

Members Speak Up at Public Forum on Rate Design

Low energy users push back on changes to WEC's rates; all agree raising fixed charge is necessary

On Wednesday, September 19, more than a dozen WEC members came to a meeting at the Old Brick Church in East Montpelier to discuss the Co-op's changing rate design with staff and the Board of Directors. The Co-op plans to raise the monthly fixed rate from 13 to 25 dollars, lower the low-use block to 100 kilowatt hours (kWh), and lower the energy rate on both the low-use block and standard use.

In his welcome remarks, Board President Barry Bernstein polled the room. Most in attendance had been on WEC lines for 10 to 20 years or more; most held a positive opinion of the Co-op and liked that as consumer-owners of WEC's electricity, they had a voice and, as one gentleman put it, "the money stays in the room."

Rate design intent and bill examples

General Manager Patty Richards gave a presentation before opening the floor for questions. She wanted to emphasize that the rate design change is not a rate increase: "This change does not generate more revenue for Washington Electric

Co-op," she confirmed. "We collect the same amount of total dollars from all our members as we did under the old structure." Some members may pay more under the new rate structure, others will pay less, she said.

The driving reasons for the change, she said, are to combat climate change and to comply with Vermont's renewable energy standard, which mandates the state shift 90 percent of all forms of energy off fossil fuels by 2050. Since the laws went into effect, the state is looking to electric utilities to make systemic changes that get Vermonters using electricity instead of fossil fuels, she explained. "We have to do things outside of the electric sphere. They've tapped electric utilities on the shoulder to say, 'We regulate you, and now we're going to get you to do more' to cut emissions from transportation and home heating — which represents most of the state's emissions

Though mandated, these changes, she added, fit within WEC's environmental mission. The Co-op has embraced opportunities to help its members switch from fossil fuel

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Farmer Walter Jeffries stands in the doorway to his USDA butcher shop and future processing plant at Sugar Mountain Farm in West Topsham.

Engineered for Efficiency

Sugar Mountain Farm in West Topsham is designed to bring profitability to small-scale sustainable pig farming and processing

High on a hill in West Topsham is a USDA-inspected, energy efficient butcher shop and pork processing plant that features classical arches throughout the interior. The plant is on Sugar Mountain Farm, the work of inventor, entrepreneur, and farmer Walter Jeffries. Like a Renaissance engineer building an aqueduct or cathedral, Jeffries combines science and elegance to create a highly efficient and sustainable frame for the work of pig farming and pork processing.

Jeffries has been raising pastured pigs for 15 years and farming for 30. His herd numbers about 400 at any given time, and as demand grows, he's allowing it to increase a little. The farm is organic but not labeled

as such.

The butcher shop has been operating for about three years and took seven to build. This spring, after a few years operating with a state license, Jeffries applied for USDA inspection, which would allow the farm to ship out of state. The head of the northeast region's USDA food safety inspection service team, Dr. Paul Cole, came personally to inspect the plant, Jeffries said. "After the inspection he pulled me aside and told me that I should be really proud of this amazing facility that we had built. His words," Jeffries said. Sugar Mountain Farm passed with a 100 percent score.

Part of the reason for that is every

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Washington Electric Cooperative

East Montpelier, VT 05651

Inside

Businesses, municipalities, and other landowners can apply for EV charging station grants through the state's VW emissions settlement. More in the President and General Manager's interview, p. 3, or contact the Energy Coach: energycoach@wec.coop

Talking renewable landfill gas power: Visitors learned how waste becomes electricity at the joint open house held by WEC and Casella at the Coventry landfill. P. 4.

It's Co-op Month: Board member Stephen Knowlton muses on participation in the Co-op and in our community. P. 5.



FEMA is reimbursing WEC for 75 percent of the restoration and repair costs associated with the October 2017 windstorm that caused week-long outages and 22 broken poles — like this one. WEC is also receiving funds for future hazard mitigation. Story on p. 2.

Flickr: Stergas

FEMA Reimburses Co-op for October 30, 2017 Storm, Funds Future Hazard Mitigation

Almost a year after the late October storm that knocked out power throughout the Northeast and caused some WEC members to go seven days without electricity, the Federal Emergency Management Agency is reimbursing WEC nearly 372,000 dollars. That figure represents 75 percent of the Co-op's restoration and repair costs.

Of the four counties in WEC's service area, three were determined to be disaster areas. As a not-for-profit electric cooperative, WEC is eligible for FEMA funding when the damage that occurs is deemed a disaster by presidential declaration. For-profit utilities must absorb the cost of storm damage, often passing those costs along to ratepayers as a storm surcharge. "This is another example of the benefits of being part of a cooperative" noted General Manager

Patty Richards. "The financial help will go far to keep our rates in check. Without it, WEC would need to file for almost a 3 percent rate increase to cover the cost of restoration."

FEMA funding covers permanent repairs, emergency restoration, and debris removal. After the storm, WEC crews worked around the clock to remove and replace 22 broken poles and 259 spans of line conductors.

WEC is also receiving 140,000 dollars for a Hazard Mitigation Project to proactively reduce risk to people and property caused by future storms. According to Engineering & Operations Director Dan Weston, the focus for this project is the three-phase feeder line coming from the Moretown substation and serving Duxbury and Fayston.

The line was constructed in the 1960s, Weston said, and long spans

between poles increases the risk of outages when trees fall. Funding is spent on removing trees that have a high risk of falling on the lines, and installing 32 new poles to shorten the distance between conductors and

minimize the damage and duration of outages when trees or branches do fall on this rural line. According to FEMA, spending on these projects saves four dollars in future damage mitigation for each dollar invested.



WEC lineworkers and tree crews work on line damage on Hampshire Hill Road in Worcester after the October 2017 storm.

Co-op Currents

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WEC is part of the alliance working to advance and support the principles of cooperatives in Vermont.

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The Board of Directors' regularly scheduled meetings are on the last Wednesday of each month, in the evening. Members are welcome to attend. Members who wish to discuss a matter with the Board should contact the president through WEC's office. Meeting dates and times are subject to change. For information about times and/or agenda, or to receive a copy of the minutes of past meetings, contact Administrative Assistant Dawn Johnson, at 224-2332.

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Co-op Principles



1. Voluntary and Open Membership

— Cooperatives are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.

2. Democratic Member Control

— Cooperatives are democratic organizations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary cooperatives, members have equal voting rights (one member, one vote) and cooperatives at other levels are organized in a democratic manner.

3. Member Economic Participation

— Members contribute equitably to, and democratically control, the capital of their cooperative. At least part of that capital is usually the common property of the cooperative. They usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing the cooperative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the cooperative; and supporting other activities approved by the membership.

4. Autonomy and Independence

— Cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.

5. Education, Training and Information

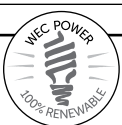
— Cooperatives provide education and training for their members, elected representatives, managers and employees so they can contribute effectively to the development of their cooperatives. They inform the general public — particularly young people and opinion leaders — about the nature and benefits of cooperation.

6. Cooperation among Cooperatives

— Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures.

7. Concern for Community

— While focusing on member needs, cooperatives work for the sustainable development of their communities through policies accepted by their members.



President's and General Manager's Message

"We Are Going To Continue To Lead On This"

Response to rate design meeting, FEMA funding comes in, Button Up incentives, EV charging station grants available from state

Thoughts after September's rate design meeting

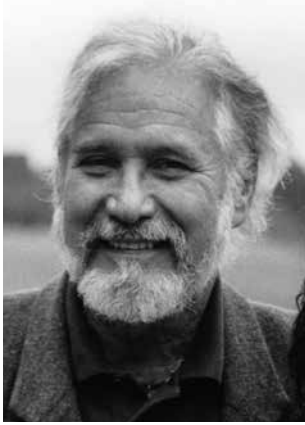
Barry: Patty and I want to thank the people who came out to talk about the rate design process. It's been a long endeavor for the board. Every person on the board is a Co-op consumer-member. We're a good mix of low users and higher users. We come from the business community, we come from varying lifestyles, and we've been debating how we meet all of these issues and mandates that we have to respond to: global warming, the state's goal of 90 percent renewables by 2050, and the new mandate that electric utilities work with their members to help move them off of fossil fuels. That's the context in which we've been talking about this for 18 months.

There are two points I want to make. The first is, we're not collecting more money through the new structure. We're collecting the same amount of money.

Patty: Right: it's not a rate increase. WEC collects the same amount, whether it's the old design or the new design.

Barry: The second is, we've been so successful with our message of conservation and efficiency over the last three decades that, as our members are using less, and more people are using net metering, we're selling less and less electricity. We need to pick up a greater percentage of our fixed costs up front. That will help to lessen our rate increase pressure, because we know we'll have that money for the poles and wires. Now we're collecting around 15 percent of what we need in the fixed costs on our bills in the monthly member charge; under the new structure, we'll collect 30 percent. It's just the nature of trying to keep a business going as you're trying to get people to use less. We've been able to promote conservation over the years because we're an electric cooperative, trying to help our consumer-members, instead of pushing growth to enrich stockholders.

Patty: That underscores that we're a not-for-profit. If we collect more



We've been so successful with our message of conservation and efficiency over the last three decades that we're selling less and less electricity. We need to pick up a greater percentage of our fixed costs up front. We've been able to promote conservation over the years because we're an electric cooperative, trying to help our consumer-members, instead of pushing growth to enrich stockholders.

– Barry Bernstein

than we need, we give it back in capital credit refunds. We're trying to find the fairest equation to keep the Co-op running and be a trusted energy partner for our membership.

I want to make sure our members understand why we're doing this. It's a new day for electricity. If a family switches to electric vehicles and electric home heating, they do away with fossil fuels and oil and gas bills, and by changing our rate design to accommodate that household's new electric energy needs, we can help that family have a lower total energy bill. And reduce emissions.

Also, we haven't abandoned valuing of energy efficiency. We still want people to conserve, and you can still save money by conserving. The 100 kWh block is still there, and the cost per kWh is lower than the present low block. We're not abandoning that premise and philosophy.

Barry: One thing Patty said at the meeting that I think is important is this change isn't going to happen immediately, but we have to set the stage for the change. I've spent the last five decades of my life investing in energy efficiency and trying to have the lowest carbon footprint I can. I'm down to 150 kWh a month, and I'm going to feel the financial impact of this on my electric bill, but I'm also thinking about all my energy use. I've got to consider the world is changing.

All of us on the board feel it sets us on the right direction. We're going to work with our members every way we can to try to find ways that we can help everybody make this change as economically as possible.

Patty: We need to go through the regulatory process to get approval. We'll follow up with the Public Utilities Commission in early 2019 and then it's a six to nine month process with them. The PUC must ensure the structure of the rate design is what's called "just and reasonable."

Barry: After the meetings, articles in *Co-op Currents*, and talking with many members, we're coming to the next part

of the process, which will be more formal and regulatory. We welcome that, too. By the time we have a new rate design in place, it will have been about three years of process.

Patty: This rate effort is comparable to building the foundation of a house. We need to get the base rates set first. We're also going to be coming in with different rate structures at a later date. This first step represents the core offering that most people will likely use, but we're going to consider time of use rates, perhaps low income rates, and peak rates. I call these next rate offerings "boutique rates" as typically smaller groups opt to use them. We'll try to be as creative as possible to reach people's needs. The first thing we have to do is get this base rate structure in place.

Barry: The bottom line is we, as an electric cooperative, as a member driven organization, are going to continue to lead on this. We're looking at our members' total energy bills. We're asking our members to continue to trust us that we're doing the right thing moving forward.

FEMA reimbursement for October 2017 storm

Patty: We're approaching one year after that awful storm on October 29-30, 2017. It hit all up and down the East Coast, and especially hard in New England and throughout Vermont. It was the first time the state outage map went all red, showing massive outages for every utility in the state. It was unprecedented. FEMA just reimbursed us 372,000 dollars for WEC's repair and replacement costs.

That's another thing: as a not-for-profit, we're eligible for FEMA, unlike the investor-owned utilities. And we got another 140,000 dollars for what's called hazard mitigation, to hedge against future storms.

Barry: My only comment is for those of us who've been on Co-op lines for a long time, we know how much better our reliability is than it was in the 70s, 80s, and 90s, when there was little money spent on right of way clearing. When the board changed the Co-op's direction, we didn't have to be told by



If a family switches to electric vehicles and electric home heating, they do away with fossil fuels and oil and gas bills, and by changing our rate design to accommodate that household's new electric energy needs, we can help that family have a lower total energy bill. And reduce emissions.

– Patty Richards

regulators or anybody else to put a lot more money into right of way and to make reliability our number one goal.

The article in last month's *Co-op Currents* about us investing a significant amount of money in the Northfield line shows that as a cooperative, reaching the biggest number of people isn't exactly our priority, because all of us are part of the Co-op. So we target an area if those members suffer more outages.

We have heard from members who were out of power for seven days after last year's storm. But as Patty pointed out, it was New England wide. When that event happened, this organization was 100 percent there for our members in restoring power and now we're doing all we can to lessen the impact the next time around. Everybody at WEC has done a great job about that.

Community Meeting in Groton, Oct. 25

Barry: The meeting is happening right after this issue goes to press. As members pointed out at the meeting we had on rate design and as I'm sure they will in Groton, these things don't happen at investor-owned utilities, that consumers are invited to meet with staff and board about issues like the rate design restructure long before they're filed with regulators. I'm so proud of being a Co-op member and so proud of Washington Electric.

Patty: Our members have a voice. If you want to use that voice, you can. Members call me, they call Barry, and they talk to other members of the Board.

Button Up incentives available

Patty: I want to remind people we have incentive dollars to give away to get people into electric vehicles and to put toward home heating systems. The weather's getting cold, so if you're thinking about weatherizing or buying a new appliance, call Bill Powell and he'll walk you through the incentives. We have money we'd really rather give to our members to buy efficient devices and vehicles than to turn over

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Feeling the Burn

WEC Shows Public Landfill Gas-Fired Plant at Coventry Landfill Open House

Once a year, WEC hosts a members' open house at its landfill gas energy plant at the Coventry Landfill; and once a year, the landfill's owner, Casella Waste Systems, hosts an open house of its own.

This year, the partners held a joint open house on Saturday, September 15. With a bouncy house and petting zoo, vendors and free food, the open house was presented as a family fun day with plenty to learn about Vermont's waste systems. Visitors hopped on school buses for a tour of the landfill, learning about what is and isn't recyclable, watching trucks dump trash, culminating with WEC's generation plant.

"It's a fact of life that we all produce waste. Casella's been very forward thinking in their management, like implementing single-stream recycling to separate waste and partnering with WEC to use the methane produced by decomposing landfill matter instead of flaring greenhouse gas into the atmosphere," said WEC General Manager Patty Richards. "It's considered a renewable source of power. If our power plant wasn't there, the gas would be wasted. Instead we use the gas to make electricity. We



Board officers were happy to be on babysitting duty during tours of WEC's landfill gas to electricity plant at Coventry Landfill. From left to right: Board President Barry Bernstein, Treasurer Don Douglas, Editorial Assistant Malcolm Titterton, Vice President Roger Fox. "This picture reminds me we're doing what we do for the next generation. We've got to try to fix what we can in this world for our kids," said General Manager Patty Richards.

appreciate that Casella is educating the public, and Co-op members, about how we work together to use this methane byproduct to power about 6,600 homes."

Member Services Supervisor Susan Golden and Administrative Assistant Dawn Johnson staffed a booth in the vendors' area, introducing attendees to the energy cooperative that draws two-thirds of its all-renewable portfolio from the plant at the landfill. Down at the generation plant, Dan Weston, Director

of Engineering & Operations, and Bill Powell, Director of Products & Services, greeted visitors, along with Board President Barry Bernstein, Vice President Roger Fox, and Treasurer Don Douglas.

Weston described for visitors how methane produced by decomposition is piped down into the plant, where each of five 2,250 horsepower combustion engines turn the gas into 1.6 megawatts of electricity. A highlight of the tour is WEC's new Siloxane Removal System, or SRS, which scrubs the gas of the slippery substance found in many modern cleansers. From the plant, electricity travels to Irasburg, to a high

voltage transmission substation owned by VELCO, bringing power to the Vermont grid.

David Shea, of Fairfax, missed his daughter's soccer game because he was so interested in taking the tour. "Just amazing," he said, after confirming with Weston that since the SRS was installed, the plant's huge engines go three times as long between oil changes.

"Maintenance costs went way down," added Weston.

Shea has been interested in power since he took a college class on energy and the environment in 1992, he said, that included tours of different power plants—including the now-defunct Vermont Yankee nuclear plant. That was before WEC's landfill gas plant was built. Saturday's tour was useful professionally, he added. Shea owns a demolition company, Complete Demolition Service, in Fairfax. "I can talk to customers about what the landfill does," he explained. "So now I can talk to them about turning trash into power as well."

Several enthusiastic kids, many sporting tiger whiskers from the



(inset) WEC's new Siloxane Removal System dramatically improves the performance of its five 1.6 megawatt engines.

Left: A truck dumps a load of trash into Casella's NEWS-VT landfill in Coventry.



face-painting booth, toured the plant. After snacking on doughnuts and cider while Weston described the plant's equipment and operation, attendees inserted heavy-duty earplugs and walked through a heavy door to see the giant, booming machines at work. A mother from Newport, who had just discovered the generation plant was there, said her young sons enjoyed their whole visit, from watching trucks dump trash to the demo on recyclables. The perk of WEC's plant? "Big machines," she said.


David Barlow of Coventry said he comes on Casella's tour every year to see what's new at the landfill. Though his power comes from Vermont Electric Co-op, he said, as a neighbor to the landfill he'd worked with Weston to run power lines through his property. He can hear the plant from his home, he said, but it doesn't stop him from supporting its purpose. WEC's good faith is important, like installing the SRS, and Weston's sympathy for his noise concerns. "The effort to

constantly make it better—I appreciate that," he said.

Anne Page is a WEC member who divides her time between Walden and Newport. Given that commute, "we drive by it all the time," she explained. "We saw it would be open and thought it would be interesting." She came on the tour with her husband Woodman Page—the first time either of them had visited the landfill or the generation plant.

Douglas was pleased with the turnout and with how the event took shape. "I'm thankful we could do this in conjunction with Casella," he said. "It's nice to share WEC's processes to source renewable power alongside our partners at the landfill."

For more on WEC's SRS system, see past articles in *Co-op Currents*: "Cure for the 'Siloxane' Problem," September 2016

"The Gas is Still Cooking in Coventry," January 2018 



WEC members Woodman and Anne Page outside WEC's landfill gas to electricity plant at Coventry Landfill.

Cooperative Community Service

This Co-op Month, a board member considers what makes WEC unique, and what it means to participate in a cooperative community

By Stephen Knowlton

Earlier this year, running for my second term on the board of Washington Electric Co-op, I reflected on what it means to be a member and customer of a cooperative utility. Admittedly, I hadn't given the idea that much attention when I first became a member. After all, once my wife and I decided where we were going to live about 18 years ago, we didn't have a choice about which electric utility provided our service. Nonetheless, I recall I was intrigued by WEC's encouragement of its members to be energy-efficient, and by its growing ability to supply renewably generated power to all its consumer-members.



My perception at the time was that WEC was doing a good job, and for several years I wanted to give something back to the community I live in. When I think about how energy policy impacts the way most of us live, a utility is where the rubber meets the road. My motivation to serve on the board is based mainly on helping our members adapt to the new energy world with its promise and pitfalls.

I learned something of Washington Electric's history after we became members; that eighty years ago no corporate utility provided electric power to our rural service area, because there wasn't enough profit to be made to justify the cost of running the lines to serve the sparsely-distributed population of what became WEC's territory. As in many rural areas of the country in that era, the local community banded together to create a utility to provide itself with electric power.

Here in the 21st century, this story may seem a little quaint in the re-telling. No longer a luxury, access to electricity at any time of day or night, wherever we are, is one of the givens of modern life. It doesn't seem that we pay much attention to electricity, which we take for granted regardless of whether it is provided by a public utility or by a profit-seeking group of investors.

As I considered this during my re-election bid, I recalled that as a new WEC member, I would read many of then-General Manager Avram Patt's reports in *Co-op Currents*. He would typically describe an important issue facing the Co-op, be it the sale of the Vermont Yankee nuclear power station or the Co-op's construction work plan. The depth and detail of these reports informed me about what is required to reliably provide electricity to a rural community such as ours. They also educated me on many of the larger issues dealing with the nature and cost of our power sources. I felt I was treated not just as a consumer of electricity, but as a responsible and potentially

responsive member of a cooperative community.


WEC continues to supply the same community that built the utility eight decades ago. This community is still rural, largely residential, and we are still spread out, which uniquely shapes the operation of the Co-op.

As such, WEC's territory presents challenges that a profit-motivated utility might still prefer to avoid. Because of our terrain, we probably cannot offer the lowest electric rates in the state while maintaining our standards of reliability and service. But as a Co-op member, I can be assured that whatever we pay on our bills goes directly toward the operating expenses of producing the power and sustaining the lines in the face of the challenges of time and Mother Nature. The Co-op is not tasked with making a profit for investors, because there are no profits – the revenue is used for operation, and all excess revenue is shared among the community served by the Co-op.

At the heart of being a member of a cooperative is that I am a member of a community, in the same way I can choose to be a part of the community I physically live in, and I can have a voice in that community if I choose. WEC's board of directors consists of fellow consumer-members. We are from the community, we experience the same problems as all other members, and we listen to our neighbors. While board members are concerned about the challenges of energy usage within the state and in the larger world, as you may also be, our first responsibility is to act on behalf of and to the benefit of the Co-op's members. This is not always straightforward, since almost any community consists of a diverse group of people of different backgrounds, interests, financial means, and often divergent opinions.

Nonetheless, the board attempts to proceed in the best interests of the ensemble of all WEC members, because that is the essence of being a cooperative. WEC has been an early adopter in supplying renewably-generated electricity for its members. We have been able to undertake and maintain this long-term approach because most of the Co-op's members have agreed that this is a major priority for them, and not because the state told us to do it. WEC remains a leader in the state in the provision of renewable electricity 24/7. Without the support of its members, WEC could not remain 100 percent renewable.

Ultimately, it is the right and responsibility of our members to shape the Co-op's policy to fit our unique needs. Serving on the board is one way to carry this out, though it is important to recognize that any member is encouraged to contact the Co-op's staff or board members for a dialogue about their concerns.

While the times and technology of publicly-provided services will continue to change, I expect that cooperative model will continue to be successful for us as long as we perceive that we are part of a community in which we can participate when we have the time and need to do so. 

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Sugar Mountain Farm

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element of Sugar Mountain's shop and plant is intentional. Efficiency is built in to every step, including the pigs themselves. "The cost of a pig is 30 percent for the pig itself, 30 percent for feed, 30 percent for processing, and the remaining 10 percent is overhead. That leaves no room for income," Jeffries explained. To make Sugar Mountain profitable, he said, he looked at the pig as an equation. Having his own breeding herd eliminated the need to buy pigs; pasturing pigs kept the cost of feed down. That left processing.

The farmer

But before we get to processing, let's get to know the farmer. Walter Jeffries is bright eyed and neat, with a crisp speech pattern and an ageless appearance: it's somewhat startling to learn he has adult children. He has a mind that can filter, sort, and retain seemingly endless details. This is a gift, and he's generous with it. His blog at sugarmtn.com shows both his exhaustive cataloging of Sugar Mountain's processes and his eagerness to share them with other farmers interested in doing what he's done.

Jeffries knew he wanted to farm when he was 15, he said. His uncle raised pastured Highland cattle and Jeffries dreamed of following suit. After studying science and engineering at Dartmouth (and every other class the college offered, he added), he decided to make money first and then buy a farm. "So," he said, "I invented some things in high tech."

He invented a type of dry heat transfer toner called BlackLightning, and out of that grew a manufacturing company based in Hartland, as well as a magazine (*Flash*) and books (*The Underground Guide to Laser Printers*, *A Flash Compendium*).

During his years manufacturing and



Walter Jeffries, inventor, entrepreneur, and farmer, in the butcher shop of Sugar Mountain Farm.

publishing, he said, he bought the land in West Topsham and started turning his attention toward farming. The economics of cattle farming dissuaded him from his childhood dream. He briefly considered farming mice for labs. Then he learned how to raise sheep and poultry from longtime West Topsham postmaster Russell Batten. But to make money raising sheep, he pointed out, "you need to do huge numbers. I didn't want to get that big. I wanted to have fun." Enter the pig: hardy, delicious, and useful from snout to tail.

The butcher shop and product

That brings us back to processing the pig—the final third of the pork profit equation. There are a lot of elements involved in processing an animal, which means when starting from scratch, there are a lot of opportunities to build in efficiencies. Jeffries noted that his three highest costs are labor,

energy, and maintenance. So, he said, he designed the plant to be energy efficient and easy to maintain.

Currently, just the butcher shop section of the plant is open for business, plus several carefully calibrated coolers holding processed pork ready for delivery. Jeffries is doing everything himself, with his sons' help: design, architecture, plumbing, wiring, concrete, doors. The only piece he isn't doing is septic. "Heating water and cooling meat are the two biggest energy costs. Next is heating and cooling the building itself," he said, so he designed the building to require no heat.

Then it was time to start building. A slaughter room is the most expensive part to build out, but cheapest to hire, he said, so he'll build the slaughter room last and currently sends his pigs to the slaughterhouse at Adams Farm in Athol, MA.

"At the other end of the scale,

butchery is by far the most expensive thing to hire out," he reasoned, but was less expensive to build. That's why he decided to build the butcher shop first. He trained as a butcher and discovered a side benefit to doing it himself: an increased yield of about 14 percent. "That 14 percent shows up in profit, not setup," he pointed out. It also allows him to give customers custom cuts, and to experiment with making new products: porchetta and sausages, including the top selling Farmhouse Sausage and Maple Breakfast Sausage. Sugar Mountain offers products seldom seen in market aisles: salt pork, whole slabs of bacon. Jeffries' custom orders include deboning a whole pig and stuffing it with sausage. Meat eaters who think they know pork eat Sugar Mountain products and rediscover how delicious and versatile top-quality pork can be.

The plant design

Beyond the butcher shop is the rest of the processing plant, still under construction. The building is six shells, each contained within the next, "like Russian dolls," Jeffries said. The arched ceilings in the shells are each representative of a different classical style. The well-insulated outermost shell weighs 1.6 million pounds. "That much weight doesn't fluctuate much, but tends toward mean" in temperature, Jeffries said. Instead of normal environmental temperature spikes, the building's temperature shows a shallow curve around 35 degrees. That first shell contains the future slaughter room.

Inside the second shell is a chiller room with a high ceiling for hanging and aging meat. There's a subtle temperature change even though there aren't doors between the shells. In summer "the inner room is cold even if it's 80 degrees outside. With no doors. I like to design things to be passive," said Jeffries. The coldest air, at the center of the plant, leaks outward to cool the rest of the building.

The third shell is the future cutting

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The exterior of the butcher shop and future pork processing plant on a snowy day. The outside, still surrounded by scaffolding, will be the last part of the plant completed.



Rate Design Meeting

continued from page 1

home heating and transportation to electric—what’s known as beneficial electrification. Because WEC’s portfolio is 100 percent renewable, Richards pointed out, cutting out combustion engines means “we can make a huge dent in our carbon footprint.”

The Co-op’s new rate design raises the fixed monthly member charge from 13 to 25 dollars per member. Individual infrastructure costs—each home or business’s transformer, pole, wire—are closer to 80 dollars a month per member, said Richards. The difference is made up through kWh sales. WEC is not suggesting a jump from 13 to 80 dollars in fixed charges, she said, but asked members questioning the hike in the monthly charge to keep in mind that members with bills lower than 80 dollars have a portion of their infrastructure costs subsidized by higher users.

Using a handout and slides that show different potential energy bills,

she described how the Co-op staff and board considered members’ total energy spending on gas, oil or propane, and electricity in the design. She showed how using cold climate heat pumps and an electric vehicle can bring a home’s total annual energy costs down from 6,000 to under 5,000 dollars under the new rate structure. “Yeah, your electric bill went up. But what’s happening is your home heating drops substantially. Same with your transportation costs for your car. The key is your total energy spending went down. You can, under this rate structure, save money,” she said. And, she said, incentive dollars available through WEC’s Button Up program help members offset the cost to purchase and replace appliances and vehicles.

Questions and comments

Bud Haas of Bradford asked if there was research to back up the savings scenario. “We have to take you on faith,” he pointed out. Richards noted that nationally, utilities are moving to

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Board members Jean Hamilton and Richard Rubin, both of Plainfield, listen to members’ comments during the Co-op’s meeting on September 19 to discuss its new rate design.



Stewart Clark of Worcester listens intently to another member’s comment during the Co-op’s meeting on September 19 to discuss its new rate design. Products & Services Director Bill Powell is in the background.

Sugar Mountain Farm

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room, and the fourth is the cave, where meats will cure. The fifth shell contains the brine room for hams and dry rubbed cuts. In rooms like this where salt is a concern, Jeffries built with spun basalt instead of metal rebar. The insulation gets thicker between each shell.

The sixth shell contains the supercooler, which will run at 27 degrees, and at the center, the freezer, which will be 45 below zero “and have a tornado inside,” Jeffries said, because fusion forms the smallest crystals in the freezing process. Once the freezer is cooled down, he said, if air is not exchanged, it will never lose its temperature.

Upstairs, an insulated attic acts to cool all the rooms below – “Think of it as an ice pack on top of the building,”

Jeffries said. A tower provides space for warm air downstairs to rise. And Jeffries plans to install lunar panels—his invention—on the roof: not to collect energy from the moon, but to reflect the building’s heat back to the night sky.

There’s a timeline to complete all of this, room by room. Jeffries expects to have the cold interior processing rooms finished within three years, the slaughter room finished within five years, the attic and exterior finished after that.

In the meantime, Jeffries has the attention of others interested in his small and efficient plant. “A lot of people said it’s impossible to build a USDA plant. They’re wrong,” he declared. Indeed, it’s possible to build a USDA plant that gets a perfect score on the first inspection. On this rural hill is perhaps the model of future agriculture and meat processing: small, innovative, and above all, efficient.

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Manager's and President's Report

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to the state in penalties because we didn't do enough to get our members weatherized.

Barry: There's also money available through Efficiency Vermont which couples with our incentives, and for folks of limited income, there are grants through the Community Action Fund that can help you tighten up your house. Our members up in the Northeast Kingdom can get an energy audit through December for 100 dollars through Heat Squad that will give them a road map of what they need to do and what will give them the

best investment for their dollars.

Patty: Call Bill Powell, the Energy Coach here, at 802-223-5245. He'll give you the details and will refer you to Heat Squad staff.

Volkswagen settlement leads to grants for charging stations

Patty: Through Vermont's share of Volkswagen's emissions settlement, grants are now available to build electric vehicle charging stations. The application is set up for municipal organizations and companies to apply




directly to the state. Rather than call WEC, apply directly to the state. Applications are due November 30 for the first round of grants.

Barry: Our members can talk to their municipals and encourage them to apply. If there's someplace you shop a lot, you can go in and talk to the business about applying. Building out the network of charging stations will make people less anxious about going to EVs if they know they can get a 15 minute charge while they're shopping or doing town business.

For more information:

Rate Design: "Members Speak Up at Public Forum on Rate Design," this issue; "Listening for Consensus," January 2018; "With New Rate Design Structure, WEC Looks to the Future," July 2018

Button Up: "What's My Incentive to Button Up in 2018?" July 2018; or contact Bill Powell, the Energy Coach: 802-224-2329, energycoach@wec.coop

Volkswagen settlement grants for EV charging stations: <https://accd.vermont.gov/community-development/funding-incentives/electric-vehicle-supply-equipment-evse-grant-program> 

Rate Design Meeting

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a higher monthly fixed charge and lowering the energy rates charged on the variable portion of use. Our neighbors in Montreal are also leading, she said: "They have very low energy rates, to the tune of eight or nine cents per kWh, and they're a whole lot more electrified than we are"—that is, Quebecois use more electricity for all their energy needs and less fossil fuel. Haas asked about the capital costs it takes to switch to electric. Richards assured him the Co-op isn't talking about changing over appliances and vehicles overnight, but rather when each appliance currently in use comes to the end of its natural life: "When it's time to replace your gasoline powered car, that is when we want you to consider buying an EV."

Lee Cattaneo of Orange said that his decision to net meter was based on the current rate structure, not the new one, and generally opposed a structure that favored higher energy use. "If you want to encourage solar, this is a discouragement," he said, of the new rates. "This is giving a break to the person who's using a lot of electricity."

That's because as rates are lowered, members who use more electricity will see lower electric bills compared to their bills today. As electricity becomes less expensive, WEC hopes that will prompt members to switch from fossil fuel engines to electric. "We want WEC's electricity to be the fuel of choice!" said Richards. But the concept of lowering bills for higher energy users was uncomfortable for many in the audience. Stewart Clark of Worcester put it this way: "I'm troubled by the switch in emphasis from conservation to 'let's use electricity.' I'm troubled because these rates are regressive."

Betsy Barstow of East Montpelier didn't want to see fellow members wasting energy, but wondered if it's possible to compromise, encouraging conservation and rewarding members who can prove their higher use comes from switching fossil fuel appliances to electric—for example, those who take advantage of WEC's Button Up incentives.

Bernstein agreed that conservation

is a core value of the Co-op, and said that the Co-op's kWh sales have been declining as members conserve and net meter. Richards added that the primary messages WEC heard from listening groups in 2017 was that a low block should be retained and that the fixed charge was too low.

Clark proposed expanding the low-use block to the first 300 kWh to encourage conservation. He said new electric appliances and vehicles were "more efficient, but not more effective than fossil engines. You need to structure for conservation and recognize that heat pumps and electric vehicles aren't the best solution for Vermont."

Richards, taking the long view, disagreed. Electric vehicles have a range of 200 miles or more now, she said, and the technology improves every year.

Board member Richard Rubin of Plainfield told the group, "The regressive nature of this bothers me the most," to nods of agreement. He continued, "But unless we get more revenue into the Co-op, we're in real trouble." He explained that if WEC can sell more kWh, rate increases will be lower over the next decade. In other words, high users, buying lots of kWh of renewable energy, contribute to keeping costs lower for all members. Or to flip the scenario, if all members were low users, it would create artificial scarcity, which would drive up rates.

Given the Co-op's need to sustain revenues, Barstow said she'd rather see the fixed rate raised higher than 25 dollars than to see higher electric use incentivized. Board member Mary Just Skinner put this to the audience: should WEC raise the fixed rate above 25 dollars? Clark considered this and said yes: "I wish there was a way to structure it to favor low users. I think it would be more acceptable to have a higher base."

Steven Farnham of Plainfield questioned if the cooperative structure was fair to low users, and Richards and board members suggested it was fairer in its participative nature, in contrast to for-profit utilities. Cattaneo said his real concern is that members who waste electricity will be rewarded with lower rates.

Board Vice President Roger Fox noted that the meeting was mainly populated with members able and willing to conserve electricity. "There's a sense in this room that people who use a lot of electricity are wasting it. I wish there were some farmers, or people with medical needs or large families here to talk about how they use electricity. I feel that perspective is part of the conversation that's missing," he mused.

Fox went on to wonder how rates could be redesigned—to accommodate low users, should the Co-op charge higher rates and offer a subsidy to low-income members? He admitted to

concerns about that idea, and Bernstein added, "We've struggled with this."


Garfield Barnes of Plainfield echoed Barstow's thought that there might be room for compromise in creating steps off the regressive nature of the design—incentivizing both moving off fossil fuels and conservation, and building a progressive structure for the highest users, who seem to demonstrate an ability to afford their energy use—"At 1,200 kWh a month, maybe they shouldn't get a break!" he offered.

Next steps

The meeting came to a close, and Richards and the Board of Directors thanked members for coming out and participating in the cooperative process. In return, members thanked WEC for holding the meeting and for the opportunity to speak up. Several members, including those opposed to the change, acknowledged they better understood why the Co-op is pursuing it.

After the meeting, Barstow explained that after 2017's Community Meeting in Worcester, she'd ruled out net metering, because she understood the Co-op invested in renewable energy sources on behalf of all its members, whether net metering or not. But she's reconsidering, she said, since as a low user, her bill would go up under the new structure. "Maybe I do need to bring my family down to the 100 kWh level and conserve," she said, and use a solar installation to supply her family's electricity needs over the low-use block. "I appreciate the Co-op and this meeting," she added. "There's no easy solution, that's for sure."

Later, Richards confirmed that in developing the new rate structure, the board and staff relied on the feedback from listening groups, because that was a representative sample of members—inclusive of low, medium, and high users; owners and renters; low and high incomes, and other measures of diversity.

Richards said the next step is to work with state regulators to propose a new pricing plan. The earliest the new design could take place is late 2019. "We have a lot of work to do" before the rate design can go into effect, she said. 

Save Big on Electric Vehicles

WEC members are eligible for \$5,000 off MSRP for the all-electric 2018 Nissan Leaf, with a range of 151 miles.

Plus, income-eligible WEC members receive extra incentives toward electric vehicles and plug-in electric hybrids through the Button Up program.



Visit washingtonelectric.coop or contact energycoach@wec.coop to learn more.

