

Testimony to the RE Building Task Force

November 29, 2022: Policy Scenario Results

Co-Chairs Lieber and Marsh, and Members of the Task Force,

My name is Dr. Pat DeLaquil, I am an energy system modeler and climate policy analyst. I have performed deep decarbonization studies in the US and more than a dozen other countries, and I organize locally with the Metro Climate Action Team.

My observations are supported by a key metrics table of the single policy scenario results (provided in my written testimony) that I compiled from the Summary Charts, supplied by the modelling team. This table allows all scenarios and all metrics to be viewed at one glance. I'll address the policy categories in order.

1. Within the Building Performance Standards, Measure 1c has the largest GHG reduction in this category and produces over \$120/t of abatement cost savings.
2. For Energy Efficient Incentives to reduce Heating and Cooling Loads, the 50% targets for all buildings to be retrofit are quite cost-effective, while the 100% targets appear quite costly, indicating that a middle ground (75%) target might be best.
3. Policies focused only on public and institutional buildings are mostly symbolic as their impacts are minimal.
4. Within the Incentives for Heat Pump devices, measure 4b produces the most GHG reductions, health related benefits, and consumer savings while still generating \$100/t of abatement cost savings.
5. Material Related Emissions measure 5b produces the largest GHG emission reductions in this category and has a modest lifecycle abatement cost.
6. For the Energy Efficient Building Codes, the 50% target measures for existing building retrofits are quite cost-effective, while the 100% targets appear somewhat costly, indicating that a target of 90% might be best.

What I found remarkable is that all of these policy categories contained measures that simultaneously reduce GHG emissions, create public health related savings, reduce energy burdens, create jobs and have negative or small abatement costs.

With regard to how much of these GHG reduction measures do we need, the clear answer from science is that we have to do more and we have to do it faster.

Thank you for the opportunity to testify. I look forward to seeing how the Task Force turns this information into policy recommendations.

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Metric	1. Average annual GHG emissions avoided emissions (2022-2050), kt	2. Average annual avoided energy consumption (2022-2050), 10 ⁹ Btu	3. Number of household retrofits that increase resiliency (2022-2050)	4. Change in public health costs related to air quality (2022-2050)	5. Change in household energy costs from 2022 to 2050	6. Average annual capital investment (2022-2050), M\$	7. Cumulative net costs discounted at 3% (2022-2050), M\$	8. Lifecycle abatement cost, USD/MTCO _{2e} , \$/t (2022-2050)	9. Average annual person years of employment (2022-2050)	10. Avoided annual average damage as a result of climate change globally (2022-2050), \$M
Policy										
1a	-547	-10000		-36	0.08%	1660	-2470	-141	432	-40
1b	-464	-10000		-34	-1.11%	1880	-2810	-190	491	-34
1c	-2941	-48000		-169	-24.43%	5780	-11870	-126	1453	-216
1d	-2789	-39000		-144	-24.43%	5770	-11870	-133	1453	-205
2a	-66	-2000	877	-9	4.46%	1400	-1250	-591	440	-5
2b	-71	-2000	877	-9	4.46%	1350	-1300	-576	423	-5
2c	-873	-30000	1752	-114	-18.62%	40540	15650	560	9884	-66
2d	-923	-32000	1752	-116	-18.62%	42040	17060	578	10248	-69
3a	-60	-2000		-2		3070	-460	-241	852	-4
3b	-176	-7000		-7		12990	3140	558	3215	-13
4a	-2005	-48000		-123	-27.66%	11560	-8320	-130	2624	-154
4b	-3604	-69000		-217	-36.90%	15460	-11540	-100	3368	-267
5a	-1175					5510	4480	119	1628	-87
5b	-3336					4850	3940	37	1384	-249
5c	-3223					6080	4940	47	1764	-255
6a	-306	-9000	877	-37	-2.63%	1940	-2560	-261	77	-23
6b	-324	-10000	877	-38	-2.63%	1950	-2670	-258	78	-24
6c	-1197	-41000	1752	-305	-31.40%	34470	2740	72	1316	-86
6d	-1289	-44000	1752	-310	-31.40%	35270	2880	70	1476	-93

1	Building performance standards	1a	1b	1c	1d
		Direct emissions need to reach 5% below 2035 levels in the BAP by 2035		Direct emissions need to reach 40% below 2035 levels in the BAP by 2035	
		Existing residential, commercial and multi-family buildings			
		All building sizes	Buildings ≥ 35,000 ft ²	All building sizes	Buildings ≥ 35,000 ft ²
2	Promote, incentivize and or subsidize energy efficiency and heating/cooling	2a	2b	2c	2d
		50% of buildings are retrofitted by 2050, thermal energy requirements reduced by 15%		100% of buildings are retrofitted by 2035, thermal energy requirements reduced by 50%	
		All building types			
		Buildings ≥ 50,000 ft ²	Buildings ≥ 30,000 ft ²	Buildings ≥ 50,000 ft ²	Buildings ≥ 30,000 ft ²
3	Decarbonize institutional/public buildings	3a	3b		
		New buildings after 2035 are carbon neutral	New buildings after 2023 are carbon neutral		
		50% of buildings are retrofitted by 2045; thermal energy requirements reduced by 15%; plug load reduced by 15%	100% of buildings are retrofitted by 2035; thermal energy requirements reduced by 50%; Plug load reduced by 50%		
4	Promote, incentivize, and/or subsidize heat pumps	4a	4b		
		80% of covered buildings have a heat pump installed by 2040	100% of buildings that are covered have a heat pump installed by 2035		
		New and existing residential and commercial buildings			
5	Assess and disclose material-related emissions	5a	5b	5c	
		Reduce embodied carbon from construction by 20% by 2030, compared to 2015	Reduce embodied carbon from construction by 60% by 2030, compared to 2015	Reduce embodied carbon from construction by 100% by 2050, compared to 2015	
		Residential and commercial buildings			
6	Enact energy-efficient building codes- Existing	6a	6b	6c	6d
		50% of existing buildings are retrofitted by 2050, thermal energy requirements reduced by 15%, plug load reduced by 15%		100% of existing buildings are retrofitted by 2035, thermal energy requirements reduced by 50%, plug load reduced by 50%	
		Existing residential and commercial buildings			
	Buildings ≥ 50,000 ft ²	Buildings ≥ 30,000 ft ²	Buildings ≥ 50,000 ft ²	Buildings ≥ 30,000 ft ²	
	Enact energy-efficient building codes- New	A 40% reduction in new building energy consumption from the 2006 Oregon codes		A 80% reduction in new building energy consumption from the 2006 Oregon codes	
New residential and commercial buildings					
	Buildings ≥ 50,000 ft ²	All buildings	Buildings ≥ 50,000 ft ²	All buildings	