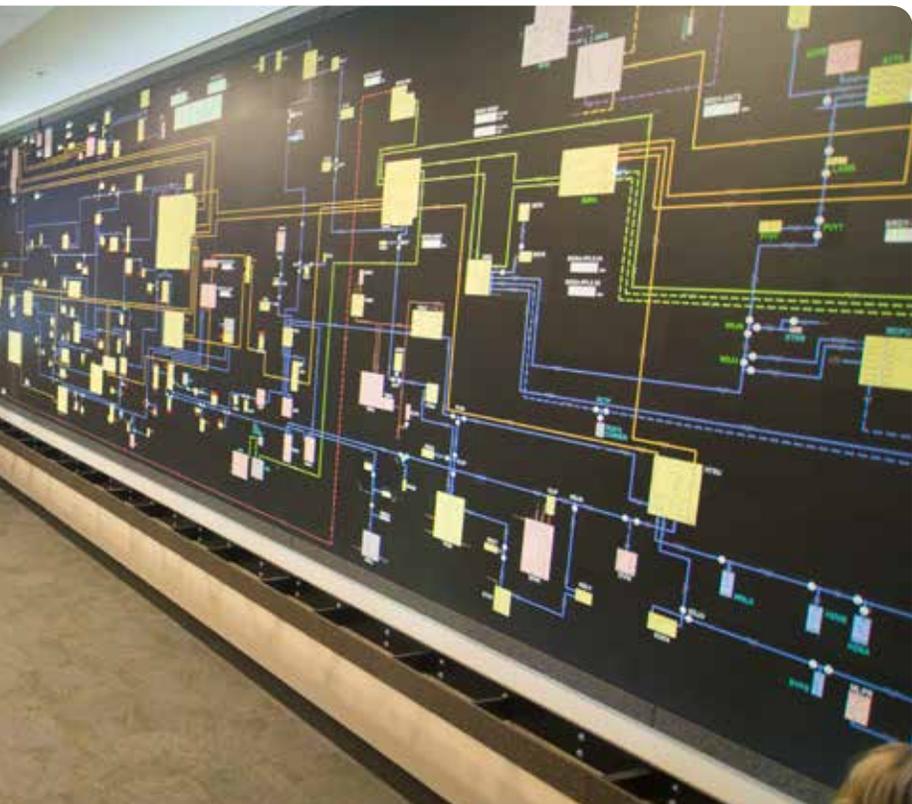
Intermittent resources make operating the system more expensive. Renewable projects like wind and solar have contracts mandated by federal law, with fixed prices that increase over time. Balancing the system often requires us to decrease use of lower-cost resources. When the region has an oversupply of energy, prices plummet — sometimes to zero. So there is little opportunity to recoup the costs we pay to

renewable developers by selling energy into the market.

The load serving operators try to minimize that excess energy while ensuring there is enough reserve power on the system to make sure all of our customers have the electricity they need, even if the wind stops blowing or storm clouds block the sun.

While all of that is going on, operators must make sure energy has a path to where it’s needed even when a route is unavailable due to unplanned and planned (maintenance) outages. They develop day-ahead plans to ensure enough energy is available for purchase if it’s needed, while also factoring in a laundry list of considerations: the market price of energy, the cost of coal and natural gas, regulatory restrictions on how we manage river flows, weather and unexpected drops or spikes in system load.

“All of the operators on these desks work closely together,” Kresta said. “It’s really a team effort.”



Why Prices Change Each Year

To match customer prices with the company’s costs of providing safe, reliable electric service, your bill changes on June 1 each year with two price adjustments that can go up or down.

Annually, Idaho Power files with the Idaho Public Utilities Commission (IPUC) for review and approval of two price changes, the Fixed Cost Adjustment (FCA) and the Power Cost Adjustment (PCA), and must approve them before we can implement them.



FCA

- The FCA separates certain revenue collection related to fixed-cost recovery from energy sales to eliminate financial disincentives for Idaho Power to invest in efforts that promote wise use of energy, like demand-side management and energy efficiency programs.
- If, because of lower energy use per customer during the prior year, we collect less than the fixed-cost per customer amount authorized by the IPUC, we’re allowed to collect the difference through a surcharge.
- If, because of higher energy use per customer during the prior year, we collect more than the authorized amount, we’re allowed to refund the difference to customers through a credit.

The FCA is filed each year on or near March 15 and only affects residential and small general service customers.

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Price Change

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PCA

The PCA is an annual filing that updates customer prices to reflect the current variable costs and benefits of operating the electric system. Neither Idaho Power nor its shareholders receive any financial return on the PCA; money collected from the surcharge can be used only to pay power-supply expenses.

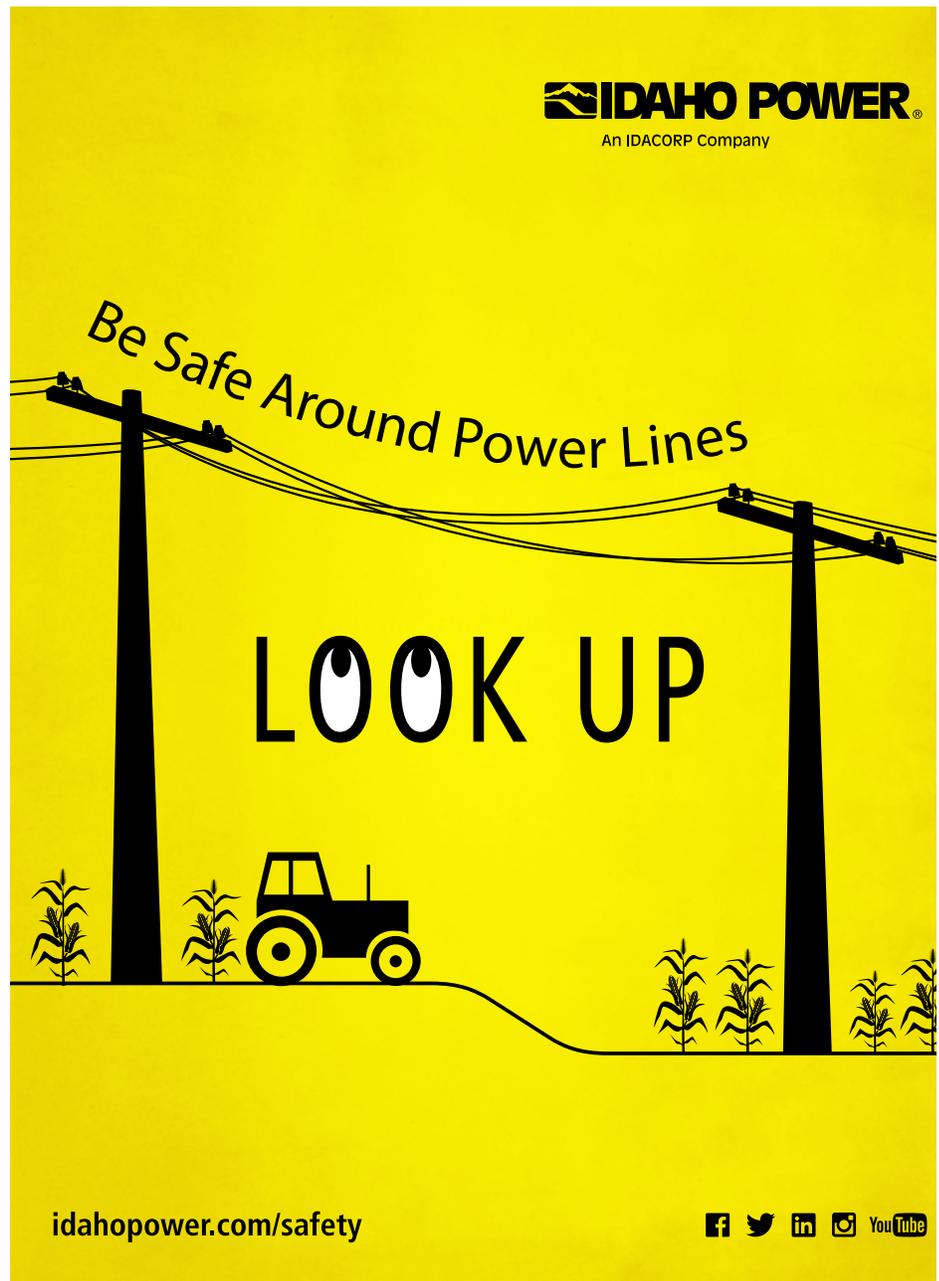
- It forecasts anticipated fuel costs, costs to purchase power and customer benefits from sales of surplus energy for the coming April through March.
- It “trues up” last year’s forecasted costs with the costs actually incurred the previous April through March.

Prices are established by adding the forecast and the true-up to align actual collection with actual costs.

Customers also benefit when we sell surplus energy to the wholesale market when we have more than we need to serve customers. The money from those sales is deducted from our power-supply costs and reduces the prices customers pay through the PCA.

The PCA is filed each year on or around April 15 and applies to all customers.

idahopower.com/rates



From The Electric Kitchen

May 2017

Side Dish

Easy Spicy Green Beans

12 oz fresh or frozen green beans (approx. 2.5 cups) ½–1 tsp red pepper flakes (to taste)
1 Tbsp olive oil 2 Tbsp water
2 Tbsp soy sauce*
2 tsp Dijon mustard
¼ tsp dill weed

In a microwave-safe dish, whisk all ingredients except green beans until combined. Add green beans, tossing to coat. Microwave on high for 6 minutes, stopping once to toss and coat. Makes 5 servings.

*May substitute Bragg’s Liquid Aminos for soy sauce for a low-sodium, gluten-free version.

Dietary information per serving:

Calories: **30**
Protein: **1.3g**
Carbohydrates: **4.5g**
Fat: **1g**
Sodium: **232mg**
Fiber: **2.1g**

Connections is published monthly to inform our customers about services we provide, programs we offer and industry issues impacting our service area in southern Idaho and eastern Oregon. Our goal is to engage and inspire you to learn more about Idaho Power and how we are working together to meet your energy needs today and tomorrow.

Comments or questions are welcome at idahopower.com/contactus or Corporate Communications P.O. Box 70, Boise, ID 83707



Recipes are selected for nutritional value and low energy use in preparation. They are approved by Registered Dietitian Erin Green from the Central District Health Department in Boise, Idaho.