

# Carbon Policy Assessment Tool

David Breen – Air Quality Program Manager

September 15, 2016

AAPA Energy and Environment Meeting



**LESS WASTE MORE WORLD**

# Presentation Overview

- *Carbon Policy Assessment Tool*
  - Problem & need
  - Objective and intended outcome
  - Development Process
  - *Carbon Policy Assessment Tool*
    - Structure
    - Demonstration

# Problem – Myriad of Policy Proposals Create Uncertainty

## Carbon Public Policy Proposals:

- 2009 – U.S. Cap and Trade proposal - American Clean Energy and Security Act of 2009 (ACES)
- 2013 – Oregon Carbon Tax Study – SB 306
- 2015 – Oregon Clean Fuel Program – SB 324
- 2015 – City of Portland Fossil Fuel Resolution No. 37168
- 2015 – Establish GHG limits, registration, and reporting
- 2016 – Establish GHG limits and create carbon market mechanism – LC 48
- 2016 – Oregon study of a market approach to reducing greenhouse gas emissions – SB 38



**LESS** WASTE **MORE** WORLD

 PORT OF PORTLAND

# Objective & Intended Outcome

## - Public policy carbon proposals

**RESOLUTION No. 37168 As Amended**

Oppose expansion of infrastructure whose primary purpose is transporting or storing fossil fuels in or through Portland or adjacent waterways (Resolution)

WHEREAS, the rapid development of fossil fuel resources in the western U.S. and Canada has resulted in numerous facility and infrastructure projects proposed to transport coal, diluted bitumen, natural gas, propane or other fossil fuels through the West Coast; and

WHEREAS, fossil fuels pose risks to safety, health, and livability, including mobility of people, other freight, and other commercial vehicles; and

WHEREAS, fossil fuel infrastructure poses considerable risks in the event of a major earthquake; and

WHEREAS, the extraction and combustion of fossil fuels are significant sources of greenhouse gas emissions and major contributors to climate change and pollution; and

WHEREAS, coal contains toxic heavy metals, including mercury, arsenic and lead, and exposure to these toxic heavy metals is linked to cancer, birth defects and other health problems; and

WHEREAS, transportation of coal using open top rail cars results in significant volumes of materials escaping during transit, exposing communities to toxic heavy metals in coal dust and particulates at levels potentially harmful to adjacent communities, workers, wildlife and nature; and

WHEREAS, crude oil, including oil derived from the Bakken shale reservoir, is known to be volatile, highly flammable and to contain elevated levels of benzene, a potent carcinogen; and

WHEREAS, extraction of fossil fuels through fracking and tar sands processing, which has become widespread throughout the Western United States and Canada, has damaging impacts to human and environmental health and fracking increases the potential for earthquakes; and

WHEREAS, transporting crude oil, coal and other fossil fuels into Oregon involves traversing challenging mountain passes, areas laced with significant earthquake faults and numerous older unsafe bridges lacking appropriate infrastructure maintenance or upgrades, significantly increasing the risks of serious accidents; and

WHEREAS, given the record of crude oil and coal or other fossil fuel transport accidents, such as Lac Mégantic in 2013, the 1999 Bellingham pipeline leak or a coal train derailment, an event could have catastrophic effects if it occurred in any of Oregon's populated areas; and

Page 1 of 4



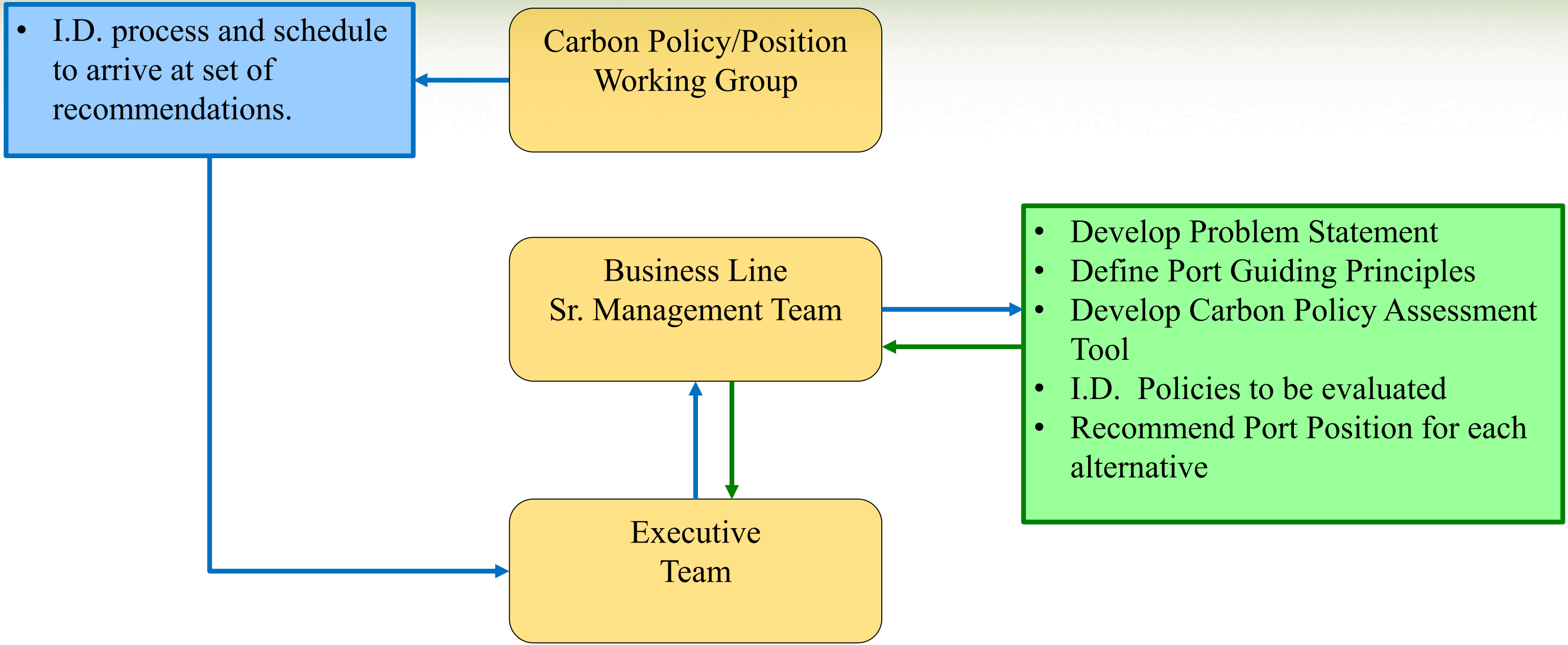
Carbon Policy Assessment Tool					
					Policy
					2016 SB 1574 Healthy Climate Bill (formerly LC48)
					Scoring Summary
					<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px;"> <p><b>Port Requirements</b></p> </div> <div style="border: 1px solid black; padding: 5px;"> <p><b>Port Preferences</b></p> </div> </div>
					<p>The Healthy Climate Bill will create a "cap and trade system" that will enable Oregon to reduce greenhouse gas pollution to targeted levels by 2050, and to transition to clean energy.</p> <p><a href="#">LINK</a></p>
		Scoring Key			
		●	Meets Port Requirement or Preference		
		○	Doesn't Meet Port Requirement or Preference		
		UC	Uncertain		
Category	Guiding Principle	Requirement or Preference		Evaluation	
Environmental	1 Emissions reduction certainty	a	Linked to a GHG emission reduction goal.	●	<p>SECTION 4. (2) The Environmental Quality Commission shall adopt by rule:</p> <p>(a) A statewide greenhouse gas emissions goal for the year 2025 to limit greenhouse gas emissions to levels that are at least 20 percent below 1990 levels;</p> <p>(b) A statewide greenhouse gas emissions limit for the year 2035 that limits greenhouse gas emissions to levels that are at least 45 percent below 1990 levels; and</p> <p>(c) A statewide greenhouse gas emissions limit for the year 2050 that limits greenhouse gas emissions to levels that are at least 75 percent below 1990 levels.</p> <p>Sets absolute reduction per SECTION 4. (2) above.</p> <p>SECTION 6. (1) The Legislative Assembly finds and declares that the purposes of sections 6 to 17 of this 2016 Act are to reduce greenhouse gas emissions consistent with the statewide greenhouse gas emission limits established under section 4 of this 2016 Act and to promote adaptation and resilience by this state's communities and economy in the face of climate change.</p> <p>SECTION 9. (3) Greenhouse gas emissions reductions achieved pursuant to the carbon pollution market developed under this section must be real, permanent, quantifiable, verifiable and enforceable.</p> <p>SECTION 19. ORS 468A.050 is amended to read: (3)(a) In addition to any other registration or reporting required under subsection (1) of this section, the commission shall by rule require registration and reporting of greenhouse gas emissions by air contamination sources classified pursuant to subsection (1) of this section. Rules adopted under this subsection must support implementation of the carbon pollution market developed under section 9 of this 2016 Act.</p>
			No reference to GHG emission reduction goal	○	
	b	Results in absolute GHG reduction.	●		
		Reduction in GHG intensity (growth) or no identified GHG reduction	○		
2 Accountability	a	Emission reductions are real, permanent, quantifiable, verifiable, enforceable, and are reported.	●		
		Some or none of the above.	○		

## - Policy assessment tool





# Development Process



# Development Process

## Problem Statement:

*General concerns over greenhouse gas emissions and resultant climate change have given rise to a myriad of proposals for action at the international, federal, state, and local level, creating uncertainty for the Port and its current and prospective customers. While the Port has a very successful record on voluntary emission reductions from Port-owned sources, emissions from the movement of goods and people attributable to Port facilities are much larger and therefore are of greater concern to stakeholders and the public.*

*There are two aspects of the climate change problem facing the Port:*

- Public Policies (Regulation): There is a need to develop a position on what role the Port should play in the development of public policies that could affect the operations of the Port and Port stakeholders. With respect to emerging public policy, the Port has significant concerns and needs to adopt a clear policy message.*
- Port Policies (Beyond-Regulation): There is a need for internal guidance on how to address remaining Port-owned emissions that the Port is unable to reduce and emissions associated with tenants, transportation providers, and cargos*

*Efforts already underway by local governments and others to promote regulatory approaches, and the need to be prepared for the next legislative session, underscore the urgency in addressing the public policy issue first.*

# Development Process

## Guiding Principles Development:

Category	Guiding principles
Environmental	Emissions reduction certainty
	Accountability
	Other environmental impacts
	Alignment with Port environmental policies
Social	Social equity
	Partnerships
	Leadership
Economic	Regulatory certainty
	Economic impacts are predictable
	Regulation at the broadest level
Operations	Non-financial impacts to operations (e.g. building codes, land use, zoning)
	Financial impacts to operations
Strategic Plan	Aligns with Port Strategic Plan

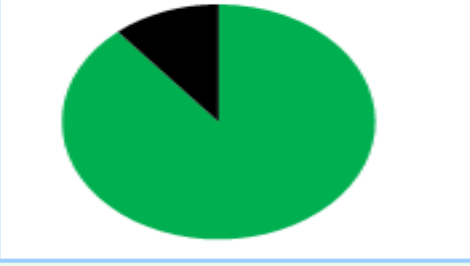
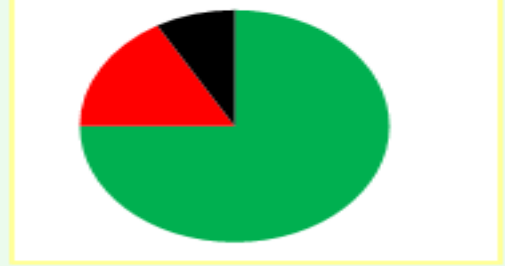


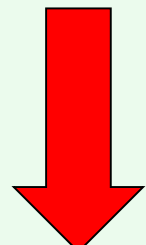
**LESS WASTE MORE WORLD**

 PORT OF PORTLAND



# Carbon Policy Assessment Tool – Structure and Function

Carbon Policy Assessment Tool							
					Policy	Scoring Summary	
					POLICY X		
					POLICY SUMMARY	Port Requirements	Port Preferences
						 	
						LINK	
Category	Guiding Principle	Requirement or Preference				Evaluation	
Environmental	1 Emissions reduction certainty	a	Req	Linked to a GHG emission reduction goal.	●	LINK	<p>SECTION 4. (2) The Environmental Quality Commission shall adopt by rule:</p> <p>(a) A statewide greenhouse gas emissions goal for the year 2025 to limit greenhouse gas emissions to levels that are at least 20 percent below 1990 levels;</p> <p>(b) A statewide greenhouse gas emissions limit for the year 2035 that limits greenhouse gas emissions to levels that are at least 45 percent below 1990 levels; and</p> <p>(c) A statewide greenhouse gas emissions limit for the year 2050 that limits greenhouse gas emissions to levels that are at least 75 percent below 1990 levels.</p> <p>Sets absolute reduction per SECTION 4. (2) above.</p> <p>SECTION 6. (1) The Legislative Assembly finds and declares that the purposes of sections 6 to 17 of this 2016 Act are to reduce greenhouse gas emissions consistent with the statewide greenhouse gas emission limits established under section 4 of this 2016 Act and to promote adaptation and resilience by this state's communities and economy in the face of climate change.</p> <p>SECTION 9. (3) Greenhouse gas emissions reductions achieved pursuant to the carbon pollution market developed under this section must be real, permanent, quantifiable, verifiable and enforceable.</p> <p>SECTION 19. ORS 468A.050 is amended to read: (3)(a) In addition to any other registration or reporting required under subsection (1) of this section, the commission shall by rule require registration and reporting of greenhouse gas emissions by air contamination sources classified pursuant to subsection (1) of this section. Rules adopted under this subsection must support implementation of the carbon pollution market developed under section 9 of this 2016 Act.</p> <p>Considers other air pollutants, but not other environmental impacts. SECTION 15. (1) The Environmental Quality Commission shall develop by rule a Climate Investments Grant Program for distributing moneys in the Oregon Climate Investments Fund. In developing the grant program, the commission shall consult with the advisory committee created under section 7 of this 2016 Act. The grant program must carry out the purposes of sections 6 to 17 of this 2016 Act as stated in section 6 of this 2016 Act. (2)(a) Moneys must be distributed through the grant program developed under this section such that, of the moneys deposited in the Oregon Climate Investments Fund each biennium: (5) The commission shall provide that the grant committee review grant applications and make a determination of funding based on a scoring system developed by the commission. The scoring system shall, to the maximum extent feasible and practicable, give funding preference to projects and programs that utilize high road agreements in the completion of the projects or programs. The scoring system shall also give funding preference to projects and programs that: (d) Complement efforts to achieve and maintain federal and state air quality standards.</p>
			Req	No reference to GHG emission reduction goal	○		
		b	Req	Results in absolute GHG reduction.	●		
			Req	Reduction in GHG intensity (growth) or no identified GHG reduction	○		
	2 Accountability	a	Req	Emission reductions are real, permanent, quantifiable, verifiable, enforceable, and are reported.	●		
			Req	Some or none of the above.	○		
3 Other Environmental Impacts	a	Pref	Policy addresses other environmental impacts	●			
			Policy does not address other environmental impacts.	○			



**LESS WASTE MORE WORLD**

PORT OF PORTLAND



# Carbon Policy Assessment Tool – Structure and Function

Carbon Policy Assessment Tool													
					Policy								
					POLICY X								
					Scoring Summary								
					POLICY SUMMARY								
					Port Requirements								
					Port Preferences								
<table border="1"> <thead> <tr> <th colspan="2">Scoring Key</th> </tr> </thead> <tbody> <tr> <td></td> <td>Meets Port Requirement or Preference</td> </tr> <tr> <td></td> <td>Doesn't Meet Port Requirement or Preference</td> </tr> <tr> <td></td> <td>Uncertain</td> </tr> </tbody> </table>						Scoring Key			Meets Port Requirement or Preference		Doesn't Meet Port Requirement or Preference		Uncertain
Scoring Key													
	Meets Port Requirement or Preference												
	Doesn't Meet Port Requirement or Preference												
	Uncertain												
Category	Guiding Principle	Requirement or Preference		LINK	Evaluation								
Environmental	1 Emissions reduction certainty	a	Req	Linked to a GHG emission reduction goal.		<p>SECTION 4. (2) The Environmental Quality Commission shall adopt by rule:</p> <p>(a) A statewide greenhouse gas emissions goal for the year 2025 to limit greenhouse gas emissions to levels that are at least 20 percent below 1990 levels;</p> <p>(b) A statewide greenhouse gas emissions limit for the year 2035 that limits greenhouse gas emissions to levels that are at least 45 percent below 1990 levels; and</p> <p>(c) A statewide greenhouse gas emissions limit for the year 2050 that limits greenhouse gas emissions to levels that are at least 75 percent below 1990 levels.</p> <p>Sets absolute reduction per SECTION 4. (2) above.</p> <p>SECTION 6. (1) The Legislative Assembly finds and declares that the purposes of sections 6 to 17 of this 2016 Act are to reduce greenhouse gas emissions consistent with the statewide greenhouse gas emission limits established under section 4 of this 2016 Act and to promote adaptation and resilience by this state's communities and economy in the face of climate change.</p> <p>SECTION 9. (3) Greenhouse gas emissions reductions achieved pursuant to the carbon pollution market developed under this section must be real, permanent, quantifiable, verifiable and enforceable.</p> <p>SECTION 19. ORS 468A.050 is amended to read: (3)(a) In addition to any other registration or reporting required under subsection (1) of this section, the commission shall by rule require registration and reporting of greenhouse gas emissions by air contamination sources classified pursuant to subsection (1) of this section. Rules adopted under this subsection must support implementation of the carbon pollution market developed under section 9 of this 2016 Act.</p> <p>Considers other air pollutants, but not other environmental impacts. SECTION 15. (1) The Environmental Quality Commission shall develop by rule a Climate Investments Grant Program for distributing moneys in the Oregon Climate Investments Fund. In developing the grant program, the commission shall consult with the advisory committee created under section 7 of this 2016 Act. The grant program must carry out the purposes of sections 6 to 17 of this 2016 Act as stated in section 6 of this 2016 Act. (2)(a) Moneys must be distributed through the grant program developed under this section such that, of the moneys deposited in the Oregon Climate Investments Fund each biennium: (5) The commission shall provide that the grant committee review grant applications and make a determination of funding based on a scoring system developed by the commission. The scoring system shall, to the maximum extent feasible and practicable, give funding preference to projects and programs that utilize high road agreements in the completion of the projects or programs. The scoring system shall also give funding preference to projects and programs that: (d) Complement efforts to achieve and maintain federal and state air quality standards.</p>							
			Req	No reference to GHG emission reduction goal									
		b	Req	Results in absolute GHG reduction.									
			Req	Reduction in GHG intensity (growth) or no identified GHG reduction									
	2 Accountability	a	Req	Emission reductions are real, permanent, quantifiable, verifiable, enforceable, and are reported.									
			Req	Some or none of the above.									
3 Other Environmental Impacts	a	Pref	Policy addresses other environmental impacts										
		Pref	Policy does not address other environmental impacts.										

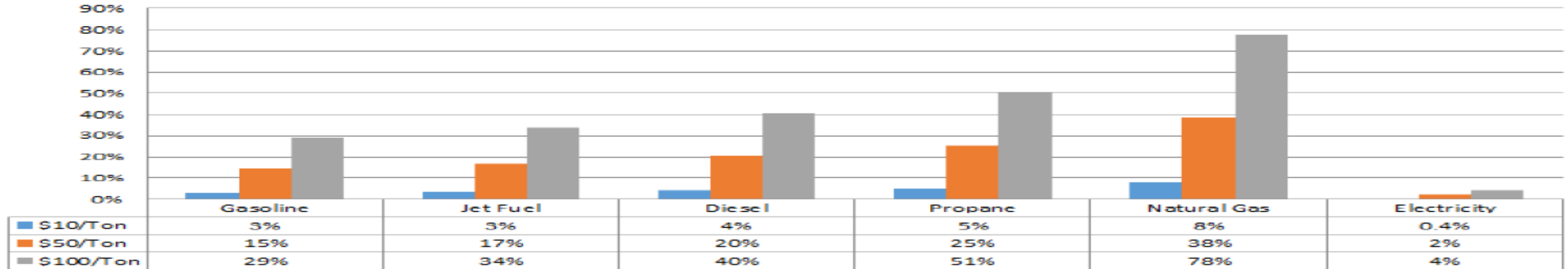
# Carbon Policy Assessment Tool – Structure and Function

Carbon Policy Assessment Tool																	
					Policy	Scoring Summary											
					POLICY X												
					POLICY SUMMARY	Port Requirements	Port Preferences										
					<table border="1"> <thead> <tr> <th colspan="3">Scoring Key</th> </tr> <tr> <td>●</td> <td>Meets Port Requirement or Preference</td> <td rowspan="3" style="text-align: center; vertical-align: middle;">↓</td> </tr> <tr> <td>○</td> <td>Doesn't Meet Port Requirement or Preference</td> </tr> <tr> <td>UC</td> <td>Uncertain</td> </tr> </thead> </table>			Scoring Key			●	Meets Port Requirement or Preference	↓	○	Doesn't Meet Port Requirement or Preference	UC	Uncertain
Scoring Key																	
●	Meets Port Requirement or Preference	↓															
○	Doesn't Meet Port Requirement or Preference																
UC	Uncertain																
Category	Guiding Principle	Requirement or Preference		Requirement or Preference	LINK	Evaluation											
Environmental	1 Emissions reduction certainty	a	Req	Linked to a GHG emission reduction goal.	●	●	SECTION 4. (2) The Environmental Quality Commission shall adopt by rule: (a) A statewide greenhouse gas emissions goal for the year 2025 to limit greenhouse gas emissions to levels that are at least 20 percent below 1990 levels; (b) A statewide greenhouse gas emissions limit for the year 2035 that limits greenhouse gas emissions to levels that are at least 45 percent below 1990 levels; and (c) A statewide greenhouse gas emissions limit for the year 2050 that limits greenhouse gas emissions to levels that are at least 75 percent below 1990 levels.										
				No reference to GHG emission reduction goal	○												
		b	Req	Results in absolute GHG reduction.	●												
				Reduction in GHG intensity (growth) or no identified GHG reduction	○												
	2 Accountability	a	Req	Emission reductions are real, permanent, quantifiable, verifiable, enforceable, and are reported.	●												
				Some or none of the above.	○												
3 Other Environmental Impacts	a	Pref	Policy addresses other environmental impacts	●	○	Considers other air pollutants, but not other environmental impacts. SECTION 15. (1) The Environmental Quality Commission shall develop by rule a Climate Investments Grant Program for distributing moneys in the Oregon Climate Investments Fund. In developing the grant program, the commission shall consult with the advisory committee created under section 7 of this 2016 Act. The grant program must carry out the purposes of sections 6 to 17 of this 2016 Act as stated in section 6 of this 2016 Act. (2)(a) Moneys must be distributed through the grant program developed under this section such that, of the moneys deposited in the Oregon Climate Investments Fund each biennium: (5) The commission shall provide that the grant committee review grant applications and make a determination of funding based on a scoring system developed by the commission. The scoring system shall, to the maximum extent feasible and practicable, give funding preference to projects and programs that utilize high road agreements in the completion of the projects or programs. The scoring system shall also give funding preference to projects and programs that: (d) Complement efforts to achieve and maintain federal and state air quality standards.											
			Policy does not address other environmental impacts.	○													



# Carbon Policy Assessment Tool – Structure and Function

**Table 1. Estimated Energy Commodity Price Increases (%) Based on Cost of Carbon and 2012, 2013, 2014 Average Port Base Fuel Cost**



**Table 2. Port Baseline Energy Costs and Cost Increases (\$USD) by Business Line Based on Price per Ton of Carbon**

	Average		Aviation						Corporate (Incl. Navigation)			Marine & Industrial Properties			Port-Wide			
			Base Fuel		Cost Increase				Base	Cost Increase		Base	Cost Increase		Base	Cost Increase		
	Cost		Base Cost	\$10/T	\$50/T	\$100/T	\$10/T	\$50/T		\$100/T	\$10/T		\$50/T	\$100/T		\$10/T	\$50/T	\$100/T
Diesel	\$2.47	/gallon	\$136,299	\$6,205	\$31,027	\$62,055	\$1,568,109	\$50,930	\$254,650	\$509,300	\$22,961	\$1,037	\$5,183	\$10,366	\$1,727,369	\$58,172	\$290,861	\$581,721
Gasoline	\$3.10	/gallon	\$230,921	\$6,734	\$33,669	\$67,338	\$54,115	\$1,608	\$8,039	\$16,078	\$45,886	\$1,368	\$6,839	\$13,678	\$330,922	\$9,709	\$48,546	\$97,093
Jet Fuel	\$2.98	/gallon	\$9,607	\$323	\$1,614	\$3,228	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$9,607	\$323	\$1,614	\$3,228
Propane	\$1.09	/gallon	\$3,380	\$171	\$839	\$1,708	\$511	\$26	\$127	\$258	\$861	\$44	\$214	\$435	\$4,751	\$240	\$1,179	\$2,402
Natural Gas	\$0.62	/therm	\$999,684	\$96,392	\$477,944	\$963,922	\$4,012	\$347	\$1,720	\$3,470	\$20,812	\$1,800	\$8,925	\$17,999	\$1,024,508	\$98,539	\$488,590	\$985,391
Electricity	\$0.07	/kWh	\$2,967,427	\$11,540	\$61,821	\$123,643	\$810,951	\$3,154	\$16,895	\$33,790	\$354,521	\$1,379	\$7,386	\$14,772	\$4,132,898	\$16,072	\$86,102	\$172,204
<b>Total</b>			<b>\$4,347,317</b>	<b>\$121,365</b>	<b>\$606,915</b>	<b>\$1,221,893</b>	<b>\$2,437,697</b>	<b>\$56,064</b>	<b>\$281,431</b>	<b>\$562,896</b>	<b>\$445,041</b>	<b>\$5,626</b>	<b>\$28,546</b>	<b>\$57,250</b>	<b>\$7,230,055</b>	<b>\$183,056</b>	<b>\$916,892</b>	<b>\$1,842,039</b>
<b>% Increase</b>				<b>2.8%</b>	<b>14.0%</b>	<b>28.1%</b>		<b>2.3%</b>	<b>11.5%</b>	<b>23.1%</b>		<b>1.3%</b>	<b>6.4%</b>	<b>12.9%</b>		<b>2.5%</b>	<b>12.7%</b>	<b>25.5%</b>



**LESS WASTE MORE WORLD**

PORT OF PORTLAND



# Carbon Policy Assessment Tool Demonstration

Carbon Policy Assessment Tool						
				Policy	Scoring Summary	
				POLICY X		
				POLICY SUMMARY	Port Requirements	Port Preferences
Scoring Key						
●	Meets Port Requirement or Preference					
○	Doesn't Meet Port Requirement or Preference					
UC	Uncertain					
Category	Guiding Principle	Requirement or Preference		LINK	Evaluation	
Environmental	1 Emissions reduction certainty	a	Req	Linked to a GHG emission reduction goal.	●	SECTION 4. (2) The Environmental Quality Commission shall adopt by rule: (a) A statewide greenhouse gas emissions goal for the year 2025 to limit greenhouse gas emissions to levels that are at least 20 percent below 1990 levels; (b) A statewide greenhouse gas emissions limit for the year 2035 that limits greenhouse gas emissions to levels that are at least 45 percent below 1990 levels; and (c) A statewide greenhouse gas emissions limit for the year 2050 that limits greenhouse gas emissions to levels that are at least 75 percent below 1990 levels.  Sets absolute reduction per SECTION 4. (2) above. SECTION 6. (1) The Legislative Assembly finds and declares that the purposes of sections 6 to 17 of this 2016 Act are to reduce greenhouse gas emissions consistent with the statewide greenhouse gas emission limits established under section 4 of this 2016 Act and to promote adaptation and resilience by this state's communities and economy in the face of climate change.
			Req	No reference to GHG emission reduction goal	○	
		b	Req	Results in absolute GHG reduction.	●	
			Req	Reduction in GHG intensity (growth) or no identified GHG reduction	○	
	2 Accountability	a	Req	Emission reductions are real, permanent, quantifiable, verifiable, enforceable, and are reported.	●	
			Req	Some or none of the above.	○	
	3 Other Environmental Impacts	a	Pref	Policy addresses other environmental impacts	●	
			Pref	Policy does not address other environmental impacts.	○	
	4 Alignment with Port environmental policies	a	Pref	In alignment with Commission Environmental policy. Facilitates environmental stewardship.	●	
			Pref	Does not align with Commission Environmental policy	○	
b		Pref	In alignment with Air Quality policy. Improves air quality through reducing emissions.	●		
		Pref	Does not align with Air Quality policy	○		



**LESS WASTE MORE WORLD**

PORT OF PORTLAND

# Port of Portland Air Quality and Climate Initiatives



**LESS** WASTE **MORE** WORLD

