



**May 13, 2020 Commission Meeting**  
**1:00 – 4:00 pm**  
**Agenda**

- 1:00-1:15 **Welcome and Introductory Remarks**  
Angus Duncan, OGWC Chair  
Cathy Macdonald, OGWC Vice-Chair
- 1:15-1:55 **Overview of Executive Order 20-04**  
Kristen Sheeran, Governor’s Energy and Climate Change Policy Advisor
- 1:55-2:00 **Break**
- 2:00-3:00 **Social Cost of Carbon**  
Maya Buchanan, ODOE Senior Climate Policy Analyst  
Thomas Potiowsky, Portland State University  
Michael Hanemann, University of California Berkeley
- 3:00-3:45 **Implementation of 2017 and 2020 Climate Change Executive Orders**  
Janine Benner, ODOE Director
- 3:45-4:00 **Public Comment Opportunity and Meeting Wrap Up**

Angus Duncan – THANK YOU!



# Executive Order 20-04 Overview

Kristen Sheeran Ph.D.  
Climate & Energy Advisor to Governor Kate  
Brown

May 13, 2020

# EXECUTIVE ORDER 20-04

Office of the Governor  
State of Oregon



## **EXECUTIVE ORDER NO. 20-04**

### **DIRECTING STATE AGENCIES TO TAKE ACTIONS TO REDUCE AND REGULATE GREENHOUSE GAS EMISSIONS**

WHEREAS, climate change and ocean acidification caused by greenhouse gas (GHG) emissions are having significant detrimental effects on public health and on Oregon's economic vitality, natural resources, and environment; and

WHEREAS, climate change has a disproportionate effect on the physical, mental, financial, and cultural wellbeing of impacted communities, such as Native American tribes, communities of color, rural communities, coastal communities, lower-income households, and other communities traditionally underrepresented in public processes, who typically have fewer resources for adapting to climate change and are therefore the most vulnerable to displacement, adverse health effects, job loss, property damage, and other effects of climate change; and

WHEREAS, climate change is contributing to an increase in the frequency and severity of wildfires in Oregon, endangering public health and safety and damaging

# ESTABLISHES GOALS

- Updates GHG reduction goals for Oregon:
  - 45% reduction from 1990 baseline by 2035
  - 80% reduction from 1990 baseline by 2050
- References transportation electrification (TE) goals set by SB 1044 (25% of vehicles sold by 2030 are ZEV)
- Sets a new goal to halve food waste by 2030 to reduce emissions
- Directs GWC to report on new GHG and TE goals
- Directs GWC to work with agencies to propose carbon sequestration and storage goals for natural and working lands.

# DIRECTS AGENCIES TO:

- Exercise statutory authority to help achieve the goals
- Prioritize actions that have GHG reduction benefits
- Integrate mitigation goals and impacts into agency planning, budgets, investments, and policy recommendations:
  - Prioritize actions that are cost-effective
  - Prioritize impacted communities
  - Consult with the Environmental Justice Task Force
- Participate in an interagency working group on impacts to impacted communities

# SPECIFIC DIRECTIVES: EMISSIONS REDUCTIONS FROM SPECIFIC SOURCES

- Adopt regulations on methane emissions from landfills (EQC/DEQ).
- Adopt regulations on stationary sources of emissions within DEQ's statutory authority.
- Adopt regulations on indirect sources of emissions: transportation, liquid, and gaseous fossil fuels.
- Expand the Clean Fuels Program to achieve a 25% reduction in carbon intensity of transportation fuels by 2035 (currently set to achieve 10% by 2025)

# SPECIFIC DIRECTIVES: ENERGY

- Reduce energy consumption by new buildings by at least 60% by 2030.
- Update efficiency standards for appliances to match or exceed West Coast jurisdictions.
- Establishes that rapid decarbonization of electricity grid consistent with state goals is in the public interest, and should be considered in energy sector planning and investments.
- Facilitates utility investments in TE and alternative fuel vehicles.
- Requires new wildfire risk mitigation planning.



# SPECIFIC DIRECTIVES: TRANSPORTATION

- Conduct statewide TE infrastructure needs analysis.
- Develop and apply process for evaluating the GHG implications of transportation projects.
- Implement the Statewide Transportation Strategy
  - Develop GHG metrics
  - Adopt rules to require GHG plans for metropolitan planning areas.
  - Provide technical and financial assistance to metropolitan planning areas.

# OTHER DIRECTIVES: PROCUREMENT AND HEALTH

- Requires annual reporting on public health impacts
- Requires a study of the impacts on youth mental health and depression.
- Calls for proposals for new standards to protect workers from exposure to extreme heat and wildfire.
- Calls for development of a procurement model for zero emissions vehicles.
- Calls for rapid conversion of state fleets and charging infrastructure on state properties.
- Evaluates state procurement laws to identify opportunities to better align with state GHG goals.

# PROCESS

- Timelines and processes will vary widely by agencies
- Initial Reports: May 15
  - Agencies are currently engaged in internal processes to determine how to respond to the EO.
  - Reports will include their detailed planning and timelines, including stakeholder engagement.
  - Reports will also identify other actions agency may take to advance the directives of the EO.

**QUESTIONS?  
FEEDBACK?**

Thank you!

**BREAK**



OREGON  
DEPARTMENT OF  
ENERGY

# Introduction to the Social Cost of Carbon

Maya Buchanan, Senior Climate Policy Analyst  
May 13, 2020



# Agenda

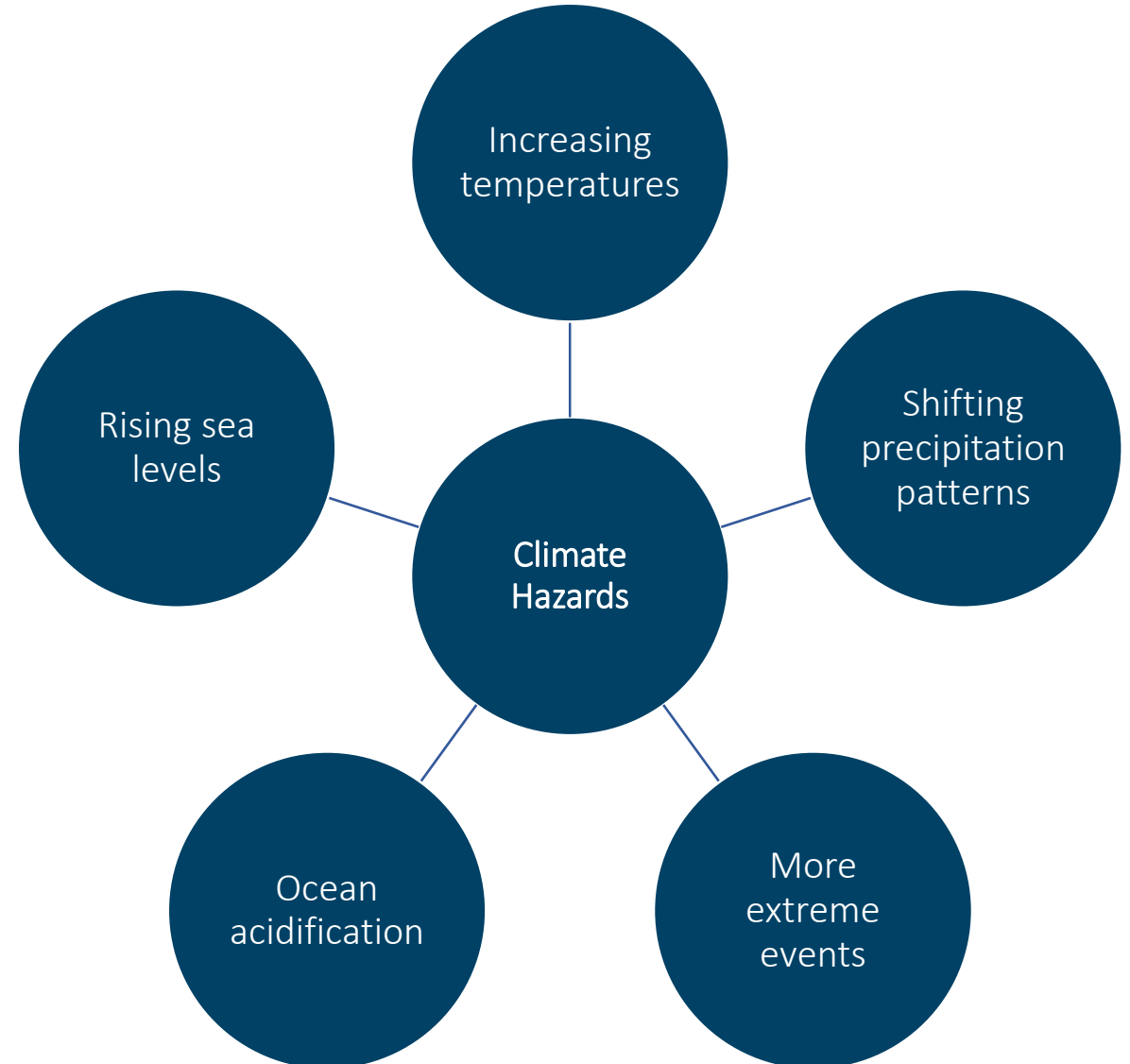
- Introduce Social Cost of Carbon
- Calculation
- Dollar values
- Applications



# PRICING CARBON

## Greenhouse gases pose costs to society

- Greenhouse gases trap heat in the atmosphere
- This 'radiative forcing' changes the earth's climate
- Climate hazards harm human health, damage resources/infrastructure, disrupt business operations
- Negative effects of emitting GHGs represent an economic 'externality'





## Social Cost of Carbon

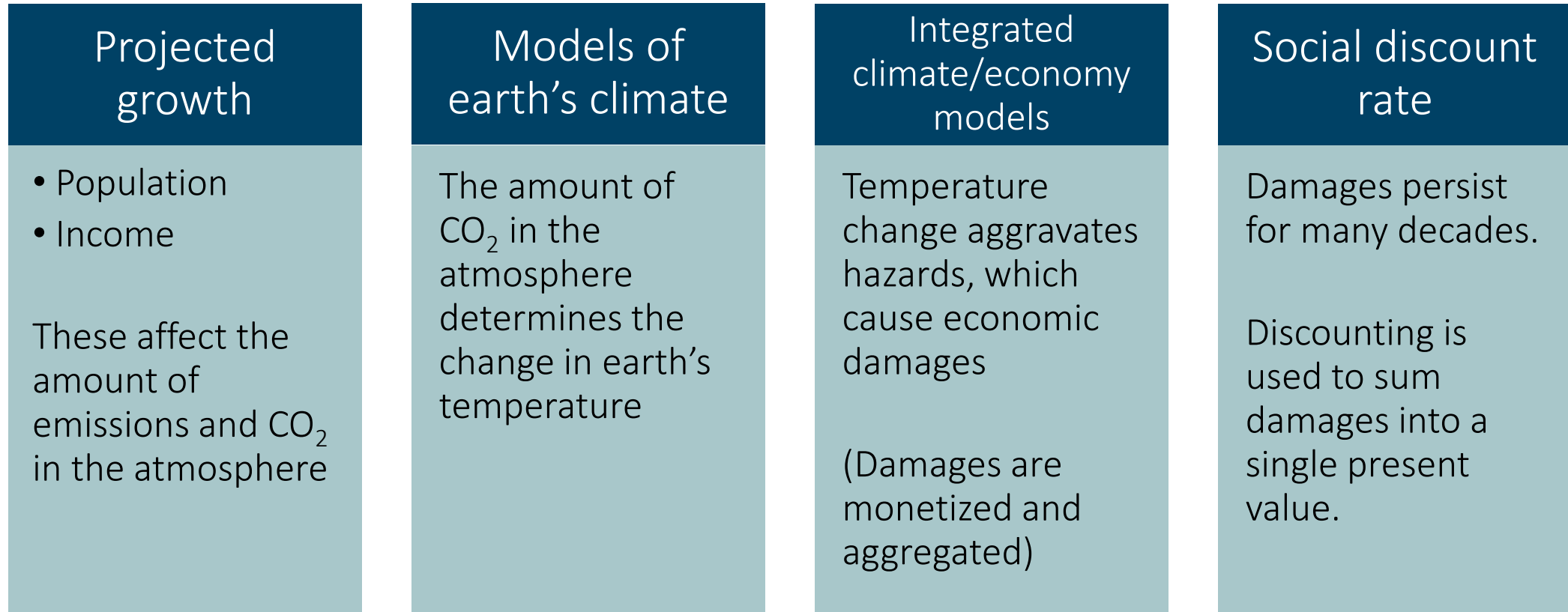
A metric to monetize the long-term economic damages posed by climate change

- Measures the net present value of economic damage associated with an incremental ton of CO<sub>2</sub>
- Allows for the cost of carbon to be included in investment/policy decision-making (e.g., CBA)
- Can be aggregated to fit the scale of a specific project or policy

# ESTABLISHING A FRAMEWORK TO CALCULATE THE SCC

- 2008 Court ruling required valuation of CO<sub>2</sub> emissions in federal regulations
- 2009 U.S. Office of Management and Budget established the federal **Interagency Working Group on the Social Cost of Greenhouse Gases**  
Sophisticated framework;  
Estimates adopted as the gold standard at the federal and state levels
- 2016 Latest update of IWG SCC values

# CALCULATING THE SOCIAL COST OF CARBON



This 4-step process is used with both baseline emissions and again with an incremental amount of emissions in a particular year.

The SCC is the per-ton difference in present value of damages.

# SOCIAL DISCOUNT RATE

- Reflects how much we want to avoid climate damages today vs. in the future
- A higher discount rate (>5%) implies that we would rather pass off more economic losses to the more distant future
- Higher discount rates yield lower Social Costs of Carbon

**A key factor influencing  
the SCC dollar value**

# DAMAGES (AND SCC) INCREASE OVER TIME

- Over time, emissions continue & earth's capacity to absorb heat in sinks diminishes
- As a result, the amount of carbon dioxide accumulates in the atmosphere
- This increasingly aggravates the climate and leads to more economic damages

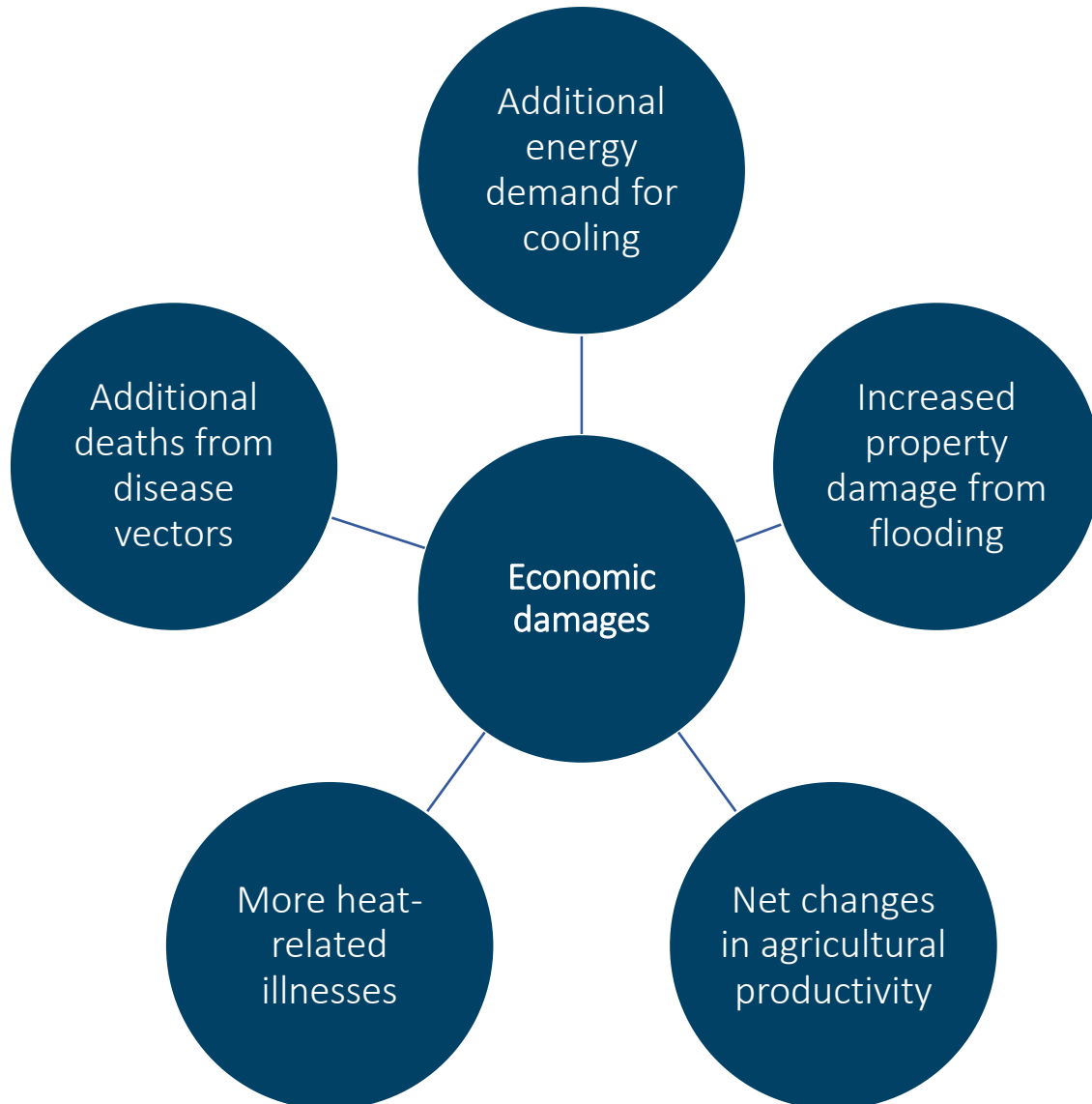


# IWG ESTIMATES OF THE SCC

	Average estimate of damages			High-end estimate
Year of Emission	5% Discount Rate	3% Discount Rate	2.5% Discount Rate	3% Discount Rate
2020	\$15	\$53	\$78	\$156
2030	\$20	\$63	\$93	\$192
2040	\$26	\$76	\$107	\$232
2050	\$33	\$88	\$120	\$268

In 2020 dollars per metric ton of CO<sub>2</sub>, adjusted for inflation

# SCC ACCOUNTS FOR A WIDE RANGE OF DAMAGES



- But, there are several other damages we expect from climate change that are hard to quantify
- E.g., pest infestations in forests; declines in fisheries from acidification, respiratory illness from wildfire smoke
- Hence, SCC values represent a lower-bound of the true costs of carbon

# APPLICATIONS OF THE SOCIAL COST OF CARBON

Help evaluate/implement policies/programs that may result in a change in GHG emissions

- Support utilities' integrated resource planning  
(e.g., in Oregon, Washington, Minnesota)
- Provide incentives for facilities to generate low-carbon electricity  
(e.g., in Illinois, New York)
- Help evaluate proposals for new power plants  
(e.g., in Colorado, Nevada, Minnesota, Maine, Oregon (pre-SCC))
- Set compensation for owners of solar panels that supply power to grid  
(e.g., in Minnesota, New York)



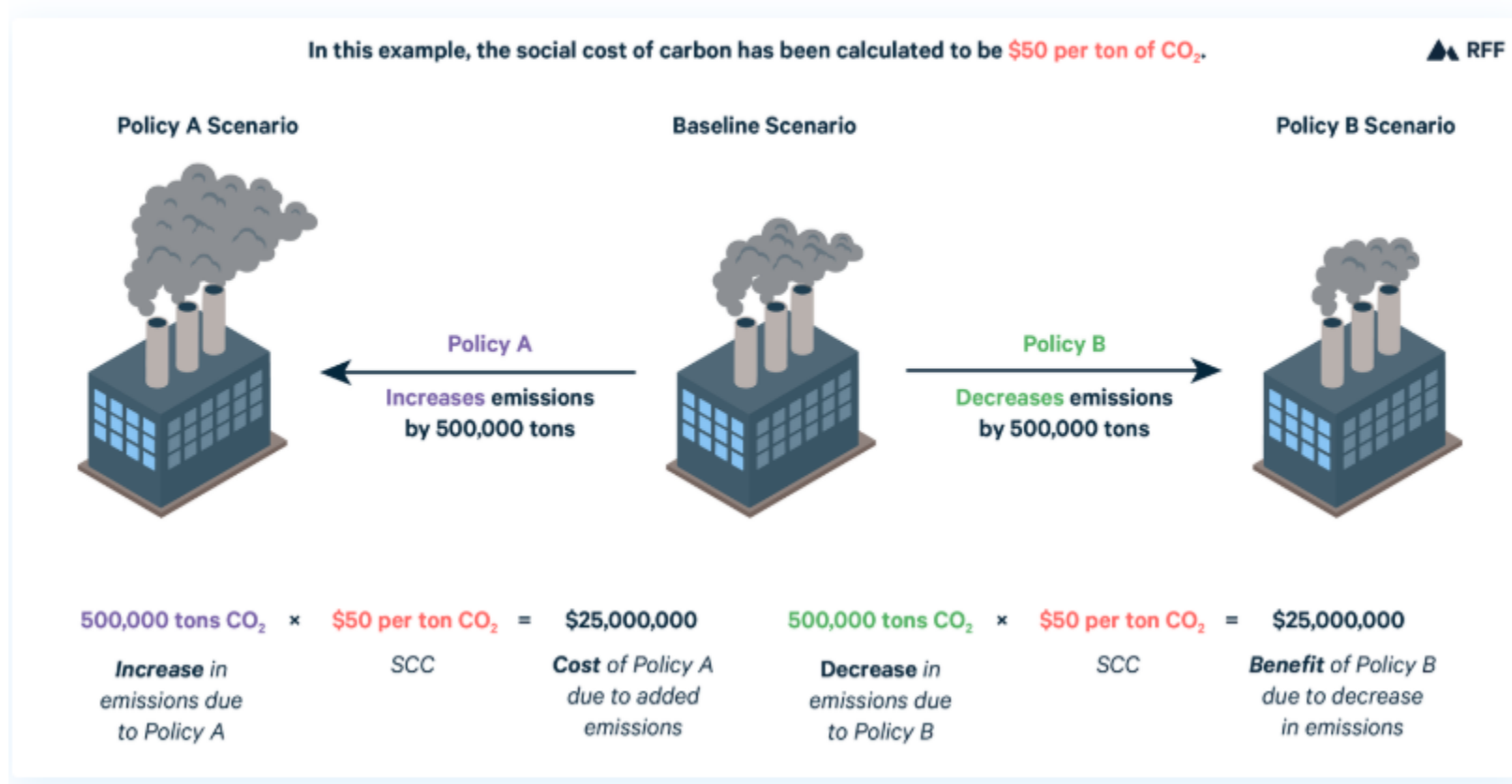
# Using the Social Cost of Carbon

Basic Concept:

SCC is used to weigh the benefits of mitigating climate change against the costs of limiting carbon pollution.

# Basic Concept of Using Social Cost of Carbon

## Using the SCC to Calculate Costs and Benefits of Changing Emissions



# Broad Use Areas of the Social Cost of Carbon

- Regulatory Impact Analysis (RIA)
- Public Investment Decisions
- Integrated Resource Planning (IRP)
- Business Financial Planning

# Regulatory Impact Analysis

- Benefit-Cost Analysis
  - Required for federal regulatory analysis by Reagan administration in 1981.
  - Federal agencies to take into account not only private benefits and costs, but expand this to account for social benefits and costs since 2009 – requirement to use harmonized SCC removed in 2017.
  - Compare the total economic benefits to the total economic costs.
- Policy Evaluation
  - Ability to compare the benefit of reduction in GHG emissions to the costs of mitigation of GHG emissions (e.g., scrubbers on smoke stacks).
  - Establishing resource management payments for the sequestering GHGs.
- Examples of Implementations
  - Federal
    - CAFE (Corporate Average Fuel Economy), appliance energy efficiency standards, regulating industrial GHG emissions, emission standards for manufacturing, power plants, solid waste incineration,...
  - State
    - Renewable fuel standards, motor vehicle emission standards, utilities emission standards,...

# Public Investment Decisions

- Public Investment in the context of physical infrastructure
  - Highways, roads, bridges
  - Navigable waterways, dams
  - Airports, train stations, ports
  - Public government buildings, convention centers, private-public investment ventures
  - Public funding assistance for solar panels, EVs, energy efficient appliances
- Any public investment should take into account the SCC to determine the social costs of increased GHG emissions and the social benefits of reducing GHG emissions.
- Examples of Implementation
  - Federal
    - Grants under US DOT Transportation Investment Generating Economic Recovery program, High-speed rail grants to value reduced CO<sub>2</sub>, government procurement policies (e.g., vehicles), rebates on energy efficient appliances and cars.
  - States
    - Rebates or tax credits for solar panels, energy efficient appliances, EVs, royalty payments for carbon sequestering.

# Integrated Resource Planning

- “An IRP is a roadmap to meet forecasted energy demand using both supply and demand side resources to ensure reliable service to customers in the most cost-effective way.”\*
- IRPs are generally a 20 year planning horizon
- IRPs address a number of issues, some of which are:
  - Economic growth
  - Population change
  - Costs of various forms of energy
  - Technology changes
  - Regulatory impacts
- Public Utility Commissions will also evaluate the various IRPs from energy companies to look at the total energy landscape for their region.
- SCC is used to determine a benchmark for electricity and natural gas rates if social benefits and costs are fully integrated.
- Examples of Implementation
  - Federal
    - Federal Energy Regulatory Commission (FERC) in overseeing wholesale electricity and gas markets
  - States
    - Utility plant siting, alternative forms of energy (e.g., wind, biomass, geothermal,...), ratemaking.

[\\*https://blog.aee.net/understanding-irps-how-utilities-plan-for-the-future](https://blog.aee.net/understanding-irps-how-utilities-plan-for-the-future)

# Business Financial Planning

- SCC is used as an internal price on carbon pollution in business financial planning to help weigh the risks and opportunities related to climate change.\*
- Stranded Assets
  - In the context of climate change, the businesses that are directly and heavily indirectly related to carbon based fuels may find their value depreciating in the future due to regulation, public perception, investor preferences.
  - Take into account that various reserves of oil, gas, coal, may be “stranded” and left in the ground, turning from being an asset into a liability.
  - Peabody Energy market capitalization is down over \$20 billion in the last 10 years.
- Other Climate Risk
  - Damage to land and buildings, crop yields, supply chain disruptions, policy, financial liabilities, public opinion.
- Examples of Firms Using SCC in Financial Planning:
  - ExxonMobil, BP, Microsoft, General Electric, Walt Disney, ConAgra Foods, Wells Fargo, DuPont, Google, Walmart, Delta Airlines.

# How Oregon Could USE SCC

- Just about any of the regulatory polices related to mitigating GHG emissions
  - Renewable Portfolio Standards
  - Motor Vehicle Emissions
    - Clean Fuels Program
    - Renewable Fuels Standards
    - Motor Vehicle Emission Standards
  - Electric Utilities
    - Electric Utility Facility Siting Requirements and Standards
- Any Oregon State Government Agencies that Indirectly Impact GHG Emissions (short set of examples)
  - ODOT
    - Any highway investments that impact road congestion
    - Highway constructions carbon footprint
    - Materials procured for transportation investments (highways; transit; bike/ped)
    - Use of solar to power lighting and road signs
  - Business Oregon
    - Assess the climate change impact of any activities of communities and businesses that receive grants for this activity.



# How Oregon Could USE SCC

## HB 2020A: Joint Committee on Carbon Reduction

- Cap and Trade mechanism to reduce GHG emissions
  - Goals:
    - 45% below 1990 emission levels by 2035
    - 80% below 1990 emission levels by 2050
  - Number of emission allowances initially set equal to baseline level of emissions
  - Number of allowances are reduced each year such that emission goals are reached
  - Expected that allowances will be priced and traded in the market place.
- What role would SCC play in the Cap and Trade?
  - If the policy was carbon tax, the SCC would set the economic upper limit for the tax.
  - Under cap and trade, the price of carbon is set by the market for allowances. In an economic sense, the SCC is used to set the number of allowance so that, in an economic sense, the cost of allowances does not exceed the SCC.

Social cost of carbon

- From an economic perspective, the emission of greenhouse gasses (GHGs) is a form of pollution.
- Like other forms of pollution it creates a harmful *externality*.
- An externality is a concept introduced into economics 100 years ago by a UK economist, Professor Arthur Pigou.
- An externality is where someone, undertaking an action that presumably benefits him, imposes harm on other people.
  - An externality leads to what economists call market failure.
- Pigou identified an economic remedy that would correct the market failure.

- Pigou's remedy relates to the concept of "the polluter pays" principle.
- This is the principle that a party responsible for causing pollution should pay for the damage caused by that pollution, thus giving due consideration to the externality.
- Paying for the damage one has caused has the effect of *internalizing* the externality – making the polluter mindful.

- The Social Cost of Carbon (SCC) measures the additional harm caused by discharging an additional unit of GHGs now.
  - It measures the externality cost associated with that discharge.
  - Specifically, it measures the discounted present value of the additional harm over future decades.
- SCC similarly measure the benefit from a *reduction* in the discharge of GHGs.
  - This can be compared with the cost of the emission reduction to determine whether that is justified.

# Key linkage

- Emissions now → changes in future climate → future impacts
- Damage valuation uses models to establish the economic value of those future impacts.

# Key facts

- The earth location at which a GHG is discharged makes no difference.
  - A GHG emitted anywhere on earth has the same effect on global and regional climate everywhere else.
- Depending on the type of gas, GHGs can remain in the atmosphere for many centuries.
- The impact on future global climate of the same given amount of GHG discharged is more severe the higher the pre-existing concentration of GHGs in the atmosphere.
- Therefore, one needs to keep track of past emissions in order to assess the future effect of current emissions.

# Economic issues

- Projecting future emissions
- Measuring damages
- Discounting future impacts



# Projecting future emissions

- Obviously, there are many uncertainties projecting future emissions over the next 300 years.
- Actual emissions over the past 20 years so far track the projections well.

# Assessing and valuing the damages from climate change

- The first attempt to do this was a major study for the US government in 1975.
- In 1989, there was a major study by the EPA assessing the impacts on the United States.
- This led to a round of studies in the early 1990s in Europe as well as the US of the global damage functions.
- The huge spatial and temporal scales are a formidable challenge.
- Having reviewed the literature on climate damage functions, in my opinion the existing estimates of damages are clearly likely to be an understatement.
  - This is because of technical factors that lead to under-estimates and omissions.

# Discounting future damages

- The time span crosses many generations.
- Discounting has a major impact.

This table shows the present value (PV) today of \$100 occurring in 2100 (80 years from now) and in 2200 (180 years from now) at different discount rates

<b>Discount rate</b>	<b>PV in 2020 of \$100</b>	
	<b>in 2100</b>	<b>in 2200</b>
2.5%	\$13.53	\$1.11
3.0%	\$9.07	\$0.45
5.0%	\$1.83	\$0.01
7.0%	\$0.37	\$0.00

# Which discount rate seems most appropriate?

- There are two ways to think of the answer:
  - A. What could you earn if you had used this money for an investment?
  - B. How much do you value the future, in this case harm to future generations?
- What makes this different is that it involves discounting the far future.
  - The span of time stretches far beyond typical investment choices
  - It raises the question of what obligation we might have to consider future generations and the future of the earth.

# The appropriate discount rate, continued

- The length of time argues strongly for using a lower discount rate.
- The Federal OMB rules has a section on “Intergenerational Discounting” which states: “Special ethical considerations arise when comparing benefits and costs across generations. Although most people demonstrate time preference in their own consumption behavior, it may not be appropriate for society to demonstrate a similar preference when deciding between the well-being of current and future generations.”
  - The OMB document goes on to say: “Estimates of the appropriate discount rate in this case, from the 1990s, ranged from 1 to 3% per annum.”
  - Estimates based on more recent literature imply a discount rate below 2%.

- The real rate of return on long-term US government debt was around 3% in the 1970s and 1980s. More recently it has been negative, and is projected to stay low – below 2% -- for a considerable time.
- There are no actively traded private assets in the US with maturities of 100+ years.
  - Historical returns on capital in the US averaged about 5.5% in real terms, but this was for assets with maturities far less than ~100 years.
- In the UK and Hong Kong, where there are markets for land leaseholds lasting 100 years or more, investors discount cash flows with such long maturities at relatively low real rates because of the uncertainty involved.
  - They are discounted at rates of less than 2.6%
- Conclusion: a discount rate of somewhere between 2% and 3% seems realistic.

# Oregon Department of **ENERGY**

**Update: Executive  
Orders 17-20 and 17-21**

Janine Benner, Director

Oregon Global Warming  
Commission  
May 13, 2020





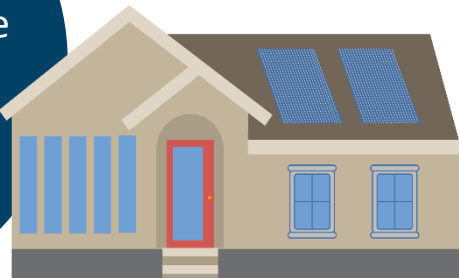
# Executive Order 17-20

Signed by Governor Brown November 6, 2017

Three key sections with directives:

1. State-owned Buildings
2. New Construction
3. Existing Buildings

About 30% of Oregon's greenhouse gas emissions can be traced to how much and what type of energy we use in buildings



## EXECUTIVE ORDER NO. 17-20

### ACCELERATING EFFICIENCY IN OREGON'S BUILT ENVIRONMENT TO REDUCE GREENHOUSE GAS EMISSIONS AND ADDRESS CLIMATE CHANGE

WHEREAS, climate change presents a significant threat to our livelihoods, economic security, environment, health, and well-being.

WHEREAS, there has been an increase in extreme weather events, including more frequent and intense heat waves and wildfires. According to the Oregon Climate Change Research Institute and other regional studies, the best available science indicates Oregon is at risk of serious impacts to its natural resources due to climate change.

- Water resources are being affected by decreased winter snowpack, changes to seasonal runoff patterns, decreased precipitation in Eastern Oregon, and increased intensity and occurrence of flooding.
- Agricultural resources are being affected by increases in temperatures.
- Ocean acidification is increasing and there are changes in ocean currents.
- Significant parts of the Oregon coastal region, stretching 363 miles, will be impacted by an expected rise in sea level up to 1 to 4 feet by 2100, incurring billions of dollars of damages and losses to roadways and structures.
- Climate change impacts threaten the State's agricultural, fishing, timber, recreation, and tourism industries, thereby threatening the livelihood of the State's residents and an important source of Gross State Product for the state.

WHEREAS, energy efficiency leads to significant greenhouse gas reductions that are essential to meeting our state greenhouse gas reduction goals and addressing climate change.

WHEREAS, Oregon is committed to meeting the international Paris Agreement targets to reduce greenhouse gas emissions by 26 to 28 percent below 2005 levels by 2025.

WHEREAS, Oregon has adopted goals to reduce greenhouse gas emissions to 10 percent below 1990 levels by 2020 and at least 75 percent below 1990 levels by 2050 as described in ORS 468A.20.



# BUILT ENVIRONMENT EFFICIENCY WORKING GROUP

EO 17-20 established the “BEEWG,” a collaborative of State of Oregon agencies working to implement EO directives.

- Hold regular agency work group meetings to coordinate and identify any barriers to implementation of directives
- Created an online presence with meeting materials and opportunities for stakeholder feedback
- To date, the BEEWG has held three public meetings to discuss EO implementation progress, share analysis from reports, and gather stakeholder input on equitable access to energy efficiency
- Published a progress chart of directives and dashboard of completed action items online: [www.oregon.gov/energy/Get-Involved/Pages/BEEWG.aspx](http://www.oregon.gov/energy/Get-Involved/Pages/BEEWG.aspx)



# EO 17-20 DIRECTIVES

## State Buildings

- High performance energy targets
- Carbon-neutral operations
- Statewide plug-load strategy
- Energy efficient equipment
- Lifecycle cost analysis

## New Construction

- Solar-ready buildings
- Electric vehicle-ready buildings
- Zero-energy homes
- Energy efficiency in commercial construction
- Help expanding industries reduce energy footprint
- Improve appliance standards
- High-efficiency water fixtures
- On-site water reuse

## Existing Buildings

- Energy Trust of Oregon pilot programs
- Prioritize energy efficiency in affordable housing
- Coordinate energy data to inform policy
- Evaluate energy and resilience efforts

## Plug-Load Strategy

Develop a plug-load strategy for reducing energy use in state buildings.

- Outlined recommendations for reducing energy use for different types of equipment, including: computers, server rooms/data centers, personal devices, communal appliances, and others
- Held a Plug Load Strategy workshop in October 2019 to help state agencies learn how to reduce energy consumption

Oregon  
Department of  
Administrative  
Services &  
Department of  
Energy

Executive Order 17-20  
*Statewide Plug-Load  
Strategy*

January 2019



**DAS**  
DEPARTMENT OF  
ADMINISTRATIVE  
SERVICES



## Appliance Standards

Develop a plan for adopting appliance standards that align with other leading states.

- Outlined history of appliance standards in Oregon and reviewed federal and other state-level appliance standards activities
- Identified potential future appliance standards Oregon could consider
- **2020 EO 20-04 Update: Informed by previous report, ODOE will establish standards for 10 specific categories of equipment to align with west coast**

### Oregon Department of **ENERGY**

Executive Order 17-20  
*Improved State Standards  
for Appliances*

November 2018



## 10-Year Plan

Reduce the energy burden on low-income Oregonians, while prioritizing energy efficiency to achieve the reduction.

- Published GIS assessment tool of affordable housing stock: [bit.ly/OHCS\\_AHA](https://bit.ly/OHCS_AHA)
- Outlined recommendations for achieving the goal
- OHCS and other BEEWG agencies will continue work to achieve actions in the 10-Year Plan



### TEN-YEAR PLAN

Reducing the Energy Burden in Oregon Affordable Housing





# 2018

- Developed **database of eligible state-owned buildings**
- Identified opportunities for energy efficient **appliance standards** to continue Oregon's leadership
- Established tool to inform **high performance energy use targets and carbon neutral requirements** for state buildings
- Worked with Energy Trust of Oregon to evaluate **meter-based savings pilot programs**
- Published the *Ten-Year Plan: **Reducing the Energy Burden** in Oregon Affordable Housing*
- Developed a **plug-load strategy** for state building operations
- Completed *Expanding Industries & Building Code Amendments* report to **identify industries** with potential to realize significant cost and energy savings
- Evaluated how **distributed energy resources** could improve Oregon's recovery from a disaster

# 2019

- Completed *Efficient Building Equipment Procurement Requirements Report* to support state-purchased equipment meeting **high-efficiency water and energy use** specifications
- Completed draft update for **state behavior-based efficiency policy**
- Updated **2019 Oregon Zero Energy Ready Commercial Code** to become one of the nation's most efficient building codes
- Developed **cost analysis tool** to help inform BEEWG agency work
- Worked with partners to **coordinate data-sharing** of projected energy use reductions in the region

# 2020

- Adoption of **residential and commercial energy Reach Codes** is expected October 1, 2020
- **Appliance standards rulemaking**

# NEXT STEPS

- The BEEWG will continue to hold meetings
- Coming 2020-2025: Code work to further water, solar-ready, EV-ready, and energy efficiency requirements
- BEEWG progress chart of directives and the dashboard of completed action items will be updated online:

[www.oregon.gov/energy/Get-Involved/Pages/BEEWG.aspx](http://www.oregon.gov/energy/Get-Involved/Pages/BEEWG.aspx)



# Executive Order 17-21

Signed by Governor Brown November 6, 2017

**Establishes goal of 50,000 registered EVs by the end of 2020**

Five core strategies with directives:

1. State Leading By Example
2. Increasing Access to EVs
3. Increasing Access to EV Charging
4. Providing Information on EVs
5. Celebrating Successes

There are **31,386**  
Electric Vehicles  
registered in Oregon  
as of March 31, 2020



## EXECUTIVE ORDER NO. 17-21

### ACCELERATING ZERO EMISSION VEHICLE ADOPTION IN OREGON TO REDUCE GREENHOUSE GAS EMISSIONS AND ADDRESS CLIMATE CHANGE

WHEREAS, climate change presents a significant threat to our livelihoods, economic security, environment, health, and well-being.

WHEREAS, there has been an increase in extreme weather events, including more frequent and intense heat waves and wildfires. According to the Oregon Climate Change Research Institute and other regional studies, the best available science indicates Oregon is at risk of serious impacts to its natural resources due to climate change.

- Water resources are being affected by decreased winter snowpack, changes to seasonal runoff patterns, decreased precipitation in Eastern Oregon, and increased intensity and occurrence of flooding.
- Agricultural resources are being affected by increases in temperatures.
- Ocean acidification is increasing and there are changes in ocean currents.
- Significant parts of the Oregon coastal region, stretching 363 miles, will be impacted by an expected rise in sea level up to 1 to 4 feet by 2100, incurring billions of dollars of damages and losses to roadways and structures.
- Climate change impacts threaten the State's agricultural, fishing, timber, recreation, and tourism industries, thereby threatening the livelihood of the State's residents and an important source of Gross State Product for the state.

WHEREAS, climate-related pollution from transportation and other emissions is projected to create \$1.1 billion in health costs for Oregon families to bear by 2040, including asthma, heart disease, stroke, and cancer; and internal combustion engines burning fossil-based fuels are the largest contributor of greenhouse gas emissions in Oregon, with the transportation sector accounting for 37 percent of greenhouse gas emissions and light-duty vehicles alone accounting for 25 percent of greenhouse gas emissions, all while the state's transportation sector related greenhouse gas emissions continue to grow.

WHEREAS, Oregon is committed to meeting the international Paris Agreement targets to reduce greenhouse gas emissions by 26 to 28 percent below 2005 levels by 2025.



# ZERO EMISSION VEHICLE INTERAGENCY WORKING GROUP

EO 17-21 established the “ZEVIWG,” a collaborative of five State of Oregon agencies working to implement EO directives.

- Hold monthly agency work group meetings to coordinate and identify any barriers to implementation of directives
- Created an online presence with meeting materials and opportunities for stakeholder feedback
- To date, the ZEVIWG has held four public meetings to discuss EO implementation progress, and gather stakeholder input on opportunities and barriers to EV adoption
- Published a progress chart of directives and dashboard of completed action items online: <https://www.oregon.gov/energy/Get-Involved/Pages/ZEVIWG.aspx>



# EO 17-21 DIRECTIVES

## Increasing Access to EVs

- DEQ Clean Vehicle Rebate
- DEQ Charge Ahead Rebate
- Aggregation of Clean Fuels Program credits for utilities
- DEQ adopt rules to be consistent with CA ZEV program

## Increasing Access to Chargers

- ODOT VW Electrify America proposals
- PUC investor-owned utility transportation electrification plans
- EV-ready buildings

# EO 17-21 DIRECTIVES

## State Lead-by-Example

- State agency EV cost analysis tool
- Parking waitlist priorities
- State building public charging
- Supporting legislative changes that enable increased EV and EV infrastructure purchases

## Providing Information

- Transit Electric Bus Cost Analysis Tool
- School District Electric Bus Cost Analysis Tool
- Consumer-owned utilities support

## Celebrating Successes

- Governor's Award for Dealerships
- Governor's Award for Businesses or Organizations

# 2018

- Added EVs as a priority criteria for parking requests for state agency employees
- PUC actions to support SB 1547 transportation electrification plans through PUC dockets [UM 1810](#) (Pacific Power), [UM 1811](#) (PGE), and [UM 1815](#) (Idaho Power)
- Successful first-round (Cycle 1) proposal with Electrify America for EV chargers along I-5, I-84 and metropolitan Portland area
- Submitted joint proposal with Washington State to Electrify America for Cycle 2 investments
- DAS and ODOE develop a tool to help state agencies assess the costs of EV procurement
- DEQ selects Forth to act as backstop aggregator for clean fuels credits for utilities that have not opted into the [Clean Fuels Program](#).
- PUC approved design principles and program selection process for investor-owned utility use of Clean Fuels Program credit sale revenues to support transportation electrification in [UM 1826](#)

# 2019

- [HB 2093](#), developed by DAS, was approved by the Legislature and enabled the state to more easily procure and contract with EV charging vendors
- After Oregon Supreme Court [ruling](#) clears the way, DEQ implements [Clean Vehicle Rebate program](#)
- [Successful Cycle 2 proposal](#) with Electrify America for EV chargers along Oregon Highways and additional chargers in the Portland metro area
- ODOE pilots project with Salem Electric Cooperative to map where EVs are charging on their system
- After PUC established rules for transportation electrification programs in [AR 609](#), PGE submits their first [Transportation Electrification Plan](#) in [UM 2033](#)

# 2020

- ODOT and ODOE will be beta-testing their alternative fuel cost analysis tools for transit authorities and school districts, including information on electric buses.
- Pacific Power submits their first transportation electrification plan in [UM 2056](#)
- PGE's Transportation Electrification Plan approved by the PUC



[goelectric.oregon.gov](http://goelectric.oregon.gov)

What drives  
Oregon



# NEXT STEPS

- The ZEVIWG agencies will continue to collaborate to support transportation electrification and work with stakeholders to identify opportunities and barriers to EV adoption
- ODOE will support ODOT's implementation of the transportation electrification elements of EO 20-04
- <https://www.oregon.gov/energy/Get-Involved/Pages/ZEVIWG.aspx>

