









2017 Integrated Resource Plan

Public Input Meeting 2 July 20, 2016



Rocky Mountain Power Pacific Power PacifiCorp Energy

Agenda

- Introductions
- Environmental Policy Update
- Lunch Break (I hour) II:30 PT/I2:30 MT
- Transmission and Regional Integration
- Renewable Portfolio Standards / Request for Proposals
- Next Steps











2017 Integrated Resource Plan

Environmental Policy Update



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Environmental Policy Overview

- Clean Power Plan ("CPP")
- Regional Haze Updates
- National Ambient Air Quality Standards ("NAAQS")
- Coal Combustion Residuals Regulation ("CCR")
- Clean Water Act ("CWA")
 - Effluent Limitation Guidelines ("ELG")
 - Cooling Water Intake Regulations ("316(b)")
- Environmental Policy Update

Parallel Path Compliance Requirements



Clean Power Plan

Clean Power Plan – Overview

- The pre-publication version of the U.S. Environmental Protection Agency's ("EPA") final Carbon Pollution Emissions Guidelines for Existing Stationary Sources ("Clean Power Plan") was released August 3, 2015
- The final rule was published in the Federal Register on October 23, 2015
- PacifiCorp submitted comments on the draft Federal Implementation Plan ("FIP") and model trading rules on January 21, 2016
- On February 9, 2016, the U.S. Supreme Court issued a stay of the CPP until current legal challenges are resolved either at the Circuit Court of Appeals for the District of Columbia or at the U.S. Supreme Court
- On June 30, 2016, the EPA published the proposed design details of the Clean Energy Incentive Program ("CEIP") in the *Federal Register*; an early action incentive program intended to accelerate deployment of renewables under the CPP. Comments are due by August 29, 2016. Hydro and geothermal eligibility inclusion for CEIP proposed.

Clean Power Plan – Final Rule Approach



Clean Power Plan – Final Rule Approach

- Rate-based emissions guidelines established for two subcategories of existing electric generating units (EGUs)
 - Steam EGUs (mostly coal) 1,305 lb CO₂/MWh
 - Stationary combustion turbines (natural gas combined cycle) 771 lb CO_2/MWh
- Three compliance periods: 2022-2024, 2025-2027, 2028-2029
- Subcategory emission rate targets translated into statewide "blended" rate target and statewide mass-based target (total tons of CO₂ from affected units)
 - States may select rate- or mass-based approach
 - In rate-based approach, compliance is demonstrated through reaching lb/MWh goal; emission reduction credits (ERCs) may be applied to reduce rate
 - In mass-based approach, compliance is demonstrated by reaching total tons goal utilizing a carbon allowance program
 - States opting for mass-based must address leakage, defined as an increase in emissions outside of the scope of the rule

Clean Power Plan – PacifiCorp State Goals

	MASS-BASED PROGRAM			RATE-BASED PROGRAM		
STATE						
	Interim Goal - Tons Affected Sources can emit from 2022 through 2029	Annual Tons Affected Sources can emit in 2030 and Beyond	Reduction from 2012 Emissions Baseline	2022-2029 Interim Average Goal Ib/MWH	2030-31 Final Goal Ib/MWH	Reduction from 2012 Emissions Baseline
Montana	102,330,640	11,303,107	37%	1,534	1,305	42%
Wyoming	286,240,416	31,634,412	37%	1,526	1,299	39%
Colorado	267,103,064	29,900,397	28%	1,362	1,174	32%
Arizona	264,495,976	30,170,750	25%	1,173	1,031	29%
Utah	212,531,040	23,778,193	23%	1,368	1,179	35%
California	408,216,600	48,410,120	-5%	907	828	-19%
Oregon	69,145,312	8,118,654	-6%	964	871	-22%
Washington	93,437,656	10,739,172	-46%	1,111	983	-30%
Idaho	12,401,136	1,492,856	-112%	832	771	-127%

Clean Power Plan – Implementation Timeframe



Impacts of February 9, 2016 judicial stay on timeline yet to be determined.

Clean Power Plan – Federal Implementation Plan and Model Rules

- When it issued the final Clean Power Plan, EPA also issued a proposed federal plan and model trading rules including both mass- and rate-based options
 - Federal plan to be implemented if state does not submit approvable plan
 - State program adopting model rules to be considered presumptively approvable
 - Design considerations in the federal plan and model rules largely the same
 - EPA's stated intent is that the model trading rules are customizable for states
 - EPA proposal to finalize a single approach for the federal plan
- Rate-based federal plan/model rule
 - Establishes two subcategory rates for fossil-fuel fired steam EGUs (1,305 CO₂ lb/MWh) and for natural gas combined cycles (771 CO₂ lb/MWh)
 - Establishes generation sources eligible to create emission reduction credits (ERCs)
- Mass-based federal plan/model rule
 - Creates allocation framework based on historical generation (2010-2012)
 - Does not include new source complement; addresses leakage through allowance setasides
 - Permits trading of allowances under EPA-approved plans considered "trading ready"

Clean Power Plan – Mass-based Set-asides

- Renewable Energy Set Aside
 - EPA's proposed FIP sets aside 5% of a state's annual CO₂ mass allowances to encourage and support renewable energy development
- Early Action Allowance Set Aside Clean Energy Incentive Program
 - A set amount of CO₂ allowances taken from the first three years of a state's allocation of allowances are used to encourage the early development of renewable energy and lowincome demand-side energy projects. The state's allowances are supplemented with additional federal allowances.
- Output-based NGCC Set Aside
 - Set-asides provided to NGCC units to encourage them to operate at higher capacity factors. The size of the set-aside is fixed and is based on the amount that would allow all existing NGCC EGUs in the state to increase their utilization to a 60% capacity factor. EPA proposes that these allowances would be proportioned and allocated to NGCC units operating above a 50% capacity factor.

Key Decisions Under the Clean Power Plan

- Key decisions for states will influence impacts to customers and program effectiveness
 - Emission rate or mass-based (cap) program
 - Single-state or multi-state program
 - Whether to adopt "trading ready" or "state measures" approach
 - Whether intra- or interstate trading is adopted by the state, how broad the trading program is and whether the trading market is sufficiently liquid
 - Distribution of allowances among affect and non-affected electric generating units (and whether they are allocated or auctioned)
 - In a mass-based program, distribution of allowances
 - In a mass-based program, how the state will address emissions leakage
 - In a rate-based program, interaction between renewable energy certificates ("RECs") and emission rate credits ("ERCs")
 - In a rate-based program, what evaluation, measurement and verification requirements are instituted

Clean Power Plan – Compliance Cost Drivers and Challenges

- Impacts of CPP cannot be fully determined until the states develop their implementation plans and markets develop
- State-by-state allocation of compliance attributes will be key
- Stringent state targets in Montana, Utah, and Wyoming
- Aggressive renewable generation deployment in the determination of best system of emission reduction
- Compliance tools have changed
 - In a mass-based program, the state must address new units based on concerns of "leakage"
 - Only post-2012 renewable generation can generate emission reduction credits in a ratebased program
 - New natural gas combined cycle cannot be used to average down emission rate
 - Removed existing nuclear component so only incremental nuclear (new and uprates) can be utilized
- Certainty of litigation, but uncertainty regarding outcome

Impact of Stay on Clean Power Plan

- States will not need to file initial plans by September 2016; unlikely that the final plan submittal date of September 2018 will stand unless the Supreme Court does not grant certiorari and the stay is lifted
 - Future compliance dates uncertain, as the Supreme Court did not specify that the stay is a day-for-day stay that pushes back all deadlines
 - A new administration will be in place to address any court-ordered remand (whether from the D.C. Circuit or Supreme Court) to change or address particular issues in the rule
- Uncertain whether a split Supreme Court is likely to grant certiorari to hear the case and how the court will rule with a 4-4 vote, the D.C. Circuit's decision stands
- While creating uncertainty, some states continue to address climate-related issues through integrated resource plans, increasing renewable portfolio standards, and actions such as the Governors' Accord for a New Energy Future which includes the states of California, Oregon and Washington

Regional Haze

Utah Regional Haze Compliance

- The EPA published its final action on the Utah Regional Haze SIP in the Federal Register on June 30, 2016, requiring installation of SCR on Hunter Units 1 and 2 and Huntington Units 1 and 2 within five years under a federal implementation plan ("FIP")
- Any motions to appeal EPA's final action must be filed by September 6, 2016

Wyoming Regional Haze Compliance

- Effective March 3, 2014, the EPA disapproved the NO_X portion of the Wyoming SIP and issued a FIP for Dave Johnston Unit 3, where it required the installation of SCR by 2019, or in lieu of installing SCR, a commitment to shut down Dave Johnston Unit 3 by 2027, its currently approved depreciable life
- EPA also disapproved the NO_X portion of the Wyoming SIP and issued a FIP for the Wyodak plant, requiring the installation of SCR within five years (i.e., by 2019)
- Parties have filed appeals of EPA's final actions for Wyodak and Naughton Units 1 and 2 under a variety of opposition points
- PacifiCorp and other parties also asked the court to stay EPA's final Wyodak action pending the resolution of the appeals. The court granted the requested stay in September 2014
- Final briefing on the appeal of EPA's final action was completed in March 2015, and oral arguments are yet to be scheduled by the court
- Assuming the court schedules oral arguments in the spring of 2017, the court's final decision on the appeal of EPA's final action likely will now not occur until late-2017, at the earliest

Non-Operated Plants Regional Haze Compliance

<u>Arizona</u>

- Effective January 4, 2013, EPA disapproved the NO_X portion of the Arizona SIP and issued a FIP for Cholla Unit 4, requiring
 installation of SCR by December 2017
- The court granted the February 2015 joint request by parties to hold the appeals of the Cholla FIP requirements in abeyance while the State of Arizona processed the Cholla plant application for permit and SIP revision, including a BART reassessment
- EPA acknowledged receipt of the State of Arizona's reassessed SIP on October 26, 2015, which allows the unit to remain coal-fueled through April 2025 and avoid the installation of SCR
- EPA proposed its final action on the Arizona SIP revision on June 30, 2016, approving the state's plan. The public comment process on EPA's proposed action has commenced
- The Cholla FIP appeal is expected to remain in abeyance until the EPA's final action is complete, with the parties required to provide status updates to the court every 90 days

<u>Colorado</u>

- In July 2014, the parties in the appeal of EPA's approval of the 2012 Colorado SIP, not including PacifiCorp, entered into a settlement agreement under which, following a series of administrative actions, Craig Unit I will be required to install selective catalytic reduction ("SCR") in 2021
- By order dated July 11, 2014, the court granted motions filed by the environmental groups to hold the appeal in abeyance while the settlement agreement and related administrative actions move forward
- EPA approved the settlement after notice and opportunity for public comment
- The Colorado Department of Public Health and Environment approved the Colorado SIP revision consistent with the settlement over the objections of PacifiCorp and subject to final legislative action
- The State of Colorado has forwarded the SIP revision to EPA for review and approval, which is expected to be finalized in 2016

<u>Montana</u>

There are no pending Regional Haze compliance obligations for Colstrip Units 3 and 4

National Ambient Air Quality Standards

National Ambient Air Quality Standards

<u>One-hour NO₂ Standard</u>

- All areas of the country designated as unclassifiable
- EPA to re-designate attainment areas based on expanded ambient monitoring network by 2017

One-hour SO₂ Standard

- Initial EPA designations in July 2013
- Many areas of the country designated as unclassifiable and will be re-designated based upon a combination of ambient monitoring and facility modeling
- Re-designations to be completed in 2017 through 2020, depending upon approach taken

Fine Particulate (PM_{2.5}) Standard

- EPA notification in May 2010 to states that failed to submit compliance SIPs (including UT and WY)
- States have until 2020 to be in attainment

Ozone Standard

- EPA finalized new ozone standard in October 2015
- EPA anticipates states will submit area designation recommendations by October 2016, and EPA will make attainment/nonattainment designations for the revised standards by late 2017

Coal Combustion Residuals

Coal Combustion Residuals

- As of October 19, 2015, PacifiCorp had nine surface impoundments and four landfills that are subject to the CCR rule
- PacifiCorp is currently in the process of closing four of the nine impoundments

Clean Water Act

Clean Water Act

Effluent Limit Guidelines (ELG)

- EPA published the final ELG for steam generating units in the Federal Register on November 3, 2015.
- The rule impacts PacifiCorp's Dave Johnston, Naughton, and Wyodak facilities.
 <u>316(b)</u>
- EPA published the final 316(b) rule on May 19, 2014, for cooling water intake structures at existing facilities
- The rule allows seven compliance options to address impingement and to assess best technology options for entrainment
- The impact on PacifiCorp facilities is not expected to be significant as most have cooling towers

State Greenhouse Gas Emissions Policy Update

Greenhouse Gas – California

- Emissions Performance Standard applies to new financial commitments limited to 1,100 lb CO₂/MWh
- California Cap-and-Trade and Mandatory Reporting Regulation (MRR) enabled by Assembly Bill 32 (AB 32) Global Warming Solutions Act of 2006
 - Achieve 1990 greenhouse gas emission level by 2020 with long-term goal of 80% reduction from 1990 levels by 2050
 - Regulates greenhouse gas sources in California as well as "first jurisdictional deliverer" of electricity
- PacifiCorp subject to MRR and the Cap-and-Trade program for wholesale sales to California, retail service, and transfers made via the energy imbalance market
- Current program does not extend beyond 2020 California Air Resources Board currently proposing post-2020 allowance allocation

Greenhouse Gas – Oregon

- Emissions Performance Standard applies to new financial commitments limited to 1,100 lb CO₂/MWh
- Clean Electricity and Coal Transition Plan (SB 1547) passed March 8, 2016
 - Reduces Oregon greenhouse gas emissions from the electric sector
 - Requires the elimination of coal from Oregon's allocation of electricity, as reflected in retail rates, by 2030
 - Designed to ensure that Oregon's greenhouse gas emission reductions goals as met as they apply to the electric sector

Greenhouse Gas – Washington

- Emissions Performance Standard applies to new financial commitments limited to 970 lb CO₂/MWh
- Washington Department of Ecology proposed Clean Air Rule (CAR) issued June 1, 2016
 - Does not regulate imported power; Chehalis would be only regulated facility for PacifiCorp
 - Compliance begins emission year 2017 with three year compliance periods with baseline as average of 2012-2016 emissions
 - Each year after 2017, one and seventh-tenths reduction is required
 - Emission reduction units (ERUs) may be used to meet some or all compliance requirements
- Comments due July 22, 2016
- EGUs subject to the Clean Power Plan would be exempt from CAR once a CPP implementation plan is adopted











2017 Integrated Resource Plan

Transmission

Regional Integration



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Agenda

- Transmission planning overview
- Impact of generation retirements on transmission
- Energy Gateway overview and updates
- Regional Integration

Transmission Planning Overview

- Transmission planning engineers study and analyze the transmission system in order to:
 - Identify constraints or overloads
 - Connect new loads or resources
 - Maintain or improve reliability
 - Evaluate the system against NERC,WECC, and PacifiCorp operability and reliability criteria and ensure compliance with all standards



Typical Transmission Studies

- 5 year local transmission studies by region
- Annual NERC transmission planning standard studies
- Annual network load & resource studies
- Generation interconnection studies
- Transmission service request studies





Typical Assumptions Needed for Studies

- Load growth for study area
- Location of new loads or resources
- Specific load profiles or resource types
- Any existing load or resource changes
- Any planned system changes that will be completed during the study timeframe
- Identify which WECC base case(s) to use for the study including any model updates

FERC Order No. 1000 Regional Planning

- December 2015 completed the first regional two year study cycle under FERC Order No. 1000
- 2015 initiated interregional coordination (NTTG, CAL ISO, WestConnect, ColumbiaGrid)
- 2016-2017 planning cycle underway


Impacts of Generation Retirements

- WECC 2026 Base Case includes retirements as reflected in the companies 2015 IRPs
- Local, regional and interregional planning will analyze various scenarios with and without planned transmission and resources against the base case

Energy Gateway Program Status



Gateway West Overview

- Windstar WY to Populus ID (Energy Gateway Segment D)
 - Approximately 488 miles
 - 131 miles at 230 kV from Windstar WY to Aeolus WY
 - 357 miles at 500 kV from Aeolus WY to Populus ID
- Populus ID to Hemingway ID (Energy Gateway Segment E)
 - Approximately 500 miles at 500 kV



Gateway West Permitting Update

- U.S. Forest Service
 - Issued 2 records of decision in September 2013
- BLM
 - Issued a record of decision November 14, 2013
 - Windstar to Populus (Segment D) and Populus to Midpoint and Populus to Cedar Hill (Segment E partial)
 - Permitting continues on remaining portions of Segment E from Midpoint to Hemingway and Cedar Hill to Hemingway
- Record of decision expected in Q4 of 2016

Gateway South Overview

- Aeolus WY to Mona UT (Energy Gateway Segment F)
 - Approximately 400 miles at 500 kV



Gateway South Permitting Update

- Gateway South
 - Issuance of draft environmental impact statement received February 2014
- TransWest Express (TWE) Project
 - 725 mile, 600 kV HVDC transmission line
 - Interconnection request to PacifiCorp transmission system
 - Draft environmental impact statement issued July 2013
 - Final EIS expected May 2016
 - On-going siting coordination between TWE and PacifiCorp

Wallula to McNary (Segment A)

- Approximately 30 miles between Wallula-McNary, single circuit 230-kilovolt line
- Satisfies transmission customer service request, increases reliability and load service opportunities
- Oregon Certificate of Public Convenience and Necessity received in 2011
- Local permits obtained, Federal permits expected in 2016
- ROW acquisition initiated 2016
- Target in-service date: 2017



Oquirrh to Terminal (Segment C)

- Approximately 14 miles, double circuit 345-kilovolt line
- Improves reliability and load service
- Line route mainly on existing right-of-way
- Line connects Populus-Terminal and Mona-Oquirrh lines
- No federal permitting required
- Target in-service date: June 2021



Boardman to Hemingway

- Idaho Power is the project manager and leads the federal and state permitting processes
- PacifiCorp as a party to the permitting agreement has roughly half of the shared permitting process costs (specifically, 54.55%)
- Draft environmental impact statement issued December 19, 2014
- Final environmental impact statement expected Q4 2016
- Project web site for details <u>http://www.boardmantohemingway.com</u>

Regional Integration Drivers and Overview

- PacifiCorp and the California ISO entered into a Memorandum of Understanding in April 2015 to explore potential benefits and costs of creating a regional ISO ("R-ISO").
- Regional market integration efforts are aimed at:
 - Reducing customer costs
 - Enhancing coordination and reliability of western electric networks
 - Facilitating renewable energy resource integration
 - Enhancing regional transmission planning and expansion

Regional Integration Net Benefits

PacifiCorp will determine the net benefits of regional integration based on the outcome of key issues

- PacifiCorp will complete a refined gross benefits analysis using production cost modeling - Completion of the study is targeted for end of Q3 2016
- Energy Gateway South and Energy Gateway West projects will be submitted to the inter-regional planning organizations 2016 planning cycle as part of FERC Order No. 1000
- Major cost and requirements are being defined through stakeholder processes -FERC approvals for most issues are targeted by the end of 2016
 - Transmission Access Charge
 - Resource Adequacy Requirements
 - Grid Management Charge
 - Metering Requirements

Regional Integration Governance

Regional Governance is being established through California Senate Bill 350 (SB 350) signed into law in October 2015

- The California ISO is conducting studies to determine the impacts of regional integration on California's electric rates, economy, jobs, and environment as required by SB 350
- PacifiCorp and the California ISO are consulting with the western governors' offices, legislative leadership, and key stakeholders in the region to develop governance modification proposals
- The California ISO is scheduling a workshop with California regulatory agencies on results of regional integration studies and proposed governance modifications as required by SB 350 in June 2016
- A regional governance proposal will be submitted to California Governor's office allowing for California legislative action by September 2016

Timeline for Regional Integration Activities

Note: Designed to allow PacifiCorp to obtain state regulatory approvals before the end of 2017













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Renewable Portfolio Standards Request for Proposals



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- Enacted by Senate Bill 838 (SB 838) in 2007, requiring Oregon utilities to deliver at least 25 percent of electricity from eligible renewable resources by 2025
- Senate Bill 1547-B, the Clean Electricity & Coal Transition Plan was signed into law on March 8, 2016. Key provisions:
 - Elimination of coal from Oregon rates by 2030
 - Increase in RPS targets:

2015 - 2019	2020 - 2024	2025 - 2029	2030 - 2034	2035 - 2039	2040 Onward
15%	20%	27%	35%	45%	50%

• Senate Bill 1547-B (Continued)

- Mandate for a community solar program allowing residential and commercial customers to own a portion of an off-site solar project. At least 10% of the program's capacity to be set aside for low-income customers.
- Requirement for small-scale renewables by 2025, at least 8% of the state's aggregate electrical capacity to come from renewables with a capacity of 20 megawatts or less.
- Instructs utilities to develop plans related to transportation electrification. Plans addressing the deployment of charging stations and electrical vehicles must be filed with the OPUC by December 2016.
- Elimination of solar capacity standard (previously mandated by HB 3039)

Eligible Resources

- Operational after January 1, 1995*
- RPS-certified by Oregon Department of Energy
- Located within the WECC
- Technologies Wind, Solar, Solar Thermal, Geothermal, Wave, Tidal, Ocean Thermal, Hydro located outside protected water areas, Incremental Hydro (efficiency upgrades), Biomass, Municipal Solid Waste
- * Pre-1995 Hydro eligible if certified by the Low Impact Hydro Institute, and only up to 50 average megawatts of utility-owned and 40 average megawatts not owned by the utility annually (90 aMW per year)
- * Pre-1995 Biomass and Solid Waste eligible for use immediately, with the passing of SB 1547; previously not recognized until 2026

- Renewable Energy Certificates (RECs)
 - Must be issued in WREGIS
 - Can be a combination of Bundled and Unbundled RECs (Unbundled limited to 20% of annual RPS target; QFs in Oregon do not contribute to unbundled REC limit)
 - Retirement of RECs does not have to adhere to first-in-first-out rule (SB 1547)

Banking Provisions (SB 1547)

- REC life now limited to five years (previously unlimited)

Exceptions (Unlimited REC life):

- Long-term resources coming online between bill passage and the end of 2022, generate RECs with unlimited REC life for the first five years of the resource's life
- Existing REC bank (anything generated prior to bill passage)

Cost Controls

- Alternative compliance payments can be used in lieu of meeting the RPS requirement with renewables

(\$110 per megawatt-hour for 2015)

 Cost Cap – a utility is not required to comply with the RPS if the incremental cost of the RPS exceeds 4% of annual revenue requirement in a compliance year

Penalties

- Oregon Public Utilities Commission (OPUC) can impose penalties for failing to comply with the RPS in an amount determined by the OPUC

California Renewables Portfolio Standard

Renewables Portfolio Standards – California

- Established in 2002; expanded in 2011 under Senate Bill 2 (SB2-1X) requiring at least 33% renewable resources by 2020
- Senate Bill 350, the Clean Energy and Pollution Reduction Act was signed into law on October 7, 2015. Key provisions:
 - Expanded RPS targets:

By Dec. 2016	By Dec. 2020	By Dec. 2024	By Dec. 2027	By Dec. 2030
25%	33%	40%	45%	50%

- Starting 2021, at least 65% of procurement must be from long-term resources (10 or more years)
- Increased flexibility in banking bundled RECs

Renewables Portfolio Standards – California

SB 350 Provisions (Continued)

- Regional Energy Market
- Higher energy efficiency goals
- Transportation electrification

Eligible Resources

- RPS-certified by California Energy Commission
- Located within the WECC
- Technologies Wind, Solar, Solar Thermal, Geothermal, Wave, Tidal, Ocean Thermal, Biomass, Landfill Gas, Municipal Solid Waste, Digester Gas, Fuel Cells, Hydro*
- Hydro eligible if capacity of 30 megawatts or less and procured or owned as of effective date of act

Renewables Portfolio Standards – California

- Renewable Energy Certificates (RECs)
 - Must be issued in WREGIS
 - Resources must be within the WECC
 - California procurement is defined by Portfolio Content Categories (buckets) which increasingly limit the use of unbundled RECs over time. The policy is intended to encourage the procurement of in-state renewables.
 - As a multijurisdictional utility serving California load, PacifiCorp is exempt from the bucket limitations
- Banking Provisions
 - RECs must be retired within 36 months of generation
 - Strict limits on procuring 'excess'
 - Use multi-year compliance periods for flexibility

Renewables Portfolio Standards - California

Cost Controls

 No cost controls in place; however California Public Utilities Commission (CPUC) is tasked with developing a Procurement Expenditure Limitation

Penalties

- CPUC has the authority to impose penalties on utilities that don't meet RPS targets
- SB 350 tasked CPUC with developing those penalties

Washington Renewable Portfolio Standard

Renewable Portfolio Standards – Washington

- Enacted by Initiative 937 (I-937) in 2006, requiring the use of at least 15% eligible renewables by 2020
- **RPS** Targets

2012-2015	2016-2019	2020 Onward
3%	9%	15%

Eligible Resources

- Operational after March 31, 1999
- Located within the Pacific Northwest as defined by BPA; for multijurisdictional utilities, resource can be located in any state served by the utility
- Technologies Wind, Solar, Solar Thermal, Geothermal, Wave, Tidal, Ocean Thermal, Incremental Hydro (only upgrades after March 1999), Biomass, Anaerobic Digestion

Renewable Portfolio Standards – Washington

- Renewable Energy Certificates (RECs)
 - Must be issued in WREGIS
 - Can be a combination of Bundled and Unbundled RECs (No limit on unbundled RECs)
 - Resources outside of 'Pacific Northwest' must be utility-owned or long-term contract (more than 12 months)
- Banking Provisions
 - RECs can be produced during the compliance year, the preceding year or the subsequent year

Cost Controls

- Utility is not required to comply with the RPS if the incremental cost of the RPS exceeds 4% of annual revenue requirement in a given year
- Penalties
 - \$50 per megawatt-hour of shortfall

Renewable Resource and REC Request for Proposals

Resource and REC RFPs

- Extension of federal tax credits at end of 2015 provides a time-sensitive, unique opportunity to pursue near-term renewable resources and/or RECs to reduce RPS compliance costs
- 2015 IRP Update Action Item 1a
 - "Issue a request for proposals (RFP) in spring 2016 seeking bids for new renewable resources that qualify for the Oregon, Washington, and/or California RPS and that can take full advantage of federal income tax deductions and credits renewed or extended in December 2015"
 - "Issue a RFP in 2016 for current year and forward vintage RECs that qualify for the Oregon, Washington, and/or California RPS."
 - "Complete the concurrent evaluation, selection, and contracting process for both the renewable resource RFP and REC RFP by fall 2016."
- RFPs issued April 20, 2016
 - Resource RFP: <u>http://www.pacificorp.com/sup/rfps/2016-renewables-rfp.html</u>
 - REC RFP: <u>http://www.pacificorp.com/sup/rfps/2016-rec-rfp.html</u>

Federal Income Tax Incentives

Construction Begins	Wind (PTC)	Solar (TIC)
Prior to 1/1/2017	100%	30%
Prior to 1/1/2018	80%	30%
Prior to 1/1/2019	60%	30%
Prior to 1/1/2020	40%	30%
Prior to 1/1/2021	0%	26%
Prior to 1/1/2022	0%	22%
On or After 1/1/2022	0%	10%

- The PTC 2.3 cents/kWh (3.7 cents/kWh when grossed up by the marginal tax rate)
- Full value of the PTC yields between \$102 million and \$124 million in federal income tax benefits over ten years for a 100 MW wind project, depending upon capacity factor (represents 57% to 69% of initial capital for a project cost at 1,800/kW)
- A 20% reduction in the PTC reduces these savings by \$20 million to \$25 million.

RFP Timeline

- April 11, 2016 RFPs issued to market (complete)
- April 19, 2016 bidder workshop (complete)
- May 20, 2016 proposals due (complete)
- June 27, 2016 finalize initial shortlist bid evaluation (complete)
- July 1, 2016 selection of initial shortlist/notification (complete)
- July 8, 2016 best and final pricing (<u>complete</u>)
- July 22, 2016 updated analysis and final bid selection (*on-target*)
- July 26, 2016 RFP special public meeting at OPUC (on-target)
- August 8, 2016 complete negotiations REC RFP (on-target)
- August 15, 2016 execution of agreements REC RFP (on-target)
- September 2, 2016 complete negotiations Resource RFP (*on-target*)
- September 16, 2016 notice to proceed/execution Resource RFP (ontarget)

RFP Response

- Resource RFP
 - Total capacity offered = 6,054 MW (66 projects, from 2 MW 402 MW)
 - Total wind capacity = 3,012 MW (19 projects, from 10 MW 402 MW)
 - Total solar capacity = 2,987 MW (43 projects, from 2 MW 400 MW)
 - Total geothermal = 55 MW (4 projects, from 10 MW 17 MW)
 - Total APSA bids = 891 MW (17 projects, from 10 MW 192 MW)
 - Total PPA bids = 3,500 MW (29 projects, 15 MW 402 MW)
 - Total APSA <u>and PPA</u> bids = 1,662 MW (20 projects, 10 MW 400 MW)

REC RFP

- Total volume = 31.2 million RECs from over 800 MW of resource capacity
- Approximately 90% of REC volume offered is from qualifying facility projects
- Pre-2016 vintage RECs to 2038 forward vintage RECs
- Approximately 10.5 million RECs would qualify as "Golden RECs" under the Oregon RPS (unlimited banking for RECs generated during the first five years of operation)

Initial Shortlist

- Resource RFP
 - I I projects from six bidders total 469.5 MW
 - Solar APSA/lease = 60 MW
 - Solar PPAs = 309.5 MVV
 - Wind APSAs = 100 MW
- REC RFP
 - 29 Projects totaling 30.5 million RECs
 - Pre-2016 vintage RECs to 2038 forward vintage RECs
- Initial shortlist is larger than anticipated final shortlist selection to provide opportunities for the most promising bidders to improve bids with best and final pricing update.
- Final shortlist being developed, considering third-party, independent review of capacity factors, transmission deliverability analysis, and sensitivity analysis, and inter-temporal trade-off analysis.











2017 Integrated Resource Plan

Next Steps



Rocky Mountain Power Pacific Power PacifiCorp Energy

Public Input Meeting #3

- August 25-26, 2016
- Topics:
 - Load Forecast
 - Conservation Potential Assessment
 - Distributed Generation Study
 - Energy Storage
 - Supply-Side Resources
 - Portfolio Development
 - Sensitivity Analysis

Additional Information and Next Steps

- Meeting presentation and materials: <u>http://www.pacificorp.com/es/irp.html</u>
- 2017 IRP Stakeholder Feedback Form: <u>http://www.pacificorp.com/es/irp/irpcomments.html</u>
- IRP department contact information:
 - IRP@PacifiCorp.com
 - (503) 813-5245
- Upcoming Public Input Meeting Dates:
 - August 25-26, 2016
 - September 22-23, 2016
 - October 20-21, 2016
 - January 2017–TBD
 - February 2017 TBD