Draft 2015 Annual Budget & 2015-2016 Action Plan

October 22, 2014

Energy Trust of Oregon

Today's presentation

Investment Strategy and Approach

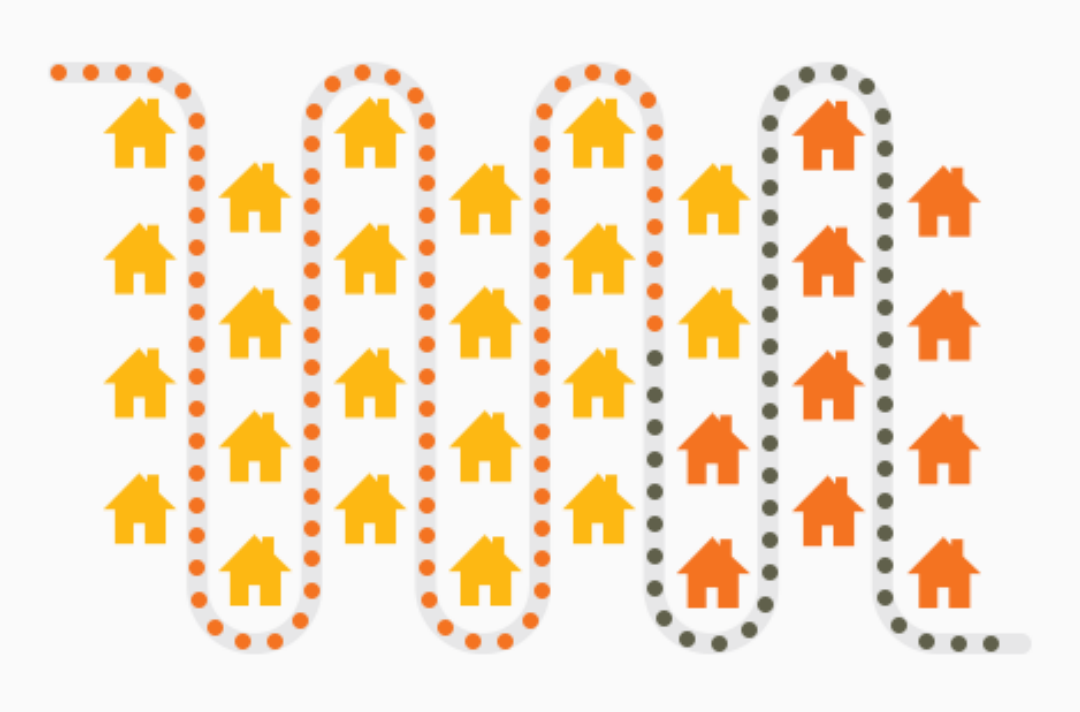
Draft RE Budget—Overall Highlights

Draft Budget and Action Plan—Program Highlights

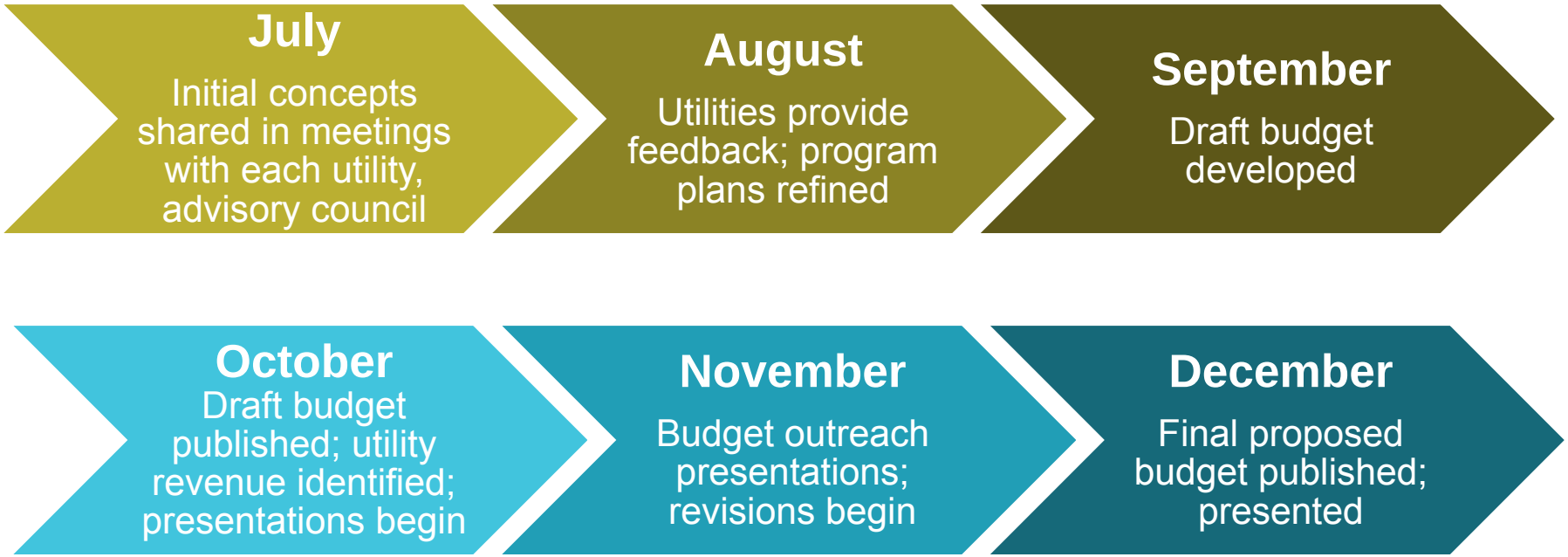
Discussion and Next Steps

A clean energy power plant

- 436 average megawatts saved and 112 aMW generated
- 33 million annual therms saved
- Enough energy to power 425,000 homes and heat 65,000 homes for a year
- $1.7 billion saved on participant energy bills so far

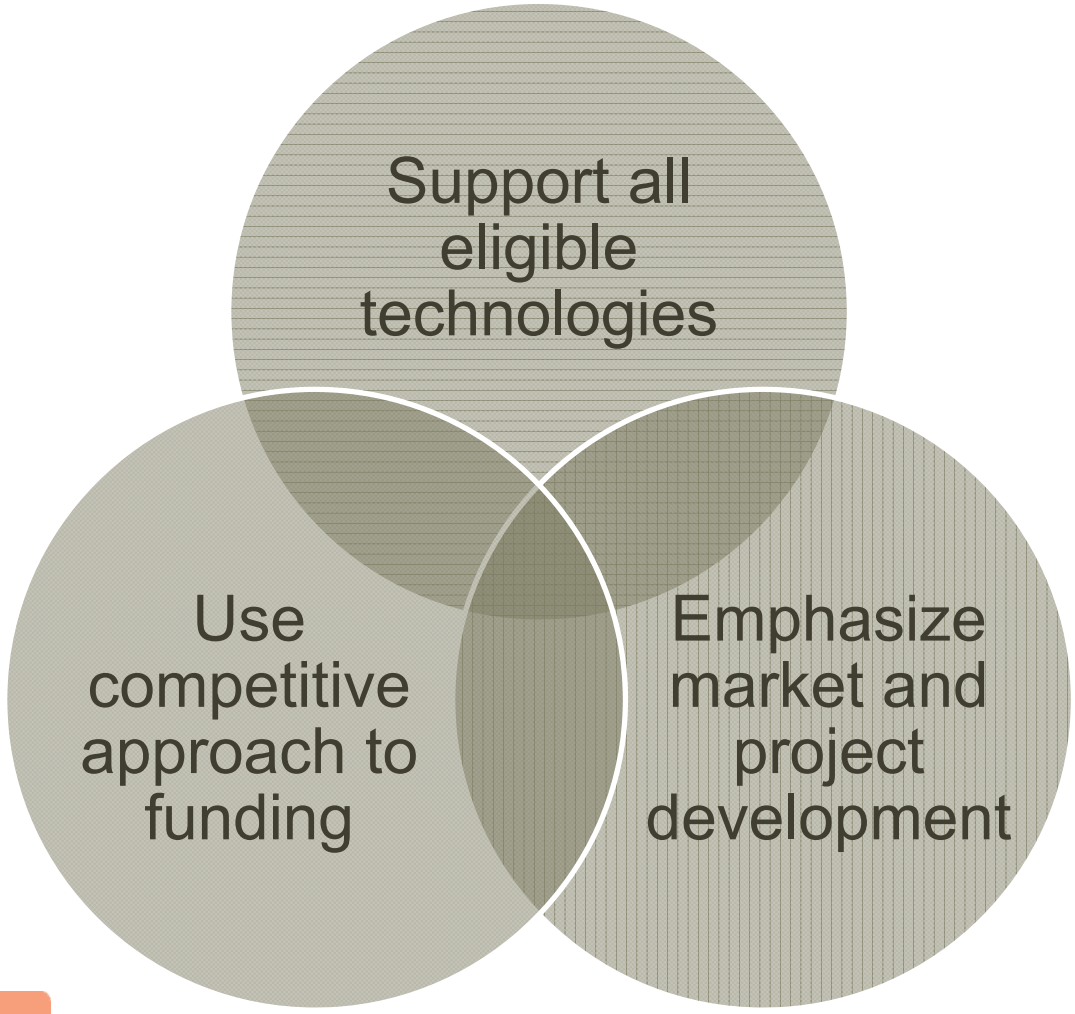


Budget and action plan development process



Four building blocks for budget & action plan

Strategic Plan renewable energy strategies

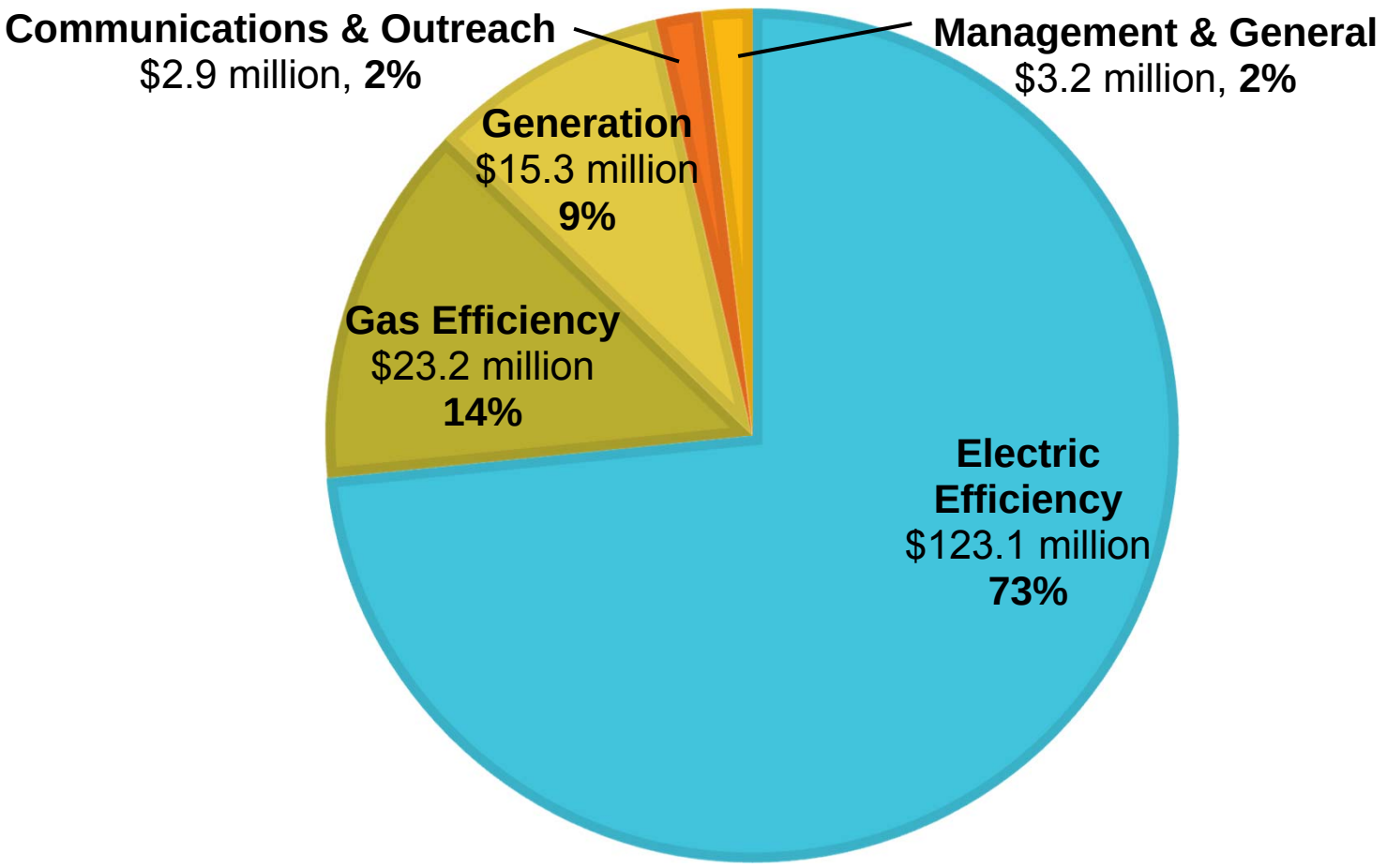


Draft 2015
Annual Budget

Top takeaways

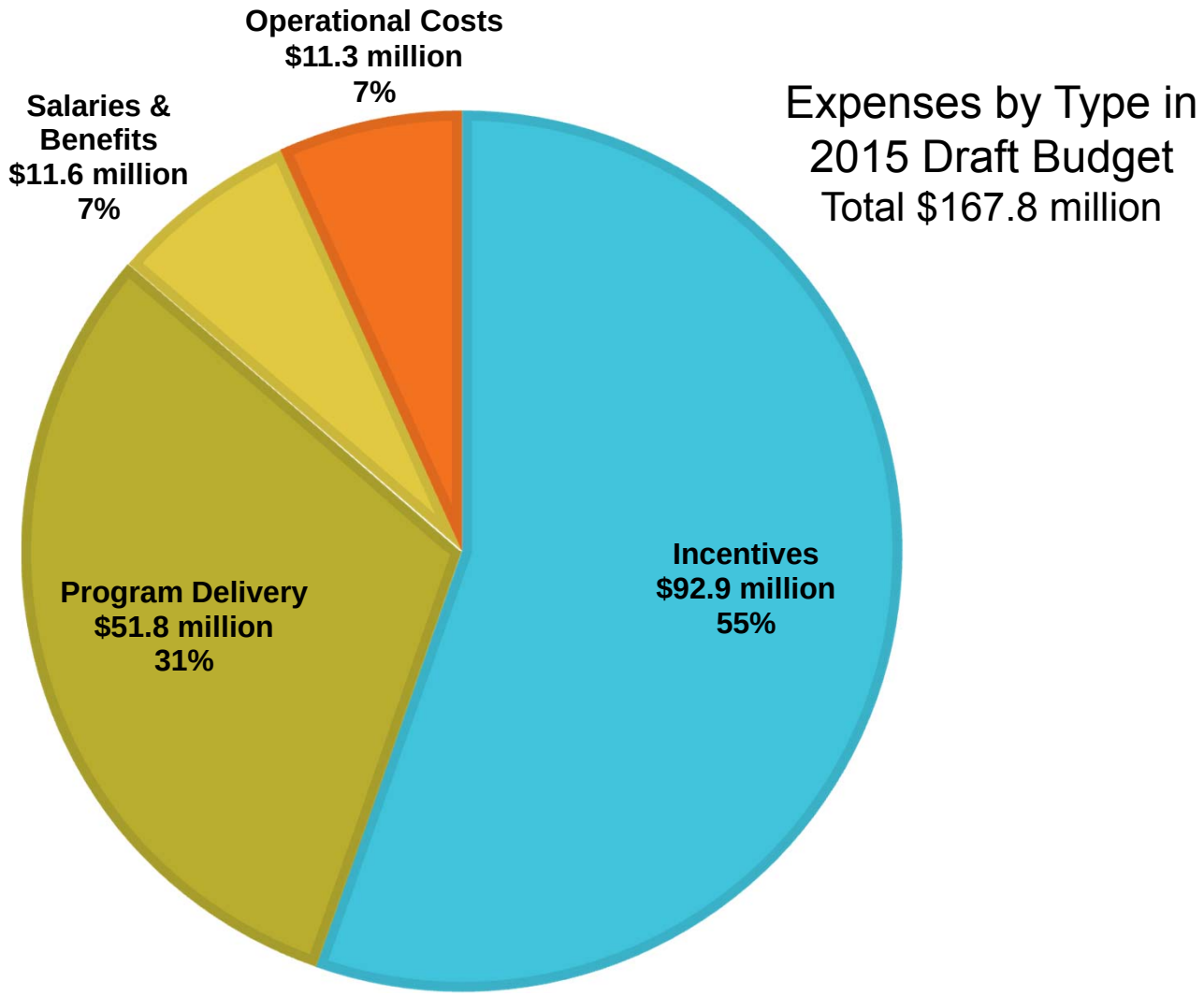
1. Built on input received, strategic plan and independent management review findings
2. Greater complexity and emphasis to expand participation
3. Increasing pressure from lower avoided costs
4. Lower savings and generation acquisition compared to historic exponential growth
5. 4.8% reduction in overall planned expenditures
6. Intentional reduction in amount of public purpose charge collected
7. Progress toward lowering reserve accounts
8. Investment in operational efficiency gains
9. Continued low levelized costs and low administrative and program support costs

2015 budget at a glance



Budgeted expenditures to decrease from $176.2 million to $167.8 million, down 4.8%

Incentives, delivery and other costs



Staffing to support action plan focus areas

Convert two existing temporary contractors to staff

- Industrial Program Coordinator
- Communications and Customer Service Coordinator / Analyst

Outcomes:

- Address growth in industrial sector; maintain excellent customer service; pursue data analysis for improved outreach; support growth in web forms

Add two new full-time positions

- Planning Engineering Manager
- Technical Manager - Industrial

Outcomes:

- Address growth in engineering workload as a result of new technology work; increased regional coordination for emerging technology issues
- Address growth in industrial sector

Manage growth in staffing costs

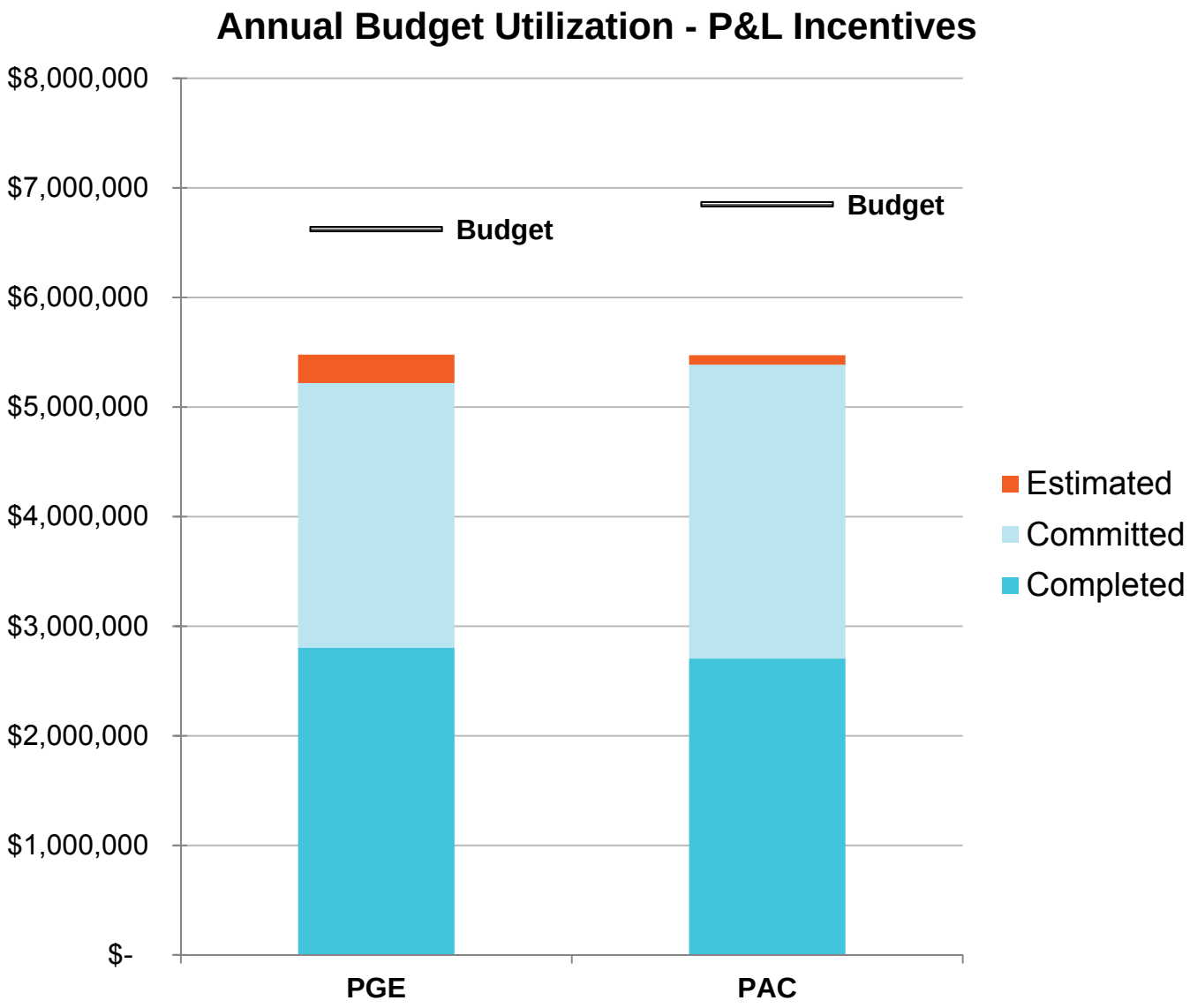
- Lower medical benefit, agency and unemployment costs expected in 2015 as a result of competitive bidding, self-insuring and lower utilization

Outcomes:

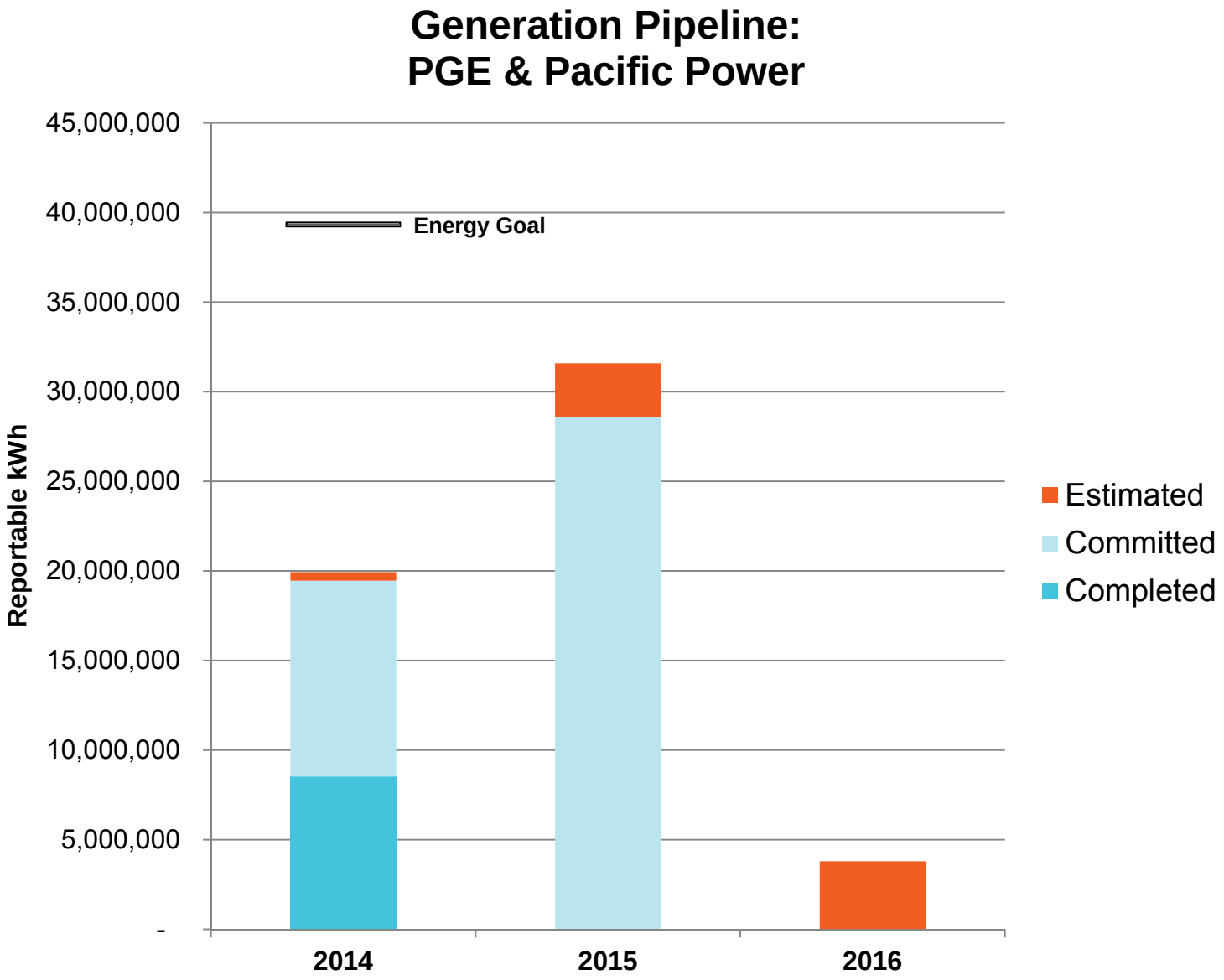
- Overall staffing cost is flat; savings from medical and unemployment costs combined with less personnel agency expenses offset new staff and other scheduled increases

Renewable Energy Sector

2014 results



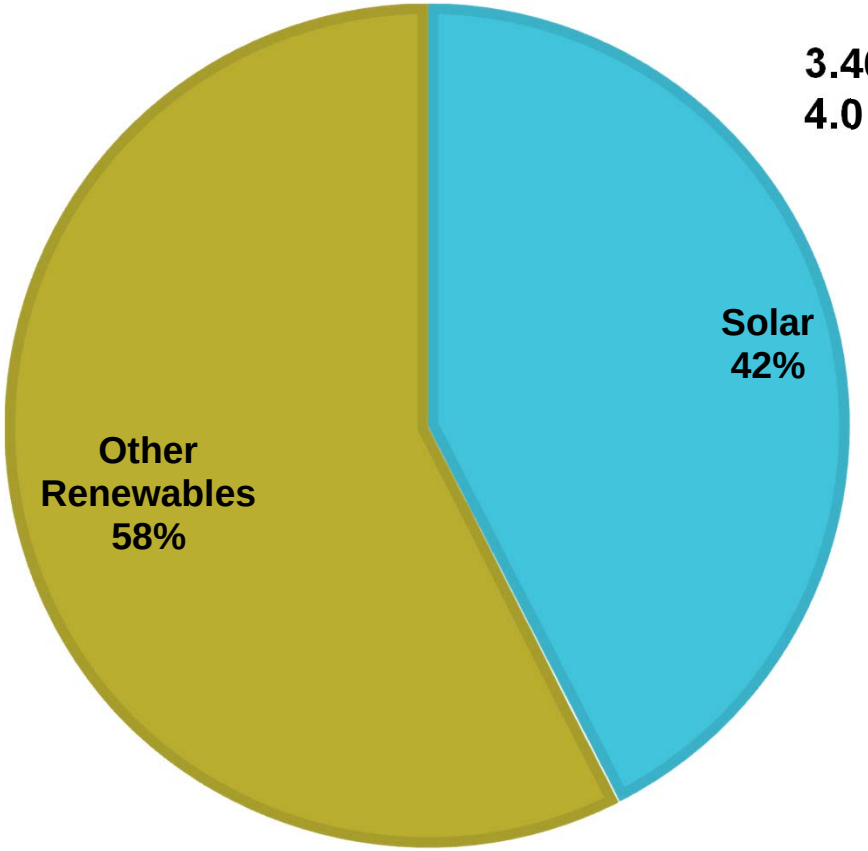
2014 generation dashboard



2015-2016 renewable energy budget themes

- Support completion of non-solar projects currently under construction.
- Support predictable standard Solar program and incentives
- Pipeline building for non-solar technologies
- Expand focus on market and project development
- Use competitive processes to allocate incentive funds across technologies.

2015 renewable energy programs (aMW)

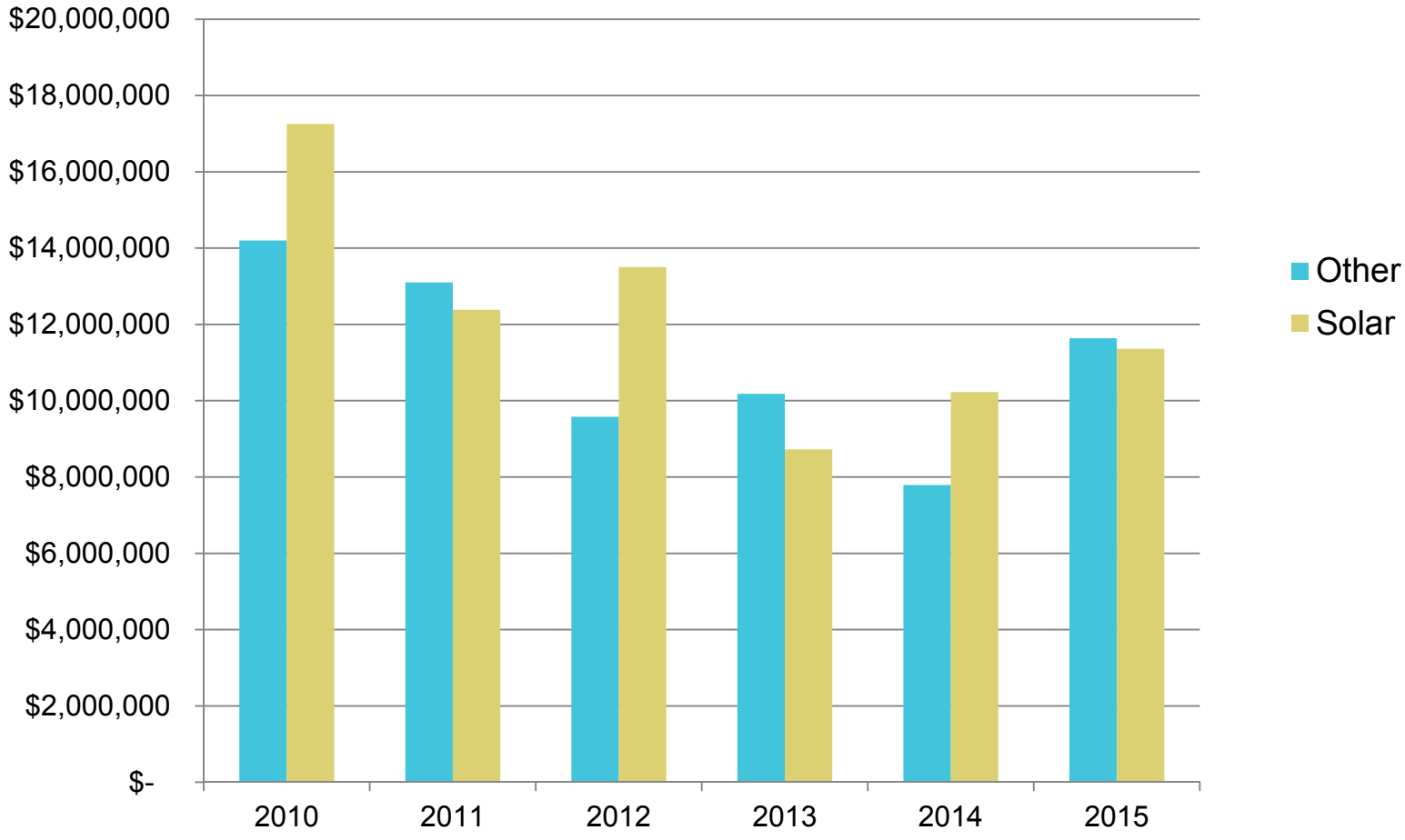


3.46 aMW goal,
4.0 cents/kWh levelized

- Four non-solar projects currently under construction
- Standard solar plus one custom project
- Investing $16 million in incentives, services and program delivery for clean, renewable power

Ro1

Renewable energy activity budget trends



	2010	2011	2012	2013	2014	2015
Total	$31 mil	$25 mil	$23 mil	$19 mil	$18 mil	$23 mil

Ro1

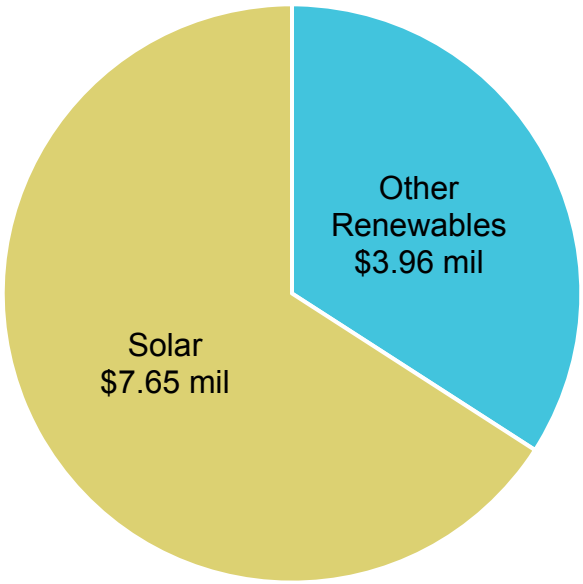
2015 renewable energy activity budget and generation

	Total costs		
	$ Million	% Total	aMW
Other Renewables	$11.6	50.6%	1.81
Solar	$11.4	49.4%	1.35
Total	**$23.0**	**100%**	**3.16**

2015 renewable energy activity budget and generation vs. 2014

	Total Budget 2014		Total Budget 2015	
	$ Million	aMW	$ Million	aMW
Other Renewables	$7.8	1.39	$11.6	1.81
Solar	$10.2	0.81	$11.4	1.35
Total	**$18.0**	**2.20**	**$23.0**	**3.16**

2015 renewable energy activity budget: PGE

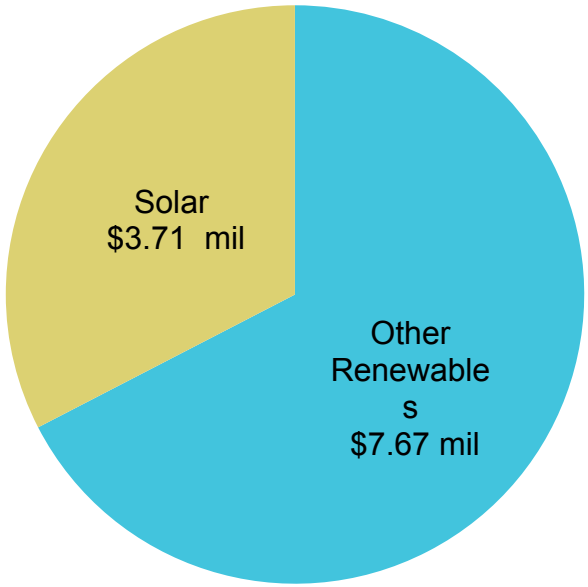


	$ Million	% of Budget	aMW
Other Renewables	$3.96	34%	0.57
Solar	$7.65	66%	0.84
Total	**$11.61**	**100%**	**1.41**

- Heavily weighted to solar but still provides room for custom programs to commit to projects (WWTP, small wind, municipal hydro in pipeline)
- Expand PGE standard solar incentive to projects > 250 KW
- Unallocated non-solar incentives redirected to solar projects

Ro1

2015 renewable energy activity budget: Pacific Power



	$ Million	% of Budget	aMW
Other Renewables	$7.67	67%	1.24
Solar	$3.71	33%	0.51
Total	**$11.38**	**100%**	**1.75**

- Continue competitive process for non-solar projects, focus on project and market development assistance
- Maintain viable standard solar incentives
- Unallocated non-solar incentives redirected to solar projects

Ro1

Other Renewables: Strategies and Activities

- Complete four projects currently under contract
- Primary focus on hydro and biogas opportunities
- Build a pipeline of projects
- Improve performance of existing projects
- Continue to use competitive processes to allocate funding across technologies

Other Renewables: Initiatives

- Execute the first year of a hydropower initiative
- Gather, analyze and share project performance information, including operations and maintenance costs.
- Develop a new offering to assist existing projects in optimizing performance.
- Expand relationships in the wastewater sector, and develop relationships and market understanding in forest biomass and food processing sectors

Other Renewables: Links to the Strategic Plan

The Other Renewables Program Plan supports the key elements of the 2015-2019 Strategic Plan:

- Support all eligible technologies
- Emphasize market and project development support
- Utilize experience with current projects to support future projects
- Use competitive processes to fund new projects

Solar: Strategies and Activities

- Incentives
  - Maintain momentum with predictable standard incentives for residential and small to mid-scale commercial solar
  - As costs decrease, ratchet down incentives by small increments (5-10%) to support more volume
  - If funds available, competitive opportunities for custom solar
- Market Development
  - Build pipeline of solar projects with more proactive marketing, promotion and lead generation
  - Collaborate with regional stakeholders to lower non-hardware “soft” costs
  - Support contractor business development with a focus on improving customer acquisition success

Solar: Initiatives

- Building off soft-cost benchmarking survey results (Q1), develop a roadmap for continued soft-cost reduction in Oregon
- Streamline applications with electronic signatures and direct integration with RETC application (Q1)
- Develop trade ally marketing and sales toolkit (Q2-Q3)
- Evaluate the effectiveness of Mapdwell, and possibly expand service coverage (Q2-Q3)
- Support an impact evaluation of solar electric program to verify our generation methodology

Solar: Links to the Strategic Plan

The Solar Program Plan supports the Renewables goals and key elements of the 2015-2019 Strategic Plan:

- Between 2015 and 2019, install 10 aMW of renewable energy
- Sustain a vibrant small and mid-scale market that produces continual growth in project installations
- Emphasize market and project development support
- Use competitive approaches for non-standard projects

Wrap Up

Benefits from 2015 investments

- **$525 million in future bill savings** for 2015 participants
  + jobs, wages and business income from bill savings recirculating in our local economy
- Energy improvements at **homes and businesses** throughout Oregon and southwest Washington
- **Affordable energy** at **3.1** cents/kWh and **34.4** cents/annual therm
- Enough clean **energy to power 43,700 homes** and **heat 11,400 homes**
- **Improved air quality** by avoiding **222,000 tons** of carbon dioxide
- Continued high customer satisfaction
- Increased visibility, access and participation statewide
- Training and **support for nearly 2,700 local businesses**

Budget outreach schedule

October & November

RAC/CAC presentations Oct. 22

Draft budget online, Oct. 31

Board of Directors, Nov. 5

OPUC workshop, Nov. 12

Utility presentations, Oct. 29
Nov. 6, 11, 13

Live webinar, Nov. 12

Public comments due Nov. 19

RAC/CAC updates, Nov. 21

OPUC public meeting, Nov. 25

December

Comments reviewed

Final adjustments, if needed

Final proposed budget online, **Dec. 4**

Board of Directors, **Dec. 12**

Action on Final Proposed
2015-16 Budget and Action Plan

+ **www.energytrust.org/about/budget**
Send comments to info@energytrust.org

Discussion and feedback

- What questions do you have?
- What information needs clarification?
- Other feedback?

+ www.energytrust.org/about/budget
Send comments to info@energytrust.org; comments due Nov. 19

Thank you

1.866.368.7878
www.energytrust.org

EnergyTrust of Oregon

2015 PGE renewable energy program

	2014 Budget Generation in aMW	2014 Forecast Generation in aMW	2015 Budget Generation in aMW	2015 Renewables Cost ($ Millions)	Levelized Cost (Cents/kWh)
Other Renewables (65%)	0.25	--	1.75	$2.47	1.2¢
Solar (35%)	0.60	0.73	0.94	$8.14	7.6¢
TOTAL	**0.85**	**0.73**	**2.69**	**$10.61**	**3.5¢**

* % of total 2015 generation

2015 Pacific Power renewable energy program

	2014 Budget Generation in aMW	2014 Forecast Generation in aMW	2015 Budget Generation in aMW	2015 Renewables Cost ($ Millions)	Levelized Cost (Cents/kWh)
Other Renewables (31%)	1.59	1.24	0.24	$2.2	8.0¢
Solar (69%)	2.05	0.41	0.53	$3.2	5.2¢
TOTAL	**3.64**	**1.65**	**0.77**	**$5.4**	**6.1¢**

* % of total 2015 generation

EPA's Proposed Clean Air Act Sec 111(d) Power Plant Rule

Colin McConnaha, ODEQ
Jessica Shipley, ODOE

September 25, 2014

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Overview

- Clean Air Act authority
- §111(d) emission reduction goals
- Compliance considerations for Oregon
- Oregon's GHG goals
- OGWC resolution considerations

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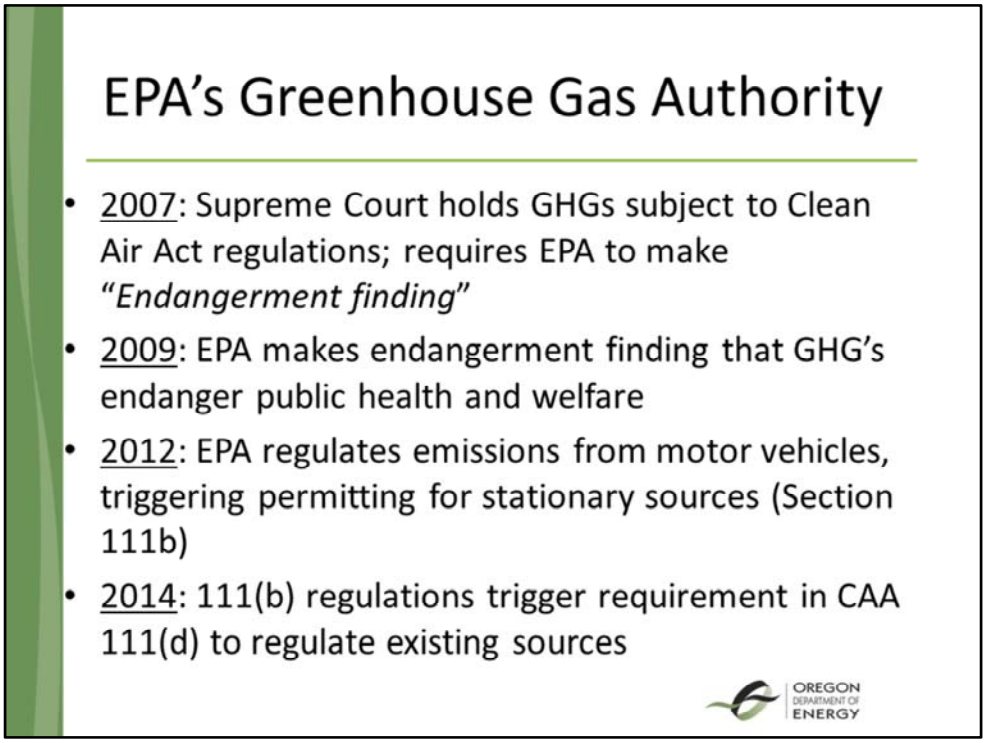

A little bit of history before digging into the rule. This is the background behind the authority EPA has to regulate CO2.

In 2007 the Supreme Court required EPA to determine whether GHG's endangered public health and welfare.

IN 2009, the EPA did so, in what is called "the endangerment finding" – this kicked off the regulatory process for motor vehicles, the first step EPA is required to take

In 2012, they issued regulations for motor vehicles which kicked off permitting for new stationary sources

The 2014 proposal for existing sources was triggered by the regulation of new sources.

CAA Section 111 Context

- EPA proposed CO2 reductions from new power plants through performance standards under **§111(b)**
- EPA is now proposing CO2 emissions guidelines for existing power plants under **§111(d)** that will lead to performance standards set by states.

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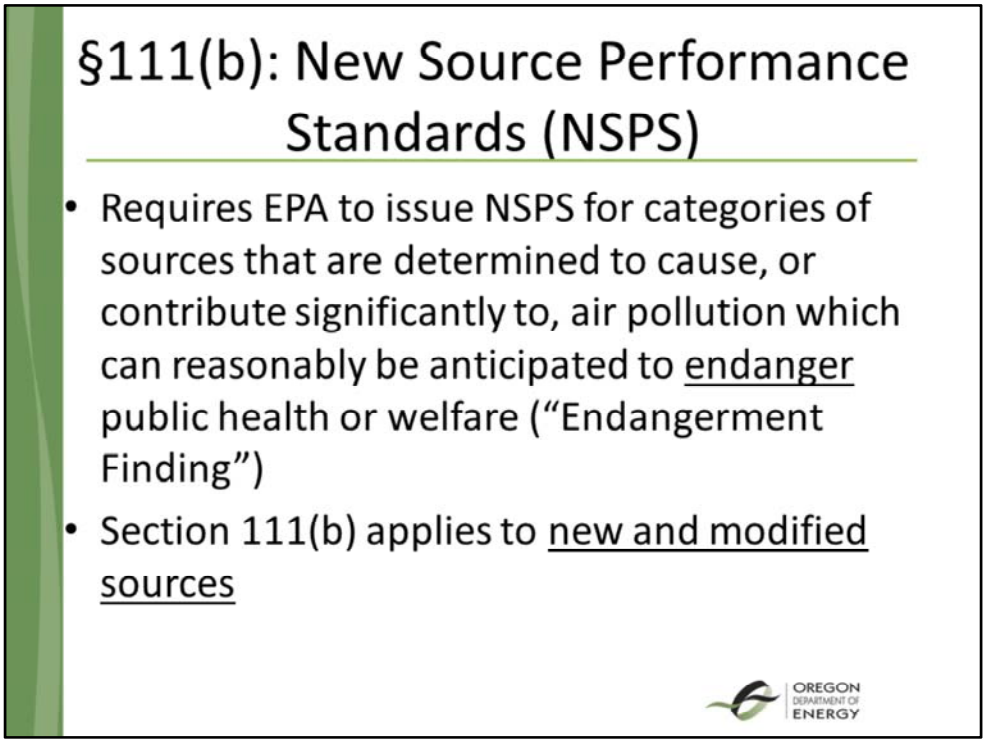


New and Modified:

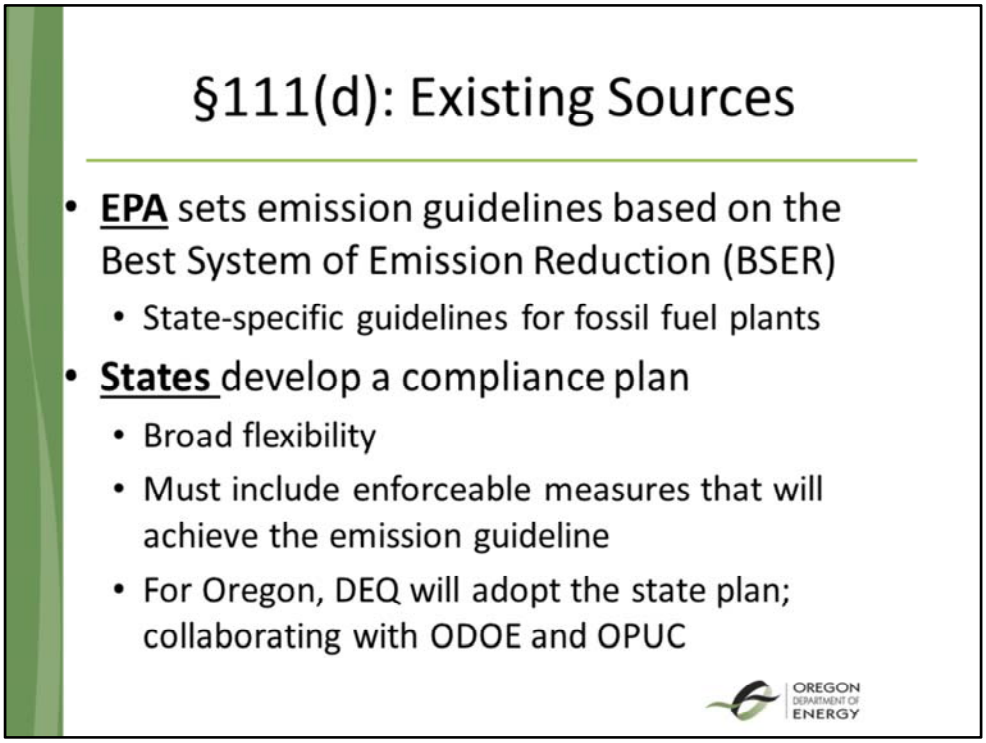
Has not commenced construction at time of proposal

OR

An existing source triggers and is subject to new source standards if it:

Modifies: Make a physical or operational change and increase hourly maximum emission rate achievable in the last 5 years.

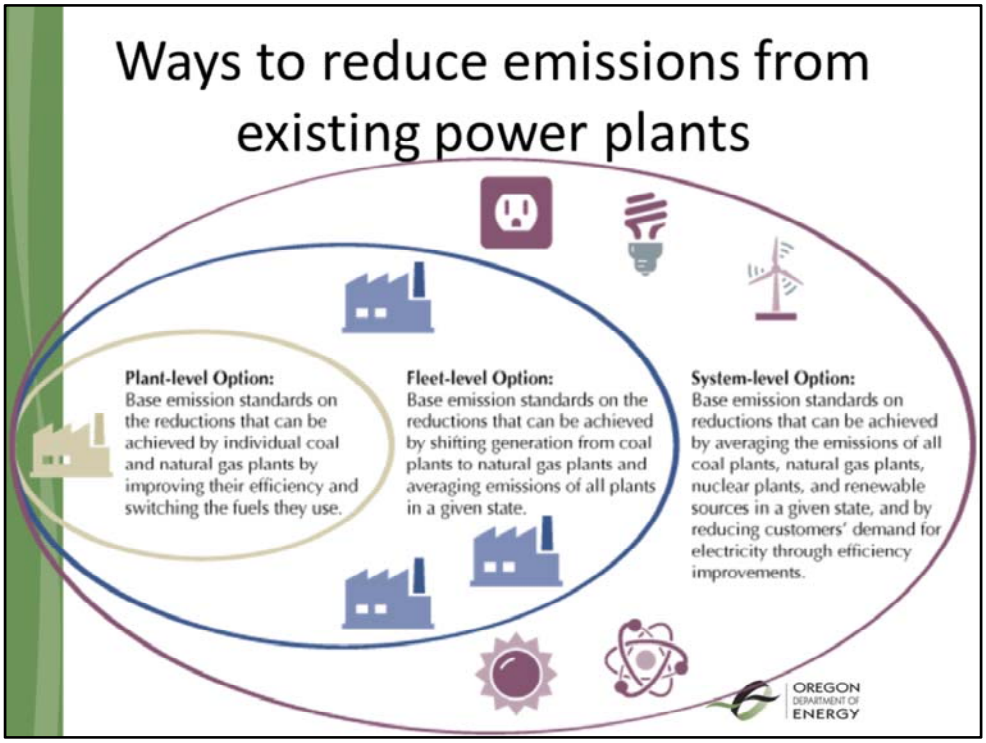
Reconstructs: Defined as spending more than 50% of cost to replace affected facility.



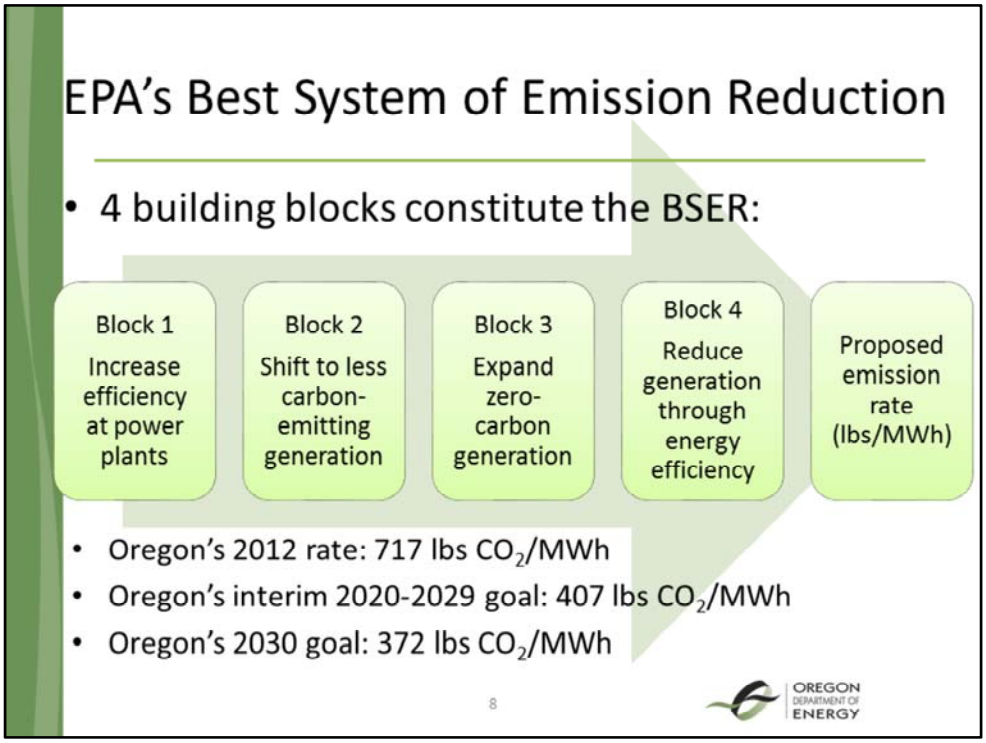
- ***Existing Source BSER*** differs from New Source BSER because existing sources may not always have the capability to achieve the same levels of control at reasonable cost as new sources
- This question is whether EPA can set the emission guideline by accounting for emission reductions that occur from measures that reduce demand on electric generating units. In other words, could EPA set the emission guideline by taking into account the reductions that can occur from expanding renewable energy generation and investing in energy efficiency?
- Recall that I mentioned that the Clean Air Act directs EPA to set the emission guideline based on the "Best System of Emission Reductions"
- So, this question of EPA authority really hinges on how the system is defined.
    - Is this system "inside the fenceline" of the power plants, in other words just encompassing measures that can be done at the plants themselves to make them operate more efficiently?
    - Or, does the system refer to the broader power system and acknowledge the reductions at fossil fuel plants that are achievable by lowering demand on the facilities through renewable power and end use energy efficiency?
    - The difference between these two interpretations of the "system" are huge. On one hand, reductions from measures inside the fenceline might achieve reductions on the order of 5%, while cost effective measures throughout the power sector could achieve many times this.
- EPA provided their answer to this question in their proposal be incorporating the reductions from renewables and energy efficiency in their emission guideline.
- So, although legal challenges are certain, EPA feels they have authority to define the system broadly.

- Section 111(d) gives EPA significant discretion to determine the appropriate level of emission reduction which is called the best system of emission reduction".

- Once EPA has determined the Best System of Emission Reduction, EPA gives states broad flexibility to develop plans to identify measures they want to use to meet that emission guideline.



Note that fleet and system level options will be limited by state boundaries in the absence of multi-state agreement flexibility



EPA has divided their emission guideline into 4 blocks

Improve efficiency at coal power plants

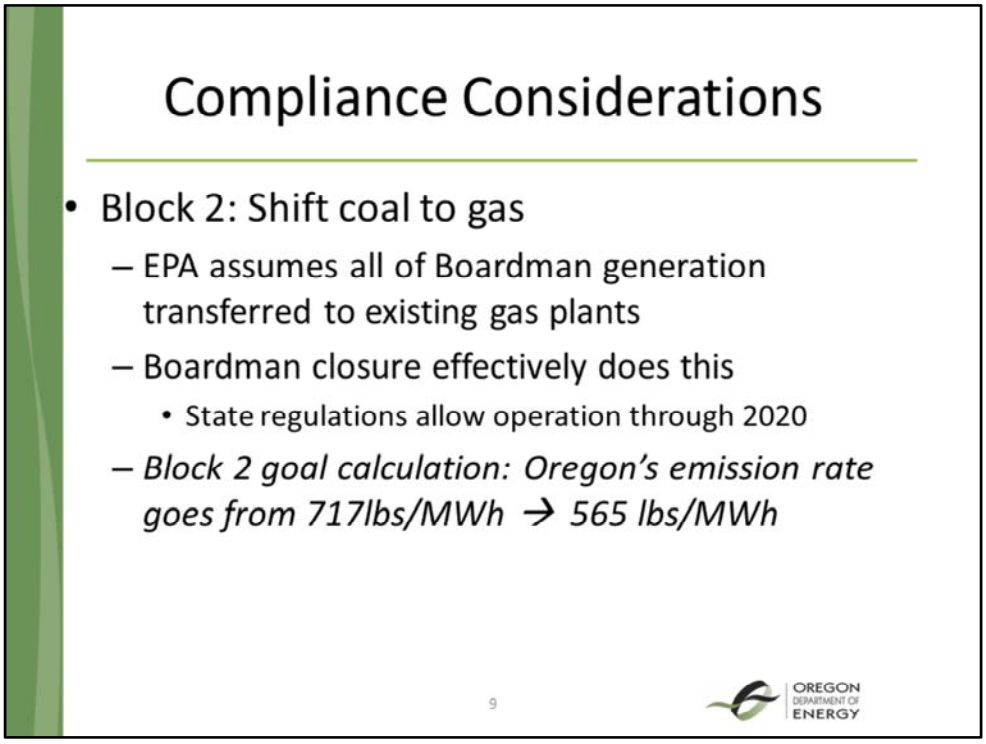
Shift coal power to under-utilized gas plants

Expand renewable energy

Reduce electricity demand through energy efficiency

Note for block 3 that the alternative method exists and that EPA has put equal weight on both possible approaches in their requests for comments from stakeholders

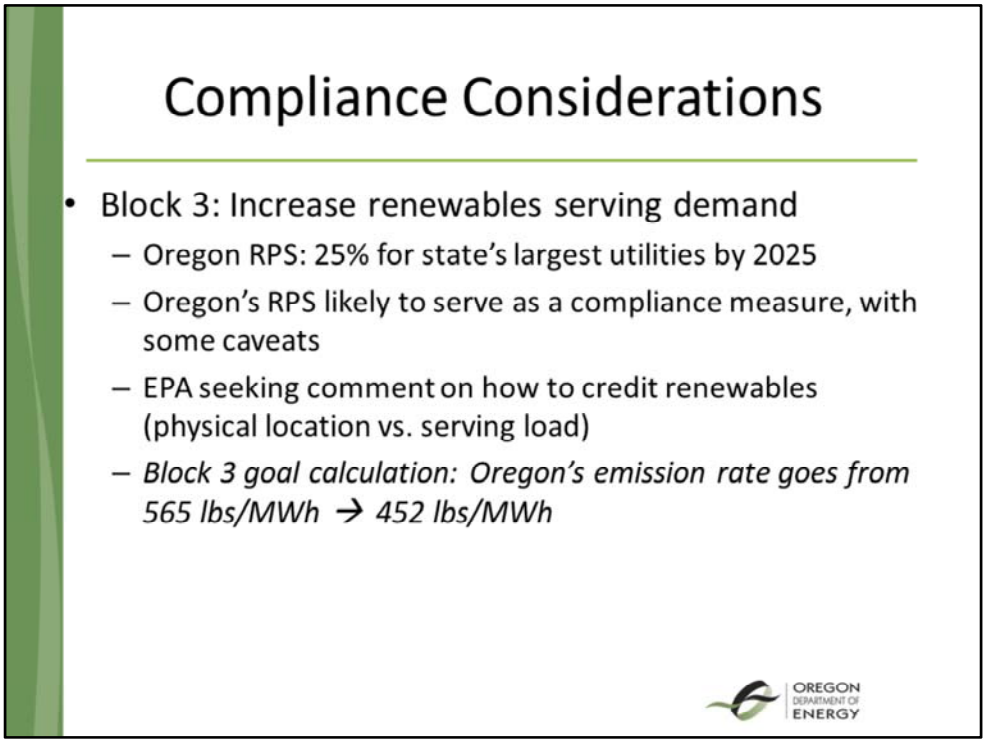
- EPA has applied the emission reductions from each of these blocks to 2012 generation and emission data to craft the goal. The 2012 emission rate comes from EPA's calculations – our fossil fuel rate, which is reduced to 717 because of the inclusion of EPA's assumptions about our renewable generation.
- The first compliance obligation begins in 2020, and consists of a decade-long interim goal that must be achieved on average from 2020 through 2029.
- States must then meet their final emission rate target by 2030.
    - *These final targets must be met on a three-year rolling average basis.*
- The emission rate of fossil fuel EGUs in Oregon in 2012 is 717 lbs CO2 per MWh
- The interim emission rate that Oregon must meet on average during the 2020s is 407 lbs per MWh
- The final emission rate for Oregon on 2030 and beyond is 372 lbs per MWh
    - This is a 48% reduction



- The first block – operating efficiency improvements at existing coal plants – doesn't really apply in Oregon. We have just one coal plant, and the second block of EPA's emission guideline effectively shuts down Boardman.

- The second block of EPA's emission guideline transitions generation at coal plants to what EPA deems are under-utilized existing natural gas plans. For Oregon, this translates to transferring all the generation at Boardman to available capacity at existing gas plants in Oregon.

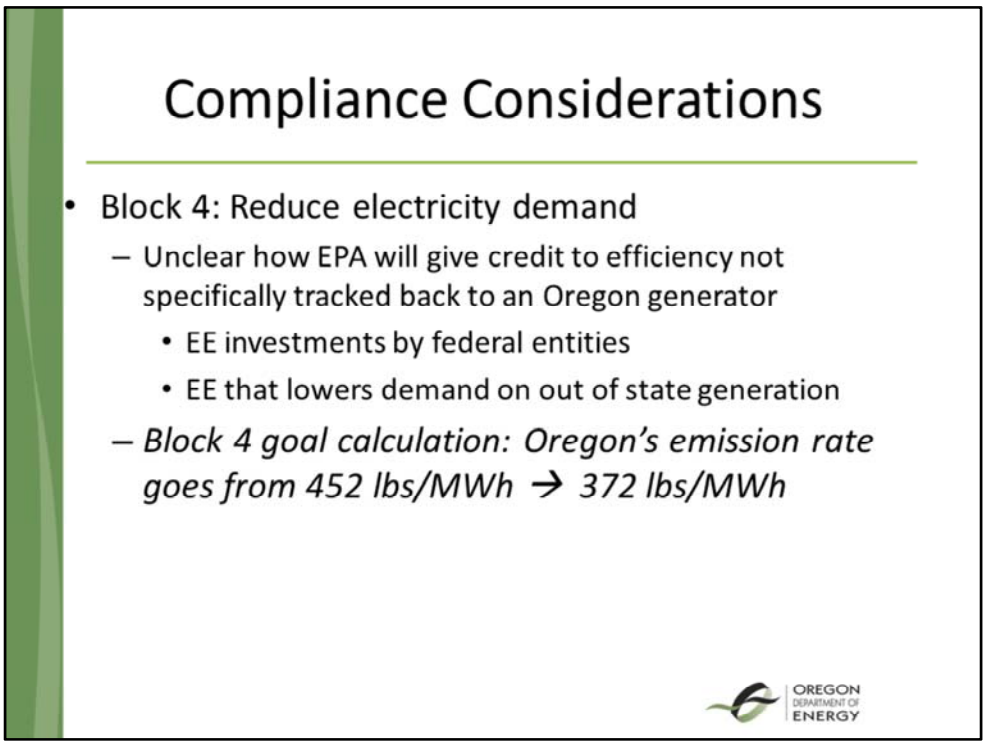
- Of course, we already have an agreement in place to shut Boardman down at the end of 2020, which happens to be toward the beginning of the interim compliance period in EPA's proposal.
    - *Oregon's existing emission rate – 717lbs/MWh – is lowered to 565 lbs/MWh with block 2. I should note that transitioning Boardman's power to non-111(d) generation lowers Oregon's emission rate further, down to 525 lbs/MWh.*



- The next block in EPA's emission guideline incorporates reductions that could occur from developing new renewable energy to offload demand on existing fossil fuel plants and thereby lower their emissions.
  - *EPA's Block 3 lowers Oregon's emissions by assuming Oregon could grow the amount of renewable energy serving our demand to 12,500 GWh.*
  - *When stacked on top of Block 2 that I just described, Block 3 lowers Oregon's emission rate to 452 lbs.*

- Oregon's Renewable Portfolio Standard may already require a similar amount of renewable energy to be used by Oregon's utilities.
  - *Our current estimate is that the RPS will require Oregon utilities to have 11,800 GWh of renewable energy serving their customers by 2030.*

- However, this includes a couple important caveats:
  - First, Oregon's RPS allows certain types of projects to count as renewable energy that EPA is unlikely to allow credit under their 111(d) regulation.
  - Secondly, Oregon's RPS allows utilities to bank the renewable energy credits from renewably generated electricity one year for compliance in future years..
- EPA is asking for comment on whether compliance should be met by in-state generation or consumption of renewable energy even if generated out-of–state.



- Block 4 is based on states improving their rate of energy efficiency up to a 1.5% annual reduction of demand

- Key issues for energy efficiency: how to credit EE that is not lowering demand at Oregon fossil units?

    - A significant consideration is whether and how Oregon will get credit for the effect of our energy efficiency investments on lowering demand at generating units **outside of Oregon** that serve electricity demand from Oregonians.
    - Related to this is whether and how energy efficiency in the **consumer owned utilities** (who largely are served by BPA's emission-free power system) might be credited.

However, we know that that efficiency in these areas simply allows Bonneville's hydro power to be spread further – this power doesn't go unused, but rather displaces fossil fuel generation and thus does reduce emissions.

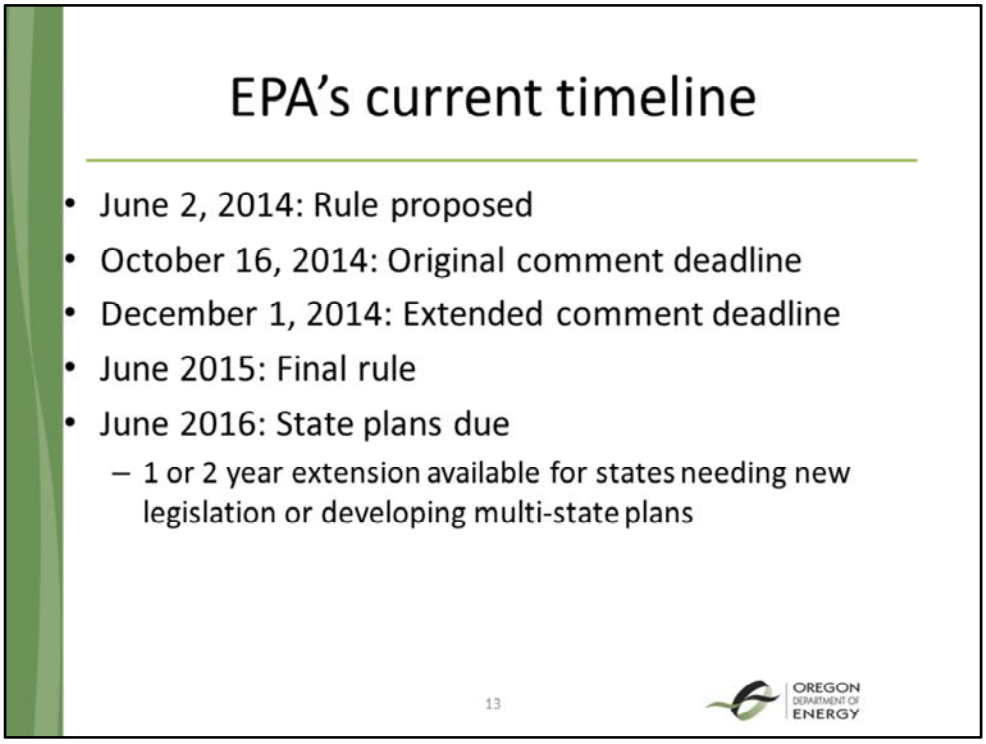
•DEQ, ODOE and the Public Utility Commission have formed a team that is working together closely. Right now we are focused on drafting comments to EPA before their public comment period closes in October.

•DEQ will be the lead Oregon agency to develop and submit a plan to EPA that articulates how we, as a state, will ensure we meet the federal emission guideline for CO2 emissions from existing power plants in Oregon. ODOE and the OPUC have been working closely with DEQ staff to understand the implications of the rule for Oregon and will continue to collaborate as we craft Oregon's plan.

•Our agencies have met with variety of organizations, including of course our private and public electric utilities, and regional entities such as Bonneville Power Administration and the Northwest Power Conservation Council, as well as several non-governmental organizations.

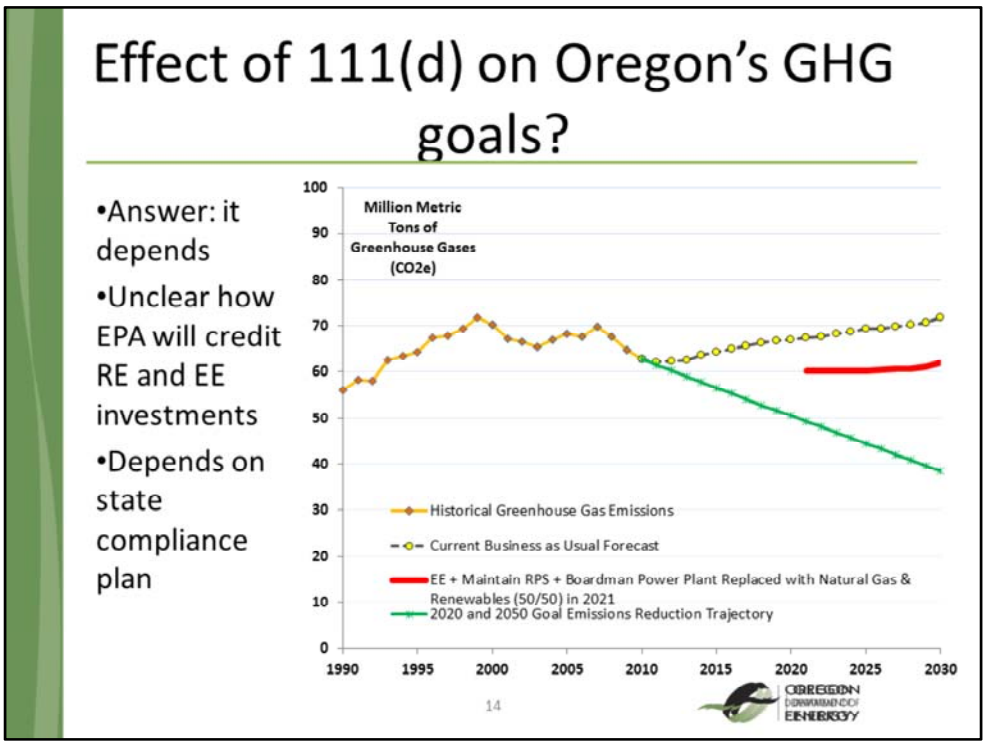
•We held a technical meeting with all interested stakeholders, followed by spreadsheet comparison meetings with PGE and PAC, to enhance our understanding of the rule

• We are also working with our colleagues across the western states and throughout the country through a few different venues to raise questions and share information



Extension can be granted for states who are working on multi-state plans, or for those who need new legislation to implement their program.

The first full legislative session after EPA finalizes the rule will convene January 2017.



The red line shows the scenario in which EE is used to meet all new load growth, the RPS is maintained without modification, and the Boardman plant is replaced with 50/50 natural gas and renewables in 2021. This scenario is from the last OGWC report to the legislature.

OGWC Resolution Considerations:
Base year in target setting

- EPA used 2012 generation and emission data to characterize states' starting conditions
- 2012 in the PNW:

  High water = lower emissions = more stringent standard

  - ❖ Example:
    - 2006 (high water year) = ~52 million tons of CO_2 to serve NW demand but....
    - 2007 (low water year) = ~65 million tons CO_2 (25% increase)

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OGWC Resolution Considerations: *Modifying Implementation Plans*

- How often should states be allowed to modify their plans during the compliance period?
  - As technology and circumstances change?
  - If policies/strategies in the plan are not as effective as expected?

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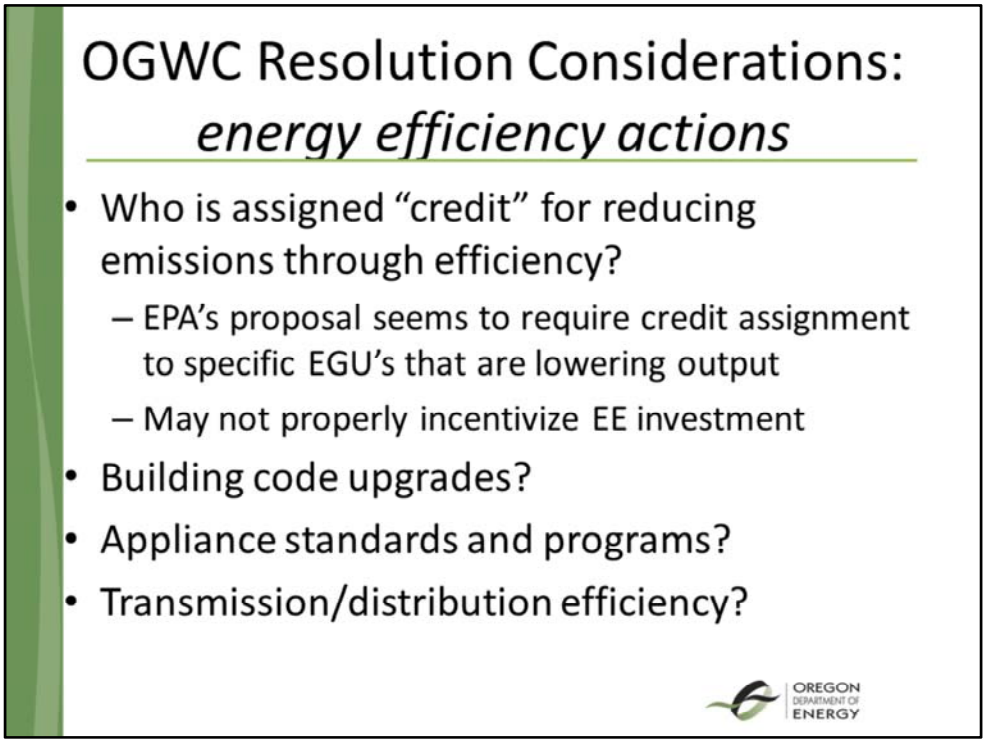
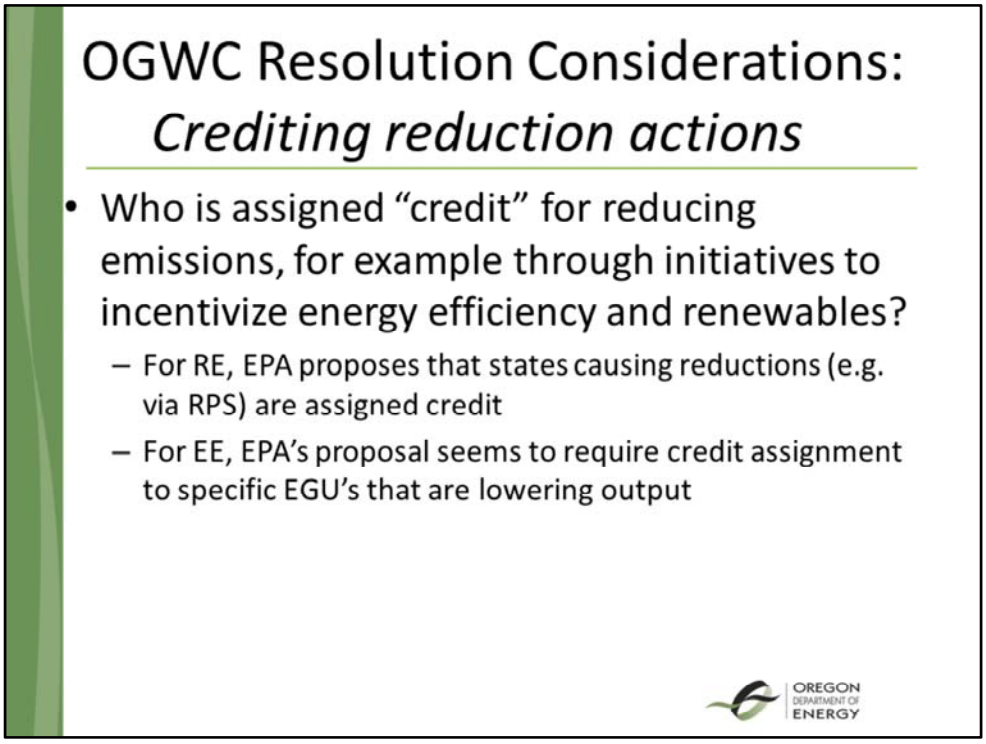


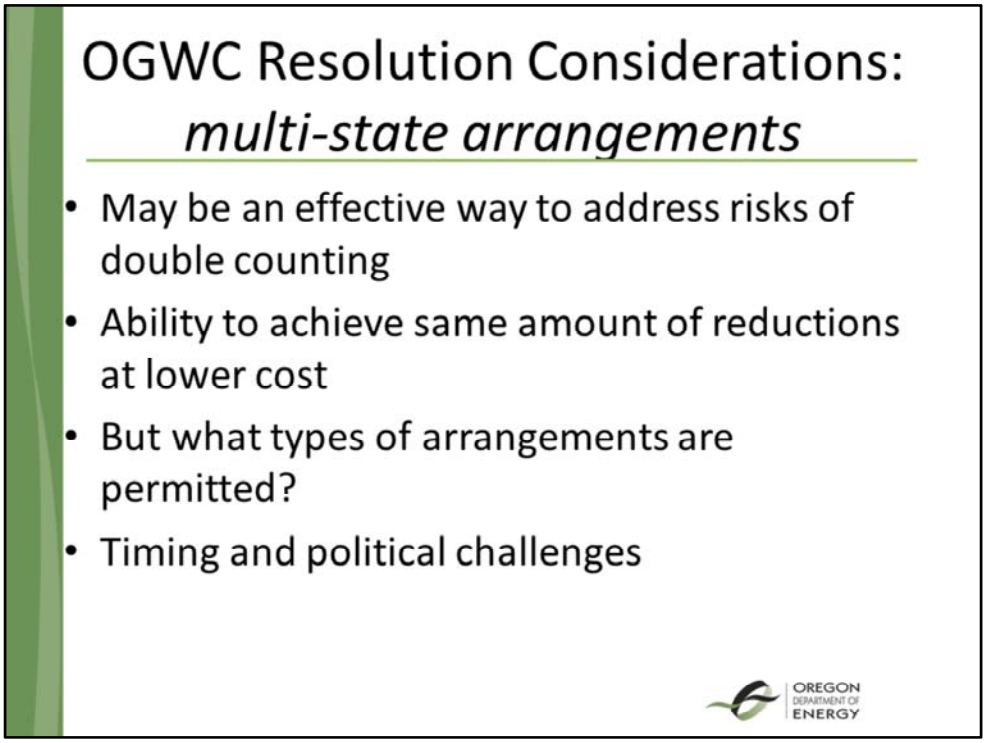
THE RECOMMENDATION IS CONSISTENT WITH THE GENERAL PROPOSITION IN THE NEXT PARAGRAPH ABOUT ASSOCIATING CAUSE AND CREDIT

The Commission, mindful of Oregon's particular experience with and capabilities in deploying efficiency resources, strongly supports EPA's general principle of flexiblity for states to design system-wide compliance strategies, and specifically with empowering the states to credit new efficiency and renewable resources added to Oregon's resource mix. States should be permitted to take full life-cycle credit for emissions reductions resulting from efficiency measures. EPA should develop (or invite states to propose) methodologies to credit states for programmatic savings from measures such as energy building code upgrades, appliance tradeout programs, transmission/distribution efficiencies, etc.



Applies to both RE and EE, but more concern with EE crediting

Recap discussion of EE compliance considerations from above and

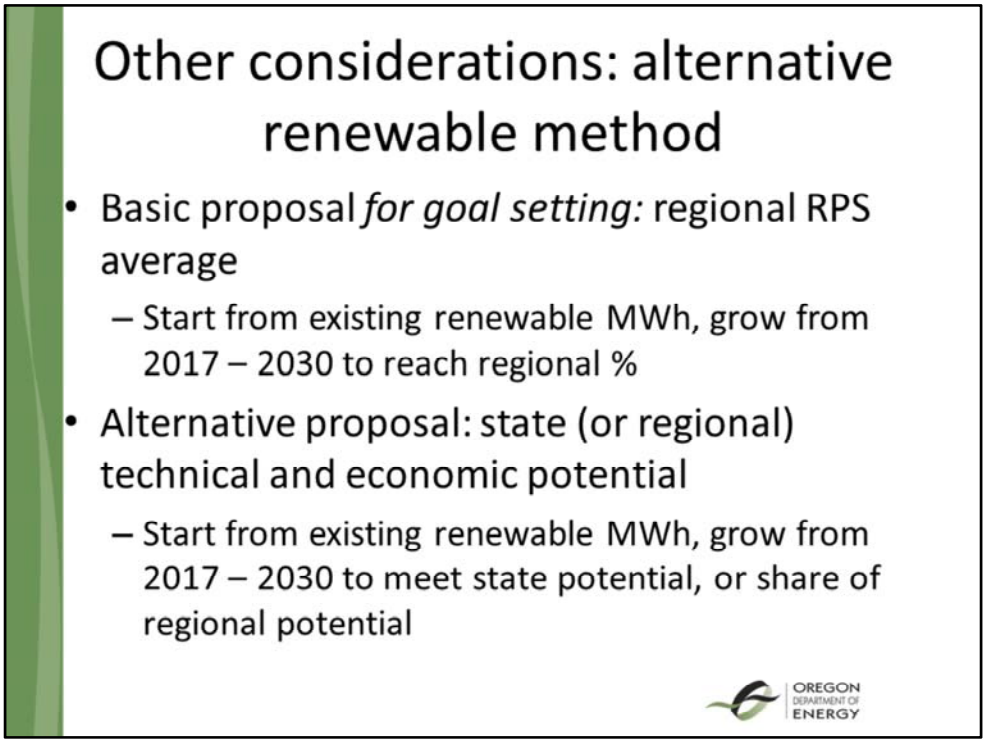


The Commission urges EPA to enlarge the window for such multi-state efforts beyond the RGGI design, and to authorize states at any time following adoption of the federal rule to devise and enter into multi-state transactions of alternative design (such as single bilateral transactions; complementary resource choices within a utility serving more than one state; an open regional trading "floor", etc.) **so long as the outcome, for the states involved, results in emissions reductions equal to or greater than the sum of those required by EPA of each state acting independently within its boundaries**.

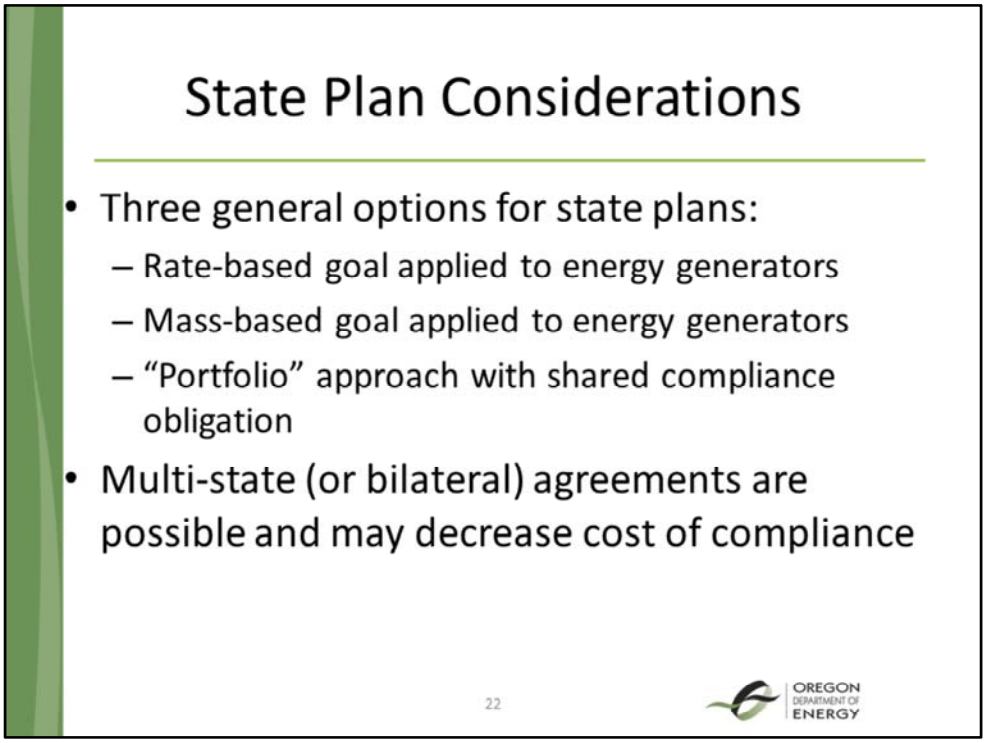
Extensions to the June 2016 deadline for state plans can be granted where states are working on multi-state plans. But these may be ultimately politically difficult to maneuver.

Questions?

OREGON DEPARTMENT OF ENERGY



ADDITIONAL SLIDE



ADDITIONAL SLIDE

Changed title from "compliance considerations"

State plans can require the EGUs in their state to bear the full compliance burden for the required emission reductions, either in the form of the emissions rate discussed above, or through a conversion of that rate into an overall mass-based goal.

Or the state can adopt a portfolio approach where some of the compliance burden is shared by other entities or the state government itself.

States are allowed to enter into multi-state agreements where compliance obligations are shared in some way.