

MUNICIPAL ENERGY POLICY: ACTING LOCALLY TO ADVANCE RENEWABLE ENERGY

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ABSTRACT

A diverse coalition of stakeholders in Fort Collins, Colorado has passed a municipal resolution to address the sustainability of the local electric energy supply. In 2001, Platte River Power Authority, Fort Collins' generation and transmission supplier, was considering large investments in new coal-fired generation. Disappointed by the lack of consideration of renewable energy and concerned about the environmental impacts of coal, a group of citizens and community leaders met with key stakeholders to consider other options. In March 2003, an electric energy supply policy resolution was adopted by the City Council and funded in the 2004-2005 municipal budget. Resolution 2003-038 calls for a reduction in total per capita electricity demand of 10% by 2012; a reduction in per capita peak demand of 15% by 2012; and inclusion of 15% renewable energy in the total energy mix by 2017.

1. INTRODUCTION

Frustrated by a lack of leadership on renewable energy at the State and Federal levels, Fort Collins, Colorado has drafted and passed a municipal resolution to address local electric energy supply. Fort Collins has been a national leader in adopting renewable energy, building the first wind power plant in Colorado in 1998. The Medicine Bow wind farm now provides 12,400,000 kWh annually to residential, commercial, and government customers, or approximately 1% of all electricity used. In 2001, Platte River Power Authority (PRPA), Ft. Collins' generation and transmission supplier, was considering large investments in new coal-fired generation. Disappointed by the lack of consideration of renewable energy and concerned about the environmental impacts of coal, a group of citizens and community leaders

met with the Mayor, the PRPA General Manager, and the Fort Collins Utilities (FCU) General Manager to consider other options. As a result of these meetings, the City Manager directed the Fort Collins Electric Board, a board of seven citizen-experts appointed by the City Council to advise on matters pertaining to the electric supply, to develop a policy to guide the City Council and Utility in developing renewable energy resources.

The policy was to take an approach balanced between keeping rates competitive and electricity reliable while setting specific targets for incorporating renewable energy and demand side management (DSM) into the energy mix. Working closely with Utility Staff, the Electric Board studied the actions of other municipal utilities, heard from experts, and evaluated the unique requirements of our Utility structure.

Fort Collins Utility staff, the municipally-owned Platte River Power Authority, and the Fort Collins Electric Board are currently working out the details of an implementation plan to achieve the adopted targets. Aggressive DSM programs, modeled on efforts successful in other municipalities, will be launched in 2004. An interim target of 2% renewable energy will be achieved in 2004 by purchasing a bundled green power product from PRPA.

It has become clear in the course of moving this policy along that good communication is equally important as solving technical issues to a successful result. Throughout the paper I will include details of the interactions that occurred to provide insight into successful local action. I will also discuss plans to include solar energy in the renewable energy quota. The creation of local energy policy as was done in Fort Collins can be replicated elsewhere given the right mix of informed citizen

involvement, committed staff and community leaders, passion, thoughtfulness, and good communication.

2. BACKGROUND

2.1. And Then There Was Light (and Power)

As they would do many more times over the years, the citizens of Fort Collins first demonstrated their forethought with regard to power when they established their electric utility in 1935. To this day the citizens of Fort Collins place a high value on ownership of, and control over, their municipal utility. In 1973, Fort Collins joined with the neighboring cities Estes Park, Loveland, and Longmont to create Platte River Power Authority, a joint action agency charged with providing electric generation and transmission for the four cities.

PRPA, which is controlled by a board with two representatives from each city (the mayor and the utility's general manager), has made smart decisions with regard to long term power needs, from the perspective of cost. The first investment PRPA made was to build Rawhide, a coal-fired plant North of Fort Collins. The project was structured such that the excess capacity was sold to Public Service Company (PSCo, now Xcel Energy), the largest investor owned utility in Colorado. This arrangement has contributed to PRPA's ability to offer extremely low and stable electric rates. Over time, as the four cities grew into the capacity of Rawhide, the sales to PSCo were phased out. PRPA has also built three natural gas fired turbines to supply peak demand so that they rarely have to buy power on the spot market.

2.2. Demand Side Management

Proximity to the coal fields of Wyoming and generous allotments of cheap federal hydropower are primarily responsible for Fort Collins having some of the lowest electric rates in the U.S. On one hand, this is a deterrent to investment in energy efficiency and renewable energy, in that the cost differential between Fort Collins' rates and renewable energies is larger than in other locations. On the other hand, Fort Collins' low rates leave room to maneuver while staying competitive with other utility companies. Furthermore, while in real dollars the electric rates have declined by 75% since 1983, we can expect a steep increase in rates when the next baseload generation facility is built, as happened when Rawhide was built in 1979 (see figure 1). Rather than waiting idly for this to occur, the energy supply policy dictates that rates will instead be gradually increased. Revenue thus generated will be invested in energy efficiency and delay the need for a new baseload facility.

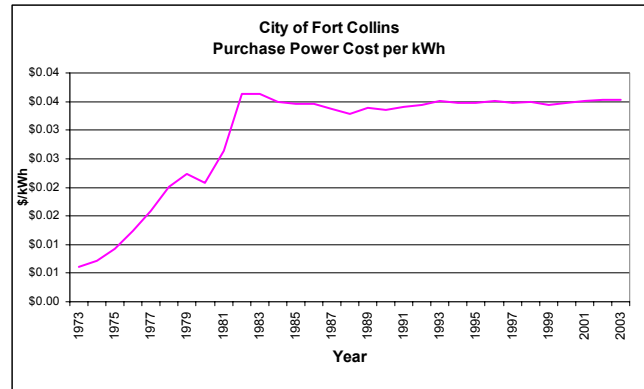


Fig. 1: Purchase power cost per kWh since 1973

In spite of a lack of economic incentive to conserve energy or invest in renewable energy, concern about global climate change, tempered by strategic long term thinking, has motivated key elements of the citizenry, the City government, and the FCU staff. These factors have been the driving forces behind progressive utility policies to address energy efficiency and renewable energy.

2.3. And Then There Was Wind

In 1992, a group of citizens and community leaders approached Fort Collins Utilities (then Light and Power) and requested they look into utility scale renewable energy, wind power being the cheapest option. Under the leadership of the Fort Collins Electric Board, FCU and PRPA were asked to investigate the cost and benefits of wind power. Initially the cost was considered high and there was much discussion on how to value the environmental and energy benefits. In addition, PRPA was reluctant to pursue a project without the approval of the other three owner cities and was resistant to this type of investment. As a result, the City of Fort Collins decided to finance the construction of the Medicine Bow Wind Farm with PRPA managing the project for them.

2.4. Green Power Purchase Program

To pay for the wind farm, Fort Collins established a green pricing program. By 1998, ratepayers were able to buy power from two 600-kW Vestas machines and a 65-kW Bonus. The initial premium for wind was 2 cents per kWh for a total cost of approximately 8.5 cents per kWh, cheaper than the average cost of electricity in the U.S. at the time. This was Colorado's first wind project and the second green pricing program in the nation, modeled after Traverse City, Michigan. Because of the program's success, the wind farm was later sold to PRPA and the program was expanded to Loveland, Estes Park, and Longmont who soon followed

suit with their own green power purchase programs. These programs proved so popular that another five 660 kW Vestas were added in 1999 and the system has since been expanded to a total of 10 turbines (one was for the City of Aspen) for a total current output capacity of 6 MW.



Fig. 2: Medicine Bow Wind Farm (courtesy Platte River Power Authority, 1999)

2.5. Climate Protection

Acting out of a conviction that reducing greenhouse gas emissions and increasing efficient use of energy could provide local benefits to citizens including better air quality, economic development, and reduction in spending on energy, the Fort Collins City Council, on July 1, 1997, passed Resolution 97-97, making Fort Collins one of more than 300 cities and counties around the world in the Cities for Climate Protection Campaign. In accordance with this commitment, the City’s Natural Resources Department issued an action plan in November, 1999 identifying specific ways to reduce local greenhouse emissions by 30% of the projected levels for 2010. These measures include expanding the wind program by adding a new turbine every two years; lobbying for a renewable portfolio standard; decreasing energy use in city facilities; and training for builders on energy efficient construction. The report also includes a Greenhouse Gas Audit which found that 44% of the City’s greenhouse gas emissions come from the generation of electricity (1).

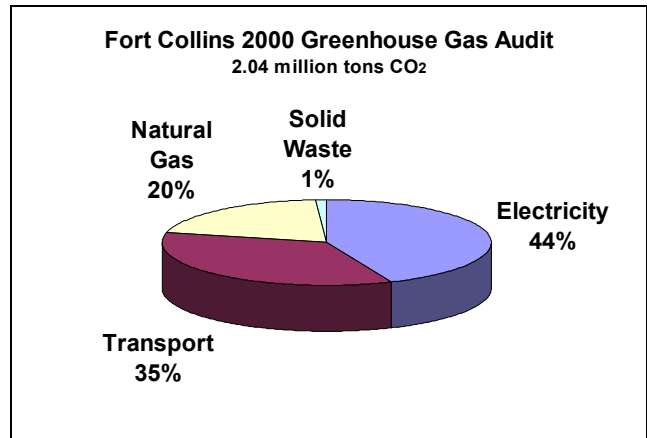


Fig. 3: Fort Collins 2000 greenhouse gas audit (1)

3. THE MARRIAGE OF DSM AND RE

Energy efficiency and renewable energy are a package deal. Amory Lovins of the Rocky Mountain Institute in Snowmass, Colorado coined the term “negawatts” to refer to energy requirements met by conservation rather than generation. The relatively high cost of renewable energy makes it imperative to reduce energy need before investing in renewable energy. Energy efficiency must be addressed, because it is the most cost-effective way to reduce greenhouse gas emissions and avoid investment in costly new fossil fuel energy sources: however, you can’t run your computer on negawatts. Ultimately, we need new renewable sources of energy. At present, negawatts are cost-competitive with utility power but renewable energy rarely is. When energy efficiency and renewable energy are bundled together in a policy or program, they are often cost-effective. It is extremely effective in policy-making to capitalize on this marriage.

4. EVOLUTION OF POLICY

4.1. Community Leadership

In August of 2001, PRPA was studying an investment in a large coal fired power plant to be built in Southeast Colorado. A large investment in such a plant (the cost of the project, including energy purchases, was over \$2 billion) would have committed PRPA customers to dependence on coal generated electricity for decades, just at a time when renewable energy is beginning to be competitive. Such an investment would make it almost impossible to consider renewable energy as a viable power supply option since Fort Collins would be obligated under their all requirements contract with PRPA to purchase this new coal power. Energy-aware Fort Collins citizens recognized this problem

and made a concerted appeal for an alternative electric supply policy (2).

4.2. Request for Policy

City elected officials and staff were receptive to the concerns raised by the citizens and concluded that the City needed an electric energy supply policy that would direct the course of the Utility for long term planning. In December, 2001, the City Manager asked the Electric Board to draft a policy that would address the adoption of renewable energy *and also* be balanced with respect to cost, reliability, and energy efficiency. The policy was to include specific targets for renewable energy to facilitate negotiations with PRPA. It is easier for PRPA to comply with a request for more renewable energy when it is backed by a policy.

4.3. Building Support for the Policy

The Electric Board began work on the policy in January of 2002. Utility staff was involved in the process at every step, providing research and feedback and offering suggestions. A planned market study was adapted to include questions that would inform policy makers on the desires of the ratepayers. This study showed that Fort Collins ratepayers are strongly opposed to the development of a new coal fired power plant; strongly favor development of renewable energy sources; and strongly favor increased conservation of energy. Significantly, of the 78% of respondents who favored using more renewable energy, 87% would support using more renewable energy even if it increased their electric bill (3).

The result was a policy that was presented to the City Council with the full support of the Electric Board and Utility staff and a strong indication that ratepayers would perceive the policy as meeting their needs. Backed by this broad support, the City Council passed resolution 2003-038 in March, 2003.

4.4. State of the Electric Supply

The policy drafting process began in February with FCU and PRPA presentations on the current state of the electric supply. Since 1983, rates had decreased by 75% in real dollars. Fort Collins rates are in the lowest quartile in the state – only five of the 51 utilities have lower rates. System reliability generally exceeds the goal of 99.990%, well above the national average.

4.4.1. State of Demand Side Management

There was an existing menu of energy efficiency programs. One of the most effective was a cutting edge design

assistance program initiated in 1998 that paid for extra design services to integrate energy efficiency into building design early in the process. This program has been extremely successful and resulted in several award winning buildings including the Harmony Library and Zach Elementary School.

Another successful program is the “New Home Choices” program. FCU Energy Services engineers had helped revise the residential energy code in 1996 and then conducted a benchmark study of design, construction, and performance for homes built between 1994 and 1999. When it became apparent that new homes were not meeting the code, consumer education and builder training were implemented to address the situation (4).

4.4.2. State of Wind Power

The City was purchasing the output of 6 wind turbines for a total of 10 million kWh per year for 875 customers. The Medicine Bow facility was constrained by overloaded transmission lines so, although there is room for 100 turbines at the site, there is currently no way to get the electricity to Fort Collins.

4.5. Policy Brainstorming

In March, FCU and the Electric Board participated in a brainstorming session to lay out what results were expected from the policy; what actions would be required to achieve those results; and what tools were available to achieve the actions. This was a crucial step in making sure that everyone’s ideas were heard and recorded. These ideas were later categorized and formed the basis of the goals that were proposed to Council.

4.6. Target Recommendations

FCU staff was asked to recommend policy targets for reduction in energy use and peak demand. A third energy services engineer was hired primarily to help evaluate options and create the DSM programs needed to fulfill the targets. Electric Board members and FCU staff researched the policies and programs of other municipal utilities for ideas and comparison. The policies and programs of Eugene, Oregon; Palo Alto and Santa Clara, California; and Seattle, Washington were examined in particular detail. The choices for funding the expanded DSM programs were identified as systems benefit charge, line item in budget, or environmental impact fee.

In August, 2002, FCU staff came back to the Electric Board with recommendations to reduce per capita electric consumption 10% by 2017, per capita peak day consumption by 15% by 2017, and increase renewable

energy sources to 10% of the supply by 2017. The Electric Board subsequently recommended the timeline for the energy efficiency goals be shortened by five years to 2012. When the policy was brought to City Council, the renewable energy target was increased from 10% to 15%. The timeline for the renewable energy target was purposefully left long to take advantage of expected shifts in the costs of renewable energy and fossil fuels.

4.7. Funding the policy

After considering the various options for funding, the Electric Board recommended adopting a percentage rate increase across all customer classes. This was felt to be the most equitable method of distributing the cost of implementing the policy. The DSM programs will also be designed to accommodate each rate class equally.

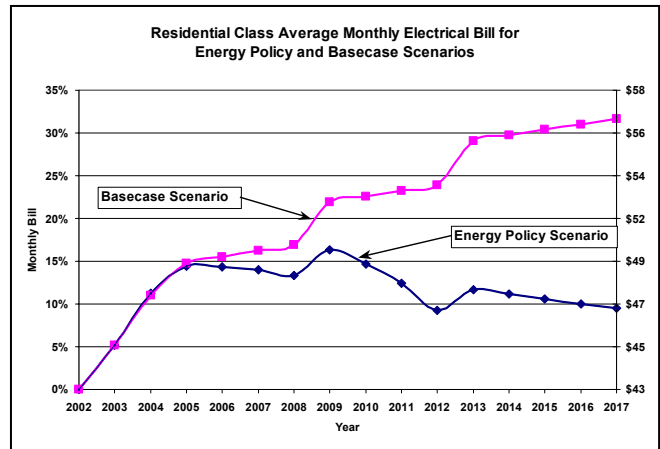


Fig. 6: Impact of energy supply policy on electric bill (5)

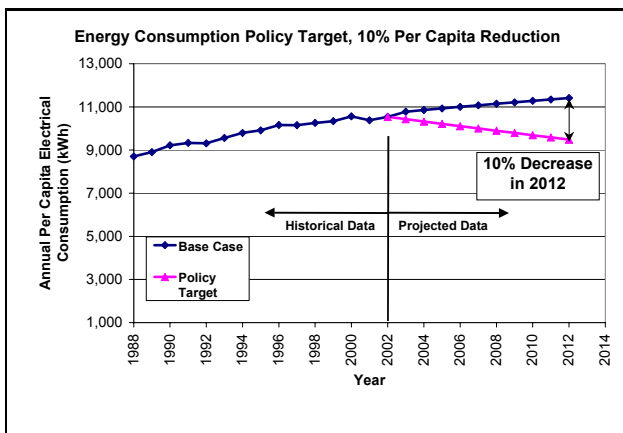


Fig. 4: Energy consumption policy target (5)

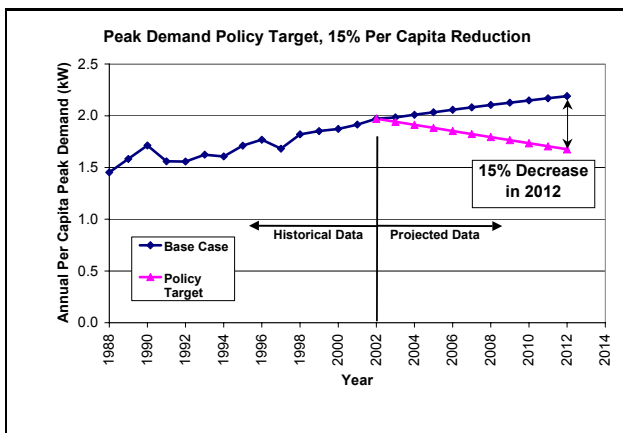


Fig. 5: Peak demand policy target (5)

5. WHERE'S THE SOLAR?

Fort Collins' electric energy supply policy includes a target of 15% renewable generation by the year 2017. Renewable energy is defined only as "new" and excluding existing large hydro. While solar certainly qualifies for the policy, there is no requirement to use any solar and economics will dictate that the policy objectives are fulfilled using wind power. The current plan, which is to fulfill an interim goal of 2% renewable generation by 2004, is to purchase a bundled green power product from PRPA, which consists of Renewable Energy Certificates (RECs) from the Pleasant Valley Wind Energy Facility near Evanston, Wyoming and regular delivered electricity. In the long term, it is recognized that the cost of various renewable options, in particular photovoltaics, will come down. For this reason it makes sense to begin with investment in wind and plan to phase in other renewable energy sources as they become more cost effective.

In the interim, however, it also makes sense to gain some experience with photovoltaics and help to expand its market and drive the cost down. Based on this rationale, the local Million Solar Roofs Partnership, SolarBound, will propose to the City a program to invest in photovoltaic demonstration projects on public buildings. The funding possibilities for a photovoltaic demonstration program are 1) to use a portion of the rate increase approved for the energy supply policy; 2) to create a solar-specific green pricing program which will allow ratepayers to contribute to a solar fund through their utility bill; and 3) private donations.

A recent report prepared for the National Renewable Energy Lab (6) documents solar initiatives that have been designed by local governments to "encourage residents, businesses, and developers to install renewable energy systems. These

initiatives include outreach and demonstration programs; solar access provisions in zoning and development guidelines, and top-of-the-stack permitting or other enticements for solar builders. In some cases, local governments have committed to using renewable energy resources for a portion of their own energy needs by participating in utility green pricing programs or issuing their own requests for service. A growing number of local governments are installing solar and other renewable energy projects on public buildings for their own use.”

The report includes an up-to-date summary of the innovative financing mechanisms used to fund solar programs in 8 cities and counties. These mechanisms include using savings from a rate decrease (Tucson, Arizona); issuing bonds that will be repaid with energy savings (San Francisco, California); imposing mitigation fees on customers with excessive electricity use in new homes (Aspen and Pitkin Counties in Colorado); voluntary customer contributions (Chelan County, Washington, Austin, Texas and Ashland, Oregon); and systems benefits charges which impose a fee on the utility bill to fund programs that are perceived to have non-customer specific benefits (Sacramento and Anaheim, California). The Solar Cities report is available for download from www.millionsolarroofs.org.

6. CONCLUSIONS

- a. A handful of dedicated citizens can make a big difference in local policy making.
- b. A majority of Fort Collins citizens accept that global climate change is a real problem and renewable energy (including DSM) is one of the solutions to it.
- c. Municipally owned utilities are much more responsive to community values than investor owned utilities (IOUs).
- d. Even when you have bargain basement electricity, you still can make use of renewable energy.
- e. Though green pricing is a good start, the only way that renewable energy will be a major player is under large scale mandatory programs such as renewable portfolio standards (RPS) and systems benefits charges (SBC).
- f. Citizens must keep a constant watch on their local utility where old patterns of thinking naturally can prevail. Enlightened policy comes from the ground up, not from the top down.
- g. Renewable energy is a unifying issue and has broad support among all sectors of the community.

7. ACKNOWLEDGEMENTS

I would like to acknowledge the citizens, electric board members, city officials, city council members, and utility staff whose dedication, open mindedness and foresight made Fort Collins a leader in energy policy, in particular visionaries Alan Apt and Jim Welch.

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