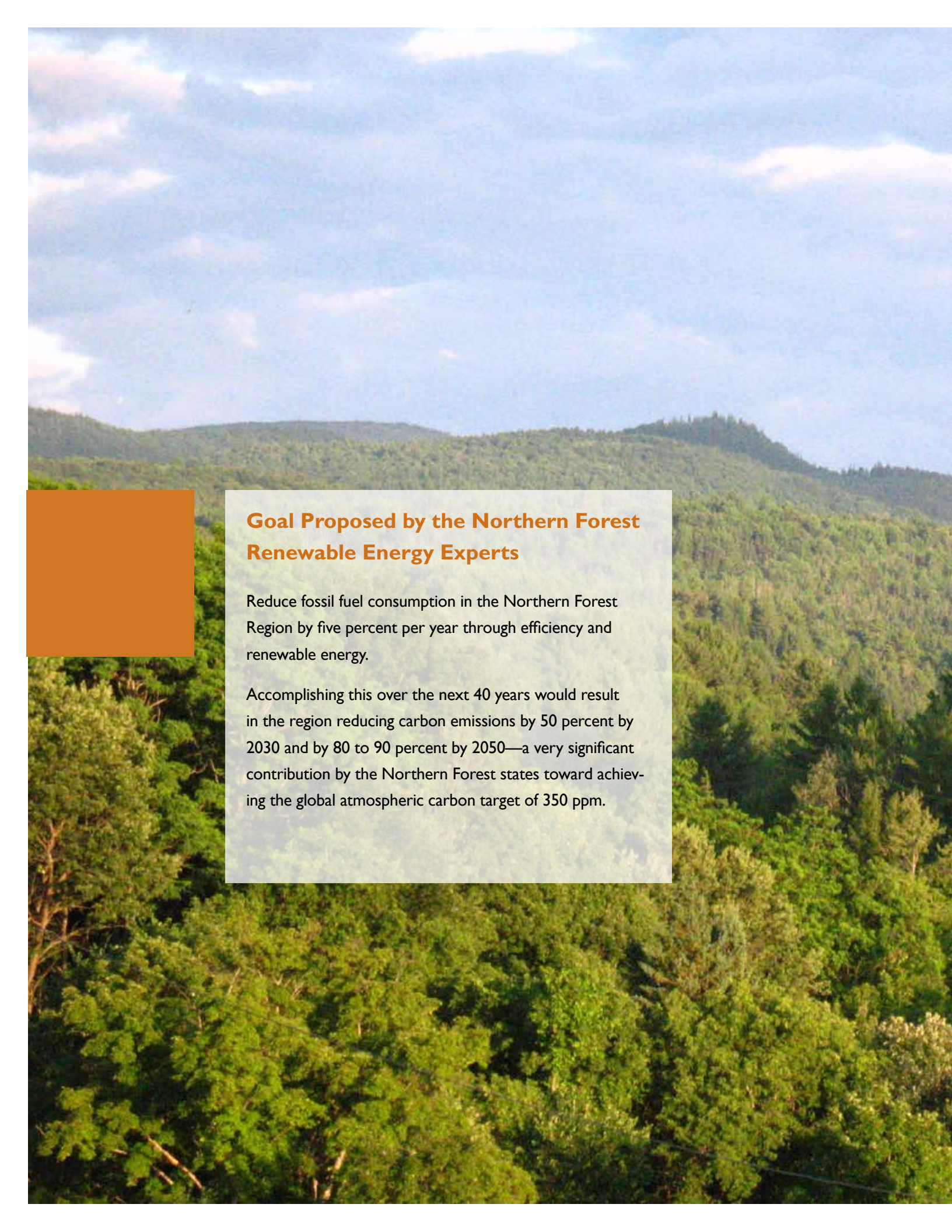




**Roadmap to a
Sustainable Energy Future
for the Northern Forest Region**

January 2009



Goal Proposed by the Northern Forest Renewable Energy Experts

Reduce fossil fuel consumption in the Northern Forest Region by five percent per year through efficiency and renewable energy.

Accomplishing this over the next 40 years would result in the region reducing carbon emissions by 50 percent by 2030 and by 80 to 90 percent by 2050—a very significant contribution by the Northern Forest states toward achieving the global atmospheric carbon target of 350 ppm.



A Message to the Governors, Elected Officials, and Policy Leaders in the Northern Forest Region

This is a message from energy efficiency and renewable energy industry leaders in Maine, New Hampshire, Vermont, and New York to the governors, elected officials, and other public policy leaders in the Northern Forest region. The recommendations presented here, if adopted, will make the region a national example of leadership in addressing the urgent challenges of climate change and the creation of a new sustainable energy economy.

This message was developed cooperatively by participants in a Regional Energy Efficiency and Renewable Energy Strategy Session held as part of the “Summit for the Northern Forest” in November 2008. The session was organized and run by the Biomass Energy Resource Center (BERC) to further develop the renewable energy recommendations of the Northern Forest Sustainable Economy Initiative (SEI).

The Efficiency and Renewable Energy Leaders recognize the important work that is going forward in the four states under the leadership of the governors, including the Regional Greenhouse Gas Initiative (RGGI), state 25x’25 initiatives, climate change working groups, and a long history of proactive efficiency and renewable programs. The intent of the Regional Energy Efficiency and Renewable Energy Strategy Session and its participants was to develop a powerful, far-reaching set of cross-region recommendations that build on and give breadth and strength to the work now going on in the states.

Recommended Actions

The Renewable Energy Experts developed the recommendations on the next page as a roadmap for transforming the energy economy of the Northern Forest region. The recommendations focus especially on those areas that will benefit from state-level leadership and regional coordination.

The recommendations presented here, if adopted, will make the region a national example of leadership in addressing the urgent challenges of climate change and the creation of a new sustainable energy economy.

Recommended Actions

■ ENERGY EFFICIENCY

Create incentives for builders, developers, and others to conduct energy audits, complete energy efficient retrofits on existing buildings, and utilize best practices in new construction.

- Establish a statewide energy efficiency delivery structure in states that do not yet have one. Efficiency Vermont is in its 8th year of operation, is saving Vermonters nearly 15 MW of electrical capacity per year at a cost of less than \$.03 per kilowatt hour, and has achieved negative load growth in the state as of 2008. Efficiency Maine is under development. New Hampshire and New York are contemplating options and structures for the future. Include an “all-fuels” provision and a performance based structure in such initiatives.

■ POLICIES AND REGULATIONS

Enable and stimulate regional energy efficiency and renewable energy markets by harmonizing key energy policy and regulatory mechanisms across the four states.

- Require all public buildings to meet mandatory efficiency levels and renewable energy use to save energy, reduce carbon, and help stimulate green energy markets.
- For existing buildings, establish a time of sale requirement that includes disclosure of energy use at the time of sale and includes financing and arrangement for all cost effective efficiency upgrades as part of closure of the sale.
- For new construction, require all buildings to exceed current or baseline energy codes by 50 percent or more.
- Develop common net metering limits and standardized interconnection rules for renewable energy projects across the region.

■ RENEWABLE PORTFOLIO STANDARDS

Ensure each state has specific and multi-year Renewable Portfolio Standards (RPS) that appropriately incentivize renewable heat, CHP and power.

- Develop and adopt—across all four states—a unified “thermal portfolio standard” (TPS) to incentivize renewable heating and CHP projects.
- Adopt a 25 percent RPS in each state, and simplify and streamline RPS rules for renewable power generation across the four states, to enable and stimulate regional Renewable Energy Credit (REC) markets for heat, power, and CHP.
- Develop common RPS definitions across all four states for which technologies and fuel sources are eligible (including biomass from sustainably managed forests).

■ BIOMASS ENERGY

Implement recommendations of the Northern Forest Biomass Energy Initiative. (For a complete list of recommendations, see the *Northern Forest Biomass Energy Action Plan*.)

- Develop public policy mechanisms and financial incentives that support the use of clean and efficient biomass technologies in thermal applications for institutions, communities, and businesses.
- Using existing federal and state inventory data and newly developed information, conduct a four-state wood supply assessment that identifies the amount of low-quality woody biomass potentially available from the Northern Forest for use as energy on a long-term sustainable basis.
- Support local ownership of biomass projects that deliver public benefits by encouraging the creation of energy services companies that allow local capital investment and equity, and provide consolidated technical, financial, tax, regulatory, permitting, and marketing expertise.
- Create and fund a “Northeast Biomass Energy Incubator Center” to bring clean, efficient biomass energy technology to commercialization, and to support biomass energy project development and implementation.

■ SOLAR ENERGY

Ensure sustained, orderly development of the market for solar electricity, solar space heating, and solar hot water.

- Establish state specific, multi-year solar electricity and solar thermal goals to provide longer-term policy certainty for the industry. An example is the goal set by New York Governor David Paterson’s Energy Task Force to achieve 100 MW of solar electric photovoltaics (PV) and 1,100 solar thermal systems by 2011.
- At the time of sale, require all buildings to be solar ready. This involves making sure piping and wiring are in place to accept solar electric and/or solar hot water systems for buildings with sufficient solar access and orientation.

■ WIND ENERGY

Ensure an appropriate role for larger-scale wind turbines, community wind projects, and residential-scale wind generators throughout the region.

- Establish state specific, multi-year wind electricity goals to create both short- and long-term policy certainty for the industry.
- Create transparent, simplified, and streamlined siting and permitting guidelines and regulations for wind turbines.

Recommended Actions

■ ENERGY TRANSMISSION

Enhance the electrical energy transmission system to support and stimulate renewable energy generation in the region, and to ensure the energy can be transmitted throughout the region.

- Identify and implement transmission and distribution upgrades needed to further support and stimulate renewable energy generation.
- Implement “smart grid” initiatives that enhance and upgrade the grid through demand response, real time pricing, etc.

■ PLANNING AND PERMITTING

Streamline planning and permitting for efficiency and/or renewable energy projects.

- Conduct education and outreach to environmental and conservation organizations on the wide variety of energy, employment, and environmental benefits that flow from increased efficiency and renewable energy development, and identify conservation lands that could potentially host new projects while sustaining the land’s overall conservation values.
- Develop public policies that support the appropriate use of public lands for renewable energy projects.

■ CAPITAL FOR ENERGY CONSERVATION

Expand existing models for providing capital and financing for energy efficiency and renewable energy.

- Form a four-state financing mechanism to fund efficiency and renewable energy capacity across the region.
- Create financing to support development of renewable district energy for downtown districts and campuses—for district heating, district cooling, and central plant CHP systems.
- Develop local renewable energy financing using municipal bonding capabilities, similar to the Berkeley, California community financing system under which property owners repay loans through their property taxes.

■ TRANSPORTATION

Address the connection between energy efficiency, fossil fuel use reduction and transportation.

- Reduce speed limits.
- Expand the public transportation infrastructure in the region.
- Reduce vehicle miles traveled through workplace initiatives and incentives.

■ MANUFACTURING AND WORKFORCE DEVELOPMENT

Support development of efficiency and renewable energy manufacturers and installation businesses, and help train workers to meet increases in these sectors.

- Develop specific efficiency and renewable energy economic development strategies in all four states, and recruit manufacturers of green technologies to locate in the region, close to end-use markets.
- Develop a coordinated Green Workforce Training Initiative with public and private education leaders from all four states.

■ EDUCATION AND OUTREACH

Increase education and outreach programs that strengthen efficiency and renewable energy practices.

- Make increased public awareness of the regional importance of climate change action, increased efficiency, and renewable energy a major market message during the next five years—comparable to the “Keep America Beautiful” and “Drink Milk” multi-state marketing campaigns of earlier decades.

■ STATE-AND COMMUNITY-BASED INITIATIVES

Take advantage of the special role states and communities can play in achieving major shifts in economic development and energy policy leadership and implementation.

- Ensure that state energy development policies are consistent with maintaining and growing wealth in Northern Forest communities—and do not inadvertently continue past patterns of exporting energy and profits out of the region.
- Expand existing and successful community energy programs—such as Vermont’s Fuels For Schools program—to all Northern Forest states.
- Share best practices on community-based energy initiatives by supporting periodic exchanges among community leaders across the four states.
- Work for full funding of the new Community Wood Energy Program authorized in the 2008 Farm Bill.

The Connection Between Climate Change and Renewable Energy

The need to reduce carbon emissions and mitigate climate change impacts in all regions and across all sectors of the US economy is abundantly clear.

Currently, the global average concentration of carbon dioxide in the atmosphere is 385 parts per million (385 ppm) and growing. Climate scientists agree that the first priority is to turn the corner in carbon emissions so that this number starts to decrease. Scientists further agree that annual US (and global) fossil fuel use must drop sharply as soon as possible to start decreasing accumulated atmospheric carbon and achieve climate stabilization at 350 ppm of carbon dioxide.

Globally, nationwide, and in the Northern Forest region, it is increasingly recognized that a key way to decrease carbon emissions is to dramatically increase energy efficiency and replace fossil fuels with carbon-neutral renewable energy.

Consequently, the goal proposed by the Northern Forest Renewable Energy Experts is to:

Reduce fossil fuel consumption in each state by five percent per year through efficiency and renewable energy. Accomplishing this over the next 40 years would result in the region reducing carbon emissions by 50 percent by 2030 and by 80 to 90 percent by 2050—a very significant contribution by the Northern Forest states toward achieving the global atmospheric carbon target of 350 ppm.

In addition to the climate benefits that would result, this would:

- Decrease reliance on fossil fuels imported from other countries
- Reduce energy costs for consumers
- Develop new jobs in the local economies of the region
- Enhance regional and state energy security
- Decrease the flow of energy expenditures outside of the region

Next Steps

Looking to the future, the Efficiency and Renewable Energy Experts encourage the governors, elected officials, and other public policy leaders to continue and expand steps already underway to transform the region's energy economy on a fast-track basis. The Experts, BEREC, and NFC encourage public leaders to develop a clear, consistent, forward-looking message that articulates this Roadmap's overall goal and to consistently use their "bully-pulpit" leadership to advance that goal.



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Images courtesy of the National Renewable Energy Laboratory Image Library, Renewable Energy Vermont, and the Vermont Sustainable Jobs Fund.



BERC

Renewable • Reliable • Resourceful

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Resource Center**

The Northern Forest Renewable Energy Experts who produced this Roadmap were convened by the Biomass Energy Resource Center as part of the “Summit for the Northern Forest” under the guidance of the Northern Forest Center and the Northern Forest Sustainable Economy Initiative.