

**The New Hampshire Climate Change Policy Task Force**

## **New Hampshire Climate Action Plan**

*A Plan for New Hampshire's Energy, Environmental  
and Economic Development Future*

### **Appendix 6: Carbon Emissions and Economic Modeling: Analysis Results Tables**

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<b>Legend</b>	
<b>Economic Impact</b>	
\$	\$0-\$2.5 million (“Low”)
\$\$	\$2.5 million - \$25 million (“Moderately low”)
\$\$\$	\$25 million - \$125 million (“Moderate”)
\$\$\$\$	\$125 million - \$500 million (“Moderately high”)
\$\$\$\$\$	\$500 million - \$1 billion (“High”)
\$\$\$\$\$\$	Greater than \$1 billion (“Very high”)
<b>Timing of Impact</b>	
	Constant/even
	Low short-term/Mostly long-term
	Immediate/higher upfront
<b>Parties Impacted</b>	
E	Evenly distributed
C	Consumers
Gl	Government – local
Gs	Government – state
B	Business – evenly distributed
Bs	Business – small
Bm	Business - medium
Bl	Business - large

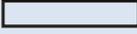
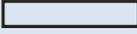
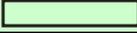
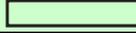
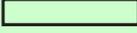
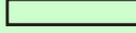
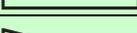
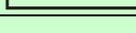
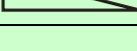
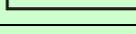
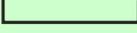
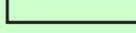
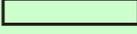
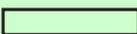
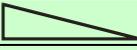
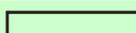
	CO <sub>2</sub> Emissions Reduction [MMTCO <sub>2</sub> e/year]			Economic Impact (2008 dollars)		Timing of Economic Impact		Parties Economically Impacted by:	
	2012	2025	2050	Costs	Benefits	Costs	Benefits	Costs	Benefits

Electricity Generation									
EGU Action 1.1 Revenue Decoupling	-	-	-	\$	-		-	Gs	-
EGU Action 1.2 Energy Efficiency Procurement									
5% reduction in NH consumption by 2020	0.08	0.29	0.38	\$\$\$	\$\$\$\$			E	E
10% reduction in NH consumption by 2020	0.17	0.59	0.76	\$\$\$	\$\$\$\$\$			E	E
15% reduction in NH consumption by 2020	0.25	0.88	1.14	\$\$	\$\$\$\$\$			E	E
20% reduction in NH consumption by 2020	0.33	1.17	1.52	\$\$\$\$	\$\$\$\$\$\$			E	E
24% reduction in NH consumption by 2020	0.40	1.41	1.83	\$\$\$\$	\$\$\$\$\$\$			E	E
EGU Action 1.3 Combined Heat & Power Resource Standard [9% reduction in NH consumption by 2020]	0.15	0.53	0.69	\$\$\$\$	\$\$\$\$			E	B
EGU Action 2.1 Renewable Portfolio Standard (RPS)	0.28	1.40	1.81	\$\$	\$\$\$			E	E
EGU Action 2.2 Regional Greenhouse Gas Initiative (RGGI) [*This relatively large emissions reduction target is achieved by other Actions]	0.47	2.79	5.92	\$\$\$	\$\$\$\$			E	E
EGU Action 2.3 New Source Performance Standard (NSPS)									
250lbsCO <sub>2</sub> /MWh	0.28	1.44	3.68	\$\$\$\$	\$			E	-
400lbsCO <sub>2</sub> /MWh	0.21	1.10	2.80	\$\$\$\$	\$			E	-
600lbsCO <sub>2</sub> /MWh	0.12	0.64	1.63	\$\$\$\$	\$			E	-
800lbsCO <sub>2</sub> /MWh	0.03	0.18	0.46	\$\$\$\$	\$			E	-
EGU Action 2.4 Low and Non-CO <sub>2</sub> Emitting Supply Side Resources	-	-	-	\$	-		-	Gs	-
EGU Action 2.5 Changes to Existing Generation Capacity									
Nuclear Case 1: Replace nuclear capacity with natural gas in 2030	0.00	0.00	-4.05	\$\$\$\$\$	\$			E	E
Nuclear Case 2: Replace petroleum, coal and a portion of natural gas base generation with new 1000MW nuclear	0.00	6.23	6.23	\$\$\$\$\$	\$			E	E
Replace petroleum, coal and a portion of natural gas base generation with 1000MW of new renewables	0.00	6.23	6.23	-	-	-	-	-	-
Replace coal base generation with an equivalent amount of new renewable generation	0.00	4.22	4.22	-	-	-	-	-	-
Replace coal base generation with an equivalent amount of new of NG generation	0.00	2.60	2.60	-	-	-	-	-	-
2.6 Import low carbon power from Canada – mainly Quebec Hydro	6.09	6.09	6.09	-	-	-	-	-	-
2.7 Utility Investments in New Renewable Generation	0.14	0.56	1.12	-	-	-	-	-	-
Buildings									
RCI Action 1.1 Maximize Energy Efficiency in New Construction									
30% more efficient	0.20	0.86	2.08	\$\$\$	\$\$\$\$			E	E
70% more efficient	0.36	2.00	4.85	\$\$\$\$	\$\$\$\$\$			E	E
100% more efficient	0.46	2.85	6.93	\$\$\$\$\$	\$\$\$\$\$			E	E

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	2012	2025	2050	Costs	Benefits	Costs	Benefits	Costs	Benefits
RCI Action 1.2 Maximize Energy Efficiency in Existing Residential Buildings									
30,000 homes/year; 15% more efficient	0.19	0.82	0.82	\$\$	\$\$\$\$			C	C
30,000 homes/year; 30% more efficient	0.39	1.64	1.64	\$\$\$	\$\$\$\$\$			C	C
30,000 homes/year; 60% more efficient	0.78	3.29	3.29	\$\$\$\$\$	\$\$\$\$\$\$			C	C
15,000 homes/year; 15% more efficient	0.10	0.41	0.82	\$\$	\$\$\$\$			C	C
15,000 homes/year; 30% more efficient	0.19	0.83	1.64	\$\$\$	\$\$\$\$			C	C
15,000 homes/year; 60% more efficient	0.39	1.65	3.29	\$\$\$\$	\$\$\$\$\$			C	C
RCI Action 1.3 Maximize Energy Efficiency in Existing Commercial, Industrial, and Municipal Buildings									
15% more efficient	0.16	0.69	0.84	\$\$\$	\$\$\$\$			B	B
30% more efficient	0.32	1.38	1.68	\$\$\$	\$\$\$\$\$			B	B
50% more efficient	0.54	2.29	2.80	\$\$\$\$	\$\$\$\$\$\$			B	B
RCI Action 1.4A - Upgrade Building Energy Codes									
25% more efficient thermal	0.10	0.44	1.06	\$\$\$	\$\$\$\$			E	E
50% more efficient thermal	0.21	0.87	2.13	\$\$\$\$	\$\$\$\$\$			E	E
RCI Action 1.4B - Improve Building Energy Code Compliance									
50% compliance (3% more efficient thermal)	0.01	0.05	0.13	\$	\$\$			Gl	-
80% compliance (6.6% more efficient thermal)	0.03	0.12	0.28	\$	\$\$\$			Gl	-
RCI Action 1.5 Establish an Energy Properties Section in MLS Listings	-	-	-	\$\$	-		-	C	C
RCI Action 1.7 Preserve Older Buildings and Neighborhoods as Components of Sustainable Communities	-	-	-	\$	-		-	Gs	-
RCI Action 1.8 Conserve Embodied Energy in Existing Building Stock	-	-	-	\$\$\$\$	\$\$\$\$\$			-	-
RCI Action 2.1 Create Incentive Programs to Install Higher Efficiency Equipment, Processes, and Systems	-	-	-	\$\$\$	-		-	Gs	B
RCI Action 2.3 Require Annual CO <sub>2</sub> Emissions Reporting	-	-	-	\$	-		-	B	-
RCI Action 2.4 Develop Best-Practice Guidelines for Energy-Efficient Process Equipment	-	-	-	\$	-		-	B	-
RCI Action 2.5 Promote Net-Zero or Minimal-Emissions Industrial and Commercial Clusters	-	-	-	\$\$	-		-	Gs	-
RCI Action 3.1 Promote Renewable Energy and Low-CO <sub>2</sub> e Thermal Energy Systems	0.03	0.13	0.24	\$\$\$	\$\$\$			C	C
Action 4.1 Include Energy Efficiency and Conservation in School Curriculum	-	-	-	\$	-		-	-	-
Action 4.2 Increase Energy Efficiency through Building Management Education Programs	-	-	-	\$\$	\$\$\$\$			Gs	B
Action 4.3 Reduce Residential Energy Demand through Education and Outreach	-	-	-	\$	-		-	Gs	C
Action 4.4 Establish a Comprehensive Energy Efficiency and Renewable Energy Education Program	-	-	-	\$\$	\$\$\$			Gs	B
Action 4.5 Create an Energy Efficiency and Sustainable Energy Systems Web Portal	-	-	-	\$	-		-	Gs	-

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	2012	2025	2050	Costs	Benefits	Costs	Benefits	Costs	Benefits
<b>Transportation</b>									
TLU Action 1.A.1 - Support Stricter Corporate Average Fuel Economy Standards									
35 MPG	0.09	1.13	1.85	\$\$\$\$	\$\$\$\$\$			C	C
40 MPG	0.15	1.64	2.64	\$\$\$\$	\$\$\$\$\$			C	C
45 MPG	0.21	2.04	3.25	\$\$\$\$	\$\$\$\$\$\$			C	C
50 MPG	0.27	2.37	3.75	\$\$\$\$	\$\$\$\$\$\$			C	C
TLU Action 1.A.2 – Support Fuel Economy Standards for Heavy-Duty Vehicles	0.22	0.94	1.82	\$\$\$\$	\$\$\$			B	-
TLU Action 1.A.3 - Adopt California Low Emission Vehicle (CALEV) Standards	0.16	1.78	2.62	\$\$\$	\$\$\$\$			C	-
TLU Action 1.B.1 - Create a Point-of-Sale Financial Incentive for Higher Efficiency Vehicles									
Feebate of \$500 per 0.01 gallon/mile (new vehicles 14% more fuel efficient)	0.23	0.73	1.00	\$	\$\$\$\$\$			Gs	C
Feebate of \$1000 per 0.01 gallon/mile (new vehicles 22% more fuel efficient)	0.34	1.07	1.47	\$	\$\$\$\$\$			Gs	C
TLU Action 1.B.2 - Implement a Carbon-Based Vehicle Registration Fee Structure	0.23	0.73	1.00	\$	\$\$\$\$\$			Gs	C
TLU Action 1.C.1. - Adopt a Low-Carbon Fuel Standard	0.00	0.89	1.32	\$	\$\$\$			Gs	C
TLU Action 1.C.2. - Promote Advanced Technology Vehicles and Supporting Infrastructure	-	-	-	\$\$\$\$	\$\$\$\$\$\$			C	C
Electric Cars									
Light duty sales 1% electric by 2020 (3.5% by 2050) [electricity at NE margin]	0.00	0.04	0.16	-	-	-	-	-	-
Light duty sales 5% electric by 2020 (17.5% by 2050) [electricity at NE margin]	0.01	0.18	0.79	-	-	-	-	-	-
Light duty sales 10% electric by 2020 (35% by 2050) [renewable electricity]	0.04	0.56	2.45	-	-	-	-	-	-
Light duty sales 20% electric by 2020 (70% by 2050) [renewable electricity]	0.08	1.11	4.90	-	-	-	-	-	-
TLU Action 1.C.3. - Install Retrofits to Reduce Black Carbon Emissions									
Employ DOCs (reduce PM emissions by 25%)	0.07	0.40	0.70	\$\$\$	\$			B	-
Employ FTFs (reduce PM emissions by 50%)	0.14	0.80	1.39	\$\$\$	\$			B	-
Employ DPFs (reduce PM emissions by 85%, increase diesel fuel use by 3%)	0.23	1.30	2.25	\$\$\$\$	\$			B	-
TLU Action 1.D.1. Reduce and Enforce Highway Travel Speeds									
Enforce Current Speed Limits on Highways	0.06	0.18	0.25	\$	\$\$\$			Gs	C
Lower Posted Speed Limits on Highways	0.11	0.35	0.48	\$	\$\$\$\$			Gs	C
TLU Action 1.D.2. Reduce Vehicle Idling	0.01	0.02	0.03	\$	\$\$			B	B
TLU Action 1.D.3. Improve Traffic Flow.	0.01	0.04	0.06	\$	\$\$			Gs	E
TLU Action 1.D.4 - Reduce Emissions through Enhanced Vehicle Inspection Programs	0.03	0.09	0.12	\$\$	\$			E	E
TLU Action 2.A.1. Commuting Trip Reduction Initiative	0.03	0.13	0.17	\$\$	\$\$\$			B	C
TLU Action 2.A.2 - Congestion Pricing	0.03	0.03	0.04	\$\$\$	\$\$			E	E

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TLU Action 2.A.3 - Create a VMT-Based Insurance Premium Structure									
2.7% reduction in total light duty VMT	0.15	0.16	0.22	\$\$	\$\$\$			E	C
5% reduction in total light duty VMT	0.28	0.30	0.41	\$\$	\$\$\$\$			E	C
7% reduction in total light duty VMT	0.39	0.42	0.57	\$\$	\$\$\$\$			E	C
TLU Action 2.A.4 - Implement VMT-Based Vehicle Registration Fees									
2.7% reduction in total light duty VMT	0.15	0.16	0.22	\$	\$\$\$			Gs	C
5% reduction in total light duty VMT	0.28	0.30	0.41	\$	\$\$\$\$			Gs	C
7% reduction in total light duty VMT	0.39	0.42	0.57	\$	\$\$\$\$			Gs	C
TLU Action 2.A.5 - Increase the State Gasoline Tax	0.22	0.67	1.47	\$\$\$\$\$	\$\$\$\$\$\$			E	E
TLU Action 2.A.7 - Create Initiative to Reduce Availability of Free and Inexpensive Parking	-	-	-	\$	-		-	-	-
TLU Action 2.B.1.b - Improve Existing Local/Intra-Regional Transit (Bus) Service	0.01	0.11	0.29	\$\$	\$\$\$			C	C
TLU Action 2.B.1.c - Expand and Improve Bicycle and Pedestrian Infrastructure	0.02	0.08	0.11	\$\$	\$\$\$			C	C
TLU Action 2.B.2.a - Maintain and Expand Passenger Rail Service	0.00	0.05	0.15	\$\$\$	\$\$\$\$\$\$			E	E
TLU Action 2.B.2.d -Implementation Recommendations of the I-93 Transit Investment Study	0.12	0.13	0.17	\$\$\$\$	\$\$\$			E	C
TLU Action 2.B.2.e - Expand Park-and-Ride Infrastructure	0.03	0.04	0.05	\$\$	\$\$			-	C
TLU Action 2.B.2.f - Provide Financial Support of Transportation Management Associations	-	-	-	\$	-		-	Gs	E
TLU Action 2.B.2.h - Improve Existing Inter-City Bus Service to Increase Ridership	0.01	0.02	0.15	\$\$	\$\$\$			C	C
TLU Goal 2.C - Develop Land Use Patterns that Support a Balanced Multi-Modal Transportation System and Reduce Vehicle Miles Traveled									
Directing in-community only growth to their center areas [0%, 0.5% and 2% light duty VMT reduction by 2012, 2025, and 2050 respectively]	0.00	0.03	0.16	-	\$\$	-		-	C
Directing 60% of all NH growth to center areas of 14 largest, densest communities in central / southern / southeastern NH with walkable design and an integrated mix of uses [0%, 4% and 8% light duty VMT reduction by 2012, 2025, and 2050 respectively]	0.00	0.24	0.65	-	\$\$\$	-		-	C
Directing 90% of all NH growth to center areas of 14 largest, densest communities in central / southern / southeastern NH with walkable design and an integrated mix of uses [0%, 7% and 11% light duty VMT reduction by 2012, 2025, and 2050 respectively]	0.00	0.42	0.90	-	\$\$\$\$	-		-	C
TLU Action 2.C.1.a - Assess GHG Development Impact Fees	-	-	-	\$	-		-	Gs	-
TLU Action 2.C.1.b - Streamline Approvals for Low-GHG Development Projects	-	-	-	\$	-		-	Gs	-
TLU Action 2.C.2 - Develop Model Zoning to Support Bus/Rail Transit	-	-	-	\$	-		-	Gs	-

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	2012	2025	2050	Costs	Benefits	Costs	Benefits	Costs	Benefits
TLU Action 2.C.3 - Develop Model Zoning for Higher-Density, Mixed-Use Development	-	-	-	\$	-		-	Gs	-
TLU Action 2.C.4 - Use State Funding and Grants to Encourage Low-GHG-Impact Development	-	-	-	\$	-		-	Gs	-
TLU Action 2.C.5 - Enable/Apply a Two-Rate Tax Structure Based on GHG-Impact	-	-	-	\$	-		-	Gs	-
TLU Action 2.C.6 - Promote Availability and Use of Location Efficient Mortgages	-	-	-	\$	-		-	Gs	-
TLU Action 2.C.7 - Establish Entity(ies) to Support Compact Land Use Patterns and Open Space Preservation	-	-	-	\$	-		-	Gs	-
TLU Action 2.C.8 - Continue/Expand Funding, Education and Technical Assistance to Municipalities	-	-	-	\$	-		-	Gs	-
<b>Natural Resources</b>									
AFW Action 1.1.1 Increase Cover Crops	<0.01	<0.01	<0.01	\$\$	\$\$			Bs	Bs
AFW Action 1.1.2 Increase Conservation Tillage/No-Till Farming Practices	<0.01	<0.01	<0.01	\$	\$			Bs	Bs
AFW Action 1.1.3 Protect Agriculture Land	-	-	-	\$\$	\$\$			Gl	E
AFW Action 1.2 Avoid Forest Land Conversion	0.17	0.33	0.52	\$\$\$\$	\$\$\$			Gl	E
AFW Action 1.3 - Promote Durable Wood Products	0.10	0.10	0.10	\$	\$\$\$			Gs	B
AFW Action 2.1 - Encourage the Use of Bioreactors for Landfills	-	-	-	\$\$	\$			Bs	E
AFW Action 2.2 - Maximize Availability of Biomass for Electricity and Heating within Sustainable Limits	1.63	1.81	2.25	-	-	-	-	-	-
AFW Action 2.2.1 - Maintain Infrastructure for Biomass Production and Support Regulatory and Business Efficiencies	-	-	-	\$\$	\$\$\$			Gs	B
AFW Action 2.2.2 - Ensure Biomass Consumption is within Sustainable Limits	-	-	-	\$	-		-	Gs	B
AFW Action 2.2.3 Ensure the Most Efficient Use of Energy/Biomass Stock	-	-	-	\$	-		-	Gs	B
AFW Action 3.1 Implement a Pay-As-You-Throw Initiative (PAYT)	-	-	-	\$\$	\$\$\$			Bm	E
AFW Action 4.1 Strengthen Local Food Systems	<0.01	<0.01	<0.01	\$	\$\$			Gs	Bs