

Wrap-up

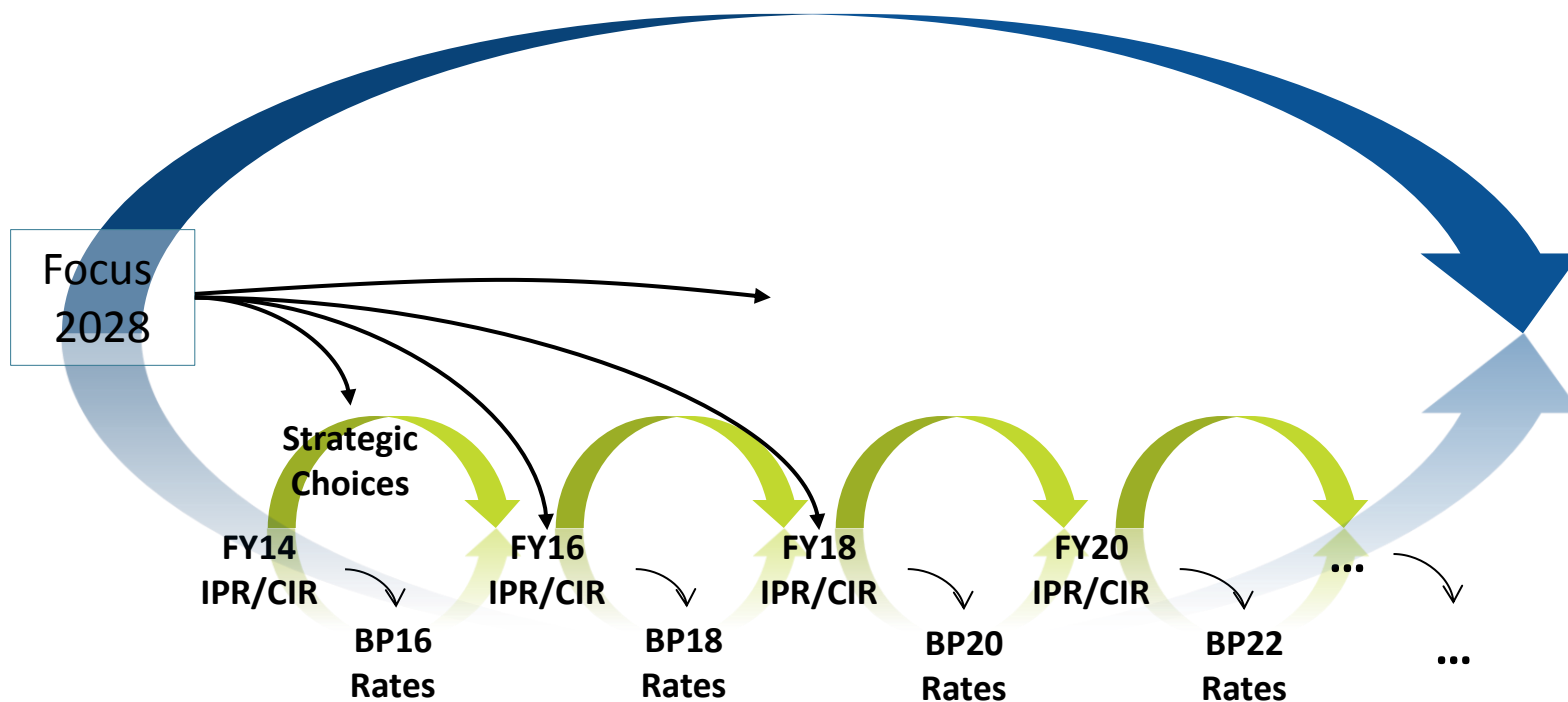
February 12, 2016



You have all been wonderful!

THANK YOU

BPA Focus 2028

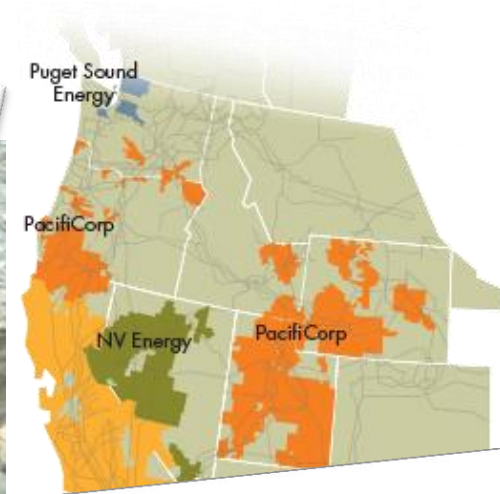


Kick-off Recap

- BPA's vision of being an engine of economic prosperity and environmental sustainability remains strong.
- BPA's goal is to be low cost provider to customers beyond 2028.
- There are a significant risks and uncertainties.
- Significant choices to be made investing in programs and physical assets. BPA wants to ensure investments are made wisely.
- We need to think of the long-term when making decisions.
- Reference Case is a strong tool. Offers a basis for comparing alternatives. The Reference Case is not a forecast of 2030 rates.

Future

CYBER & GRID SECURITY • NEW REGULATIONS • CLIMATE CHANGE • ENVIRONMENTAL STEWARDSHIP • SECONDARY REVENUES • MARKET EVOLUTION • ASSET MAINTENANCE • DISTRIBUTED GENERATION • COMPETITIVENESS

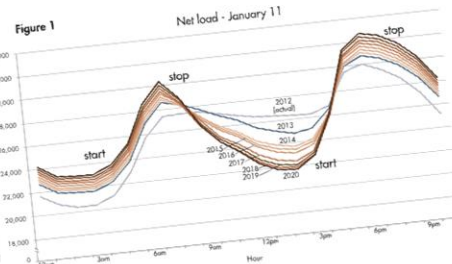


forecasted electricity production from variable generation resources, wind and solar. These curves capture the forecast variability. The daily net load curves capture one aspect of forecasted variability. There will also be variability intra-hour and day-to-day that must be managed. The ISO created curves for every day of the year from 2012 to 2020 to illustrate how the net load following need varies with changing grid conditions.

Ramping flexibility

The ISO needs a resource mix that can react quickly to adjust electricity production to meet the sharp changes in electricity net demand.

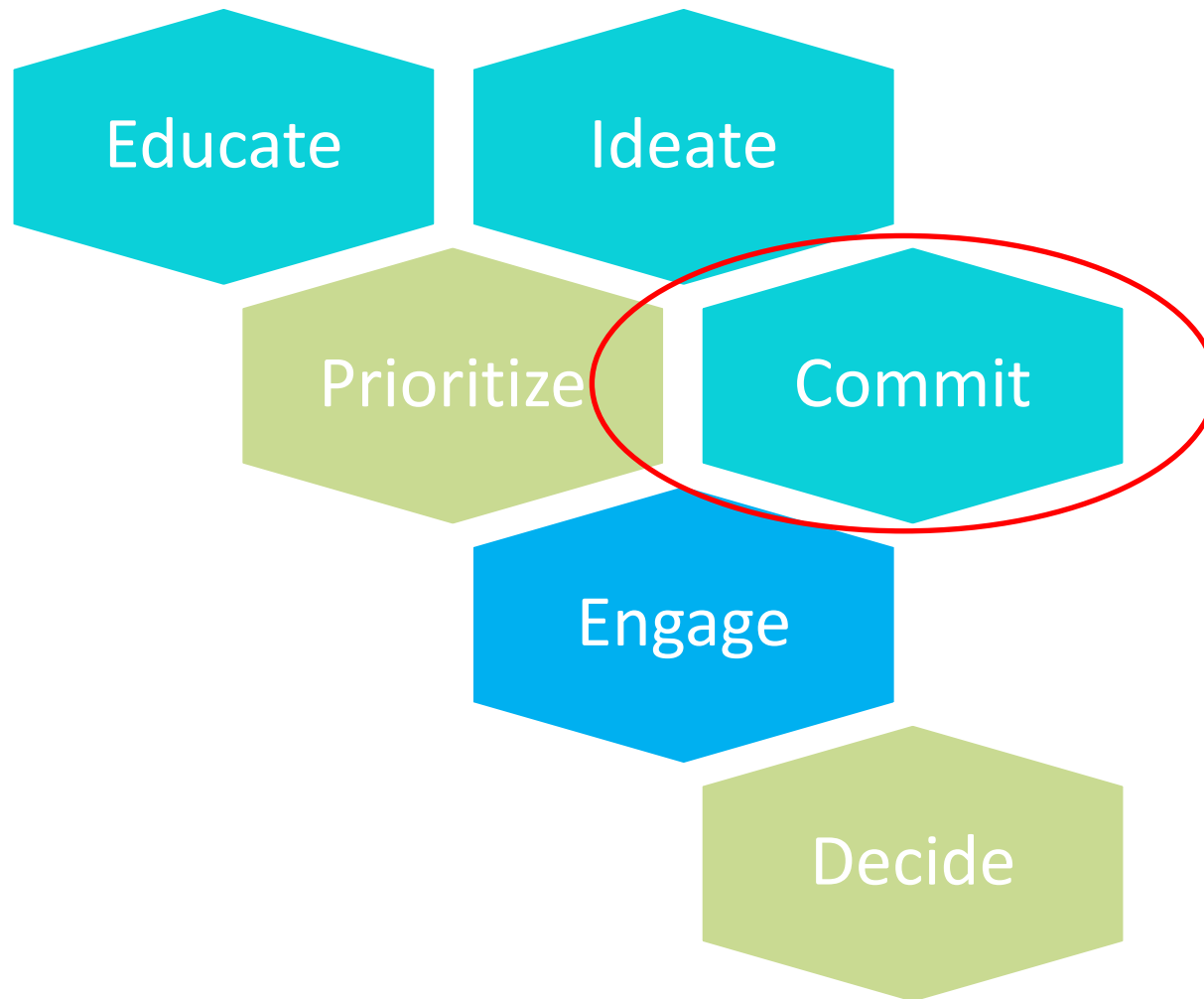
Figure 1 shows a net load curve for the January 11 study day for years 2012 through 2020. This curve shows the megawatt (MW) amounts the ISO must follow on the y axis over the different hours of the day shown on



What We Heard

- Speed and agility are critical to competitiveness in fast changing landscape.
- Competitiveness is a nuanced concept. BPA should consider differences among customers as it considers competitiveness.
- Implications of low load-growth projections.
- BPA should demonstrate rigorous cost control, careful prioritization, and sequencing of investments.
- Diversity of stakeholders is challenging. Will not agree on everything, but there is common ground.
- BPA's view of success must go beyond financial health and encompass the environmental health of the Basin.
- BPA should set rate goals – and meet or beat them
- Big changes are coming including market evolution, technology advancements, climate change regulations, and physical changes to the climate.
 - Consumers want renewables, low cost, and high reliability.
 - BPA needs to manage resources to meet the evolving environment.
 - The PNW needs to adjust to the world around us.

Focus 2028



Did we get it all?

WHAT WE HEARD THIS WEEK

Kick-off Q&A

What should the prioritization criteria be?

How does BPA roll up efforts in a way that ensures competitiveness?

How will market changes impact cost competitiveness over time

transparency & value ~~add~~ in cost increases

How should BPA prioritize these initiatives? (what are criteria)

How create more certainty on rate increases given 2-yr rate periods

Additional development of reference case & long term cost projections

Rec: Set hard targets to drive internal work toward a competitive outcome.

How create visibility into what costs are and why?

Develop more robust out year forecasts and incorporate those into the reference case

Maintaining long term focus balanced with shorter term rates

Prioritizing actions by providing greatest value at lowest possible cost.

Develop a revised Strategic plan

Develop a long-term plan (e.g. 15 years)

Can new good things done well & still end up as not cost competitive

Need rate certainty by year so utilities can do their own long-term planning

Sequencing opportunities

Imbed a rate path in the strategic plan.

How align BPA employees & region around a common vision?

Challenge

Kick-off Panel

How leverage demand
Side solutions to
avoid expensive
infrastructure projects

Recruitment &
retention of
skilled employees.

How develop regional
view of Transmission
Planning & Solutions?

What is best way
to "invest to save"
in Transmission?

How to address
New Competitive
threats from New
technologies?
(distrib. generation,
storage technologies)

How do we address
declining net secondary
revenues through
New revenue
opportunities?

How does BPA leverage
IT to create value?

How does BPA
optimize the
Contractor v. BPA
employee mix?

Improvements to
implementation
of Fed. Hydro
asset management.
(AIEI)

How to increase
ROI by improving
certainty in T.
Planning + Design?

How can we reduce
costs through improved
facilities design +
incorporation of
Sustainability?

How to further
optimize debt
management?

How can BPA implement
lean inventory
management?

How to bring down
O+M costs of
Fed Hydro & CGS?
(Joint efforts)

How to keep F+W
Spending stable in
light of continued
pressure to do more?

How to capture
additional value from
low carbon hydro
System?

How can BPA expand
T. product offerings
to maximize value
of grid?

What are opportunities
for improved
data integration?

How fit asset
management activities
for F+W into
existing budgets?

How optimize delivery
of EE to balance
BPA, regional and
customer needs?

How create a culture
of operational
excellence?
(Drive for cost containment
and value creation)

How can BPA improve
state awareness to
better optimize
system operations?

Cost Management

Should BPA additionally reduce costs when revenue not met?

How does BPA demonstrate successful cost management?
(Bit & to customers)

How do BPA staff get greater visibility into individual cost elements + accomplishments

Customer interest in defining "how" implement FY16 process improvements?

Utilities cut budgets in response to market conditions - can BPA react to larger budget drivers.

What are opportunities and metrics within each phase of the management cycle?

Connect within-year decisions/prioritization to real-time trends in revenues.

What are opportunities w/in the cycle?

Need greater insight into marginal costs & benefits

How increase visibility into what is decided outside of BPA? (e.g. Fed hydro)

How do you determine obligations? How to sort?

How does top-down aspect of cost management work?

Within year prioritization adjustments

How tap into value of flexibility in hydro?
(Revenue ops)

Budget as a planning tool v. authorization

What are the priorities in IPR?

How do we evaluate whether we are improving cost management?

Do you have the right people examining costs + benefits through the process

Using budget as planning tool + making adjustments

Short term changes vs. cost recovery over time

better understanding of cost structure + executive accountability

What is strategic process that guides/governs what do with cost management?

Managing for Financial Health

<p>Consistency of message & actions</p>	<p>Seattle - Metrics • Debt service coverage 1.8 • Debt to capital ratio of 60% (rev. finance 40% of cap spend) <i>SCL</i></p>	<p>Development of a financial reserves policy.</p>	<p>Improved asset management (prioritization / timing)</p>	<p>Policy on fixed v. VR debt <i>Inland</i></p>
<p>More scenario planning regarding changing markets + Technology</p>	<p>Importance of long term contracts to credit ratings @ 2x coverage ratios</p>	<p>Develop financial policies, goals + targets.</p>	<p>Development of 6-yr strategic plan <i>SCL</i></p>	<p>Look @ rates v. borrowing for Capital <i>Inland</i></p>
<p>Reduce debt levels D to Cap ratio 35% <i>NVPA</i></p>	<p>Balance impact on future beneficiaries 40% Capital paid w/revenues <i>SCL</i></p>	<p>importance of metrics that align with ratings (to keep ratings) <i>SCL</i></p>	<p>2x debt service coverage ratio before using reserves for other purposes <i>NVPA</i></p>	<p>risk: Renewable generation out of CA → impact on revenues</p>
<p>Schedule for re-visiting financial policies, but try to keep stable <i>SCL</i></p>	<p>Financial preparation for cascadia earthquake.</p>	<p>rate stabilization accounts <i>SCL</i></p>	<p>Enterprise risk metrics <i>NVPA</i></p>	<p>Balanced scorecard of financial metrics <i>NVPA</i> 12</p>

Managing for Financial Health (continued)

Cash reserves & long-term debt
 NYPA

Proportion of long term fixed contracts because of long term debt.

work with Customers to establish benchmarks

Look @ changing Customer needs to set strategy + infra. goals
 NYPA

Criteria of Investment

- ROI
- Risk of not doing
- Alignment w/strategic plan
- Alternatives

NYPA

Benchmark rates against similar entities (Competitiveness)

Impact of RPS Rec. Payments on top of BPA rates

Smooth rate increases as goal
 SCL

Lean 6-sigma ISO 5500 approach to cost management
 NYPA

Improve understanding of qualitative measures of financial health

- Cap. investment strat.
- ops for ↑ rev.
- etc...

Importance of following through on policies

Asset sales & application of revenues in good years
 NYPA

Federal Hydro

Load growth
impacts on
planning

timing of
investments

Investment
considerations:
- value
- flexibility
- need
risk

trige vs.
planning
- why are we in
trige situation?

Optimum
level of
investment

Interest in
different
portfolios-
workshop?

How does value
of secondary sales
impact investment
decisions

Changing use
of federal system
→ impact on value
of investments

O&M
Efficiencies

How optimize Fed
Hydro cap X when
revenue implications
change with the
market?

What are the
best investments,
- most value out
- net benefits

Request for follow
up workshop on
modeling of
investment levels

How do we
address the
investment
backlog

Capital investment
backlog

Improve cap.
investment
planning bottleneck

Fish and Wildlife

Lifecycle approach

Ability to expand hatchery asset management for older corps hatcheries

How calibrate f+w costs in light of market to stay competitive

Scope of new BiOp & Accords

Opportunity to use hydro flexibility for fish given changing tech.

BIA contribution to total region in funding

Prioritization of F+w investments relative to other asset types

Funding certainty and ability to bring in cost share

Technology use for RM+E.

Efficiency in RM&E

How account for climate models in design of actions

Diminishing returns relative to dam survival actions

Lamprey passage @ dams and CRFM Program

Right sizing & utilizing technology for research

How protect resilient habitat

RM+E Reform

Benchmarking F+w Costs relative to other utilities

How deal with warm reservoirs?

Energy Efficiency

BPA role - importance in region - strong BPA role

Local complexities

How reduce overhead associated with implementing incentives... (cost of impl. sm. incmt)

Address reg. issues through self-funding

Re-examine role of incentives in what consumers buy

Specific utility business cases for EE

Investment in incentives vs. momentum savings

Deeper dive on funding/spending details

Increase flexibility around self funding.

Spend across rate periods

Current funding model is out-dated

Look outside of BPA for implementation efficiencies

Align incentives so value flows to utilities

Challenge: seeing value of EE w/ low load growth

Link targets to resource planning (avoided cost etc.)

Is BPA admin of programs the best deal in the region?

Program and policy efficiencies

Leverage customer input to find program efficiencies

Changes to self funding

Principle - keep BPA in central role to support economies of scale etc.

Energy Efficiency (continued)

REP issues
related to EE

Focus on retailers
to shift markets

Look @ business
case for EE in
each service
territory

How focus on
long view
(Focus 2028)

BPA's
Backstop
Role

Examine EE
accounting
(benefits)
Revenue

Acknowledge
lack of resources
of low income
cust. to take part
in EE programs

How address
struggles to
acquire EE in
some regions

Alternative
methodologies
for setting
BPA Target

Take into
account other
legal requirements
when set self-
funding.

Look @ value to
Customer bill
v. rate impact

Learn from
Fed Hydro as to
how to estimate
revenue benefit
of EE

Self-funding
% - dependent
on utility
circumstances

Transmission

ATZ/Inventory may be making the need for capital expenditures what are the conservation

Variable transfer limits

^{Capital} The problem needs a different look than traditional wires and non-wires

^{Capital} Solutions can include EIM, non-wires, Redispatch, etc.

Challenge that BPA is congested or is it how engineers are modeling it.

Create public visibility into T planning process

How assess cost + exposure related to physical + cyber security

With changes we see ^Q. Duck curve, renewables How is "delivered power" accounted for using non-fed generation

IS capital size will impact the room we have for sustain

^Q of compounded conservatism that hurts optimization

^{risk} markets will influence how our system is planned and operated

I-5 problem needs defining - it's a 30 hour problem and needs appropriately sized solution

Is BPA positioned to explore gen solutions? How pay for generation solutions on T side?

Distinction between social risk/benefit & cost to BPA

Cyber and other security is coming. How are we planning for that?

• What would the \$750mm of IS costs impact on rates be? Versus non-wires

Perception of congestion is multiplied by conservatism among BPA & utilities

Re-evaluate system operating limits

We need to look at the costs of security of the BPA Tx system. As a region, we need to review the costs.

How consider the location of aging equipment + future need in that location

Consequences of going past net economic life

How does modeling take into considerat. of changing environ. (e.g. renewables, etc.)

who else can build T. lines & are they more cost-effective?

We need integrated resource and transmission planning with posed solution
"Today I can't get Tx and don't see a ~~path~~ plan for it"

Transmission (continued)

challenge:
aging communicat.
infrastructure

risk:
changing sources
of generation

Are we as a region
willing to spend for
visibility on our system
to save on capital
projects

Lean on regional
Partners for ideas
on how to get the
most out of the T
system

Investment in IT
is significant yet
provides the biggest
benefits to more
use of the system

I-5 solutions
need to look at
solutions from the
South. ~~be a~~ A process
for that is important

economic life needs
to factor benefits
that the system provides

NT customers
make > 5 year
commitments

NT customers
think a total
delivered product
not T by itself

BPA needs to
manage its costs,
all of them, especially
get debt in control

Desire for cheapest
cost of delivered
power (not just P
or T costs)

consistent / clean
data to enable
efficiency.
Data sharing

Include Pac and
PGE in I-5 solutions.

Would like to hear
how WERC and NERC
effect plans and
capital budgets

Focus on reducing
debt

Given the changes we
see in the future, how
do we factor in what
actually needs to be
sustained

In CIR/IRR, it
would be useful to
have the consequences
of not investing in
sustain. Bring examples

How much coordination
on I-5 is being done
with others? We
need regional planning.

Recognize role
as monopoly

It's not overall load
growth but load
shifts in specific
locations

Transmission (continued)

Need to explicitly review rate increases caused by sustain and review alternatives

Looking to levelize cost of T investments (sustain)

Focus on delivered costs & benefits to overall Network

Role of customer type in solutions
- NT customer

Need to say "NO" to some costs (F+W or EE)

How do WEC/NERC requirements tie hands

How leverage other T providers to solve problems / get visibility on system
P&E

See BPA debt as a huge negative

Issues:
Location of Load (old v. New loads)

We need to rethink our products

Reflect what is happening real time on our system in our available inventory

Risk
IT systems, data
Visibility will assist with how we manage our capital





How get more visibility - system operations

Power X - 1/3 budget is IT... econ advantage to IT

BPA needs to innovate and get the most from its system
Ex system awareness

Ask BPA to innovate... data/analytic improvements
P&E

Tension in Our System

- Play it Safe 
- Look Long Term 
- Certainty of Rates 
- Lowest Possible BPA Costs 
- Innovate
- Next Rate Period
- Uncertain Future
- Strong Environmental Stewardship

What have we missed?

QUESTIONS AND INPUT

Wrap-up Inclusion

Appreciation of
Process

What are business
units to bend cost
Curve?

Importance of driving
to actionable items

Insight/Engagement
on CGS costs over
time

Evolving cost
management

Focus 2028 is a
central theme of
work being done at
BPA today

Policies around
borrowing authority
and repayment