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October 29, 2009

## MEMORANDUM

**TO:** Power Committee

**FROM:** Jeff King, Senior Resource Analyst

**SUBJECT:** Assessment of impacts of California RPS on the Northwest Power System

At its October 7 meeting in Ketchum, the Power Committee discussed the approach to an assessment of impacts of the California renewable portfolio standard (RPS) on the Northwest Power System proposed by staff in the background paper provided to the Committee for that meeting. Because of widespread interest regarding this issue, the Committee requested the staff proceed with the proposed assessment as quickly as possible, given heavy staff commitment to preparing the final power plan.

To improve understanding the significance of this issue, staff has compiled the attached table summarizing the renewable portfolio standards of the WECC states presently having such standards. This information, along with revised demand forecasts for the affected states plus information from an recent CPUC assessment of the expected impact of a 33 percent California RPS (California Public Utilities Commission, *33% Renewables Portfolio Standard Implementation Analysis Preliminary Results*, June 2009) will be used to revise the Council's forecast of WECC RPS resources development. The RPS resource development forecast underlies the Council's wholesale power price forecast and resource portfolio analysis. The RPS forecast, in turn, will be considered in a review of the wind supply curves for the final power plan.

Staff plans to have the revised RPS forecast and proposed revisions to the wind supply curves available for discussion for the November teleconference.

State	Legislation	Ultimate Target (% Sales)	Qualifying Generating Resource Types	Existing Resource Vintage Eligibility
Arizona	EPS adopted in 2000; ACC made significant modifications made in October 2006 (Decision no. 69127)	15% by 2025	Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Geothermal Heat Pumps, CHP/Cogeneration, Solar Pool Heating (commercial only), Daylighting (non-residential only), Solar Space Cooling, Solar HVAC, Anaerobic Digestion, Fuel Cells using Renewable Fuels, and other Qualifying Resources (Manufacturing Credit Provision)[1]	January 1, 1997
California	Established by legislature in 2002, with a target of 20% by 2017. In 2006, SB 107 accelerated target of 20% by 2010. Executive Order S-21-09 increased requirement to 33% by 2020 and made requirement apply to all utilities; this was in place of SB 14, which was approved by the Legislature but vetoed by the Governor	20% by 2010; 33% by 2020	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Municipal Solid Waste, Anaerobic Digestion, Small Hydroelectric, Tidal, Wave, Ocean Thermal, Biodiesel, Fuel Cells Using Renewable Fuels	September 26, 1996 + earlier QF & SPPs
Colorado	Voter-approved ballot Initiative 37, Renewable Energy Standard, November, 2004. HB 1281, An Act Concerning Increased Renewable Energy Standards, signed by legislature and governor, increased requirements and qualifying utilities, March 2007.	IOUs: 20% by 2020; Coops & munis: 10% by 2020	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, "Recycled Energy,[3]" Anaerobic Digestion, Fuel Cells using Renewable Energy	Not specified
Montana	SB 415, Montana Renewable Power Production and Rural Economic Development Act, April 2005. Revised provisions in April 2007 (HB 681).	15% by 2015	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Anaerobic Digestion, Fuel Cells using Renewable Fuels, Compressed Air Storage	January 1, 2005, must be located in Montana or in another state and be delivering electricity into MT
New Mexico	Originally adopted in December 2002, amended in 2004 (SB 43) and 2007 (SB 418)	IOUs: 20% by 2020; Coops: 10% by 2020	Solar, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Zero emission technology w/ substantial long-term production potential, Anaerobic Digestion, Fuel Cells using Renewable Fuels	No limit except hydro (July 2007, or later)
Nevada	NRS 704, Regulation of Public Utilities Generally, Portfolio Standard, 1997. NAC 703, Portfolio Standard for Renewable Energy and System of Renewable Energy Credits, 2002. Amended several times, most recently by AB 3 in 2005, and SB 358 in 2009. SB 358 increased the target from 20% in 2015 and thereafter, to 25% in 2025.	25% by 2025	Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Waste Tires (using microwave reduction), Geothermal Hot Water District Heating Systems, Solar Pool Heating, Anaerobic Digestion, Biodiesel	Energy efficiency measures installed after January 1, 2005
Oregon	SB 838, Oregon Renewable Energy Act of 2007	Large: 25% by 2025; Medium: 10% by 2025; Small: 5% by 2025	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Hydrogen, Anaerobic Digestion, Tidal, Wave, Ocean Thermal	Jan 1995 with exceptions
Washington	Voter-approved ballot Initiative 937 (Clean Energy Initiative) in November 2006, codified as Chapter 19.285 RCW.	15% by 2020 and all cost-effective conservation (for all utilities >25k customers)	Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Biodiesel	March 31, 1999

[1] Partial Manufacturing Credit Provision - If a utility owns or makes an investment in a solar electric manufacturing plant in state or provides incentives for a plant to locate in-state, it can acquire RECs equal to the nameplate capacity of the solar electric generators produced and sold in a year multiplied by 2,190 hours - these RECs apply to the non-distributed portion of its annual requirement

[2] Unless specified, a REC is assumed to be defined as 1MWh

[3] Recycled energy is defined as "energy produced by a generation unit with a nameplate capacity of <15 MW that converts the otherwise lost energy from the heat from exhaust stacks or pipes to electricity and that does not combust additional fossil fuel"

[4] Chapter 19.285 RCW, 19.285.30, (9) "Distributed generation" means an eligible renewable resource where the generation facility or any integrated cluster of such facilities has a generating capacity of not more than 5 MW

State	Applicable Sectors	Oversight	Alternative Compliance Payment	Banking Provisions	Set Asides	Resource Cap
Arizona	IOUs, Coops, Retail Suppliers	Arizona Corporate Commission (ACC)	The ACC may find the utility cannot recover the costs of meeting the shortfall	Unlimited	By 2012 and thereafter, 30% of the annual requirement must come from distributed renewable resources, of which half must come from residential applications and the other half from non-residential, non-utility applications	RECs generated through partial manufacturing credit provision cannot exceed 20% of an annual requirement
California	IOUs, energy service providers, public owned utilities	California Public Utilities Commission (CPUC), California Energy Commission (CEC). With the 2009 EO S-21-09, California Air Resources Board (CARB) will start in 2010	\$50/MWh administrative penalty	Unlimited		
Colorado	IOU's, larger coops and munis (>40,000 customers)	Colorado Public Utility Commission	administrative penalties may be applied	5-year banking	IOU's - > 4% solar, half of which must be generated on-site at customers facilities	
Montana	IOUs, retail suppliers	Montana Public Service Commission (PSC)	\$10/MWh administrative penalty	2-year banking	2011-2014, > 50 MW RECs and the electricity must be purchased from community renewable-energy projects (< 5 MW); 2015 - onward, utilities must purchase both the RECs and the electricity from community renewable-energy projects > 75 MW	
New Mexico	IOUs, Coops	Public Regulation Commission	PRC has not yet developed non-compliance penalties	4-year banking	Starting in 2011, each utility must have a fully diversified energy mix: >20% wind, >20% solar, >10% other biomass or geothermal resources, >1.5% distributed generation (>3% in 2015); Coops not subject to diversity	
Nevada	IOUs, retail suppliers	Public Utilities Commission	PUC may impose administrative fine for non-compliance	4-year banking	> 5% annual requirement generated or acquired from solar renewable energy systems, and > 6% beginning calendar year 2016; > 50% of amount saved by energy efficiency must be from measures installed at service locations of the provider's residential customers	< 25% efficiency measures to meet annual requirement
Oregon	Munis, IOUs, coops, retail supplier	Oregon Public Utilities Commission	\$50/MWh administrative penalty	Unlimited; older RECs must be used before newer RECs	20 MW solar PV by 2020, w/ capacity ranging 500 kW - 5MW; "Goal" - Community-based and small-scale projects < 20MW comprise 8% of RPS compliance by 2025	
Washington	Munis, IOUs, rural electric coops	Washington State Utilities and Transportation Commission (WUTC) for IOUS, and Washington Department of Community, Trade, and Economic Development (CTED) for COUs	\$50/MWh administrative penalty	2-year banking		

State	Cost Caps	Constraints on Imports
Arizona	The annual increase in portfolio percentage post-2004 would continue only if the cost of environmental portfolio electricity had declined to an approved cost/benefit point	Deliverable to Arizona customers
California	CPUC can determine if above-market funds are insufficient to cover above-market costs, allowing retail sellers to limit annual RPS compliance	Currently do not accept unbundled RECs; CPUC proposed TRECs in October 2008, in which RECs could be unbundled and the credit and energy sold separately
Colorado	None	None, although renewable energy generated in-state receives a multiplier of 1.25
Montana	Utilities restructured pursuant to Title 69 are not required to comply w/ RPS if: the eligible renewable resource has not demonstrated it is less than or equal to bids for equivalent power over equivalent contract terms. Utilities not restructured pursuant to Title 69 are not required to comply w/ RPS if: the renewable resource exceeds the cost of an alternate generating resource by > 15 %	Facility must be located in Montana, or delivering electricity from another state into MT
New Mexico	PRC established reasonable cost threshold (% overall customer rate increase); Individual caps on price of resources by type; Utilities may be excused from diversification targets if achieving them raises the cost of electricity >2% or if the reliability of the system is impaired.	Must be contracted for delivery in New Mexico, or consumed/generated by an end-use customer of the public utility or coop in NM; However, the PRC may determine there is a market for TRECs in which the location of the import would not matter
Nevada	No explicit cost cap, however the PUC can provide exemptions if it determines there is not a sufficient supply of energy or sufficient amount of energy savings available	Out-of-state renewable generation is acceptable, provided it is tied to a dedicated transmission/distribution line that connects w/ a facility or system owned, operated, or controlled by an in-state provider
Oregon	Utilities are not required to comply w/ RPS if: Sum of the incremental costs of compliance w/ RPS, costs of the unbundled RECs, and alternative compliance payments exceed 4% of a utilities annual revenue requirement in a compliance year; Exemption also relates to existing hydropower resources if from either BPA or Mid-Columbia contracts so that this hydropower is not displaced.	Bundled within the US portion of WECC; < 20% compliance through RECs annually for the three largest utilities, and < 50% of a large consumer owned utility. Unbundled RECs can come from WECC plus BC, Alberta and small part of Mexico.
Washington	Utilities are considered in compliance if >4% of its total annual retail revenue requirement is invested in the incremental costs of eligible renewable resources, cost of RECs, or a combination of both.	Facility must be either located in PNW or electricity from the facility must be delivered into WA on a real-time basis without shaping, storage, or integration services.

State	Extra Credits	Additional Notes
Arizona	Extra credit multipliers may be earned for early installation of certain technologies, in-state solar installation, and in-state manufactured content (installations after December 31, 2005 are not eligible for multipliers) - Multipliers are additive but cannot exceed 2.0	A REC is defined as one kWh [2]
California		
Colorado	In-state generated electricity receives 1.25 RPS compliance; Coops and munis - community-based projects (< 30 MW capacity) in CO and owned by individual residents of a community or nonprofits, coops, local government or tribal councils receive 1.5 credit; Coops and munis - Solar generated by a facility before July 1, 2015 receives 3.0 multiplier	For compliance years 2007-2010, a utility may "borrow forward" eligible renewable energy generated during the following two compliance years; 2010 is the last compliance year borrowing forward may occur.
Montana		
New Mexico	Solar receives 3.0 RPS compliance; Biomass, Geothermal, Landfill Gas, and Fuel Cell sources count as 2.0 RPS compliance	A REC is defined as one kWh; goal of > 5% reduction in total retail sales to customers in New Mexico by 2020
Nevada	Customer-sited solar PV and participants in the Solar Energy Systems Demonstration Program receive 2.4 RPS compliance; Other on-site generation and energy efficiency measures 1.05 credit compliance; Electricity saved during peak load periods receive 2.0 RPS compliance. Waste tire facilities using reverse polymerization technology receives .70 RPS credit.	A REC is defined as 1 kWh; The PUC created a Temporary Renewable Energy Development (TRED) Program to assist renewable energy developers secure long-term contracts. It ensures a prompt and guaranteed revenue stream for developers in order for them to receive the necessary financing to complete projects.
Oregon		
Washington	Distributed generation [4] may be counted as double the facility's electrical output if the utility owns the facility, has contracted for the distributed generation and RECs, or has contracted to purchase only the RECs. Eligible renewables acquired by the utility from a facility that began operation after December 31, 2005 or where the developer used an approved apprenticeship program during facility construction may count 1.2 times its base value.	