Northwest **Power** and **Conservation** Council

August 7, 2018

MEMORANDUM

TO: **Power Committee**

FROM: **Gillian Charles**

SUBJECT: **Update on Renewable Portfolio Standards in the Pacific Northwest**

BACKGROUND:

Presenter: Gillian Charles

Summary: Staff will be presenting an update on the renewable portfolio standards (RPS) in Montana, Washington and Oregon. Since the Seventh Power Plan was adopted, Oregon has updated its standard to a more aggressive 50% by 2040 (from 25% in 2025 and thereafter). Renewable resource prices have continued to drop and federal tax incentives are set to expire in the next few years. While utilities are poised to meet near term targets with existing resources and renewable energy credits, there has been a flurry of renewable resource requests for proposals. Staff will discuss the outlook of long-term RPS compliance and explore the reasons behind the latest resource acquisition strategies.

Relevance: Staff tracks and analyzes RPS regulations and compliance as part of its generating resources work and inputs to the power plan analysis.

Workplan: Power division work plan, C.4. Update generating resources datasets and tools

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Update on Renewable Portfolio Standards in the Pacific Northwest

Gillian Charles & Mike Starrett

Power Committee

August 14, 2018

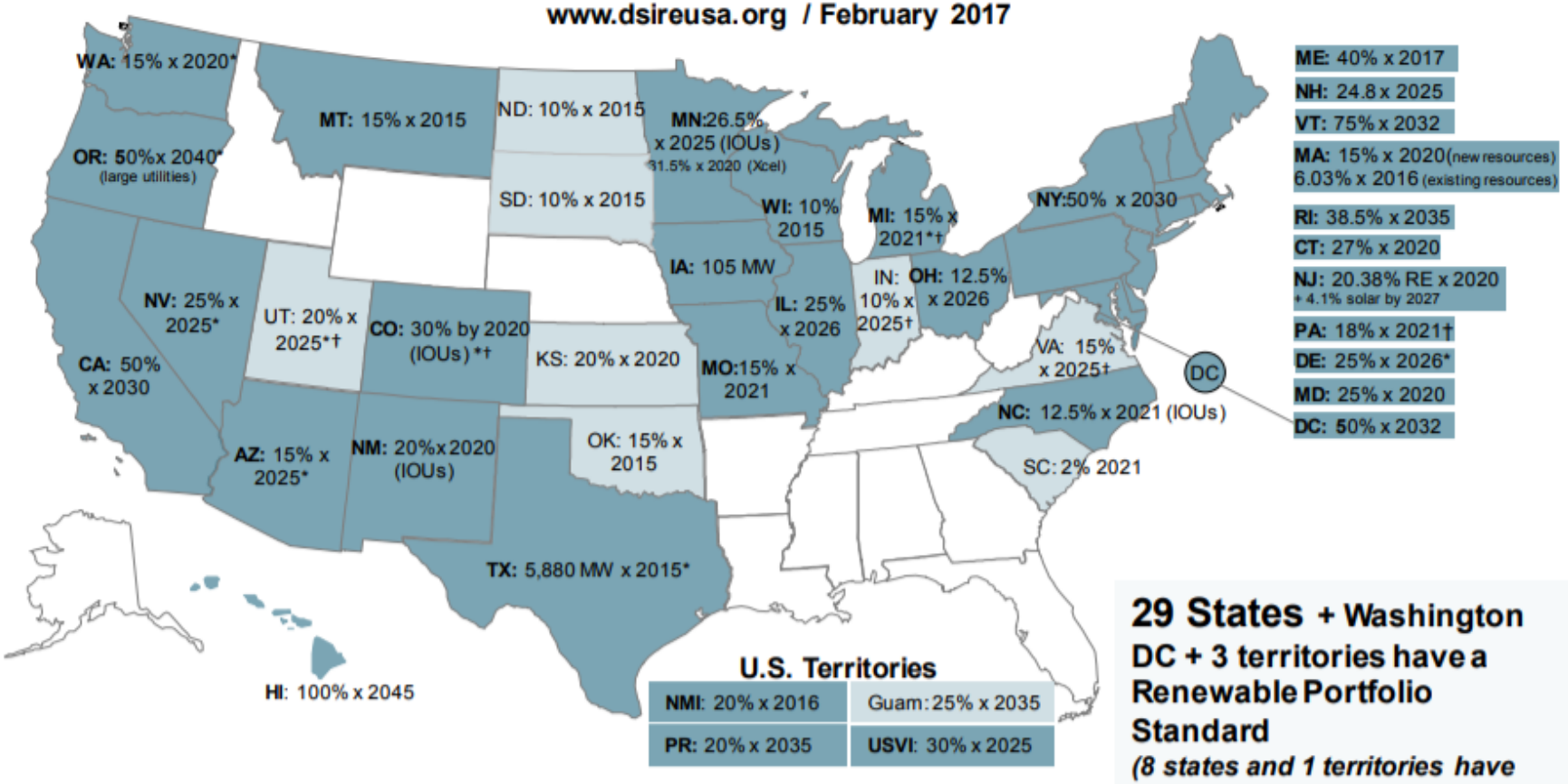
What Are Renewable Portfolio Standards?

- Renewable portfolio standards (RPS) are regulatory mandates enacted by individual states to increase the development and generation of *eligible* renewable resources
  - RPS requires a certain percentage of electricity sales be met with renewable energy resources
- No Federal RPS in place
- A renewable energy credit (REC) represents the "green" attribute of energy produced by a renewable resource

1 REC = 1 MWh

Renewable Portfolio Standard Policies

www.dsireusa.org / February 2017



U.S. Territories

NMI: 20% x 2016	Guam: 25% x 2035
PR: 20% x 2035	USVI: 30% x 2025

29 States + Washington DC + 3 territories have a Renewable Portfolio Standard
(8 states and 1 territories have renewable portfolio goals)

Renewable portfolio standard
Renewable portfolio goal

* Extra credit for solar or customer-sited renewables
† Includes non-renewable alternative resources

The Standards: Overview* (1)

	Montana	Washington	Oregon
Standard	**15% in 2015**	9% in 2016 **15% in 2020**	15% in 2015 20% in 2020 **27% in 2025** 35% in 2030 45% in 2035 **50% in 2040**
Date of Adoption	**2005** Montana Renewable Power Production and Rural Economic Development Act	**2006** Ballot Initiative – 937	**2007** Oregon Renewable Energy Act **2016 - revised** SB 1547
Sourcing Limits	Located in MT; or delivered to MT	Located in PNW or delivered on real-time basis	Located in WECC
Technology Minimums ("carve-outs")	n/a (see "additional requirements")	no	8% of Oregon's electrical capacity small scale community renewables

* This table consolidates and simplifies at a high level many of the details, nuances, and unique qualities that make up each state's renewable portfolio standard .

The Standards: Overview* (2)

	Montana	Washington	Oregon
Multipliers	None	Distributed generation (<5MW capacity) = 2x Apprenticed labor = 1.2x	Pre-2016 small solar PV (500kW – 5MW) = 2x
Banking (REC lifetime)	Two years	One year	Five years (w/ exceptions for unlimited RECs)
Unbundled RECs	Allowed	Allowed	Maximum 20% unbundled RECs per compliance year
Alternative compliance	Administrative penalty $10/MWh (not recoverable in rates)	(1) > 4% of retail revenue requirement on the incremental cost of renewable energy/RECs (2) No load growth, then >1% of retail revenue reqt	Alternative compliance payment ($110/MWh in 2014-2015)
Additional requirements	Provisions for community renewable energy projects (<25MW, local owners have a controlling interest) - 75MW capacity in 2015 and beyond	Achieve all cost-effective conservation	SB 1547 – phase out coal by 2030; pursue all cost-effective conservation and DR; propose programs for transportation electrification

Eligible Resources*

	Montana	Washington	Oregon
Anaerobic Digestion	X	X	X
Biodiesel		X	
Biomass	X	X	X
Compressed Air Energy Storage	X		
Fuel Cells	X		
Geothermal	X	X	X
Hydroelectric	X	X	X
Hydrogen			X
Landfill Gas	X	X	X
Municipal Solid Waste			X
Ocean Thermal		X	X
Solar Photovoltaics	X	X	X
Solar Thermal	X	X	X
Tidal Energy		X	X
Wave Energy		X	X
Wind	X	X	X

* This table consolidates and simplifies at a high level many of the resource requirements for eligibility. E.g. vintage requirements and energy limits.

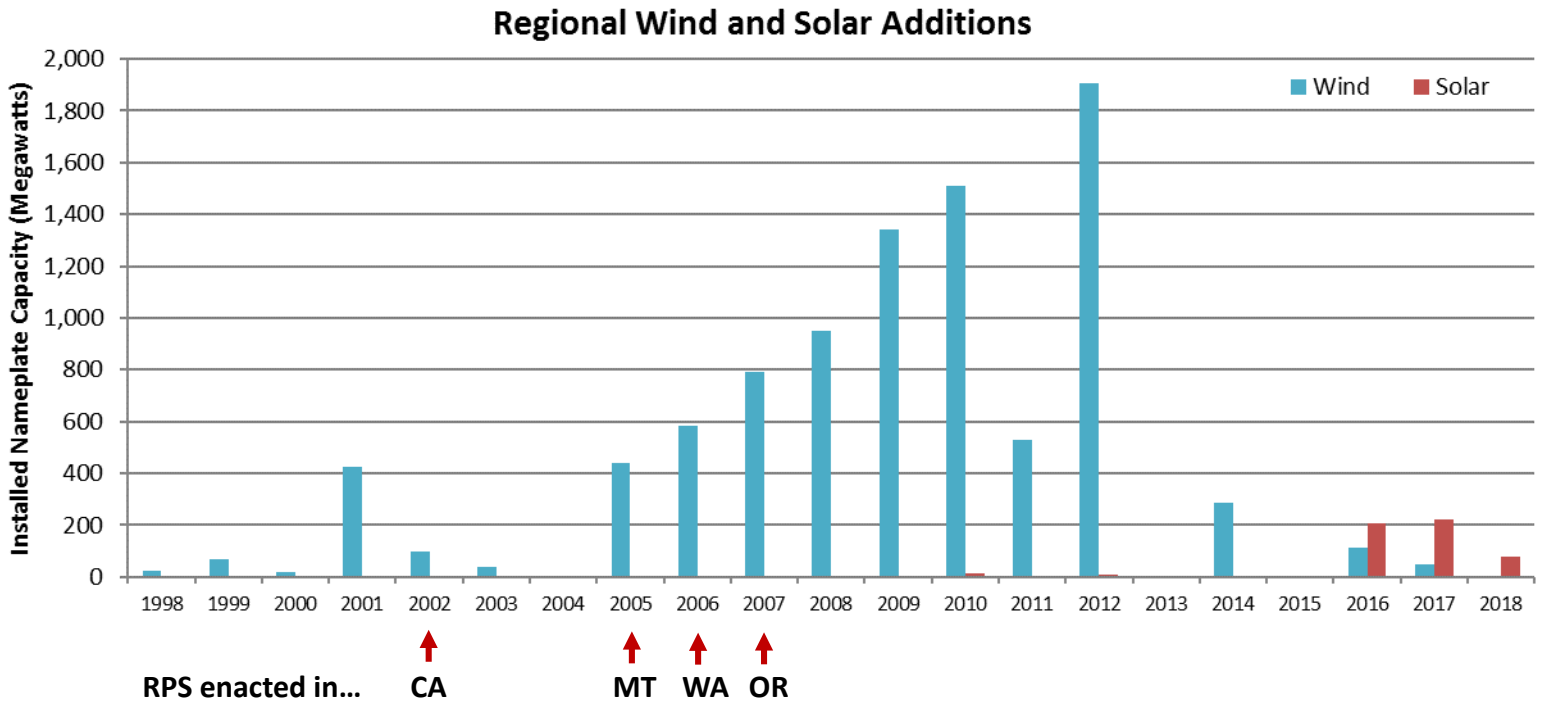
California RPS

- SB 350 (2015) set new RPS target of 50% by 2030
  - Original RPS enacted in 2002, with several amendments over the years

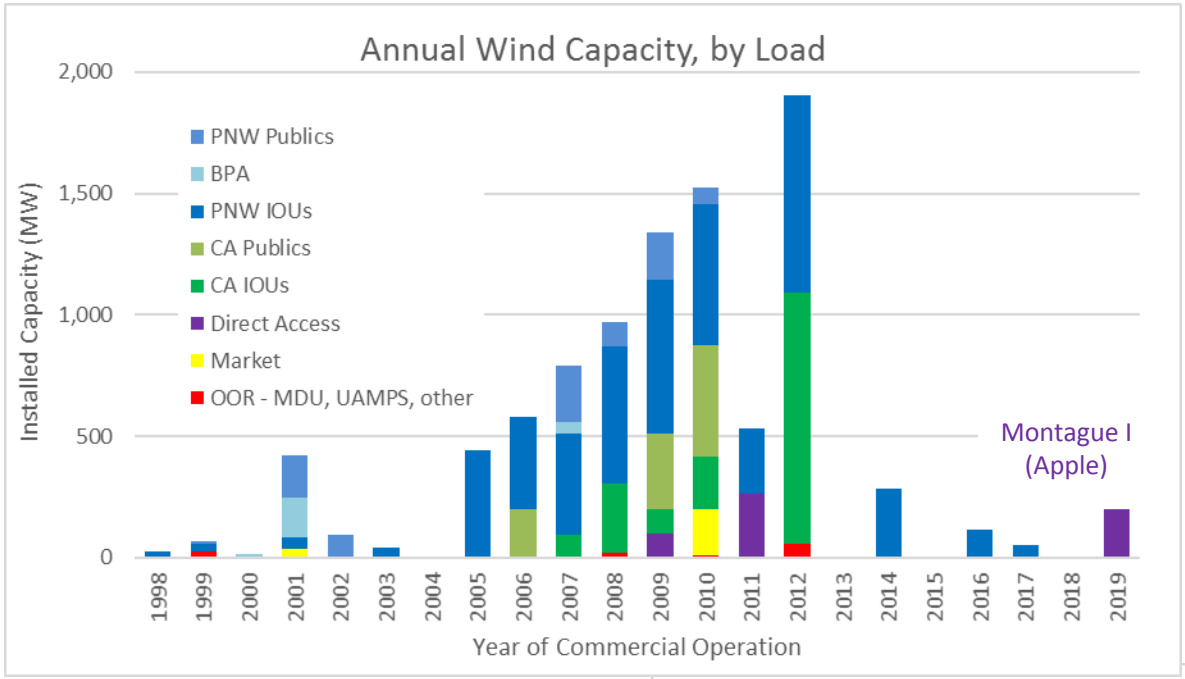
2016	2020	2024	2027	2030
25%	33%	40%	45%	50%

- Procurement categories or “buckets” requiring minimum compliance (75%) from energy/RECs delivered directly to a California balancing authority and limiting the amount of unbundled RECs (10%)
- REC banking (lifetime): 36 months

Renewable Development in the Region Since RPS enacted

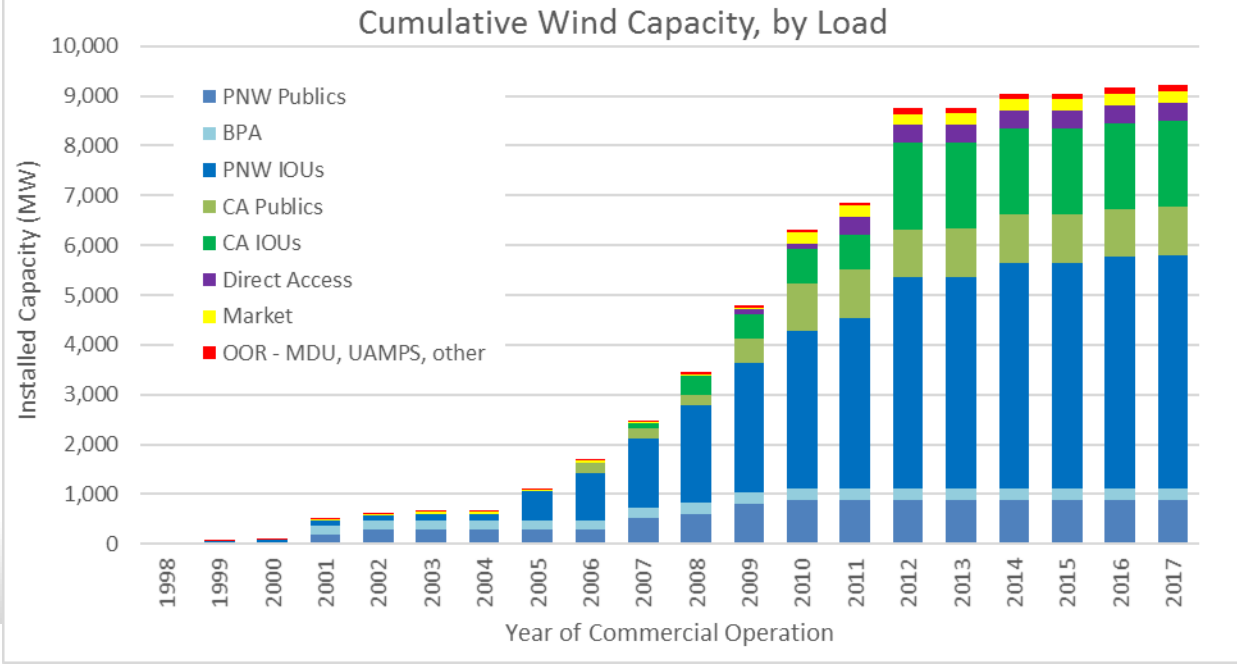


- Not shown on this chart - small geothermal, biomass, new hydro, and upgrades to existing hydropower have all been developed in the region
- Seventh Plan, Action Item RES-6 encouraged utilities to explore and analyze cost-effective resources to meet RPS (in addition to wind)

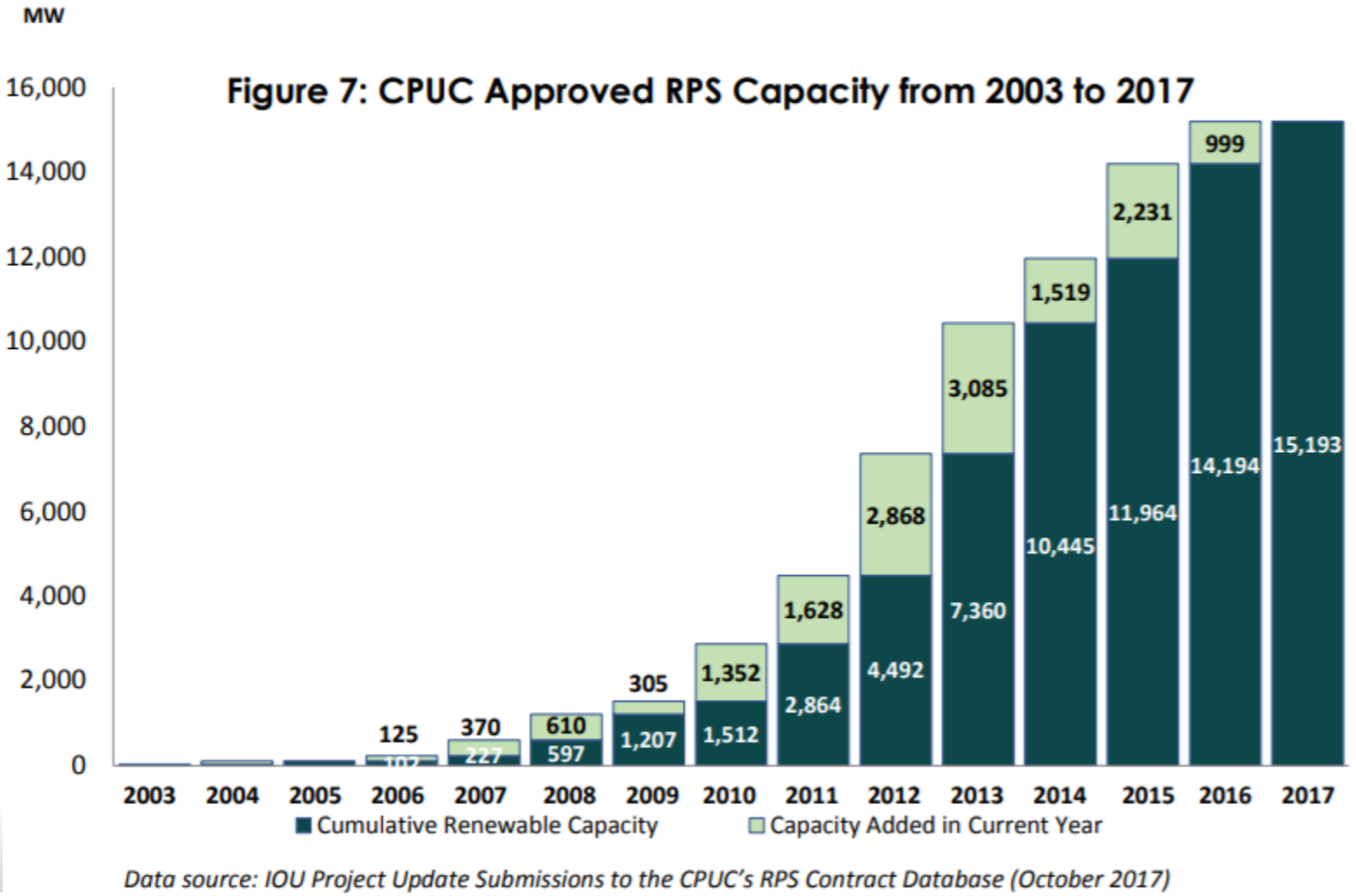


- Direct access – a customer who has access to the market and can contract with project developers directly
  - Apple contracting directly with Avangrid
  - Microsoft departing PSE to become a direct access customer (market participant)
  - In contrast to… Facebook & PacifiCorp

- About 1/3 of the current installed capacity in the region is under contract to serve California
- Majority under contract with regional IOUs



California Renewable Capacity since RPS Enacted in 2002



"Annual Report to the Legislature on Costs and Cost Savings for the RPS in 2017" (May 2018)

California Procurement Status: Actual and Forecasted

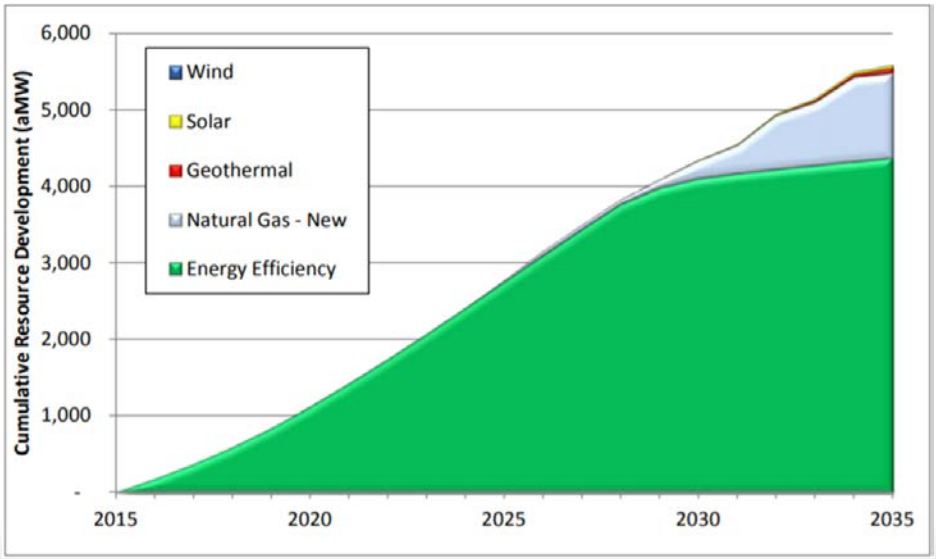
Actual RPS Procurement Percentages in 2016	
Pacific Gas and Electric	33%
Southern California Edison	28%
San Diego Gas and Electric	43%

Average Large IOU RPS Procurement (PG&E, SCE, and SDG&E)										
	Actuals						Forecasted			
	Compliance Period 1			Compliance Period 2			Compliance Period 3			
	20% Requirement			*25% Requirement*			*33% Requirement*			
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	20%	20%	23%	28%	30%	35%	38%	42%	47%	50%

Source: CPUC

Seventh Power Plan

- Analysis indicated modest new renewable resources built for RPS compliance towards the end of the planning period (2035)
  - About 250-400 megawatts installed capacity
  - Consistent with what many utilities were projecting at the time



Average regional resource build-out, "Figure 1-1: Seventh Plan Resource Portfolio" from Executive Summary, Seventh Power Plan

What has happened since adoption of Seventh Plan?

- Oregon adopted aggressive 50% RPS target and coal retirement plan (SB 1547, 2016)
  - Marginal effect on near-term targets
- Cost of renewable resources has decreased from Seventh Plan estimates
  - Wind: $1,500 - $1,700 est. capital cost
    (30-40% decrease)
  - Solar PV: $1,350 - $1,500
    (25% - 60% decrease)
- Corporations showing increased interest in procuring "green" energy; some pledging 100% renewable portfolios

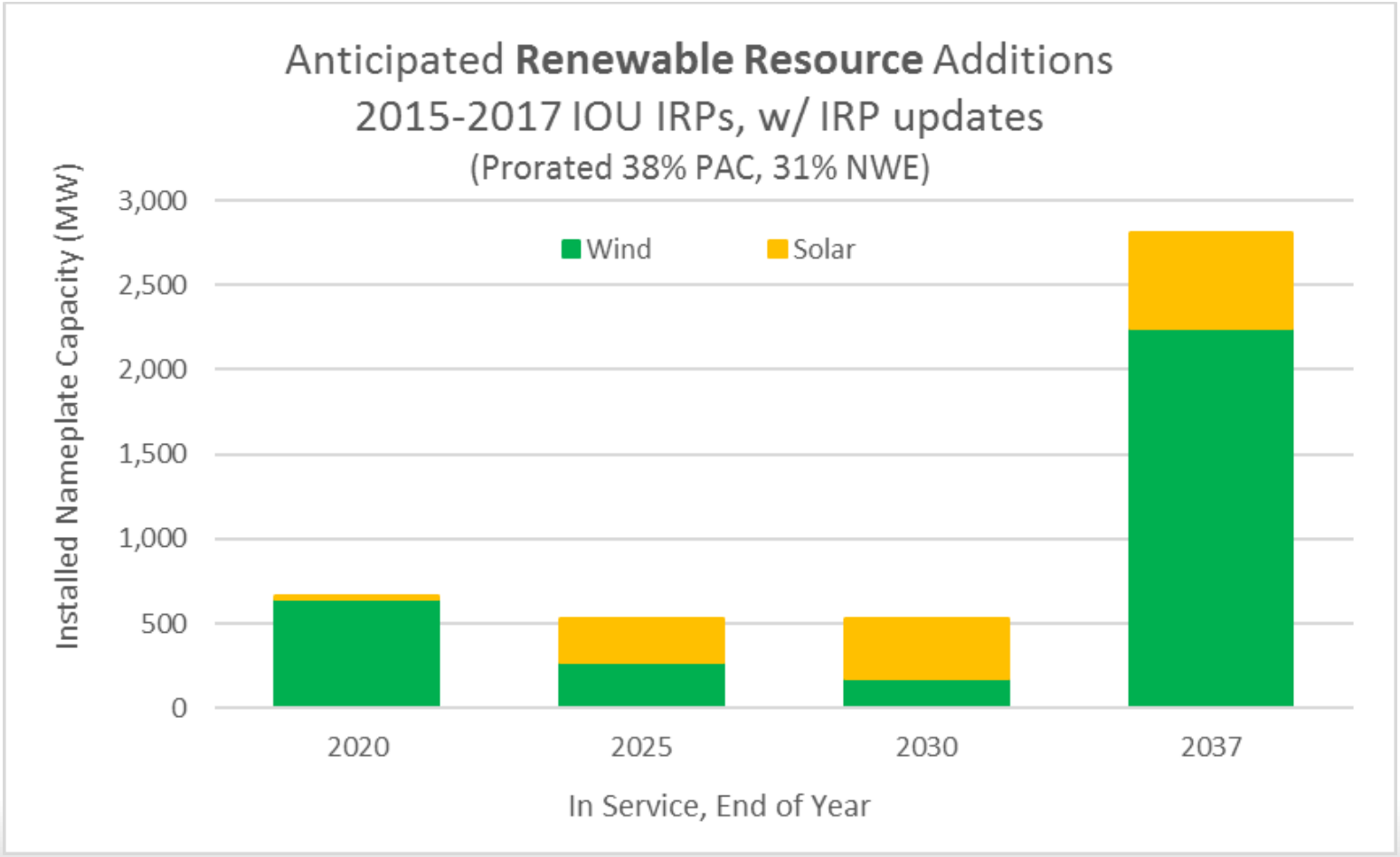
Current PNW RPS Compliance – On Track

- Considerable slowdown in renewable development (esp. wind) after 2012
  - Primarily due to utilities on track to meet near-term (thru 2020, 2022) RPS targets
  - Also attributable to uncertainty over renewal of federal tax incentives
- Solar development began in 2015, 2016 with a flurry of PURPA projects in Idaho and Oregon
- RECs from these projects assumed to stay within the region, unless known to be otherwise
- **Region well-poised to meet near-term targets**
  - With existing physical resources and unbundled RECs
  - However…

Future PNW RPS **Compliance** – Advance Procurement

- In order to take advantage of expiring federal tax incentives, utilities have been **procuring in advance of compliance need** to meet later targets
- Both PGE and PacifiCorp have pursued RFPs for resources and RECs that will be operational by the end of 2020
  - Est. 1,500 megawatts installed nameplate capacity

Anticipated renewable resource acquisitions, per latest IRPs



Outstanding Requests for Proposals - Renewables

- Several recent or current requests for proposals for renewable resources, *including and beyond RPS need*
- What is driving this resource acquisition?

(Hand-off to next presentation…)

Questions?