



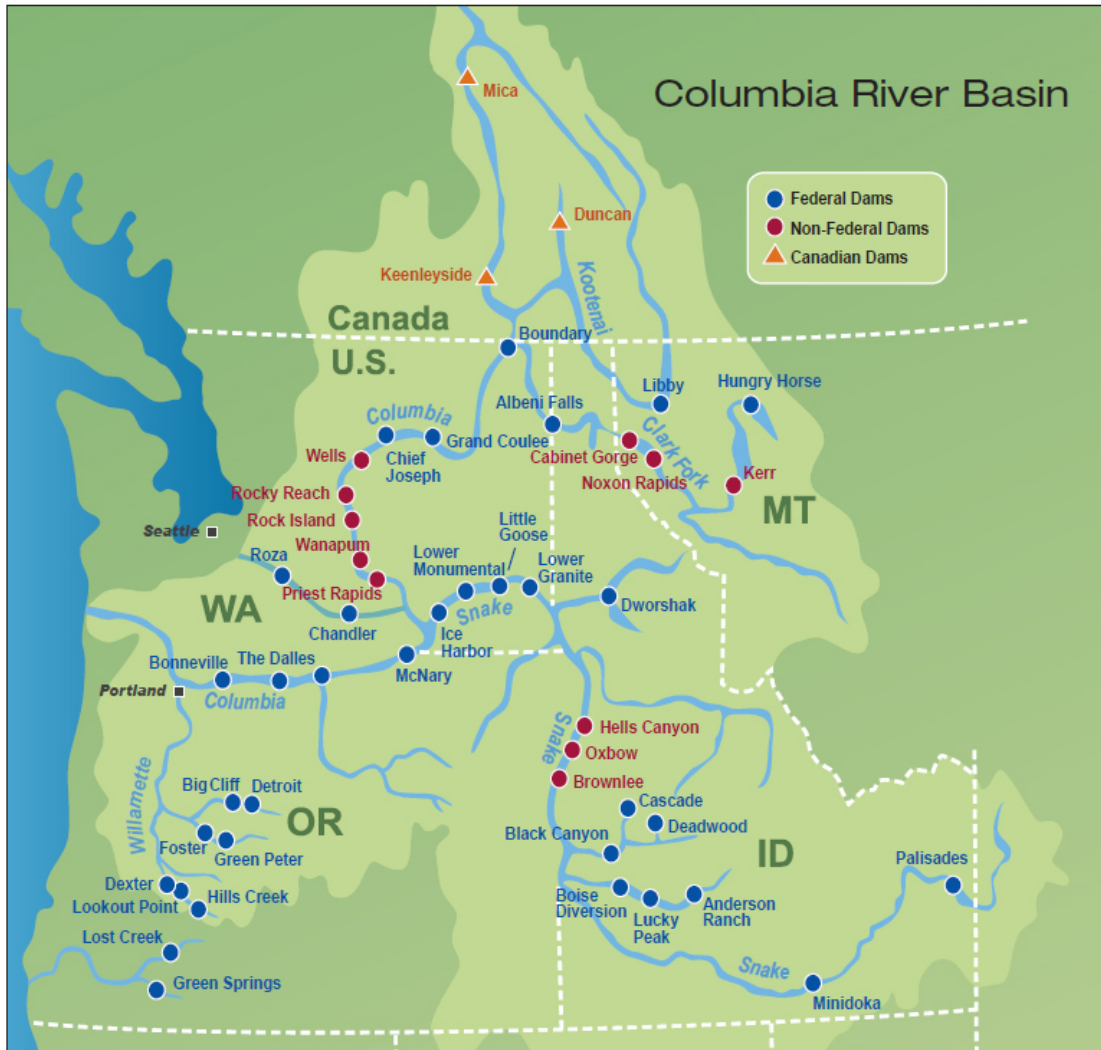
BPA and Clean Energy Resources

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Vice President, Bulk Marketing



Overview of BPA



- Federal power marketing administration, US Department of Energy.
- Own & operate 15K miles of high voltage transmission line.
- Markets power from 31 Federal dams, Columbia Generating Station, and non-Federal generators.
- Funds regional efforts to protect and rebuild fish and wildlife affected by hydropower development.
- Energy Efficiency is BPA's primary resource acquisition

FCRPS Annual Operating Cycle

- **July – August:** Draft the system to augment flows supporting the downstream migration of juvenile fish
- **September – October:** Operate the system to prepare for Fall fisheries operations at Lake Roosevelt, Vernita Bar, and downstream of Bonneville
- **November – December:** Provide hydraulic conditions for Chum, Fall Chinook, and Kokanee spawning. Meet Winter flood control requirements at headwater projects
- **January – April:** Draft the system for flood control while supporting protection elevations for Chum and Fall Chinook
- **May – June:** Refill the system on the Spring freshet

BPA's Resources & Carbon Profile

BPA Resource Mix		
	2010	2016
Hydropower	76%	85%
Nuclear	11%	11%
Market Purchases	12%	3%
Other (e.g., wind, solar)	1%	1%
Total	100%	100%
Emissions Factor	188.7 lbs CO ₂ per MWh	26.5 lbs CO ₂ per MWh

Average Emissions Factors – 2016

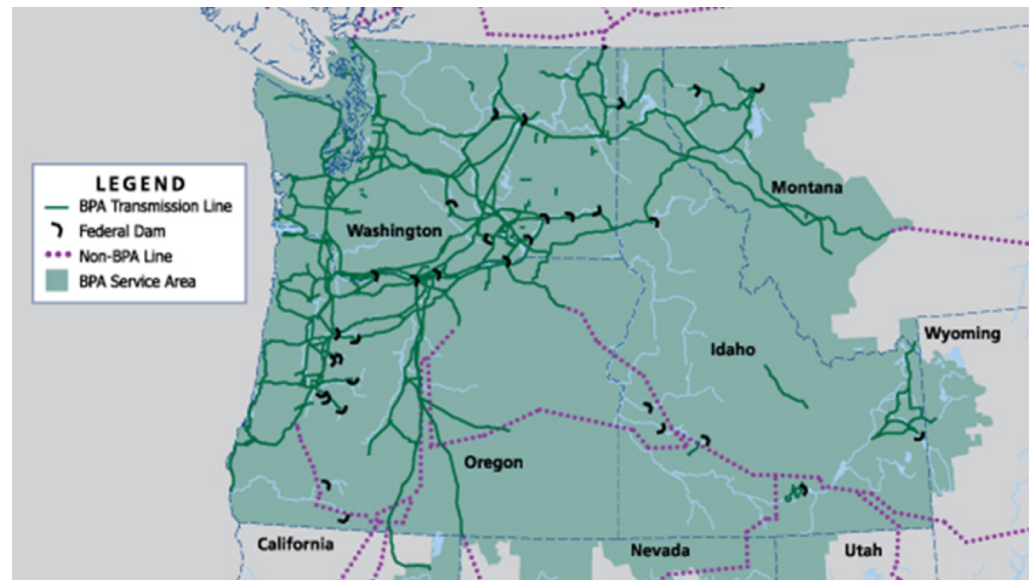
BPA	26.5 lbs CO ₂ per MWh
Northwest Power Pool	651.2 lbs CO ₂ per MWh
National	998.4 lbs CO ₂ per MWh

Source: 2016 EPA Emissions & Generation Resource Integrated Database (eGrid)

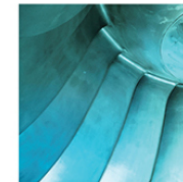
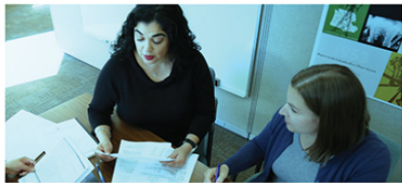
BPA Customers

- Power Preference Customers
 - Publically-owned utilities, Tribal Governments, Federal Agencies, Direct Service Industries,
- Other Customers
 - Investor-Owned Utilities, Power Marketers, Resource Developers

BPA Transmission System and Federal Dams



BPA also sells or exchanges power with entities in Canada, California, and other parts of the Western US



Delivering on our public responsibilities through a commercially successful business



BPA 2018–2023 Strategic Plan

BPA 2018–2023 Strategic Goals

Delivering on our public responsibilities through a commercially successful business.

#1

**STRENGTHEN
FINANCIAL HEALTH**

#2

**MODERNIZE
ASSETS &
SYSTEM OPERATIONS**

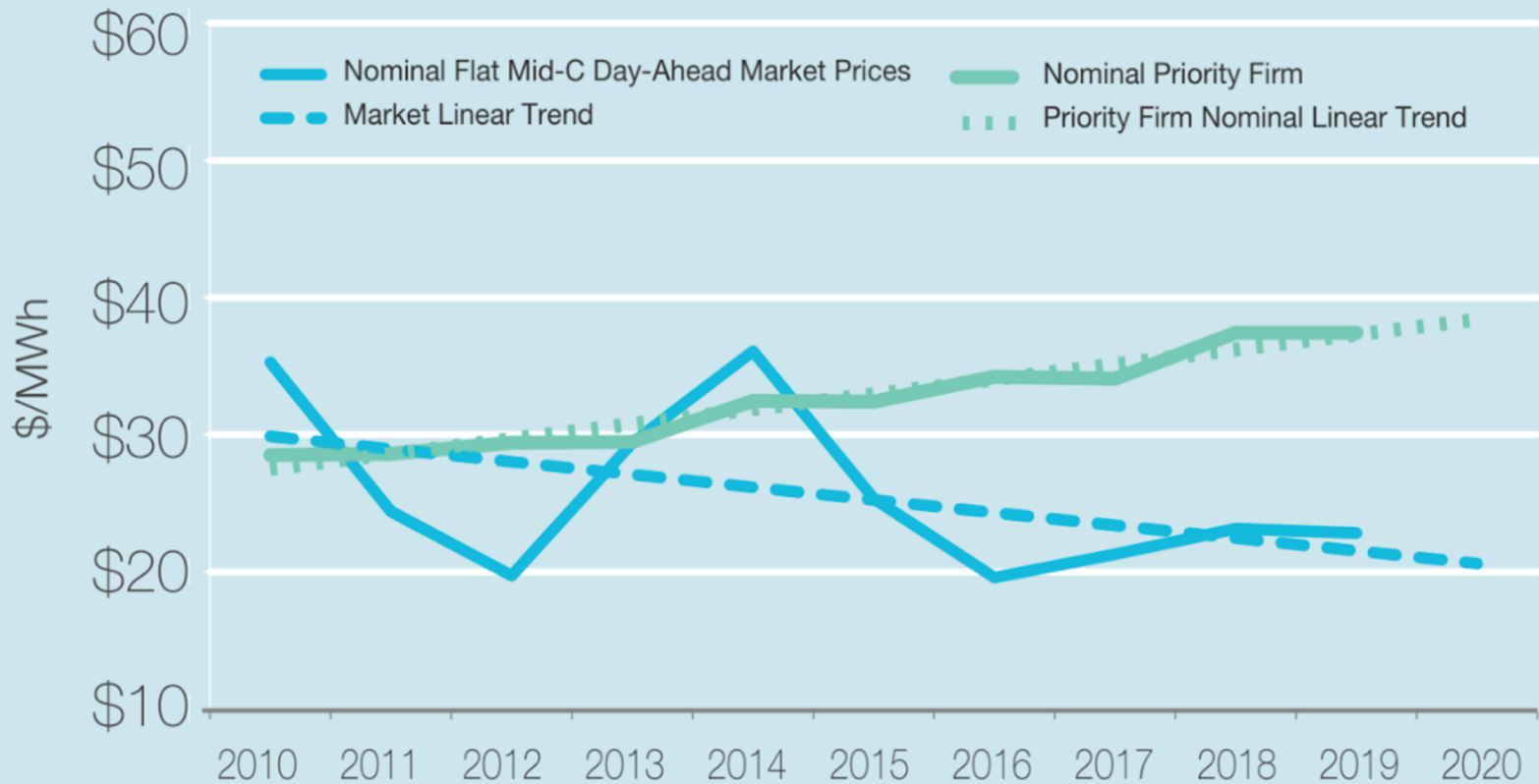
#3

**PROVIDE
COMPETITIVE
PRODUCTS & SERVICES**

#4

**MEET
CUSTOMER NEEDS
EFFICIENTLY & RESPONSIVELY**

Priority Firm Power Rates 2010–2020

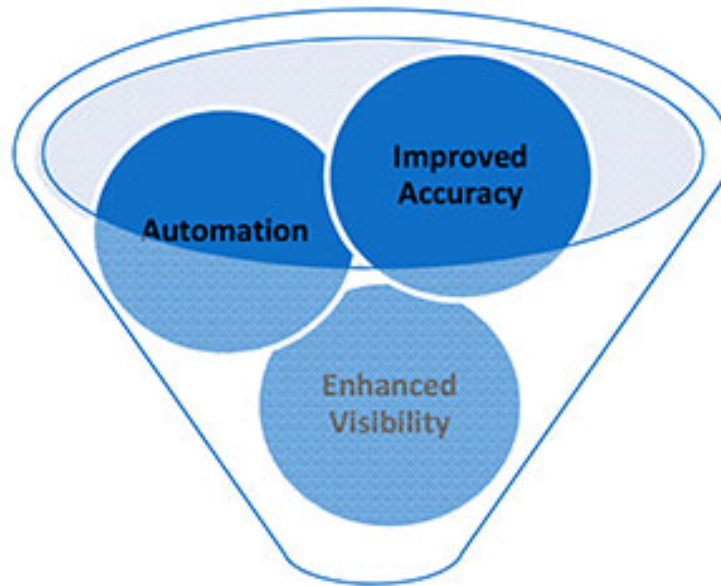


FY 2018–19 market estimated with BP-18 Rate Case market price forecast.

#2

MODERNIZE
ASSETS &
SYSTEM OPERATIONS

Grid Modernization



**Maximize capacity and improve
grid efficiency**

**Improve Power and
Transmission revenues**

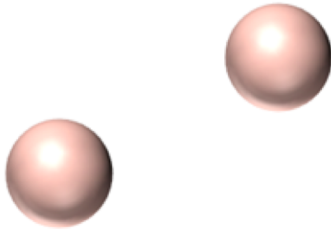
#3

PROVIDE
COMPETITIVE POWER
PRODUCTS & SERVICES

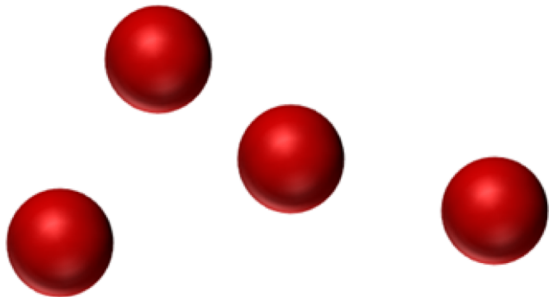
Surplus Marketing Focus

Low Value

No Green Preference and Capacity

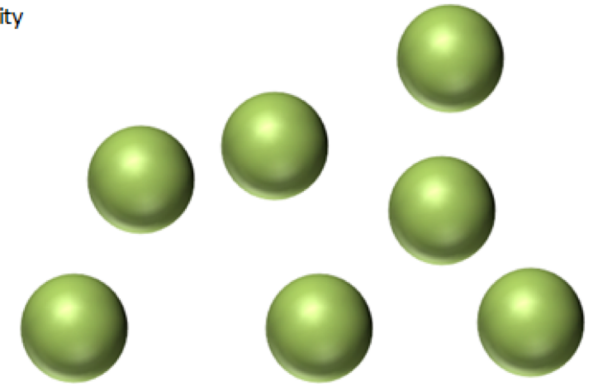


No Green Preference and No Capacity

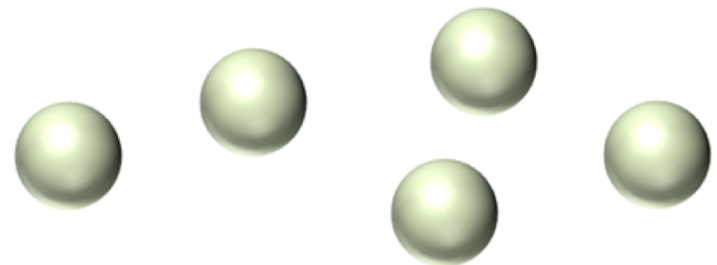


High Value

Green Preference and Capacity



Green Preference and No Capacity





Thank you!





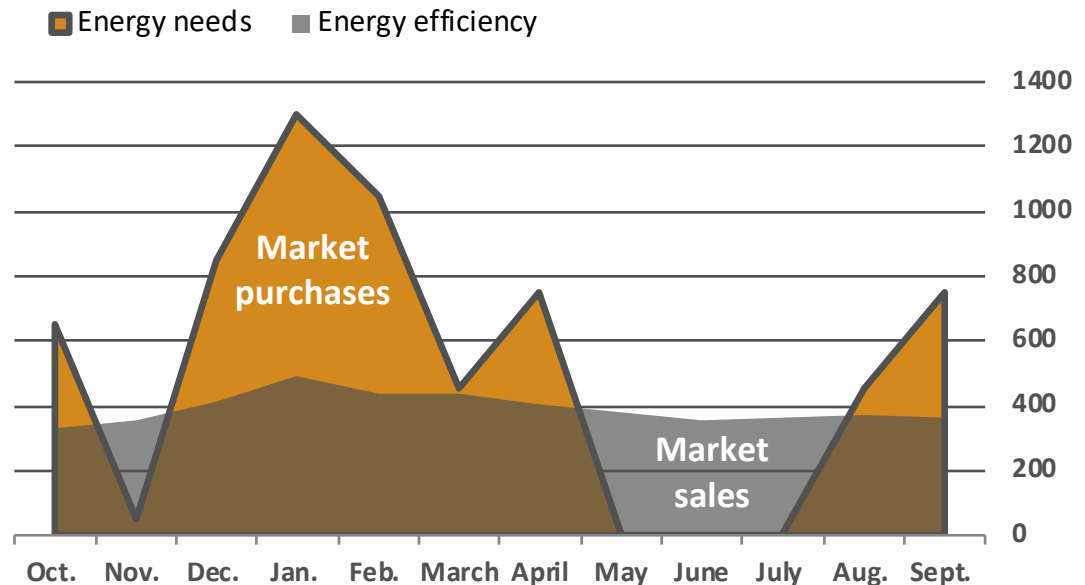
Additional Slides



Aligning EE to Meet Business Needs

- BPA's 2018 Resource Program identified both energy efficiency and demand response as cost-effective solutions to meet long-term power needs.
- Demand response helps meet system capacity needs in the summer.
- Energy efficiency helps meet system energy needs in the winter.

Winter energy need (in megawatts) under critical conditions



Lower Snake River Dams

80 Year Average Generation and Sustainable Capacity

