

THE TOWN OF WARREN
PLANNING COMMISSION
MINUTES OF MEETING
MONDAY JUNE 10, 2013

000277

Members Present: Craig Klofach, Mike Ketchel, Lisa Miserendino, Mike Bridgewater, Jim Sanford and Dan Raddock.

Others Present: George Schaefer, Phil Clapp, Mary Jane and David Luce, Lenord Robinson, Emily Hebert, Eric Brattstrom, Dotty Kyle, Gregory and Carolynn Schipa, Margo Wade, Wendy Cox, Miron Malboeuf and Ruth Robbins.

Agenda: Call meeting to order, 7:30 pm

1. Wind Energy & Other Renewable Sources- Continuing Discussion – relative to the individual zoning districts as they are characterized in the Town Plan
 - a. Comments from Lenord Robinson
2. Warren Village Economic Planning Project Advisory Group, Kick-Off Meeting
3. Review & sign minutes from May 13th, 2013
4. Other & New business:

Mr. Klofach called the meeting to order at 7:32 pm and welcomed those in the audience.

The first item on the PC's agenda was a continuation of a discussion about wind energy and other alternative energy sources and how they are characterized in the Town Plan. Though Warren has encouraged the use of alternative energies in the Town Plan for some time the PC members felt they needed to add more specificity to the language especially regarding wind power.

The Chairman started off by asking Mr. Robinson for his comments as he had asked specifically to speak before the Commission. Mr. Robinson told the members that he was in favor of alternative energy and though he was "ok" with wind energy he had some personal experience with solar energy that he wanted to share. He had solar panels installed on his house and has been amazed at the amount of energy he has gotten from them. Mr. Robinson even went as far as sharing his daily log to illustrate what he has been experiencing in energy gains from his solar panels.

Mr. Robinson's comments then led to several comment and questions from the rest of the audience about both solar and wind energy and what the PC was proposing to do. The audience was told that The Vermont Public Service Board [VPSB] has the authority to issue permits for any alternative energy system that ties into the grid. The VPSB will take into account a town's Town Plan in their consideration of an application before them. It is the intention of the PC to strengthen the language in the Town Plan so as to give the VPSB some clear direction as to what the town would like to see or not see in the development of any alternative energy projects, most specifically wind energy. The PC members also reiterated comments they had heard from a couple of members of the community during a prior PC meeting who had experience in the wind power field that Warren did not have a significant enough source of wind for any large commercial application. Even smaller installations would need to have the location actually measured as to the amount of wind since the current wind maps are only based on a model, not actual measurements.

Ms. Wade, representing Sugarbush Resort, submitted a letter with attachments from Mr. Smith the owner of the resort. His letter was read out loud and shared Mr. Smith's position on wind power in the valley. He stressed the value of our "untouched beautiful mountains" and that though he believes climate change is real that the primary culprit is greenhouse gas emissions from passenger vehicles and heating fuels, not electricity production. It was Mr. Smith's opinion

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at 11:05 o'clock AM and Received in
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Robbins
TOWN CLERK

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that more resources needed to be dedicated towards the development of better mass transportation. He urged the PC to take meaningful action that would address climate change while also protecting the important asset of our green mountains. Along with Mr. Smith's letter was a copy of the Town of Waitsfield's section of their Town Plan that addresses energy as well as some articles about "clean" vehicles and global warming.

The Commission and the audience continued to discuss the topic of wind energy with questions and comments about the definition of scale, promotion of solar farms, protections already in the Forest Reserve District and the apparent success of a wind tower at Bolton Valley Ski Resort. The PC assured those in attendance that this topic would be discussed and carefully considered by the Commission and that they had more research and study to do as a commission and that more formal public hearings would be held once they zeroed in on some proposed specific language. As always, they appreciated and encouraged public feedback and comment.

The next item on the agenda was a brief report about the first meeting of the Warren Village Economic Planning Project Advisory Group. Mr. Klofach noted some of the members as being Ms. O'Brien, Mrs. Roth, Mr. Garvin, Mr. Ketchel and Mr. Sellers as well as himself as a representative of the PC. It was a very preliminary meeting just to get everyone together and the next meeting is not scheduled until sometime in August.

The PC members reviewed and signed the minutes from May 13, 2013. In other business the members briefly discussed the status of the CVRPC and CVEDC merger and are keeping their eye out for when a vote might take place. Mr. Malboeuf informed the Commission about a new energy efficiency compliance form for both residential and commercial construction that the zoning administrators are required to administer. Mr. Klofach asked the PC members to read the information received this evening for discussion at the next meeting on Monday June 24th.

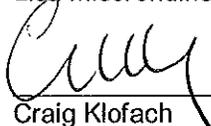
The meeting was adjourned at 9:26 pm.

Respectfully Submitted,

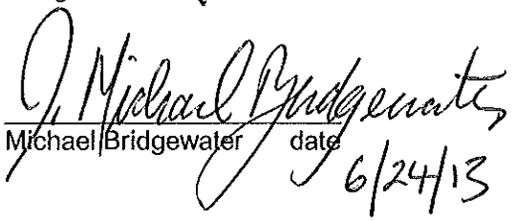
Ruth V. Robbins
DRB/PC Assistant

Planning Commission

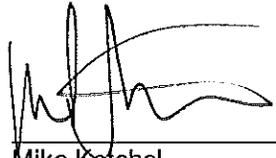
Lisa Miserendino date

 6/24/13

Craig Klofach date

 6/24/13

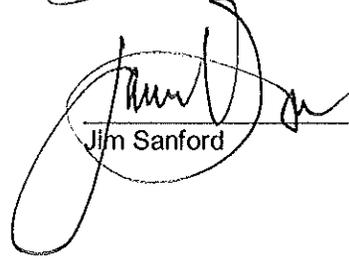
Michael Bridgewater date

 6/24/13

Mike Ketchel date

 6/24/13

Dan Raddock date

 6/24/13

Jim Sanford date

Attachments: Letter to Warren Planning Commission from Win Smith dated 6/10/13; Waitsfield Town Plan pg. 63-80; Articles on Clean Vehicles from www.ucsusa.org.



June 10, 2013

Town of Warren Planning Commission
Warren, VT 05674

Dear Commission Members,

In consideration of your ongoing discussions regarding development of wind power potential in Warren and in the Mad River Valley area, I am writing on behalf of myself as a resident of Warren as well as on behalf of Sugarbush Resort, the Valley's largest employer and the town's biggest taxpayer. I also speak on behalf of many visitors and guests who have been telling me, year after year, why they come and what they value most about this special place.

Three words sum it up. Untouched beautiful mountains. Whether they ski or snowboard, bike, hike, swim, paddle, fish, shop, or simply enjoy being here with their families -- the tourist and seasonal population young and old overwhelmingly believes that our greatest asset is our unspoiled mountains. Standing on the top of Snowball in the early morning, I have often said to another skier, "Just look at that view! Thanks to intelligent planning and zoning, that is the view that will be here for generations to come." I hope that never changes.

I also firmly believe that climate change is real. Even though our individual efforts may have little global impact, we as a community have a responsibility to act in response to this threat. The question is: What are the most effective actions we can take?

We must ask ourselves what actions will actually make a quantifiable difference in global warming and not just make us feel, vaguely, that we have done our part. We as a town must commit ourselves to quickly determining what action is truly meaningful in mitigating climate change and what action would be merely symbolic. And we must balance these actions with other important environmental concerns.

Let me share with you a few facts about utility-scale wind generation that came as a surprise to me when I first started looking at this issue a few years ago.

1. Department of Energy estimates indicate that Vermont's entire wind resource (every mountaintop and every ridgeline) is only about 1% of Iowa's wind potential. Vermont has less than 1/2000 of the on-land wind resource in the contiguous United States. Our wind power resource is miniscule because it is primarily located on narrow and widely separated ridges, unlike the Midwest or offshore. The fact is that

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there is simply not enough wind potential here to make much of a difference in global climate change. And it would come with devastating environmental consequences.

2. The vast majority of greenhouse gas emissions generated in Vermont comes not from the production of electricity but from passenger vehicles and heating fuels. The Mad River Valley is no exception. We need to focus our planning efforts in these areas. What are we doing to increase public transportation options in and around the town of Warren? What incentives can be implemented to reduce our CO₂-producing heating sources? Let's start there.

3. Unlike building ski trails, constructing a wind power utility station requires blasting roads up the side of the mountain, blasting pits into the mountaintop, and clear-cutting several acres around each turbine. The damage is extensive, highly visible, and permanent. Large-scale wind turbine parts cannot be dropped-in by helicopter like a lift tower. I recently flew over the Lowell industrial wind power project and was shocked to see what it has done to that mountain ridge. Wind is big business and manufacturers of turbines, like General Electric, are making huge profits and benefiting from enormous tax credits. They are not concerned with what these turbines would do to an environment like ours.

4. In order to accommodate delivery and maintenance of large-scale wind turbines, roads cannot exceed certain grade and therefore must switchback their way up the mountain, destroying a significant amount of acreage in the process. They must be maintained so that turbine blades and other mechanical parts can be trucked up and down the mountain. These are not like logging roads or ski trails. These are freeways. These roads actually are the width of the one section of I-89.

5. Turbines are topped with high-output blinking and rotating lights as an aviation warning. These lights can be seen for miles. My night-shift snowmakers, for example, are able to see the lights from the Lowell wind production facility on a clear evening. That is nearly seventy miles away.

I would also point out that there is significant mortality of migratory birds caused by wind turbine blades, especially when turbines are located along bird migration routes. Both sides of our Valley are migratory corridors for our neotropical birds, some of which are already threatened. For instance, Sugarbush has been working closely with USFS for many years to protect habitat for the rare Bicknell Thrushes who nest in the fragile alpine environment of our mountains.

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Large-scale wind turbines would likely alter the Valley's soaring activities as well.

I was disappointed to read in your minutes that you consider the term "industrial" wind power too negative. Make no mistake. Utility-scale wind turbine sites are industrial sites. If we chose to allow large-scale wind development on our mountains, we would industrialize our mountains. And to be clear, it is not just utility-scale wind that I oppose on our ridgelines. It is any industrial development that would harm the high-elevation environment that we have so carefully preserved.

I encourage this Commission to work quickly on updates to our Town Plan that will continue to protect our mountains. And I encourage you to move the focus of your renewable energy discussions to solar power, which is proven to be a more effective renewable energy resource here in Vermont. While solar as well as wind power are still not economically viable in the marketplace without sizable tax credits, the cost of solar is declining rapidly and it may indeed become competitive on its own a lot sooner than wind. In addition, properly placed solar, in my opinion, would not harm the special aesthetics of our Valley.

Climate change is real. That is why in 2012 Sugarbush entered the "Climate Challenge" designed by the National Ski Areas Association to recognize ski areas committed to developing greenhouse gas (GHG) inventories, setting goals for carbon reduction, implementing on-site reduction strategies, and reporting success in reducing their carbon footprint. More recently, Sugarbush has joined 114 other ski resorts in signing the "Climate Declaration" from the Business for Innovative Climate & Energy Policy, sending a strong message to policymakers to enact meaningful legislation.

We at Sugarbush have set a goal of reducing our GHG emissions (scopes 1,2,3) by 5% by 2015. We will accomplish this by increasing our waste diversion rate to 30%, increasing our use of highly efficient snowmaking equipment, and installing high-efficiency lighting. We are well on our way. For our 2011/12 ski season, Sugarbush spent \$560,000 in high-efficiency snowmaking equipment resulting in an annual reduction of GHG by 59 MTCO_{2e} (metric ton of CO₂ equivalent). For the 2012/13 season, lighting upgrades resulted in a reduction of 11 MTCO_{2e} at a cost to the resort of \$12,323.

However, as I mentioned earlier, CO₂ emissions from light trucks and automobiles is doing the most damage to our environment. In my opinion, we in Vermont should be allocating significantly more resources to the development of better mass transportation.

Here in the Valley we have the Mad Bus during the winter months, but there is no funding to continue it for the full year. I believe that is a shame. Sugarbush has supported the Mad Bus and we see great ridership during the ski season. Both

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residents and guests ride the Mad Bus to the resort, which keeps many cars off the road. Our yearly contribution to the Mad Bus is over \$70,000 and represents 80% of the local match. Although we at Sugarbush cannot afford to run a year-round Valley bus service by ourselves, we are willing to continue to be a major contributor to something that will have a measurable impact on CO2 emissions.

You have important decisions before you and time is of the essence. Our Town Plan must quickly come up to the standards of clarity and due process required by recent Supreme Court rulings. By delaying a decision on this issue, not only do we unnecessarily postpone meaningful actions that would help mitigate climate change but also we jeopardize our most important asset, our mountains.

Since the permitting of renewable energy in Vermont is still approved by the Public Service Board rather than through the town's DRB, updates to our Town Plan are critically important. Language in the Plan must specify support for carefully defined and sited small-scale renewables and clearly identify areas where siting is appropriate. The Town Plan must also specifically disallow industrial development in clearly identified high-elevation and other environmentally sensitive areas.

For your reference, I have enclosed a copy of the Waitsfield Town Plan that includes specific "Community Standards" for use by the PSB in their consideration of siting renewable energy projects. I know that other towns have similar standards already developed. I suggest that the Commission develop a formal plan for timely completion of deliberations on this topic.

Thank you for your consideration. Although I am unable to attend, please include this letter on the record and in the minutes of your June 10, 2013 meeting.

Sincerely,



Win Smith

Enclosures.

9 | Energy

9.A OVERVIEW

Historically most of Waitsfield's energy needs were met locally—forests were felled for fuel, the Mad River was dammed for hydropower, and the annual harvest relied on the physical labors of man and beast. Twentieth century modernization, in the form of the electric light bulb and the internal combustion engine, transformed local energy consumption. Rural electrification connected the town to an expanding power grid, and an ever growing reliance on fossil fuels for home heating and cooling, electricity, and transportation linked the town to the global energy market.

International events, disruptions in oil supplies, and the rising costs of gasoline and heating oil are harsh reminders that such heavy reliance on these finite energy sources is not sustainable. Local businesses and residents of limited means are especially vulnerable to market conditions and fuel shortages. The cost of energy derived from fossil fuels has and will continue to increase as we move toward and pass peak production of oil and gas reserves. In addition, foreign fuel sources are unstable, and subject to huge price swings and supply shortages beyond our control.

Recognition of the threat of climate change has increased in the last ten years. Current patterns of energy consumption are widely understood to produce emissions that contribute to global warming. As a result, there is heightened interest nationally and statewide in the development of solar, wind and other low-emission, renewable energy resources and more fuel efficient and alternative fuel vehicles. Motor vehicles are the state's largest source of toxic and carcinogenic air pollutants. Based on annual per capita vehicle miles traveled, the average vehicle emits around a half ton of pollution each year. Vehicle emissions, even at low levels, pose a threat to local health, contribute to acid rain, and can cause widespread damage to crops and forests. Over the past decade, an increasing number of electric and flexible fuel vehicles have come on the market as viable alternatives to the traditional combustion engine.

Reliable, affordable and sustainable sources of energy are vital to Waitsfield's economy, social well-being, and future development. At present, factors

influencing energy cost and availability are largely beyond the control of the local community. The town's energy future is inextricably linked with energy policies and economic forces at the state, federal, and international levels. Waitsfield, however, can influence the community's energy outlook by taking steps to:

- ✦ Promote energy conservation and increased energy efficiency, e.g., through building energy audits, weatherization and equipment replacement;
- ✦ Encourage or require lot layouts and building siting, design and construction techniques that maximize access to onsite renewable energy resources and incorporate emerging technologies;
- ✦ Diversify our local renewable energy portfolio beyond wood, to include appropriately sited solar, hydro, and wind power development; and
- ✦ Provide safe and convenient alternatives to automobile travel for local trips.

9.B ENERGY SUPPLY AND DEMAND

Overall energy demand continues to increase despite rising energy costs, and increased energy efficiencies resulting from technological improvements. This is largely due to the amount of driving we do (transportation fuel consumption) and an increase in the electronic appliances, equipment and gadgets we use (electricity use). Statewide energy consumption is tracked by the Vermont Department of Public Service and Efficiency Vermont. The department updated the state's comprehensive energy plan, "The Vermont Comprehensive Energy Plan", which was adopted on December 15, 2011. Local energy consumption is tracked annually to a limited extent by the Mad River Valley Planning District.

Electricity. Green Mountain Power Corporation (GMP), a subsidiary of the Québec energy company Gaz Métro, is the second largest electric utility in the state and the primary supplier of electricity to the town. GMP serves all of Waitsfield except for a small area along the North Fayston and Airport Roads, which is supplied by Washington Electric Coop.

GMP acquires energy from a variety of traditional and renewable sources, including HydroQuebec and

the Vermont Yankee nuclear facility. Vermont finalized negotiations with HydroQuebec in 2010 for a power purchase agreement that will provide nearly one-third of the state's energy needs through 2038. This agreement will ensure a future supply of relatively low-emission electricity to the state, at prices that are competitive with those in neighboring states. As this plan is being written, the future of Vermont Yankee is less certain. Initially scheduled to close in 2012, Vermont Yankee recently received a federal license renewal to extend its operations through 2032. Entergy Corporation, the plant's current owner, is challenging the state's legal authority to require plant closure in 2012.

GMP is actively pursuing alternative sources of electricity to offset anticipated lost power generation from the eventual closure of Vermont Yankee, and to strengthen its renewable energy portfolio, as outlined in its 2007 Integrated Resource Plan (IRP). GMP has since signed an agreement to purchase power from the Seabrook nuclear plant in New Hampshire and is actively developing other sources, including in-state renewables. GMP recently made an offer to purchase Central Vermont Public Service (CVPS), the state's largest utility, subject to Vermont Public Service Board approval.

The primary transmission line serving the Mad River Valley is a 34.5 kV line that enters Waitsfield from Northfield, in the vicinity of the Northfield Gap Road. Power is distributed locally through a substation in Irasville (#39) that serves nearly three thousand meters. The local system was last upgraded in the 1980s and has some remaining reserve capacity—no major transmission or distribution system improvements are planned over the next five years.

GMP does plan to replace existing electric meters with digital wireless "smart meters" through its smart grid program, GMPCnects. When GMPCnects is up and running it will use fiber optic cable and digital technology to relay information back and forth between individual customers, Green Mountain Power, and electric grid components – including information about equipment performance, electric demand and use. GMP has also installed three public charging stations for electric vehicles in Vermont (the closest in Montpelier) under a pilot program, "GMPEV", to promote statewide electric vehicle (EV) infrastructure. Information is available to communities on station siting and permitting considerations

and suggested performance criteria. A local initiative, entitled MRVEV, is exploring the possibility of creating an all-electric vehicle car share in the Mad River Valley.

Total electricity demand in Waitsfield varied between 16,000 and 16,500 megawatt hours (MWh) annually from 2004 through 2008. Waitsfield accounts for 25% of the Mad River Valley's electricity consumption, and 18% of the county total. Local demand is evenly divided between residential and commercial uses. Average household consumption in 2008 was 7,003 kWh—down 3% from 2004, in part due to reported efficiency savings. The town's peak electric load occurs during the winter months, indicating that a number of buildings still rely, at least partially, on electricity for heating (2009 Mad River Valley Energy Study, Vermont Renewable Energy Atlas). Electricity remains the most costly form of space heating, with propane now running a close second (VT Fuel Price Report, May 2011).

Fuel. The Mad River Valley Planning District recently compared 2008 electricity and transportation energy consumption for each town by calculating the equivalent in MWh of fuel consumed. Waitsfield's transportation fuel consumption equaled 35,040 MWh—more than twice its electrical consumption (2010 MRVPD Annual Report). This underscores the fact that our collective reliance on motor vehicles, and our individual driving habits, are in large part responsible for much of our energy consumption and associated environmental impacts.

Vermont has no petroleum infrastructure, and relies on external sources for transportation and most home-heating fuel supplies. Three local oil and gas distributors supply Waitsfield residences and businesses. Fuel prices continue to fluctuate, but have increased dramatically over the past year – especially for regular unleaded gasoline (36%) and heating fuel oil (35%)—while the federal government has proposed cutting home heating assistance for low income households (LIHEAP) by 50% in FY12.

Available data indicate that over the past two decades Waitsfield households have increased the number of vehicles they own and the number of per capita miles they drive (Table 9-2). The US Bureau of Transportation Statistics reports that the number of registered vehicles in Vermont rose by 6% while the total miles driven by Vermonters increased 16.6% from 1998 to

2007. Light trucks (pick-ups, vans and sport utility vehicles), with lower fuel efficiency than most automobiles, now comprise a larger percentage of vehicles on the road. This suggests that our aggregate fuel efficiency is decreasing, leading to increased transport fuel consumption and fuel emissions.

Table 9-4 shows that the overwhelming majority of employed town residents (81%) commute to work alone – and that the number of single drivers has increased steadily since 1980, while the number of local carpoolers has declined. The average estimated commute time for Waitsfield workers is now around 21 minutes (American Community Survey, 2005-09). There are few alternatives available; public transit serving the Mad River Valley runs only during winter months. Travel between home and work accounts for a significant portion of local transportation energy consumption—a characteristic of most rural communities in the United States. Given rising fuels prices, this also suggests that transportation costs represent a significant and increasing burden to many local households.

Census data also provide limited information on the types of fuel used by town residents for home heating. The data suggest a major shift during the 1990s from the use of wood as a primary heating source to the use of gas (bottled, tank or LP). By 2000, more than 50% of occupied housing units in town were heated with gas. Census estimates through 2009 suggest that this is still the case—half of Waitsfield's occupied households heat with gas, while most others (30%) use fuel oil. Only 10% of local households now use wood as their primary heating source. The shift to gas for space heating over the past two decades reflects a statewide trend tied to new home construction, which is incorporating cleaner, more energy efficient fuels and heating systems. Many homes built in the 1960s and 1970s relied on inefficient electric heat, a practice that is generally no longer allowed under state energy standards for residential construction. These standards apply to all new homes and additions over 500 square feet.

Although it remains an important supplemental source of heat for many Waitsfield households, the use of wood tends to fluctuate in relation to the price of oil and gas, and local availability. A 2009 survey conducted by the Community Biomass Project, which included Waitsfield households, indicates that the use of wood may be increasing in relation to

rising gas and fuel oil prices—72% of survey respondents reported using cordwood during the 2008-09 winter season, averaging 4.3 cords per household. New wood stoves and furnaces, if properly installed and maintained, provide effective and efficient home heating. Outdoor wood furnaces are also gaining in popularity and, like woodstoves, are now regulated for air quality.

The economic, social and environmental consequences of such heavy reliance on fossil fuels have prompted state efforts to diversify Vermont's energy portfolio to include in the mix more efficient natural gas systems, cogeneration systems that produce electricity and heat, and greater reliance on renewable energy sources including wood, wind and solar power.

5.C ENERGY EFFICIENCY & CONSERVATION

Energy conservation, by reducing energy consumption, increases available energy supplies. The state's energy conservation efforts in recent years have very successfully focused on demand side management to increase energy efficiency and reduce overall energy demand. Efficiency Vermont, the state's energy efficiency utility, offers a number of programs and financial incentives for local government, businesses and residents to increase energy efficiencies and reduce energy costs. The state has also enacted energy efficiency standards for commercial and residential construction that are administered through the Vermont Department of Public Service.

The need for energy efficiency and conservation is also recognized locally. Widespread participation by local residents in the 2009 Vermont Community Energy Mobilization pilot project helped bring energy efficiency improvements and direct savings to almost seventy Mad River Valley homes. The all-volunteer project brought together dozens of local volunteers and was supported by free products, training and other resources provided by Efficiency Vermont.

Waitsfield has an Energy Coordinator and an Energy Committee, appointed in 2007, who have contributed significantly to local energy efficiency and conservation efforts. With the support of the Select Board, town staff and other parties, the Energy Committee is addressing energy efficiency needs in municipal buildings. Comprehensive energy audits of the Joslin Memorial Library, the General Wait House, and the Waitsfield/Fayston Fire Station led to energy-saving

improvements at all three buildings. Re-insulation of the library attic, primarily funded by a Vermont Community Climate Change Grant, greatly diminished heat loss in that building. Energy Efficiency & Conservation Block Grants in excess of \$60,000, secured in 2010 through the American Recovery and Reinvestment Act, funded energy retrofit projects at the town garage, fire station and General Wait House.

The town in 2011 voted to establish its own energy reserve fund, with an initial allocation of \$5000, for future municipal energy efficiency and renewable energy projects. Prior to this energy retrofits included in the capital budget were funded through annual operating funds.

2.0 RENEWABLE ENERGY

The potential for renewable energy resources in Waitsfield include woody biomass, wind, solar and hydropower. As a result of rising fuel prices, new technologies, and the ability of utility customers to sell excess power back to the grid via net metering, renewable energy systems have become more economically viable. Federal and state subsidies, including tariffs and tax credits, allow renewable energy projects to better compete with heavily subsidized fossil fuel and nuclear energy development.

Biomass. For much of Waitsfield's history, wood was the principal local source of household heat. Although only 10% of local households currently use wood as their primary heating source, it remains a relatively low cost alternative to fuel oil and natural gas. There is increased interest statewide in using woody biomass – including wood chips and pellets made from low grade wood and sawmill waste – for heating, electricity, and combined heat and power applications. There is currently one woodchip/pellet supplier in town.

Waitsfield also has a large amount of forested land which, under effective management, could provide a sustainable source of energy in the future. The Biomass Energy Resource Center has estimated the net available low grade (NALG) wood supply that can be sustainably harvested for each town in Vermont, using a model developed with the Department of Forests Parks and Recreation and the Vermont Center for Geographic Information. Under this model Waitsfield's "woodshed" was mapped at 7,325 acres, which could generate up to 18,000 green tons of low

grade wood annually, with moderate harvesting on public land and little harvesting on private parcels less than 50 acres. This yield could potentially generate 126,000 BTU of thermal heat or 9,000 MWh of electricity annually.

The Community Biomass Project, a three-year research project of the University of Vermont, Vermont Family Forests, and the Northern Forest Alliance, conducted a more detailed analysis of potential woody biomass production in five Mad River Valley towns, including Waitsfield. According to project studies, the town's total reported annual harvest of cordwood from 2005 through 2008 was 861 cords – an average of 215 cords (or 517 green tons) annually—representing 10% or less of annual low-grade wood production. Related modeling more conservatively estimated that the five Mad River Valley towns could sustainably generate between 23,000 and 50,000 green tons of low quality wood per year (2009 Community Biomass Project wood harvest and assessment reports).

Extensive harvesting, if not properly managed, can lead to environmental degradation and decreased forest health through nutrient loss, increased storm water runoff and soil erosion, stream sedimentation, water pollution, habitat loss, and the reduction in quality of the Mad River Valley's scenic viewshed. Woodlot management, and adherence to accepted state management practices for logging operations, reduce the adverse impacts of harvesting, and can enhance the capacity of local forests to meet a variety of community and landowner objectives.

The Energy Committee is discussing recent study findings regarding the Mad River Valley's woody biomass resource—i.e., firewood, chips, and pellet material—as distinct from timber saw logs. The data gathered will help the town and communities throughout the region better manage this resource should the demand for local woody biomass increase. The committee is also investigating options to use a portion of the available fuel source to heat local buildings, municipal and otherwise. Several Washington County schools, including Harwood Union High School, have transitioned to wood (chip or pellet) heating systems under Vermont's "Fuels for Schools" program. Automated wood-fired systems are proving to be an affordable heating alternative to conventional systems in such settings.

Other potential, but more limited, sources of biomass energy include waste vegetable oil from local restaurants, grass and oil seed production. It is estimated that the 2,000 acres of agricultural soil in town best suited for canola, soybean and sunflower oil production could yield more than 100,000 gallons of oil annually (Vermont Renewable Energy Atlas).

Hydropower. The Mad River and its tributaries once supplied water power for Waitsfield's earliest industries. Today these industries are gone, and while a hydro facility still exists downstream in Moretown, none currently operate in town.

There may be potential in the town for small scale "micro-hydro" development that supplies individual users, but the Mad River lacks the deep gorges and falls that are necessary to support larger, commercial operations. Also, while hydropower is often cited as a clean energy source, the environmental impacts of dam construction, operation and management—including the effects of changing water levels on river flow, stream habitat, water quality, and adjoining riparian areas—are not as benign as once thought and are given greater consideration in state and federal dam licensing proceedings.

Solar. The contribution of solar energy to Waitsfield's total energy supply is growing. More structures are being sited, oriented and designed to incorporate passive solar construction techniques for space heating and natural lighting. Passive solar building design and solar thermal heating systems can significantly increase energy efficiencies and reduce costs. Until recently, the upfront costs of solar photovoltaic (PV) systems were generally too costly for the average homeowner, but emerging technologies and state, federal and utility incentives have made grid connected net-metered PV systems more affordable.

As of July 2011, the Public Service Board had issued certificates of public good for 21 net-metered solar PV installations in Waitsfield, ranging in capacity from 2.5 to 142 kW, with a total reported generating capacity of 392 kW. This includes a certificate issued in 2010 (CPG NM-1133) for a 72.28 kW municipal system that was to be installed at the town garage property on Tremblay Road, but did not go forward for a number of reasons, including changes to proposed power purchase agreements. The Energy Committee, who worked diligently on this project,

continues to support a municipal renewable energy installation that will help offset energy costs.

Technological advances, including the incorporation of photovoltaic components in roofing and siding materials, may make solar power an even more viable source of electricity in the near future. An initial GIS analysis done for the Vermont Renewable Energy Atlas identified 968 building sites in Waitsfield that are potentially suitable for roof-mounted solar arrays and 687 acres that may be suitable for ground-mount solar (Vermont Renewable Energy Access).

The siting of some existing solar installations, particularly along Route 100 (the federally designated Mad River Byway) has raised concerns about the impacts that such facilities can have on the town's scenic, historic and agricultural resources. As a result, the Planning Commission has developed community siting standards, for consideration by the municipality and the Public Service Board, that are intended to avoid and mitigate potential impacts of facility development, while promoting new installations in appropriate locations.

Wind Power. Wind power, like hydro and solar power, is a low-emission energy source that is not depleted with use. Several years ago, the Vermont Department of Public Service conducted a statewide wind resource assessment, including the mapping of Vermont's most favorable wind resource areas. The optimum sites for large, commercial wind are high elevation areas with steady, moderate to high winds (14.5+ mph), in proximity to access roads and transmission lines. The report states that the two potential sites for wind development are in the Northfield Range near the transmission line and, based on wind speeds, in the Green Mountain Range to the west.

As a result of recent improvements in turbine technology and federal subsidies designed to offset purchase and installation costs, wind power is now receiving a significant amount of attention both locally and statewide for utility (commercial) and smaller-scale (up to 500 kW) net-metered electrical generation. Large, commercial wind power has received greater attention in Waitsfield as a result of a preliminary proposal by a private wind developer exploring the viability of installing a series of wind turbines along the Northfield Ridge. Waitsfield residents have expressed significant concerns regarding wind power's potential visual, health, environmental, and economic impacts.

Wind development at the size, scale, and extent of the conceptual proposal for the Northfield Range highlight these concerns that the character of the town would change dramatically with the installation of industrial wind turbines along the town's ridgelines. In response to these concerns, the Planning Commission has developed the Waitsfield Community Standards (see 9.G) for siting renewable energy projects. These standards are for municipal and Public Service Board ("PSB") consideration and specifically exclude wind and solar facility development at elevations over 1700 feet (the Forest Reserve District), consistent with long-established policies to limit all new development in high elevation areas.

9.E ENERGY PROGRAMS & INITIATIVES

Efficiency Vermont. Created by the PSB in 1999, Efficiency Vermont is the first statewide energy efficiency utility in the nation. Energy conservation programs are financed by the state's electric utilities through an energy efficiency charge that is passed on to ratepayers. Current programs available to Waitsfield residents and businesses include:

- ❖ **Efficient Products**—energy efficient product information and discount coupons.
- ❖ **Vermont Energy Star® Homes Program**—technical assistance and rebates to homebuilders and buyers who build energy efficient homes.
- ❖ **Commercial Energy Opportunities**—technical and financial assistance to commercial and industrial businesses to improve the efficiency of existing and new facilities.
- ❖ **Dairy Farm Program**—technical assistance, financial incentives and low-interest financing for energy efficient farm equipment.
- ❖ **Residential Energy Efficiency Program (REBP)**—technical and financial assistance to developers, owners and managers of low-income multi-family housing to reduce energy costs.
- ❖ **Income-Eligible Services**—technical and financial assistance to low-income Vermonters who are participating in the state's weatherization program to make additional electricity-saving improvements.
- ❖ **Emerging Market Initiatives Program**—identifies, evaluates and tests innovative energy

efficiency technologies and practices to promote their use.

Energy Assistance Programs. Rising energy costs are a particular burden for individuals, households and homeowners with limited or fixed incomes. A number of energy assistance programs are available to income-eligible households; most are administered through the Central Vermont Community Action Council in partnership with state and federal agencies and area utilities. These include, but may not be limited to:

- ❖ **Fuel and utility assistance programs**—to help pay for seasonal and emergency heating fuel supplies and electrical service. Heating programs rely heavily on federal Low Income Home Energy Assistance Program (LIHEAP) appropriations. Emergency funds are also available through state-funded general assistance programs.
- ❖ **WARMTH program**—a statewide program that raises emergency funds through individual donations to assist households through direct payments to fuel suppliers and electric utilities.
- ❖ **Weatherization assistance programs**—available to owners or renters (with landlord participation) including free energy audits, free lighting and appliance upgrades, and renovation services. These programs are funded through federal weatherization programs, the state's weatherization trust fund, and utility assistance programs.

Federal funding for both fuel assistance programs and the community action agencies that administer these programs is at risk under current federal budget proposals. State and local government may be called on in the very near future to fill funding gaps, or to find other innovative ways to address the energy needs of local households.

Transportation. Limited transportation alternatives exist that allow Waitsfield residents to become less dependent on motor vehicles to get around. Since most of the town's energy use is related to transportation fuel consumption, every effort should be made locally to promote ride sharing, alternative modes of transportation, and less auto-oriented patterns of development. There has been considerable effort in the Mad River Valley to provide alternatives to the automobile for local trips, including extensions of the Mad River Path network, sidewalk projects along

Route 100, the incorporation of bike lanes in planned road upgrades, and participation in the Safe Routes to Schools program. A local rideshare and volunteer driver program, and the development a centrally located park-and-ride facility that also serves as a transit stop, could help provide rides and facilitate carpooling for destinations within and beyond The Valley. Go Vermont, administered through the Vermont Agency of Transportation, provides state and local information on car-pooling, ride sharing, van-pooling, and special public transportation needs, as described in more detail in Chapter 8 (Transportation).

Land Use & Development Patterns. Compact, mixed-use development, as envisioned for Irasville, can reduce reliance on the automobile, vehicle miles traveled, and inherent system energy costs—including energy costs associated with maintaining roads and related infrastructure. Targeting economic and residential growth within areas intended for more concentrated development allows people to walk to their destinations, and makes public transit services between growth centers more economically feasible.

At the site level, a south facing building orientation and landscaping can effectively reduce energy demand. Clustering, and other energy efficient development patterns can be encouraged and/or required through local zoning and subdivision regulations.

Buildings & Equipment. In addition to energy codes for new residential, commercial and public buildings, there are a number of other programs offered by the state to promote municipal energy efficiency and the use of renewable energy resources, such as the School Energy Management Program and programs that support the conversion of school heating systems to wood-burning systems.

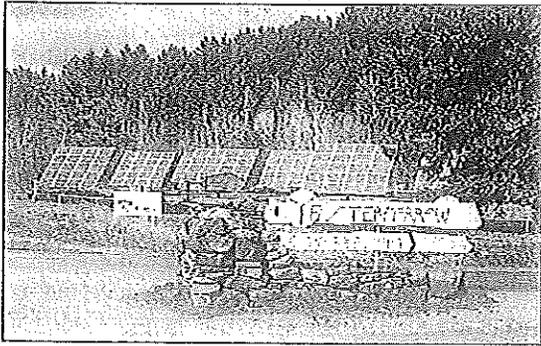
Municipal energy savings can continue to be realized through regular energy audits of municipal buildings and the use of “life cycle costing” practices that incorporate long-term energy savings in the fiscal analysis of facility construction and equipment purchases. Such costing methods often demonstrate that long-term energy savings more than offset the higher initial purchase or construction cost of energy-efficient equipment and building improvements. The town’s new energy reserve fund will help cover the cost, and leverage other funds, for planned improvement projects.

Residential and commercial development that exceeds minimum state requirements can also be encouraged through incentives offered under local zoning and subdivision regulations and local energy assistance programs.

Renewable Energy. Waitsfield residents approved a motion in 2010 to solicit bids for a solar installation designed to meet the electricity requirements of town-owned properties. The town was not able to take advantage of this opportunity but, with the support of town voters and the town’s Energy Committee, will continue to pursue the installation of one or more municipal renewable energy systems to help offset municipal energy costs. The town’s energy reserve fund, as established by the town in 2011, can also be used for this purpose.

Recent discussions about alternative energy have also generated initial support for a community-based, group net-metered “solar orchard” as one way to increase the town’s capacity for local energy generation while addressing the visual impacts that typically accompany both large-scale and distributed power generation projects. The intent is to identify one or more parcels of land that could serve as primary locations for the bulk of solar power development in the community. This would offer landowners within environmentally sensitive areas, along scenic corridors, or with parcels that are too small or without access to enough sunlight, a chance to develop solar power resources while minimizing impacts on natural resources, neighboring property owners, or the community at large. Identifying appropriate locations poses significant challenges that will necessarily require community engagement and a long-term vision that is compatible with the type and location of development called for in the town plan.

Property Assessed Clean Energy (PACE) Program. In 2011, Waitsfield residents authorized the town to establish a Property Assessed Clean Energy program that will provide low-cost loans to local homeowners for efficiency improvements and renewable energy system installations, to be repaid over time through an annual assessment on the property tax bill. Waitsfield residents reaffirmed this authorization with a subsequent vote at Town Meeting. As enacted by the state, this program is expected to get underway in 2012, to be administered by the town in association with Efficiency Vermont (operated by the Vermont Energy Investment Corporation).



9.F FACILITY SITING & DEVELOPMENT

Energy generation and transmission systems that are linked to the electrical grid are preempted from local land use regulation. They are instead regulated by the Public Service Board (PSB) under 30 V.S.A. Section 248 (Section 248 review). These include net metered distributed energy installations, as well more commercial, utility-scale generation, transmission and distribution facilities. The PSB must consider project conformance with municipal and regional plans prior to issuing a Certificate of Public Good.

Municipal Participation. The town does not have statutory party status in PSB (Section 248) proceedings, but does receive notice of most applications (petitions) before the board. The town may participate informally by providing comments on a proposed project, or request more formal status as an intervenor with rights to participate and appeal. Town participation in the state's review process, based on adopted community standards under this plan, is the best way to ensure that local conservation and development objectives are considered and weighed by the Public Service Board. The Planning Commission has developed specific community standards for energy facility siting and development in Waitsfield, below in Section 9.G, that are to be considered in the municipal review of applications before the Public Service Board, in crafting local regulations for off-grid facilities, and in the siting and development of municipal and community-supported generation facilities.

9.G WAITSFIELD COMMUNITY STANDARDS

Purpose. The purpose of these municipal energy policies is to promote the development of renewable energy resources and energy facilities in the Town of Waitsfield, while limiting the adverse impacts of such development on public health, safety and welfare, the town's historic and planned pattern of development, environmentally sensitive areas, and our most highly-valued natural, cultural and scenic resources – consistent with related development, resource protection and land conservation policies included elsewhere in this plan. These policies are to be considered in undertaking municipal energy projects and programs, in updating the town's bylaws to address renewable energy development, and in the review of new or upgraded energy facilities and systems by the town and the Public Service Board under 30 V.S.A. § 248.

General Standards. The Town will consider supporting the following types of energy development, in order of priority:

- ❖ Increased system capacity through state, utility and municipally-supported energy efficiency and conservation programs.
- ❖ Individual and group net-metered renewable energy projects, community-based projects, and other small-scale distributed renewable energy systems serving individual users, in appropriate, context-sensitive locations
- ❖ In-place upgrades of existing facilities, including existing transmission lines, distribution lines and substations as needed to serve the town and region.
- ❖ New community-scale energy facilities, including new transmission and distribution lines, substations, hydro dams, wind and solar farms, co-generation facilities and biomass plants that are designed to meet the expected needs of the Mad River Valley communities

To the extent physically and functionally feasible, existing utility systems, including transmission lines, distribution lines and substations, shall be upgraded or expanded on site or within existing utility corridors before new facilities or corridors are considered.

The Town of Waitsfield will endorse or permit the development and installation of energy facilities that conform to community energy facility development and siting standards through participation in Public

Service Board (Section 248) proceedings or, where applicable, through local financing and incentive programs and regulations.

Public Health and Safety Standards

Use Classification. A small net-metered or off-grid renewable energy facility, including a solar array, small wind facility or combined system intended solely to serve an individual residence or business, will be considered an accessory structure allowed in all zoning districts in which structures are allowed.

Height. Zoning district height limitations under local bylaws, where applicable, should be waived for renewable energy facilities, as enabled under 24 V.S.A. § 4414.

- ✧ The maximum tower height for net-metered, or similar off-grid wind energy facility shall not (a) exceed 120 feet in total height, as measured vertically from the ground to the rotor blade tip at its highest point, or (b) extend in total height more than 30 feet above the existing tree canopy or other obstructions within 300 feet of the tower, whichever is greater.

Setbacks. Except for transmission and distribution lines and utility connections, all energy facilities – including substations, commercial, utility and net-metered generation facilities and accessory structures – must meet minimum setback requirements for the zoning district(s) in which they are located. In addition:

- ✧ All ground-mounted wind energy facilities must be setback at least 1.5 times the total facility height, as measured vertically from the ground to the rotor blade tip at its highest point, from all property lines, occupied buildings on adjoining properties, overhead utility lines, public and private rights-of-way and established trail corridors, unless easements are secured from adjoining property owners.
- ✧ Guy wires used to support wind towers are exempt from minimum district setback requirements, but shall be set back at least 20 feet from all property lines.
- ✧ A building-mounted wind turbine or solar panel must meet minimum setback requirements for the building on which it is mounted. The installation of a net-metered or similar off-grid energy system on a nonconforming structure will not

constitute an increase in the degree or amount of nonconformance under local regulations.

- ✧ Setback requirements for renewable energy facilities may be reduced by the town, as allowed under 24 VSA § 4414 as necessary to access a renewable energy resource, if the reduction in the setback distance is functionally necessary for system operation, represents the minimum necessary to allow for facility siting, and adverse impacts to adjoining properties, structures, facilities, and uses can be avoided through structural design and orientation, landscaping and screening, the use of glare and noise reduction techniques, or other accepted mitigation measures, or an easement is secured from the adjoining property owner.
- ✧ Facility setback distances from property lines, or from occupied structures in existence at the time of application, should be increased as necessary to mitigate identified public health and safety hazards or nuisances to adjoining property owners (e.g., noise, vibration, glare, shadowing and shadow flicker, ice throw).

Ground Clearance. The blade tip of any wind turbine shall, at its lowest point, have a ground clearance of no less than 30 feet, as measured vertically from the ground to the tip of the rotor blade at its lowest point.

Access. New generation facilities shall be sited in a manner that avoids or, to the greatest extent physically feasible, minimizes the need for new and extended access roads and utility corridors.

- ✧ Facility access should be provided from existing access roads where physically feasible, and access roads and utility corridors should be shared, to minimize site disturbance, resource fragmentation, the creation of additional edge habitat, and the introduction and spread of invasive exotic species.
- ✧ Identified impacts to public highways from facility construction, operation and maintenance, including highway improvements required to accommodate the facility, shall be mitigated by the developer.
- ✧ Public access to generation and transmission facilities, including substations, must be restricted as necessary to protect public health and safety.

Noise. Noise generated by any energy facility, including wind energy systems, shall not exceed the lesser of (a) 45dB(A) as measured at any property line, or (b) 5 dB(A) above the ambient sound level, except during a short-term event such as a utility outage or a severe wind storm.

Shadow Flicker. Wind energy facilities shall be sited or screened so that shadows cast by rotor blades will not result in shadow flicker on occupied buildings located in the vicinity of the project.

Burial. Utility controls and onsite line connections shall be wireless or buried, except at the point of connection with distribution lines.

Signs. Energy facilities and structures shall not be used for display or advertising purposes. Signs, except for owner and manufacturer identifications and safety warnings that do not exceed one square foot, are prohibited on all structures.

Lighting. In accordance with the town's dark sky policy, energy facilities, including wind and transmission towers, are not to be artificially lighted except as necessary to meet Federal Aviation Administration requirements.

- ◇ An Obstacle Collision Avoidance System (OCAR) as approved by the FAA shall be used to avoid visual lighting impacts. If an OCAR cannot be approved, the FAA lighting alternative that results in the least amount of visual disturbance, and minimizes project visibility from public roads and vantage points, shall be incorporated in system design.
- ◇ Substation lighting should be the minimum necessary for site monitoring and security, should be cast downward, and must not result in light trespass or glare on adjoining properties.

Codes. Energy facilities must comply with all manufacturer specifications, state or industry safety and electric codes, and utility connection requirements. Documentation of code compliance may be required for facilities subject to municipal review.

Interference. Facility operation shall not reduce or interfere with television, radio, telemetry, or other telecommunications signals, including public safety communications systems.

Decommissioning and Abandonment. Generation facility permits or certificates must include provisions

for system abandonment, decommissioning and site restoration including, for larger systems (e.g., >100 kW), required sureties for facility removal and site restoration.

Facility Siting Standards

Site Designation. Sites planned for or intended to accommodate planned energy facility development, including the location of existing and planned commercial and net-metered generation facilities and utility corridors, are to be shown on site development and subdivision plans reviewed by the town.

- ◇ Incentives (e.g., waivers, density bonuses) should be provided under local regulations for energy efficient development, and for the incorporation of net-metered renewable energy facilities in new development.
- ◇ Waitsfield's bylaws also should be updated to preserve solar and wind access for existing and proposed renewable energy facilities to the extent authorized under state law.

Upland Exclusion Areas. All new energy facilities – including wind towers, transmission and distribution lines, accessory structures and access roads – are specifically prohibited in the Forest Reserve District, above 1,700 feet elevation, in conformance with long-standing town policies to limit all high elevation and ridge/line development due to its undue adverse scenic and environmental impacts. Any energy development over 1500 feet in elevation shall not result in undue adverse impacts to surface waters, ground water and mapped source protection areas, core forest areas, inventoried wildlife habitat and travel corridors, and mapped scenic resources.

Hazard Areas. With the exception of transmission and distribution lines, new energy facilities that are not attached to existing or permitted structures shall not be located in:

- ◇ Special Flood Hazard Areas (SFHAs), including floodways and floodway fringes identified on Flood Insurance Rate Maps (FIRMs) for the town. Any allowed facility located within these areas must meet minimum National Flood Insurance Program (NFIP) requirements, as reviewed and permitted by the municipality or the state.
- ◇ Fluvial erosion hazard areas identified on Waitsfield FEHA maps.

- ❖ Very steep slopes, with natural (pre-development) grades in excess of 25%.

Conservation Areas. Energy facilities are to be sited to avoid where physically feasible, or to otherwise minimize encroachment and mitigate the adverse impacts of facility development on:

- ❖ Surface waters, wetlands and associated setback and buffer areas, as specified for all development under town bylaws.
- ❖ Primary agricultural soils as mapped by the USDA Natural Resource Conservation Service for the state.
- ❖ Significant wildlife habitat, including core habitat areas, and travel and migratory corridors, as identified from state inventories and data sets, local inventories, and site investigations associated with facility development.
- ❖ Onsite mitigation – e.g., through facility clustering, relocation, buffering and permanent conservation easements – is preferred. Off-site mitigation measures should be required where on-site mitigation is not physically feasible.

Agricultural Land and Open Space. Energy facilities, including solar arrays and other generation facilities, transmission and distribution lines, accessory structures and access roads are to be located on non-agricultural land or along field edges to avoid fragmentation of, and to minimize and mitigate adverse impacts to agricultural land and open fields.

Forestland. Energy facilities, including wind towers and other generation facilities, transmission and distribution lines, accessory structures and access roads are to be located along existing tree lines, or on otherwise disturbed forestland, as necessary to avoid the fragmentation of, and to minimize and mitigate adverse impacts to productive timber stands and critical forest habitat.

- ❖ Forestland intended for commercial biomass production must be sustainably managed and harvested in a manner that preserves critical forest habitat and long-term forest health.

Visual Impacts. Applicants must demonstrate through site planning, facility siting and proposed mitigation that the visual impacts of new and upgraded energy facilities will be minimized as outlined in the standards set forth below:

- ❖ All energy facilities and accessory structures are to be designed and constructed of materials, colors, and textures that blend into the surrounding natural or built environment to the extent feasible. Wind towers, turbines and blades shall be of a neutral, non-reflective and unobtrusive color (e.g., white, off-white or gray).
- ❖ Facilities are to be sited to outside of, or to the edge of scenic views or viewsheds so that they are not a prominent focal point.
- ❖ The facility should not extend above the background horizon line.
- ❖ The facility should be screened from view through the use of existing topography, structures, vegetation or strategically placed tree, shrub and ground cover plantings that do not block distant views.

Designated Scenic Areas. The documented historic, rural and scenic character of the following areas in the Town of Waitsfield shall be preserved under any form of new energy development. New energy facilities sited within or as viewed from these areas shall not create a significant physical, visual, audible, or historically incongruous or incompatible intrusion into these areas. New facilities, including generation facilities greater than 20 kW, substations and transmission lines, are specifically prohibited within or as viewed from these areas unless significant associated impacts can be avoided, for example through facility siting, screening or line burial.

- ❖ Designated historic districts, including the Waitsfield Village Historic District, the Waitsfield Commons Historic District, and the Mad River Valley Rural Resource District, which are also listed on the National Register of Historic Places;
- ❖ Town-owned conservation land, including Scrag, Wu Ledges, Austin and Tardy parcels;
- ❖ Significant views within the Mad River Scenic Byway Corridor (Routes 100 and 17), a National Scenic Byway, as identified in the byway corridor management plan; and
- ❖ Views from locally designated scenic roads, as listed under Chapter 8 of the plan, or as subsequently designated by the Waitsfield Select Board.

Historic Districts, Sites and Structures. Energy facilities, including wind systems and solar photovoltaic (PV) or thermal panels, that are located in the town's three designated historic districts, or on properties with federal or state-listed historic structures, are to be sited in accordance with current Secretary of the Interior's Standards for Rehabilitation, and the following:

- ❖ The historic character of listed properties and structures shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
- ❖ Ground installations are preferred to roof-mounted installations on historic structures. Ground installations, to the extent functionally-feasible, shall be installed in locations that minimize their visibility, such as a side or rear yard, and be screened from view of public rights-of-way and adjoining properties.
- ❖ Roof-mounted systems may be placed on new construction, non-historic buildings and additions.
- ❖ Solar panels and other roof- or wall-mounted structures shall not be placed on primary building facades, including street-facing walls or roofs, unless there is no other suitable location on the site or structure.
- ❖ Roof- or building-mounted systems on an historic structure shall not physically damage the structure, alter its character-defining features, including existing roof lines or dormers, nor obstruct significant architectural features such as overlaying windows or architectural detailing. Attachment points must be minimized and allow for future system removal.
- ❖ Roof-mounted Installations are to be placed below and behind parapet walls and dormers, on rear-facing roofs, where feasible. Panels are to be mounted flush with and at the same angle as the existing roof surface and, on flat roofs, set back from the roof edge to minimize visibility. They should not be visible above the roofline of the primary facade. Panels and mounting systems must be compatible in color to established roofing materials to minimize their visibility

9.H GOALS

- 9.H-1 Promote sustainable development in Waitsfield by reinforcing traditional land use patterns and municipal development policies, maximizing energy conservation through weatherization of existing structures and appropriate siting of new development, encouraging appropriate development and use of renewable energy resources, protecting natural and cultural resources, and offering transportation alternatives to the single-occupant vehicle.
- 9.H-2 Ensure the long-term availability of safe, reliable and affordable energy supplies to meet the needs of the town and neighboring communities.
- 9.H-3 Reduce municipal energy consumption and costs, community reliance on fossil fuels and foreign oil supplies, and greenhouse gas emissions that contribute to climate change -- through increased energy and fuel efficiency, energy conservation, and active transition to alternative fuels and renewable energy sources.
- 9.H-4 Sustainably develop Waitsfield's renewable energy resources and local distributed energy generation capacity -- including municipal and community generation and supporting smart grid technology -- consistent with adopted plan policies and community energy facility and siting standards.
- 9.H-5 Avoid or minimize the adverse impacts of energy development on public health, safety and welfare, the town's historic and planned pattern of development, environmentally sensitive areas, and Waitsfield's most highly valued natural, cultural and scenic resources, consistent with adopted plan policies and community standards for energy development, resource protection and land conservation.

Table 9-1: Vehicle Miles Driven and Vehicle Registrations in Vermont

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total Miles (millions)	6,596	6,543	6,811	6,811	9,677	8,309	7,855	7,713	7,832	7,694	7,312	7,646	
Miles Per Capita	10,993	11,020	11,167	11,166	15,729	13,421	12,641	12,379	12,553	12,385	11,769	12,297	
Total Vehicles Registered				548,000		532,000	540,000	521,000	603,000	581,000	569,728	568,468	571,900
% Automobiles				55%		51%	51%	51%	51%	51%	51%	50%	
% Trucks				41%		44%	43%	44%	45%	45%	45%	45%	
% Other				4%		5%	6%	5%	4%	4%	5%	5%	

Source: US Bureau of Transportation Statistics

Table 9-2: Waitsfield Households by Number of Vehicles

	1990	2000	2010
0 Vehicles	2%	30	4%
1 Vehicle	39%	245	33%
2 Vehicles	41%	349	48%
3+ Vehicles	19%	110	15%

Source: US Census (2010 from American Community Survey)

Table 9-3: Waitsfield Home Heating Fuel

	1990	2000	2010
Gas	144	25%	373
Electricity	89	16%	86
Fuel Oil/Kerosene	176	31%	193
Coal	0	0%	0
Wood	161	28%	77
Solar	0	0%	0

Source: US Census (2010 from American Community Survey)

Table 9-4: Mode of Travel to Work for Waitsfield Residents

	1990	1990	2000	2010
Work at Home	57	9%	107	13%
Drove Alone	375	58%	577	71%
Carpool	129	20%	90	11%
Transit	0	0%	8	1%
Walk	74	11%	27	3%
Other	10	2%	3	0%

Source: US Census (2010 from American Community Survey)

Table 9-5: Average Fuel Price per Gallon in Vermont

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Fuel Oil	\$1.44	\$1.34	\$1.24	\$1.44	\$1.65	\$2.27	\$2.61	\$2.72	\$3.74	\$2.41	\$2.93	\$3.79
Kerosene	\$1.65	\$1.65	\$1.44	\$1.65	\$1.96	\$2.58	\$2.95	\$3.05	\$4.16	\$2.85	\$3.28	\$4.20
Propane	\$1.44	\$1.55	\$1.34	\$1.55	\$1.86	\$2.16	\$2.41	\$2.53	\$3.09	\$2.56	\$2.95	\$3.34
Gasoline	\$1.55	\$1.55	\$1.44	\$1.65	\$1.96	\$2.37	\$2.67	\$2.80	\$3.33	\$2.34	\$2.96	\$3.76
Diesel	\$1.75	\$1.65	\$1.55	\$1.75	\$2.06	\$2.68	\$2.94	\$3.12	\$4.10	\$2.70	\$3.31	\$4.21

Source: Vermont Department of Public Service (adjusted to 2009\$ using the CPI)

Table 9-6: Retail Price of Electricity for Green Mountain Power Customers

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
All Sectors	12.03 ¢	11.79 ¢	12.56 ¢	11.96 ¢	11.84 ¢	11.47 ¢	11.33 ¢	11.09 ¢	11.71 ¢	11.56 ¢
Residential	15.75 ¢	15.47 ¢	16.04 ¢	15.35 ¢	14.94 ¢	14.51 ¢	14.33 ¢	14.01 ¢	14.78 ¢	14.68 ¢
Commercial	12.63 ¢	12.37 ¢	13.03 ¢	12.26 ¢	12.26 ¢	11.91 ¢	11.77 ¢	11.58 ¢	12.16 ¢	11.93 ¢
Industrial	8.38 ¢	8.06 ¢	9.26 ¢	8.62 ¢	8.53 ¢	8.33 ¢	8.26 ¢	8.00 ¢	8.59 ¢	8.46 ¢

Source: US Energy Information Administration Form EIA-861 Database. Expressed in cents per kWh adjusted to 2009\$ using the CPI.

9.H-6 Minimize the impacts of potential fuel shortages on emergency services, critical public functions, and local residents and businesses.

9.I POLICIES

- 9.I-1 Encourage energy efficiency and conservation as primary considerations in new municipal construction projects, equipment purchases and operations. Life cycle costing shall be used by the town in evaluating capital expenditures as appropriate.
- 9.I-2 Encourage, to the extent practical, the use of energy efficient municipal vehicles (e.g., hybrid, bio-diesel).
- 9.I-3 Development should be directed toward designated growth centers and limited in the least accessible areas of the community to minimize the need for new road infrastructure and reliance on the private automobile.
- 9.I-4 Support land use and conservation policies that encourage ongoing forest management to maintain a local source of fuel-wood.
- 9.I-5 Support land use and conservation policies that encourage agricultural uses on prime agricultural soils to increase the supply of and access to locally produced food and reduce the total food transport miles required to sustain Waitsfield families.
- 9.I-6 Encourage small scale and appropriately sited development of renewable energy generation, including, but not necessarily limited to, solar panels, wind turbines and micro-hydro. Guidelines for the development of such resources should minimize:
- 9.I-6.a Undue adverse visual impacts on adjacent properties, scenic corridors and Mad River Valley viewsheds;
- 9.I-6.b Forest fragmentation, environmental degradation, and habitat disruption;

9.I-6.c Impacts to sediment transport and aquatic organisms' passage in streams; and

9.I-6.d Their use of land with prime agricultural soil.

9.I-7 Prohibit free-standing solar and all wind energy generation structures in the Forest Reserve District above 1,700 feet elevation.

9.I-8 Continue to ensure that expansion and development activities at Sugarbush do not exceed the current or planned capacity of local electrical supplies and transmission facilities through the Memorandum of Understanding administered by the MRVPD.

9.I-9 Discourage the use of electricity as a primary heating source.

9.I-10 Facilitate walking and cycling, as alternatives to automobile travel for local trips, by providing adequate path, sidewalk and bike lane infrastructure connecting major commercial and residential developments throughout the Mad River Valley.

9.I-11 Facilitate the development of a solar orchard by working with interested citizens to identify appropriate sites and eliminate policy and legal obstacles that limit access to federal and state tax incentives.

9.I-12 The town – in collaboration with the Mad River Valley Planning District, the Central Vermont Regional Planning Commission, neighboring communities and utilities serving the town – will participate in long-range utility planning to ensure that adopted plan policies and community standards are identified and considered in future energy planning and development.

9.I-13 Existing and proposed municipal policies, programs and regulations will be evaluated for their effect on municipal energy use, and revised as needed to promote reduced energy consumption, increased energy efficiency, and the sustainable development and use of local renewable energy resources.

- 9.1-14 Energy and fuel efficiency will be primary considerations in municipal construction projects, equipment and vehicle purchases and facility operations.
- 9.1-15 The town will collaborate with the Mad River Valley Planning District, area utilities and service providers to promote community energy literacy, and to provide information about available energy assistance and incentive programs, state energy codes and energy system permitting.
- 9.1-16 The town will develop and implement a PACE program as approved by voters in 2011, and consider other available incentives (e.g., tax credits, property tax exemptions), to help finance or offset the cost of eligible efficiency, weatherization or renewable energy projects.
- 9.1-17 The town will participate in Public Service Board (Section 248) review of new and upgraded generation and transmission facilities as necessary to ensure that adopted community standards are given due consideration in proposed energy facility development. This may include joint participation with other affected municipalities, the Mad River Valley Planning District, and the Central Vermont Regional Planning Commission.
- 9.1-18 New energy facility development within or that may affect the Town of Waitsfield must conform to adopted community standards for energy facility siting and design (attached) to receive municipal support or approval.
- 9.1-19 The Planning Commission, in association with the Energy Committee, will identify and map those areas of town that are suitable for the siting and development of renewable energy facilities and resources in conformance with adopted plan policies and community standards.
- 9.1-20 The town will continue to pursue local generation capacity on municipal property, and actively assist in the planning and development of a community-based, group net-metered solar orchard facility that conforms to adopted plan policies and community facility siting and development standards.
- 9.1-21 New development shall not exceed the capacity of existing and planned generation, transmission and distribution systems. Development with high energy demand must maximize energy efficiency, incorporate on-site generation, or undergo project phasing in relation to planned system upgrades as necessary to mitigate anticipated service or facility impacts.
- 9.1-22 New development must be designed and constructed to at minimum meet state energy standards, through site and building design, material selection and the use of energy-efficient lighting, heating, venting and air conditioning systems. Electrical heating is strongly discouraged as a primary heating source.
- 9.1-23 New development shall be located and designed to reduce transportation energy demand, vehicle miles traveled, fossil fuel consumption and greenhouse gas emissions.
- 9.1-23.a Irasville and the Waitsfield Village Residential and Commercial Districts, representing the town's historic and designated growth areas, are targeted to accommodate the majority (more than 50%) of new development, including higher density mixed use, pedestrian-friendly residential and commercial development, to be supported by existing and planned infrastructure, sidewalks, and public transit services. Auto-dependent sprawl outside of these districts shall be avoided.
- 9.1-23.b New development outside of Village Districts will be concentrated [clustered] in locations (e.g., hamlets, industrial parks, PUDs) that can physically support energy efficient, pedestrian-oriented development to be served by common or shared parking areas and walkways, and accessed by existing or planned bike lanes, public paths or transit routes.
- 9.1-23.c Municipal and community facilities open to the public shall be located in designated village districts,

within walking distance of the village center (or must be accessible by public transit).

- 9.I-23.d Local employers should provide programs or incentives for ridesharing and public transit use, opportunities for telecommuting and teleconferencing and, where applicable, on-site employee housing, to reduce employee vehicle miles traveled.
- 9.I-24 The town will continue to work with the Mad River Valley Planning District and area transit providers to re-establish year-round transit service, and to identify, plan for and develop needed transit routes and facilities, including local park-and-ride facilities. Local rideshare or volunteer driver programs also should be considered.
- 9.I-25 The town will incorporate "complete street" principles for street design that are intended to safely accommodate all transportation system users – including pedestrians, cyclists and transit riders as well as motorists – in planned town highway improvements.
- 9.I-26 The town will continue to collaborate with the Mad River Path Association, the Mad River Valley Planning District, neighboring towns and local landowners to plan for, maintain and develop an interconnected regional path network, in part to provide a transportation alternative for Valley residents.
- 9.I-27 The town, through its Energy Committee will work with the Planning District, the Central Vermont Regional Planning Commission, and area utilities to establish the regional infrastructure needed to support alternative fuel vehicles (e.g., charging stations), to include one or more publicly accessible, centrally located sites in Waitsfield.
- 9.I-28 The town will work in cooperation with local agencies, emergency service providers, and regional suppliers to develop emergency contingency plans that ensure access to critical energy supplies and

measures to reduce nonessential energy consumption in the event of an abrupt energy shortage.

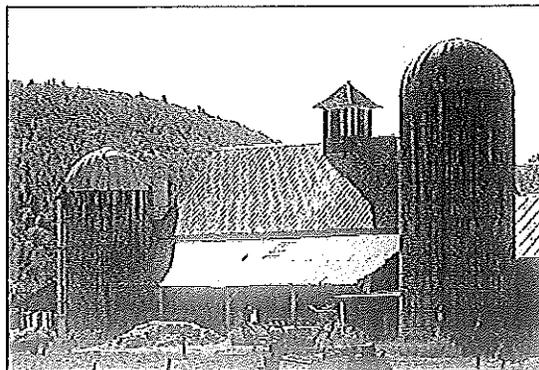
- 9.I-29 The town will consider zoning and subdivision amendments to include standards for small on-site renewable energy systems that are not regulated by the PSB; to promote more energy efficient types and patterns of development; to protect access to renewable energy (e.g., solar, wind); to provide for the incorporation of net-metered renewable energy systems in subdivision and site plan design, and to provide incentives for energy efficient construction that exceeds minimum state standards, that maximizes access to renewable energy resources (e.g., solar orientation), or that incorporates individual or group net-metered renewable energy systems in subdivision design.

9.J TASKS

- 9.J-1 Track municipal energy use and costs, and develop an overall energy budget to manage the town's energy consumption, which may include the addition of local generating capacity. [Energy Coordinator, Energy Committee]
- 9.J-2 Evaluate existing and proposed municipal policies and programs for their effect on municipal energy use, and revise as needed to promote reduced energy consumption, increased energy efficiency, and the sustainable development and use of local renewable energy resources. [Energy Coordinator, Energy Committee]
- 9.J-3 Develop a strategic 5-year municipal energy action plan that more specifically guides energy efficiency investments and improvements, and the transition to and development of renewable energy resources. [Energy Coordinator, Energy Committee]
- 9.J-4 Identify and map those areas of town that are suitable for the siting and development of renewable energy facilities and resources in conformance with adopted plan policies and community standards.

[Planning Commission, Energy Committee,
Conservation Commission]

- 9.J-5 Promote community energy literacy, and provide information about available energy assistance and incentive programs, state energy codes and energy system permitting. [Energy Coordinator, Energy Committee]
- 9.J-6 Maintain the town's energy reserve fund, and incorporate planned efficiency improvements (e.g., facility retrofits, renovations, and equipment upgrades) in the town's capital budget and program. [Energy Committee, Planning Commission, Selectboard]
- 9.J-7 Implement the PACE program as approved by voters in 2011, and consider other available incentives (e.g., tax credits, property tax exemptions), to help finance or offset the cost of eligible efficiency, weatherization and renewable energy projects. [Energy Committee, Energy Coordinator, Selectboard]
- 9.J-8 Pursue local generation capacity on municipal property, and actively assist in the planning and development of a community-based, group net-metered solar orchard facility that conforms to adopted plan policies and community facility siting and development standards. [Energy Coordinator, Energy Committee, Conservation Commission, Selectboard]
- 9.J-9 Work collaboratively to establish the regional infrastructure needed to support alternative fuel vehicles (e.g., charging or fueling stations), to include one or more publicly accessible, centrally located sites in Waitsfield. [Energy Coordinator, Energy Committee, Selectboard]
- 9.J-10 Develop procedures for municipal participation in Public Service Board proceedings and the review of proposed projects for conformance with adopted community standards. [Energy Coordinator, Planning Commission, Selectboard]



- 9.J-11 Amend zoning and subdivision regulations to (1) include standards for small on-site renewable energy systems that are not regulated by the PSB; (2) promote more energy efficient types and patterns of development; (3) protect access to renewable energy (e.g., solar, wind); (4) provide for the incorporation of net-metered renewable energy systems in subdivision and site plan design, and (5) provide incentives for energy efficient construction that exceeds minimum state standards, that maximizes access to renewable energy resources (e.g., solar orientation), or that incorporates individual or group net-metered renewable energy systems in subdivision design. [Planning Commission, Energy Committee]
- 9.J-12 Explore incentives to local employers (e.g., reduce on-site parking requirements) in exchange for programs to reduce their employees' reliance on single occupancy vehicles for commuting (e.g., ride-share programs). [Energy Committee, Planning Commission]

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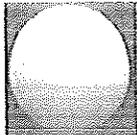
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Clean Vehicles

Home » Clean Vehicles » Why Clean Cars » Global Warming
Car Emissions and Global Warming

We are driving up the planet's temperature. Transportation is one of the primary contributors to global warming, generating more than one-third of all U.S. carbon dioxide emissions and 30 percent of America's total global warming emissions. If we are going to effectively address global warming, we must reduce the emissions our vehicles produce.

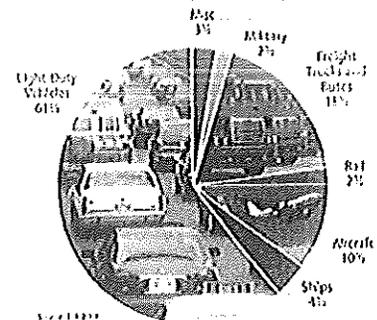
The Earth is warming and human activity is the primary cause.



Climate disruptions caused by global warming put our food and water supply at risk, endanger our health, jeopardize our national security, and threaten other basic human needs. Some impacts—such as record high temperatures, melting glaciers, and severe flooding and droughts—are already increasingly common.

More than 60 percent of U.S. transportation emissions come from cars and light trucks.

Passenger cars and light trucks represent the lion's share of U.S. transportation emissions and collectively produce more than one-fifth of the nation's total global warming pollution. The remaining transportation emissions come from medium and heavy-duty vehicles (primarily freight trucks and buses), plus aircraft, shipping, rail, military, and other uses.



Sources of Transportation Heat-Trapping Emissions (2005)

Learn more:

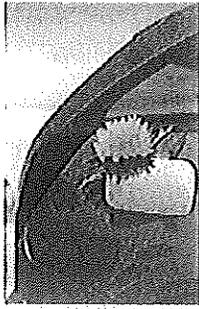
Cars and Trucks and Global Warming

1 gallon of gas = 25 pounds of global warming emissions

Every gallon of gas burned emits nearly 25 pounds of carbon dioxide and other global-warming gases into the atmosphere. About 5 pounds of that come from the extraction of petroleum and the production and delivery of the fuel. But the great bulk of heat-trapping emissions—more than 19 pounds per gallon—comes right out of a car's tailpipe. It adds up fast. Each year, the average car sends 7 tons of carbon dioxide into the atmosphere—about three and a half times the vehicle's weight.

We can go the distance—and produce fewer emissions along the way.

Fuel-efficient vehicles use less gas to travel the same distance as their less efficient counterparts. When we burn less fuel, we generate fewer emissions. When emissions go down, the pace of global warming slows. Current, affordable, clean vehicle technology can significantly increase the fuel economy of our



nation's cars and trucks today and lessen the global warming impact of our transportation choices. Advanced vehicle technologies offer the promise of even greater efficiency in the decades ahead.

Biofuels can further reduce emissions.

Biofuels are made from organic materials like corn, grass, and agricultural waste and have the potential to provide more than 10 percent of U.S. fuel needs. Biofuels can produce fewer global warming emissions than conventional gasoline, though the amount varies considerably depending on the source material and production methods used to create it. Corn-based ethanol is one of the least effective biofuels at reducing emissions; advanced biofuels made from grass, wood waste, and even garbage offer much greater savings.



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Clean Vehicles

Home » Clean Vehicles » Why Clean Cars » Global Warming
Cars and Trucks and Global Warming

Motor vehicles are responsible for almost a quarter of annual US emissions of carbon dioxide (CO₂), the primary global-warming gas. The US transportation sector emits more CO₂ than all but three other countries' emissions from all sources combined. And motor vehicle emissions will continue to increase as more vehicles hit America's roads and the number of miles driven grows.

Three factors contribute to CO₂ emissions from cars and trucks:

Amount of fuel used

Amount of CO₂ released when a particular fuel is consumed

Number of vehicle miles traveled

Combating global warming requires reducing all of these factors. This necessitates increased fuel efficiency, switching to renewable fuels, and less driving.

Increase Fuel Efficiency

The amount of fuel consumed by motor vehicles governs how much CO₂ pollution enters the atmosphere: the more gasoline burned, the more CO₂ released. Automobiles need to become more fuel efficient. For the last decade, however, the fuel-economy standards for motor vehicles have stagnated. In addition, low gas prices have helped create a market for gas-guzzling light trucks such as sport-utility vehicles (SUVs) and minivans, which have actually led to an increase in CO₂ emissions.

Increasing fuel efficiency is a cost-effective and technologically feasible method to address the threat of global warming, benefit our economy, and protect public health. To do this, government policies must: Strengthen fuel-efficiency standards (CAFE) for all passenger vehicles and eliminate the light-truck (SUV) loophole.

Support the development and marketing of advanced vehicles, like battery electrics, hybrid electrics, and fuel cells.

Switch to Renewable Fuels

Using conventional, gasoline-combustion technology can only decrease CO₂ pollution so much. The large-scale CO₂ savings that are necessary require a shift to renewable fuels. These fuels, because they are not produced from high-carbon fossil fuels, have lower carbon emissions. To encourage this shift, government policies should:

Provide incentives for research and development of renewable fuels

Encourage investment in renewable fuels and the necessary infrastructure through methods like tax incentives

Reduce Driving

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With the number of cars on the road expected to double, gains in fuel efficiency alone will not reduce CO2 pollution. Measures that reduce vehicle miles (VMT) traveled also improve the quality of life and protect natural resources. To reduce VMT, government policies should:

Promote transit-oriented, compact development

Provide transportation alternatives to cars, including mass transit, bicycle, and pedestrian routes

Adopt "fix-it first" policies to improve existing infrastructure and roads

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Clean Vehicles

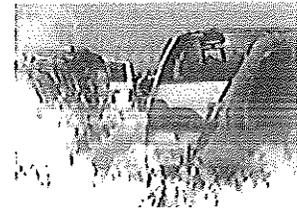
Home » Clean Vehicles » Why Clean Cars » Oil Use
Cars, Trucks, and Oil Use

The U.S. transportation sector consumes more oil than all other sources combined—more than 13 million barrels every day, or roughly two-thirds of total U.S. oil use.

Clean vehicle and fuel technologies can dramatically reduce the amount of oil we use for transportation—saving consumers billions of dollars at the gas pump, slashing oil consumption, and moving us toward a cleaner, safer transportation future. If we act now, we can cut America's projected oil use in half in the next 20 years.

Our current transportation system is almost completely reliant on oil. It doesn't have to be.

Oil accounts for more than 95 percent of all the energy used for transportation in the United States. That means oil powers virtually every mile we drive. And we drive a lot of miles. In the U.S. today, there are more than 250 million cars and trucks on the road, traveling a whopping three trillion miles annually—enough miles to make more than 14,000 round-trip voyages to the sun.



This immense amount of travel, together with our near total reliance on petroleum for fuel, means that every year America must obtain nearly 5 billion barrels of oil just to meet the needs of our current transportation system—and the number of vehicles and miles driven are both expected to rise in the decades ahead. Only oil companies and a handful of foreign countries benefit from this trend. Everybody else loses out.

There's a better, cleaner way to power America's transportation system. By increasing the use of clean biofuels and creating the next generation of advanced vehicles that no longer rely exclusively on oil, we can decrease our reliance on petroleum for fuel. What's more, by improving the fuel efficiency of our cars and trucks, we can dramatically reduce the amount of oil we need in the first place.

Cutting our oil use spares us from the rising costs of oil production

Oil production has significant downsides, no matter where it occurs—and these problems will only get worse as oil becomes more difficult and costly to acquire.

Much of the world's "easy" oil has already been found and extracted, forcing us to rely on increasingly dirty, dangerous, and expensive sources to meet our oil needs. It's a trend that's already well underway, with serious consequences for our health and environment.



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Deepwater drilling in the Gulf of Mexico resulted in the worst U.S. oil spill in history in 2010. Oil produced from Canada's tar sands generates significantly more global warming emissions per barrel compared to conventional sources. As oil companies scrape the bottom of the barrel for such dirty, risky sources of oil, the problems—and costs—of oil production will only intensify in the years ahead.

We can reduce our need for such costly sources of oil by adopting clean vehicle and fuel technologies that dramatically lower our oil consumption. If we act now, we can cut America's projected oil use in half in the next 20 years.

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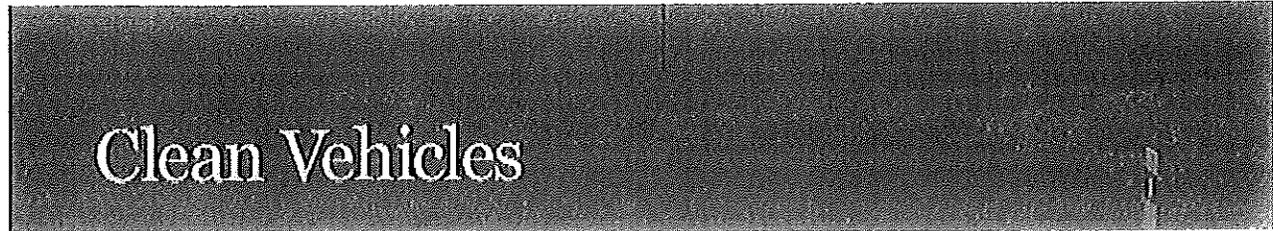
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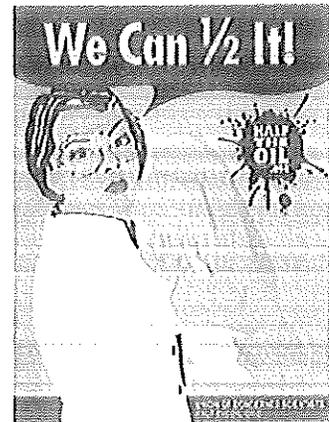
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Home » Clean Vehicles » What You Can Do
What You Can Do: Be Part of the Half the Oil Solution

You can help put America on a path to cut projected oil use in half in 20 years

- Spread the Word: Using Less is the Real Oil Solution
- Support Strong Fuel Efficiency and Global Warming Emissions Standards
- Help Unleash the Potential of Electric Vehicles
- Encourage the Development of Better Biofuels
- Reduce Your Personal Oil Use



Clean vehicle and fuel technologies provide the foundation for the Half the Oil Plan, a realistic path to cut projected U.S. oil use in half over the next 20 years.

Working together, we can make the plan a reality and move America toward a cleaner, healthier, Half the Oil future.

You can help make it happen! Take action today on any one (or more!) of the following items and voice your support for practical, science-based solutions to reduce our oil use.

Spread the Word: Using Less is the Real Oil Solution

Urge the President to commit to the necessary steps to make the Half the Oil plan a reality. By supporting efficiency and innovation across our transportation system, we can slash our oil use, save consumers billions at the gas pump, and position the United States as a global leader in transportation technology.

Share the Half the Oil Plan with your networks on Facebook or Twitter and help build the Half the Oil rallying cry. Here's some sample language to get you started:

Join our growing team of experts. Are you working each day to make oil savings solutions a reality? We need your voice to educate policymakers, the media, and the public about how we can make even more progress! Visit our Oil Solutions at Work page and share your experience and expertise.

Rebut misinformation about high gas prices. Show your



Update your Facebook status and share this practical plan to dramatically reduce U.S. oil consumption.



We can get to //halftheoil in 20 years with efficiency & innovation in transportation. Find out how from @UCSUSA. <http://halftheoil.org>



Check out the #halftheoil plan from @UCSUSA to cut U.S. //oil use in HALF in 20 years, saving \$\$ & oil-related problems. <http://halftheoil.org>

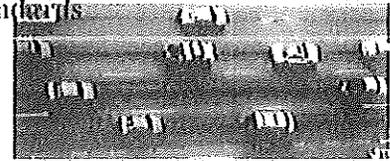
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community that oil savings is the real solution with a letter to the editor of your local paper. See sample Half the Oil letters to the editor.

Contact your legislators and tell them to support oil saving solutions. Learn about ways to effectively engage policymakers.

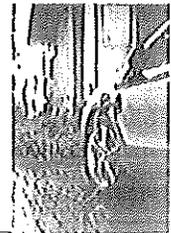
Support Strong Fuel Efficiency and Global Warming Emissions Standards

Thank the Environmental Protection Agency and Department of Transportation for leading the way to strong clean car standards that will cut oil use from cars and light trucks by millions of barrels each day.



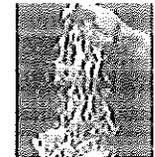
Unleash the Full Potential of Electric Vehicles

Ensure your city or state is ready for a clean electric vehicle (EV) future. As more EVs hit the roads, every city and state can invest in infrastructure and incentives for EV ownership and continue ramping up renewable energy, such as wind and solar, to maximize the climate benefits of EVs. Urge your governor or mayor to unleash the full potential of EVs across the United States.



Encourage the Development of Better Biofuels

Tell your member of Congress to support clean biofuels and not put roadblocks in front of its growth. Innovative companies are making fuel from sustainable non-food sources such as perennial grasses and agricultural waste, and clean biofuels have the potential to grow to commercial scale, displacing dirty oil and corn ethanol.

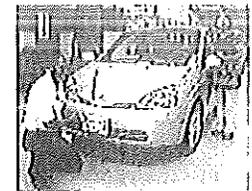


Reduce Your Personal Oil Use

Maximize the fuel efficiency of your vehicle. No matter what kind of vehicle you drive, check out these six easy steps to maximize your vehicle's fuel economy today.

Buy a fuel-efficient or advanced vehicle the next time you are in the market. Learn more at the Hybrid Center. Already drive a hybrid or EV? Tell us about it by joining our Hybrid/EV owners list!

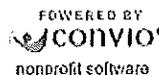
Get there greener on your next trip. Whether traveling by plane, train, or automobile, make your next travel decision climate-friendly & oil saving. Our report, *Getting There Greener*, shows you how.



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