Draft Action Plan Overview

Power Committee

August 21, 2015

Common Format

Each Action Item Is Presented In A Common Framework

Action Item Name	
Implementer(s)	*Who* Lead entity(ies) underlined
Specific	Clear statement of *What* action is
Measureable	*Observable Evidence* that Action Item is completed
Actionable	The *Who* can do the *What*
Realistic	The *Who* can do the *What* by *When*
Time-bound	*When* - The Schedule for completion

Goal for Today

- Today staff is looking for guidance on:
  - What items to include
  - What items to exclude/delete
  - What items to add
  - Whether the Who, What and by When is stated clearly and at the "just right" level of specificity
- Action Items accepted by the Council will be converted to narrative form for inclusion in the draft plan
  - Staff will send drafts to Council prior to August 28th Webinar
  - Members will several more opportunities to modify wording prior to adoption draft plan.

Major Components

- Resource Strategy
  - Conservation
  - Demand Response
  - Renewable Resource
  - Thermal Generation
  - Adaptive Management
- Regional Actions to Support Plan Implementation
- Bonneville Actions to Support Plan Implementation
- Council Actions to Support Plan Implementation
- Maintain and Enhance Council Analytical and Planning Capability

RESOURCE STRATEGY

Develop Cost-Effective Conservation

Item - RS1	Achieve regional goal of acquiring cost-effective energy efficiency in a manner consistent with the RPM findings
Implementer(s)	Council, RTF, NEEA, Utilities, Energy Trust, BPA
Specific	Design programs with reasonable assurance of achieving, 1400 aMW by 2021, 3100 aMW by 2026 and 4500 aMW cumulative by 2035. Development should follow this schedule through 2027.

FY16-17	FY18-19	FY20-21	FY22-23	FY24-25	FY26-27
370	470	590	660	700	690

Measureable	BPA and utilities should work with the Council to track progress.
Actionable	The Council recommends BPA and utilities design programs and establish budgets based on this goal to be consistent with the 7th Plan
Realistic	Similar tracking was done for the 6th plan
Time-bound	Annual progress reports

Acquire Conservation for Resource Adequacy

Item – RS2	Acquire additional conservation to maintain resource adequacy
Implementer(s)	BPA and Utilities
Specific	Establish a method consistent with the Council's Resource Adequacy Assessment that assesses the cost-effectiveness of acquiring conservation to meet adequacy standards beyond the cost-effective target at prices and levels consistent with the avoided cost of a thermal resource under critical to low water conditions
Measureable	BPA's resource program and utility IRPs can describe both their approach and the results of their assessment.
Actionable	The Council recommends BPA adopt this as an agency priority for consistency with the 7th plan
Realistic	BPA has established methods evaluating the need for and cost-effectiveness of acquiring energy efficiency. This would be a modification of those methods.
Time-bound	A method should be established ahead of the next Resource Adequacy Assessment

Develop Demand Response Infrastructure

Item – RS3	Expand Regional Demand Response Infrastructure
Implementer(s)	Utilities that dispatch resources, utility Regulators and States
Specific	Utilities should create or contract for systems to enable a rapid expansion of DR programs and robust and dependable methods for integrating and dispatching DR
Measureable	Utilities can include an assessment of DR and actions to develop DR infrastructure in their IRPs
Actionable	Utilities regularly update their IRPs to include assessments of their resource needs and options
Realistic	Utilities have a wide range of experience with DR
Time-bound	Systems should be well established ahead of scheduled coal retirements and maintained as a resource for low-water conditions, high load and/or conditions of system stress

Support Regional Market Transformation for Demand Response

Item –RS4	Use Market Transformation as a means to expand Demand Response capacity and reduce its cost
Implementer(s)	Council, NEEA, Utilities, Energy Trust, BPA
Specific	Regional market transformation efforts should be targeted at reducing the cost of implementing demand response.
Measureable	BPA and utilities should work with the Council to track progress.
Actionable	BPA and utilities design programs to ensure sufficient supply of DR available to meet system adequacy needs at a low cost
Realistic	The region has previously successfully pursued similar approaches to both increase availability and reduce the cost of energy efficiency
Time-bound	A systematic approach to market transformation should be well established two years in advance of the next power planning process

Meet Existing Renewable Portfolio Standards

Item –RS5	Compliance with Existing Renewable Portfolio Standards
Implementer(s)	Utilities and Utility Regulators
Specific	Utility should comply with existing state Renewable Portfolio Standards as this is sufficient to achieve existing regional carbon emissions reductions
Measureable	IRPs can be monitored to assess accomplishment of this action item
Actionable	The Council recommends utilities should include an explicit assessment of RPS compliance in their IRPs
Realistic	Utilities regularly update their IRPs to include assessments of their resource needs and options
Time-bound	This recommendation is for any IRPs released after the 7th plan

Expand Renewable Generation Technology Options

Item –RS6	Consider utility scale solar as an option when developing RPS compliance strategies
Implementer(s)	Utilities and Utility Regulators
Specific	The Council recommends utilities should include an assessment of utility scale solar in IRPs when forming strategies for RPS compliance
Measureable	IRPs can be monitored to assess accomplishment of this action item
Actionable	Utility scale solar and wind are cost competitive in the region but each utility should consider its own cost profile when updating its IRP
Realistic	Utilities regularly update their IRPs to include assessments of their resource needs and options. Many IRPs already considered utility scale solar as an option
Time-bound	This recommendation is for any IRPs released after the 7th plan

Secure Thermal Generation Options

Item –RS7	Secure and Maintain options to build generation for energy, capacity and ancillary service needs
Implementer(s)	BPA, Utilities and Utility Regulators
Specific	The region needs to maintain options to build thermal plants and monitor and build plants if load growth or ancillary service needs justify construction
Measureable	IRPs can be monitored for this action item
Actionable	The Council recommends utility IRPs and the BPA Resource Program examine the need for additional thermal generation to meet adequacy standards consistent with the Regional Adequacy Assessment
Realistic	Utilities often maintain these type of options or execute Power Purchase Agreements with companies that have options
Time-bound	This recommendation is for any IRPs released after the 7th plan

Compliance with Carbon Emission Limits

Item –RS8	Least cost strategies for reducing carbon emissions to comply with regulations or state policies is to prioritize the retirements plants with high CO2 emissions
Implementer(s)	Utilities and Utility Regulators
Specific	To meet CO2 emissions goals the most direct approach of retiring plants that emit high levels of CO2 is the most cost effective approach
Measureable	Compliance plans for CO2-based regulation should be monitored by the Council
Actionable	The Council recommends utilities and utility regulators consider pursuing regulatory compliance options that result in plant retirements and the re-dispatch of lower emitting plants
Realistic	Retirements have been used to comply with regulation but there are also more expensive options in use
Time-bound	Based on CO2 regulation

Adaptive Management

Item –RS9	Resource Adequacy Assessment and Mid-Term Assessment
Implementer(s)	Council
Specific	Conduct assessments of plan implementation and adapt as needed
Measureable	Annual issuance of Resource Adequacy Assessment, Regional Conservation Progress Report and Mid-Term Assessment
Actionable	Council tracks resource adequacy and progress toward regional conservation goals
Realistic	Council has followed adaptive management since its first plan
Time-bound	Annual for Resource Adequacy Assessments and Regional Conservation Progress Reports. End of 2018 for Mid-Term Assessment and Demand Response progress report

REGIONAL ACTIONS SUPPORTING PLAN IMPLEMENTATION

Collaborate on Demand Response Data Collection

Item - REG1	Integrate Demand Response into IRPs to Improve Data Availability
Implementer(s)	Utilities and utility Regulators
Specific	Include information on the historic dispatch of Demand Response (DR), future plans for DR acquisition including an assessment of the system need (e.g. winter capacity, integration, etc.) that DR is anticipated to fill and potential assessment of DR within the utility service territory
Measureable	Utilities can include these data in their IRPs
Actionable	The Council recommends utilities include an explicit assessment of DR needs and potential in their IRPs
Realistic	Many utilities already include some or all of these elements in their IRPs
Time-bound	This recommendation is for any IRPs released after the 7th plan

Collaborate on Regional Reserve Data Collection

Item - REG2	Include data on operating reserve requirements and methods for meeting these requirements in utility IRPs
Implementer(s)	Utilities and Utility Regulators
Specific	Utilities should include data on operating reserve requirements in their IRPs
Measureable	The Council will monitor utility IRPs
Actionable	The Council recommends utilities adopt these practices to assist in the regional assessment of operating reserves
Realistic	Many utilities already include some or all of these elements in their IRPs
Time-bound	This recommendation is for any IRPs released after the 7th plan

Collaborate on Regional Energy Efficiency Capacity Impacts Data Collection

Item – REG3	Monitor the contribution of conservation to system peak capacity needs
Implementer(s)	Council, RTF, NEEA, Utilities, Energy Trust, BPA
Specific	Monitor and report on the contribution of conservation to system peak capacity needs and compare it to the 7th plan
Measureable	BPA, utilities, NEEA and the Energy Trust should work with the Council's Regional Technical Forum (RTF) to track capacity savings from energy efficiency programs
Actionable	The Council recommends BPA and utilities track the contribution of energy efficiency program savings to system peak
Realistic	It is possible to estimate the impact with current information but additional research would greatly refine this estimate
Time-bound	Reports should be biannual to match conservation target schedule

Update Building Stock, Industrial and Agricultural Sector Characteristics Assessments

Item – REG4	Conduct regional sector-specific stock assessments
Implementer(s)	NEEA
Specific	The stock assessments are a valuable resource for individual utilities and the region and should be updated regularly. Continue to enhance and improve the residential, commercial and industrial assessments with regional review and input. Add an agricultural stock assessment that would improve understanding of opportunities in that sector, recognizing current data collection activities by BPA and difficulties in acquiring needed data.
Measureable	Sector-specific reports.
Actionable	Stock assessments for each sector should be completed each action plan period.
Realistic	NEEA has in its budget to complete commercial and residential assessments by 2019. Industrial is planned for 2020-2024 period. Would need funding for agriculture.
Time-bound	Data available by early 2020.

Monitor Impact of Energy Code and Efficiency Standards

Item – REG5	Continue to assess the impact of codes and standards on load forecast and conservation achievements
Implementer(s)	NEEA, Utilities, Energy Trust, BPA
Specific	NEEA should track the savings impact of enacted codes and standards , collecting the necessary data. These impacts are then included in load forecasts and may be claimed against savings targets.
Measureable	Impact of standards are dependent on saturation of appliances, number of units installed, and unit savings.
Actionable	Annual report on the savings impact of standards and updated models to link savings and load forecast estimates.
Realistic	Under its Momentum savings activities, Bonneville has been able to quantify the impacts of federal standards adopted since the development of the Sixth Power Plan.
Time-bound	Annually.

REGIONAL ACTIONS SUPPORTING PLAN IMPLEMENTATION – MODEL CONSERVATION STANDARDS

Ensure Cost-Effective Measures Are Acquired

Item –REG_MCS1	Ensure full participation in programs
Implementer(s)	BPA, utilities, Energy Trust, States
Specific	In order to achieve all cost-effective conservation, all utility segments need to participate. Utilities need to determine how to improve participation from underserved segments. Hard-to-reach customers that may have low program participation can include low/mid-income customers, small businesses, commercial tenants, multifamily, manufactured homes, large industrial customers, rural regions.
Measureable	Portion of savings from HTR categories should be proportional to portion of HTR in population.
Actionable	Estimate portion of customers that would be classified as HTR across sector, ensure data collection from programs includes demographic /firmographic data to classify.
Realistic	Other jurisdictions and Energy Trust have successfully targeted HTR customers.
Time-bound	First report on proportion of participation in 2018, and then annually. After first report, regional utilities should devise strategies to improve participation by the identified HTR segments

Expand Development and Access To Distribution System Efficiency

Item –REG_MCS2	Develop program to assess and capture distribution efficiency savings.
Implementer(s)	RTF, BPA, Utilities, Energy Trust
Specific	Significant cost-effective savings can be achieved through voltage optimization measures, such as conservation voltage regulation (CVR) or Volt/VAR optimization (VVO). BPA should develop program to assist the public utilities in determining the potential for cost-effective savings.
Measureable	Program will quantify savings that can be tracked.
Actionable	CVR/VVO was found to have significant cost-effective potential in draft 7P, though there are roadblocks for utilities to achieve. Bonneville should develop a plan to determine potential savings, identify barriers, and develop program assistance or distribution system performance standards.
Realistic	BPA considered and nearly implemented a similar program early in Sixth Plan Action Plan period.
Time-bound	By spring of 2017, BPA should have a plan that outlines resource needs sufficient to assess potential and begin programs for one-third of its utility customer load by 2021 with the goal of implementing all cost-effective measures for 85 percent of its utility-customer load by 2035. Investor-owned utilities should do similar analyses and resource deployment.

Encourage Utility Support for Codes and Standards Improvements

Item – REG_MCS3	Adopt policies and programs that encourage utilities to actively participate in the process to establish and improve the implementation of state efficiency codes and federal efficiency standards.
Implementer(s)	State Regulators, BPA, Utilities
Specific	Without robust efficiency programs, many efficiency codes/standards could not achieve current high levels. However, to continue to improve, programs need flexibility in pursuing measures that may not currently be cost-effective, but demonstrate likely cost reductions.
Measureable	Regulators provide allowance for programs to offer measures and practices that may eventually be adopted in codes & standards.
Actionable	Maintain regulatory flexibility on measure cost-effectiveness.
Realistic	Current regulations allow for this.
Time-bound	Throughout action plan period.

Develop Regional Energy Efficiency Emerging Technology Work Plan

Item –REG_MCS4	Develop a regional work plan to provide adequate focus on emerging technologies to help ensure adoption
Implementer(s)	BPA, NEEA, Utilities, National Labs, Energy Trust, Council
Specific	Move technologies and design strategies across market adoption curve from R&D into adoption. This includes (1) tracking adoption of new measures in 7P supply curves, (2) identifying actions to advance promising technologies, (3) increase adoption of existing technologies with low market shares, (4) scanning for new technologies & practices.
Measureable	Track adoption of four categories of ETs over action plan period (including research on # vendors and other market studies).
Actionable	Use Regional Emerging Technology Advisory Committee (RETAC) to provide forum to develop work plan to explore solutions to move technologies.
Realistic	Region has proven success of moving emerging technologies into marketplace.
Time-bound	Initial work plan developed by 2016 and updated every 2 years

Actively Engage in Federal Efficiency Standards Development

Item –REG_MCS5	Engage in federal standards development
Implementer(s)	Council, Bonneville, NEEA, Energy Trust, Utilities
Specific	NEEA, on behalf of the region's utilities should lead the effort to continue and perhaps expand the engagement with the U.S. Department of Energy as well as provide data and recommendations. The Council should continue to represent state interest in these processes.
Measureable	The region's engagement should inform the standards and the test procedures.
Actionable	Regional presence in federal standard setting process has provided immense value to the region and the country.
Realistic	NEEA and Council are currently involved in DOE committees to review new standards
Time-bound	This should be an ongoing activity with periodic assessment of resource requirements.

Target Efficiency At Emerging Industries

Item – REG_MCS6	Develop and deploy guidelines for best-practice operations in emerging industries
Implementer(s)	NEEA, BPA, Utilities, Trade Allies, States
Specific	Emerging industries such as indoor agriculture and large data centers are rapidly increasing throughout the region. Many of these facilities have significant load that could be reduced with guidance on best-practice design and operational approaches.
Measureable	Best-practice guides to designing and running these facilities.
Actionable	Coordination between industry leaders and efficiency experts to understand how and where process improvements can be made to decrease load requirements.
Realistic	Best practice guides exist at national level for many industrial processes.
Time-bound	First guides available by 2016

Regularly Assess Energy Code Compliance

Item –REG_MCS7	Monitor and track code compliance in new buildings
Implementer(s)	NEEA
Specific	Ensure new buildings are built at or above code-required levels across four states and two sectors (commercial and residential).
Measureable	Conduct surveys and/or site visits of builders/buildings.
Actionable	Report by state/sector over action plan period.
Realistic	NEEA has completed code compliance studies in past. NEEA's work plan and budget ought to include sufficient resources for continuing studies.
Time-bound	Review all states/sectors by 2020; coordinate timing to inform future code updates.

BONNEVILLE ACTIONS SUPPORTING PLAN IMPLEMENTATION

Achieve Bonneville's Share of the Regional Conservation Goal

Item - BPA1	Achieve Bonneville's share of the regional goal of acquiring cost-effective energy efficiency in a manner consistent with the RPM findings
Implementer(s)	BPA and its customer utilities
Specific	Design programs with reasonable assurance of achieving Bonneville's share of 1400 aMW by 2021, 3100 aMW by 2026 and 4500 aMW cumulative by 2035. Development should follow this schedule through 2027.
Measureable	The Council recommends BPA adopt this as an agency priority for consistency with the 7th plan
Actionable	BPA and its public utility customers should design programs and establish budgets based on this goal to be consistent with the 7th Plan
Realistic	Similar tracking was done for the 6th plan

FY16-17	FY18-19	FY20-21	FY22-23	FY24-25	FY26-27
370	470	590	660	700	690

Acquire Conservation for Resource Adequacy

Item – BPA2	Acquire additional conservation to maintain resource adequacy
Implementer(s)	BPA and its customer utilities
Specific	Establish a method consistent with the Council's Resource Adequacy Assessment that assesses the cost-effectiveness of acquiring conservation to meet adequacy standards beyond the cost-effective target at prices and levels consistent with the avoided cost of a thermal resource under critical to low water conditions
Measureable	BPA's resource program can describe both their approach and the results of their assessment.
Actionable	The Council recommends BPA adopt this as an agency priority for consistency with the 7th plan
Realistic	BPA has established methods evaluating the need for and cost-effectiveness of acquiring energy efficiency. This would be a modification of those methods.
Time-bound	A method should be established ahead of the next Resource Adequacy Assessment

Develop Demand Response Infrastructure

Item – BPA3	Expand Demand Response Infrastructure
Implementer(s)	BPA and its customer utilities
Specific	Create or contract for systems to enable a rapid expansion of DR programs and robust and dependable methods for integrating and dispatching DR in coordination with the FCRPS
Measureable	BPA should report to the Council on current systems and identify any gaps in implementation of this action item
Actionable	The Council recommends BPA adopt this as an agency priority for consistency with the 7th plan
Realistic	BPA has already run both pilot programs and commercial DR programs
Time-bound	Systems should be well established ahead of scheduled coal retirements and maintained as a resource for low-water conditions, high load and/or conditions of system stress

Resolve Contract Barriers for Demand Response

Item – BPA4	Create standard contracts that enable BPA customers to supply Demand Response
Implementer(s)	BPA and its customer utilities
Specific	Create institutional relationships or contract for third-party aggregation that enable BPA customers to easily and quickly supply DR of any reasonable size, especially under water or load conditions that are likely to stress the regional system
Measureable	BPA should report to the Council on current systems and identify any gaps in implementation of this action item
Actionable	The Council recommends BPA adopt this as an agency priority for consistency with the 7th plan
Realistic	BPA has already established contracts with aggregators
Time-bound	Systems should be well established ahead of scheduled coal retirements and maintained as a resource for low-water conditions, high load and/or conditions of system stress

Establish Demand Response Resource Acquisition Rules

Item – BPA5	Create a methodological approach for acquiring Demand Response
Implementer(s)	BPA and its customer utilities
Specific	Establish a method consistent with the Council's Adequacy Assessment for purchasing additional DR at prices and levels consistent with high load and critical to low water conditions and maintain the size of existing programs unless the adequacy assessment shows long-term capacity surplus
Measureable	BPA should report to the Council when a method is established
Actionable	The Council recommends BPA adopt this as an agency priority for consistency with the 7th plan
Realistic	BPA has established methods for purchasing other resources, in particular energy efficiency
Time-bound	A method should be established ahead of the next Adequacy Assessment

Conduct Assessment of Demand Response Potential

Item – BPA6	Assess the potential Demand Response supply available to BPA
Implementer(s)	BPA
Specific	Resource Program should include and assessment of demand response potential and quantify the contribution potential of DR to system needs and the cost and any barriers to obtaining the potential to the extent possible
Measureable	BPA should include the assessment in the next Resource Program
Actionable	The Council recommends BPA adopt this as an agency priority for consistency with the 7th plan
Realistic	Potential assessments have been done for multiple regional IRPs
Time-bound	The next Resource Program after the final 7th plan should include the DR potential

Improve Access to Demand Response Data

Item – BPA7	Create public data for existing Demand Response dispatch
Implementer(s)	BPA
Specific	Create systems to add existing DR dispatch to the publicly available BPA data to assist planners and researchers
Measureable	BPA should report to the Council when systems are in place
Actionable	The Council recommends BPA adopt this as an agency priority for consistency with the 7th plan
Realistic	BPA maintains significant amounts of real-time public data on it's website
Time-bound	Systems should be well established two years in advance of the next power planning process

Quantify Value of Conservation

Item – BPA8	Quantify value of conservation in financial analysis and rate case forums
Implementer(s)	BPA
Specific	The value of conservation is often missing from discussions setting budgets for conservation. By quantifying this value, there would likely be greater buy-in for the expenditures.
Measureable	Calculation to estimate value of conservation, based on historical accomplishments and provide estimate as part of rate analysis.
Actionable	BPA will need to review budgets in context with historical achievements to estimate amount saved from conservation programs.
Realistic	From tracking systems, BPA should have robust data to make this estimate.
Time-bound	Before BPA's next IPR.

Implementation Program Evaluation

Item – BPA9	BPA should evaluate overall effectiveness of its Energy Efficiency implementation program and report to Council.
Implementer(s)	BPA
Specific	The implementation program includes cost share, with dependency on programmatic and momentum savings. Understanding how effective this program is could improve savings acquisition, optimize budgets, and improve adaptive management of programs in achieving targets.
Measureable	Bi-annual presentation to Council on effectiveness of program design based on progress toward targets.
Actionable	Periodic independent review of overall efficiency program process and effectiveness. Initial review should explore several areas spelled out in Action Plan item.
Realistic	Independent process evaluations are best practice to improve program design.
Time-bound	An independent review of overall implementation program process and effectiveness should be conducted by late 2016.

Analyze Operating Reserve Requirements

Item – BPA10	Perform an analysis of BPA operating reserve requirements
Implementer(s)	BPA and Council
Specific	BPA should analyze the most cost-effective method of providing operating reserves that meet reliability requirements at the lowest probable cost
Measureable	BPA should report to the Council at the completion of the analysis and share all data that are gathered with the Council for inputs into the Council's planning process
Actionable	The Council recommends BPA adopt this as an agency priority for consistency with the 7th plan
Realistic	BPA has done analysis of the cost of reserves for rate making procedures
Time-bound	This analysis should be included in the next BPA resource program

COUNCIL ACTIONS SUPPORTING PLAN IMPLEMENTATION

Form Demand Response Advisory Committee

Item – COUN1	Create a Demand Response Advisory Committee
Implementer(s)	Council
Specific	With a major finding of the 7th plan related to expanding the regional DR infrastructure, an advisory committee would help with future plans in quantifying the supply of DR and qualifying regional barriers to implementation.
Measureable	Recruit advisory committee members and establish a charter
Actionable	This should be implemented by Council and Council staff
Realistic	Staff has experience running advisory committees
Time-bound	The advisory committee needs to be formed before the next update of DR supply data

Continue to Co-Host the Pacific Northwest Demand Response Project (PNDRP)

Item – COUN2	Co-Host PNDRP with Regulatory Assistance Project
Implementer(s)	Council
Specific	The Council should continue to coordinate with the Regulatory Assistance Project to host the Pacific Northwest Demand Response Project (PNDRP)
Measureable	PNDRP meetings should be held annually
Actionable	This should be implemented by Council staff
Realistic	Staff has experience running advisory committees
Time-bound	Arrange for Bi-annual meetings

Review Regional Resource Adequacy Standard

Item –COUN3	Review the Council's resource adequacy standard
Implementer(s)	Council, RAAC, BPA, PNUCC
Specific	The Council's current adequacy metric (loss of load probability) and threshold (maximum value of 5%) may not be the most appropriate for determining the adequacy reserve margin, associated system capacity contribution and effective load carrying capability. The standard also does not line up with pilot NERC metrics. The Council should review and, if necessary, amend its standard.
Measureable	The Council's adequacy standard must be able to produce stable planning guidelines, such as ARM, ASCC and ELCC.
Actionable	Use the RAAC to review the current standard and recommend changes.
Realistic	The RAAC has proven to be a very effective committee in terms of reviewing and enhancing adequacy measures.
Time-bound	Any amendments to the adequacy standard must be adopted at least two years prior to the release of the next plan.

Review Resource Adequacy Assessment Import Assumptions

Item – COUN4	Review the Resource Adequacy Assessment Advisory Committee assumptions regarding availability of imports
Implementer(s)	Council, RAAC, BPA, PNUCC
Specific	The Council's current assumptions regarding the availability of imports from out-of-region sources and from in-region market resources should be reexamined. The sensitivity of total system cost to import availability has been demonstrated in the RPM analysis. To minimize cost and avoid the risk of overbuilding, the maximum amount of reliable import should be considered.
Measureable	The adequacy of the region's power supply is very sensitive to import assumptions. Adequacy should be examined with various levels of import to quantify this sensitivity.
Actionable	Use the RAAC to review current import assumptions and include potential variations in the intertie availability.
Realistic	The RAAC has proven to be a very effective committee in terms of reviewing and focusing in on reasonable import assumptions.
Time-bound	Any amendments to the import assumptions must be made at least two years prior to the release of the next plan.

Review Adequacy Reserve Margin

Item – COUN5	Review the methodology used to calculate the adequacy reserve margins used in the Regional Portfolio Model
Implementer(s)	Council, RAAC, SAAC, BPA, PNUCC
Specific	Resource strategies developed using the Regional Portfolio Model are very sensitive to the adequacy reserve margins, calculated using output from the Council's adequacy model (GENESYS). The methodology and assumptions used to assess ARM values should be thoroughly reviewed by regional entities.
Measureable	The sensitivity of RPM results to variations in ARM values should be tested. Verify that ARM values used in RPM will produce adequate future supplies.
Actionable	Use the RAAC and the SAAC to review the current methodology used to calculate the ARM.
Realistic	The Council's advisory committees have proven to be very effective in reviewing planning methodologies being considered by the Council.
Time-bound	Any changes to the ARM must be approved at least two years prior to the release of the next plan.

Review Associated System Capacity Contribution

Item – COUN6	Review the methodology used to calculate the associated system capacity contribution values used in the Regional Portfolio Model
Implementer(s)	Council, RAAC, SAAC, BPA, PNUCC
Specific	Resource strategies developed using the Regional Portfolio Model are very sensitive to the associated system capacity contribution values, which are calculated using the Council's adequacy model (GENESYS). The methodology and assumptions use to assess ASCC values should be thoroughly reviewed by regional entities.
Measureable	The sensitivity of RPM results to variations in ASCC values should be tested. Verify that ASCC values used in RPM will produce adequate future supplies.
Actionable	Use the RAAC and the SAAC to review the current methodology used to calculate the ASCC.
Realistic	The Council's advisory committees have proven to be very effective in reviewing planning methodologies being considered by the Council.
Time-bound	Any changes to the ASCC must be approved at least two years prior to the release of the next plan.

Establish Regional Reserve Requirements

Item – COUN7	Perform a regional analysis of operating reserve requirements
Implementer(s)	Council
Specific	The Council should use the BPA analysis of reserve requirements and work with other regional stakeholders to complete a regional analysis of the most cost-effective method of providing operating reserves that meet reliability requirements at the lowest probable cost
Measureable	This will be included in the next power plan
Actionable	The Council should have an established method for including this in the next power plan
Realistic	This will take gathering data and creating methods for estimation where public data are not available. The accuracy will be best for BPA but it should be possible to add a regional context for the next power plan.
Time-bound	This analysis should be included in the 8th Power Plan

MAINTAINING AND ENHANCING COUNCIL'S ANALYTICAL CAPABILITY

LOAD FORECASTING

Review Analytical Models and Methods

Item - AN1	Undertake a comprehensive review of the analytic methods and models that are used to support the Council's decisions in the power plan
Implementer(s)	Council, BPA, advisory committees
Specific	Review will focus on changing regional power system conditions such as capacity constraints, integrating intermittent resources, and transmission limitations because these currently pressing issues will need to be more formally addressed in future power plans.
Measureable	Staff will issue white paper on findings and recommendations
Actionable	Include in annual Power Division work plans
Realistic	Similar action item has been implemented in previous plans.
Time-bound	To be completed by 2018

Enhance BPA Long-Term End Use Load Forecasting Capabilities

Item - AN2	Support Bonneville's implementation of the Long-Term end use load forecasting model
Implementer(s)	Council and BPA
Specific	Council forecasting staff will work closely with Bonneville load forecasting staff to implement use of Council's Long-term end use forecasting model.
Measureable	Implementation by BPA of Council's Long-term forecasting model
Actionable	Include in annual Power Division work plan
Realistic	BPA has a enduse model in house. Staff has taken initial steps to work with BPA.
Time-bound	Completed by in of FY2016

Improve Industrial Sector Data

Item - AN3	
Implementer(s)	Council, BPA, NEEA, Energy Trust, Utilities, Advisory committees
Specific	Work with BPA, NEEA, and utilities to improve industrial sector sales data by disaggregating those data by NAICS codes to improve forecasting and estimating potential
Measureable	Updated data to be available prior to 8th Plan development
Actionable	Include in annual Power Division work plan
Realistic	A top down analysis is possible, a bottom up analysis would be problematic
Time-bound	To be completed by 2019

Improve Load Forecast for Emerging Markets

Item - AN4	
Implementer(s)	Council, BPA, NEEA, Energy Trust, Utilities, Advisory committees
Specific	Enhance modeling rooftop solar units with electricity storage, Data center loads (large, small and embedded data centers), as well as loads from indoor agricultural products (cannabis).
Measureable	Staff will enhance Council's Long-Term Load Forecasting model to include representation of the electricity load impacts of these new markets
Actionable	Include in annual Power Division work plan
Realistic	Similar improvements were done as part of the 6th Power Plan.
Time-bound	To be completed by 2019

CONSERVATION

Improve Regional Coordination on Energy Efficiency Research

Item - AN5	Establish a forum to share research activities and identify and fill research gaps
Implementer(s)	Council, RTF, NEEA, Utilities, Energy Trust, BPA
Specific	Many different research areas around conservation are ongoing in the region, but there is a lack of coordination that should improve usefulness. Region needs to define research areas, identify key players and a coordinating body, and identify gaps and how to fill.
Measureable	Develop roadmap to accomplish above.
Actionable	Roadmap similar to BPA's Northwest Energy Efficiency Technology Roadmap Portfolio.
Realistic	Follows process already used by BPA and other groups.
Time-bound	Roadmap by mid-2018.

Update End-Use Load Shape Data Base

Item - AN6	Develop robust set of end-use load shapes and plan to update over time
Implementers	Council, BPA, NEEA, Utilities, Energy Trust
Specific	Capacity value of energy-efficiency measures is significant and knowledge of new and emergent loads, including stand-by, is lacking. The current set of end-use load shapes are largely out-of-date (i.e. ELCAP is 30 years old). Need to update these load shapes to better understand timing of their contribution to load. Leverage AMI and/or integrated controls as available.
Measureable	A data set of 8760 load shapes for a wide variety of end-uses and building segments, similar to RBSA-metering data and ELCAP.
Actionable	A business case for this study was completed for the RTF in 2012. Reviewing and updating this study to consider technological improvements, focus actions, and develop work plan.
Realistic	The region has performed this in the past. Improvements in technology and opportunities for out-of-region coordination should reduce costs compared to 2012 business case.
Time-bound	Update of business case and specific actions identified by the end of 2016. Significant progress in commercial building load shape development prior 2020.

Include Reliability of Capacity Savings Estimates In RTF Guidelines

Item – AN7	Improve the reliability of capacity savings estimates for energy efficiency measures
Implementer(s)	RTF
Specific	Enhance reliability requirements in Regional Technical Forum decision guidelines to include capacity savings and review all measures against reliability requirements to identify any research needs.
Measureable	Completed recommendation memos addressing capacity savings for all RTF unit energy savings measures
Actionable	Update RTF Guidelines to include savings reliability requirements for capacity. Review RTF unit energy savings measures to determine whether existing load shapes meet those requirements. Develop recommendation memos that address each measure and identify research needs that exist.
Realistic	The RTF already has reliability requirements for energy savings estimates. These could be expanded to include capacity savings.
Time-bound	Revise Guidelines and review all measures by the end of 2017.

Enhance Use of Whole-Building Short-Interval Metering Data

Item - AN8	Use whole-building consumption data to improve energy and demand savings acquisitions and estimates
Implementer(s)	BPA, Utilities, Energy Trust, Trade Allies, Evaluators, Regulators
Specific	Utilities should exploit the greater availability of interval data and analytic tools to improve estimates of both energy and demand savings and encourage facilities to undertake holistic improvements. Utilities & regulators should facilitate the sharing of whole building data (including billing data), recognizing security concerns.
Measureable	Availability of data and evaluation of program savings.
Actionable	Utility program portfolios incorporate programs that rely on holistic approach to savings across all end uses (e.g. HVAC, lighting, plug load).
Realistic	More and more implementation firms (e.g. Retroficiency, FirstFuel, EnerNOC) approach acquiring savings at the whole building level, using sophisticated data analytics.
Time-bound	Results of different approaches and report on data availability barriers by end of 2017.

Prioritize Water-Saving Measures

Item –AN9	Prioritize adoption of energy-efficiency measures that also save water
Implementer(s)	Council/RTF, BPA, Utilities, Energy Trust, NEEA
Specific	Several measures identified in the Seventh Plan (showerheads, water supply facilities improvements, irrigation improvements) save water in addition to energy, a valuable non-energy benefit.
Measureable	Track and report water savings in addition to energy savings, report on savings opportunities for water-processing industries.
Actionable	Research to better understand savings opportunities for water-processing industries (water supply and wastewater) and evaluation of these measures. Raise awareness of other water-saving measures. Give priority to water-saving measures.
Realistic	Non-energy benefits for water savings already quantified by RTF, though based on old data.
Time-bound	Update analysis of water/wastewater baseline by 2018

Require Explicit Baseline Reporting

Item -AN10	Reports of savings should include explicit information on what baseline is assumed
Implementer(s)	BPA, Utilities, Energy Trust, NEEA, RTF
Specific	To accurately determine what savings are being captured against the 7P target, the RTF/Council needs to understand what baseline was used to make adjustments to align with the 7P baseline.
Measureable	Provide accounting of baseline used.
Actionable	Include baseline information in tracking system.
Realistic	BPA currently endeavors to make these adjustments through its momentum savings analysis.
Time-bound	Provide progress report by 2018 with the goal of full accounting of baseline by 2020.

Increase Recognition of Non-Energy Benefits in Cost-Effectiveness Analysis

Item - AN11	Increase recognition of non-energy benefits
Implementer(s)	RTF, States
Specific	Although difficult to quantify, non-energy benefits due to efficiency improvements (such as water savings and health benefits due to reduction in wood smoke emissions) may be significant and thus justify investment, regardless of whether the measures are cost-effective on energy benefits and costs alone.
Measureable	The region should prioritize research to quantify non-energy benefits and recognize quantification may not always be feasible with available resources. States should consider such benefits when setting cost-effectiveness limits.
Actionable	Specifically related to health benefits for wood smoke reduction, the RTF should include model language on residential space heating measures that significant secondary benefits exist. States should consider such benefits when setting cost-effectiveness limits. As significant benefits are identified, the RTF should either quantify or include model language to their impact.
Realistic	RTF has done preliminary analysis of magnitude of secondary health benefit from reduction in wood smoke and has quantified many other NEBs.
Time-bound	On-going as RTF updates measures

Explore Development of End-Use Conservation Potentials Assessment Model

Item – AN12	Explore development of an end-use based model for conservation resources
Implementers	Council
Specific	Many conservation potential assessments use an end-use based model to closely tie savings to load forecasts. In addition, models may also be improved by including performance-based efficiency approaches.
Measureable	Scope out development of a working model.
Actionable	Council will initially submit RFP to understand scope of developing such a model. Depending on findings/budget, may contract out model development.
Realistic	Council has undertaken other modeling updates in the past (e.g. RPM update for 7P).
Time-bound	Report on scope by 2017.

GENERATING RESOURCES

Update Generating Resource Data

Item – AN13	Update generating resource data sets and models
Implementer(s)	Council Staff
Specific	The Council maintains and updates multiple sets of data on regional generating resources and projects, including the project database, RPS workbook, AURORA resource database, and GENESYS dataset. There is an opportunity to streamline the data update process and consolidate the datasets to improve the quality and consistency of the data.
Measureable	Create work plan to outline process of upgrading and streamlining datasets and identify additional data/technology needs. Execute steps as identified in the work plan.
Actionable	Work plan and final work products.
Realistic	Council has undertaken other data and modeling updates in the past (e.g. RPM update for 7P).
Time-bound	On-going; completion in time for the Eighth Power Plan

Redevelop MicroFin

Item – AN14	Redevelop the revenue requirements finance model - MicroFin
Implementer(s)	Council Staff, User Group
Specific	The Council's primary financial tool for developing levelized costs and RPM inputs for new generating resources – MicroFin – is in need of redevelopment. The model produces accurate and useful results, however it is based on a legacy system that no longer fits the current Excel environment and is cumbersome to work with. An upgrade will allow for easier enhancements to the model and an improved user interface.
Measureable	Develop work plan and identify technology needs. Perform upgrade in-house or outsource via RFP. The new model form must be proven to be easier to use, and provide similar results as the existing model.
Actionable	Work plan, RFP (if necessary), convene user group (start with GRAC members) to help ensure user friendliness and to inspect results, final model.
Realistic	Council has undertaken other data and modeling updates in the past (e.g. RPM update for 7P).
Time-bound	Completion by mid-2017

Monitor New Generating Resources

Item – AN15	Monitor and track progress on emerging technologies that hold potential in the region
Implementer(s)	Council Staff, GRAC
Specific	There are numerous emerging technologies, or under-developed existing technologies, which could play an important role in the operation of the future regional power system. These technologies include: • Distributed power with and without storage (Solar, CHP) • Enhanced Geothermal Systems (EGS) • Offshore Wind • Wave and Tidal • Small Modular Reactors (SMR) • Pumped Storage and Batteries Track significant milestones in development, cost and technology trends, and follow early commercial projects in advance of an in preparation for the next power plan.
Measureable	Utilize the Council's technology tracking worksheets; outreach with GRAC members and subject experts.
Actionable	Update information when available; maintain communication with stakeholders, GRAC; utilize current news and data sources (SNL)
Realistic	Used for previous power plans; branching out to include more resources
Time-bound	On-going

Conduct Analysis of Storage Resources

Item – AN16	Research and develop a white paper on the value of storage to the future regional power system, particularly around pumped storage and battery storage
Implementer(s)	Council Staff, GRAC subgroup of experts
Specific	One of the potential constraints to extensive storage development is the ability of the developer to capture the full value of a storage system's services. An effort to identify and clarify the entire value stream of storage would be beneficial to decision makers and power planning entities.
Measureable	Identify a team of experts (start with GRAC), create work plan, direct research and RFP (potential), develop white paper.
Actionable	Completed white paper for both Council and public use, posted on the Council website.
Realistic	Concise and focused whitepapers can help to clarify issues and have been utilized by the Council in the past.
Time-bound	By mid year 2018

Monitor Advances in Utility Scale Solar PV Resources

Item – AN17	Track solar PV costs, performance, and technology trends and update cost estimates and forecasts as needed
Implementer(s)	Council Staff, with aid of GRAC
Specific	Solar PV is a rapidly evolving technology, both in terms of cost and performance. The Seventh Plan required development of a forecast of future solar costs. With continued uncertainty over installation costs and performance, periodic analysis is required. Solar cell and inverter technology continues to change as well, which can impact performance. Production estimates by location in the region would be useful.
Measureable	Method to monitor cost metrics, such as capital and O&M, and performance metrics, such as annual capacity factors and contribution to peak (MW) → utilize technology tracking workbooks
Actionable	Update information when available; maintain communication with stakeholders, GRAC; utilize current news and data sources (SNL)
Realistic	Already a part of the analysis of generating resources for the power plan; propose to update it on a more continual basis
Time-bound	On-going

Monitor Advances in Natural Gas-Fired Generating Resources

Item – AN18	Track natural gas-fired technology costs and performance, and update estimates as necessary, in particular Combined Cycle Combustion Turbine (CCCT) and reciprocating engine technologies
Implementer(s)	Council Staff, with aid of GRAC
Specific	Natural gas-fired generation technologies, especially CCCT and Reciprocating Engine technologies, continue to evolve in terms of cost and performance. These technologies may play an important role in providing energy and capacity to the power system.
Measureable	Method to monitor metrics, such as cost metrics (including capital costs and O&M costs), ramp rates, and performance; gather information on siting → utilize technology tracking workbooks
Actionable	Update information when available; maintain communication with stakeholders, GRAC; utilize current news and data sources (SNL)
Realistic	Already a part of the analysis of generating resources for the power plan; propose to update it on a more continual basis
Time-bound	On-going

Monitor Natural Gas Developments Impact on Regional Power System

Item – AN19	Monitor new natural gas development in the region and gauge the potential impact on the regional power system
Implementer(s)	Council Staff, GRAC, collaborate with PNUCC
Specific	New natural gas end uses and system development in the region may impact future gas-fired power generation. PNUCC is following similar issues and may offer a collaborative opportunity. On-going issues to track and analyze include: • Potential pipeline constraints, particularly on the west-side • LNG facility developments on the west coast • Shale production from Canada and U.S. Rockies • Methanol plant development on the west coast
Measureable	Compile and disseminate appropriate information and identify analytic tools
Actionable	Collaboration with GRAC, PNUCC and NWGA
Realistic	Not too unlike what we do now to track resources and potential in the power system
Time-bound	On-going

SYSTEMS ANALYSIS

GENESYS Model Redevelopment

Item – AN20	Redevelop the GENESYS model using current software practices, update its documentation and add a graphical user interface.
Implementer(s)	Council, BPA, RAAC, SAAC
Specific	The GENESYS model has been used extensively by the Council, BPA and others for multiple uses (but primarily for adequacy assessments). The model has components that are decades old and the file structure is out of date. This redevelopment would bring the model code up to current standards and improve its data management.
Measureable	Develop a test to verify that a new version of GENESYS would be easier to use and would provide better results.
Actionable	Use of an outside contractor is likely the best course of action. But BPA, the RAAC and the SAAC will review potential options.
Realistic	Council and BPA staff must oversee this redevelopment. Because GENESYS components are also used in other models at BPA, care should be taken to ensure that other programs are not affected.
Time-bound	Any changes in the GENESYS model must be completed at least two years prior to the release of the next plan.

Enhance GENESYS Model To Improve Simulation of Hourly Hydroelectric System Operation

Item – AN21	Enhance the Council's GENESYS model to provide a better hourly hydroelectric dispatch simulation
Implementer(s)	Council, RAAC, BPA, PNUCC
Specific	The Council's GENESYS model simulates the operation of the hydroelectric system plant-by-plant for monthly time steps. For hourly time steps, however, it simulates hydro dispatch in aggregate. To do that, an approximation method is used to assess the aggregate hydro's peaking capability. That method should be enhanced so that potential capacity shortfalls can be better assessed.
Measureable	Tests can be developed to verify that hourly hydroelectric simulations are representative of real operations.
Actionable	Use the RAAC to review the simulated hourly hydroelectric dispatch.
Realistic	The Council's advisory committees have proven to be very effective in reviewing planning methodologies being considered by the Council.
Time-bound	Any changes in the GENESYS model must be approved at least two years prior to the release of the next plan.

Enhance GENESYS Model To Improve Simulation Operating Reserves

Item – AN22	Review how operating reserves are used in the GENESYS model
Implementer(s)	Council, RAAC, SAAC, BPA, PNUCC
Specific	Currently, the Council's adequacy model (GENESYS) assesses whether sufficient operating reserves (set by the NW Power Pool and more commonly referred to as contingency reserves) are available every hour. The method used to assess the sufficiency of reserves should be reviewed and amended, if necessary.
Measureable	Tests can be developed to verify that simulated operations of the region's power system provide the required operating reserves.
Actionable	Use the RAAC and the SAAC to review how operating reserves are currently modeled in the Council's planning tools.
Realistic	The Council's advisory committees have proven to be very effective in reviewing planning methodologies being considered by the Council.
Time-bound	Any changes in the way that reserves are modeled must be approved at least two years prior to the release of the next plan.