

VERMONT

ELECTRIC



CEO Update: Innovation on the Landscape

By Rebecca Towne

I spent a recent Friday morning watching the installation of a state-of-the-art utility-scale battery, tucked away on a hillside in Hinesburg.

The technology is subtle - enclosed in unremarkable cement storage facilities that look like tractor trailer boxes without the wheels. The wiring is underground, the fencing is partially hidden by shrubbery, and when it is fully installed and locked up there will not be a lot to see. However, despite the understated appearance of this new installation, that morning I experienced a key part of the energy transformation that is now thoroughly underway, with storage being an important strategy for managing an affordable, reliable grid.

This one megawatt battery is VEC's first utility-scale storage project and is scheduled to come online in early August. The primary purpose of this battery is to help VEC manage costs by reducing

peak loads. The battery will also reduce regional carbon emissions because during peak times the grid relies on fossil-fuel powered generators across New England. Perhaps most importantly, this project will allow us to learn about how to effectively manage storage capacity and plan for future battery installations that will continue to drive down costs as well as carbon emissions.

Soon VEC will be able to call on the battery to dispatch energy when high regional electric load strains the grid. With this battery, we can reduce load by one megawatt for up to four hours. That is about one percent of VEC's total system peak - the maximum amount all our members use at any one hour. And while that may not sound like much, it could save VEC up to \$100,000 per year.

This storage project not only uses innovative technology and systems, it also employs an innovative partnership structure. Viridity Energy, a Philadelphia-based energy technology company, will own and operate the storage system under an

agreement with VEC. WEG Electric Corp is responsible for project and technical design, permitting, construction, battery supply and installation, and on-going management. In addition to supplying energy at peak times, Viridity will use the system to help control the voltage and frequency of the region's power grid, balancing the supply and consumption of electricity.

That Friday morning also reminded me of the incredible number of details and complicated logistics of putting together a project like this - from the complex electrical design to the challenge of recycling the packaging from over 600 lithium battery units that make up the installation. It takes persistence, creativity, collaboration and attention to so many details that all need to come together at the right time. This type of project management is a great example of the kind of work that VEC will continue to do as we seek opportunities for innovative and cost-saving technology just like this one.

Constantly Adapting and Improving

Battery Storage, Hostile Weather, Rates and EVs Hot Topics at 81st Annual Meeting

The first American telephone was patented in 1876, and in the early years, as it made its way from urban to rural settings with only a rudimentary infrastructure to support it, dials weren't needed. You'd pick up the receiver, tap on the cradle, and an operator's voice would ask, "Number please?" Or perhaps she would simply ask who you wanted to call.

This past spring, George Lague, a member of VEC's Board of Directors from Derby, brought one of those clunky, flat-black telephones of yesteryear with him to VEC's 81st Annual Meeting of the Members, held on Saturday, May 11, 2019 at Jay Peak Resort. He had brought it to make a point.



Changing telephone technology was likened to transformation of the energy system at VEC's 2019 Annual Meeting. Photo: VEC/Kevin Goddard

Standing in for outgoing board president Dan Carswell, Lague held up the relic for the 272 co-op members and guests to see, and then in his other hand raised an iPhone, just a fraction of its size but with infinitely more capabilities. "I've had it about a month," he said, and to friendly laughter he noted that despite his degree in electrical engineering the slick new smartphone largely remained a mystery to him.

What was clear, however, was that the two phones dramatized the enormous changes in technology that have transformed our lifestyles in so many ways, which very much includes the electric utility industry. It was a theme at the heart of the 2019 Annual Meeting, not just because of the changes co-op members have already experienced but because dramatic changes will continue to unfold. "But the goal is the same as ever," said Lague. "Keeping the lights on and providing safe, reliable electric power."

These days utilities are part of a more complex electric infrastructure, but also a more efficient one.

"Think back," Lague continued. "When the lights went off they were off for a long time. Now (with 'smart' technology in the control center in Johnson) VEC knows about the outage, sees the problem, and dispatches crews quickly. In the old days poles were planted by hand. Now there's machinery for

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A Two-Way Street

Panel Members Discuss How Electric Vehicles and Vermonters are Learning to Live Together

With the doors closed, the hoods down, and the trunks shut, electric vehicles (EVs) look like any other car on the road. Many people may have walked right past the small row of Nissan Leafs, Chevy Bolts, and other models parked in front of the entrance to Jay Peak's conference center, where Vermont Electric Cooperative held its 81st Annual Meeting of the Members on Saturday morning, May 11, 2019, without even noticing them.

Others, however, stopped, looked them over, and asked questions. The owners and company representatives who had brought them were happy to open those doors and hoods to reveal, for example, where the battery packs are stored, how many batteries the different vehicles carry, how they are connected to the electric motor, where that motor is - and for hybrids, which have both electric motors and internal combustion engines, how those are situated - and what effect all this stuff has on the room remaining for passengers and cargo.

The cars were there because the featured event at this year's annual meeting was a panel

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VEC Kicks off Co-op Connection Events in Newport

VEC's Chief Executive Officer Rebecca Towne got to know about 25 VEC members – and took a range of good questions – at a recent Co-op Connection morning event at the Eastside Restaurant in Newport on July 10th.

The event, which included a continental breakfast and panoramic views of Lake Memphremagog, was the first of several VEC Co-op Connection informal meetings Towne was holding around VEC territory through August 1st to hear from members.

Members asked about a variety of topics, such as the effectiveness of the Co-op Community Solar Program; the affordability and accessibility of electric vehicles; measuring the success of VEC's Beat the Peak load reduction program; and about how to keep electric costs down.

"My favorite part of the event was hearing the excellent questions from our members," said Towne. "They see the challenges and opportunities of the changing energy world and want to understand what VEC is doing and how they can do their part."



VEC CEO Rebecca Towne chats with a member at the first Co-op Connection event in Newport. Photo: VEC/Adriana Eldred

VEC Community Fund Issues New Round of Grants

A range of non-profits that support downtown and community revitalization, energy education, and public safety received grants this spring from VEC's Community Fund.

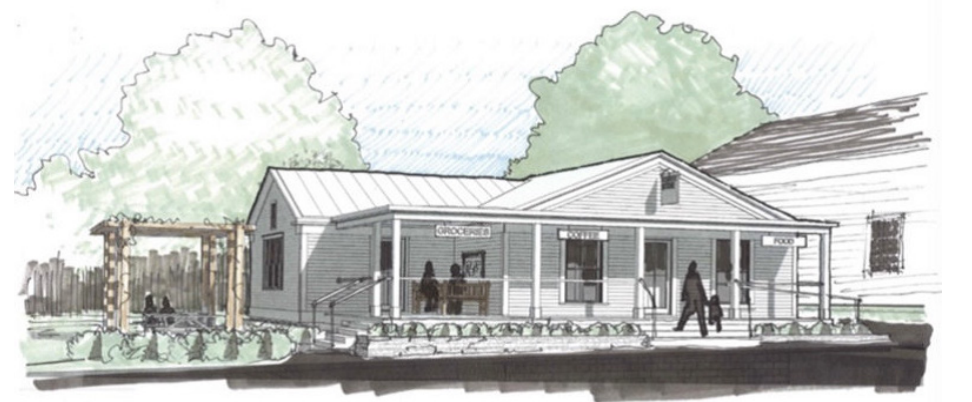
The Community Fund is a program voluntarily funded by VEC members who round up their electric bills, and from one-time donations, and donation of patronage capital dollars. The fund makes grants to local organizations that support economic security, energy education, emergency and disaster relief, and community development.

"VEC is a community-focused organization and we are proud of our ability to support – through purely voluntary contributions from our members – non-profit organizations in our territory," said Jake Brown, energy services planner for VEC. "The VEC Community Fund is a simple and effective way VEC members can support other members."

Here are the projects that the Community Fund supported this quarter:

The rebuilding of the Albany General Store. Nearly six years after a devastating fire put the Albany General Store out of commission, the community has rallied to get it up and running before the end of the year. The loss of the store left a big gap in the small community and it's hoped that the renovations will not only re-establish a place for residents to buy food and other items, but also be a place to gather.

Communications improvements for the Alburgh Volunteer Fire Department. The Community Fund supported the purchase of cellular boosters for the department's two ambulances, a move designed to compensate for patchy cell



An initiative to rebuild the Albany General Store, as depicted here, is one project recently supported by VEC's Community Fund.

Image: Larry Bohan

service in the area. With the boosters, first responders will be able to transmit important patient information to hospitals faster.

Boosting energy education. A new science curriculum involving hydropower, designed by the Vermont Energy Education Program (VEEP), will be offered this fall to Vermont students. The new science curriculum will help students understand how hydropower generators function while also exposing them to renewable energy career opportunities.

Community and economic development in the Northeast Kingdom. The NEK Annual Summit, organized by the Northeast Kingdom Collaborative, will be held for the first time in the fall of 2019 with a focus on leadership and a specific goal of encouraging individuals from underrepresented groups to step into leadership roles in their communities.

Applications for the Community Fund are on a rolling basis, and grants are issued quarterly. If you know an organization that could benefit from the support of the Community Fund, or you want to support the fund, you can learn more here: www.vermontelectric.coop/community-fund.



VEC Boosting Compost Program

Black Dirt Farm of Greensboro Bend is helping VEC boost our in-office composting program. The farm's taking VEC food scraps to create compost to help grow more fresh and nutritious food right here in northern Vermont. We're proud to be helping "close the loop!" Doni Hoffman of Black Dirt (far left) came by this spring to give us a refresher on what goes in the compost and what doesn't. Thanks to Jim Rose (at right) and the entire VEC Environmental Team for leading this effort.

Summer Safety Reminders

By John F. Varney

Many of us are likely knee-deep in outdoor summer projects, but it's always a good idea to pause and remember safety basics. In all work, including outdoor work, take things slowly, think through your process, and keep focused.

Here are a few tips for specific tasks you may be undertaking this summer:

- Digging? Call first. When digging (i.e. for tree planting, fence installation, digging any sort of trench) call DigSafe (Call 811) beforehand and make absolutely sure there are no underground service lines in the area.
- Use caution cutting trees. Before cutting trees, evaluate what could happen if a tree or branch falls in an unintentional direction. Call VEC for trees that could come down on lines.
- Be aware of electric lines. Ensure that all overhead outdoor work, like roof work, house painting or repair is done at least 15 feet from any service lines. When clearing vines, shrubs, or brush near your home, take care not to cut or come into contact with electrical lines that could be concealed in the vegetation.
- Clear the lawn before mowing. Before starting your lawn mower, inspect the lawn for foreign objects like stones, sticks, children's or pet toys, and remove them before starting to mow. It's often easier and safer to move lawn furniture, grills, hoses, and other larger objects off the lawn before

starting to mow so you don't have to work around these objects, which can be awkward and risky.

- Take care with ladders. Before raising or extending any kind of ladder (metal pole, or other equipment) capable of reaching a power line, check in all directions for power lines. Keep ladders at least 15 feet away from lines.
 - Set the base of the ladder on a solid base and at the correct 4-1 ratio angle (for every four rungs, place the ladder back one foot)
 - Extend the top of the ladder at least 3 feet above the landing
 - If possible, screw a 2x4 cleat into the ground behind the ladder to prevent it from slipping
 - Tie off the ladder at the top to prevent it slipping sideways
 - When descending and ascending the ladder, always maintain at least three points of contact on the ladder, (i.e. two hands, one foot, or two feet, one hand)

Enjoy summer - and stay safe.

John F. Varney is Manager of Safety and Security at Vermont Electric Co-op.



Co-op Community Solar Continues to Deliver



Launched in 2016, VEC's Co-op Community Solar is a sponsorship program that allows members who may not have the ability to install or maintain solar panels at their own residences to help put clean electricity onto the local grid. Participants can sponsor solar panels in solar arrays in Grand Isle, Alburgh, and Hinesburg, for a term of either 10 or 20 years, and then receive a bill credit every month.

VEC member Susan Sonski of Bakersfield is not new to solar energy – she's already got some panels on her property at home. But she got involved in VEC's program because she wanted to increase her

solar generation, but preferred not have to maintain more equipment at home.

"One of the benefits of this program is that it's flexible – if you don't have a good location on your property for panels, or you rent your home, you can still participate," said Jake Brown, VEC energy services planner. He noted that there is a wide range of participation levels available, so members can pick what works for them.

For instance, sponsoring one panel for ten years costs \$234 upfront, and the total bill credits after 10 years add up to \$326.40 for a savings of \$91.65.

Sponsoring 20 panels for 20 years costs \$8,250.80

upfront, and the total bill credits after 20 years add up to \$14,976 for a savings of \$6,725.20.

Sonski advises people considering the program to weigh their options carefully, but that in the end, Co-op Community Solar is a great choice. "I can see how getting the money ahead of time first might be difficult for people," says Sonski, referring to the upfront payment, "but in the end, you are getting that money back, and more."

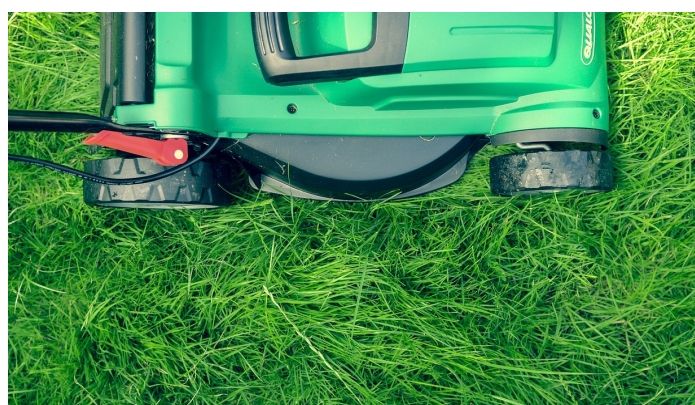
For more information, please call 1-800-832-2667, email support@vermontelectric.coop, or visit www.vermontelectric.coop/community-solar.

VEC Adds Electric Lawn Mower to Energy Transformation Program

This spring VEC began offering a new bill credit for members purchasing electric lawn mowers. The new incentive, which adds to the list of several other VEC Energy Transformation Program incentives, takes the form of a bill credit of \$1,000 for the purchase of commercial electric lawn mowers and \$50 for the purchase of residential electric mowers.

Mower purchases made on or after May 11, 2019 are eligible for the bill credits.

Lawn mower bill credits are just the latest items added to VEC's Energy Transformation program. VEC still offers bill credits for purchases of a range of products, including: all-electric and plug-in hybrid electric vehicles, cold climate heat pumps, pellet stoves, heat pump water heaters, electric vehicle charging stations, electric forklifts, and Zero Energy Modular (ZEM) homes. VEC also offers customized opportunities for members with off-grid or underserved homes or businesses to replace fossil fuel usage with electricity.



Learn more about all of these opportunities on VEC's <https://www.vermontelectric.coop/programs-services/energy-transformation-programs> or by calling 1-800-832-2667.

The VEC incentives are in addition to other qualified incentives or rebates, including incentives from Efficiency Vermont.

Cut the Grass, and Cut the Gas

While electric lawn mowers can be more expensive to buy than gasoline powered mowers, they are generally less expensive to run. Users of electric mowers also avoid the hassles associated with buying, transporting, storing and disposing of gasoline and changing engine oil and spark plugs. Electric mowers are also much quieter and don't pollute the air when they are running.

"As the technology continues to improve, electric mowers represent an increasingly attractive option for that time-honored, summertime chore - cutting the grass," said Jake Brown, energy services planner at VEC.

Electric mowers may be attractive for some home owners, but might offer even more value for landscaping companies, municipalities, and institutions like college and university campuses and hospitals, for example, where the fuel savings that electricity offers over gasoline can be maximized.

Annual Meeting from page 1

A member asks a question at VEC's Annual Meeting.
Photo: VEC/Kevin Goddard.

that. It was very common for linemen to climb poles back then; it's very unusual to climb poles today.

"Things have changed a lot in my lifetime," he concluded, putting down the old black phone and still holding the new one.

Solid financials, but a rate hike in the offing

What hasn't changed for a while is VEC's strong financial situation, a matter of utmost importance to those who remember darker financial times in the 1990s and early 2000s. In 2018, VEC's financial rating from Standard & Poor's was again A+ with a stable outlook, Treasurer John Ward reported.

VEC's financial stability enabled the board to provide a patronage-capital payment to qualified members and former members for the sixth consecutive year. (This is how a cooperative passes its margins – comparable to "profits" for investor-owned entities – to its member-owners.) The \$1.5-million 2018 refund brought total patronage capital retirements, since they started in 2013, to \$4.85 million. In 2019, VEC is returning \$1.2 million in patronage capital to members for a total refund of over \$6 million dollars (see page 7 for more details).

VEC sends money back out to northern Vermont communities in another way, too – through donations from its Community Fund to nonprofit organizations that provide valuable services and benefits to people in the region. In this case, however, the cooperative isn't spending its own money – which would not be permissible under regulation – but is coordinating voluntary contributions made by VEC members who volunteer to round up their monthly electric bills, donate their patronage capital refunds, or simply make an explicit donation to the fund. In 2018, the Community Fund provided more than \$11,000 to local organizations.

Ward noted that VEC's long stretch without a rate increase probably will end in 2019. The last rate increase came in 2014, and increases over the past decade have averaged less than one percent per year. But one will soon be necessary, primarily to cover costs associated with electric transmission and infrastructure maintenance, which all Vermont utilities support financially. The expected rate increase will be between 3 and 6 percent.

Challenges, opportunities in new utility world

A special moment occurred at the meeting when Rebecca Towne rose to deliver her first CEO address. Hired last October to replace former CEO Christine Hallquist, Towne briefly summarized her professional background in operational and leadership positions with Green Mountain Power and Vermont Gas Systems, and thanked VEC's general counsel, Victoria Brown, for serving as interim CEO after Hallquist's departure.

For a moment, then, she got personal. A seventh-generation Vermonter, she grew up in VEC territory, in Cambridge. Her parents, Jerry and Beth Cole, still reside there and were seated at a table near the front of the room. In accept-

ing VEC's offer last fall, she said, "I knew the decisions I helped make would be affecting the people I care for the most in the world. It's the definition of community."

Her role at VEC also includes looking out for employees. Towne noted that in 2018 VEC maintained its certification from the Green Mountain Voluntary Protection Program (VPP) for its workplace health and safety practices, which it first earned in 2017. Likewise, the co-op won a Governor's Worksite Wellness Award for its wellness program. These recognitions are important to the co-op, because, as with its finances, VEC has focused on developing a culture that centers health and safety practices.

Towne then turned to the co-op's more technical challenges and achievements, projects designed to improve services to VEC's 32,000 members and reduce operating costs.

An example of the latter is the co-op's investment, with other partners, in a battery electric-storage project in Hinesburg with almost two megawatts of storage capacity (See CEO Update for more details). VEC will use this resource to reduce the co-op's peak during high demand times, which can provide significant savings for the whole membership.

"This will save us up to \$100,000 a year," said Towne. "Battery storage is going to be hugely important for utilities, and besides its immediate benefit, [the Hinesburg project] will be a great learning experience for us."

Meanwhile, the co-op has undertaken a major construction project to rebuild the Derby service center.

"Our local facility there needs renovation desperately," Towne explained. "And we determined that building new will be more cost-effective. The project will be done by the end of 2020."

One reason for these investments in service capability, which will come as no surprise to VEC members, is that outage trends are going in the wrong direction. VEC is spending some \$3 million a year in vegetation management (tree trimming) to try to keep its rights-of-way clear, to prevent outages, but major storms are becoming more frequent and more destructive. Outage numbers (2,371 unique member outages) and average outage duration both increased in 2018, marking the worst year since 2006, when VEC's prevention and restoration capabilities were less sophisticated than they are now.

"It's wet, heavy snow and wind speeds," said Towne.

Because it's a cooperative, VEC qualifies for federal assistance with major storm-related costs, and recovered some \$3 million from the Federal Emergency Management Agency – some of which can be used preventively, for hazard mitigation. But these realities, combined with the increasingly complex footprint of an electric grid now sprinkled with distributed generation – solar and wind projects – and net-metered homes and businesses, are further proof of George Lague's point, that, like the phones we use, things are changing fast and furious for electric utilities.



A member peruses the program at VEC's 2019 Annual Meeting.
Photo: VEC/Kevin Goddard

Transformation and transportation

Towne then recapped some other important VEC programs, like SmartHub – an on-line service that shows people who register how much electricity they've been using and how that compares to past usage, and enables electronic bill-paying— and the co-op's Energy Transformation and Clean Air programs, which are VEC's programs to assist members in reducing their consumption of fossil fuels. VEC has adopted a number of strategies to address these challenges, such as helping people convert to cold-climate heat pumps or pellet stoves to displace fossil fuels for heating, and subsidizing the costs of line extensions or service upgrades to enable off-grid businesses like sawmills and sugarhouses to retire their fossil-fuel generators.

And then there are electric vehicles. Getting more people out of gasoline- and diesel-powered cars and trucks is a critical component of the state's energy plan, and VEC's as well. That provided a perfect segue for what followed the business meeting: a discussion panel titled "Driving into the Future: Electric Vehicles in Rural Vermont." (See "A Two-Way Street" on page 1)

It had been an interesting meeting, with a new CEO, new initiatives, and new challenges to discuss. But, with changes to transportation that could be as profound as what happened to our old telephones, the discussion was just getting started.



VEC employees Margaret Viens, Caroline Mashia, Marissa Morse, and Caroline Lawlor ready to register members for the annual meeting.
Photo: VEC/Kevin Goddard.

A Two-Way Street from page 1

discussion about electric vehicles, moderated by VEC's Government Affairs & Member Relations Director, Andrea Cohen. Panelists were Dave Roberts, coordinator of the Drive Electric Vermont program, associated with Efficiency Vermont; Michele Boomhower of the Vermont Agency of Transportation; Mike Davin from Nissan North America; and Ingrid and Eric Nuse, VEC members who live in Johnson and drive a Nissan Leaf.

Theirs was one of the EVs on display, as was VEC's own Ford Fusion. The idea was to demystify EVs because they're going to get more plentiful on Vermont's roads and highways – even the dirt roads that many co-op members live on.

This has to happen for Vermont to meet the goals of its Comprehensive Energy Plan (deriving 90 percent of the energy we consume from renewable sources by 2050) and do its part in combatting climate change. Transportation is key. Because Vermont is so rural our residents drive a lot, and their cars, campers, buses, and trucks cause 43 percent of the greenhouse gases we add to the atmosphere. Replacing as many gasoline- and diesel-fueled vehicles as we can with EVs is our best hope of slashing those emissions, because electricity is increasingly derived from renewable sources.

The state, therefore, is requiring electric utilities to meet specific goals in weaning their customers and members off fossil fuels, whether they're used for transportation, home heating, industrial processes, or otherwise. In response, VEC has adopted a multi-faceted Energy Transformation Program that includes providing incentives to encourage co-op members to purchase electric vehicles. Members who buy a new or used all-electric car receive a \$500 credit on their electric bills. Members purchasing a plug-in hybrid get a \$250 bill credit. There are also credits for leases: \$100 per year for fully electric cars, and \$50 per year for plug-in hybrids.

Financial assistance at that level might not be a game-changer, but added to other incentives and with EVs becoming more affordable to purchase or lease and much less expensive to operate than gas-powered vehicles, they are becoming more plentiful on Vermont's roads. Roberts said his organization is now seeing a 30-percent annual increase in EVs statewide. As of last January, he said, there were 224 EVs registered in VEC's service territory.

About 60 percent of those are plug-in hybrids, the more common choice for people in rural areas or with long commutes. But that could change. Several all-electric models now exceed 200 miles on a full charge, and for some, 300 miles is possible. Plug-in hybrids, Roberts explained, provide the assurance of gas backup after the electricity is depleted, but it comes at a cost of a much lower electric range (15-to-80 miles).

On the other hand, if your round-trip commute is 50 miles or less, you'll rarely need that gas.

Range, styles, and cold weather

What became clear in the panel discussion is that as more EV models become available with longer ranges and more competitive pricing, the more they'll be embraced. People want the certainty that a full charge will do what a full gas tank does, which is get them where they need to go. They want a range of options, and that's happening too. Roberts showed images of sedans and SUVs, compact and mid-sized vehicles. You

can get EVs with four-wheel drive. Even electric pickup trucks are on their way into the market.

EV charging stations are not as plentiful, nor as obvious, as gas stations. But Michele Boomhower, with the Vermont AOT, said that expanding the charging network is a priority for her agency. Using funds from the settlement of a lawsuit against Volkswagen, for intentional violations of the Clean Air Act, the state is making some \$2 million available through its Electric Vehicle Supply Equipment (EVSE) program, which local governments and public entities, businesses, nonprofits, and other applicants can use to purchase and install charging stations.

"The goal is for there to be a fast-charging station within thirty miles of every Vermonter," Boomhower said.

There are three levels of charging equipment. "Fast charging" at up to 500 volts are the most expensive to install and many EV models aren't fast-charging enabled. But they're the most convenient choice for EVs that do have this capability. Level 2 charges at 240 volts and is what most public charging stations are. They provide around 10-15 miles of charge per hour. The slowest is Level 1 at 120 volts, which can be plugged into a regular outlet and is typically used in homes or other places where the

Owning one

A couple of years ago, Eric and Ingrid Nuse replaced their Honda Fit with a Nissan Leaf out of a commitment to reduce their carbon footprint. Though Eric identified himself as "a four-wheel-drive-truck kind of guy," they need two vehicles and decided one of them should reflect their commitment to, in Ingrid's words, being "less impactful" on the environment.

"We bought the Nissan Leaf because of the incentives," she said.

Mike Davin, of Nissan North America, had referred in his comments, moments before, to a set of cost reductions available to this audience. They included a \$7,500 federal tax credit for new electric vehicles, VEC's \$500 bill credit, and a current \$5,000 Nissan discount. Davin had summed up the price of a 2019 Leaf with additional weather- and battery-related packages, factored in those discounts, and showed audience members the total sale price: a perhaps surprising \$19,955.

Davin also showed a chart comparing the estimated first-year maintenance costs of an EV (zero) and a car with an internal combustion engine (\$400). Added to the energy costs of \$413



A member looks under the hood of an EV at annual meeting. Photo: VEC/Kevin Goddard.

vehicle will be parked for several hours.

Vermont's EV-charging network is filling in; Roberts displayed a map showing concentrations of chargers, especially in the more populated parts of the state. But large swaths of northern Vermont – VEC's service territory – showed few stations if any.

"Actually, though, public charging is more of a safety net," Roberts explained. "Mostly, people plug in their cars at home."

One of the best developments that will help increase EV ownership is that used cars are becoming more available. Roberts said they now constitute about 15 percent of the overall EV market in Vermont. Because switching to electric saves car owners about \$2,400 compared to gasoline over a five-year period, a used EV provides the lowest total cost of ownership.

Still, there's some distance for EV technology to go before it suits all Vermonters. Largely, this has to do with their performance in cold weather, which typically reduces the battery's range by 20 to 40 percent.

for the electric-powered vehicle and \$1,195 in gasoline for the ICE –his comparison revealed overall first-year costs of \$413 for the EV and \$1,595 for the gasoline vehicle.

Davin also enumerated technological changes Nissan has introduced, such as faster charging times and bi-directional charging facilitating an exchange of energy between the automobile and its power source.

For the Nuses, the financial and environmental considerations had been persuasive. But they admit it's been a learning experience.

"You do have to plan ahead," Eric said, to be certain your battery charge is sufficient for your outing. Yet Ingrid restated their environmental principles. "With global warming, it's incumbent on us to ensure that our kids not have a future that's harmed by changes to our environment. If that means a little inconvenience, so be it."

On the other hand, it's not all sacrifice. As Eric pointed out, "It's nice to drive by all those gas stations."

Co-op Vehicle Sale

VEC has for sale the following vehicles and equipment. We are accepting sealed bids until 4 pm on Friday, August 16, 2019.

Please indicate the item number of the vehicle or equipment on the outside of your sealed bid. All bids should be submitted to the attention of Laura Kinney, Purchasing Agent at Vermont Electric Coop, 42 Wescom Road, Johnson VT 05656.

All vehicles or equipment for sale have high mileage and may be in need of mechanical /body work.

Vehicles for sale located at the Johnson Warehouse:

Item #1 Coop #45	2007 Ford Ranger, 4X4, (VIN #31557). Mileage is 97,611
Item #2 Coop #63	2010 Ford Escape, (VIN #93722). Mileage is 216,717
Item #3 Coop #66	2011 Ford F-250, 4X4 (VIN #88286). Mileage is 169,702
Item #4 Coop #613	2000 Kobelco SK60 Excavator. Hours 3,792 (Please note this unit has a reserve price)

Vehicles for sale located at the Derby Warehouse:

Item #5 Coop #46	2007 International 4400, (VIN #84944) Bucket truck with Posi-Plus 50' Material Handling boom. Mileage is 192464 (Please note this unit has a reserve price)
Item #6 Coop #51	2007 Ford F-150 4X4, (Vin #53026). Mileage is 174,502

Questions pertaining to the above vehicles and equipment located at the Johnson Warehouse may be directed to Mark Bennett at 802-730-5134. For vehicles and equipment located at the Derby Warehouse please contact Larry Hall at 802-380-3404.

VEC reserves the right to reject any or all bids which, in its sole judgment, finds unacceptable. All vehicles/equipment are sold on an "AS IS" basis, with no warranty expressed or implied. Risk of using any of the above vehicles is completely assumed by the purchaser.



The pickup truck above and the excavator below are among the vehicles VEC has for sale.



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Does your home feel like a SAUNA in the summer (or an IGLOO in the winter)? HEAT Squad can help! Our customers save \$900 on average every year on heating and cooling costs by air sealing and insulating. Stop those drafts, increase your comfort.

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Call now **(802) 438-2303** or visit **www.heatsquad.org** to schedule your audit.

HEAT Squad is now offering \$100 energy audits for residents of Essex, Caledonia and Orleans counties.

Summer is a great time to begin thinking about how you can make your home more comfortable and less costly to heat, according to Ann Lawless, Northeast Kingdom outreach coordinator for HEAT Squad. HEAT Squad is a service of NeighborWorks of Western Vermont.

"Now is the perfect time to do that energy efficiency work you were thinking about last winter," Lawless said. "Think about starting now -- the contractors aren't as busy as they are in the fall," she said.

Audits include a blower door test to determine your house's efficiency. And the audit will also result in a report with helpful information including notes on where you are losing heat, if your insulation is adequate, where you are wasting electricity and fuel, and if there are health and safety concerns in your home. HEAT Squad then objectively helps each homeowner identify the best renovations to improve efficiency and reduce costs, provides home and energy loans, helps identify local contractors to complete the work, and aids the homeowner in accessing applicable rebates and incentives such as up to \$4,000 from Efficiency Vermont.

Lawless herself had a HEAT Squad energy audit done at her house last fall, and as she puts it, "I became a convert. Now I am spreading the word so others can have a positive experience making their homes cozier and more energy efficient, and cutting utility bills"

Call 802-438-2303 or visit <https://heatsquad.org/> and get started.

Paperless Now Available for Co-op Life

In an effort to accommodate the changing reading preferences of our membership, we are now offering members the opportunity to opt out of receiving a hard copy of Co-op Life mailed to their homes or businesses. Instead, we will send those members a simple email with a link to an on-line version of Co-op Life.

Co-op Life is our time-honored, flagship publication that for years we have mailed directly to all of our members. We remain committed to delivering it to our many members who want a hard-copy publication to hold in their hands. At the same time, we want to accommodate members who prefer to get information digitally, so we are offering that option for those who would like it.

If you would like to cease receiving a hard copy of Co-op Life and instead receive an email as soon as a given issue is available on-line, please email support@vermontelectric.coop. Starting with the fall 2019 issue, you will receive an email instead of the hard-copy.

VEC Will Return \$1.2 Million in Patronage Capital to Members

This fall VEC will be returning \$1.2 million in patronage capital to its members. This will be the seventh consecutive year that VEC members have received a patronage capital distribution, with over \$6 million refunded over that time period.

"Once again, we are proud to put money back into our members' pockets," said Michael Bursell, VEC's chief financial officer. "Our members are our community – and the community, after all, built the co-op."

As all electric co-ops do, VEC allocates any money that's left after paying its operating expenses to its members. This "patronage capital" is kept in reserve and used to help the co-op secure good borrowing rates and invest in infrastructure, which allows the co-op to provide safe, reliable power to its members and maintain stability over time.

Annually, the VEC Board of Directors determines whether the co-op is in a strong enough financial position to return portions of patronage capital to members.

This year's distribution will take the form of a September bill credit for eligible members who paid electric charges in 1997 and/or 2018. Former members will be sent a refund check, as long as their refund amounts to \$10 or more.

Both active and former members can choose to donate their patronage capital refund to VEC's Community Fund, which supports local organizations.

For more information about patronage capital, visit VEC's website at www.vermontelectric.coop/patronage-capital or call, 1-800-832-2667.

Adriana Eldred Joins VEC as Summer Intern

Northern Vermont University student Adriana Eldred is working with VEC this summer as our Communications and Member Engagement Intern.

Adriana will be heading into her senior year of college this fall, with a double major in Journalism with a concentration in Public Relations and Fine Studio Art. She spent the last semester studying at New Mexico State University.

She writes for the school's newspaper and is a captain on the women's rugby team. "I absolutely love my job here," said Adriana, "and I am extremely grateful for this amazing experience."

As one of VEC's Interns, Adriana is helping manage a diverse range of member related programs and communications, from posting content on VEC's Instagram to writing articles for Co-op Life.

"Adriana's creativity, work ethic and positive attitude have been a great asset to VEC this summer," said Jake Brown, energy services planner. "We are delighted she is with us!"



VEC's Communications and Member Engagement Intern Adriana Eldred.

New weatherization incentives available to moderate income families



Efficiency Vermont has announced plans to make contractor led weatherization projects more accessible to Vermont residents. Their flagship program, Home Performance with ENERGY STAR®, has been redesigned to help Vermonters take action now.

With higher incentives and a simpler structure, the Home Performance with ENERGY STAR program is now based on project cost instead of incremental energy savings. While the cost of a project varies greatly based on the size, age, and condition of the house, the average cost is approximately \$8,000. Moderate-income households will now receive 50% of their project costs back, up to \$4,000, or up to \$2,000 for higher-income households.

Additionally, low- and moderate-income Vermonters will have access to 0% interest financing with Efficiency Vermont's Heat Saver Loan. That means that

it is now possible for Vermonters to complete a comprehensive weatherization project for around \$60 a month, or less with a longer-term loan.

Customers who don't wish to work with an Efficiency Excellence Network contractor can still receive rebates for air sealing and insulating their home. Moderate income Vermonters can receive \$500 for completing qualifying work in their attic, and an additional \$500 for work in the basement. Higher income households are eligible for a \$250 rebate per area.

These offers are presented on a first come, first served basis, and are available through the end of 2019. Offers may be extended should funding remain at the end of the year, but it is in your best interest to act sooner rather than later.

For more information, call Efficiency Vermont at 1-888-921-5990 or visit www.encyvermont.org.

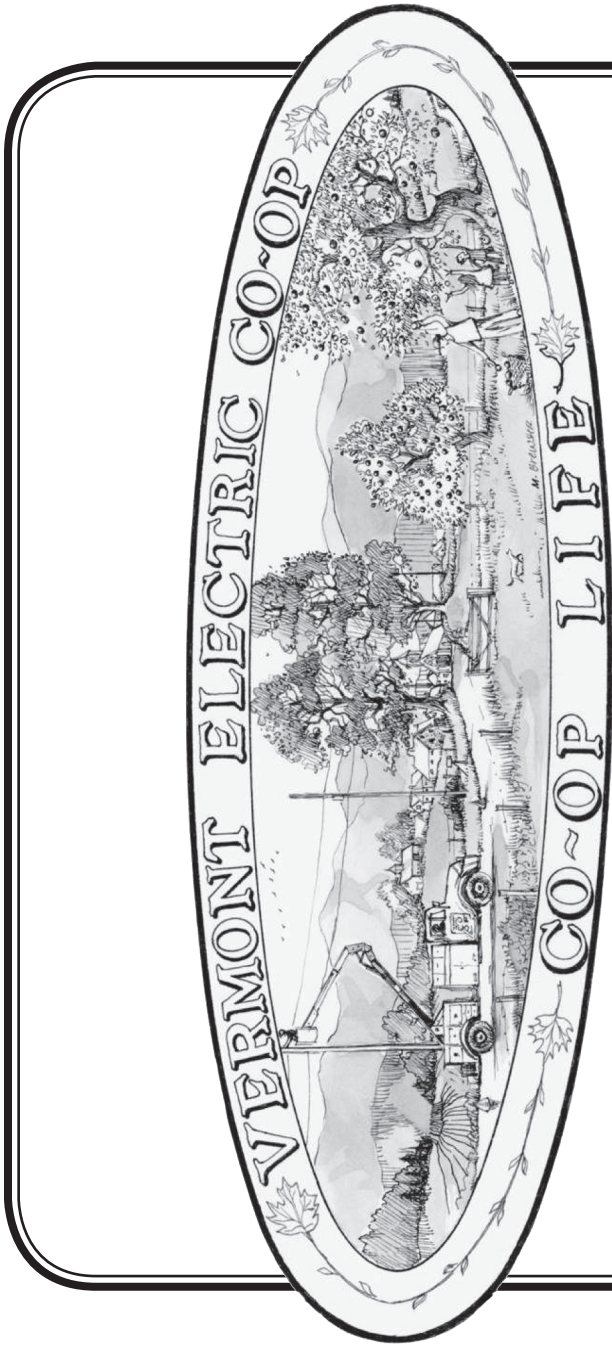
VEC Launches Energy Assessment Program for Farms, Businesses

Are you interested in saving money on your energy bills at your farm or business?

The Vermont Electric Cooperative's Renewable Thermal Energy Assessment Program is now providing free, no-obligation renewable energy assessments to help farm or business owners navigate the best options for renewable energy technologies that can heat or cool facilities and save money. Renewable thermal energy – often heat pumps, biomass, or solar thermal, for examples - can be cost-effective options compared with other energy sources,

but the first step is to get an analysis.

Working in partnership with EnSave, a Richmond-Vermont based energy organization, VEC is offering these renewable energy assessments to VEC commercial/industrial and agricultural members. To learn more, call EnSave at 1-800-732-1399 or see more information here: <https://www.vermontelectric.coop/programs-services/energy-transformation-programs>



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VEC Field Technician Jeff Still makes a new friend, Sheba, during a recent stop at a member's home in Alburgh. Photo VEC/Adriana Eldred.



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