

The State of Energy

UPDATES FROM THE STATE OF CT OFFICE OF POLICY AND MANAGEMENT (OPM) • ENERGY MANAGEMENT UNIT

July
2008

Food Vs. Fuel: What's the Debate?

As fossil fuel prices continue to skyrocket, more and more attention is being focused on alternative, indigenous sources of fuel to power the United States. Biofuels are one promising alternative to domestically meet a portion of our energy needs. "Biofuel" is a generic term that refers to fuel derived from biological raw materials. Wood chips, animal fat, algae, seed oil, corn and sugar are some examples of feed stocks that can be used to produce biofuel for various applications.

The term "biofuel" is often erroneously used in the food versus fuel debate. In the U.S. the debate applies narrowly to the use of corn as the primary feedstock for ethanol production. Some theorists argue that increased production of corn to make ethanol, a gasoline alternative, is already contributing to worldwide food shortages and escalating domestic food prices. Increased pressure from the ethanol market will exacerbate these conditions, they argue, potentially ensuring constrained supply and high prices for both food and fuel.

Cont'd page 2

What your \$4.00+ /Gallon Pays For

With gasoline at fueling stations across the state selling for over \$4 per gallon in June, prices in Connecticut continue to set record highs for yet another month. According to AAA and the Oil Price Information Service, Connecticut was among the top 4 highest average gasoline prices in the country in May and June.

So how does gasoline end up costing more than \$4 a gallon? According to the US Department of Energy's Energy Information

Administration, the price of gasoline is generally derived from 4 main components: the price of crude oil, which accounts for approximately 73%; federal and state taxes, which account for approximately 11%; refining costs which account for approximately 10%; and, distribution and marketing costs, which account for approximately 6%. The percentage costs for the last two components, refining (10%) and distribution/marketing costs (6%) can often vary widely.

Cont'd page 5

Power Grid Performs Well During June Heat Wave

ISO New England, the region's electric grid operator, reported that the New England bulk power system performed well during the heat wave that ended June 10th, when temperatures reached around 100 degrees in some areas. New England electricity consumers set a new record for the month of June on the 10th when demand peaked at 26,149 MW. The previous June record was 26,055 MW, set last year. In Connecticut, CONVEX, the Local Control Center, reported that Connecticut's electric use peaked at 7,020 MW at 4PM on June 10th. The all-time record use for New England was 28,130 MW on Aug. 2, 2006. On that day, Connecticut demand peaked at 7,367 MW.

ISO New England publishes a daily Morning Report that shows the projected peak demand for New England, available resources, capacity surplus, and other power system information for the current day. See www.iso-ne.com and click on "Morning Report". Additionally, ISO posts a Seven-day Forecast with similar information for the week ahead.

Check out the Connecticut Valley Electric Exchange "Convex" website for local power system information, including real time and forecasted electric demand for Connecticut. See www.cvx.com. Or visit www.ctenergyinfo.org for real-time Convex data and other electric consumer resources and information.

Learn more about peak electric use on page 6.



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DPUC Active Dockets Update

The following are energy-related dockets of interest at the Department of Public Utility Control:

CT Natural Gas (CNG) Billing Issues – in this docket (08-02-02), DPUC is investigating CNG for billing practices, in which it is alleged that CNG deliberately read customer meters inaccurately for several months, causing subsequent high bills for customers. Customers received unsatisfactory answers to complaints about billing problems. A final decision in this matter is expected shortly.

CT Energy Efficiency Partner Program – Docket 07-06-59 seeks input from the energy community and public at large in designing the CT Energy Efficiency Partner Program. The Department has established an EEP program that sets standard grants for those technologies considered EEP program-eligible project proposals and the criteria to become an efficiency partner. The Department reviewed three eligible technologies (gas-driven chillers, ice-based thermal storage and photoswitch/timing devices for area and street lighting) and recommended gas-driven chillers and ice-based thermal storage as candidates for EEP prescriptive incentives and standard criteria.

Review of CL&P and UI-Administered Electric Conservation and Load Management Plans – this docket (07-10-03) approves, with modifications, 2008 budgets and programs submitted in the joint Conservation and Load Management Plan by CL&P and UI. The DPUC approved a budget of \$136.7million (\$115.9mm for CL&P, \$20.8mm for UI) that includes overspending in 2007. On July 2nd, the Department re opened the docket for the limited purpose of examining ways in which the incentive structure of all conservation and load management programs can be modified. Specifically, the Department will examine ways in which the cost effectiveness of all conservation and load management programs can be improved to allow increased customer participation within current budgets. A hearing will be held at the DPUC on July 17th at 9AM.

“Peaking” Electric Generating Plants – Section 50 of Public Act 07-242 required the construction of certain electric “peaking” generating plants, which generally run on diesel fuel or natural gas and are uniquely equipped to start up quickly and provide energy on short notice, usually on hot summer days when air conditioning use spikes. After receiving eleven proposals totaling 1,800 MW of peaking capacity on new and existing facility sites, the Department approved a portfolio of peaking generators of approximately 678 megawatts comprised of 360 megawatts from a facility owned by Bridgeport Energy II to be located in Bridgeport, 188 megawatts from a facility owned by GenConn LLC to be located in Milford, and 130 megawatts from a facility owned by PSEG Power LLC to be located in New Haven.

Advanced Metering - Section 98 of Public Act 07-242 requires CL&P and UI to submit a Plan to the DPUC to deploy an advanced metering system that is capable of tracking hourly consumption to support innovative electric rates such as time-of-use or real-time pricing. The Plan must outline a schedule whereby advanced meters and the network to support the meters are deployed on or before January 1, 2009. Section 98 also requires CL&P, UI and all competitive electric suppliers and aggregators to offer advanced pricing options, including, but not limited to time-of-use and real-time rates. The DPUC has issued a final ruling regarding the Plan that was submitted by CL&P (docket 05-10-03RE01) and approved the Plan that was submitted by UI (docket 07-07-02) on March 19, 2008.

Food Vs. Fuel (cont'd)

But what has been the effect of increased production of corn based ethanol on food prices and food shortages worldwide? According to the Institute for Agriculture and Trade Policy, expanded U.S. corn based ethanol production will not likely result in increased global hunger because only a small amount of U.S. corn is exported to undernourished populations. A variety of factors contribute to the recent spike in food prices, making it difficult to isolate the impact of any one variable. Most notable are the continued drought in Australia that has cut the wheat harvest; rapid global economic growth in places such as China, India, and Latin America that has created demand for food and energy; and let's not forget the high cost of fossil fuels used in food production and transportation. However, work by the International Food Policy Research Institute suggests that about a quarter to a third of the recent increase in global commodity prices is due to the production of a variety of biofuels on a worldwide basis. And the Food and Agriculture Organization of the United Nations predicted in 2007 that, under the current mandates, biofuel production (ethanol and others) would increase food costs by 10 to 15 percent.

The economic debate is likely to continue, but from an energy perspective, biofuels have benefits. Biofuels can be made domestically, emit fewer greenhouse gas emissions than fossil fuels, and can be more efficient too. For every unit of fossil fuel energy used to produce corn based ethanol, the return is approximately 1.3 units of ethanol. And while the BTU equivalent for a gallon of ethanol is some 30% less than a gallon of gasoline, production of gasoline has an energy ratio of only .8, meaning it takes one gallon of fossil fuel energy to produce .8 gallons of gasoline. Biodiesel has an energy ratio of 3.2. When producing biodiesel from waste vegetable oil this ratio increases to 7.5.

Given current technology, the U.S. cannot produce enough biofuel to replace its fossil fuel demand. But we can nibble around the edges and reduce our dependence on foreign sources of energy. As biofuel technology advances and anticipated breakthroughs in cellulosic (plant biomass) ethanol production or utilization of algae to produce biodiesel become economically feasible, the diversion of food crops may be less of an issue. Government policy will need to be responsive to technological breakthroughs and mandates for certain biofuels will need to be re-explored as technological advances occur and causes of unintended consequences are determined.

For now, it is likely that biofuels will play an increasing role in our national energy policy. In fact, biofuel production incentives are a key issue in the up-coming presidential election - particularly in regard to corn-based ethanol. Senator Obama (D) has been a staunch supporter of incentives for producing corn for ethanol, arguing that the United States must develop sustainable domestically supplied energy sources in order to break our dependence on foreign countries. Senator McCain (R) believes that government incentives should be reduced to prevent the government from skewing the markets for various fuels. His proposal includes lifting tariffs on imported biofuels that may be more efficient, such as Brazilian grown sugar cane-based ethanol, which has a higher energy ratio than the corn based version.



crude oil

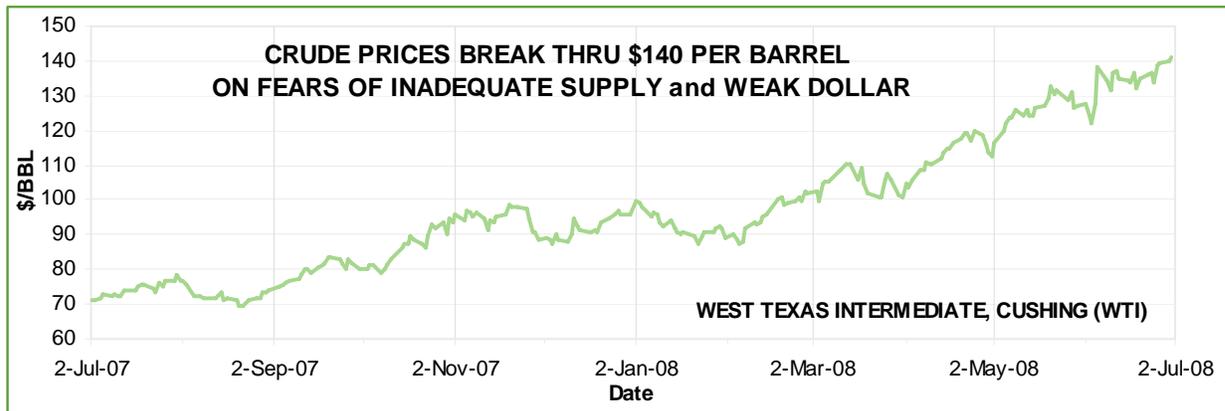


Crude Oil

Crude oil prices soared to new record highs on July 1st fueled by fears of inadequate supply, inflation, and a weak dollar. The crude oil spot price reached \$141.03, 98 percent higher than a year ago. The 12 month strip (the average of the next 12 monthly futures prices) reached a record high of \$142.18, 96 percent higher than last year.

did you know?

All crude oil is not the same. It is called "sweet" when it contains only a small amount of sulfur and "sour" if it contains a lot of sulfur.



natural gas

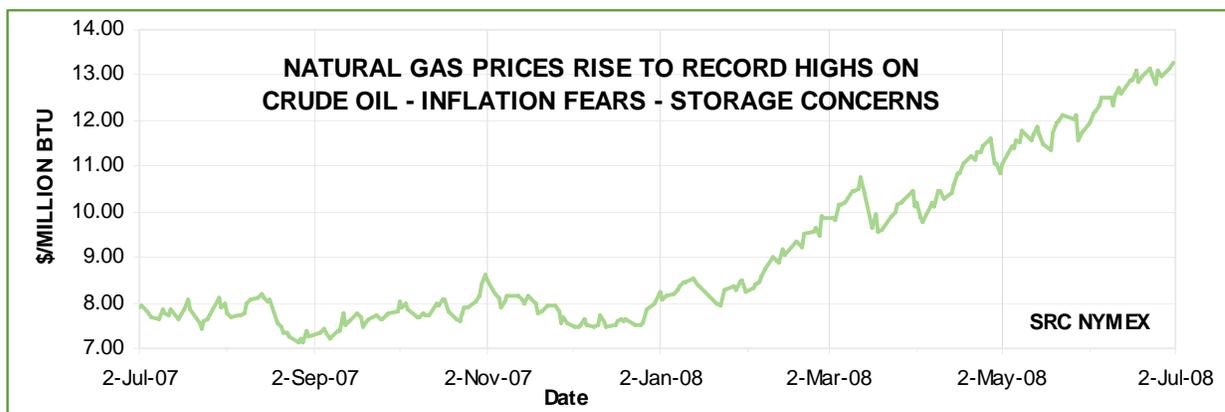


Natural Gas

Futures prices rose on July 1st as soaring crude oil prices, below average storage injections, and fears of inflation pushed natural gas prices to a new record high. The 12 month strip rose to \$13.260, 67 percent higher than last year. Inventories are 16 percent less than last year and 2.7 percent below the 5-year average. Storage injections have been hindered by a 51 percent decline in imports of liquefied natural gas.

did you know?

When natural gas is burned, it produces mostly carbon dioxide and water. These are the same substances emitted when people breathe.



heating oil



Heating Oil

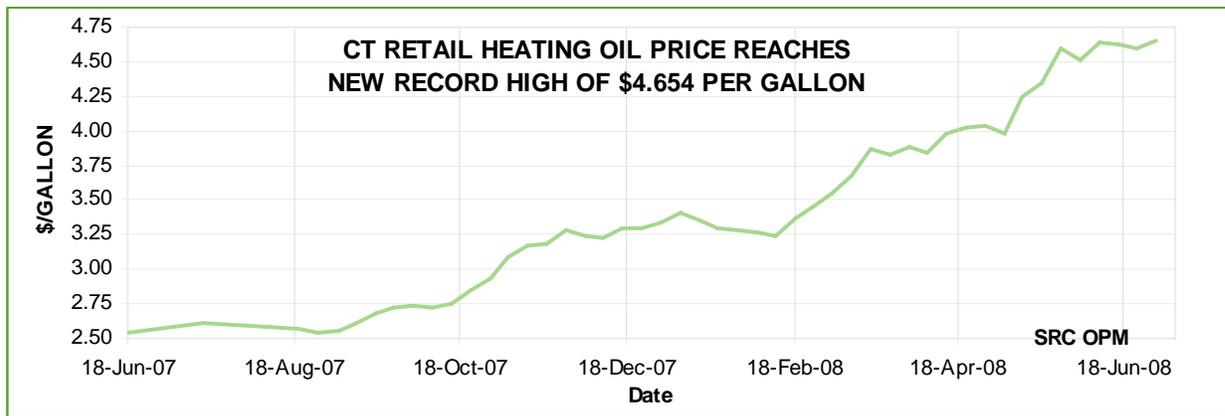
State retail heating oil prices have been rising dramatically since September. Soaring crude oil prices, cold weather, low inventories, and strong worldwide demand for distillates have been the main factors causing the high prices. Ten weeks ago prices reached \$4 per gallon for the first time and have exceeded \$4 per gallon in 10 of the past 11 weeks. Prices set a new record high in this week's survey, reaching an average price of \$4.654 per gallon, 84 percent higher than a year ago.

For more information you can click on the following link:

http://www.ct.gov/opm/cwp/view.asp?a=2994&Q=386258&opmNav=av_GID=1808&opmNav=

did you know?

Of the 107 million households in the United States, approximately 8.1 million use heating oil as their main heating fuel.



gasoline

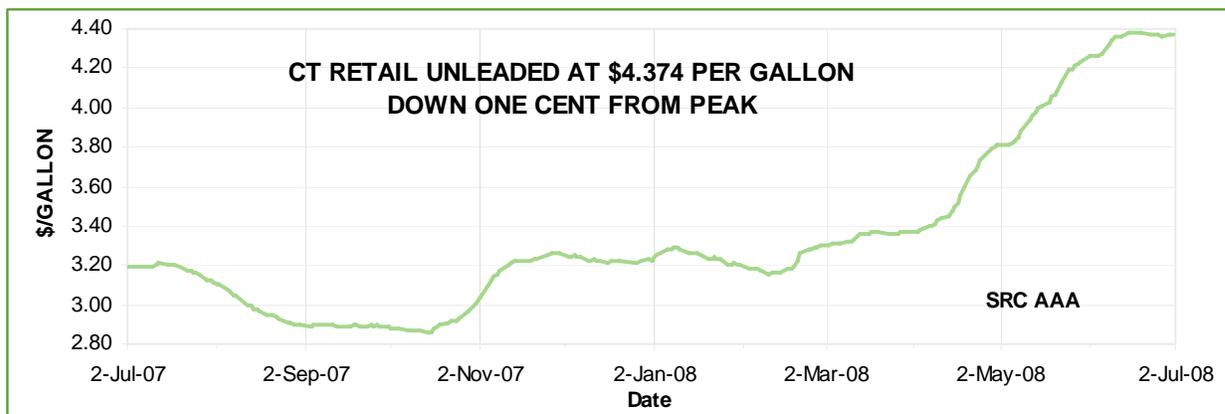


Gasoline

After hitting a record high of \$3.295 on June 1, 2007, Connecticut retail gasoline prices had declined to \$2.856 by mid October. Despite lower winter demand and above average inventory levels, soaring crude oil prices have since pushed prices to new record highs. Prices have soared above \$4 per gallon. At \$4.374, Connecticut retail gasoline prices are only 1 cent below their June 18th peak and are \$1.178 higher than a year ago, an increase of 37 percent.

did you know?

In China, sales of heavy-duty trucks have risen sixfold while car sales have risen eightfold since 2000.



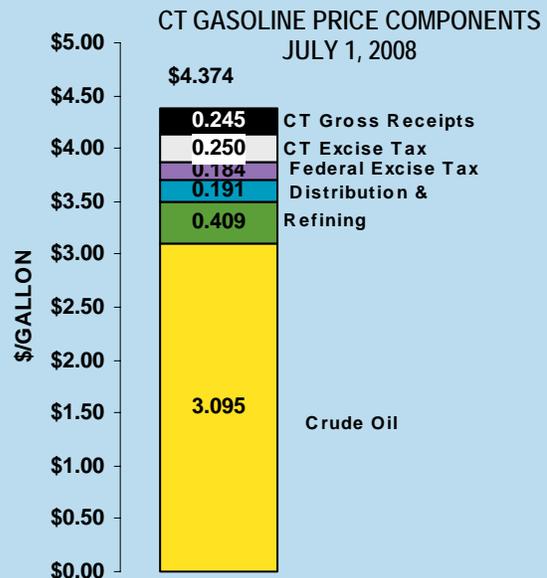
\$4/Gallon Gas (cont'd)

Crude oil's cost is by far the largest component of the price of a gallon of gasoline. Opinions often vary, though, on the reasons for the high price of crude oil. Some argue that the trend of higher oil prices is being driven by hedge fund managers' and commodity traders' speculating in an energy market that has very limited regulation. On a similar note, others argue that foreign and domestic investors are using commodities such as oil to hedge against a weakening US dollar and the threat of inflation. Others point to a growing global demand for oil from developing economies such as China and India. Still others argue that geopolitical turmoil in volatile oil producing nations such as Nigeria results in a political risk premium built into the price of oil. Arguments have also been made that high crude oil and gasoline prices are simply due to the greed of "Big Oil" as illustrated by such companies' record profits, concerns that future world oil supplies may not be able to keep up with demand, and the demand generated by drivers of gas-guzzling SUVs.

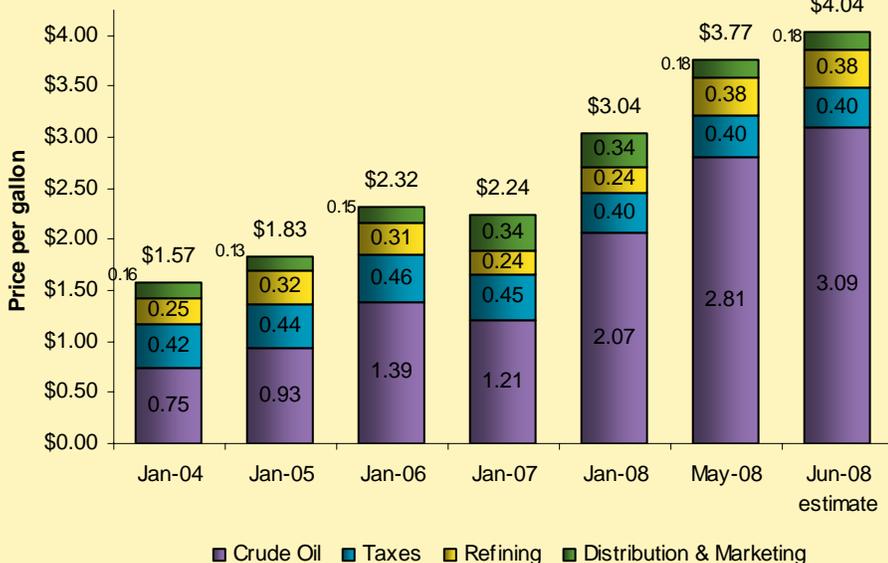
Federal and state taxes make up the second largest component of the price of a gallon of gasoline and are the easiest component cost to quantify. There is a \$0.184 per gallon federal excise tax on each gallon of gasoline sold across the US. Connecticut also levies an additional \$0.25 per gallon state excise tax on each gallon of gasoline sold, as well as an additional 7% petroleum company gross earnings tax, that is incorporated into the price per gallon and passed on to consumers. At recent petroleum price levels, the 7% gross earnings tax may add as much as an additional \$0.23 to the price per gallon. In an effort to provide some relief at the pump, the Connecticut legislature recently voted to cancel the scheduled increase in the gross earnings tax (to 7.5%) in the June Special Session.

Refining and distribution and marketing costs make up the last two components that determine the price of a gallon of gasoline. The cost of refining is measured by the difference between the spot price of gasoline and the price of crude oil purchased by refiners. These costs have remained relatively stable over the past several years.

As the chart below illustrates, the increasing price of crude oil is to blame for the recent spike in gasoline prices. While the costs associated with taxes, refining and distribution & marketing have remained fairly constant, the price crude oil is nearly four times what it was in 2004. Until that price begins to fall, we are unlikely to witness any substantial decrease in the cost of gasoline.



Rise in Crude Oil Prices is Driving the Price of a Gallon of Regular Gasoline in the U.S.



Money-Saving Gas Tips

- **Ditch the "Junk in the Trunk"** It costs money to lug around those golf clubs. An extra 100 pounds in the trunk cuts a typical car's fuel economy by up to 2%. You can save up to 12 gallons of gas per year – up to \$40 – by removing the extra stuff.
- **Decrease Your Speed** Speeding costs! Gas mileage usually decreases over 60 mph. Each five mph over 60 is like paying an additional 20 cents per gallon of gas.
- **Avoid idling** Idling gets 0 mpg. Cars with larger engines typically waste more gas idling than smaller engines.
- **Time to fill up?** Check out www.gasbuddy.com for daily gas prices in your area.

Peak Electric Use:

What it is & How it Costs You Money

Electricity cannot be stored. It must be produced as it is used. Therefore, the size or capacity of the State's power grid must grow to meet the highest point of customer demand. This point is called the "peak" and the peak may occur for only a few hours per year. New England's power system is summer peaking, meaning the highest electric use usually occurs on hot, humid summer days. Summertime peaks are driven largely by air conditioning use.

ISO New England projects Connecticut's peak demand to grow from 7,320 MW in 2007 to 8,475 MW in 2016. Higher peak use requires that expensive transmission lines and power plants be built to instantaneously make and carry enough power to meet each year's peak. If not, in extreme cases, the power grid may fail, causing blackouts, which are dangerous to the public's health and welfare, and damaging to the economy. Therefore, efforts by the public to reduce actual use below forecast levels can amount to real system-wide cost savings for consumers. In addition, individual demand reductions translate into immediate cost savings on individual consumers' bills.

High peaks in electric use are generally a sign of system inefficiency. This is because it is inefficient to build high cost generating plants that may only run a few hours per year. If consumers can learn to reduce their use of electricity at certain peak times, costs associated with building new generators and transmission lines can be avoided. These costs are borne by all of Connecticut's electric customers and, likewise, any costs avoided from not having to build new infrastructure will be shared by all customers.

While studies have shown that Connecticut's electric consumers are practicing conservation and efficiency most of the time, when hot peak days occur, conservation habits tend to stop. This results in a greater difference between average use and peak use, which drives up costs associated with reliable operation of the electric system.

So how do we keep the state's peak and our electric costs under control? There are simple things we can all do that don't require sacrifice. In fact, a great place to start is through simple awareness. For example, if a hot, humid day is anticipated and you are able, shift some of your electric intensive activities to another time of day. Doing laundry after 8PM on a hot summer day or shifting the use of pool pumps until evening hours will accomplish the goal. Since Connecticut's peak is driven largely by air conditioners, turning up the thermostat by a few degrees on a wide-scale basis could provide the relief the electric system needs.

Demand Response

Formed as a program to relieve strain on the electric grid on peak days, demand response allows large users of electricity to be compensated for deducing electricity demand at times when the reliability of the electric system is most vulnerable and when wholesale electricity prices are very high. Reducing use during periods of high demand alleviates strain on the electric system as a whole and, therefore, increases system reliability. Because electric users must be charged more when system demand is high to cover the increased cost of operating additional, usually less efficient power plants, users save when they opt to conserve during periods of exceptionally high demand.

Under ISO New England's Demand Response program, certain electric users agree to reduce their individual demand for electricity in exchange for monetary payments. By reducing demand from the power grid, the need for more electric transmission and distribution lines and power plants to meet peak power loads is reduced. This ability of Demand Response resources to reliably reduce the region's electric load has value to ISO New England. This value is returned to program participants in the form of payments through the ISO New England-administered Demand Response program.

The State of Connecticut participates in the Demand Response program. Forty-eight individual locations at eleven different Connecticut state agencies currently participate in the ISO New England-sponsored Demand Response program, generally by producing their own power with on-site emergency generators. When ISO New England observes demand rising, they may request that Demand Response participants voluntarily reduce their electric loads. When this occurs, State of Connecticut participants remove themselves completely from the electric grid and operate with emergency generators, producing over 23.5 megawatts of electricity. Because of this capability, the State receives nearly \$1.8 million annually. This money is used to further reduce electric consumption through implementing conservation and efficiency or renewable energy projects within state government. With this reinvestment of funds, future energy use and costs are reduced.

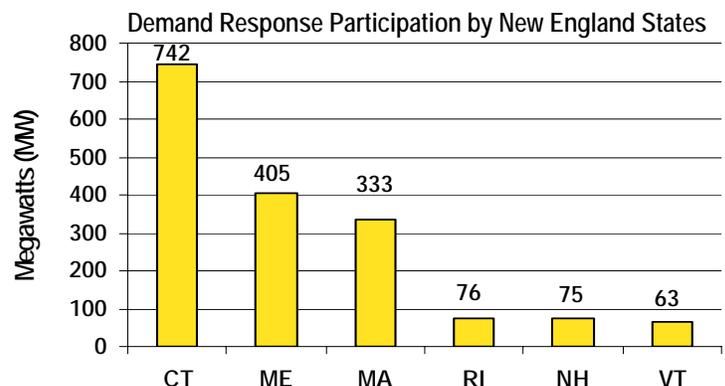
Statewide, Connecticut has been and continues to be a leader in Demand Response participation. Throughout Connecticut 1,379 assets are ready to respond in the ISO-New England programs. This representing more demand response capacity than any other state in New England. Half of these resources are located in the densely populated southwestern portion of the state where the power system is particularly constrained and power is difficult to move during periods of high demand.

Top 10 Demand Days

DATE	New England	Connecticut
Aug 2, 2006	28,130 MW	7,367 MW
Aug 1, 2006	27,467 MW	7,444 MW
Jul 18, 2006	27,329 MW	7,286 MW
Aug 3, 2006	27,118 MW	7,469 MW
Jul 27, 2005	26,885 MW	7,846 MW
Jul 19, 2005	26,736 MW	6,255 MW
Jul 17, 2006	26,721 MW	7,157 MW
Jun 10, 2008	26,149* MW	7,020 MW
Aug 3, 2007	26,145 MW	6,759 MW
Jun 27, 2007	26,055 MW	6,746 MW

* Preliminary data

Sources: ISO New England and Convex



Status Report

Regional Greenhouse Gas Initiative (RGGI)

The Connecticut Department of Environmental Protection's (DEP) RGGI draft regulations were heard and rejected without prejudice at the June 24 meeting of the Legislative Regulatory Review Committee (LRRC). LRRC's approval is the last procedural step before the regulation becomes law and the DEP can begin implementation. On July 1, the DEP resubmitted revised regulations addressing the LRRC's concerns. The LRRC will next meet on July 22 to reconsider the RGGI regulation.

RGGI is a CO₂ cap and trade program designed to stabilize and then reduce CO₂ emissions from large power plants. Public Act 07-242, section 93 required DEP to adopt regulations to implement the program in Connecticut, including the first-ever auction of carbon allowances in the U.S. The first regional auction is scheduled for September 10th of this year and the states of Connecticut, Massachusetts, Maryland, Vermont, Maine and Rhode Island have indicated their intent to participate.

For more information on RGGI, see www.rggi.org/index.htm

Green Building Regulation

OPM held a public hearing on its draft green buildings regulation on April 11th. Staff is currently reviewing comments and making revisions to the draft as necessary. Once revisions are completed, the regulation will be sent to the Attorney General for approval. At that time, parties commenting on the draft will receive the final regulation - at least 20 days prior to submittal to the LRRC. It is anticipated that the regulation will reach the LRRC by September 2nd.

The completed regulation will increase energy efficiency, reduce energy costs and improve indoor air quality for large, new buildings that receive state dollars.

regulations

happenings



Connecticut Energy Advisory Board (CEAB) Regular Meetings
July 11 and August 1 at 10:00AM
CERC, Brook Street, Rocky Hill
See www.ctenergy.org

Energy Conservation Management Board (ECMB) Regular Meetings
July 9 and August 13 at 1:00PM
DPUC 10 Franklin Square, New Britain
www.state.ct.us/dpuc/ecmb/index.html

Connecticut Clean Energy Fund (CCEF) Regular Meetings
July 28 at 12:00PM
200 Corporate Place 3rd Floor,
Rocky Hill
See www.ctinnovations.com

Governor's Steering Committee on Climate Change Quarterly Meeting
September 10 at 1:00PM
Russell Room, DEP 79 Elm Street,
Hartford
See www.ctclimatechange.com

Connecticut Siting Council
2008 Forecast Electric Loads and Resources Public Hearing
July 15, 2008 at 1:00 p.m., continuing at 7:00 p.m.
Ferguson Library Meeting Room, 115 Vine Road, Stamford,
See www.ct.gov/csc/cwp/view.asp?a=950&O=412046&PM=1 for materials

CFL Recycling at Home Depot



On June 24th the Home Depot launched a national CFL bulb recycling program in all of its 1,973 locations. Customers can now bring in any expired, unbroken CFL bulbs to store associates at the Returns desk. The bulbs will then be managed responsibly and the service is free.

For more information, see www.homedepot.com/ecoptions/stage/pdf/cfl_recycle.pdf

Coming This Fall

Look for the new and improved www.CTEnergyInfo.org website this fall. CT's energy information resource for residents and businesses will be re launched with even more information about programs and services to help you determine your energy future.



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