

Oregon Global Warming Commission

Senate Environment and Natural Resources
Committee

February 3, 2017

Angus Duncan, OGWC Chair



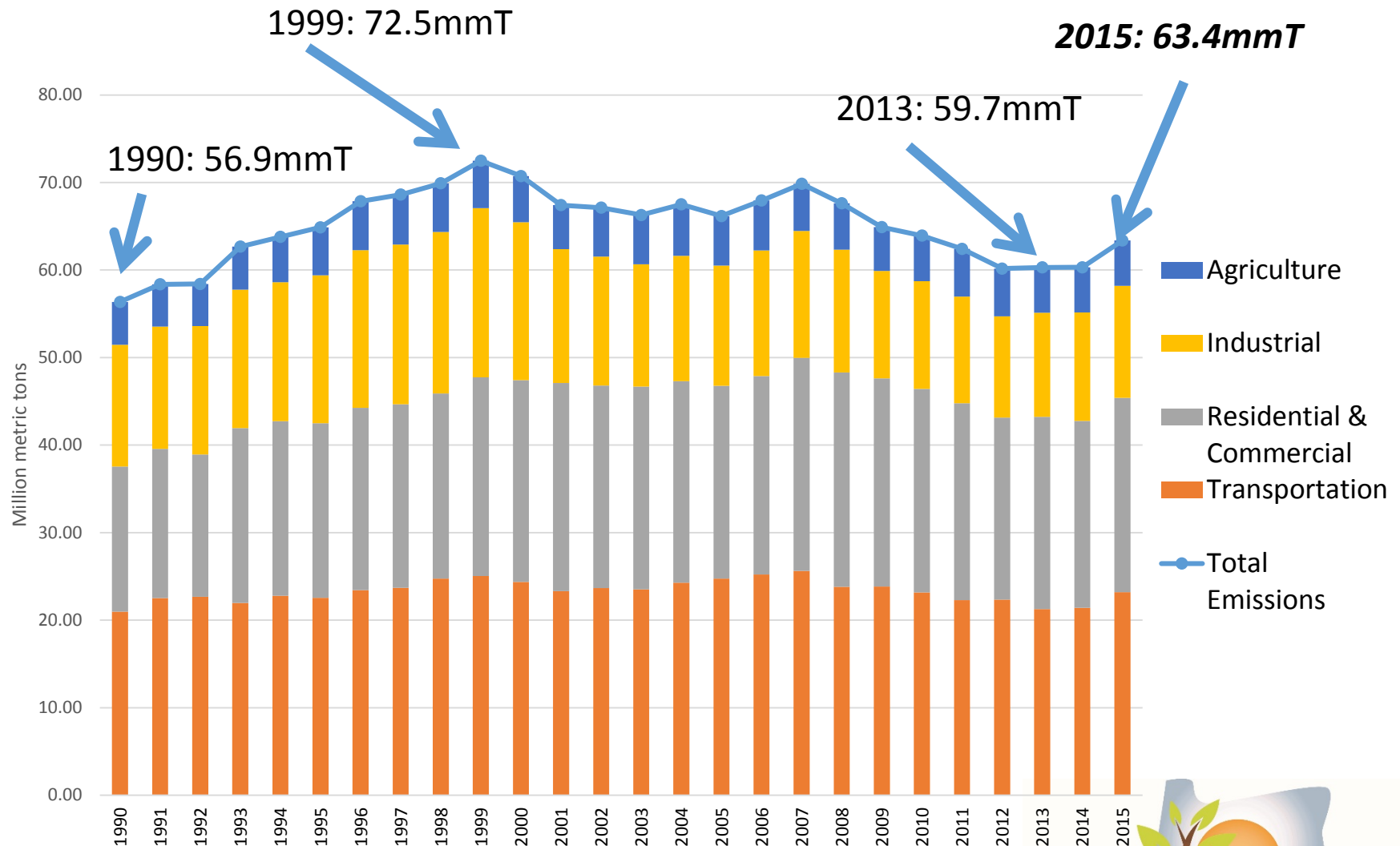
2017 Report Recommendations

- I. Include “clean transportation” in any 2017 transportation legislation, especially transit and electric vehicles.***
- II. Defer enacting new forest management policies affecting carbon balances in Oregon’s forests until the Forest Carbon Accounting Project is complete and can inform such policies.***
- III. Direct State agencies to work with this Commission to set agency climate assignments and benchmarks, and to provide annual progress reports to the Commission.***
- IV. Provide this Commission with sufficient resources – staff and budget – to enable it to discharge its responsibilities including accountability, cost-benefit analysis and citizen communication.***

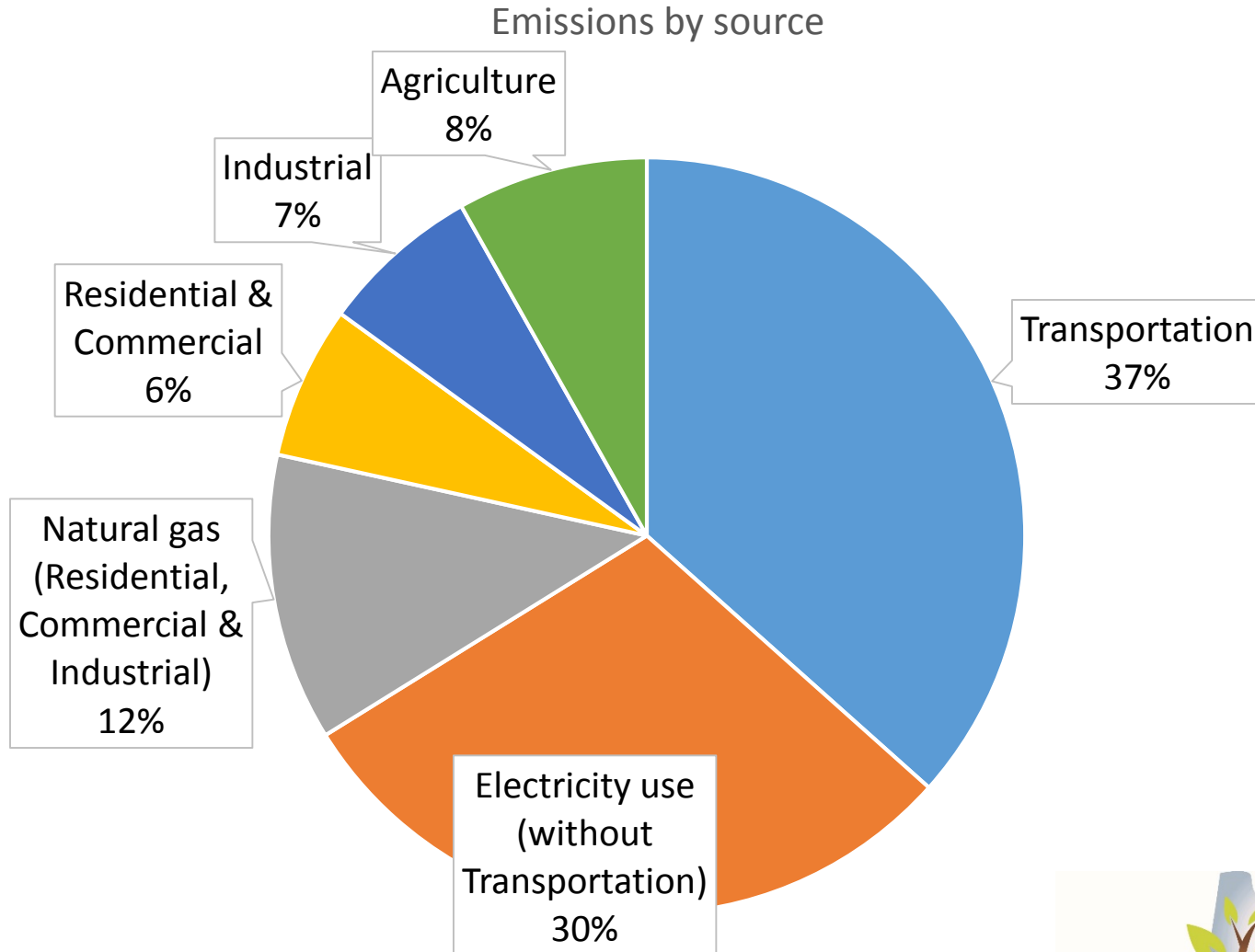
Oregon Climate Policies and Progress

1. Oregon's GHG Reduction Goals and GHG Inventory
2. Electricity Options: Efficiency, Gas and Renewables
3. Transportation Emissions
4. Forest Carbon Accounting
5. Adaptation and Preparation
6. State Climate Policy: Tracking and Accountability

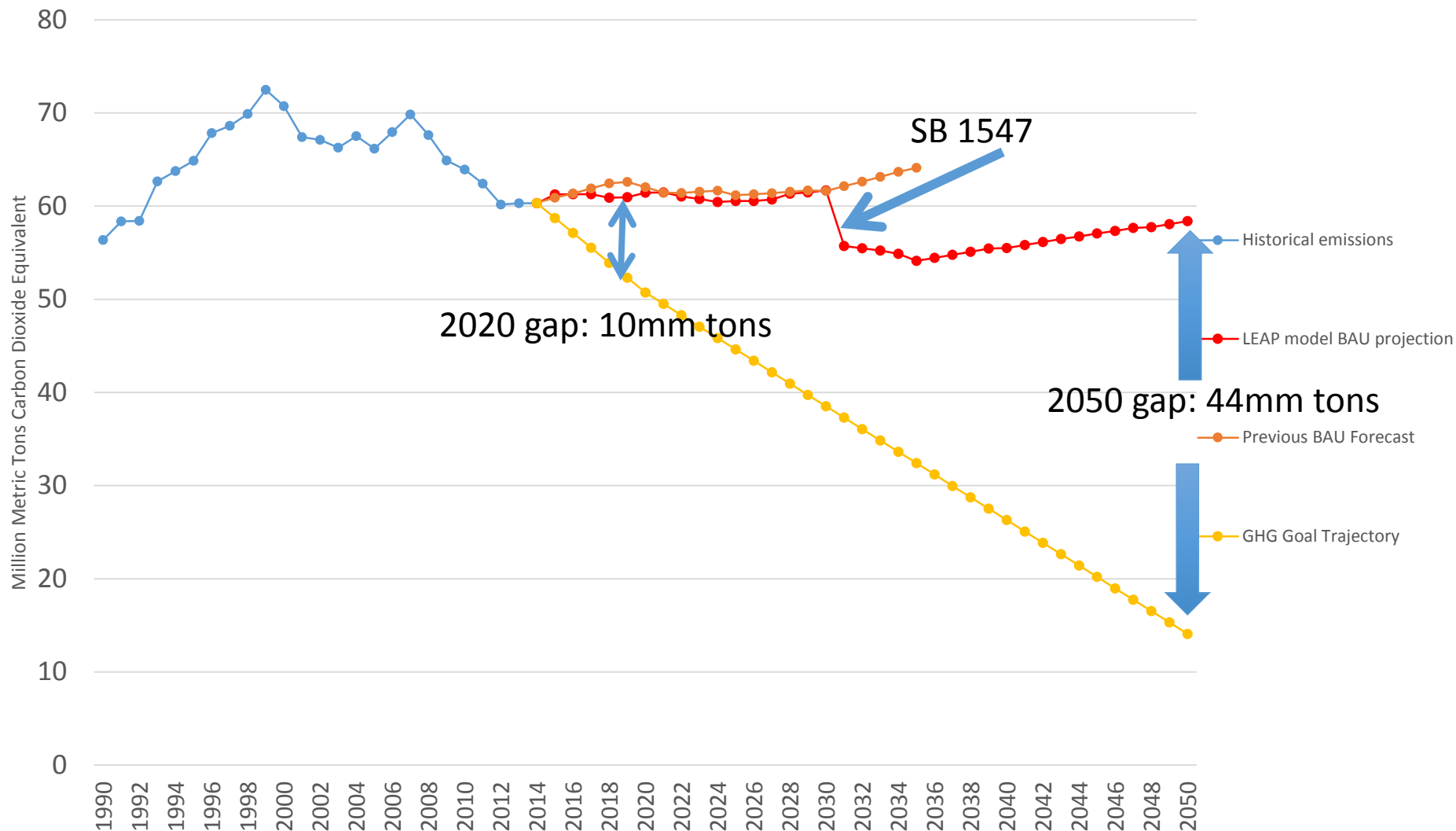
1. Oregon's Historical GHG Emissions



Oregon's 2015 Emissions



Oregon's GHG Emissions: Historical, and Projected vs 2050 Goal



2. Oregon Utility Electricity Emissions

- PGE's Boardman OR coal plant to end coal use by 2020
- SB 1547 (2016): (a) By 2035, no coal generation in PGE, PAC power to Oregon consumers; (b) 50% new renewables by 2040

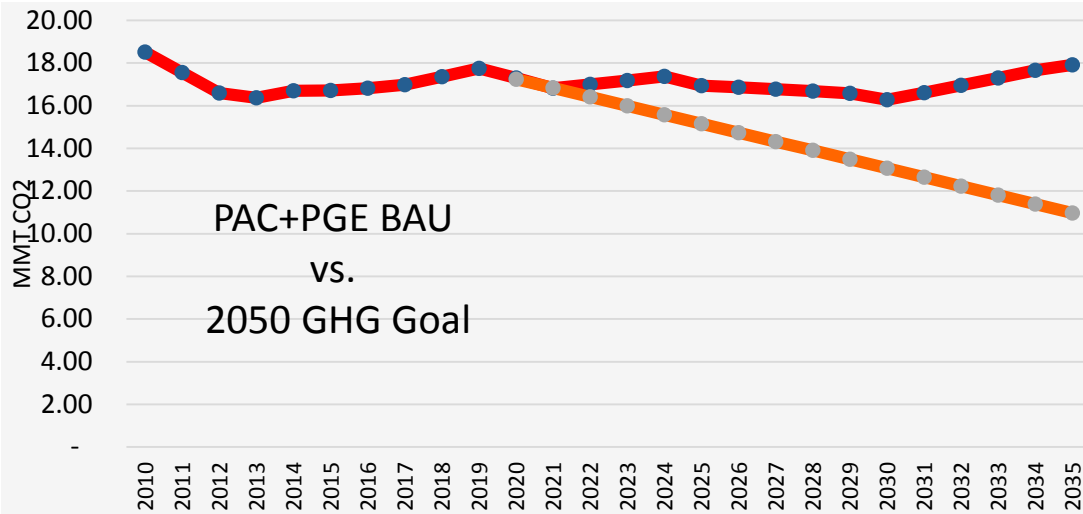
PAC: Wait until 2030 or close coal plants earlier?

PGE: Replacement resource for Boardman? PGE needs "capacity" resource to meet peak loads. Options:

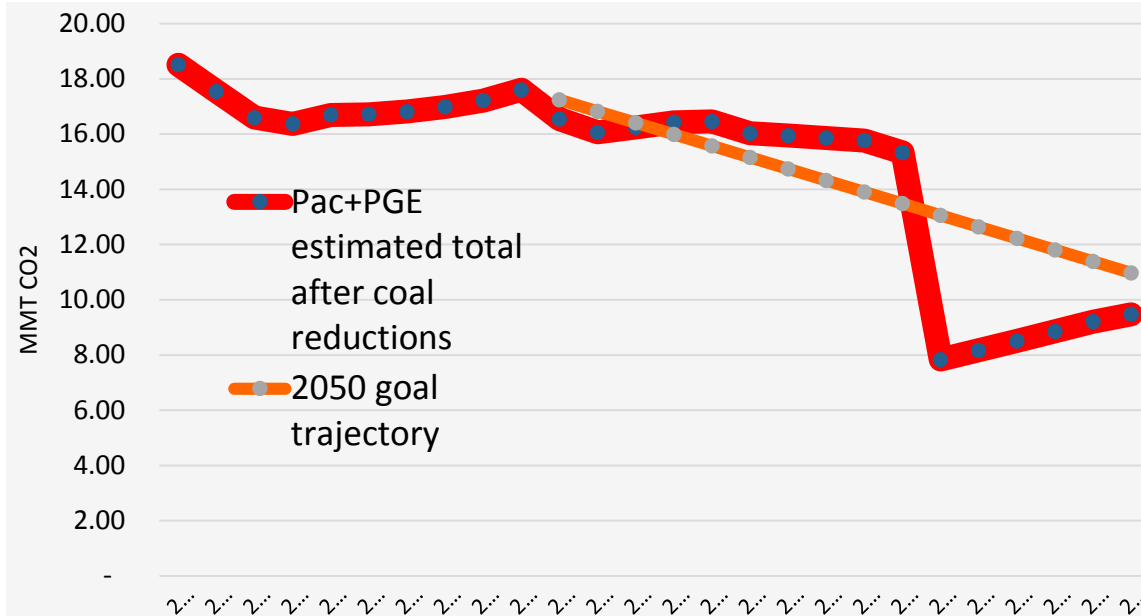
- Mostly (baseload) gas, some wind/solar; *or*
- Mostly wind, solar, some (integrating) gas

Utility Resource Choices vs Oregon GHG Goals

Estimated combined carbon effect (SB 1547): Coal-by-wire changes for PGE +Pacific Power



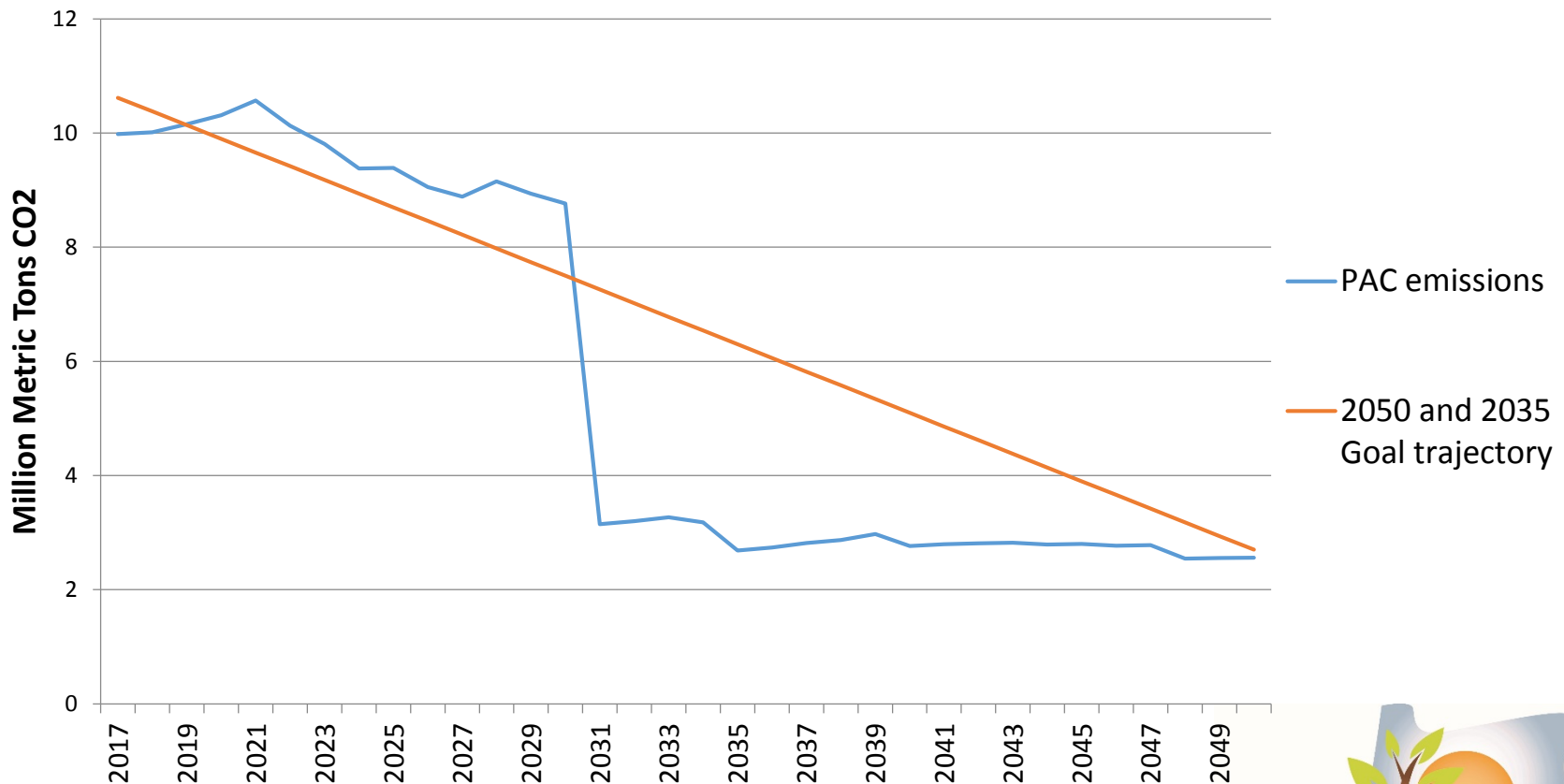
“Business as Usual”
combined PGE+PAC
GHG emissions
estimates (from 2013
utility IRP projections)



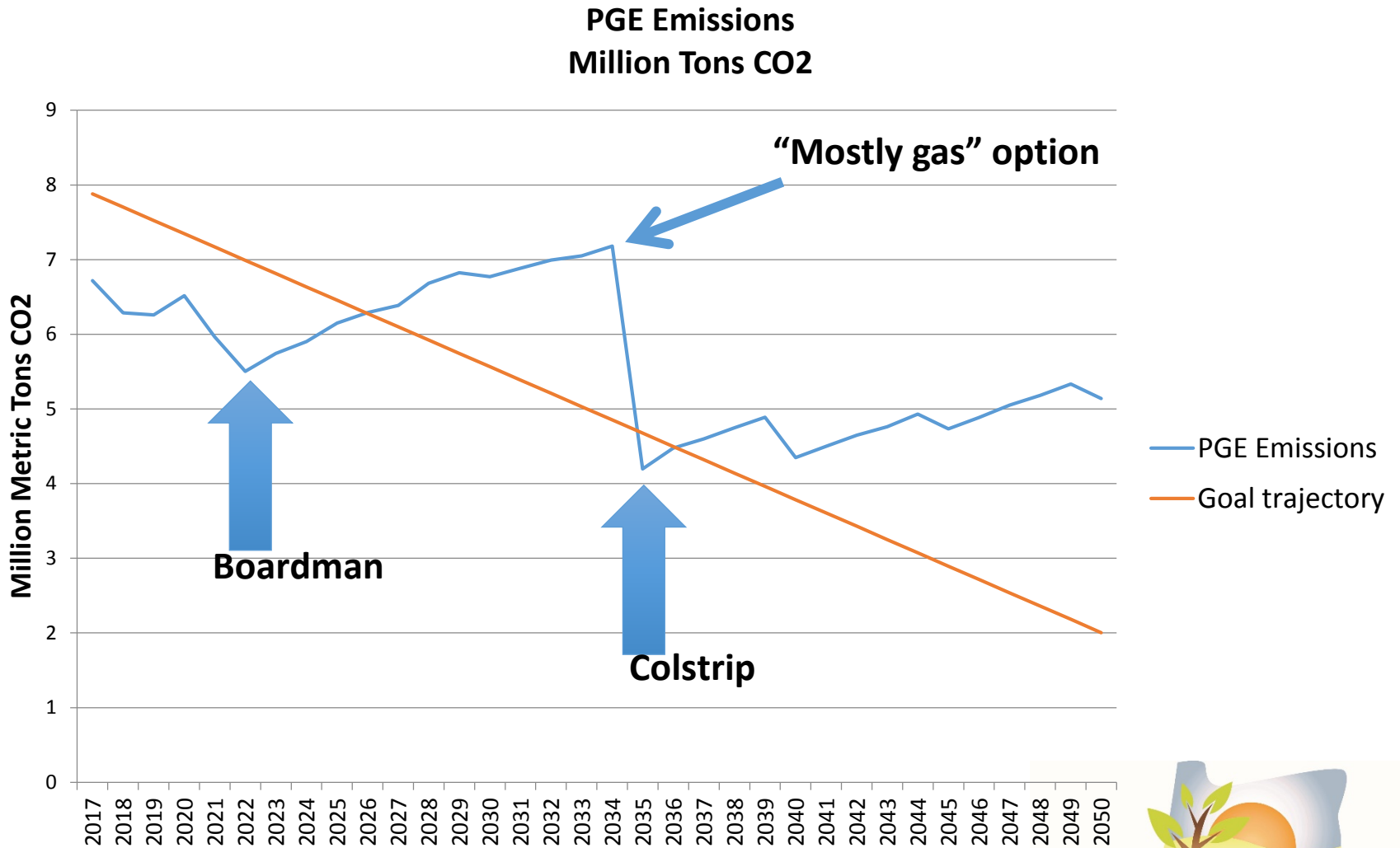
Projected PGE+PAC
GHG emissions under
the SB 1547 Agreement

PacifiCorp Oregon Loads: Emissions Projection

PacifiCorp Oregon Allocated Emissions
Million Tons CO2



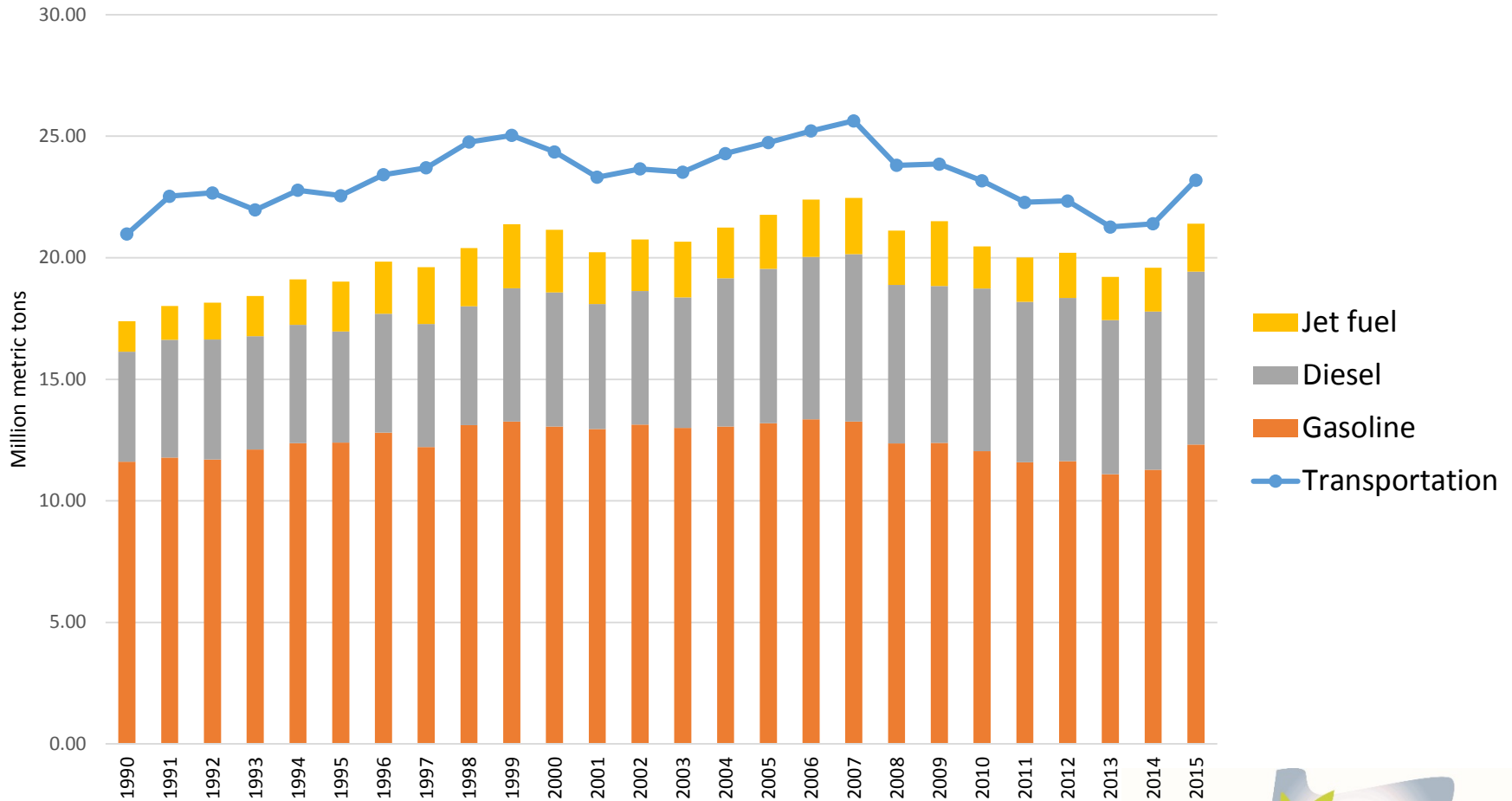
PGE Emissions Projection



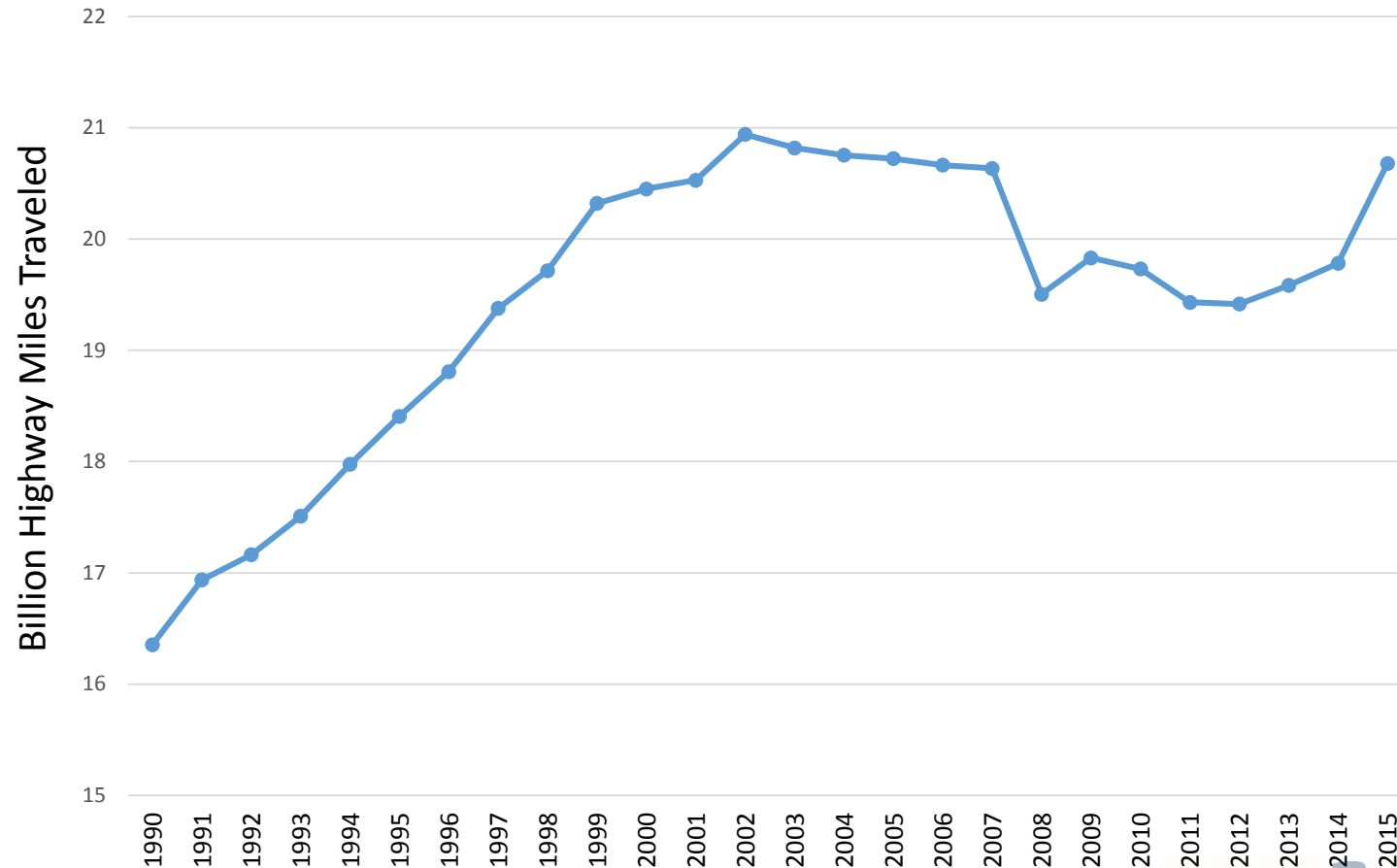
3. Clean Transportation Strategies

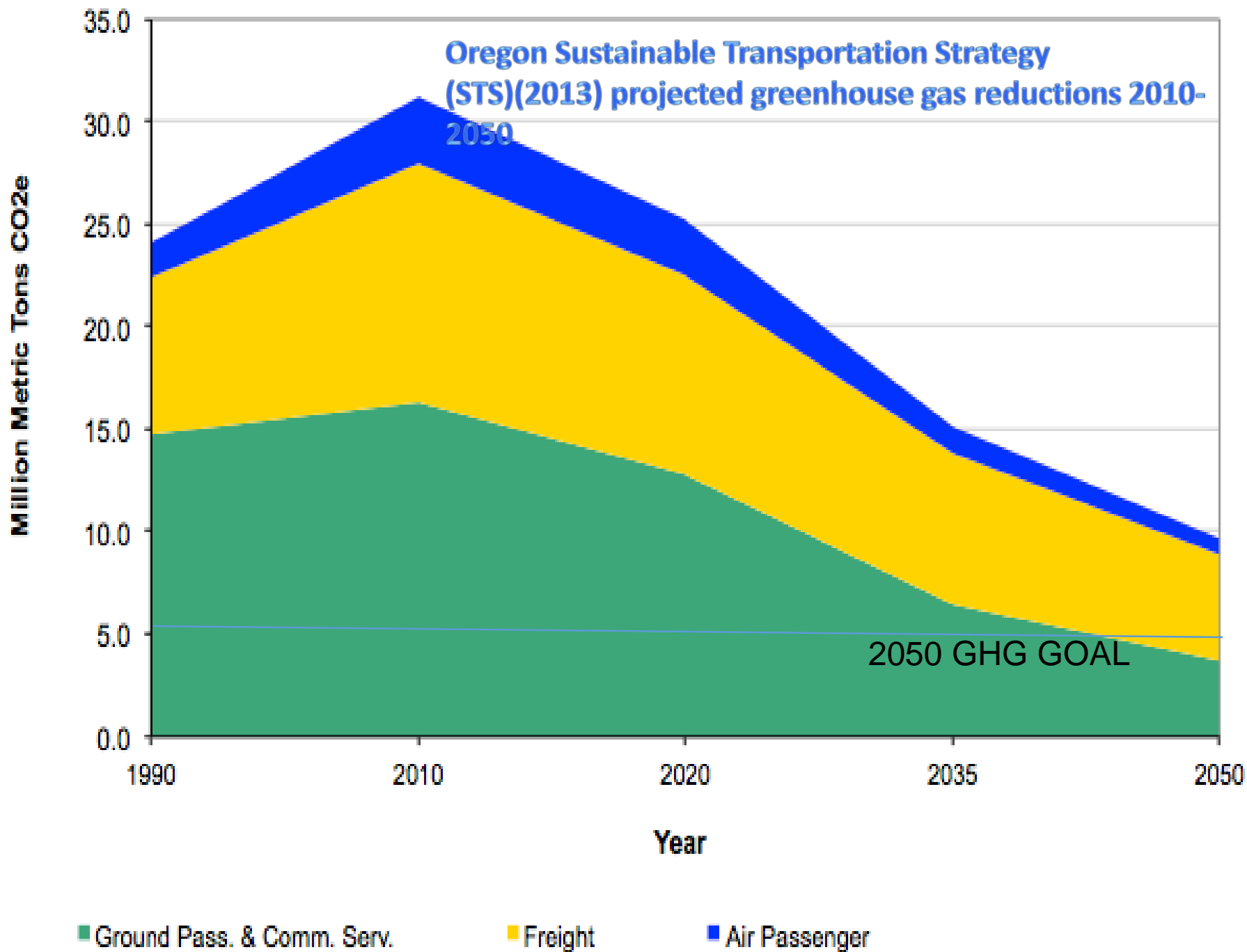
- ***Lower carbon content in fuels***
(Clean Fuels Standard)
- ***Electric Vehicles*** . . . cost-accessible, and plugged into a *clean electric grid*
- ***Transit*** . . . and unconventional options (Uber/Lyft)
- ***Urban design*** to support transit, local access to services
- (also: urban parking, congestion pricing, bike/ped, ITS strategies; etc.)

Oregon's Transportation Sector Emissions

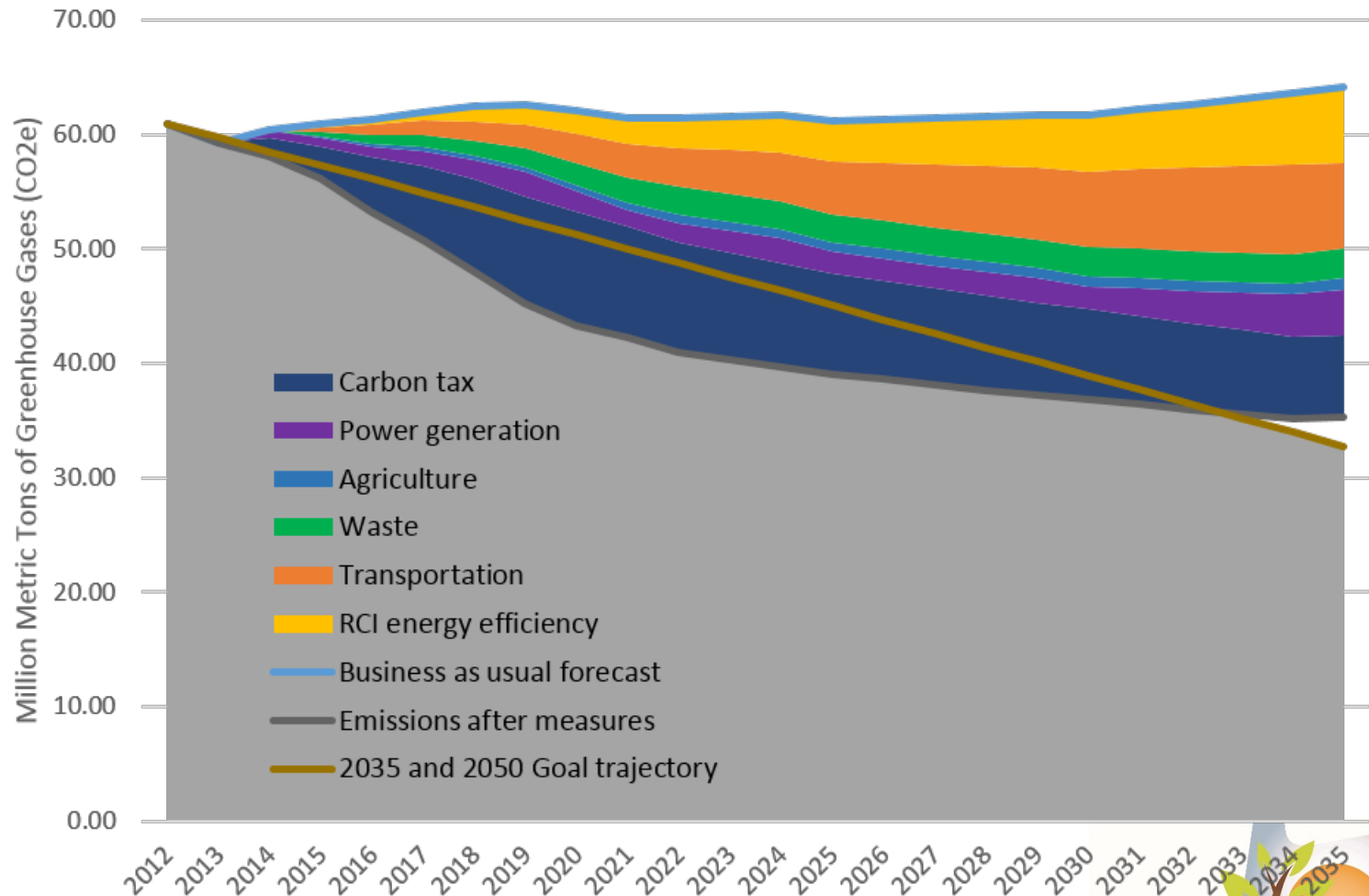


Oregon Highway Vehicle Miles Traveled



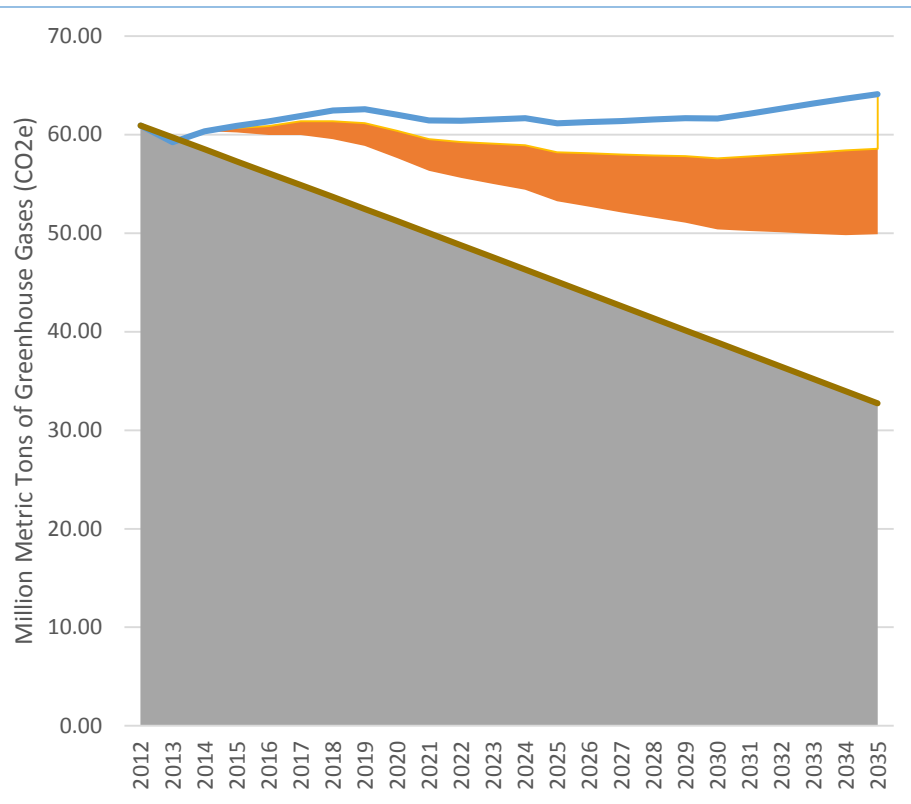


“Wedge” Analysis to Fill the Gap



Transportation (Ground, Freight, Air)

- Measures:



- Grow transit service faster than population, for; accessibility, frequency
- Grow EV + PHEV's from 3.6% of fleet in 2022 to 43% in 2035
- Fleet fuel economy: 10% over EPA's current 2025 rule [54.5mpg]

4. Forest Carbon Emissions

- Eleven ***billion*** tons of carbon in Oregon forests
- 2010 “Roadmap”: Insufficient forest carbon data to base policy
- 2016-17 OGWC Forest Carbon Task Force
 - ODF, USFS, OSU + expert stakeholders
 - Public + private Oregon forests

Carbon quantities measured for six eco-regions

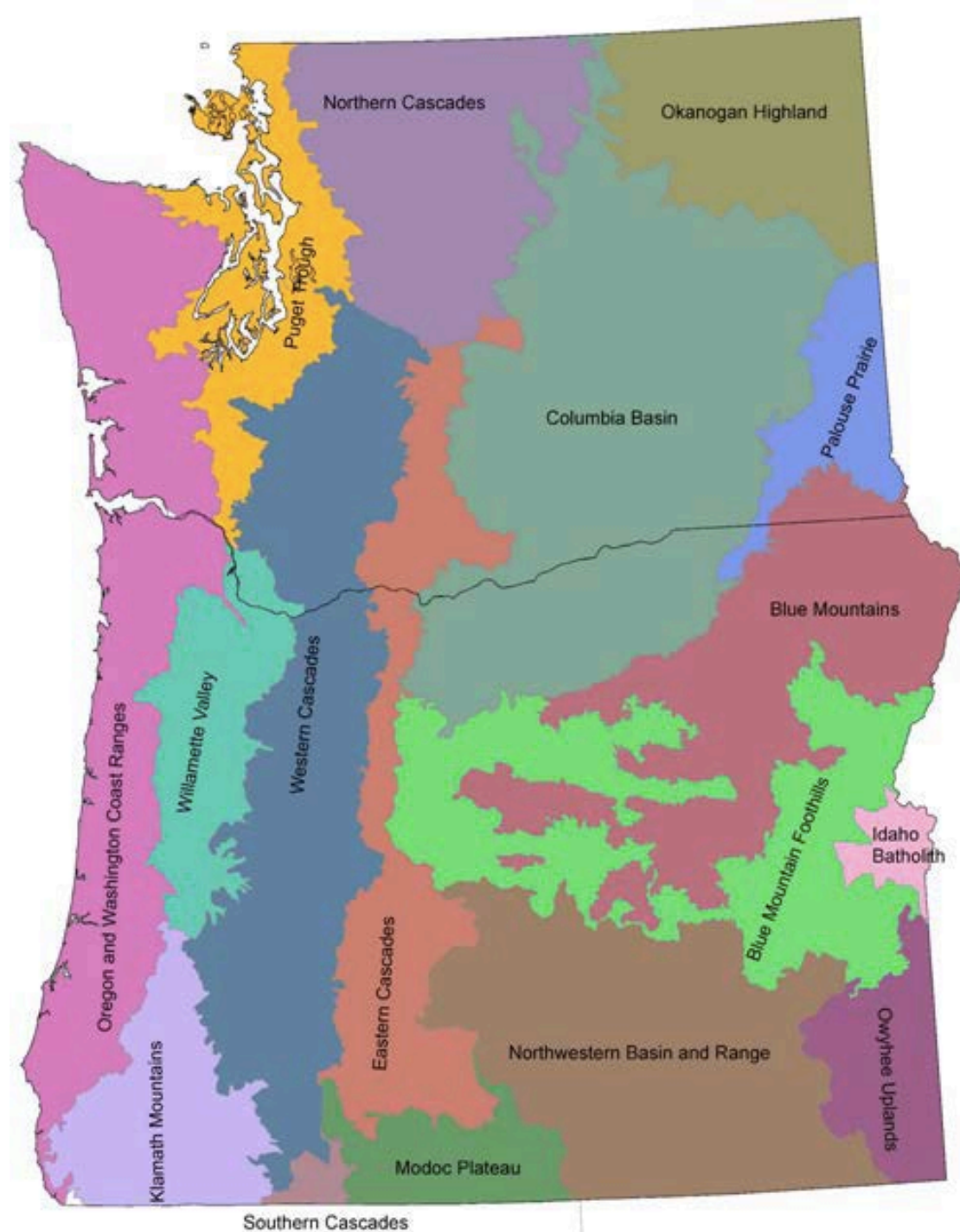
- Coast Range
- Klamath'
- West Cascades
- East Cascades
- Blue Mountains
- NW Basin

Analyzed by forestland owner

- US Forests
- BLM Forests
- National Parks
- State
- Private Industrial
- "Family Forests"
- Other

... and by carbon pool:

- Live trees
- Dead Trees
- Downwood
- Forest floor
- Soil/roots



Forest Carbon Accounting: Five Tasks

- ☒ Quantify and inventory total forest carbon by region, ownership and pool
- ☐ Describe background (historical) carbon flux among pools
- ☐ Describe future *climate change-induced* carbon flux (e.g., wildfire extent and severity)
- ☐ Describe effects on forest carbon content of human interventions (e.g., harvest; forest health thinnings)
- ☐ *Net* effect of human interventions *after* displacement of carbon emissions (e.g., structural wood replacing steel; forest biomass-to-energy replacing fossil fuel generation)

5. Adaptation and Preparation

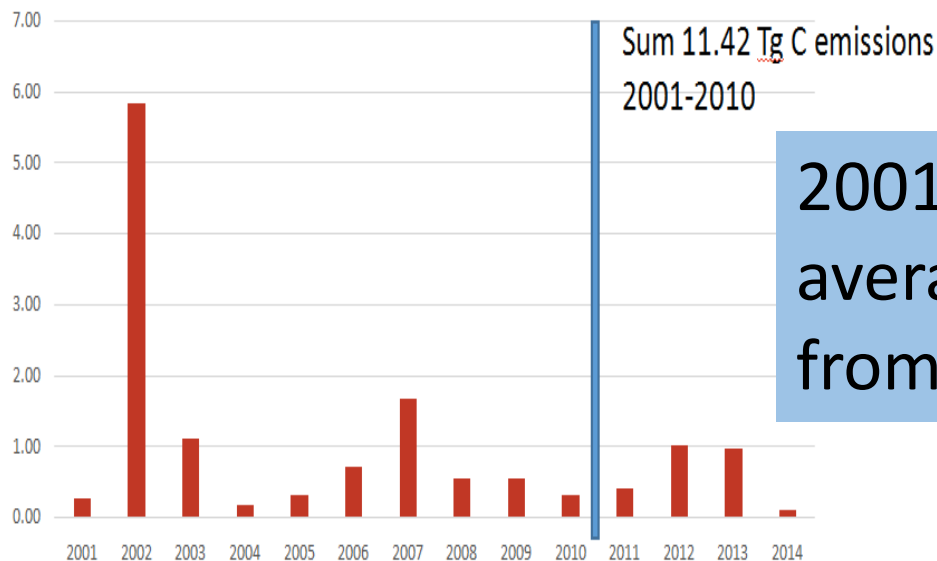
- **2017 OCCRI Climate Assessment:** Extreme Heat; Snowpack; Drought, Flood and Landslide; Forest Wildfire; Sea Level Rise; Ecosystem Values; Public Health
- Outdated State “Adaptation Framework”(2010)
 - Action deferred if not supported in agency budgets
- Some planning progress on individual agency initiative
 - ODOT; ODFW; Public Health
 - No integrated strategy, accountability among agencies
- Tsumani planning – yes;
Climate Risk Planning – ?
- Portland + Eugene: plans *and* accountability

6. State Climate Policy Challenges: Delivery, Oversight and Accountability

- Aspirational Goals
- No Accountability between State Climate Policies and Priorities, and agency actions or omissions
- Sparse Data on which to assess cost effectiveness, base policies and priorities
- No Agency Benchmarks
- Needed: OGWC Authority, Budget and Staff Support to Develop Data, Identify Cost-effective Strategies, Carry Out Legislative Policy and Priorities, Set Benchmarks, Measure Progress Against Benchmarks, and Provide Accountability

Questions

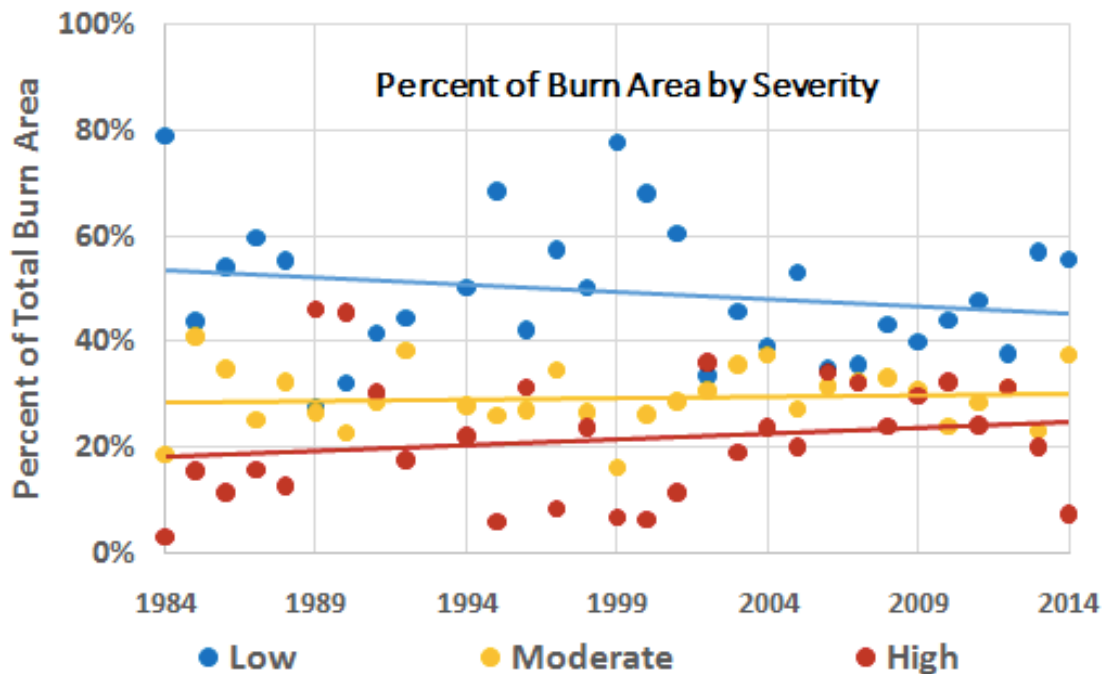
Fire Emissions Tg C



2001-2010: 1.3 mm Tons
average annual CO₂e emissions
from Oregon forest wildfire

2002: 600,000 acres

2007: 200,000 acres



Oregon Global Warming Commission

The Oregon Global Warming Commission was created in 2007 by the Legislature to:

- . . . recommend statutory and administrative changes, policy measures . . . shall consider economic, environmental, health and social costs, and the risks and benefits of alternative strategies . . . , shall solicit and consider public comment
- . . . examine greenhouse gas cap-and-trade systems, including a statewide and multistate carbon cap-and-trade system and market-based mechanisms . . . shall examine possible funding mechanisms . . . shall develop an outreach strategy . . .
- . . . evaluate all gases with the potential to be greenhouse gases and to determine a carbon dioxide equivalency for those gases
- . . . submit a report to the Legislative Assembly . . . by March 31 of each odd-numbered year that describes Oregon's progress toward achievement of [the State's] greenhouse gas emissions reduction goals

Oregon Global Warming Commission

... track and evaluate: **(a)** Economic, environmental, health and social assessments of global warming impacts on Oregon and the Pacific Northwest; **(b)** Existing greenhouse gas emissions reduction policies and measures; **(c)** Economic, environmental, health and social costs, and the risks and benefits of alternative strategies, including least-cost options; **(d)** The physical science of global warming; **(e)** Progress toward the greenhouse gas emissions reduction goals established by section 2 of this 2007 Act; **(f)** Greenhouse gases emitted by various sectors of the state economy, including but not limited to industrial, transportation and utility sectors; **(g)** Technological progress on sources of energy the use of which generates no or low greenhouse gas emissions and methods for carbon sequestration; **(h)** Efforts to identify the greenhouse gas emissions attributable to the residential and commercial building sectors; **(i)** The carbon sequestration potential of Oregon's forests, alternative methods of forest management that can increase carbon sequestration and reduce the loss of carbon sequestration to wildfire, changes in the mortality and distribution of tree and other plant species and the extent to which carbon is stored in tree-based building materials; **(j)** The advancement of regional, national and international policies to reduce greenhouse gas emissions; **(k)** Local and regional efforts to prepare for the effects of global warming

State Climate Policy: Creating Accountability

- Agency Responsibility/Task Assignments: align to State Climate Policies and Priorities; based on timely data; actions prioritized for cost effectiveness
- Benchmarks to mark progress, slippage
- Annual Reporting progress against Benchmarks, reasons why
- OGWC Biennial (or more often) Report to Legislature Report Card and recommendations [effectiveness contingent on OGWC augmented authority, funding, staff support]