

## GOVERNOR'S GLOBAL WARMING ADVISORY GROUP (2004) DEFERRED MEASURES

### ENERGY EFFICIENCY MEASURES DEFERRED

	<b>MEASURES</b>	<b>GHG Savings MMT CO<sub>2</sub> in 2025</b>	<b>Technical Feasi-bility and Cost Impacts</b>	<b>Legislate? Regulate? Fiscal impact?</b>	<b>GHG Savings Earlier? Later?</b>	<b><u>Collateral Benefits, Downsides, Other Effects?</u> Distribution of impacts; economic development gains; education values; demonstration values; overlap with WCGGWI</b>
<b>EE-5</b>	Adopt OR goal of NWPPC efficiency target plus 20%	1.32	Not initially cost-effective	Legislation for new R&D Program. Fiscal or rate impacts.	Post 2010 Shifts technology	Opposition on fiscal costs or rate impacts only. May demonstrate new technologies. Could spur small new EE firms.
<b>EE 7</b>	Advocate with BPA & Oregon COUs to meet NWPPC Goal +20%	Included in EE 5	Not Initially	New R&D program needed, Rate impacts	Shifts technology, more leading edge than NEEA	COU participation depends on funding sources for EE5 program. If funds from state budget, this measure is not needed. BPA or COU funding would provide equity. BPA and ETO contribute to current NEEA programs.
<b>BASE EE 10</b>	<b><u>BASE CASE (NWPPC)</u></b> Funding beyond ETO's current 2012 sunset date	[Included in base case (EE1)]	Is cost-effective	Legislation  Industrial customers have the most concerns	Post-2012  Study required 1/1/2007	Would retain or expand existing charges in rates for PacifiCorp and PGE for ETO programs or would fund utility programs.
<b>EE 17</b>	Inter-generational state bonding to finance EE programs and investments. Expand SELP bonding limits, extend terms of loans			Might affect state bond rating		Risks to taxpayers for General Obligation bonds. ODOE's SELP program addresses these measures, but could be expanded. Perhaps better coordination with ETO.

<b>EE 18</b>	Advocate for inter-generational federal bonding to finance EE programs/investments			Federal legislation		This program, unlike most current federal borrowing, would be appropriately related to capital investment, yielding benefits to future generations.
<b>EE 19</b>	Transmission/Distribution System efficiencies			PUC regulations  BPA programs		About 8 percent of generation is lost in transmission and distribution. Most of the likely savings are in distribution transformers. Distributed generation tends to reduce losses.
<b>EE 20</b>	“Smaller Houses” initiative			Unclear what agency would have responsibility		Education measure. Smaller houses, especially with shared walls use less energy for heating and cooling. They also reduce urban sprawl and transportation CO2 emissions.
<b>EE 21</b>	Allow regulated utilities to invest in (and earn a return on) customer energy efficiency measures, SB 1149 notwithstanding [MacRitchie]					

## GENERATION MEASURES DEFERRED

	<b>MEASURES</b>	<b>GHG Savings MMT CO2 in 2025</b>	<b>Technical Feasibility and Cost Impacts</b>	<b>Legislate? Regulate? Fiscal impact?</b>	<b>GHG Savings Earlier? Later?</b>	<b><u>Collateral Benefits, Downsides, Other Effects?</u> Distribution of impacts; economic development gains; education values; demonstration values; overlap with WCGWI</b>
<b>Gen 3</b>	<b>Gen 3A:</b> State Renewable Portfolio Standard (new renewable content) <ul style="list-style-type: none"> <li>• 15% of 2025 load</li> <li>• 25% of 2025 load</li> </ul>	2.78 6.96	Potential near-term rate increases offset by long-term cost-effective power supplies, price stability, other benefits;. 15% likely feasible; 25% maybe not.	Legislation. Required  Apply to COUs?	Early if earlier RPS date	If applied to IOUs only, may be a concern about rate disparities with COUs.  Could lead to repeal of the renewable portion of the existing system benefit charges.
<b>GEN 3</b>	<b>Gen 3C:</b> For Oregon IOU's, insulate ratepayers from cost risks associated with potential future carbon regulation affecting new resource acquisitions.	2.35	Little early impact on rates, later impact depends on CO <sub>2</sub> regs.	Legislation required to put OPUC discretionary action into law	Mid-term to late as decisions are made on new fossil fuel plants that could have an operating life of 50 years or more	Deals with only one part of the problem. Major cost savings if CO <sub>2</sub> regulations are adopted later. Utilities will not welcome this approach, which could affect utility cost of capital, and increase rates.  This is a legislative alternative to Gen 5, below.

<b>Gen 5</b>	Advocate with OPUC to insulate IOU ratepayers from cost risks associated with potential future carbon regulation.	2.35	Little early impact on rates; later impact depends on CO2 regulations	Administrative	2009 Plants last 50 years or more	Deals with only one part of the problem. Major cost savings if CO2 regulations are adopted later. Utilities will not welcome this approach, which could affect utility cost of capital, and increase rates.  This is an administrative alternative to Gen 3C. above.
Gen 6	State Carbon Tax on CO2 content of electricity, natural gas and stationary oil use	depends on level	Major costs increases. Major competitiveness issues for Oregon businesses.	Legislation required	Early effect depends on how funds are spent	Distribution of \$ a big issue. May require restructuring Oregon's tax system. It may be perceived as unfair to customers of different utilities to have different tax rates.
Gen 9	Major/intergenerational state bonding to finance renewable programs and transmission investments			Might affect state bond rating		Risks to taxpayers for General Obligation bonds. Could affect the state's bond rating.
Gen 10	State funds for Pacific Northwest regional "incubator" to demonstrate promising technologies, e.g.: <ul style="list-style-type: none"> <li>• Generation</li> <li>• Transmission efficiencies</li> <li>• Controls</li> <li>• Integration services</li> <li>• Resource (e.g. wind) evaluation</li> <li>• Distributed Generation</li> </ul>	Scale depends on level of other West Coast States funds	Fiscal Impacts	Large increase in higher education funding	Long term investment in economy	Large fiscal impacts. Could foster small new firms and perhaps new industries. Could provide technologies for regional demonstrations. Can't know whether research will produce results or jobs.

Gen 12	Nuclear Power		Relies on technology advances not presently available commercially. Security costs and risks of plutonium-reliant technology are potentially severe.	Oregon referendum and/or other state legislative action would be required	Public opposition might cause delays	Questionable feasibility. There have been no new US plants ordered since '79. IOU shareholders may be reluctant to take on the risk of a Three Mile Island type event.
Gen 13	Create an Oregon GHG Registry (or collaborate with an existing registry) to enable mandatory reporting of GHG emissions by utilities and major commercial emitters. If Oregon proceeded with this measure, linking it to cap-and-trade regime (such as that proposed in Measure Gen 3B)	2.78 6.96	Increased costs in rates. 15% likely feasible; 25% maybe not.	Legislation. Required  Apply to COUs?	Early if earlier RPS date	Should expect that existing system benefit charges would be credited against a utility RPS obligation. Coverage (what utilities and businesses are required to report, what GHG emissions are subject to reporting) and accounting protocols are major issues for resolution, as with a cap-and-trade.
Gen 14	If a Carbon Content or similar constraint is adopted, consider whether additional low-income assistance may be appropriate to help manage front-loaded costs of compliance (McaRitchie)					

Gen 15	ODOE should work with BPA and other PNW states, and an RTO if appropriate, to seek transmission loss reductions of $\pm$ 50% by 2014 [Foley]					
Gen 16	Create Distributed Generation resource chain by cleaning up and linking together operationally the diesel gensets currently in place and used as backup power sources [Foley]					

## TRANSPORTATION MEASURES DEFERRED

	<b>MEASURES</b>	<b>GHG Savings MMT CO2 in 2025</b>	<b>Technical Feasibility and Cost Impacts</b>	<b>Legislate? Regulate? Fiscal impact?</b>	<b>GHG Savings Earlier? Later?</b>	<b>Benefits, Downsides, Other Effects? Distribution of impacts; Economic development gains?; Education values; Demonstration values; Overlap with West Coast Governors' Initiative (WC-WG#)</b>
<b>TRAN 16</b>	Grow I-5 Corridor West Coast High-Speed Rail Service with more frequent and convenient service	TBD	Technically feasible, but significant costs for train(s)	Legislation to acquire Funds? Political issues.	Late	Requires regional coordination and probably federal funding. Are there real savings? Reduced air, highway travel on Seattle/Portland link. Opportunities to coordinate with WA, CA partners in WCGGWI.
<b>TRAN 17</b>	Create Transportation emissions GHG "cap & trade" within PDX "bubble" (Other "bubbles"?) or include Transportation GHG emissions within a larger cap&trade mechanism if available	Unknown	Demonstration models are being analyzed on East Coast - TBD	Legislation required?	Late	Coordination with Region. Oregon to lead by example. Steep learning curve. Possibly include business fleet vehicle emissions in a larger GHG cap & trade mechanism such as proposed in GEN 3b.
<b>TRAN 18</b>	State Bonding to Finance Efficient Transportation Infrastructure	Unknown	Unknown	Legislation required and political issues	Early and Late	Risks to taxpayers for General Obligation bonds. Could affect the state's bond rating. Infrastructure development that is in place over long term. Political debate over bonding.

<b>TRAN 19</b>	Port of Portland and other Oregon airports with common carrier service negotiate agreement with airlines serving PDX to establish and meet ground-use fuel efficiency goal (e.g., reduced idling).	Small	Technically feasible, low cost, PDX has begun this effort already.		Early	Larger airports could lead by example, develop template agreements, and demonstrate efficiency vehicles and other technologies.
<b>TRAN 20</b>	Develop and adopt new GHG Goal for Oregon's Land Use law	Medium to Large	Technically feasible and should be cost-effective in long run	Difficult to legislate while OR's land use laws generally are under siege	Late	Introduction of a new Goal would heighten visibility, recognition of this new state priority. Most of the substantive effect can probably be accomplished by LCDDC interpreting Goal 13—Energy to encompass GHG effects
<b>TRAN 21</b>	Set and meet goals for reduced diesel consumption by ships in port (shore power)	Small	Technical and cost difficulties loom large, may preclude early action here absent broader federal or global attention to this GHG source.		Early	WCGGWI Action Plan is likely to recommend deferring this action
<b>TRAN 22</b>	Convert Tri-Met, other bus transit fleets to hybrid or equivalent Low Emissions technology	Small	Feasible subject to availability of vehicles from manufacturers	Higher cost per bus partially offset by life-cycle fuel savings	Early	Seattle just took delivery of 235 GM hybrid buses; projected to save some 750,000 gallons of fuel/year. Some question whether GM technology is truly "hybrid" and as advanced as auto hybrid designs and capable of delivering projected fuel and GHG savings.



## MATERIALS MEASURES DEFERRED

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<b>MW 2</b>	Provide grants to increase edible food rescue (waste prevention/reuse); and, if feasible, provide incentives to capture multiple benefits	0.003 <sup>6,9</sup>	Feasible. Costs would be about \$4 million in grants over 20 years. <sup>10</sup>	Not difficult except for funding.	Long term effects; equipment lasts approximately 10+ years following grant but reductions in landfill methane generation are delayed.	Helps to reduce food insecurity and hunger by increasing the quantity and quality of food made available to Oregon families in need. Reducing hunger has other social benefits as well. Demonstration value.
<b>MW 5</b>	Provide incentives to stimulate development of agricultural plastics recovery/recycling infrastructure, and stimulate market demand. Determine if collaboration with WA, CA will stimulate market.	0.021 <sup>11</sup>	Feasible. Costs are unknown, but potentially in the range of \$500,000/year.	Difficult if producer responsibility is mandated. Securing stable State funding is also difficult.	Reductions are immediate but are only maintained as long as recycling activities continue.	Air quality benefits to reducing burning of agricultural plastics. Demonstration values.

<b>MW 6</b>	Require construction & demolition debris loads sorting prior to disposal: Metro, Lane & Marion wastesheds only	0.036	Feasible, but highly dependent on strong market demand for recyclables as well as energy recovery. Costs are unknown.	Legislation required and would be difficult.	Mixed; recycling and recovery reductions are immediate; disposal impacts are extended over time.	Disposal sites and integrated collection companies with installed MRF capacity would benefit; two privately owned disposal sites without existing MRF capacity would face significant capital costs or lose market share. Impacts limited to Portland, Salem, and Eugene areas.
<b>MW 7</b>	Require all dry waste loads to be sorted prior to disposal: (Metro wasteshed only)	0.022 <sup>12</sup>	Feasible, but highly dependent on strong market demand for recyclables as well as energy recovery. Costs are unknown	Legislation required and would be difficult.	Mixed; recycling and recovery reductions are immediate; disposal impacts are extended over time.	Disposal sites and integrated collection companies with installed MRF capacity would benefit; two privately owned disposal sites without existing MRF capacity would face significant capital costs or lose market share. Impacts limited to Portland area.
<b>MW 8</b>	Require businesses in certain areas to recycle specific materials	0.26	Feasible. Costs are unknown, but likely cost increases in some areas.	Might be implemented by rule; statute change could be more effective. Both would be difficult.	Mixed; recycling and recovery reductions are immediate; some disposal impacts are extended over time.	Requires participation by businesses or classes of businesses in certain areas

<b>MW #9</b>	Ban disposal of recyclable paper	0.33	Feasible, but costs are unknown.	Legislation required and would be difficult.	Mixed; recycling and recovery reductions are immediate; disposal impacts are extended over time.	Affects both households and businesses.
<b>MW 14</b>	Mandatory recovery of food wastes from larger businesses in Metro, Lane, and Marion wastesheds	0.11 <sup>6,1</sup> <sub>3</sub>	Feasible, Cost to local governments (and DEQ) are unknown.	Legislation needed and difficult.	Varies by location; most benefits are delayed and ongoing.	Potential economic development opportunities, contingent on establishment of commercial composting sites with affordable tipping fees.* Could save money for larger waste generators but will cost money for others.. Other environmental benefits associated with use of finished compost.
<b>MW 15</b>	Implement combined residential food & yard debris collection and composting in cities with greater than 10,000 population in Metro, Lane, and Marion wastesheds	0.009 <sup>6</sup> <sub>13</sub>	Feasible. Costs are unknown.	Probably required outside of Metro area; would be difficult due to unfunded mandate.	Reductions are delayed and accumulate over time.	Would most likely increase costs to households, but not business waste generators. Could negatively impact some yard debris composters. Other environmental benefits associated with use of finished compost.

## **BIOLOGICAL SEQUESTRATION DEFERRED**

	<b>MEASURES</b>	<b>GHG Savings MMT CO2 in 2025</b>	<b>Technical Feasibility and Cost Impacts</b>	<b>Legislate? Regulate? Fiscal impact?</b>	<b>GHG Savings Earlier? Later?</b>	<b><u>Benefits, Downsides, Other Effects?</u> Distribution of impacts; Economic development gains?; Education values; Demonstration values; Overlap with West Coast Governors' Initiative (WC-WG#)</b>
<b>Bio-Seq 2</b>	<b>Straw as Biomass Energy for Willamette Valley Grass Seed Production Systems</b>	0.0 MMT per year	Power generation on a farm conversion scale is technically feasible and avoids inefficient delivery of electricity to farms.  Investment costs in the development/ application of on- site farm conversion (straw to energy) technology.	Need tax credits and other financial incentives to cover initial investment and development costs. Need to collect power from farm conversion scale.	Immediate and annual based on the number of acres that switch from burning or baling to farm conversion scale energy production.	State or federal tax dollar investment.  Surplus power to the grid creates a value added energy product profitable to the farmer. Reduced air pollution from field burning. Additional carbon storage where no- till incorporated in these systems.

<p><b>Bio-Seq 6</b></p>	<p><b>Adopt Policies and Programs to Place Greater Emphasis on Conservation and Restoration of River Floodplain and Natural Habitats in the Willamette River Basin</b></p>	<p>1.7 MMT per year</p>	<p>Some risk in the degree of success in restoring forest habitats due to technical problems.</p> <p>Opportunity costs from development forgone higher than for Bio 5 Measure (Retain Land Use Controls). Direct costs include cost of forest restoration and management and the cost of compensating landowners for increased conservation of floodplain and other natural habitats.</p>	<p>There are varying, polarized and strongly held views on both sides (for or against) taking this type of approach.</p>	<p>Avoided emissions by maintaining the forest and agricultural land base. Delayed (i.e., 2030 and beyond), but increased permanent CO<sub>2</sub> sequestration and storage through forest and natural habitat restoration efforts.</p>	<p>Nearly 5-times the agricultural land (e.g., 200,000 acres) is lost to development when compared to Measure #1 due to greater conservation emphasis placed on forestlands and natural habitats.</p> <p>Maintain Oregon's livability, improved fish and wildlife habitat and increased recreation and natural resource education opportunity.</p>
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## GOVERNMENT OPERATIONS MEASURES DEFERRED

	<b>MEASURES</b>	GHG Savings MMT CO2 in 2025	Technical Feas-ibility and Cost Impacts	Legislate? Regulate? Fiscal impact?	GHG Savings Earlier? Later?	<u>Benefits, Downsides, Other Effects?</u> Distribution of impacts; Economic development gains?; Education values; Demonstration values; Overlap with West Coast Governors' Initiative (WC-WG#)
<b>GOV/OM 10</b>	Oregon's Investment Council should add investment criteria that will employ investment capital (e.g., PERS) to assist in meeting Oregon's GHG goals.					
<b>GOV/OM 11</b>	<u>Oregon should establish a \$/Ton "externality" adder for all state contracts (&gt; \$000?) 9that is, require a CO2 impact calculation for all such contracts) [Trexler]</u>					