



PUBLIC UTILITY DISTRICT NO. 1
of Jefferson County

March 20, 2018

Final Minutes

**Special Board Meeting
Public Power Council**

The Special Meeting of Public Utility District No.1 of Jefferson County (PUD) Board of Commissioners was called to order by the President of the Board of Commissioners at 3:00 p.m. at the Jefferson County PUD Operations Center, at 310 Four Corners Road, Port Townsend, WA 98368. Present:

Commissioner Jeff Randall, President
Commissioner Kenneth Collins, Secretary

General Counsel Joel Paisner (arrived at 3:40pm)
Kevin Streett, Assistant General Manager
Will O'Donnell, Communications Manager

R. Scott Corwin, Executive Director
Public Power Council

Cammy Brown, Recorder

CALL TO ORDER

The meeting was called to order by Commissioner Jeff Randall at 3:00 p.m. and he made the announcement that the special meeting was being held for the purpose of holding a special presentation from R. Scott Corwin, Executive Director, Public Power Council.

Commissioner Jeff Randall made the announcement that Commissioner Wayne King was ill and would not be attending this meeting.

Voluntary introductions were given.

Executive Director R. Scott Corwin from Public Power Council gave an overview on the Public Power Council.

There were questions and discussions from the commissioners and the public. There was one handout: Federal Columbia River Power System: Info and Issues for the Future by Public Power Council.

ADJOURNMENT:

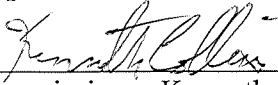
MOTION: Commissioner Kenneth Collins moved and Commissioner Jeff Randall seconded the motion to adjourn the March 20, 2018, Special Meeting of the Jefferson County Public Utility

District. Motion carried unanimously. There was no action taken at this meeting.

Meeting was adjourned at 4:25 p.m.

Minutes prepared by Cammy Brown, Recorder

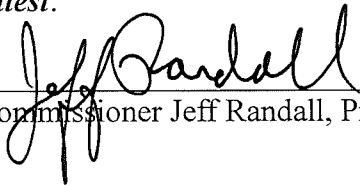
Approved:



Commissioner Kenneth Collins, Secretary

4/17/18
Date

Attest:



Commissioner Jeff Randall, President

4/17/18
Date

Please note PUD Board of Commissioner meetings are audio recorded and posted to the PUD website at www.jeffpud.org, usually within 1-2 business days of each meeting. If you experience any difficulty accessing a particular recording, you may call 360.385.5800 for assistance. Jefferson PUD provides reasonable accommodations to persons with disabilities. We invite any person with special needs to contact our staff at 360.385.8351 at least 24 hours before the meeting to discuss any special accommodations.

Handout #1
03-20-18
1 Special mtg.

Federal Columbia River Power System: Info and Issues for the Future

Western Washington Meetings
March 19-20, 2018

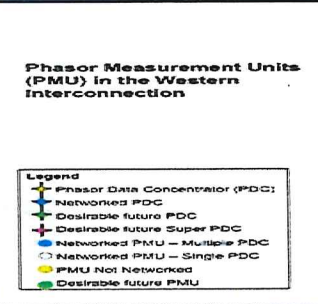
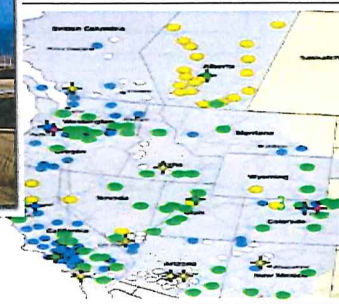
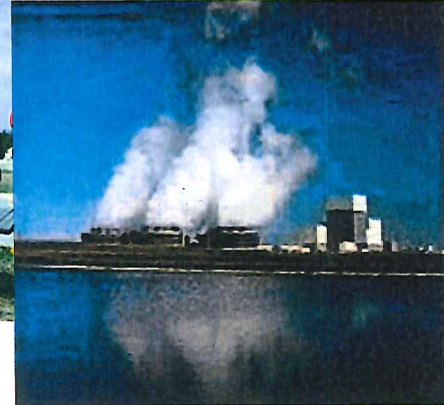
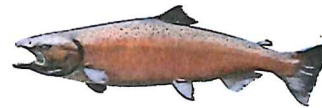
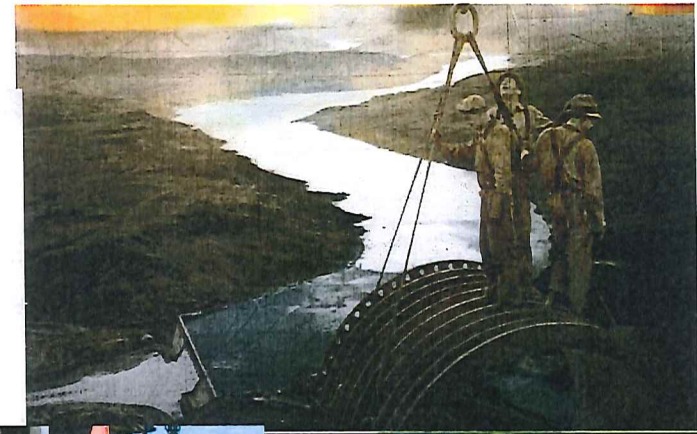


The Schedule: Working from 2028

- ▶ **October 1, 2028** Start of FY 2029 and Rate Period Under New Contract
- ▶ **End of 2024 ?** Contract Signing - or Earlier, or Later...
- ▶ **2023 BP-24** Rate Case - Last one prior to Contract Signing?
- ▶ **2021 - 2022** Decide on Other Resource Options; Create BPA Contracts?
- ▶ **2020 - 2021** BP-22 IPR and Rate Case; BPA Future Product Creation?
- ▶ **2018 - 2019** BP- 20 IPR and Rate Case; BPA Strategic/Financial Plan and Implementation; Other Resource Option Evaluation

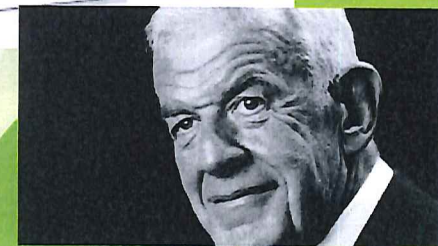
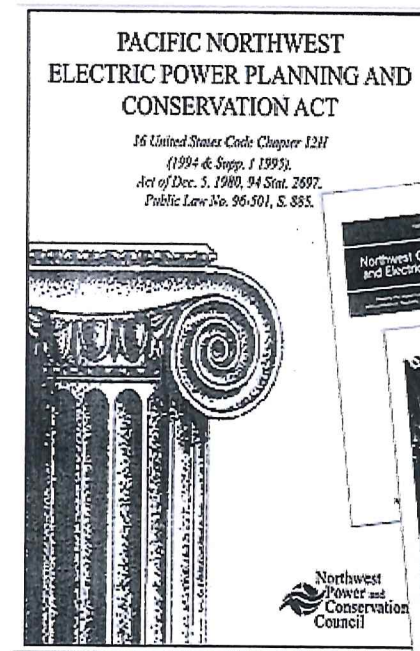
TIMELINE OF NW POWER ERAS

- ▶ **1800s-1920s The Early Era**
 EX: 1887 Army Corps Investigates Declining Salmon Runs; 1889 McMinnville Water and Light
- ▶ **1930s-1940s The Building Era**
 EX: Grand Coulee, PUD Formation, Bonneville Project Act, REA
- ▶ **1950s-1960s The Golden Era**
 EX: NW Preference Act, CRT, PNCA, PPC
- ▶ **1970s Regulation and Planning Era**
 Ex: ESA, CWA, PURPA, FCRTSA, Heart of WPPSS Action,
- ▶ **1980s-1990s Restructuring Era**
 Ex: NW Power Act - straddled eras; 20 year Contracts...then Diversify; 92 EPACT
- ▶ **2000s Crisis & Contracts Era**
 Ex: Westcoast Energy Crisis; EPAct 2005; Regional Dialogue; BiOP/MOA
- ▶ **2010s Regulatory Era Revisited & Low Markets**
 Ex: Federal Executive Power; State Driven Policy (RPS) & Court-Driven Constraints (Fish)



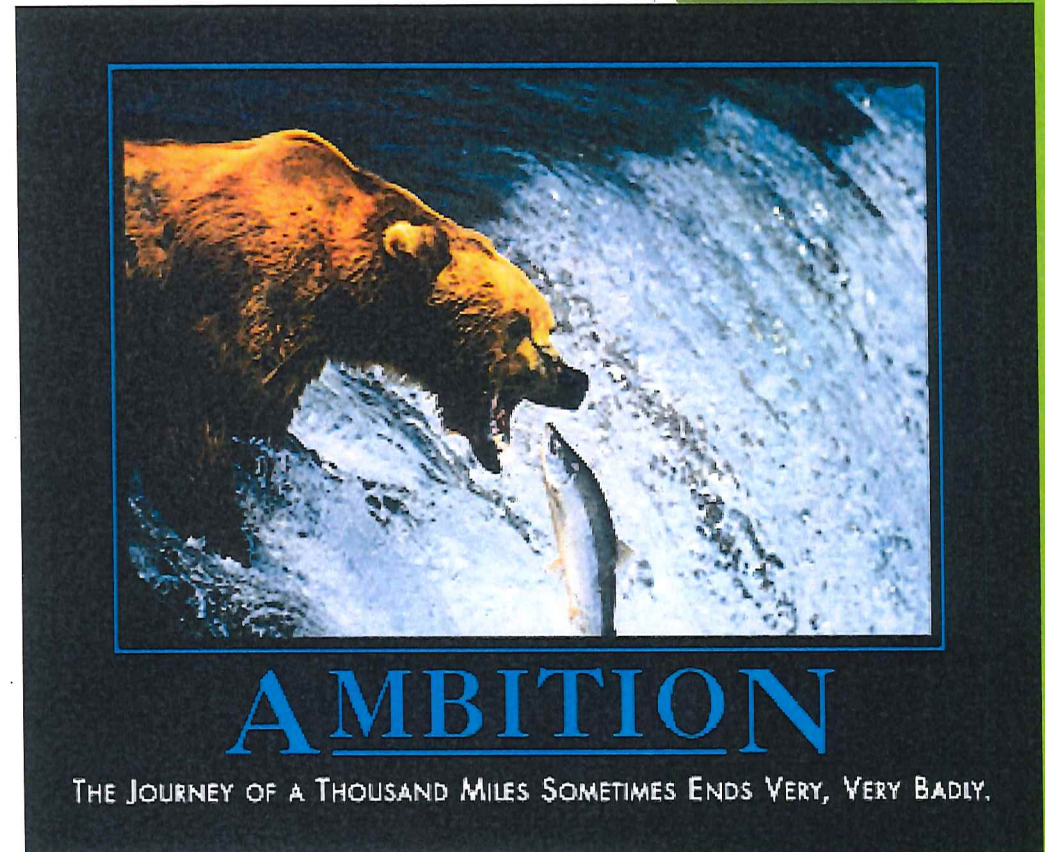
THE REGIONAL ACT and OTHER KEY STATUTES

- ▶ Bonneville Customers: Public Preference to Power at Cost; Regional Preference
- ▶ Bonneville: authority to acquire generation & responsibility for fish and wildlife program
- ▶ Bonneville: invested in, built, and currently operates the bulk of NW transmission
- ▶ NW Council: role of states, regional planning



RISK / REWARD: THE MODERN CONTEXT

- What is available from the Federal System? Where is it heading? At what price, with how much risk?
- What will be available from non-federal resources, at what price, and how do you evaluate?
- Issues around moving your resources to load?
- The Trickiness of Reading Trends





What is available from
the federal system?

The Physical Transmission System

- ▶ BPA is the backbone
 - ▶ 75% of regional high voltage
- ▶ 15,238 miles of lines
- ▶ 261 substations

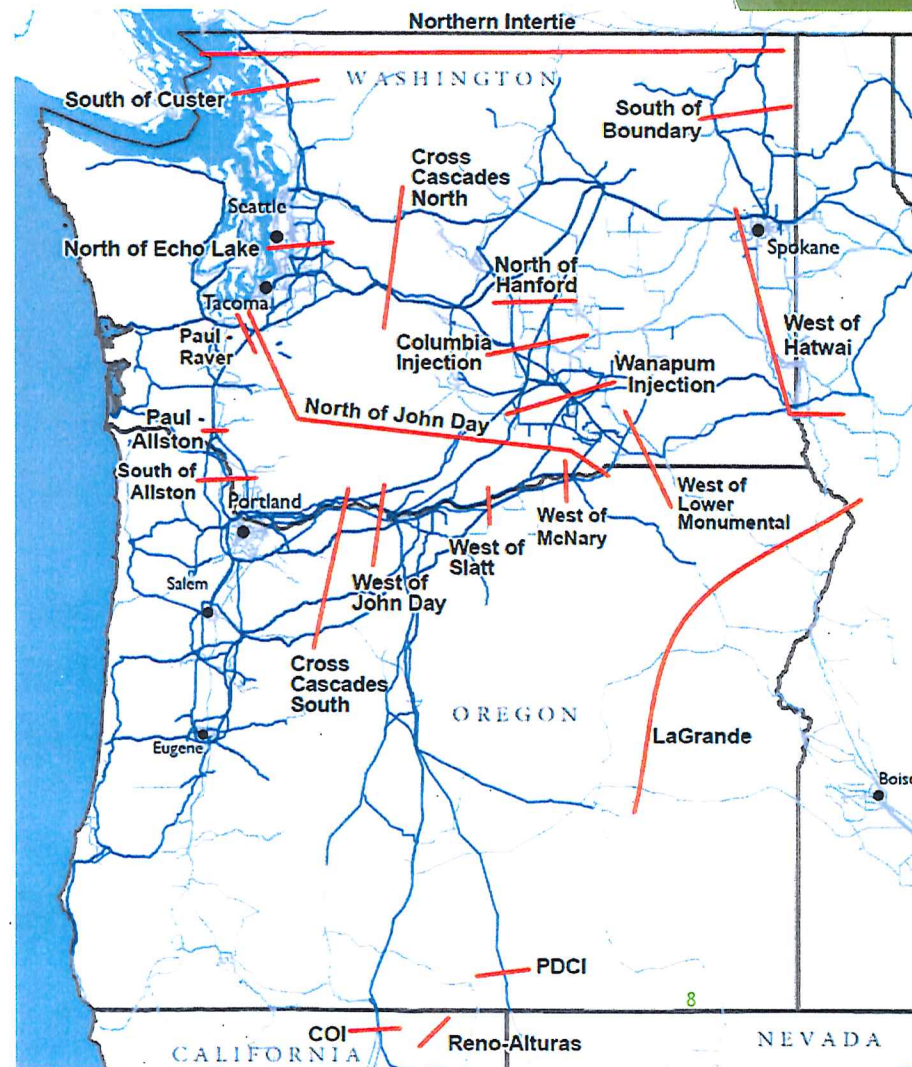
- ▶ An amazing machine!
- ▶ Also aging and increasingly constrained



Before helicopters, there were horses.

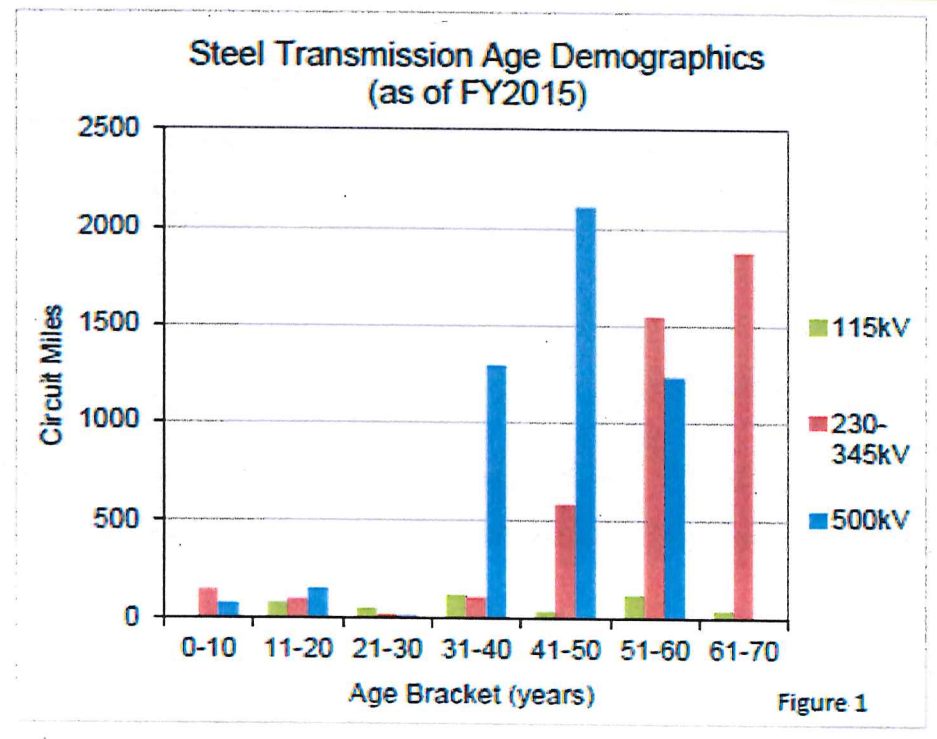
System constraints

- ▶ The days of unlimited firm capacity are gone
- ▶ Increasing points of congestion
- ▶ Why not just build more lines?
 - ▶ Building new high voltage lines is **EXTREMELY** challenging
 - ▶ Cost, citing, compliance
- ▶ Physical builds will always be necessary, but the future is going to be driven by non-wires solutions



Challenges of aging infrastructure

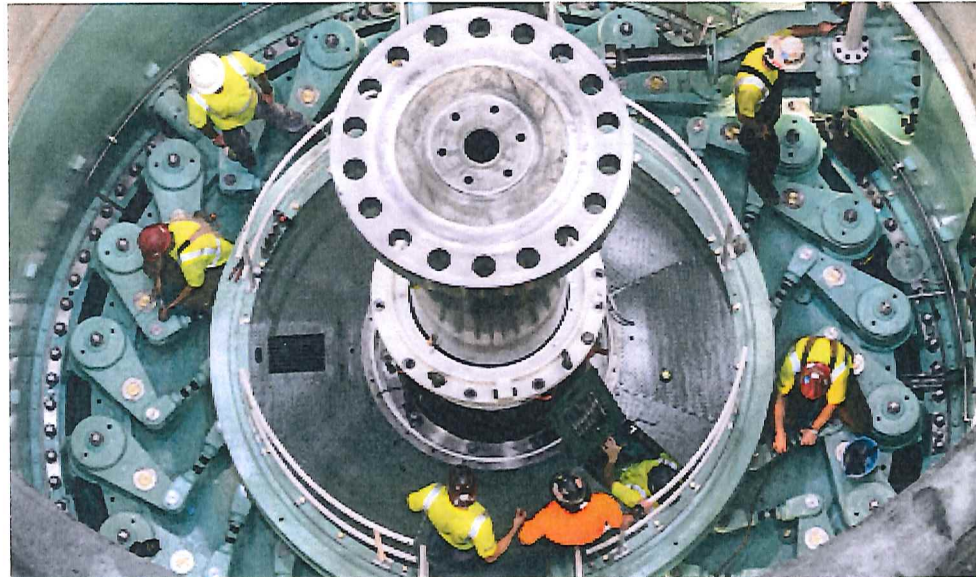
- ▶ Costs, obviously
- ▶ Less obviously “sustain” work constrains expansion work
- ▶ Project management, engineering resources are limited
- ▶ Difficult tradeoffs and conflicting priorities
- ▶ All of this means that transmission access may increasingly drive new resource decisions



The average BPA transmission asset is now approaching age 60 years

Different measures and types of capability

- ▶ Energy
 - ▶ Firm
 - ▶ Surplus
- ▶ Capacity
 - ▶ Instantaneous
 - ▶ Sustained
- ▶ Flexibility
 - ▶ Within hour
 - ▶ Energy neutral



Stacking up the Tier 1 System

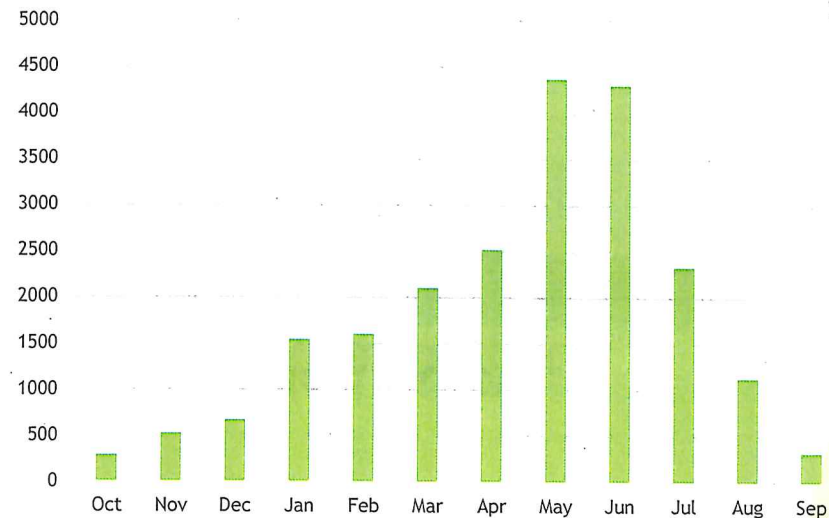
Tier 1 System Firm Critical Output

Component	Total	Notes
Total Federal Hydro	6,587 aMW	1937 Critical Flows
Non-Hydro Resources	1,067 aMW	Primarily CGS
Contract Purchases	137 aMW	Designated in TRM
System Obligations	(913 aMW)	Designated in TRM
Federal Tier 1 System	6,879 aMW	

Surplus Energy

- ▶ Almost every year has more than critical energy
- ▶ Highly variable by year and month
- ▶ Average Surplus: 1,809 aMW
- ▶ Annual Range: 0 to 3,953 aMW
- ▶ Annual Variability: 1,044 aMW
- ▶ Average Monthly Range: 283 to 4373 aMW
- ▶ For January, range from best to worst outcomes is about 7,300 aMW

Monthly Shape of Average Secondary Energy (aMW)

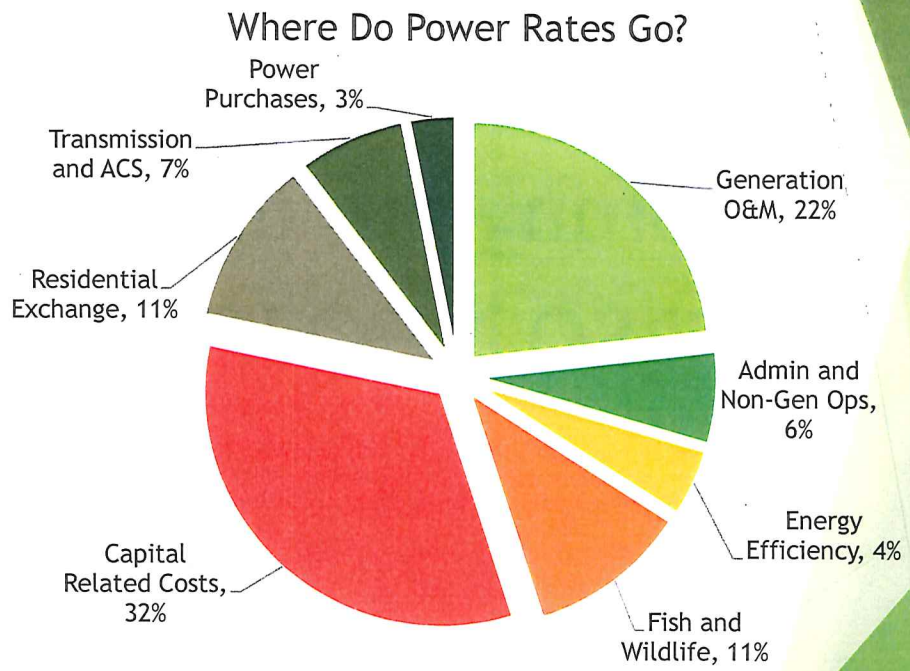




Power Resource Costs Now and in the Future

Where does your money to BPA go?

- ▶ The details of BPA's revenue requirement and accounting are extremely complex
- ▶ If we take a step back, however, the picture can become easier to see
- ▶ Capital repayment is a huge fixed cost
- ▶ Expenses can be grouped into broad areas such as generation maintenance, regulatory, and administrative
- ▶ Different ability to change



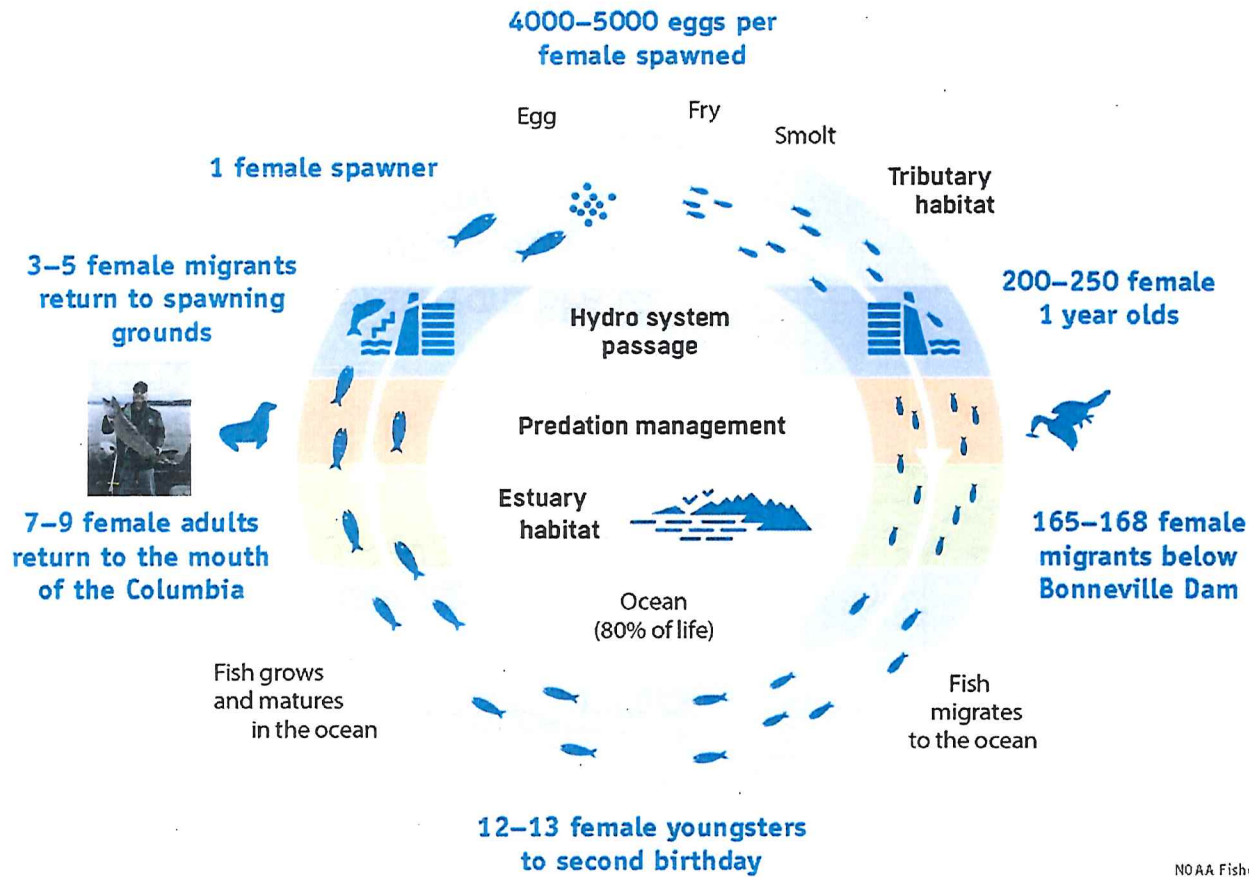
BPA Rate Challenge - Cost and Revenue

- ▶ BPA's power rates: concern and the trajectory
- ▶ Significant challenges on both the COST and REVENUE sides of the equation
- ▶ The curve may be starting to flatten out
 - ▶ Commitments from BPA to manage expenses at inflation or below
 - ▶ Exploration of new types of sales

Historical Priority Firm Power Rates
FY 2010 – 2019



Snake River Spring/Summer Chinook Life Cycle



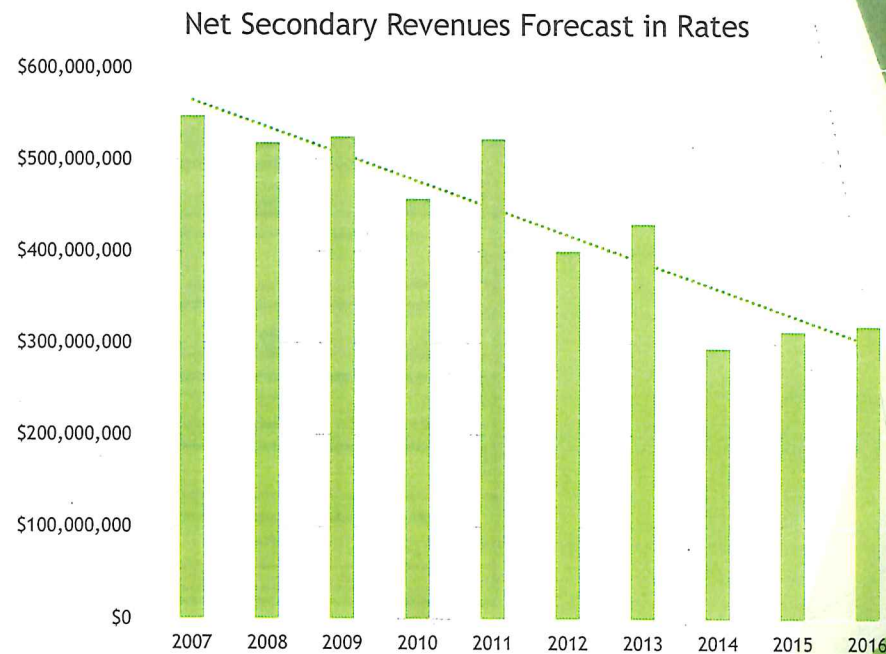
Total Annual Average Cost of BPA Fish & Wildlife Actions

		FY 2014-2015 Actuals (\$ in Millions)	FY 2016-2017 Actuals (\$ in Millions)	FY 2018-2019 BP-18 Final Proposal (\$ in Millions)
Integrated Program	100%	245	256	277
NWPCC – Annual Average	50%	5	5	6
US Fish & Wildlife Service – Annual Average Lower Snake Compensation Plan	100%	31	27	34
Corps of Engineers O&M – Annual Average	~19%	47	48	50
Reclamation O&M – Annual Average	~4%	5	7	7
UNSLICED Annual Average Hydro Operations Effects (Power Purchases & Foregone Revenues)		291	58	195
Depreciation & Interest on COE / Reclamation / USF&WS Capital F&W Investments (based on Plant in Service)		146	135	129
Depreciation & Interest on BPA Direct Program Capital F&W Investments		770	536	698
Total \$		770	536	698

This information has been made publicly available by BPA on January 19, 2018 and contains information not reported in agency financial statements.

What happened to the revenue?

- ▶ Combination of new renewables and gas prices
- ▶ BPA's secondary revenues both in rates and actuals have declined sharply over the last 10 years
- ▶ Still a very significant credit though
- ▶ Emerging opportunities may help these revenues recover or at least stabilize
- ▶ Also declines in preference sales

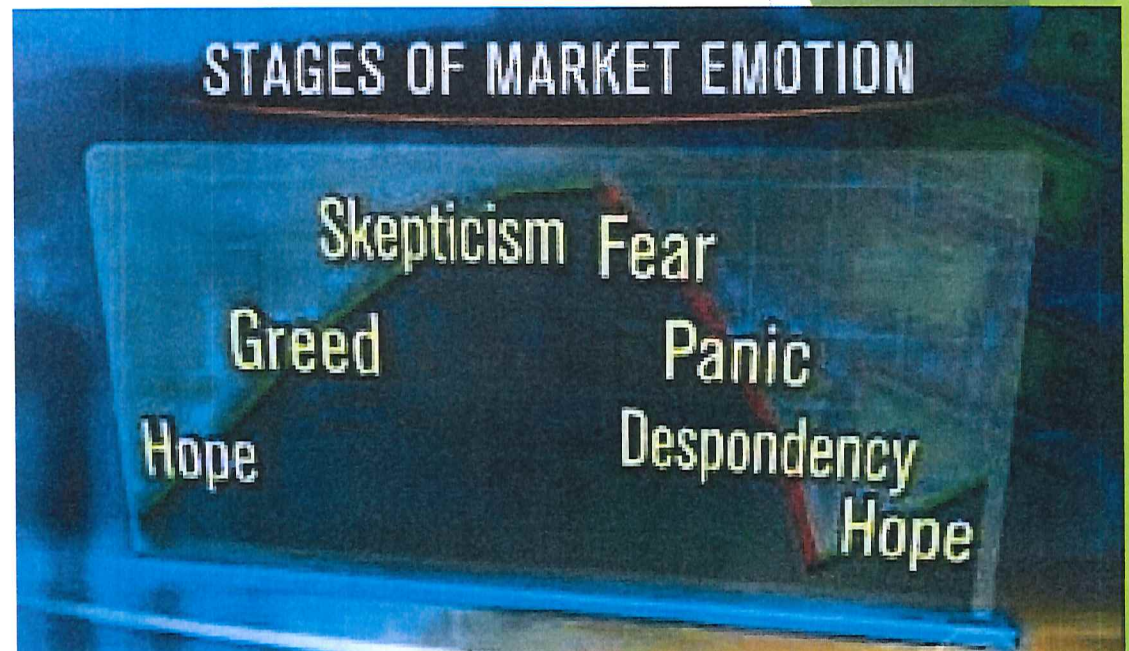




Demystifying “The Market”, & Non-Federal Resources

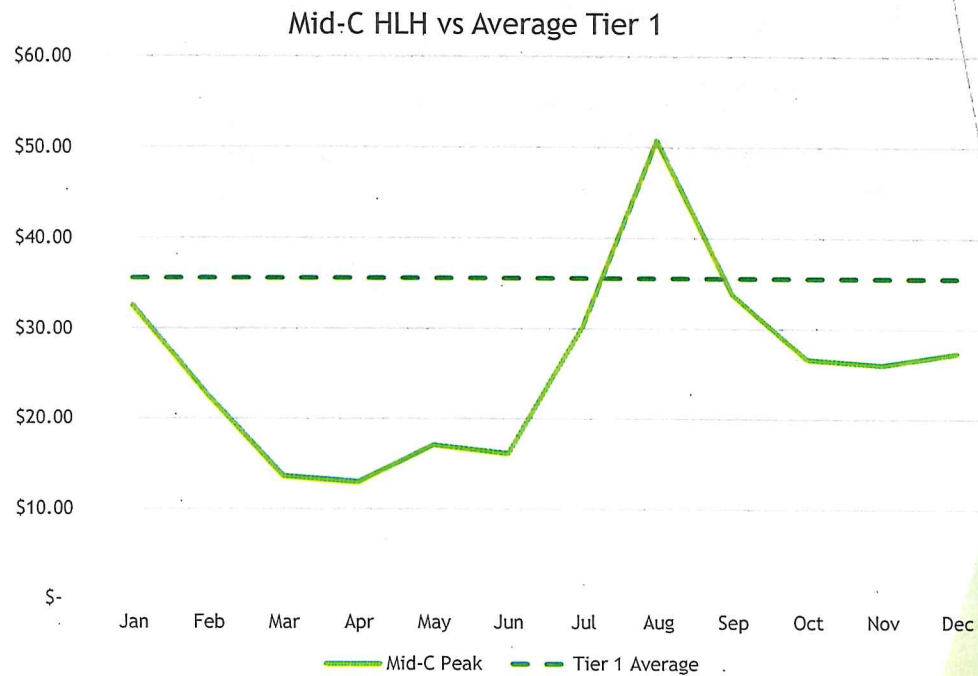
What is “the market” anyway?

- ▶ Frequent comparisons between BPA and “the market”
- ▶ What is the market really?
 - ▶ Many different products and ways for buyers and sellers to interact
- ▶ BUT - Loads and resources must balance
- ▶ Ultimately market power is physical resources that are not already committed to meeting a load



BPA versus “the market”

- ▶ Tough to compare
- ▶ Length of term
- ▶ Credit costs and risk
- ▶ Certainty of supply
- ▶ Environmental attributes
- ▶ Product attributes
- ▶ Many others



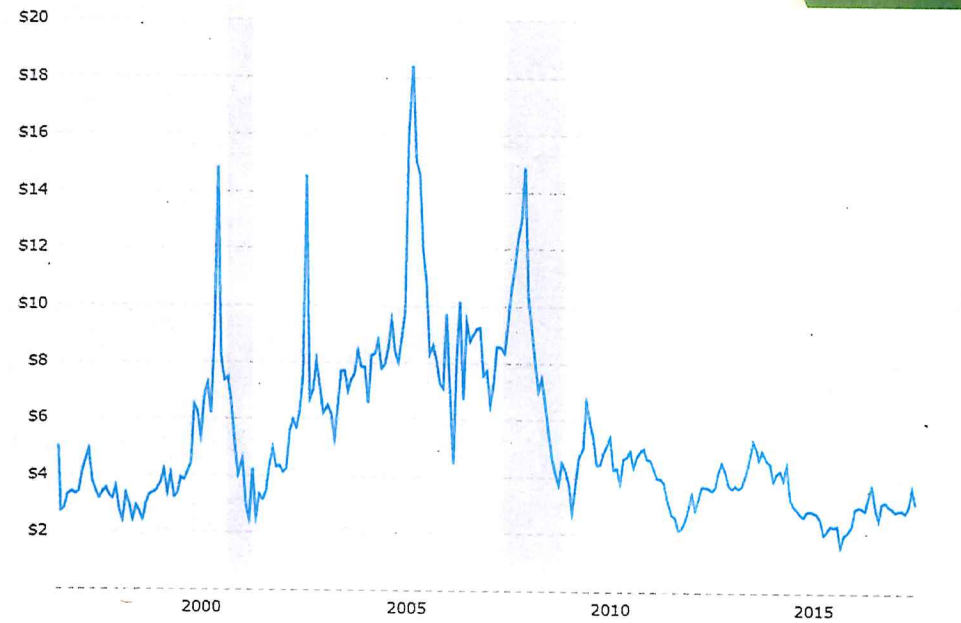
Customers may have different incentives

- ▶ Variable prices are an opportunity for some types of end users
- ▶ Utilities may plan for 20 or more years in the future
- ▶ Industrial plant operating decisions may be quarterly
- ▶ Emerging tech loads can be mobile, start and stop operations quickly
- ▶ Emerging market opportunities (EIM, capacity products, greenhouse gas pricing)



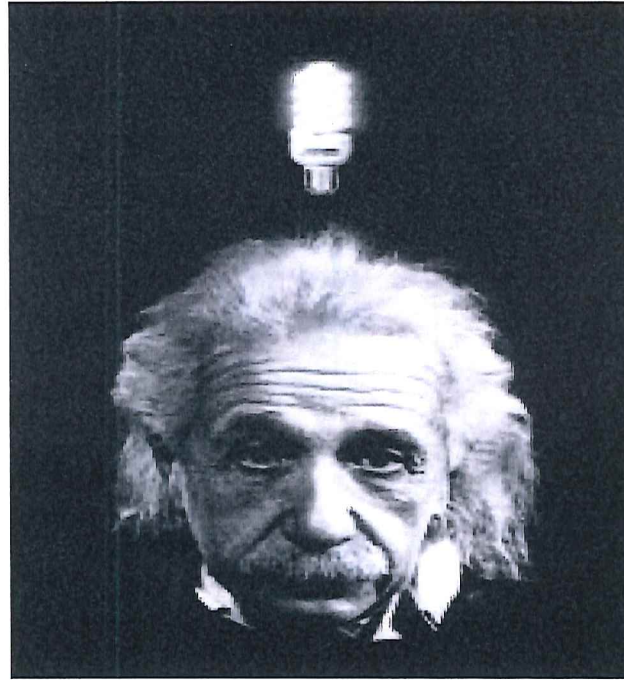
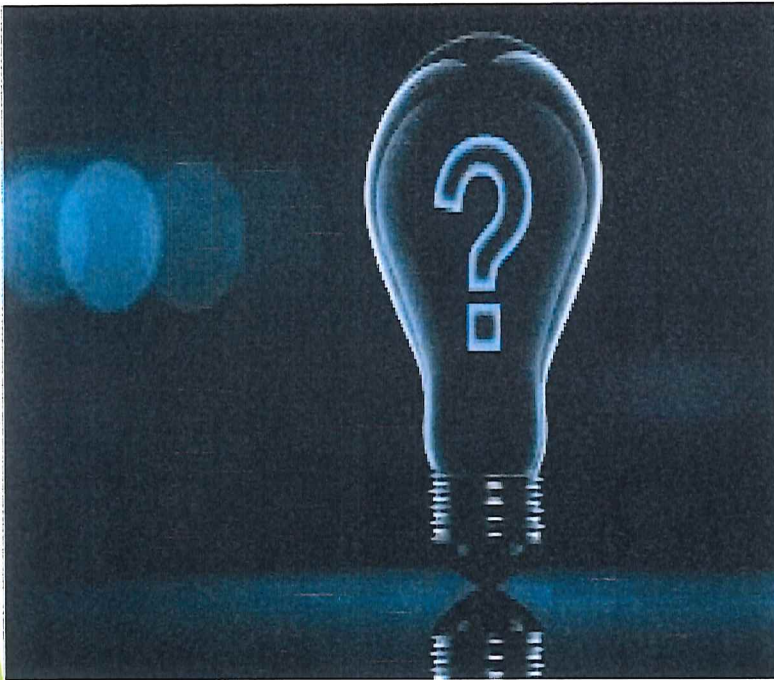
Trends for the future

- ▶ Honest answer: since no one truly knows, planning needs to be flexible
- ▶ Technology will continue to develop
- ▶ Changes in markets and regulations could dramatically change the picture between now and 2028



Henry Hub 20 Year \$/MMBTU

Question? Comments? Answers?



And, send questions later:
scorwin@ppcpdx.org/503-595-9775