
Thursday, October 04, 2018
6:45 PM – 8:30 PM

Development Services Building
Main Floor Auditorium, Room 115
150 Beaver Creek Road, Oregon City, OR 97045

AGENDA

6:45 p.m. Pledge of Allegiance

Welcome & Introductions

Chair Jim Bernard & Mayor Brian Hodson, Co-Chairs

Housekeeping

- Approval of September 06, 2018 C4 Minutes **Page 03**

6:50 p.m. Maria Pope, President and CEO – PGE

- Staff memo and materials **Page 05**

8:00 p.m. Equity and Diversity for Public Agencies

Presenting: Emmett Wheatfall, Asst. County Administrator

- Staff memo **Page 38**

8:15 p.m. Updates/Other Business

- JPACT/MPAC Updates
- Other Business

8:30 p.m. Adjourn

General Information



Current Voting Membership

		C4 Exec	C4 Metro	C4 Rural	JPACT	MPAC	R1ACT
Clackamas County	Chair Jim Bernard	●	●	●			
Clackamas County	Commissioner Paul Savas		●	●	●		●
Canby	Mayor Brian Hodson	●		●			●
CPOs	Laurie Freeman Swanson (Molalla CPO)	●	●	●			
Estacada	Mayor Sean Drinkwine			●			
Fire Districts	Matthew Silva (Estacada Fire District)	●					
Gladstone	Mayor Tammy Stempel		●				
Hamlets	Kenny Sernach (Beavercreek Hamlet)			●			
Happy Valley	Councilor Markley Drake		●				
Johnson City	Vacant						
Lake Oswego	Councilor Jeff Gudman	●	●		●	●	●
Milwaukie	Mayor Mark Gamba		●			●	
Molalla	Mayor Jimmy Thompson			●			
Oregon City	Mayor Dan Holladay		●				
Portland	Vacant						
Rivergrove	Mayor Heather Kibbey		●				
Sandy	Councilor Carl Exner			●			
Sanitary Districts	Nancy Gibson (Oak Lodge Water Services)	●					
Tualatin	Councilor Nancy Grimes		●				
Water Districts	Hugh Kalani (Clackamas River Water)						
West Linn	Council President Brenda Perry		●				
Wilsonville	Mayor Tim Knapp		●		●		

Current Ex-Officio Membership

MPAC Citizen Rep	Vacant
Metro Council	Councilor Betty Dominguez
Port of Portland	Emerald Bogue
Rural Transit	Julie Wehling
Urban Transit	Eve Nilenders

Frequently Referenced Committees:

- CTAC:** Clackamas Transportation Advisory Committee (C4 Transportation TAC)
- JPACT:** Joint Policy Advisory Committee on Transportation (Metro)
- MPAC:** Metro Policy Advisory Committee (Metro)
- MTAC:** Metro Technical Advisory Committee (MPAC TAC)
- R1ACT:** Region 1 Advisory Committee on Transportation (ODOT)
- TPAC:** Transportation Policy Advisory Committee (JPACT TAC)

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Attendance:

Members: **Canby:** Traci Hensley (Alt.); **Clackamas County:** Jim Bernard (Co-Chair); Paul Savas; **CPOs:** Laurie Swanson (Molalla); Martin Meyers (Alt.); **Estacada:** Sean Drinkwine; **Gladstone:** Tammy Stempel; **Hamlets:** Rick Cook (Stafford); Happy Valley: Markley Drake; **Lake Oswego:** Jeff Gudman; Theresa Kohlhoff (Alt.) **Milwaukie:** Mark Gamba; **MPAC Citizen Rep:** Ed Gronke (Alt.); **Sandy:** Carl Exner; Jan Lee (Alt.) **Sanitary Districts:** Nancy Gibson (Oak Lodge); **Transit:** Julie Wehling (Canby); Andi Howell (-Sandy); **Water Districts:** Hugh Kalani; **West Linn:** Brenda Perry

Staff: Gary Schmidt (PGA); Chris Lyons (PGA); Trent Wilson (PGA)

Guests: Don Krupp (County Administration); Jaimie Huff (Happy Valley); John Lewis (Oregon City); Tom Mills (TriMet); Dan Johnson (DTD); Brooke Berglund (PGE); Karen Buehrig (DTD); Tracy Moreland (BCC); Mike Bezner (DTD); Mary Jo Cartasegna (BCC); Ellen Rogalin (DTD); Marge Stewart (Firwood CPO); Nicole Hendrix (SMART)

The C4 Meeting was recorded and the audio is available on the County's website at <http://www.clackamas.us/c4/meetings.html> . Minutes document action items approved at the meeting.

Agenda Item	Action
Approval of August 2, 2018 Minutes	Approved
Vehicle Registration Fee Discussion	County staff presented three distribution models for revenue stemming from a potential vehicle registration fee. The models were: A) state mandated 60% to the county and 40% to the cities; B) modified state formula of 50% to the county, 40% to cities, and 10% set aside for a strategic investment fund, with expectation that county would use 10% of its share as a strategic investment fund; C) modified state formula of 40% to the county, 20% to cities, and 40% set aside for a strategic investment fund. Staff noted that of the three counties in the Metro region, Clackamas is the only

	<p>county with no local funding mechanism. Multnomah collects \$18M annually from gas tax and VRF, and Washington collects \$49M from gas tax, VRF, local property tax, and a road district.</p> <p>Following discussion, C4 members discussed their preferences among the VRF models. During consensus gathering, every attending city agreed with the county continuing to work towards a vehicle registration fee of \$30 (with the exception of Canby, who preferred \$25), and a majority consensus on model B (above) pending further discussion.</p>
<p>HB 2017 Report and C4 Support Letter Discussion</p>	<p>TriMet staff presented on progress of work since passage of HB 2017 regarding proposed usage of the State Transportation Improvement Funds (STIF) and improved transit services in the region and, with additional emphasis on impacts to Clackamas County. Commissioner Savas, who sits on the HB 2017 Advisory Committee, and County staff, representing local transit agencies/authorities, proposed a comment letter addressing TriMet’s STIF funding proposals, which would come from C4.</p> <p>C4 approved the letter, with minor recommended edits.</p>
<p>2018 C4 Retreat – Final Report</p>	<p>County staff introduced the retreat summary and proposed calendar for the remainder of the C4 business year (March to February). C4 directed staff to plan far enough in advance for the retreat to secure preferred rooms and lodging at Resort at the Mountain, establishing one of the final two weekends in June as the annual retreat date.</p>
<p>Updates/Other Business</p> <ul style="list-style-type: none"> • JPACT/MPAC Updates • Housing Needs Assessment Update • Other Business 	<p>HNA – County staff announced that DLCD has awarded the county a \$100,000 grant to perform the county-wide Housing Needs Assessment proposed by C4. Notice was sent to City Managers requesting confirmation to participate by September 14.</p>

Adjourned at 8:20 p.m.

Memorandum

To: Clackamas County Coordinating Committee (C4)
From: Brooke Berglund/Randy Ealy, Local Government Affairs
Date: October 04, 2018
RE: Portland General Electric

Overview:

Portland General Electric has been powering our community and helping connect Oregonians to what matters most for more than 125 years. Now, the company is working closely with communities throughout our service area to meet the challenges and opportunities created by new and evolving technologies, changing customer expectations, the threat of climate change, and a shared desire for a clean, reliable and affordable energy future. For Clackamas County, this means we're exploring new streetlight technology in the cities of Milwaukie and Wilsonville and supporting efforts to electrify transportation options, while at the same time working to understand how clean energy technologies, distributed generation and the smart grid will shape future residential, commercial and industrial development. Maria Pope, PGE's President and CEO, will share her vision for Oregon's clean energy future and how PGE's partnership with Clackamas County and the cities within it can help drive this transformation.

Contact Information:

Randy Ealy, Local Government Affairs Manager, 503.464.8144, randy.ealy@pgn.com



Maria Pope
President and CEO

Maria Pope is president and CEO of Portland General Electric. Prior to becoming CEO in 2018, Pope served as senior vice president of Power Supply, Operations and Resource Strategy, overseeing PGE's energy supply portfolio, operations — including wholesale power, fuels, marketing, trading and long-term resource strategy— and generation facilities, including 15 thermal, hydro and wind facilities.

Pope joined PGE in 2009 as senior vice president of finance, chief financial officer and treasurer. She served on PGE's Board of Directors from 2006 to 2008. Prior to joining PGE, Pope was chief financial officer of Mentor Graphics Corporation and served in senior operating and finance positions within the forest products and consumer products industries. She began her career in banking with Morgan Stanley & Co.

Pope serves on the Oregon Global Warming Commission and the boards of Umpqua Holdings Corporation and the Oregon Business Council. She has previously served as board chair of Oregon Health & Science University and served on several other U.S. and Canadian boards. Pope is an alumna of the Stanford Graduate School of Business, and earned her bachelor's degree from Georgetown University.

OREGON'S ENERGY FUTURE

Clackamas County Coordinating Committee

Oct. 4, 2018

Maria Pope
President and CEO



WHO WE ARE

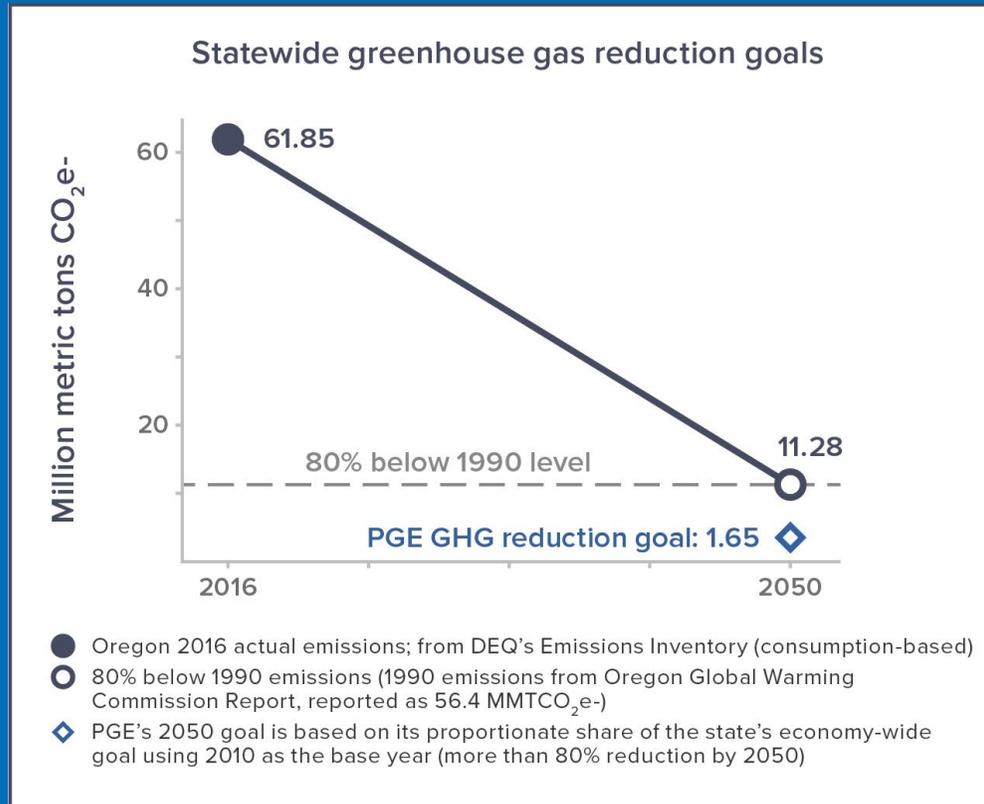
- Serving Oregon area since 1889
- Safe, reliable, affordable
- Serving 50% of all Oregonians; 75% of commercial activity
- Jobs, facilities, taxes and fees support Clackamas County's thriving economy
- 15 generation facilities in Oregon
- 45,000 annual volunteer hours
- 8 Customers at center of all we do



Changing energy landscape



#1 REDUCE CARBON WITH CLEAN, RELIABLE ENERGY

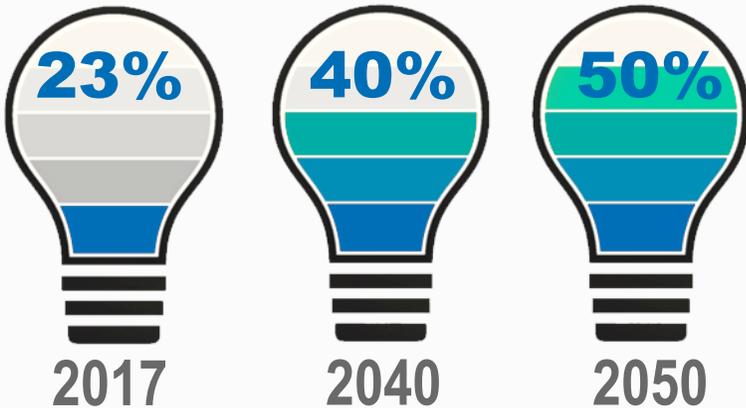


Reduce greenhouse gas by more than 80% by 2050



#2 EMPOWER CUSTOMERS' CLEAN ENERGY CHOICES

% of energy sector that comes from electricity



- Technology changing rapidly
- 30 to 50% of vehicles will be electric by 2040
- Electricity will be generated from increasingly diverse sources



#3 MODERNIZE GRID TO BE SMART AND RESILIENT



Sensing devices
with two-way interaction
Distributed Storage/Generation

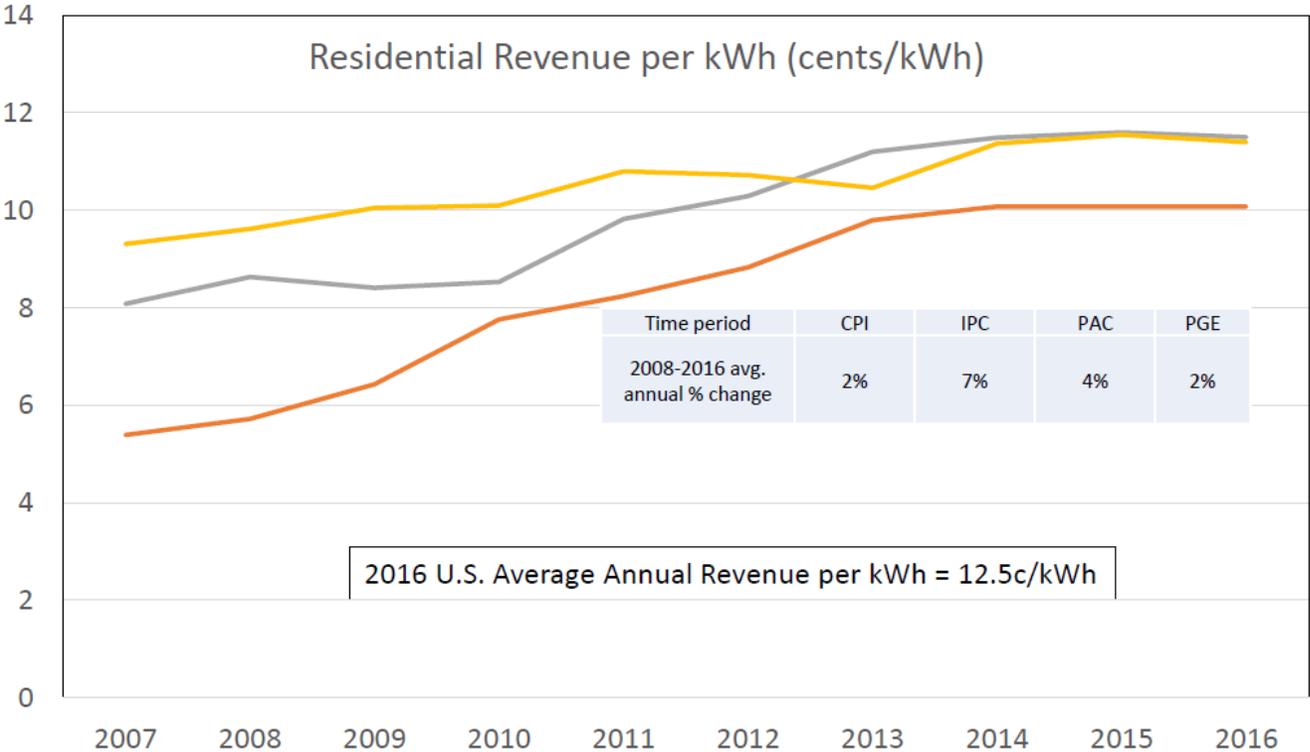
AUTOMATED AND FLEXIBLE GRID



OPTIMIZED & DISTRIBUTED GENERATION



EFFICIENCY AND RELIABILITY



- █ PGE
- █ Pacific Power
- █ Idaho Power Company
- CPI** Consumer Price Index



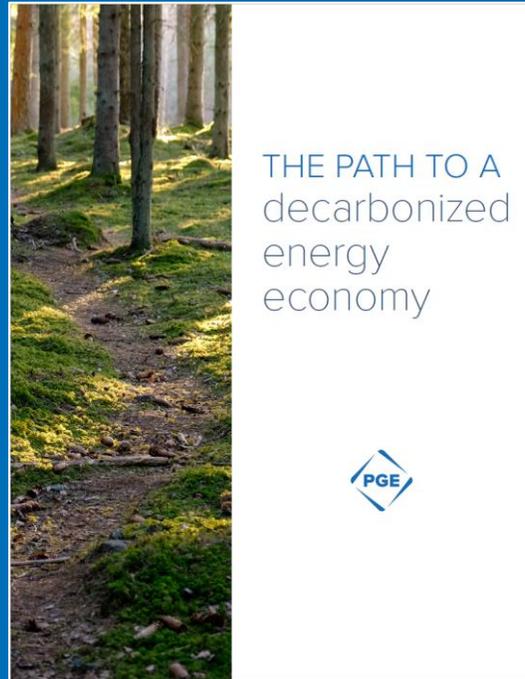


CLACKAMAS AND PGE PARTNERSHIP

- Smart city pilots
 - Milwaukie
 - Wilsonville
- West Linn waterfront master plan
- Carbon free energy generation
- Economic development



CLEAN, CONNECTED, AFFORDABLE, EQUITABLE



LEARN MORE ABOUT OUR VISION:

Follow us: @PortlandGeneral



Connect with Maria Pope: <https://www.linkedin.com/in/mariapope/>



QUESTIONS?





OUR VISION for a clean and reliable energy future



At Portland General Electric, we are committed to helping our customers and the communities we serve achieve a clean energy future. The benefits of such a future are real: we must do our part to reduce the threat of climate change, improve air and water quality and live a more sustainable way of life.

Oregonians are at the forefront of a dramatic transformation. Several cities have proclaimed resolutions to move to 100 percent clean and renewable energy, and over 178,000 PGE customers voluntarily participate in the nation's top renewable power program. Additionally, more than 10,000 customers are early adopters of electric vehicles. Oregonians have a pioneering spirit and our customers are taking clear steps to create a clean energy future by making choices and assuming responsibility for their energy consumption.

COMBATING CLIMATE CHANGE

Climate change is having a very real, immediate impact, here and around the globe. It's essential that greenhouse gases are systematically driven out of the energy economy. The Intergovernmental Panel on Climate Change, which includes the world's foremost collection of climate scientists, estimates that limiting global temperature rise to 2 degrees Celsius

**OUR GOAL:
A REDUCTION IN
GREENHOUSE GAS
EMISSIONS OF MORE
THAN 80% BY 2050**

above pre-industrial levels will help avert the most destructive impacts of climate change. This global goal was the central aim of the 2015 Paris Climate Agreement. It is a challenging goal that will require the global community work together to dramatically reduce greenhouse gas emissions.

In the spring of 2017, PGE joined over 2,500 businesses and universities, along with state and local governments, to say #WeAreStillIn by promising to continue to do our part to meet the United States' commitments in the Paris agreement. In addition to driving down greenhouse gas emissions in our resource portfolio, our commitment includes evolving the

smart grid platform to help our customers and Oregon reach our shared emission reduction and sustainability goals. To do this, we will build upon our history of promoting and integrating renewable energy, energy efficiency and rapidly emerging clean technologies such as energy storage and energy flexibility, and by weaving together technology and information through a modern and more resilient energy grid.

Setting our emission reduction goal

We are proud to partner with our state, municipalities and customers to advance a clean energy future. In pursuit of this future, and consistent with our #WeAreStillIn pledge, we are committed to reducing greenhouse gas emissions on our system by more than 80 percent by 2050, consistent with our proportionate share of the state's 2050 greenhouse gas reduction goal.¹ By continuing to drive down our emissions using a diverse portfolio of clean and renewable energy resources, and at the same time promoting economy-wide emission reductions through electrification and smart energy use, we can help the state meet its greenhouse gas reduction goals. A clean energy future that includes transportation electrification has the added benefit of reducing conventional air pollutants, which will greatly improve local air quality.

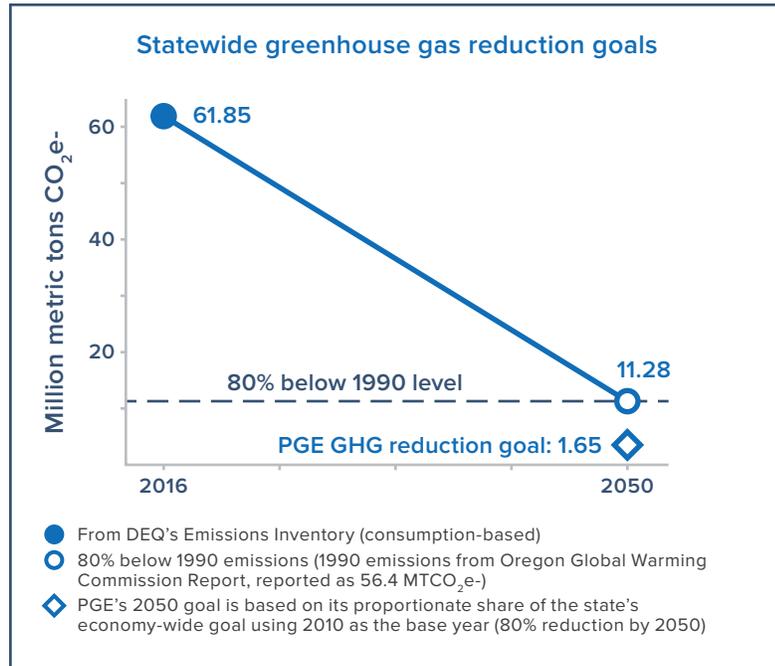
¹PGE's 2050 goal is based on its proportionate share of Oregon's economy-wide goal using 2010 as the base year.

Taking action today and planning for tomorrow

In 2016, we collaborated with environmental groups and customer advocates to pass one of the most progressive clean energy laws in the nation. The resulting landmark legislation — the Oregon Clean Electricity and Coal Transition Plan — sets a target of 50 percent renewable energy by 2040 and also transitions Oregon off of coal-fired electricity by 2035. As a result, Oregon’s electricity sector will substantially reduce greenhouse gas emissions; PGE will be 70 percent carbon-free by 2040. And we can’t stop there. We have more to do to achieve our new 2050 greenhouse gas reduction goal.

In the near term, we are continuing to pursue renewable resources to meet our customers’ needs and decarbonize our portfolio. With the additional 100 MWa

of renewables approved by the Oregon Public Utility Commission in December 2017, we will be on track to serve approximately 50 percent of our customers’ energy needs with clean and renewable energy by the end of 2020. Simultaneously, we are deliberately pursuing new renewable product offerings for our customers who want to decarbonize even faster.



**WE ARE PLANNING FOR
NEW, COST-EFFECTIVE
AND MORE SUSTAINABLE
WAYS TO GENERATE
ELECTRICITY USING
RENEWABLE RESOURCES**

As our region’s population and industries grow, we are planning for new, cost-effective and more sustainable ways to generate electricity using renewable resources. We are also developing new capabilities to more efficiently integrate these renewable resources into our portfolio to lower costs and enhance reliability. This includes entering the Western Energy Imbalance Market and embarking on new initiatives to support the development of flexible distributed resources, such as energy storage and smart technologies.

TRANSFORMING FOR A CLEAN ENERGY FUTURE

For more than 125 years, PGE has been powering our customers' lives, delivering energy that is safe, reliable and affordable. Today's customers expect more. They also want their energy to be clean and secure. Our commitment to equitable access and dedication to the communities we serve puts us in a unique position to help lead this energy transformation while also protecting the affordability and reliability of electric service. Success will depend on thoughtful planning, community partnerships, empowering customers and embracing new technologies. Our vision for a clean energy future relies on three interrelated and overarching strategies: decarbonize through investing in clean and reliable energy; modernize through a smarter more resilient grid; and empower our customers in their energy technology choices.

Decarbonize through investing in clean and reliable energy

Through investments in clean and reliable energy resources — on top of our legacy carbon-free hydroelectric and renewable resources — we will dramatically reduce emissions on our system, consistent with our proportionate share of Oregon's 2050 greenhouse gas reduction goal and help others achieve their emissions goals. As the state's largest electric utility, we are positioned to enable the development and integration of clean and reliable resources on behalf of all our customers, serving their needs for both today's energy services and tomorrow's smart, clean technologies.

SUCCESS WILL
DEPEND ON
THOUGHTFUL
PLANNING,
COMMUNITY
PARTNERSHIPS,
EMPOWERING
CUSTOMERS AND
EMBRACING NEW
TECHNOLOGIES

Modernize through a smarter, more resilient grid

We will build and operate a smarter, more flexible and resilient grid to improve operations and enable seamless integration of new technologies. The efficient integration of devices and information will require innovation and development of new grid capabilities. We are committed to providing customers with a platform capable of interconnecting and leveraging these technologies to benefit the communities we serve and support the transition to our clean energy future.

Empower our customers in their energy technology choices

Our customers' expectations are changing as new energy technologies, like solar panels, smart technologies and battery storage, are finally available to suit their desires. We will partner with our customers to integrate their own technologies, provide them with real-time information and maximize usage of clean energy through a modern, enhanced grid.

The world is changing. To lessen the impacts unleashed by climate change, actions to reduce greenhouse gas emissions must be taken at a global level. We all have a role to play in addressing climate change, and we are determined to be part of the solution. Achieving a clean energy future will be challenging; we believe it is attainable and vital to Oregon's future. We also believe the transition should not compromise reliability or affordability for our customers. We welcome the opportunity to work together with our customers, stakeholders and regional partners to make real progress in this transformation.



portlandgeneral.com/cleanvision



THE PATH TO A decarbonized energy economy



Today, carbon dioxide and other greenhouse gases (GHGs) are causing global temperatures to rise, leading to potentially devastating effects for the entire planet. To help prevent the most destructive impacts to our environment, the Intergovernmental Panel on Climate Change has proposed a limit for global temperature rise of 2 degrees Celsius above pre-industrial levels.¹ We know that to make meaningful change, everyone — consumers, businesses, industries and governments — must play an active role in reducing GHG emissions.

As Oregon’s largest electric utility, Portland General Electric is leading an energy transformation that will harness the power of clean and renewable resources on behalf of all customers. For more than 125 years, we have powered customers’ lives with energy that is safe, reliable and affordable. Today, we’re also ensuring the energy we provide is clean and secure.

As we change the way we produce and deliver energy, PGE will work closely with regulators, policy makers, customers and other stakeholders to keep electricity equitable. It is part of our mission to provide an accessible, affordable clean energy future to customers in all of the communities we serve.

PGE’S COMMITMENT TO GHG REDUCTION

- 2018** PGE sets a goal to reduce GHG emissions by more than 80 percent by 2050.
- 2017** PGE joins 2,500+ businesses and local governments in the #WeAreStillIn pledge to do our part to meet obligations in the Paris Climate Agreement.
- 2016** PGE joins diverse stakeholders in designing the Clean Electricity and Coal Transition Plan to further progress toward Oregon’s GHG reduction goals.
- 2015** PGE signs the White House’s American Business Act on Climate Pledge, supporting strong regulation of emissions.
- 2010** PGE reaches an agreement with the Oregon Public Utility Commission and the Oregon Department of Environmental Quality to cease burning coal at our Boardman generating station by the end of 2020.
- 2009** PGE supports the American Clean Energy and Security Act (H.R. 2454), another attempt to establish a national cap-and-trade program for GHGs.
- 2007** PGE and a diverse coalition of stakeholders are instrumental in the adoption of the Oregon Renewable Portfolio Standard.
- 2007** PGE supports the Low Carbon Economy Act (S. 1766), which would have established a national cap-and-trade program for GHGs.
- 2006** PGE CEO Peggy Fowler publicly states it’s time for a national, market-based mechanism to reduce GHG emissions economy-wide.

A global imperative takes shape locally

In 2007, the Oregon State Legislature set a goal to achieve GHG levels that are at least 75 percent below 1990 levels by 2050.² This reduction target will likely become more stringent as science and policy progress. Recent GHG policy proposals suggest a new 2050 goal of 80 percent below 1990 levels. Additionally, Oregon’s Clean Electricity and Coal Transition Plan, enacted in 2016, set a benchmark for how much electricity must come from renewable sources like wind and solar (50 percent by 2040) and requires the elimination of coal from Oregon utility customers’ energy supply by 2035.³

Local governments are taking actions on clean energy and GHG reductions, too. In June 2017, Oregon’s most populous city, Portland, and most populous county, Multnomah, each announced resolutions to achieve 100 percent clean and renewable electricity by 2035 and 100 percent economy-wide clean and renewable energy by 2050.⁴ Other jurisdictions in PGE’s service area, including the cities of Milwaukie and Hillsboro, are considering similar goals.

These commitments reflect the values held by customers. As an example, PGE has the highest participation in the country, both by percentage and total number of customers, in our voluntary renewable power program. Our research has found the majority of both residential and general business customers expect PGE to provide clean and renewable energy to all customers within 20 years.⁵

Defining PGE’s role

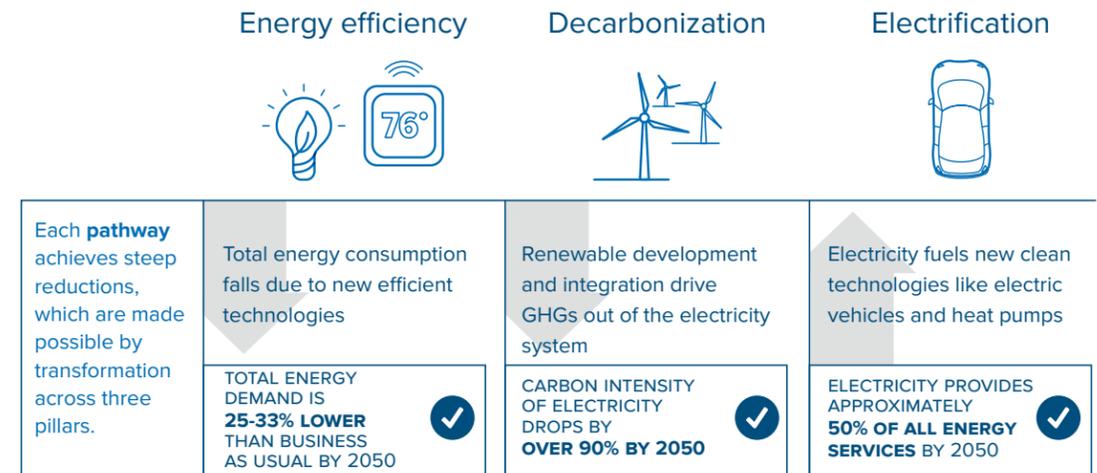
At PGE, we believe addressing climate change is our imperative. Consistent with the recommendations of the world’s leading climate scientists, PGE’s goal is to reduce our GHG emissions by more than 80 percent by 2050⁶ and to be our region’s source for affordable and dependable clean energy now and into the future. By continuing to reduce our emissions through a diverse portfolio of clean and renewable resources — while promoting economy-wide emission reductions through energy efficiency, electrification and smart energy use — we can help other sectors of the economy to decarbonize and help the state meet its GHG reduction goals.

PGE’S DECARBONIZATION STUDY

To help us understand the challenges and opportunities ahead, PGE commissioned a deep decarbonization study. The independent study, conducted by Evolved Energy Research (EER), investigated options to reduce GHG emissions for all energy services by 80 percent across our service area. Because electricity accounts for only a portion of GHG emissions, the study also accounted for energy-related emissions from transportation, industry and buildings.

Our study evaluated three future energy scenarios, also known as deep decarbonization pathways: high electrification, low electrification and high distributed energy. Each pathway achieves the steep GHG reductions required, but does so in a unique way.

Meeting the reduction goal will require dramatic progress across the three tactical pillars: energy efficiency, electricity decarbonization and electrification.



We gained several valuable insights from the study:

- It is possible to meet aggressive GHG reduction goals by 2050 without compromising the services PGE customers expect.
- The work will not be easy. It will require major changes to the way we produce, deliver and use all forms of energy; careful planning by all energy providers in the region; and collaboration across government, industry and businesses, regulators, stakeholders, communities and customers.
- Even with today’s technological outlook, the costs to decarbonize over time could be relatively modest. The higher upfront costs for clean technologies like electric vehicles, smart home appliances and renewable energy, are offset by reducing the amount of money spent on fossil fuels. Smart policies can help manage the costs associated with this transition by prioritizing cost-effective GHG reduction strategies. Technological breakthroughs will likely reduce costs even further.

CRITICAL STRATEGIES

There is no single solution to meeting these deep reduction goals; success will depend on collaboration across a number of technical, policy and regulatory issues. PGE has identified several key focus areas, described below. Critical to all of them is cost. Because electricity will be fundamental to this transition, we must keep costs affordable to make it easier for Oregonians to adopt clean energy technologies. PGE is working with policymakers and stakeholders to advance policies, and identify and work through barriers to ensure all customers will benefit from the clean energy future.

Statewide cap on GHG emissions

An economy-wide mandatory cap on GHG emissions could help Oregon realize its reduction goals if the compliance program is designed to protect Oregonians from unnecessary costs. We believe an effective and affordable program is possible, and we are committed to constructive engagement in the ongoing effort to design a statewide cap-and-trade program that protects our residential and business customers. We support resetting the state's 2050 reduction goal to 80 percent below 1990 levels, or the normalized equivalent if using a base year for which better data is available.

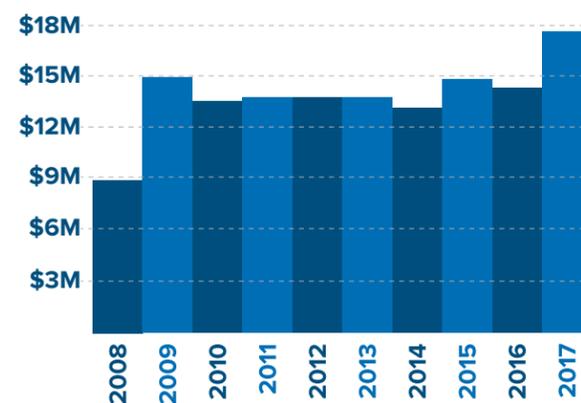
Energy efficiency

Energy efficiency will continue to be key in reducing GHG emissions. To reach the goals envisioned in PGE's study, the research found total energy consumption across the energy economy will need to drop by about one-quarter to one-third. This will be accomplished through traditional forms of energy efficiency, such as LED lighting and energy-efficient appliances, as well as the adoption of new highly efficient technologies like electric vehicles and heat pumps.

POWER FOR ALL PEOPLE

As we make the transition to a decarbonized future, we are keenly aware of our responsibility to provide affordable access across PGE's service area. We provide an essential service that customers rely on to power their lives and businesses. We have, for many years, worked closely with local Community Action Program agencies, customer advocates, counties, policymakers and other stakeholders to increase resources and improve services for our low income, medically fragile and non-english-speaking customers. But, there's more work to do here. We must partner with others to break through economic, cultural and linguistic barriers. We are committed to working with stakeholders to ensure all customers — including low-income people, people of color, seniors and people living with disabilities — have the opportunity to participate in the evolving energy landscape and benefit from new technologies and opportunities.

Energy Assistance Payments to PGE Customers from LIHEAP* and OEAP** Funds
Covers 20% of estimated customer need



*Low Income Home Energy Assistance Program
**Oregon Energy Assistance Program

Keep electricity as affordable as possible. We are working with policymakers and our regulators to keep affordability at the forefront of discussions around the clean energy transition. The transition will require dramatic changes in the way we produce, deliver and consume energy. Careful planning and policy design can reduce the incremental costs of the transition, protecting customers from unnecessary cost impacts. Despite efforts to keep electricity broadly affordable, we recognize that some customers are disproportionately impacted by the cost of their energy bills and need additional assistance to reduce their overall energy burden. Existing assistance programs are effective but insufficient in meeting current needs. It is time for a holistic review of existing weatherization and bill-assistance policies and programs with a focus on identifying barriers for participation and how we can better serve the needs of the most vulnerable members of our community.

Focus on policies, programs and technologies that deliver the biggest GHG reduction “bang for the buck.” Utility customers’ ability to absorb new costs is limited. It is essential that state policies align with the greater goal of cost-efficient decarbonization, freeing capacity to provide additional support to traditionally underserved communities so they too have meaningful access to weatherization, renewables, electric vehicles and smart grid enabled efficient technologies and appliances.

Offer multiple solutions. When rolling out clean energy options, we will ensure our most vulnerable communities are not left behind. We recognize that customers have differing needs and that “one size fits all” solutions are far from ideal. We’ll work to understand the unique needs of the communities we serve and explore how we can expand and refresh existing policies and programs. To increase access for all customers, PGE will also work to identify and remove barriers to program participation.

Protect our most vulnerable customers. We must protect vulnerable customers from predatory situations in which businesses promise benefits that don’t manifest.

Be the green energy employer of choice with a workforce that reflects the communities we serve. At PGE, diversity, equity and inclusion are part of our core values — both in how we develop and support our workforce and in how we serve our community. As one of the state’s largest employers and as an energy company at the center of the region’s clean energy transition, PGE has the opportunity to ensure the clean energy job revolution provides opportunities for all.

Efficient energy use is also critical to managing the individual and collective costs of the transition to a low-carbon future. We, along with our partners, must remain diligent and creative in engaging as many customers as possible in cost-effective energy efficiency. To do this, we must address the access and equity issues that impede some customers from taking advantage of services like free weatherization or rebates for energy-efficient purchases. Working with policymakers and stakeholders, we must also create solutions for multifamily housing and rentals, so the 44 percent of our customers who rent can also enjoy the cost and comfort benefits of energy efficiency.

Renewable development

In the near term, PGE is pursuing renewable resources to meet customers' needs, affordably and reliably. We're on track to serve about 50 percent of customers' energy needs with clean and renewable power by 2021. That's a good start, but we have to do more to meet our 2050 GHG reduction goal and enable the state and local jurisdictions we serve to meet their clean energy goals.

DEVELOPMENT OPPORTUNITIES AND CHALLENGES

Between now and 2050, we anticipate that a significant amount of new carbon-free resources will need to be added to the system to transition to the clean energy economy envisioned in PGE's decarbonization study. While the amount projected in our decarbonization study is well within the renewable resource potential of our region, it represents a ten-fold increase compared to the renewables we have today.

The scale of development required in the coming decades will call for a coordinated effort to develop and integrate renewable resources. This effort would benefit from streamlined permitting, transmission coordination and planning and the timely deployment of capital. PGE will continue to work with stakeholders at the local, state and federal levels to ensure barriers to cost-effective renewable development and access to transmission in the West are reduced. We will also work with stakeholders and regulators through our Integrated Resource Planning process to plan for cost-effective renewable resource procurement as clean technology costs continue to decline.

GREEN OPTIONS FOR CUSTOMERS

Customers' desire to decarbonize their personal energy use provides a valuable boost for reaching GHG goals. PGE is taking steps to ensure all customers can meet their clean energy goals, including a new green tariff option.

THE ROLE OF DISTRIBUTED GENERATION

While research suggests large-scale renewable resource development will be critical to meeting long-term GHG reduction goals, we also know distributed generation, like rooftop solar, empowers customers to participate in the clean energy economy and accelerates decarbonization of our energy system. We're working to help

customers adopt clean distributed technologies while integrating them onto the grid, so distributed resources can benefit all customers. To make the most of distributed technologies, we are evolving our processes, from long-term planning to real-time power management operations. Our goal is to provide an integrated platform to connect customers and their clean energy technologies to the community and to the broader Western energy markets. To learn more about what we're doing to support clean technologies on our distribution system, see our paper on grid modernization.

Transportation electrification

Today, about 40 percent of Oregon's GHG emissions come from transportation — and these emissions are expected to grow⁷. If Oregon is to achieve its GHG reduction goals, that trend must reverse. Switching vehicles from running on fossil fuels to electricity is an essential step toward a clean energy future. In addition to reducing emissions and improving air quality along major corridors, transportation electrification can help us use clean energy resources more efficiently and improve the

resilience of our grid by tapping electric vehicles (EVs) for power storage.

PGE's decarbonization study projected that charging EVs on a low-carbon grid could decrease overall passenger transportation GHG emissions by 95 percent. Our communities can realize additional reductions by electrifying buses, delivery vehicles and intermodal freight trucks — giving customers the ability to choose electric and clean regardless of their mode of transportation or need. Keeping electricity affordable is an important part of helping Oregon families, businesses, school systems and local governments to make this transition.

PGE is working to increase the adoption of EVs and expand access to electricity as a transportation fuel for all customers. We are also focused on efficiently integrating vehicle charging to realize the grid benefits that flexible battery loads can provide. Today, we're deploying charging infrastructure, streamlining processes for customers to add their own chargers and creating rates that support EV adoption. Looking forward, we're evaluating programs to make it easier for customers to install smart and connected charging in their homes and businesses to support flexible loads.

In the future, consumers will have a larger selection of vehicle types that will all be supported by a ubiquitous network of smart chargers living at the intersection of the transportation sector and the electric utility. To be ready for this future, we'll need policies that support common industry standards, ensure equitable access and reduce deployment costs.

SWITCHING VEHICLES FROM RUNNING ON FOSSIL FUELS TO ELECTRICITY IS AN ESSENTIAL STEP TOWARD A CLEAN ENERGY FUTURE

Flexible operations

In the Pacific Northwest, we benefit from investments made over the last century in clean and flexible hydropower. In a deeply decarbonized future, the regional electricity system will need to complement the hydropower system with new approaches to improving flexibility, both across the West and here in Oregon.

REGIONAL COORDINATION

The development and integration of renewable resources at the scale required in the coming decades will depend on improved coordination across the West. PGE took an important step in this direction in 2017 by joining the Western

Energy Imbalance Market — a real-time energy wholesale market that automatically dispatches the lowest-cost electricity generating resources available to customer needs within the hour, while optimizing use of renewable energy over a seven-state region (plus a Canadian province). Going forward, we'll identify and evaluate opportunities to improve regional coordination, with the goal of joining a broader organized market when it is in the best interest of customers and Oregon.

FLEXIBLE LOADS

We recognize that as customers adopt new clean technologies like electric vehicles, water heaters and heat pumps, the flexibility of these resources will be increasingly valuable in integrating renewable energy efficiently and affordably. We will develop programs and implement the technologies needed to enhance grid flexibility through the participation of these new electric loads. This will help us make the best use of variable renewable resources, like wind and solar, when they are available, and to reduce costs when they are not. In PGE's decarbonization study, we found that operating these new electric loads flexibly will be critical to ensuring the transition to a low-carbon economy is as efficient and affordable as possible.

Today, we're implementing pilot programs to test flexible load technologies and programs with customers. We'll also work with policymakers to encourage updated codes and standards that advance the use of smart electric appliances and incentives that support the adoption of smart technologies as appliances are replaced.

AS CUSTOMERS
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EFFICIENTLY AND
AFFORDABLY

ENERGY STORAGE

Energy storage technologies can help us integrate renewables and better support our grid. By 2020, we will expand upon our pioneering work on battery storage at the Salem Smart Power Center with new pilot programs and projects. These will focus on enabling customer adoption, improving flexibility, contributing to reliability and resiliency and supporting our grid.

GRID MODERNIZATION

At the core of our transformation will be the development of a modernized smart grid that is flexible, reliable and highly integrated. As outlined in our grid modernization paper, PGE will be transforming the grid to integrate new technologies, improve real-time power management operations and better coordinate with the rest of the West to ensure customers have the most reliable and affordable access to the clean power they expect.

NEXT STEPS

PGE is proud to partner with local, state and federal policy makers, municipalities, regulators, customers and stakeholders to advance a clean energy future that will help address climate change, promote healthy communities and deliver affordable, reliable power. As our region's population and industries grow, PGE is examining options through our Integrated Resource Planning process to meet the demand for energy with cost effective energy efficiency and clean and renewable resources. We're also developing new capabilities around distributed and flexible resources, like energy storage and flexible loads, to more efficiently integrate these resources into our portfolio to lower costs and maintain reliability. Furthermore, we're working with all of our stakeholders to ensure this transition is affordable, accessible and equitable for all customers and communities. By partnering with customers and communities, we can realize a more sustainable future for all Oregonians.

1. "Understanding the IPCC Reports." World Resources Institute, accessed March 15, 2018, <http://www.wri.org/ipcc-infographics>.
2. "Chapter 468A — Air Quality." 2017 Edition, Oregon State Legislature, 2017, https://www.oregonlegislature.gov/bills_laws/ors/ors468A.html.
3. "Renewable Portfolio Standard." Oregon Department of Energy, accessed March 15, 2018, <http://www.oregon.gov/energy/energy-oregon/Pages/Renewable-Portfolio-Standard.aspx>.
4. "Portland, Multnomah County set 100% renewable energy goal." The Oregonian, June 1, 2017, http://www.oregonlive.com/portland/index.ssf/2017/06/portland_multnomah_county_set.html.
5. PGE's Customer Insights Survey, presented at the February 14th 2018 IRP Roundtable Meeting. Available at: <https://www.portlandgeneral.com/-/media/public/our-company/energy-strategy/documents/2018-02-14-pge-presentation.pdf?la=en>.
6. PGE's 2050 goal is based on its proportionate share of Oregon's proposed mandatory economy-wide goal, using 2010 as the base year.
7. "Oregon Clean Fuels Program." Oregon Department of Environmental Quality, accessed March 15, 2018, <http://www.oregon.gov/deq/aaq/programs/Pages/Clean-Fuels.aspx>.

ADDITIONAL RESOURCES

PGE Clean Energy Vision
[portlandgeneral.com/
cleanvisionpdf](http://portlandgeneral.com/cleanvisionpdf)

PGE energy storage proposal
[portlandgeneral.com/
2018storagepotential](http://portlandgeneral.com/2018storagepotential)

PGE Green FutureSM program
portlandgeneral.com/greenfuture

PGE Decarbonization Study report
[portlandgeneral.com/
deepdecarbstudy](http://portlandgeneral.com/deepdecarbstudy)

PGE energy strategy
[portlandgeneral.com/
energystrategy](http://portlandgeneral.com/energystrategy)

Electric vehicles and charging stations
portlandgeneral.com/ev

PGE green tariff program
portlandgeneral.com/greentarriff

PGE Integrated Resource Plan
[portlandgeneral.com/
resourceplanning](http://portlandgeneral.com/resourceplanning)

PGE strategy paper
A modernized grid platform
for a clean energy future



portlandgeneral.com/cleanvision



A MODERNIZED grid platform for a clean energy future



The modern electric grid is the platform to enable a lower-carbon future for all sectors of the economy, from utilities to transportation to industry.



Our world is changing — and so is how we create and use power. Until recently, electricity has flowed pretty much as it had for more than a century — in a one-way stream from where it’s generated to where it’s used. But new smart grid technologies create a two-way exchange of electric power and information that helps us make our system more efficient and more reliable for customers. The modern grid will empower customers to take advantage of the cleanest energy sources, lower their overall household energy spending and partner with their utility to help decarbonize our economy.

The smart grid allows us to work in collaboration with customers to integrate renewable energy and other technologies that improve efficiency and drive decarbonization. These efforts can be something as simple as customers installing solar panels to reduce their electric bills, which also play an integral part in addressing climate change. In essence, the modern electric grid is the platform to enable a lower-carbon future for all sectors of the economy, from utilities to transportation to industry.

At Portland General Electric, our mission is to connect customers with what matters most, and our imperatives are to address climate change and ensure equity in the transition to a clean energy future. We are enhancing our grid to enable a seamless platform that launches our economy into an affordable, equitable, resilient, safe and clean energy future. These enhancements include:

- The increasing availability of clean, renewable sources like wind and solar.
- The use of electricity for more things like electric vehicles and heat pumps.
- The integration of new, geographically diverse energy markets.
- The deployment of new technologies like storage, communications networks, automation and control systems for flexible loads and distributed generation.
- The development of connected neighborhood microgrids and smart communities.
- The use of data and analytics to better predict demand and support energy-saving customer programs.

Building on our foundational infrastructure, nearly 130 years in the making, PGE is creating an electric grid that’s more flexible, resilient and integrated — in a word, smarter. The modernized grid complements our transmission and distribution system operations as we continue to harness new technologies and move toward our clean energy future.

Preparing for the future

Between now and 2050, we estimate that our service area will need about 10 to 15 gigawatts of new renewable resources to transition to a clean energy economy. While this amount is within the total renewable resource potential of our region, it represents a ten-fold increase in our current renewables. Expanding our use of energy storage will also help integrate new renewable resources while supporting grid operations. Furthermore, by updating our communications and control systems, we’ll support new customer technologies, smart cities and more efficient grid operations.

Integrating our grid and markets

As we look forward, building the smart grid on our distribution system foundation requires the integration of multiple levels of our generation, transmission, distribution and customer systems. Grid stability has traditionally been managed on the transmission system, but this must expand to include the distribution system. Ultimately, an integrated grid will accelerate our deployment of renewable energy, create better experiences for customers, support system-wide optimization and lower energy costs for everyone.

This integration is also key to obtaining the lowest cost renewables for customers. With more renewables being added to the system, there are times when their variable output outstrips customers’ need for power. As a result, that low cost renewable energy is often curtailed. Because PGE is part of an integrated Western grid, we’re able to take advantage of that low-cost resource for our customers whenever possible. We support enabling customers who want to install distributed resources like rooftop solar. Though when it comes to the lowest cost renewable energy available, that usually isn’t coming from your neighbor’s roof — it’s grid-scale wind projects or the excess renewable energy generated elsewhere on the Western grid.

RAPID ADOPTION OF NEW TECHNOLOGIES

From now to 2030, we estimate:

-  We’ll need about **2.5 times the wind and solar we have today** to meet customer demands with renewable energy.
-  We’ll see a **ten-fold increase** of energy storage capabilities on the grid.
-  Demand response programs will **increase ten-fold**.
-  Electric vehicles charging on the grid will **increase twenty-fold**.

STRATEGY IN ACTION

Meeting demand on the hottest day of the year

On August 3, 2017, our service area reached a record 105 degrees Fahrenheit — and PGE reached an all-time record summer energy peak at 3,974 MW.

Prior to the heat wave, we had integrated data from our smart meters with our outage management system to identify transformers that needed to be upgraded or replaced. We had also implemented 13 MW of demand response and other dispatchable resources. Finally, we had upgraded substations with advance communications and control systems. All our work kept customers comfortable on the hottest day of the year.

IN THE FUTURE, MAINTAINING A JUST AND EQUITABLE ENERGY SYSTEM MEANS RECOGNIZING THAT ENERGY IS AN INTEGRAL PART OF THE FABRIC OF OUR SOCIETY THAT IS GROWING IN IMPORTANCE

Energy for everyone

As the state's largest electric utility, our social compact has been to keep energy affordable and accessible to all customers. We have worked over the years with partners to create programs and policies to help customers who have historically experienced systemic and social barriers to affordable and reliable energy because of economics, geographical location or language barriers. For example, working with Community Action Partnership Agencies and counties, we have a system that makes available low-income bill payment assistance, low-income weatherization, time payment assistance and other ways to help customers pay their bills.

In the future, maintaining a just and equitable energy system means recognizing that energy is an integral part of the fabric of our society that is growing in importance. It also means thinking creatively about how communities benefit from the clean energy future, from access to clean technologies to jobs at PGE and elsewhere. Maintaining a just and equitable energy system means embracing the role we play as conveners of access to healthier, more equitable resources. When the community bands together to do their part to lower costs and support for cleaner alternatives, the benefits are far reaching.

CREATING AVAILABLE, FLEXIBLE ENERGY

In this new era of dynamic electricity use, PGE is integrating flexible electricity use and generating resources while driving affordability and accessibility. This paper outlines a number of focus areas, projects and plans designed to help us meet our goals. We are working to apply an equity and inclusion lens to all we do, acknowledging that we are learning more and trying to get better at this as we move forward.

STRATEGY IN ACTION

Salem Smart Power Center: Energy storage and grid frequency stabilization

The Salem Smart Power Center was developed by PGE and our partners as part of the largest regional smart grid demonstration at the time — the Pacific Northwest Smart Grid Demonstration Project.

The project used state-of-the-art storage batteries to show how variable renewable sources, such as solar and wind, may be stored for later use. When power sagged briefly on the regional transmission system in February 2015, the batteries immediately fed 5 MW back onto the grid to help stabilize grid frequency.

Greater flexibility with energy storage

Historically, utilities have been able to alter generation to balance energy supply with demand, which fluctuates throughout the day. To maximize the use of renewable resources like wind and solar, which generate variable amounts of power during the day, flexibility must increase. Energy storage systems like batteries and electric vehicles, store electricity during periods of high generation and provide it back to the grid during peak usage times. PGE is turning to energy storage as a way to leverage more renewable resources and maintain reliability, while helping regulate the grid. Looking to the future, when used in conjunction with microgrids, energy storage can also supply power to customers during outages. These local microgrids can meet the needs of customers in a particular area during wide-area events impacting the grid.

More efficiency through automation and control

By automating and optimizing our operations, we can make our transmission and distribution (T&D) system smarter than ever. We're deploying advanced sensing equipment and automation across our system. We'll further enhance grid efficiency through voltage optimization, which improves energy efficiency and reduces energy usage.

Imagine a grid that can automatically identify outages, diagnose problems and restore power to customers. Distribution Automation (DA) uses digital sensors and switches to manage the flow of power without manual intervention. This can shorten the duration of outages and reduce the number of impacted customers by two-thirds, leading to greater reliability and cost savings.

IMAGINE A GRID THAT CAN AUTOMATICALLY IDENTIFY OUTAGES, DIAGNOSE PROBLEMS AND RESTORE POWER TO CUSTOMERS

Lower costs through flexible loads

When we can reduce the demand on our grid during peak times, we can deliver power at lower costs. Flexible load strategies, such as demand response, include customer programs like flexible pricing, building management systems, smart thermostats and smart water heaters — all of which help us balance power supply with power use by shifting load to non-peak times. From 2016 to 2021, PGE will increase demand response capacity in our service area by more than 500 percent. Our approach places PGE as a leader among utilities in the Pacific Northwest.

Demand response strategies also empower customers to control their power costs while keeping long-term prices low for our entire community. For example, as part of our smart thermostat program, customers save money by telling their thermostats to make decisions based on the cost of energy, the weather and comfort.

Smarter decisions with analytics and forecasting

Data, when coupled with analytics, are powerful. PGE is learning more about the demands on our grid and how to bring energy to customers more effectively by analyzing data from smart meters and other sources, including distributed energy resources.

Smart meters are fundamental to our smart grid, and we've been using them across our system for a decade. These meters, along with advanced weather forecasts, help predict how much electricity customers use on hot summer days or how much energy is being produced from sources like rooftop solar. PGE will monitor voltage in near-real-time to help identify abnormal conditions and analyze outage data to determine the cause, so we can shorten restoration times or avoid the outage altogether.

Better protection with physical and cyber security

As systems become more sophisticated, it's critical that we continue to protect our energy delivery, data and employees against both physical and cyber threats. Our Integrated Security Program focuses on the safety, protection and reliability of our operations and information. This means anticipating business needs and maintaining our security expertise so we can respond quickly to threats and be responsible stewards of customer information.

A reliable, resilient foundation

By strengthening the safety and reliability of our grid, we can ensure the best experiences and opportunities for customers. We're focusing our efforts where they'll make the most impact. This involves replacing aging equipment, redesigning parts of our T&D system and targeting areas prone to

weather-related outages. To prepare for a grid with two-way power flow, we are proactively integrating modern equipment that includes enhanced monitoring and control. These enhancements will allow us to partner with customers to build resilient microgrids, limiting widespread outages during major storms or earthquakes.

STRATEGY IN ACTION

Operational technology enables market access

Energy market participation requires the control of generation resources and significant data about the grid to ensure effective dispatch of resources. To support participation in the Western EIM, PGE deployed new operational technology.

- Telecommunications infrastructure allows data exchange with market operators.
- High-accuracy meters measure energy exchange.
- Supervisory Control and Data Acquisition (SCADA) systems allow real-time monitoring and detailed system modeling.
- Automatic Generation Control (AGC) systems enable remote, efficient dispatch of energy resources in conjunction with market and system needs.

INTEGRATION: BETTER TOGETHER

In the deeply decarbonized energy future we envision, electricity systems will efficiently integrate vast amounts, sizes and types of renewable sources, as well as new technologies. From modernizing our communications to determining where distributed energy resources will offer the most value, integration is a key theme in our modernized smart grid.

Fast, secure data with upgraded communications

For our grid to be truly integrated, all equipment, devices and systems — including those at customer premises — must communicate with each other and PGE quickly and securely. PGE is developing new capabilities for data and systems interoperability that will enable us to ingest large volumes of data from generation, transmission, distribution, meter and home appliances to drive even more efficiencies in how we manage energy. Visibility into, and integration of, this data is critical in our path to create the smartest and cleanest energy for customers. We're also continually investing in our fiber optic network, and in 2016, PGE purchased wireless communication spectrum that covers our service area as part of a long-term strategy to support our smart grid.

STRATEGY IN ACTION

Rush Hour Rewards: Smart thermostats save money

In 2015, PGE launched a smart thermostat program. The Rush Hour Rewards program achieved large demand reductions, averaging about 0.8 kW per customer in the summer — the equivalent total savings of about 17 kWh.

Today, about 4,800 PGE customers are enrolled in Rush Hour Rewards, with a capacity of 3.8 MW. Our goal is to reach enrollment of 15,500 thermostats for 5.44 MW of demand response.

More value with Distribution Resource Planning

Customers are bringing more distributed generation resources, like rooftop solar, onto the grid. These will play a key role in our clean energy future. PGE is working to ensure that all customers can benefit from distributed energy resources, which can lower energy costs for the community as a whole, especially when paired with energy storage and flexible loads. PGE is developing a Distribution Resource Planning (DRP) process in conjunction with our Integrated Resource Planning (IRP) and Transmission Planning processes. As customers add new

WE WANT TO WORK WITH CUSTOMERS TO DEPLOY DIVERSE ENERGY SOLUTIONS, ENABLING THEM TO CONTRIBUTE TO OUR DECARBONIZED ENERGY FUTURE

technologies — like EVs, heat pumps and rooftop solar — we will continue to model, customize and optimize the system. This involves forecasting where distributed energy resources will be installed on the system, planning and prioritizing locational modernization, and engaging in public and regulatory processes. We want to work with customers to deploy diverse energy solutions, enabling them to contribute to our decarbonized energy future. Together, we will increase efficiency and decarbonize.

A strong core with integrated operations

Our modernized grid must have a strong center of operations that fully monitors and integrates new energy resources and flexible loads, along with traditional utility operations and community resiliency initiatives.

As generation sources are added to our distribution system, we'll need to evolve our conventional way of balancing load and generation on the grid. In 2017, PGE joined the Western Energy Imbalance Market (EIM) — a real-time energy wholesale market that automatically dispatches the lowest-cost electricity generating resources available to customer needs within the hour, while optimizing use of renewable energy over a seven-state region (plus a Canadian province). Our participation in the EIM is managed through our operations center, where we will also soon house our Advanced Distribution Management System (ADMS). This will integrate our smart grid with distributed energy resources and demand response systems. In effect, our operations center will soon be the brain that processes signals from our modern smart grid, enabling optimal system operations.

Extending market access

The evolution of our grid and technology investments positions PGE to partner with customers on the selection, integration and operation of energy resources. We have a unique ability to support customers' specific goals while maintaining the lowest-cost solutions for reliable grid operations. We already realize value in aggregating customer generators, which fills an important role in providing reliability services during grid disturbances, while also serving the needs of their owners as localized back-up power.

Additionally, we have demonstrated our ability to achieve value in multiple energy markets and have already implemented the systems that allow for real-time trading in the Western EIM. Our demonstrated competency in leveraging market opportunities is a great fit for customers who seek value from their energy assets by accessing those markets.

SUMMARY

PGE's proactive investments in an integrated smart grid platform are enabling the clean energy future that we, together with customers, envision. With a modernized grid, we will:

- Accelerate the path to clean, renewable energy sources while maintaining equity, efficiency and reliability.

- Foster the adoption of distributed energy resources, and ensure that they are fully integrated and backed by system-wide resiliency and security.
- Improve automation throughout the grid to create further efficiencies, increasing reliability for customers.
- Integrate customer technologies to enable transportation electrification, smart communities and customer choice.
- Ensure customers can participate in the smart grid, help address climate change and reduce their overall spending on energy.
- Provide great family-wage clean energy jobs with a diverse workforce that reflects the communities we serve.
- Welcome partnerships with other utilities, industries and customers. Initiatives like the Western Energy Imbalance Market prove utility collaboration and benefits across the region are possible, both in the form of more efficient operation of the system and the potential for better utilization of renewable energy resources.

As we move toward our modernized grid, we are prioritizing our investments based on what customers want today, as well as their expectations for tomorrow.

ADDITIONAL RESOURCES

PGE Clean Energy Vision
portlandgeneral.com/energyvisionpdf

PGE energy storage proposal
portlandgeneral.com/2018storageplan

PGE Green Future™ program
portlandgeneral.com/greenfuture

PGE Decarbonization Study report
portlandgeneral.com/deepdecarbstudy

PGE energy strategy
portlandgeneral.com/energystrategy

Electric vehicles and charging stations
portlandgeneral.com/ev

PGE green tariff program
portlandgeneral.com/greentarriff

PGE Integrated Resource Plan
portlandgeneral.com/resourceplanning

PGE strategy paper
The path to a decarbonized energy economy



portlandgeneral.com/cleanvision

Memorandum

To: Clackamas County Coordinating Committee (C4)
From: Emmett Wheatfall, Assistant County Administrator – Clackamas County
Date: October 04, 2018
RE: Equity and Diversity Opportunities for Public Agencies

Overview:

Clackamas County wants to partner with cities that are working to create workplace values geared towards inclusive and equitable services and employment. While the intention to make these changes is always good, we also understand that resources are sometimes limited to do this well, thoughtfully, or effectively.

Clackamas County has been working for 10 years to build an identity as an equitable service provider and a safe, welcoming work place. And we are not done! But we feel we are in a place where our work can be a resource for partnering agencies and public employees throughout Clackamas County.

I plan to reach out to city managers in October to begin discussion on what this could look like and learn if there is interest in working together. How great would it be for the public and our talented, deserving employees to be treated fair and equitably no matter which public agency they visit or work for within Clackamas County!

One upcoming opportunity is the 2018 NW Public Employees Diversity Conference on October 23, 2018.

Contact Information:

Emmett Wheatfall, Assistant County Administrator
503-655-8291 | ewheatfall@clackamas.us