CLACKAMAS COUNTY BOARD OF COUNTY COMMISSIONERS

Policy Session Worksheet

Presentation Date: 2/6/18 **Approx. Start Time:** 3:30 p.m. **Approx. Length:** 30 mins
Presentation Title: NW Natural & Portland General Electric (PGE) Carbon Reduction Efforts
Department: Public and Government Affairs; Transportation and Development
Presenters: Gary Schmidt (PGA) & Eben Polk (DTD); Bill Edmonds & Nina Carlson, NW Natural; Rebecca Carey-Smith, PGE
Other Invitees:

WHAT ACTION ARE YOU REQUESTING FROM THE BOARD?
None, this is for information only.

EXECUTIVE SUMMARY:
This policy session is intended to provide information from representatives of PGE and NW Natural on their goals and recent efforts to reduce greenhouse gas emissions.

Today, there is near-unanimous agreement within the global scientific community that carbon reduction efforts are needed to slow the effects of climate change. Governments and the private sector are increasingly taking action to affect change, with Oregon now considering proposed "cap & invest" legislation that would put a cap on carbon emissions.

PGE, which serves a total of 51 cities and more than 860,000 customers, is making investments that will result in 70% of PGE's energy mix becoming carbon-free by 2040. NW Natural, serving more than 730,000 homes and businesses in 107 communities, has set a carbon savings goal of 30% by 2035 that addresses the full value chain of natural gas.

FINANCIAL IMPLICATIONS (current year and ongoing):
Actions taken by PGE and NW Natural to reduce carbon emissions may have complex financial affects, subject to review by the Public Utility Commission. Many carbon-reduction measures result in cost-saving efficiencies and grid/distribution benefits. On the other hand, to the extent that some ratepayers do not take advantage of incentives, efficiency programs, or low-carbon options, they could see net energy expenditures increase. Although climate policy proposals such as cap & invest legislation may impact utility costs in the near term, assessments of the potential impact of climate change to GDP and economic growth are typically larger than the cost of carbon reduction.

STRATEGIC PLAN ALIGNMENT:
- This item aligns with the Public and Government Affairs Strategic Business Plan goals to provide intergovernmental connections and relationship building, strategic policy development and messaging, legislative, advocacy, and outreach services to county elected officials and departments so they can build key partnerships to achieve policy goals important to Clackamas County, with special emphasis on the strategic results in the BCC Strategic Plan.
- This item aligns with the County's Performance Clackamas goals to *grow a vibrant economy*, *build a strong infrastructure*, and *ensure safe, healthy, and secure communities*. This item also aligns with the Board of County Commissioners' resolution no. 2017-85, *Reaffirming Clackamas County's Commitment to Combat Climate Change*.

LEGAL/POLICY REQUIREMENTS:
N/A

PUBLIC/GOVERNMENTAL PARTICIPATION:
PGE and NW Natural are engaged in the ongoing legislative discussion on the proposed cap & invest legislation.

OPTIONS:
N/A

RECOMMENDATION:
N/A

ATTACHMENTS:
- PGE Cap & Trade Design Priorities factsheet
- NW Natural Our Low-Carbon Pathway factsheet
- NW Natural Our Low-Carbon Pathway PowerPoint presentation

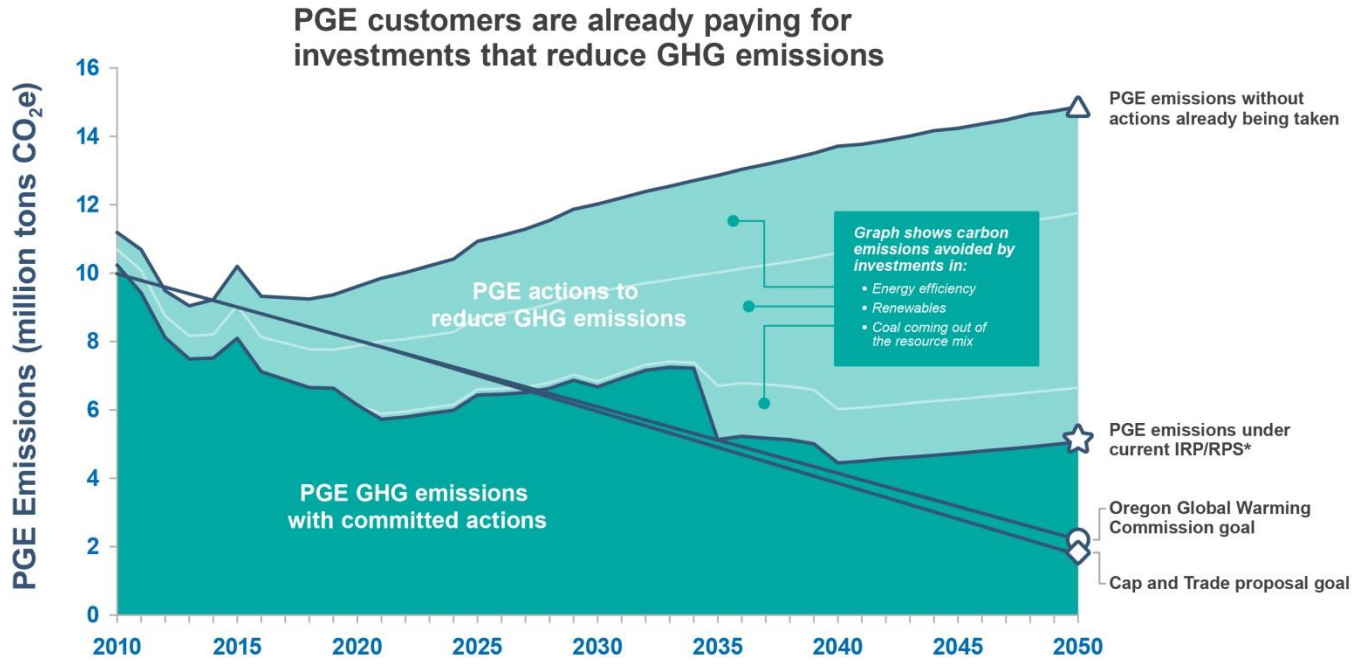
SUBMITTED BY:
Division Director/Head Approval _____
Department Director/Head Approval _s/Gary Schmidt_
County Administrator Approval _____

For information on this issue or copies of attachments, please contact Gary Schmidt @ 503-742-5908

PGE's commitment to a clean energy future

70% of PGE's energy mix will be carbon-free by 2040 through investments paid for by customers.

We are dramatically reducing our greenhouse gas (GHG) emissions through investments in wind, solar and other clean and renewable power, on top of our existing, carbon-free hydroelectric resources, and demand response, storage and grid upgrades. These investments are critical elements of a low-carbon electricity system and are reflected in customer rates. In addition, residential and commercial customers currently pay almost 7% of their bill to fund incentives for cost-effective energy efficiency and small renewables.



PGE's investments in a clean energy future are driving down emissions:

This graph represents resource choices acknowledged in our 2016 Integrated Resource Plan (IRP) including actions to meet Oregon Clean Electricity & Coal Transition Plan requirements. The graph does not reflect resource decisions yet to be made that will likely further reduce emissions resulting from advances in technology, declines in renewable resource costs, reductions in the carbon intensity of market power, and PGE's goal to meet our proportionate share of Oregon's 2050 GHG reduction goal.

Affordable, clean electricity is key to reducing GHG emissions across the energy economy.

Electricity is rapidly becoming the cleanest energy source in Oregon. By keeping electricity costs low, it will be easier and more affordable to reduce Oregon's transportation sector emissions. Policies should be adopted that ensure clean, renewable electricity remains an affordable energy source consistent with the goal of encouraging increased use of electric buses and cars by governments, businesses and individuals.

PGE customers shouldn't have to pay twice for the same GHG reductions under cap and trade.

PGE serves nearly 2 million Oregonians – almost 50% of the state's population – and more than 100,000 businesses that account for almost 75% of the state's economic activity. It is fundamentally unfair for these customers, who value clean energy, to pay for actual carbon reductions to the system through investments in clean energy and then be made to pay *again* for paper compliance under a cap and trade program, even when PGE is below its carbon emissions reduction line.

The current design of the proposed cap and trade program will cause unnecessary and unfair rate increases, adding to Oregon's growing cost-of-living issues.

The current consignment and revenue recycling proposal for investor-owned utilities is designed to send our customers a "price signal" (an increase to their rates), which is unfair because our customers already pay for investments that are making electricity cleaner and greener. There is no guarantee that rebates will offset rate increases or that all customers will even receive one, which means some customers may win but many will lose.

Contact:
Brendan McCarthy | 509-970-7156
Rebecca Carey-Smith | 503-382-7824

Critical design changes to Oregon Cap & Trade proposals are needed

Protect All PGE customers from unfair and unnecessary rate increases

Potential rate increases without direct allocation of allowances: Rate increases were calculated as increases to PGE's 2018 rates using California Energy Commission's 2016 Low and High GHG Allowance Price Projections.

Residential Rate Increases	Commercial Rate Increases	Industrial Rate Increases
2021: 4.7% - 6.6%	**2021:** 5.5% - 7.7%	**2021:** 7.3% - 10.3%
2025: 6.5% - 13%	**2025:** 7.6% - 15.1%	**2025:** 10.1% - 20.2%
2030: 8.7% - 27%	**2030:** 10.1% - 31.5%	**2030:** 13.5% - 42.0%

ISSUE	SOLUTION
Current allowance allocation provisions would make customers pay twice for the same emission reductions, once for clean energy investments and again for the cost of permits, driving up rates for all customers and providing rate relief to only some.	**PGE should be given full, direct allocation of allowances for compliance.** PGE's compliance allowance budget should be directly distributed with no cost to customers, consistent with our proportionate share of the state's 2050 GHG reduction goal that declines over time.
There are no direct incentives for transportation electrification, even though the transportation sector is 40% of state's GHG emissions and electric vehicles powered by cleaner energy can help drive down emissions in that sector.	**Allowance allocation should encourage transportation electrification** by preventing rate increases, protecting customers against costs associated with emissions shifts between sectors, and providing a funding stream for electrification.
As drafted, Oregon's program is more stringent than California's, which could prevent linkage. California's cap and trade program contains a price cap on allowances and Oregon's does not. In addition, California's offset program is less restrictive than Oregon's.	**The bill design must ensure linkage to the Western Climate Initiative.** This likely means adding a price cap and adopting equivalent offset policies.
Treatment of "null power" isn't addressed in the bill. PGE is required to take null power (carbon-free power from renewable resources that do not have the associated REC) from qualified facilities and net metering customers. Utilities and their customers who bear the costs of acquiring null power should not assume GHG liability for energy they are obligated to take by law.	**"Null power" must be deemed carbon-free for cap and trade compliance purposes.** The California mechanism for treating null power is acceptable as long as Oregon's bill makes clear that it encompasses all sources of null power and applies no matter what the severed REC is used for.
Current bill language on the point of regulation is flawed. It allows for the regulatory process to choose a different option than what is defined in the bill.	**The point of regulation for imported electricity must be the same for all Oregon entities** and determined explicitly in the bill, not through rulemaking.
Protection against leakage is not adequately addressed. Electricity Service Suppliers and any other parties who assume the load of regulated utilities must be included in cap and trade as regulated entities.	**Bill language should make clear that <u>all</u> providers of electricity to customers of regulated utilities have the same obligations under the program** in order to prevent gaming and ensure Oregon's carbon reduction goals are met. (No 25,000 ton threshold for these entities.)
Offsets paid for by customers under the Oregon Carbon Dioxide Standard cannot be used for compliance. PGE customers pay for offsets under this standard, which was enacted to put a price on GHG emissions, and would continue to do so under the current cap and trade bills.	**Oregon Carbon Dioxide Standard offsets generated in years covered by a new cap and trade program must be available for compliance purposes.** The standard should sunset if cap and trade regulates the same emissions.

California data shows direct regulation, like the RPS, has delivered the most GHG reductions.

A majority of California's GHG reductions have come from the electric system and almost entirely because of direct regulation: **2016 electricity sector emissions declined by 17.4 million metric tons.**

California Air Resources Board projects cap and trade will yield only 7% of California GHG reductions through 2020.

- **2016 transportation emissions <u>increased</u> by 1.8 million metric tons.**
- **2016 refining sector emissions <u>increased</u> by 1.2 million metric tons.**

Contact:
Brendan McCarthy | 509-970-7156
Rebecca Carey-Smith | 503-382-7824

OUR LOW-CARBON PATHWAY

CONSERVING, OFFSETTING, INNOVATING TO ADDRESS CLIMATE CHANGE.

NW Natural

NW Natural's pipeline system—one of the newest, tightest in the country—can help achieve our region's carbon reduction goals affordably. Using a bottom-up approach, NW Natural identified known technologies to develop an aggressive, but attainable, carbon savings goal. NW Natural customers' natural gas use represents 8% of Oregon's greenhouse gas emissions.* Through voluntary action and collective engagement we can drive that number down further.

OUR PRODUCT	OUR CUSTOMERS	TRANSPORTATION
REDUCE CARBON INTENSITY	REDUCE AND OFFSET CONSUMPTION	REPLACE MORE CARBON INTENSIVE FUELS
NW NATURAL OPERATIONS UPSTREAM METHANE REDUCTION RENEWABLE NATURAL GAS POWER TO GAS (hydrogen pathway)	ENERGY EFFICIENCY SMART ENERGY (voluntary offsets) GAS + RENEWABLE HYBRID EQUIPMENT (solar thermal)	CNG AND RNG SERVE TRASH TRUCKS AND RETURN-TO-BASE FLEETS
achievable savings 5↔20% low to high case	achievable savings 15↔30% low to high case	achievable savings 1↔5% low to high case

CARBON SAVINGS GOAL: 30% BY 2035

Our goal addresses the full value chain of natural gas—from production at the wellhead to use at the burner tip in homes and businesses.

WHY A SAVINGS GOAL?

Allows a societal look at carbon savings—adding up emission reductions from the production of natural gas to customer use to diesel displacement in heavy-duty vehicles.

AFFORDABLE SAVINGS

We prioritize the lowest cost savings first, and will work to drive down the cost of newer, cutting-edge technologies through pilots, partnerships and R&D.

WHAT WE'RE WORKING ON TODAY

DECARBONIZING THE PRODUCT

Leverage National Resource Defense Council best practices to target production emissions and engage in partnerships to integrate renewable natural gas onto the system—starting locally with municipal waste water from treatment plants — and expanding over time to include other waste streams.

DRIVING DOWN CUSTOMER USE

Partner with Energy Trust to help customers conserve and be more comfortable through energy efficiency. By 2035, we can save enough energy to heat 230,000 homes annually — about the same amount of homes Oregon expects to add over the next decade. Increase participation in our Smart Energy program, which allows customers to offset emissions by funding renewable energy projects.

TRANSPORTATION OPPORTUNITIES

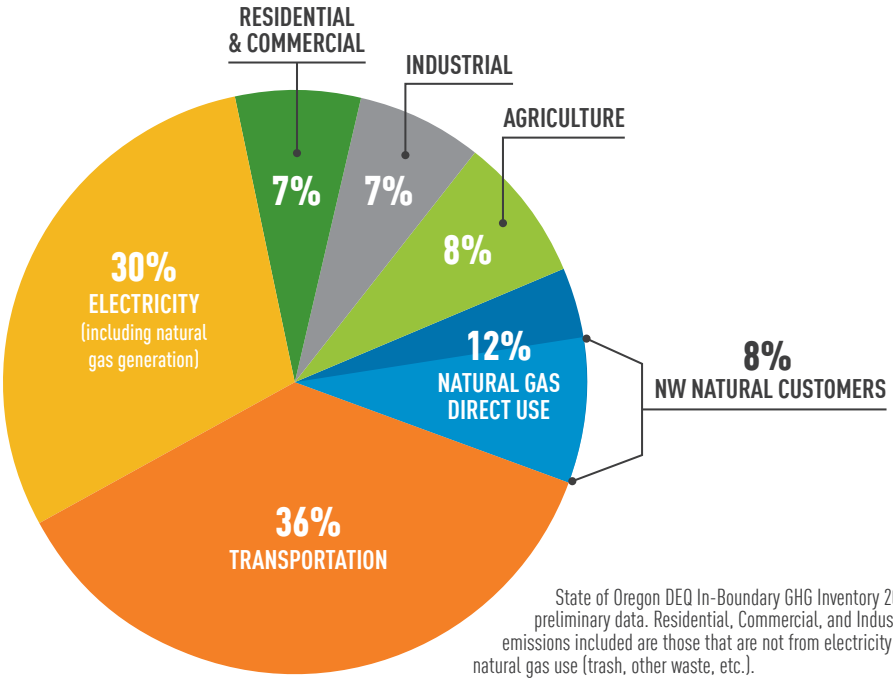
The transportation sector is the top contributor of carbon emissions in our region—and growing. Heavy-duty natural gas vehicles provide 20% carbon savings with compressed natural gas or 80% carbon savings with renewable natural gas —while emitting 90% fewer smog-forming air pollutants than the cleanest diesel.

*Oregon DEQ In-Boundary GHG Inventory, 2015 Preliminary Data.

NW Natural analysis, not for investment purposes.

DIRECT USE OF NATURAL GAS

NW Natural's system plays a critical role serving our region's energy needs

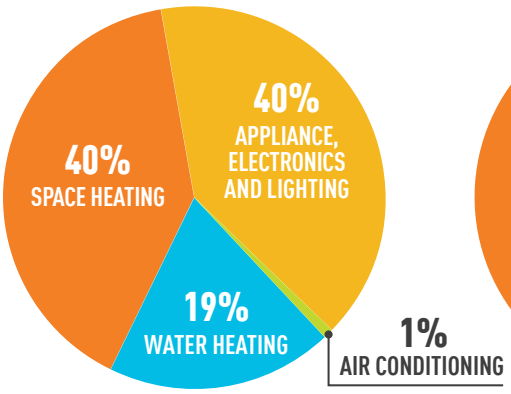


State of Oregon DEQ In-Boundary GHG Inventory 2015 preliminary data. Residential, Commercial, and Industrial emissions included are those that are not from electricity or natural gas use (trash, other waste, etc.).

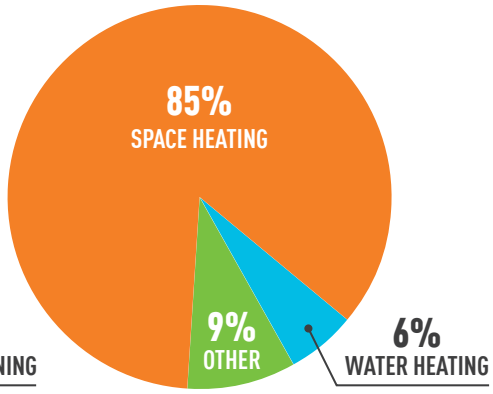
- The direct use of natural gas — in homes, businesses and industrial applications — makes up about 12% of Oregon's greenhouse gas emissions. NW Natural's customer and company use accounts for 8%.
- While that's a modest piece of Oregon's emissions pie, NW Natural can put our pipeline system to work in new ways to drive emissions down further. And we can do it with an existing modern system — making it more affordable for everyone.

ENERGY SYSTEMS ARE BUILT TO SERVE PEAK NEEDS

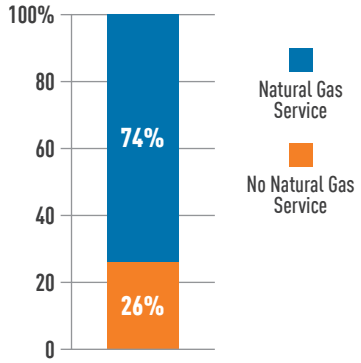
Average Annual Home Energy Use*



Winter Peak Hour Home Energy Use**



Share of Residential Square Footage in NW Natural Service Area with Natural Gas Service***



NW Natural's modern system is an efficient way to serve winter peak energy needs.

It takes a lot of energy to keep us warm during the cold, dark days of winter. And on those coldest winter mornings, natural gas provides 90% of our residential space-and-water-heat customers' energy needs.

NW Natural®

*USDOE 2009 Residential Energy Consumption Survey. **kWh Home Usage, 9.0 HSPF Heat Pump; 7 am in Winter, 7° F. ***2014 Residential Sites Database; On/near NW Natural mains.

♻ 10/17

NW Natural analysis, not for investment purposes.

OUR LOW-CARBON PATHWAY

NW Natural®

NW Natural analysis, not for investment purposes.

A LOW CARBON FUTURE

We believe climate change requires collective action.

NW Natural has an important role to play in a smart and affordable Northwest climate strategy.

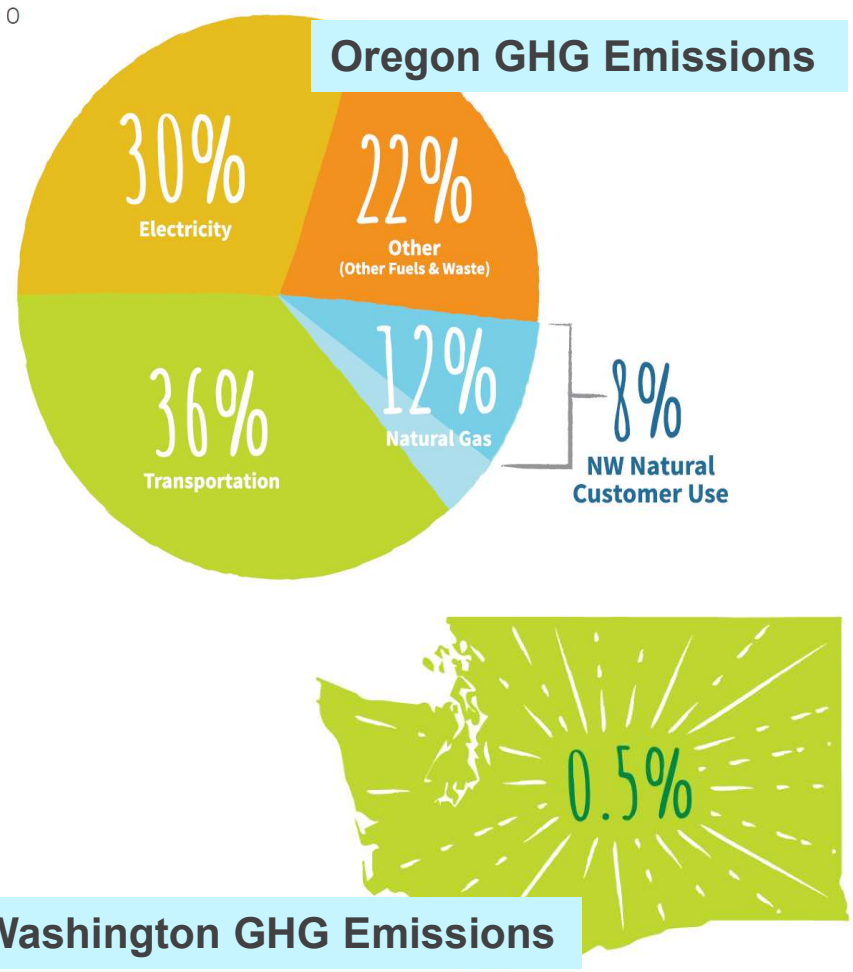
OUR OBJECTIVES:

1. Long-term goal of deep decarbonization that leaves no one behind.
2. Near-term actions take advantage of the natural gas infrastructure already in place.
3. Lead the way on natural gas innovations and share broadly for larger impact.

NW Natural analysis, not for investment purposes.

WHAT IS OUR STARTING POINT?

- **We serve 74%** of residential square footage in our territory where gas is available
- **We provide 90%** of peak day energy needs for our residential space and water heat customers
- Our customers' direct use of gas accounts for 8% of Oregon's emissions and 0.5% of Washington's state missions



NW Natural analysis, not for investment purposes.

Source, Department of Environmental Quality 2015 Washington Department of Ecology 2012 GHG Inventory

WHAT IS OUR GOAL?

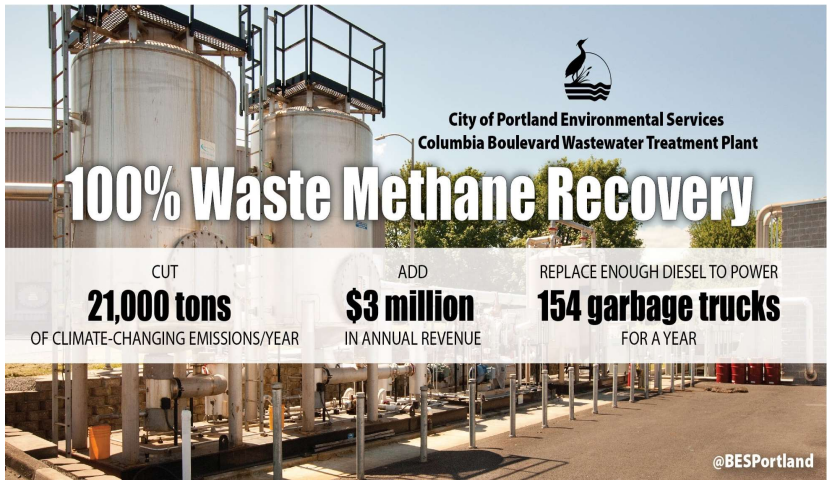
30% CARBON SAVINGS BY 2035

Baseline: 2015 emissions from customer end use and NWN operations

NW Natural analysis, not for investment purposes.

OUR PRODUCT

- Renewable Natural Gas at wastewater treatment plants, dairies and landfills is a great way to work with jurisdictions on their GHG reduction goals
- Power to Gas will help store energy seasonally
- NW Natural will reach upstream to reduce methane at the well-head



NW Natural analysis, not for investment purposes.

OUR CUSTOMERS

Natural Gas Zero Energy Homes

- Lower cost to build and operate
- Has amenities homeowners prefer

Gas-Fired Heat Pump Water Heater

- Full fuel-cycle efficiency = 200%
- Installed in conditioned spaces
- Operates in low temps
- Undergoing market testing

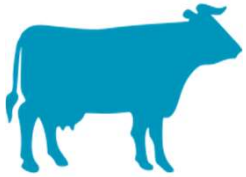
Low-Cost Absorption Heat Pumps

- High-efficiency alternative to boilers
- Can be used for combo systems
- Low-cost residential option - commercially available now

"Use Less, Offset the Rest"

SMART ENERGY®

Presented by NW Natural



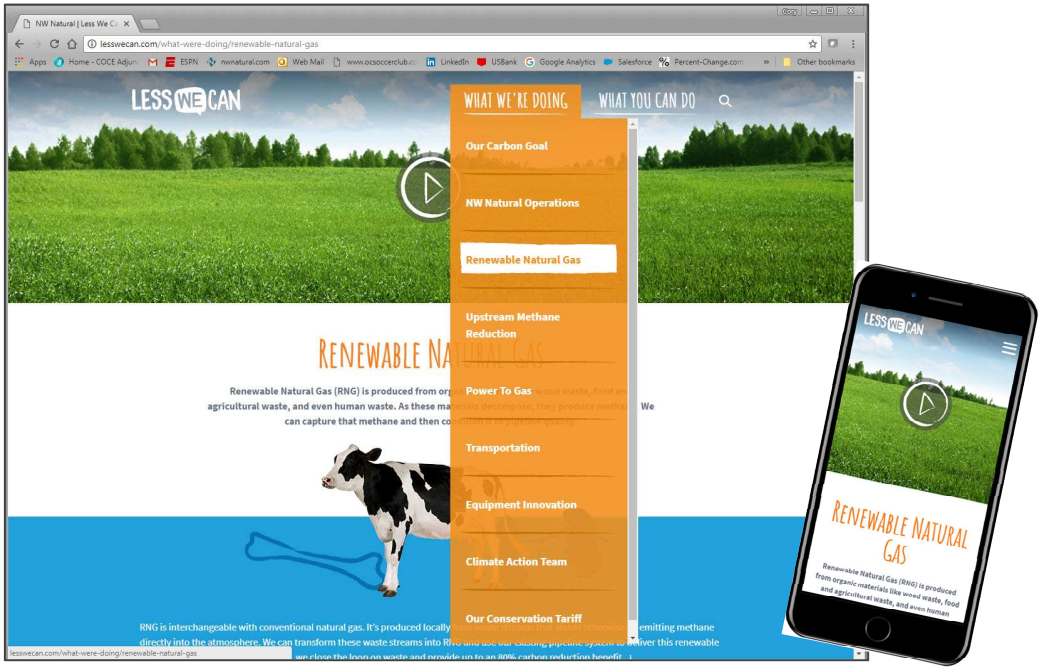
NW Natural analysis, not for investment purposes.

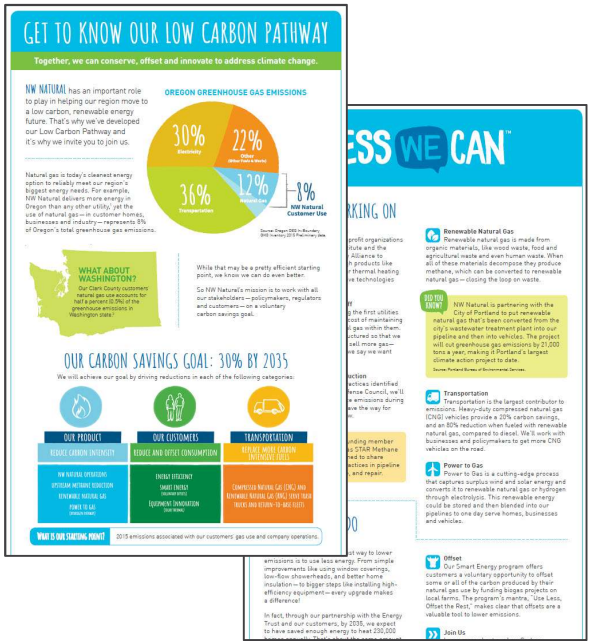
TRANSPORTATION

- Largest contributor to carbon emissions and growing.
- New CNG engines provide the cleanest, most cost effective solution for heavy duty vehicles.
- Delivers 20% reduction in carbon emissions compared to diesel and a 90% reduction in air pollution.
- Allows for drop-in renewable natural gas for an 80%+ reduction in carbon emissions.

NW Natural analysis, not for investment purposes.

NEW CAMPAIGN: LESS WE CAN





THANK YOU

OUR CLEAN ENERGY FUTURE

Rebecca Carey-Smith

February 6, 2018

Our people

2,700+ employees

42,000 volunteer hours

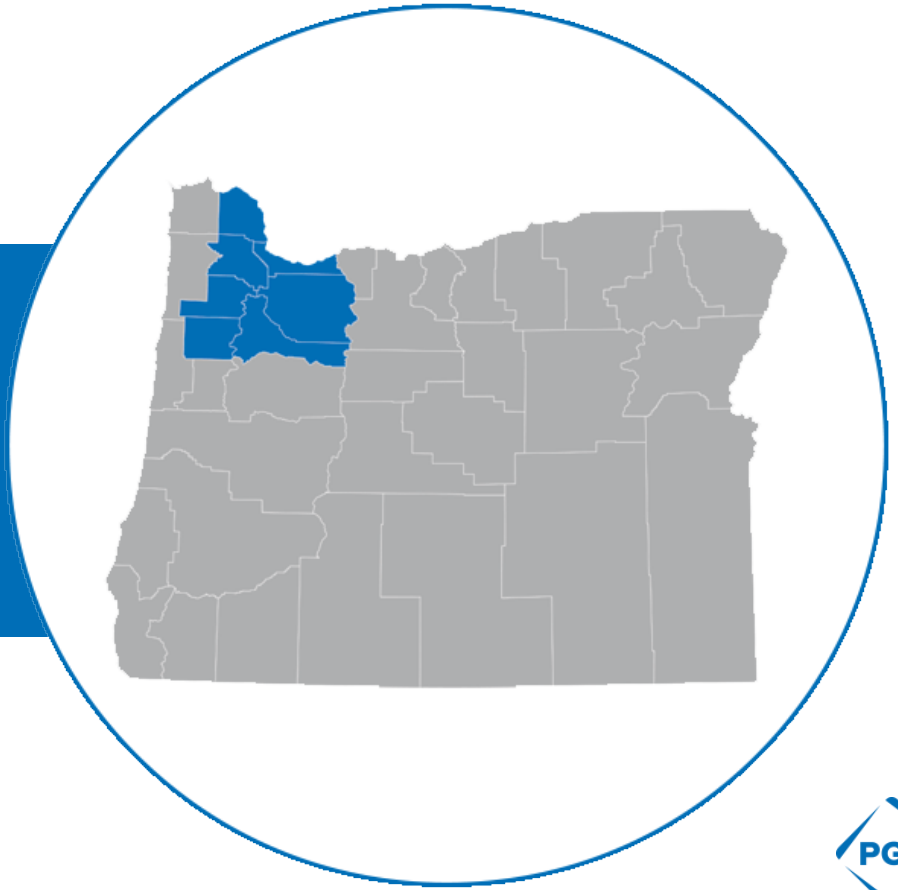
$2.2 million donations

Our service area

51 cities

6 counties

4,000 square miles



870,000 customers

50% of Oregon's population

75% of Oregon's commercial & industrial Activity

Energy deliveries

39% residential

39% commercial

22% industrial

Our customers

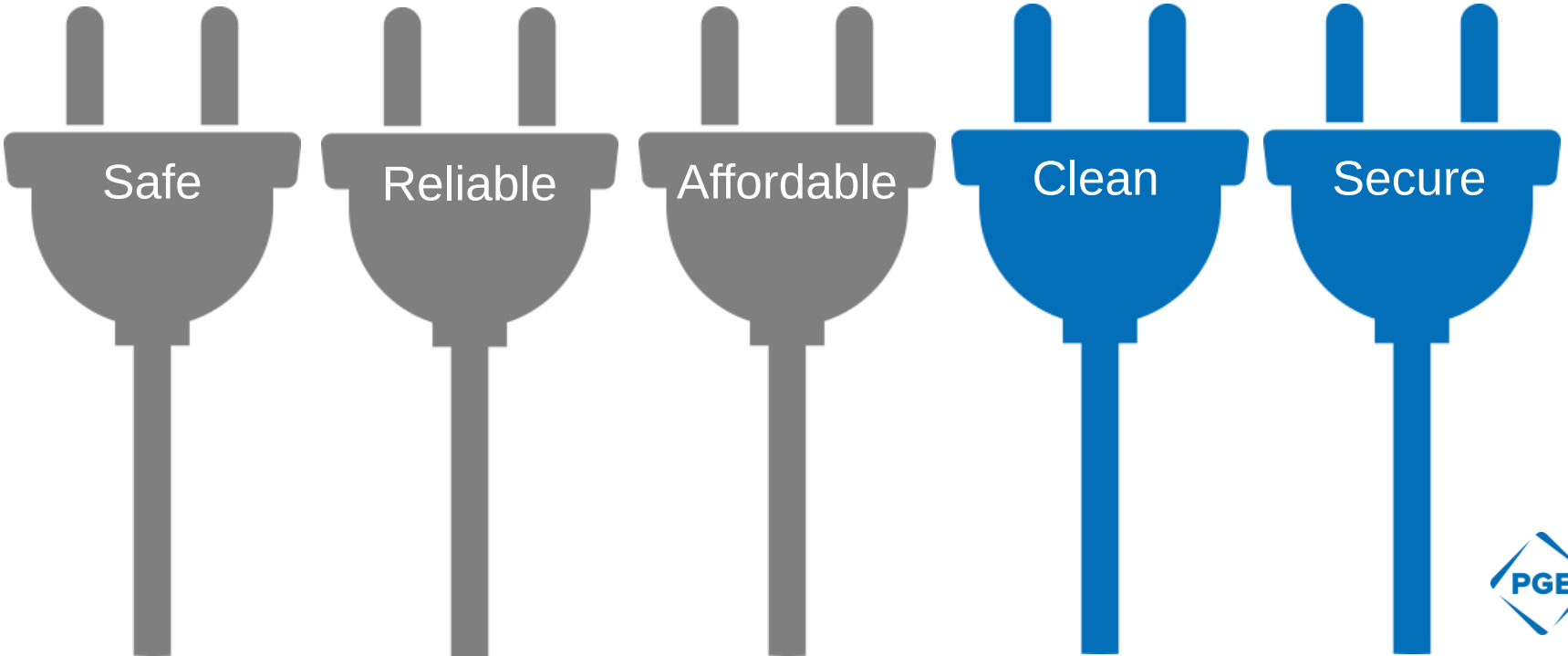
Largest green energy program in U.S.

178K+ customers

Our customers

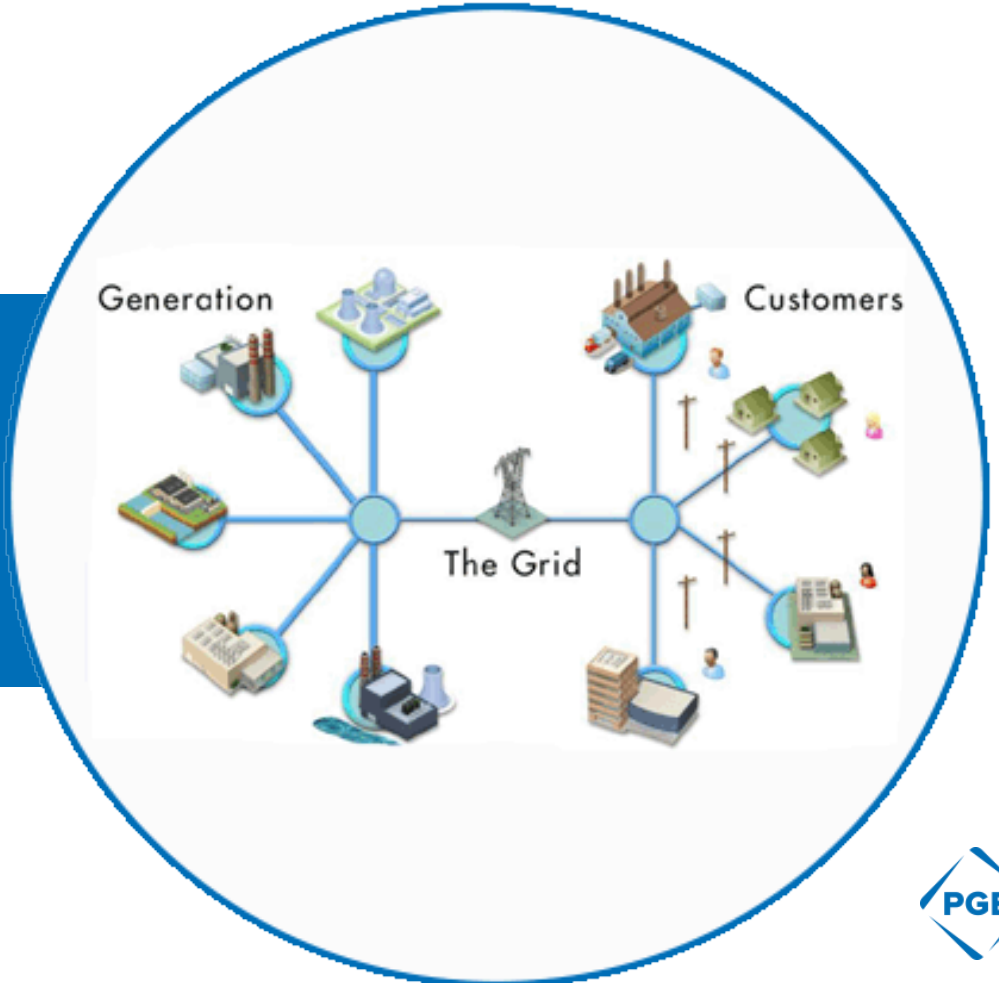
Customers needing bill assistance **20%**

Our priorities



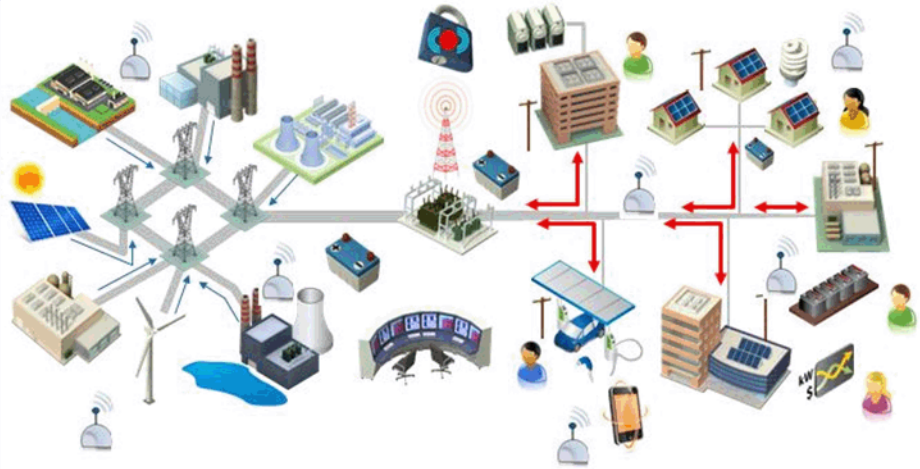
Safe, reliable, affordable, secure

The grid today



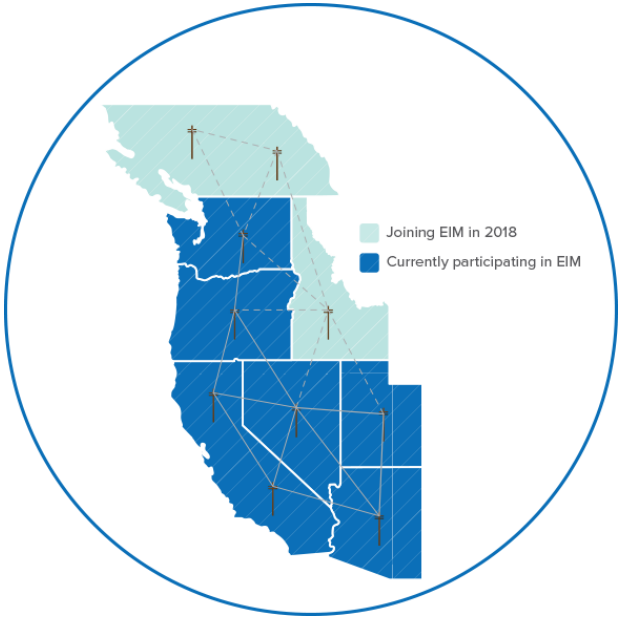
Safe, reliable, affordable, secure

The future grid



Clean – our energy transformation

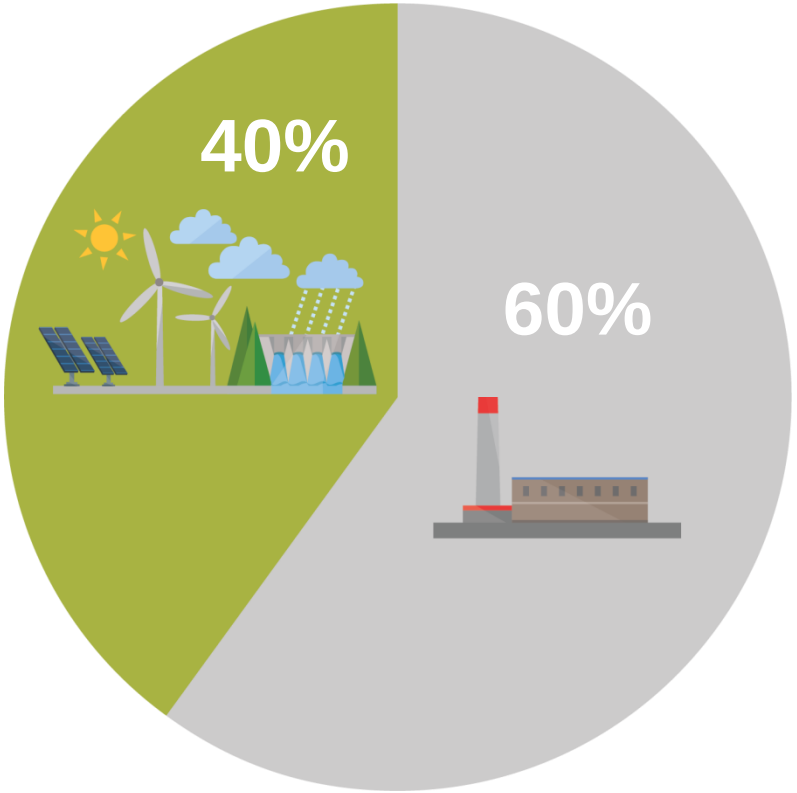
Integration through technology

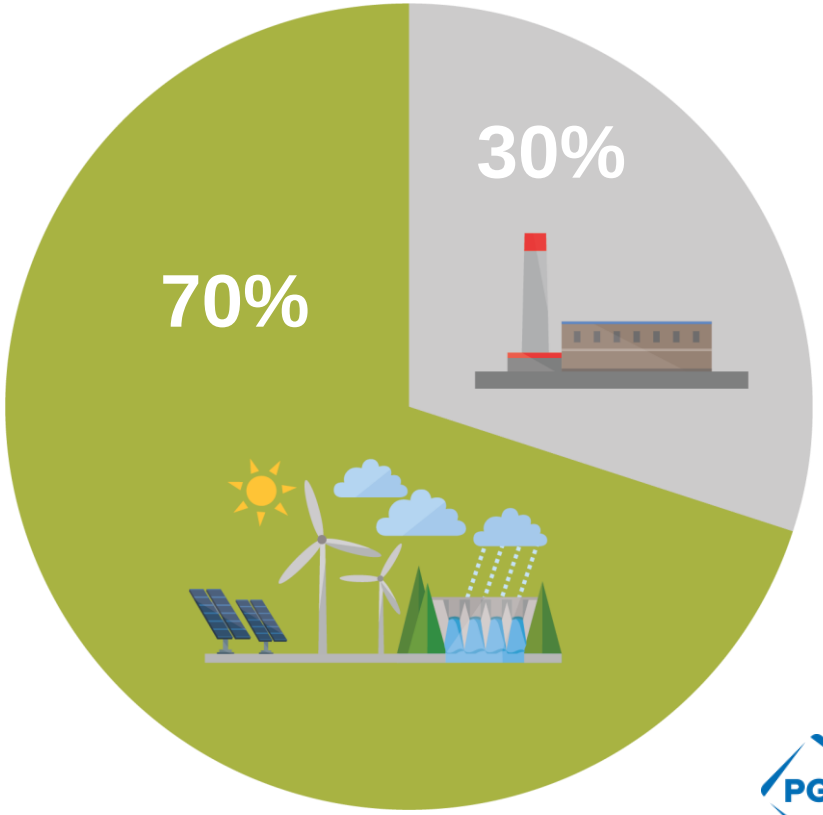


Energy Management

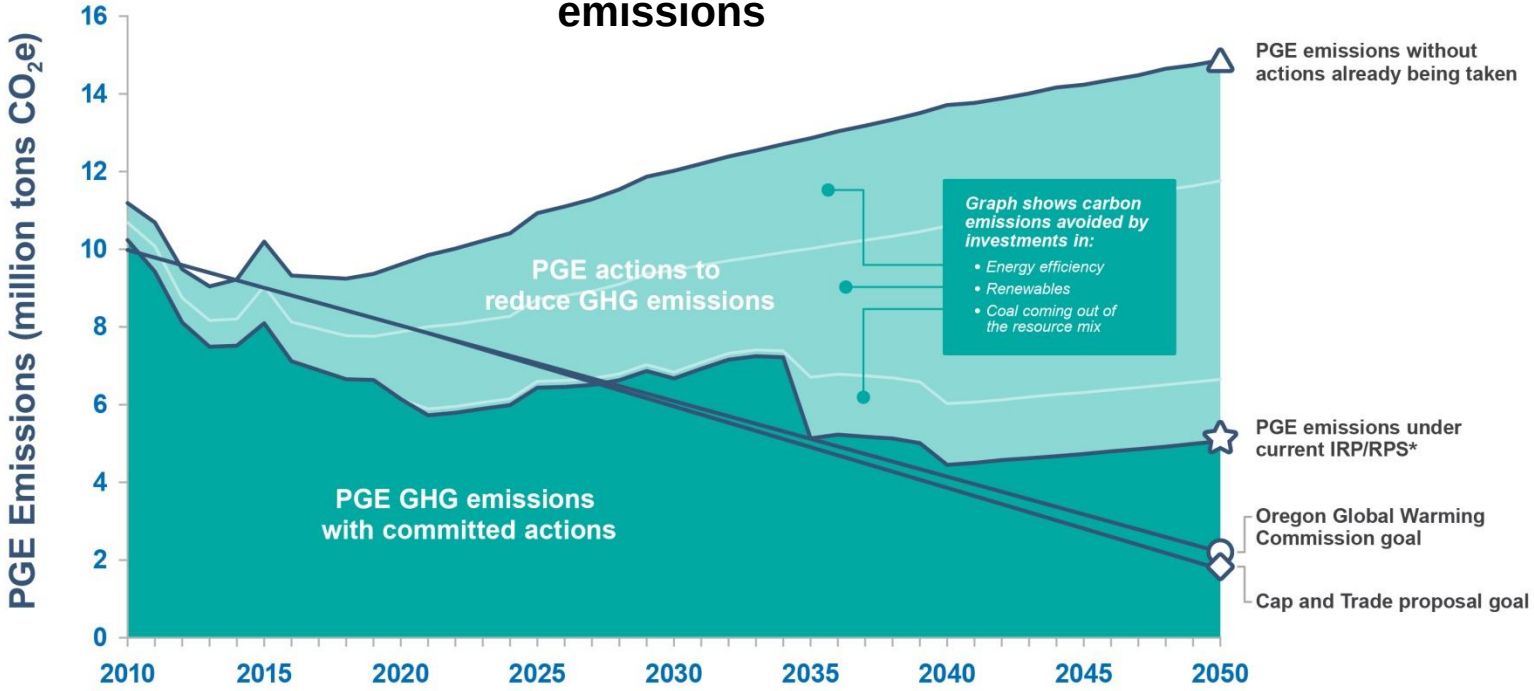
Renewable

Carbon free energy – today vs. 2040





Investments are driving down emissions

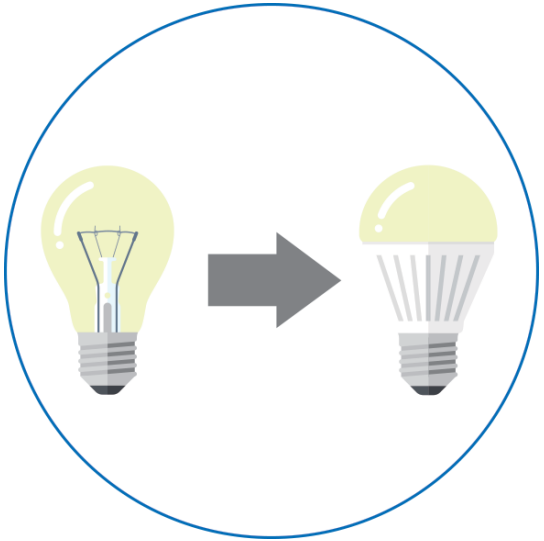


PGE's investments in a clean energy future are driving down emissions:

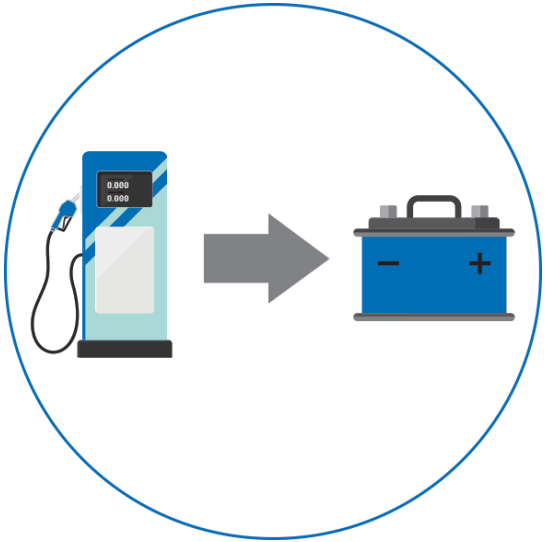
This graph represents resource choices acknowledged in our 2016 Integrated Resource Plan (IRP) including actions to meet Oregon Clean Electricity & Coal Transition Plan requirements. The graph does not reflect resource decisions yet to be made that will likely further reduce emissions resulting from advances in technology, declines in renewable resource costs, reductions in the carbon intensity of market power, and PGE's goal to meet our proportionate share of Oregon's 2050 GHG reduction goal.

Economy-wide deep decarbonization

Reducing emissions in our fleet



Smart energy use



Electrification

THANK YOU

Rebecca Carey-Smith

February 6, 2018