

West Hartford Comprehensive Energy Plan

Draft Plan

February 19 2009

West Hartford Clean Energy Task Force

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Resolution Regarding Comprehensive Energy Plan for the Town of West Hartford

WHEREAS the Town of West Hartford is committed to achieving a more sustainable future by efficient operation of its facilities, lighting systems and vehicle fleet through implementation of energy conservation strategies and the use of renewable energy sources; and

WHEREAS the Town of West Hartford has committed to the “20% by 2010” campaign such that by the year 2010, the town’s municipal facilities will purchase 20% of its energy needs from clean energy sources; and

WHEREAS Mayor Slifka has signed the US Conference of Mayors Climate Protection Agreement, committing the Town of West Hartford to reduce its greenhouse gas emissions by 7% below 1990 levels; and

WHEREAS Mayor Slifka has signed the EPA Community Energy Challenge, committing the Town of West Hartford to reduce its energy consumption by 10%; and

WHEREAS improved energy efficiency promotes and improves the fiscal health and well-being of the Town of West Hartford.

NOW THEREFORE BE IT RESOLVED BY THE TOWN COUNCIL OF WEST HARTFORD THAT the Town Manager and the Clean Energy Task Force are hereby requested, together with key stakeholders in the community, to develop a comprehensive energy plan for the Town’s buildings, lighting and vehicle fleet.

The energy plan shall identify opportunities for (i) energy mitigation through improved efficiencies and a culture of conservation and (ii) the increased use of clean and renewable energy sources. The scope of the plan shall include, but not be limited to, an evaluation of mechanical and personal uses of energy, policies and practices to achieve reductions in energy use, an analysis of state and federal financial incentives. The plan shall prioritize actions that reduce: energy costs over the lifetime of the investment, volatility in energy costs, greenhouse gas emissions, indoor and outdoor air pollution and dependency on fossil fuels. The final plan shall be submitted to the Town Council by March 1, 2009.

Vision Statement

There comes a time in the affairs of society when great forces move communities to action. Now is such a time. The global economy is being buffeted in ways unseen since the Great Depression. Unforeseen consequences associated with a narrow focus on self-interest have led to a

diminishing of our collective sense of well-being. Our notion of continuous growth in consumption and prosperity is being severely challenged. While our community has fared better than many, we are hardly immune from the ripple of concerns that propagates through our community, our nation and our world.

In this 21st century, we are awakening to the recognition that the continuous growth of the world's use of natural resources cannot be sustained. Not only is our economic well-being threatened by the vagaries of world oil price fluctuation, our continued reliance on fossil fuels is accelerating the decline of our environment. The reality of climate change is no longer an exercise in academic debate. The evidence is all around us that human activity is contributing to changes in our local climate and environment.

The issue of energy use planning is ordinarily left to the experts. Our West Hartford community relies almost exclusively on energy sources from outside of our community. Each payment for gasoline, oil, electricity and natural gas send dollars out of our local economy. If we leave to others the responsibility of a continuous and affordable supply of energy for the coming years, we do so at our peril.

The elected leadership of our town understands the importance of this vital resource to our continued success and quality of life as a community. West Hartford's leadership have committed to using 20% renewable electricity by 2010, endorsed the goals of the US Mayors Climate Protection Agreement to reduce our greenhouse gas emissions, and have formally joined the EPA Community Energy Challenge, which commits the town to a minimum of a 10% reduction in energy usage.

With the right energy choices we can reduce costs, lessen our exposure to price volatility, increase local installations of clean, renewable energy, and reduce pollution. It is with this knowledge that they have invited our citizens to join them in fashioning a plan informed by purposeful deliberation that maps a way forward to a more sustainable future. It is in this spirit that we offer this energy plan for our community. By design, this is a work in progress, to be shaped and updated continuously in response to changing circumstances. It is our hope that this document will serve as a roadmap for the implementation and delivery of town services over time in a sustainable manner. And further, it is our hope that this will serve to inspire our fellow citizens, businesses and institutions to join in partnership to fashion a sustainable future and serve as a positive example for others.

CULTURE OF CONSERVATION

Policy Statement: Perhaps the single most important aspect of the energy plan is to further a culture of conservation with all stakeholders in the Town.

Where we are: [INSERT]

Everyone Owns Sustainability: grass roots with leadership accountability; non-judgmental Treat it like it's your home; goal setting; encouraging ideas and innovation

Educational component: Borrego; EE Smarts (Heidi) free to schools; building into curriculum
Debunking Myths e.g., not shutting off lights or computers

Measurement of Savings: every department should be measured on qualitative improvements and quantitative savings. Reporting quarterly and annually on measurable goals and lists of success to add to appendix. Add appendix to plan listing successes.

Energy Competition and Lessons Learned Phantom Loads: pencil sharpeners, coffee pots, dorm refrigerators 4,000 computers: automatically set to be faster and manually in standby mode; energy strips and full shut down

Rewarding success: e.g., of breakfast with custodians, photo for school newsletter;

Recommendation: Create education models for municipal employees, students and citizens to understand and be a part of energy saving (from purchasing and procurement)

Scope of Plan

The West Hartford Clean Energy Task Force was established by the West Hartford town council to advise the council on energy related matters originally as part of the 20% by 2010 clean energy campaign. The West Hartford Clean Energy Task Force (WH CETF) is a volunteer body with representation from town council and town facilities staff.

The town council explicitly directed the WH CETF to work with stakeholders and interested residents of West Hartford "to develop a comprehensive energy plan for the Town's buildings, lighting and vehicle fleet" and to "identify opportunities for (i) energy mitigation through improved efficiencies and a culture of conservation and (ii) the increased use of clean and renewable energy sources." This plan aims to steer the municipality toward clean energy and energy efficiency through both changes in technologies and through individual action and education.

This plan does not address clean energy and energy efficiency opportunities for residents and businesses, but recommends the council continue this energy planning process and broaden the scope to all members of the West Hartford community.

I. Energy: Buildings, Lighting, Clean Energy Generation

Statement of Purpose: This section recommends the establishment of a comprehensive 10 year process to implement all energy efficiency measures that are cost-effective across the town's buildings, hold all new buildings and major building renovations to green standards, upgrade non-building lighting over time and increase the use of clean, renewable energy sources. It also prioritizes furthering a "culture of conservation" within students, town employees and town building users to use the buildings in an energy conscious manner.

A. Energy assessment- create a baseline of energy usage

Conduct initial energy audits of all public buildings this year to enable the development of a comprehensive building upgrade strategy and compare the efficiency of our buildings to each other and others in the state and region.

Progress to date: West Hartford has joined the EPA Community Energy Challenge, which commits the town to a minimum of a 10% reduction in energy use from an established baseline. To establish this baseline of how much energy we use, in 2008 West Hartford contracted with a third-party, EnergySolve, which creates and maintains a centralized database tracking the use and costs of electricity, fuel oil, and natural gas in both town and Board of Education buildings. The town recently conducted energy audits on four buildings to qualify for CT Clean Energy Fund subsidies for solar photovoltaic panels.

Recommendations:

(1) Populate the Energy Star benchmarking tool with building data (2 year minimum) for all West Hartford buildings November 1, 2009. The EnergyStar building tool compares the efficiency of town buildings with similar structures throughout the state, region and country and rates buildings based on their efficiency. This tool will enable West Hartford to know if its buildings are leaders or laggards compared to our peers. The EPA Community Energy Challenge, which West Hartford has joined, provides support for towns to use this tool to track building energy use and help them cut their energy use at least 10%. Utility bill data tracked using EnergySolve can be imported into this database and assistance is available from US EPA, and the Institute for Sustainable Energy at Eastern Connecticut State University.

(2) Adopt methodology for calculating life cycle energy costs: The methodology can aid in prioritizing energy efficient upgrade projects and distinguish between projects which have significant upfront cost but substantial benefit and which are simply an expense. Sample methodologies have been promulgated by the National Institute of Standards and Technology.

(3) Utilize Energy Manager to coordinate this process and implement the recommendations: For West Hartford to achieve these standards, the town should consider hiring a dedicated energy manager to monitor progress and facilitate goals. Please see *II. Energy Planning, Implementation and Financing* for a more detailed discussion of this.

B. Establish Energy Efficiency and Clean Energy Master Plan and Policies for Buildings

Summary: Create town building master energy plan to increase building energy efficiency and increase on-site renewable energy generation over the next 10 years. Institute policies requiring new buildings and building renovations be built to green standards.

Where we are: Energy efficiency: West Hartford has undertaken a number of efficiency and clean energy upgrades for town buildings including: (1) replacing traffic control lighting with efficient LEDs; (2) installing LED lighting fixtures in Blueback Square garages; and (3) upgrading window and air conditioners as part of our capital improvement plans.

Clean Energy: West Hartford currently is in the process of procuring four large (100kw) solar photovoltaic arrays for schools and town buildings. In addition, as of February 2009, the town has earned 13 kilowatts of solar photovoltaic panels from the CT Clean Energy Fund as a result of purchasing renewable energy and for having residents participate in the clean energy option program on their electric bills.

Notably, a 2007 state law requires the town to adopt LEED Silver certification and 20% more energy efficiency than the current state building code for all buildings built or renovated with state funding. No buildings have yet been built in West Hartford to this standard.

Recommendations:

(1) Adopt resolution effective immediately that requires all new construction or renovations in excess of \$2 million to meet LEED Gold green building standards and the latest IBC building code for energy efficiency: The town should commission buildings to ensure that all efficiency systems work properly and achieve the promised efficiencies and savings. LEED Silver is the minimum required by state law, and West Hartford as a community can and should go beyond the legal minimum to achieve significantly more environmentally sound buildings with significantly lower energy use.

(2) Expand building energy audits to all town buildings- conduct basic energy audits for all 31 public buildings by October 31st, 2009: The audits should include an assessment for heating, cooling and electricity, and must assess the payback period for building upgrades. The purpose of creating an inventory is to enable prioritization of building upgrades and enable the town to identify the cost-effectiveness of different approaches. Building energy data can also be entered into the federal EnergyStar building tool to compare the efficiency of town buildings with similar structures throughout the state, region and country. The town should consider free auditing provided by the Energy Opportunities audit through the CT Energy Efficiency Fund.

(3) Create building-by-building upgrade plans by November 15, 2009 based on the results of the energy audits in (2). Between now and 2020 the town should implement all energy efficiency measures that are cost-effective and save the town money over the lifetime of the investment. The scope of efficiency measures should include heating, cooling, electricity and water. In addition to prioritizing measures which maximize savings to the town, building upgrades which offer important co-benefits such as improving indoor air quality and protecting the health of building occupants should be prioritized.

(4) Compile building upgrade plans from (3) into a comprehensive town-wide building efficiency strategy with prioritization of upgrades, timelines and an assessment of funding options by December 31, 2009: The town manager and facilities staff with the West Hartford Clean Energy Task Force should take the lead creating this strategy.

(5) Retain third parties to conduct more detailed and rigorous building energy audits as buildings are upgraded beginning in 2010: Based on the Energy Star building benchmarking and the prioritized building upgrade plan, the town should hire third parties to conduct more rigorous assessments of buildings that are least efficient and prioritized for near-term upgrades. Detailed engineering assessments should be performed as needed to determine exactly which technologies to apply, and exact costs and savings at a level of detail beyond that provided in the more basic initial assessments.

(6) Create a short-term renewable energy strategy prioritizing town buildings for solar photovoltaic and solar water heating installations by June 1, 2009: The West Hartford Clean Energy Task Force and town facilities managers should prepare this strategy in preparation for pending state and federal incentive programs. Solar energy is the most abundant renewable energy resource available to the town and significant support for renewable energy is expected at the state and federal level. The installation of renewable energy systems on West Hartford

buildings will reduce the town's exposures to volatile swings in fossil fuel prices, bring predictability to utility bills, and save money over time.

(7) Longer-term renewable energy strategy- West Hartford should assess the ability of other technologies, including micro-wind turbines, micro-hydro turbines, geothermal heat pumps and fuel cells to meet energy needs while reducing greenhouse gas emissions, energy costs and energy price volatility and increasing reliability.

(8) Examine potential for vegetative "green" roofs which can reduce run-off and reduce building cooling loads. Locations for this installation should focus on buildings where solar installations are not possible as they compete for roof space.

C. Non-Building Clean Energy Generation

Policy Statement: Explore potential for distributed generation systems and/or renewable energy generation such as solar photovoltaic panels.

Where we are: West Hartford currently does not have centralized distributed generation such as cogeneration to provide heating, cooling and electricity for town buildings which can be significantly more energy efficient and cost-effective than utilizing building air conditioners, furnaces and purchasing power from the grid.

Recommendations:

(1) Central Combined Heat and Power: Cogeneration systems operate by utilizing a fuel like natural gas to produce electricity while using the excess waste heat to make steam and hot water. By harnessing the excess heat, cogeneration systems operate at approximately 80 percent efficiency as opposed to 30 percent efficiency typical in conventional power plants. We recommend the town should assess the potential for district heating and cooling to cut town energy costs if major renovations or expansions are undertaken for town buildings.

(2) Install free-standing solar photovoltaic installations: If the state changes its rules governing solar installations, the town should assess potential sites and economics of free-standing solar at locations including parking lots, brownfields, and other underutilized spaces.

(3) Explore the potential of other clean energy technologies such as micro-hydro turbines and fuel cells to reduce greenhouse gases, electricity costs and price volatility over time.

(4) The town should decline to participate in programs to run distributed diesel generators at non-emergency times- such programs significantly increase ozone forming nitrogen oxide and health-harming particulate matter emissions and present a threat to the health and welfare of West Hartford residents. Diesel generators, with or without pollution controls, have significantly worse emissions profiles than standard centralized power plants according to the CT Department of Environmental Protection.

D. Non-Building Lighting (street lights)

Policy Statement: Replace inefficient traffic control lighting with high efficiency LEDs.

Where we are: **[INSERT]**

Recommendations:

(1) Assess the status of non-building street lighting: The town should determine whether certain street lights can be removed or powered down during certain hours without compromising safety.

(2) Phase out conventional street lamps: The town should replace traditional lighting fixtures with alternatives that do not contain heavy metals and are more energy efficient, such as LEDs (light emitting diodes).

E. Culture of Conservation- promote energy-conscious behavior

Policy Statement: Develop culture of conservation by education users on strategies to reduce energy consumption.

Where we are: Recently, the town has begun to educate its staff and building users on behavioral energy saving strategies. In November 2008, an energy efficiency competition sponsored by the board of education helped to educate teachers, students and staff about the importance of these techniques, including turning off lights and equipment. Similar efforts have not occurred on a town-wide scale.

Recommendations:

(1) Create a standing Efficiency Task force for all schools and municipal buildings: The committee should include a member from each town department and be provided with support from town facilities staff to create goals and incentives for energy use reduction. Involve students, teachers, energy managers, town employees, board members, political leaders and other stakeholders. Create process where building users can recommend improvements in the buildings they use.

(2) Create department energy guidelines to eliminate wasteful energy consumption: The guidelines should address wasteful energy activities including, but not limited to, the use of personal electric space heaters, inefficient coffee pots, and leaving lights and computers left on when not in use.

(3) Create an energy survey for building users: The survey should ask building users, including students, to suggest ways to increase building efficiency and offer rewards for best entries. In conjunction, the town should consider installing suggestion boxes in municipal buildings to encourage resident participation on cost saving strategies.

(4) Encourage the phase out of inefficient dorm-sized refrigerators in all public buildings by September 1, 2010: Encourage and reward consolidation into more centralized energy efficient refrigerators and offer ice packs and coolers as an alternative for an in-room cooling option.

(5) Continue the West Hartford Public School energy competition: Due to the success of this competition, we recommend continuing the competition on a recurring semester basis. (See Appendix for details on success of past competition)

(6) Raise cultural awareness and encourage volunteers: Raise the energy awareness of West Hartford municipal buildings occupants and West Hartford citizens and encourage volunteers to use their time skills to augment West Hartford staff in matters including grant applications, entering data into the EnergyStar building portfolio manger tool and more.

II. Energy Planning, Implementation and Financing

Statement of Purpose: This section deals with the staff resource needs for the establishment and implementation of a comprehensive 10 year process to implement energy efficiency and clean energy measures described in *I: Energy: Buildings, Lighting, Clean Energy Generation*. It also establishes a mechanism for prioritizing how these measures will be funded and what happens with energy savings from the implementation of this plan.

A. Planning and Assessment

Policy Statement: Reduce town energy expenditures by centralizing and enhancing energy planning and assessment.

Where we are: Since 2007 West Hartford has dedicated one town staff member to be charge of building energy use, facilities and maintenance staff, and energy procurement and planning. West Hartford also has contracted with EnergySolve, an energy information services company, to centralize municipal energy billing in an online database. In addition, as needs have arisen, West Hartford has contracted with energy brokers and consultants to assist with energy planning and assessment.

The current energy planning and assessment arrangements have resulted in a number of notable successes that have reduced the town operating budget, including (1) securing competitively priced contracts for electric and natural gas service (saving \$X over X years); (2) increasing building efficiency, such as retrofitting lighting in the Blue Back parking garages (saving \$X over X years); and (3) installing solar photovoltaic arrays on town buildings (saving \$x over X years).

Furthermore, existing audits of four town buildings estimate that implementation of cost-effective efficiency measures cumulatively would save the town \$x on electricity, \$x on natural gas, \$x on fuel oil bills over X years if implemented, and save \$Y over the next Y [short-term-maybe 3?] years.

Recommendations:

(1) Hire a town energy manager: A town energy manager would oversee energy audits for all town buildings including schools, oversee implementation of energy efficiency projects, create a comprehensive building upgrade plan, train building operators and users on buildings efficiency practices, educate town staff whose work impacts energy use, develop procurement standards for products, apply for state and federal grants, update building energy inventory data, assess energy reduction strategies, and re-assess energy efficiency and clean energy options as new technologies arise. (See Appendix for examples of successful municipal energy managers)

We recommend that the energy manager be an in-house position to fully represent the interests of the town and avoid conflicts of interest with for-profit employers. In addition, a full time, in-house energy manager can maximize energy savings rather than the more limited savings achievable if town energy management is one of many responsibilities of a given staff member. In this scenario, the town would continue to need staff to manage relationships with outside contractors and companies.

Most importantly, the salary for the energy manager position can be made budget neutral by paying for it after the first year through energy savings. Alternatively, if the town is financially unable to hire a full-time energy manager, we recommend exploring regional opportunities such as a shared energy manager with a neighboring town, such as Bloomfield. In considering this option, the town must balance the initial reduction in salary with the acknowledgement that shared staff may not be able to dedicate adequate resources to either town to achieve maximum energy savings.

(2) Dedicate resources for expert consultants: Based on past experience, the town has benefitted from the services of outside professionals. We recommend the town continue to utilize these services, where appropriate, to facilitate further energy savings.

B. Energy Financing

Policy Statement: Implement energy efficiency upgrades and maximize the use of clean, renewable energy at the least cost to taxpayers by utilizing creative financing mechanisms.

Where we are: West Hartford currently has an energy improvement fund [name] with two intended purposes: (1) enable the town to weather short-term fluctuations in energy prices; and (2) provide limited funding for efficiency projects, which in turn replenish the fund.

Recommendations:

(1) Secure funding for energy efficiency upgrades and clean energy generation from one or a combination of the following sources:

A) On-Bill Financing: With support from the CT Energy Efficiency Fund, the town can implement energy efficiency upgrades that save natural gas or electricity with no upfront capital cost. Rather, the town can pay for the cost (at no interest) from the savings generated on the town's utility bills. After the utility provider recoups the cost, the town retains the future savings from the reduced energy use. This mechanism, however, is capped at \$X over X years from the CT Energy Efficiency Fund (what's the latest status? Is financing capped at \$20K/meter/year?)

B) Capital Improvement Plan (bonding): Because West Hartford has a AAA bond rating, the town can pay for major upgrades at a lower total cost to taxpayers. Accordingly, the town can bond for measures that stabilize and reduce energy costs which can pay for debt service on the bonds and reduce pressure on the town budget. However, current uncertainty in the financial markets makes bonding more difficult and current budget problems may reduce the ability to pay for projects with longer-term savings.

C) Town Operating Budget: West Hartford can pay for energy improvements within its annual budget via the capital no-recurring expenses account (is this right?). The town can exert downward pressure on the town budget by prioritizing energy efficiency projects. This mechanism is ideal for smaller projects since the total funds available likely are too limited for major improvements.

D) Performance Contracting with third parties (Energy Service companies or ESCOs): The town can utilize outside companies to finance and implement efficiency upgrades and guarantee a fixed level of energy savings. West Hartford can pay for the upgrades via the savings generated on the town's utility bills, less a commission for the third party. Similar to on-bill financing, there are no up-front costs with this mechanism. However, unlike on-bill financing, the town must share a portion of its energy savings with the third party. Additionally, the town must be aware of potential disputes over actual versus promised energy savings.

E) Grants: The town can obtain grants for energy-related improvements from various outside sources including the federal and state government, the CT Energy Efficiency Fund, the CT Clean Energy Fund, Northeast Utilities, and other sources. West Hartford currently has [X dedicated staff working on grants, X volunteers assisting with grant writing? X staff for whom

grant writing is part of their responsibilities] With a new focus on efficiency and clean energy at the federal level there likely will be opportunities for the town if it has shovel-ready projects. By proactively detailing an energy strategy as described in this plan, West Hartford can have a competitive advantage over other entities seeking funds. It should be noted, however, that researching and applying for grants can be a time-consuming and uncertain process. In addition to town staff, we recommend the town seek the assistance of dedicated volunteers to assist in grant-writing.

(2) Establish a financing hierarchy to achieve energy upgrades at the least overall cost to the town:

First, maximize the use of on-bill financing to fund efficiency upgrades.

Second, prioritize energy efficiency and renewable energy upgrades in the capital projects budget, as these projects will reduce operating costs and volatility of future town budgets. Then, create a separate capital project category for energy related investments in the Capital Improvement Plan, and create an energy subgroup in each existing capital project category.

Third, dedicate up to 50% of the energy surplus account [name] to a "clean energy trust" to support the implementation of the energy master plan and achieve additional energy savings to the town while also reducing the operating budget.

Fourth, prioritize grant research and writing for energy upgrades based on priorities in the town energy master plan.

Fifth, hire performance contractors to make efficiency upgrades when funding through other sources is not available.

(3) Advocate for increased funding for municipal energy upgrades:

Advocate for removal of funding limits for municipal projects supported by the CT Energy Efficiency Fund and partner with West Hartford's state legislators and other municipalities to advocate for this change.

Advocate at the state level for continued and expanded funding for the CT Energy Efficiency Fund and CT Clean Energy Fund.

Advocate at the federal level for support for municipal clean energy infrastructure upgrades.

III. Fuel Consumption: Vehicles/Transportation/Outdoor Engines

A. Fuel Efficiency

Policy Statement: Increase fleet fuel efficiency to reduce costs, mitigate fuel price volatility, and reduce carbon emissions.

Where we are: The town owns approximately 270 vehicles of various types, i.e. sedans, light

duty trucks, heavy duty trucks. The town also contracts with third parties for the use of other vehicles, i.e. school buses, garbage and recycling trucks. In 2008, the town-operated vehicles consumed approximately 185,653 gallons of fuel (diesel and gasoline). On a monthly basis, the town fleet consumed an average of approximately 15,500 (515 gallons/day). The total cost of fuel in 2008 was approximately \$669,634. None of the town vehicles are hybrid or alternative fuel vehicles.

Recommendations

Immediate:

(1) Establish baseline information on fuel consumption: The town should gather data for each unit of town government, for each of the prior three years, on: Miles driven per vehicle; gallons of fuel purchased per vehicle; cost of fuel per vehicle; expected year of replacement or end of service per vehicle; estimated fuel efficiency per vehicle; heavy duty diesel vehicle make; engine year, and VIN.

(2) Prepare fleet information for CT DOT Request for Proposal (RFP) for CT Clean Fuel Program and Diesel Emission Reduction Act: The DOT program provides funding to municipalities to cover a portion of the purchase price for new alternative fuel or efficient (hybrid electric, compressed natural gas, propane, or electric) vehicles, or diesel pollution control retrofits. The town should evaluate which town vehicles need replacement over next two years and the town vehicle needs over next two years, and submit applications in response to RFP. The next RFP is expected to be released in mid-March 2009, and will likely have a 30-day deadline to submit applications/proposals. The Diesel Emission Reduction Act was allocated \$300 million in the February 2009 federal stimulus act and a portion of those funds will be first-come first-serve for any entity to retrofit diesel vehicles with pollution controls.

Short-term:

(1) Establish protocol to replace town vehicles with vehicle the highest fuel efficient vehicle in that class.

(2) Prepare heavy duty diesel vehicles inventory: This inventory will assist the town in applying for pollution control retrofits from the DOT Clean Fuel Program and grant funding from the Diesel Emission Reduction Act, which is a component of the 2009 stimulus package. Diesel fine particle pollution from town vehicle operation has potential negative health impacts on town workers and residents. Similar pollution control technologies to those in place on West Hartford diesel school buses can greatly reduce pollution from other types of diesel vehicles.

(3) Identify other funding sources and options for fleet modernization.

(4) Ensure proper maintenance of town vehicles: The town should evaluate use of technologies such as synthetic lubricating oils to increase fuel efficiency. Also, the town should evaluate costs of oil versus savings from improved fuel efficiency.

Long-term:

(1) Ensure that 20% of the town's light duty fleet have a fuel efficiency of 40+mpg by 2015.

(2) Ensure that [X%] of the town's heavy duty vehicles have a fuel efficiency of [X%] mpg by 2015.

(3) Develop protocol to purchase equipment that minimizes need for fuel or that uses alternative fuels.

(4) Reduce fuel use by 5% from 2008 baseline in 2009 and 2010.

(5) Reduce vehicle fuel use by 10% from 2008 baseline by 2011.

B. Fuel Options

Policy Statement: Reduce the carbon dioxide output of the town's fleet while increasing efficiency and reducing fuel costs.

Where we are: The town uses commercially available fuels in all its vehicles. These fuel options currently do not include biodiesel blends, although the fuel does include ethanol blends for gasoline (which is a component of the gasoline sold at retail stations).

Recommendations:

(1) Reduce the carbon content of the town's vehicle fuel: This can be achieved over time through strategies including electrification, advanced biofuels, ethanol, and hydrogen.

Electrification: This refers to replacing traditional vehicle fuels with electricity stored on-board. The electric grid currently produces a lower carbon output than diesel or gasoline, and carbon dioxide from electricity generation is expected to decrease over time with the growth in renewable sources.

Biodiesel: This is a direct replacement for diesel fuel which can be produced from domestic, renewable resources and blended at any level with petroleum diesel to create a biodiesel blend. Biodiesel blends are denoted as representing the percentage of biodiesel contained in the blend (ie: B20 is 20% biodiesel, 80% petroleum diesel). Biodiesel can be used in compression-ignition (diesel) engines with little or no modifications. Fuel-grade biodiesel must be produced to strict industry specifications (ASTM D6751) in order to insure proper performance. The town should

only promote biofuels with clear net global warming and energy benefits, such as biodiesel derived from waste vegetable oil. Other forms of biofuels, especially those derived from food crops, can have significant negative side effects on food prices and land use patterns, which can outweigh any global warming benefits.

Ethanol: This is a direct replacement for gasoline. However, vehicles must be modified to be "flex fuel ready" to accept ethanol blends greater than the 10% mix required by law.

Hydrogen: This is an energy carrier that can be produced using conventional or renewable sources. Hydrogen can be combusted directly, blended with other fuels, or provide energy in a fuel cell.

(2) Utilize only on-road grade ultra-low sulfur diesel fuel (max 15ppm sulfur) for all off-road diesel vehicles: The lower sulfur concentration reduces pollution and enables the installation of pollution controls. In addition, the town should require the use of this fuel for any third party construction equipment used to work on town projects.

(3) Vehicle fuel: Evaluate use of biodiesel for Town owned and contracted vehicles by September 1, 2009: The town should evaluate blends of B5, B10, B20, B50 and higher (number represents % of biofuel in the fuel). The town should only consider biofuels with clear overall climate and energy benefits, such as fuels derived from waste vegetable oil. In addition, the town should evaluate the potential location of biodiesel filling stations, compatibility with town vehicles, and cost estimates over next three years. The town should contact suppliers of biodiesel and options for opening stations in or near West Hartford. Also, the town should contact CT DOT for potential access to state-owned/operated gas stations that dispense biodiesel.

(4) Equipment fuel: Evaluate whether biodiesel or ethanol blends can be used in gasoline/diesel powered equipment (grass cutting, snow blowing, landscape equipment, etc) by September 1, 2009: The town should obtain pricing for delivery of biofuels to town facilities for storage and use in equipment.

(5) Identify types of equipment with potential for electric alternatives and analyze cost-effectiveness for electrification of that equipment.

C. Behavior

Policy Statement: Create culture of conservation to reduce pollution and increase fuel efficiency.

Where we are: Town vehicles serve two primary purposes: (1) for equipment in performing tasks (police, fire trucks, dump trucks, etc); and (2) for transportation. The town currently has anti-idling policies, but these policies are not consistent across town departments. In addition, some schools post DEP anti-idling signs.

Recommendations:

(1) Adopt CT Department of Environmental Protection (DEP) 3 minute anti-idling requirement for all town departments (excluding the police department which is requested to minimize wasteful vehicle usage).

(2) Post anti-idling signs provided by the CT DEP at all West Hartford schools and other appropriate buildings: In addition, send out educational materials to town employees and contractors regarding this policy. Encourage building users to report idling violations.

(3) Analyze vehicle use to identify opportunities to improve/lower fuel use: The evaluation should: document baseline use; evaluate whether there are opportunities to perform essential tasks/services using less vehicle fuel; evaluate uses of each vehicle used primarily for transportation to determine business necessity of such use; evaluate whether transportation vehicles could be shared (existing sharing increased) among users/uses, and eliminate less fuel efficient vehicles; evaluate which transportation needs can be addressed through alternatives to gasoline/diesel fueled vehicles, such as electric-powered vehicles, bicycles, walking; and evaluate opportunities for reducing vehicle miles for transportation such as carpooling to business meetings, pool cars so the most fuel efficient vehicle is used, conference calls in lieu of driving to meetings, electronic mail exchange, closer meeting locations, “milk runs” (deliveries by one vehicle making multiple stops which requires improved planning/transparency). In addition, the town should train a staff member in each department to evaluate fuel use

(4) Hold competitions among town units to reduce fuel consumption.

(5) Transparency: Post (weekly or monthly) data on fuel usage in each unit that uses the fleet: This will allow employees to see their actual fuel use and compare to other users. The increased awareness may promote fuel efficient use and increase ideas/opportunities for efficiencies.

(6) Evaluate opportunities to improve landscaping efficiency: This will reduce fuel use associated with landscaping, including opportunities to reduce need/frequency of irrigation, mowing, mulching and other maintenance tasks. To this end, the town can design and implement pilot/demo projects to evaluate reduction in vehicle fuel use and adequacy of end landscape results.

IV. Procurement and Purchasing

Policy Statement: Purchase products and institute practices that conserve energy and water, and reduce greenhouse gas emissions to minimize the town’s consumption of resources and costs over time and by doing so, be a leader in the state in creating a more energy efficient government and serve as a model to town residents.

Where we are: [INSERT]

Recommendations:

(1) Purchase energy saving appliances: Town departments must contact town facilities staff before purchasing any significant appliances using more than \$15 of electricity per month for assistance choosing an efficient model. Departments failing to report such appliances shall be responsible for all energy costs through their own budgets.

(2) Purchase energy from renewable or green sources in preference to fossil fuels: We recommend that when the town make energy purchases, it give preference to options that contain clean, renewable energy sources. By doing so, the town will help foster these nascent industries, which will, over time, increase savings potential for the town and other municipalities.

(3) Lease or purchase only the most fuel-efficient models available that are suitable for the task: In addition, the town can reduce the number of vehicles required to be purchased through car-sharing and car-pooling.

(4) Require that new and replacement equipment for lighting, heating, ventilation, refrigeration and air conditioning systems, water consuming fixtures and process equipment and all such components shall meet or exceed Federal Energy Management Program (FEMP) recommended levels, whenever practical. For example, recommend that all future purchases achieve U.S.EPA Energy Star standards.

(5) Give preference to third party contractors who utilize California Air Resources Board or EPA certified diesel emissions controls on their on and off road equipment.

(6) Require that all landscape renovations, construction and maintenance by the own, including workers and contractors providing landscaping services utilize sustainable landscape management techniques: For example, the town should select indigenous plants to reduce maintenance costs, including fuel and irrigation costs.

(7) Encourage vehicle and equipment fuels made from non-wood, plant-based contents such as vegetable oils whenever practicable. [briefly explain purpose]

V. Conclusion

A. Top recommendations.

[TBD]

B. Future Actions:

(1) Revise energy plan: Update plan yearly, report on progress from each department to town manager quarterly.

(2) Create resident-focused energy plan: Address opportunities for residents of WH to mirror the town's actions on energy.

VI. Appendix

A. Supporting info- green buildings \$, energy manger cost, etc

[To be included]

B. Success stories

[To be included]