FACTS

NEW HAMPSHIRE

AMERICAN SECURITY PROJECT

Pay Now, Pay Later: New Hampshire

Warmer temperatures and high greenhouse gas (GHG) emissions will cause New Hampshire's snow season to shrink by about 50%, presenting significant hardship for the ski industry.[1]

Tourism related to forestry and wildlife is in danger if climate change continues. Hunting, fishing and wildlife viewing in New Hampshire brings in about $525 million to the state annually, and supports nearly 13,000 jobs.[2]

A nationwide commitment to investing in clean energy could attract $650 million in investments and create 8,000 jobs in New Hampshire.[3]

According to a new study, a failure to mitigate the effects of climate change could begin to cause serious gross domestic product and job losses within the next several decades. Between 2010 and 2050, it could cost New Hampshire $1.8 billion in GDP and over 12,000 jobs.*

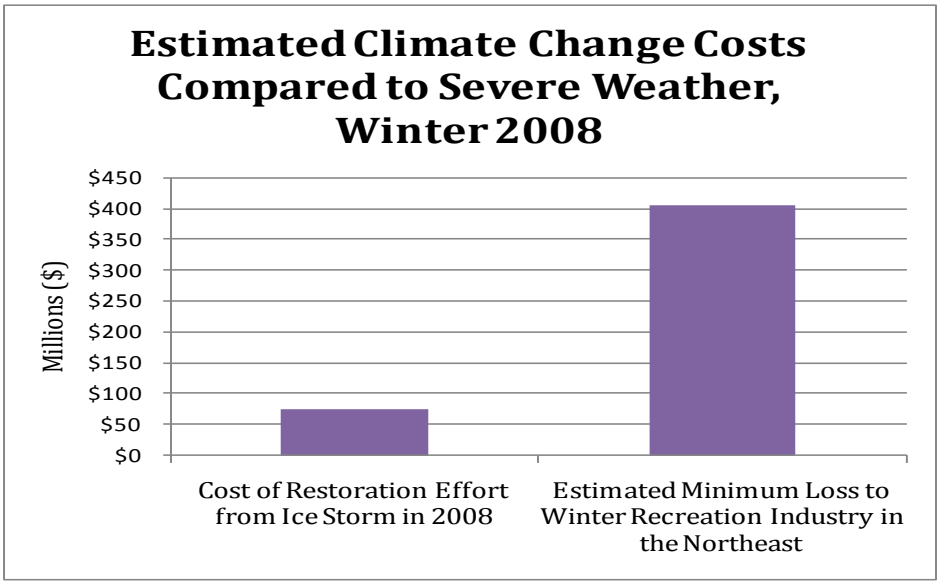
GDP numbers are based on a 0% discount rate. Job losses are measured in labor years, or entire years of fulltime employment. Backus, George et al., "Assessing the Near-Term Risk of Climate Uncertainty: Interdependencies among the U.S. States," Sandia Report (Sandia National Laboratories, May 2010), 141.* ***https://cfwebprod.sandia.gov/cfdocs/CCIM/docs/Climate_Risk_Assessment.pdf* *(accessed March 23, 2011).*

Admittedly, the effects of climate change, a complex and intricate phenomenon, are difficult to predict with precision. Informed scientific and economic projections, as we have used in our research, however, allow us to see that New Hampshire faces significant losses in industries crucial to its economy if no action is taken.

Moreover, data shows New Hampshire is poised to benefit from the research, development, and distribution of renewable energy technologies. New Hampshire has substantial renewable energy potential. Its vast forests offer potential biofuel material and its mountains could generate wind power. With one of the lowest total gas consumption and net electricity generation levels in the nation, New Hampshire is in a position to easily transition to becoming a leader in green energy production. Should we fail to take action against climate change, the Granite State has much to lose.

Pay Later: The Cost of Inaction

Climate change is expected to negatively affect New Hampshire's climate in many ways. **Average temperatures are projected to rise 9-13ºF during winter and 6-14ºF in summer by late century**. Historically, New Hampshire experiences a drought once every two to three years; such events are expected to occur yearly in the future. Increases in pests and weeds, along with altered seasonal temperatures, will likely damage the state's forestry and agricultural sectors.[4] Diminished air quality, heat waves, droughts, intense rainstorms, flooding, sea level rise, and early snowmelt are projected to significantly impact the state's major industries and its overall economic security.[5]



Sources: Center for Integrative Environmental Research, University of Maryland; Public Service of New Hampshire[6]

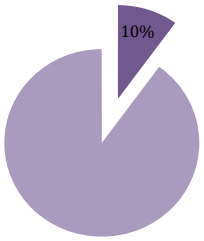
A Skier's Nightmare

Climate change may devastate an iconic model of American winter recreation. New Hampshire introduced modern skiing to the United States in the early 20th century, pioneered new ski trail mechanisms, and expanded resort concepts to include professional ski instruction.[7] Rising temperatures will shorten the winter season, produce more rain than snow, and cause detrimental changes to ski and snowmobiling conditions. **A decrease of 10-20% in skiing days will cost New Hampshire and its neighbors $405-810 million per year**.[8] Even moderate temperature changes that increase "slushy" snow could shrink the season by about 50%.[9] The financial stability of ski resorts is of critical importance: tourism and recreation, including accommodations and food service, account for $2.2 billion.[10] In order to remain viable, New Hampshire will need to increase its snowmaking capacity by roughly 30% over the next several decades, at a cost of more than $24.2 million.[11]

Since it is not feasible to produce artificial snow along the vast trails and terrain used for snowmobiling, adapting this $1.2 billion industry to climate change will be more difficult, and may even prove to be impossible.[12] According to the Union of Concerned Scientists, New Hampshire could see its snowmobiling season shrink 80% by 2100; [13] the season could be sustained for two months in the northern parts of the state and only several days in the southern area.[14]

Climate change and high GHG emissions could destroy New Hampshire's $4.3 billion tourism industry.

New Hampshirite Labor Force Projected to be Directly Affected



Source: New Hampshire Employment Security[15]

Climate change and high GHG emissions could destroy New Hampshire's $4.3 billion tourism industry. A reduction in can have a ripple effect that will reduce the viability of other industries dependant on tourism, including (but not limited to) the hotel, food service, transportation, retail, construction, real estate, and entertainment industries.[16]

An Agrarian Heritage under Stress

New Hampshire relies on its forestry and agriculture sectors for paper products (i.e., lumber and pulp), maple syrup production, and its autumn foliage tourism industry. "In 2005, **forest-based manufacturing and forest-related recreation and tourism in the state contributed over $2.3 billion to the state economy**."[17] **Climate conditions in a high-emissions scenario are expected to reduce the forest, which makes up 84% of New Hampshire's landscape**, threatening spruce and fir trees (which are vital to paper production), beech and birch forests (known for beautiful foliage), and maple trees.[18] With sap flow falling by 17-39%, the production of maple syrup—an industry which has prospered in the Granite State for centuries—will be seriously diminished, resulting in losses of $5.3-12.1 million across the Northeast region.[19] The livelihoods of hundreds of maple sugar houses—many of which attract tourists for tours and sampling—will be jeopardized by climate change.[20]

New Hampshire's $18 million farming and agricultural sector is under serious threat from warmer winters that will affect development patterns and crop yields. Expansion of agricultural pests and weeds could increase the need for expensive herbicides and pesticides, reducing the industry's overall profitability.[21] Changes to the climate would directly affect more than 1,800 residents who are employed in agriculture.[22]

Pay Now: The Benefits of Taking Action

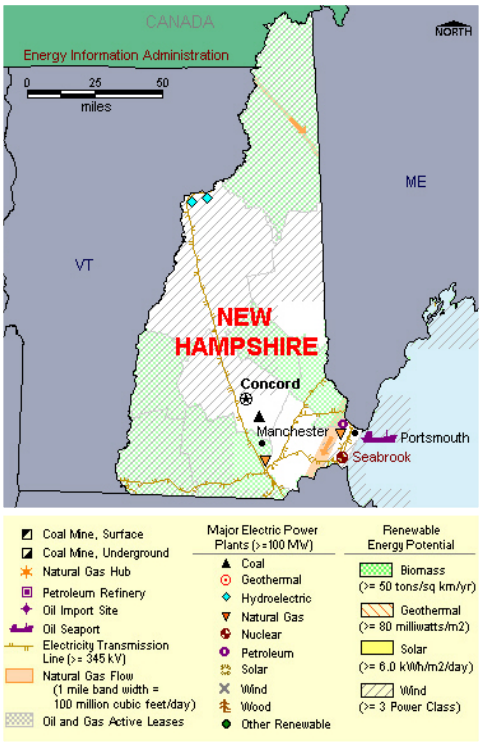
Both total and per capita energy usage rates in New Hampshire are among the lowest in the nation. In recent years, New Hampshire has begun to generate renewable energy from fuel wood, landfill gas, hydroelectric power, and municipal solid waste.[23] By making efforts to reduce GHG emissions, use more efficient energy sources, and stimulate the state's economy with green jobs, New Hampshire has taken proactive measures to ensure its environmental and economic future.

By making existing homes 60% more energy efficient (through minor changes at the individual level), the state would save nearly $1.6 billion annually and significantly reduce emissions by the year 2025.[24] Monthly costs for the average family could decrease with the introduction of more clean energy options: savings of $5.82 on energy bills and

$21.86 on fuel costs each month would provide long-term benefits to state residents.[25]

New Hampshire residents could also benefit substantially from the introduction of more green energy jobs. Investments in clean energy technology will create more than 8,000 jobs for the state.[26] Across the United States, green jobs typically pay at a higher rate than others. **As of 2009, New Hampshire workers employed in this industry (3.2% of the employed workforce) were earning an average of $54,400—23% more than the average annual income in the state**.[27]

In March 2009, the New Hampshire Climate Change Policy Task Force published the New Hampshire Climate Action Plan, which specified initiatives and goals for the future of energy, environmental, and economic development. The recommendations include increasing renewable energy, reducing vehicle emissions, improving transportation options, protecting natural resources, and addressing potential climate change impacts. **By 2007, venture capitalists had invested nearly $67 million in clean energy in New Hampshire and created over 4,000 jobs**.[28] As a member of the Regional Greenhouse Gas Initiative (RGGI), and with the implementation of an aggressive emissions reduction plan, New Hampshire is heading in the right direction towards securing environmental and economic security.



Conclusion

New Hampshire must consider action on climate change not just in terms of cost, but also in terms of opportunities. If we give New Hampshire's population, businesses, and investors clear and consistant signals by properly offering initiatives and cultiating demand, investment and innovation in renewable technologies will follow.

New Hampshire residents will have to pay for the effects of climate change. The only remaining question is whether they will pay now, or pay later and run the risk of paying significantly more.

(Endnotes)

1 Union of Concerned Scientists, *New Hampshire: Confronting Climate Change in the U.S. Northeast,* 2007, 2. **http://www.climatechoices.org/assets/documents/climatechoices/new-hampshire_necia.pdf** (accessed September 17, 2010).

2 National Wildlife Federation, *Global Warming and New Hampshire*, January 2009, 2. **http://www.nwf.org/Global-Warming/~/media/PDFs/Global%20Warming/Global%20Warming%20State%20Fact%20Sheets/NewHampshire.ashx** (accessed September 17, 2010).

3 Climate Action Network, *Climate Fast Facts: New Hampshire*. **http://www.usclimatenetwork.org/policy/congress-1/climate-and-clean-energy-action-state-by-state/climate-fast-facts-new-hampshire** (accessed September 17, 2010).

4 Union of Concerned Scientists, *New Hampshire: Confronting Climate Change in the U.S. Northeast*, 1.

5 Climate Action Network.

6 Public Service of New Hampshire, *New Hampshire Ice Storm 2008, Record Outage, Record Recovery*, 2. **http://www.psnhnews.com/psnhnews2/images/file/PSNH_Ice%20Storm%20Report_2008.pdf** (accessed September 24, 2010).

7 Jeff Leich, "New Hampshire and the Emergence of an American Ski Industry," *Historical New Hampshire* 63, 2 (Fall 2009), 79-96. **http://www.skimuseum.org/page.php?cid=doc179** (accessed September 17, 2010).

8 Center for Integrative Environmental Research, University of Maryland, *The US Economic Impacts of Climate Change and the Costs of Inaction: Regional Highlight: Northeast and Mid-Atlantic*, October 2007, 2. **http://www.cier.umd.edu/documents/Northeast-Economic%20Impacts%20of%20Climate%20Change.pdf** (accessed September 17, 2010).

9 Union of Concerned Scientists, *New Hampshire: Confronting Climate Change in the U.S. Northeast,* 2.

10 Bureau of Economic Analysis, *Gross Domestic Product by Industry and State*. **http://www.census.gov/compendia/statab/2008/tables/08s0650.xls** (accessed September 17, 2010).

11 National Wildlife Federation, 2.

12 New Hampshire Snowmobile Association, *Come Visit Us*. **http://www.nhsa.com/visit.shtml** (accessed September 23, 2010).

13 Union of Concerned Scientists, *Climate Change in the US: The Prohibitive Costs of Inaction*, 2007, 10-11. **http://www.ucsusa.org/assets/documents/global_warming/climate-costs-of-inaction.pdf** (accessed September 23, 2010).

14 Union of Concerned Scientists, *New Hampshire: Confronting Climate Change in the U.S. Northeast,* 3.

15 Based on 2008 employment levels; includes agriculture, forestry, and tourism employment.

16 New Hampshire Employment Security Economic and Labor Market Information Bureau, *Vital Signs: Economic and Social Indicators for New Hampshire, 2005-2008,* 53. **http://www.nh.gov/nhes/elmi/pdfzip/econanalys/vitalsigns/vs2010/VS2010.pdf** (accessed July 12, 2010).

17 New Hampshire Department of Environmental Services, *The New Hampshire Climate Action Plan*, March 2009, 7. **http://des.nh.gov/organization/divisions/air/tsb/tps/climate/action_plan/documents/nhcap_final.pdf** (accessed July 12, 2010).

18 Union of Concerned Scientists, *New Hampshire: Confronting Climate Change in the U.S. Northeast*.

19 Center for Integrative Environmental Research, University of Maryland, 2.

20 New Hampshire Maple Producers, *Welcome To Our home Page*. **http://www.nhmapleproducers.com/** (accessed September 23, 2010).

21 Union of Concerned Scientists, *New Hampshire: Confronting Climate Change in the U.S. Northeast*, 4-5.

22 New Hampshire Employment Security, *New Hampshire Employment Projections by Industry and Occupation Base Year 2008 to Projected Year 2018,* 3. **http://www.nh.gov/nhes/elmi/pdfzip/econstat/projections/proj08-18/Projections2008-2018.pdf** (accessed September 23, 2010).

23 U.S. Energy Information Administration, *State Energy Profiles: New Hampshire*, July 2010. **http://www.eia.doe.gov/state/state_energy_profiles.cfm?sid=NH** (accessed September 23, 2010); U.S. Energy Information Administration, *Renewable Biomass*. **http://www.eia.doe.gov/kids/energy.cfm?page=biomass_home-basics** (accessed November 10, 2010). Burning wood for fuel is a centuries old practice, currently making up 2% of American total energy use. While wood pellet combustion does release carbon monoxide and other particulates, sometimes producing acid rain, it is still superior to the burning of fossil fuel, and clean-burning technology is available. The Environmental Protection Agency requires plants converting waste to energy to employ devices which scrub and/or filter emissions, removing pollutants. Oftentimes, the waste-to-energy process occurs at such high temperatures that the pollutants break down naturally, becoming less toxic.

24 New Hampshire Department of Environmental Services, 6.

25 Climate Action Network.

26 Energy Defense Fund, *New Hampshire Will Benefit From Clean Energy Legislation that Limits Carbon Pollution.* **http://www.edf.org/documents/10288_CleanEnergyJobs-NH.pdf** (accessed September 23, 2010).

27 New Hampshire Department of Environmental Services, 34.

28 Pew Charitable Trusts, *The Clean Energy Economy: Repowering Jobs, Businesses and Investments Across America,* June 2009, 52-53. **http://www.pewcenteronthestates.org/uploadedFiles/Clean_Economy_Report_Web.pdf** (accessed September 23, 2010).