To: HONORABLE MAYOR AND CITY COUNCIL.

FROM: Dave Maroney, City Administrator.
SUBJECT: Presentation – Community Solar Gardens.
DATE: September 26, 2019.

BACKGROUND.

Rick Masloski representing *Novel Energy Solutions* has requested time to present information to the City Council illustrating how Cannon Falls is able to reduce our cost of electricity through the Minnesota Solar Garden Program – the accompanying documentation provides background information about *Novel* and the projected "savings" that may be realized should the City of Cannon Falls participate as a subscriber.

Novel Energy Solutions and *Innovative Power Systems* have both submitted *Subscription Agreements* for review and consideration. While the terms represented by these documents differ in several ways, perhaps one of the more important distinctions are the proposed "discount rates"- *Novel* proposes $0.01/kWh (one cent per kilowatt hour) and *Innovative* proposes $0.007/kWh. The *Novel* discount rate is greater than the rate offered by *Innovative* resulting in nearly $175,000 more savings to the City over a 25-year term.

REQUESTED COUNCIL ACTION.

Mr. Masloski will provide a power point presentation and answer any questions that you may have.

Following considerable research, Goodhue County recently approved a *Subscription Agreement* with *Nokomis Partners* and I have been communicating with them as well. Corey Orehek (*Nokomis*) has expressed interest in pursuing a relationship with Cannon Falls and I have received information outlining their qualifications and proposed terms. If you prefer to invite Mr. Orehek to make a presentation, please let me know. Otherwise, I believe that Staff can objectively compare and contrast the three (3) firms/ preliminary proposals with the information that has been received and present a recommendation for proceeding on October 15th.

Minnesota Community Solar Garden Program

10/1/19

Novel Energy Solutions LLC

Summary

- This Community Solar Garden (CSG) program was created in 2013 with direction from Minnesota Legislature and is regulated by the Public Utilities Commission
- **$0 upfront**
- **No pricing risk-** guaranteed 1 cent/kWh savings
- **No production risk**
- Solar panels are located off-site and you still receive power from Xcel
- A Subscription amount of **2,400,000 kWhs will produce an estimated savings of about $24,000/year and $582,340 over 25 years**

	Discount Rate	Initial Term*	Term Replacement Period
Option 1	$0.01 / kWh	10 Year	2 Year
Option 2	$0.005 / kWh	5 Year	2 Year

**You can choose to take advantage of these savings for up to 25 years*

Community Solar is an opportunity to save money over the next 25 years, help protect the environment and support local business

Who we are: Novel Energy Solutions

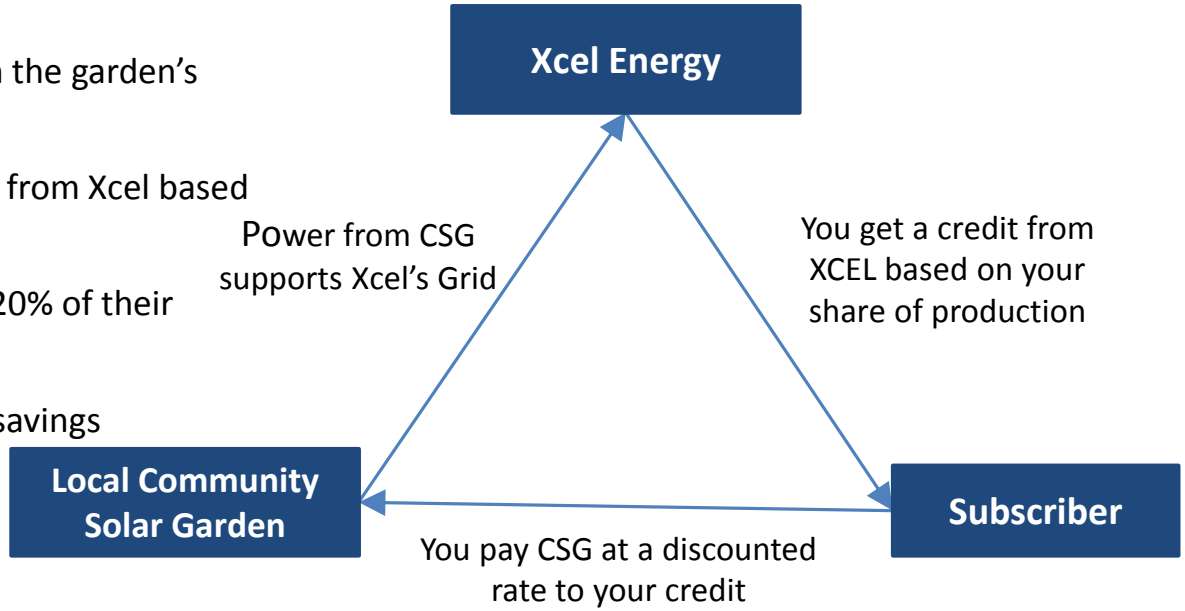
Novel Energy Solutions is a Minnesota-owned, St. Paul based, full-service energy management company providing customers community solar subscriptions, on-site solar construction, solar project financing and energy conservation.

- Founded in 2012 by Cliff, Ralph, and Mena Kaehler. The Kaehler family are century cattle farmers with over 130 years of history in southern Minnesota
- Novel Energy Solutions is a leader in the Minnesota solar market
  - NES developed first 4 community solar gardens in Xcel program
  - One of the largest CSG developers in Minnesota with over 100 MW of CSGs developed
  - NES was founded on providing profitable, reliable energy solutions to agricultural communities

Buhl Hog Farm Tyler, MN

MN Community Solar Garden Program

- The Community Solar Garden model aims to combine the environmental and cost benefits of large scale solar energy production with the individual cost savings of rooftop or ground mount direct solar generation
- Participating local businesses, organizations and residents can manage electric costs with no upfront investment and no production risk
- In 2013, Minnesota legislation directed Minneapolis-based utility, Xcel Energy, to create a program for community solar gardens ("CSGs"). The program is regulated by the MN Public Utility Commission
  - Each CSG must have a minimum of five subscribers with no one subscriber accounting for more than 40% of generation
  - CSG subscribers must be located in the garden's county or adjacent counties
  - CSG subscribers receive bill credits from Xcel based on their subscription size
  - Subscribers may subscribe up to 120% of their average annual usage
  - NES Subscription anticipated 10% savings



Cannon Falls Estimated Annual Savings—2,400,000 kWhs

Year	Subscriber Energy Production (kWh)	Bill Credit Rate ($/kWh)	Estimated Total Bill Credit ($/yr)	Subscription Rate ($/kWh)	Subscription Payments ($/yr)	Estimated Annual Savings ($/yr)	Cumulative Benefit ($/yr)
1	2,400,000	$0.09760	$234,240	$0.08760	$210,240	**$24,000**	**$24,000**
2	2,394,000	$0.09980	$238,921	$0.08980	$214,981	**$23,940**	**$47,940**
3	2,388,015	$0.10210	$243,816	$0.09210	$219,936	**$23,880**	**$71,820**
4	2,382,045	$0.10440	$248,685	$0.09440	$224,865	**$23,820**	**$95,641**
5	2,376,090	$0.10670	$253,529	$0.09670	$229,768	**$23,761**	**$119,401**
6	2,370,150	$0.10920	$258,820	$0.09920	$235,119	**$23,701**	**$143,103**
7	2,364,224	$0.11170	$264,084	$0.10170	$240,442	**$23,642**	**$166,745**
8	2,358,314	$0.11420	$269,319	$0.10420	$245,736	**$23,583**	**$190,328**
9	2,352,418	$0.11680	$274,762	$0.10680	$251,238	**$23,524**	**$213,853**
10	2,346,537	$0.11940	$280,177	$0.10940	$256,711	**$23,465**	**$237,318**
11	2,340,671	$0.12210	$285,796	$0.11210	$262,389	**$23,407**	**$260,725**
12	2,334,819	$0.12490	$291,619	$0.11490	$268,271	**$23,348**	**$284,073**
13	2,328,982	$0.12770	$297,411	$0.11770	$274,121	**$23,290**	**$307,363**
14	2,323,159	$0.13060	$303,405	$0.12060	$280,173	**$23,232**	**$330,594**
15	2,317,351	$0.13360	$309,598	$0.12360	$286,425	**$23,174**	**$353,768**
16	2,311,558	$0.13660	$315,759	$0.12660	$292,643	**$23,116**	**$376,883**
17	2,305,779	$0.13970	$322,117	$0.12970	$299,060	**$23,058**	**$399,941**
18	2,300,015	$0.14290	$328,672	$0.13290	$305,672	**$23,000**	**$422,941**
19	2,294,265	$0.14620	$335,421	$0.13620	$312,479	**$22,943**	**$445,884**
20	2,288,529	$0.14950	$342,135	$0.13950	$319,250	**$22,885**	**$468,769**
21	2,282,808	$0.15290	$349,041	$0.14290	$326,213	**$22,828**	**$491,597**
22	2,277,101	$0.15630	$355,911	$0.14630	$333,140	**$22,771**	**$514,368**
23	2,271,408	$0.15990	$363,198	$0.14990	$340,484	**$22,714**	**$537,082**
24	2,265,729	$0.16350	$370,447	$0.15350	$347,789	**$22,657**	**$559,740**
25	2,260,065	$0.16720	$377,883	$0.15720	$355,282	**$22,601**	**$582,340**
Estimated Total Savings						**$582,340**	

Novel Energy Solutions Subscribers

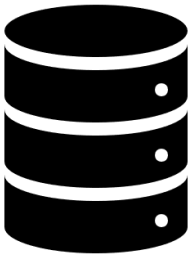
- City of Afton
- City of Albany
- City of Chanhassen
- City of Dodge Center
- City of Goodview
- City of Mayer
- City of North Mankato
- City of Northfield
- City of Waconia
- Minnesota Department of Transportation (MN DOT)
- School Sisters of Notre Dame

Cannon Falls Subscription Sites

- Goodhue County:
  - Heimer
- Olmsted County:
  - DeCook
  - Byron
  - Bartel
- Wabasha County:
  - Wodele 1
  - Wodele 2
  - Luhmann
- Dodge County:
  - Schmoll
  - Benedix
  - Debra
  - Wayne
- Rice County:
  - Joy
  - Eiler

Environmental Equivalencies Calculator

One-year of clean energy production from your subscription is equivalent to the CO2 emissions from:



Pounds of coal burned	Barrels of oil consumed	Passenger vehicles driven for 1 year
1,855,382	3,929	360

Source: www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

Contacts

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School Sisters of Notre Dame
Central Pacific Province

May 30, 2019

To Whom It May Concern:

As the Facility Administrator for School Sisters of Notre Dame, I was fortunate to meet Rick Masloski of Novel Energy Solutions when I was researching additional subscriptions to community solar gardens for the sisters. The School Sisters of Notre Dame is a religious organization that maintains a large healthcare/retirement facility in Mankato for 150 retired sisters and also serves as the headquarters for their regional campus. On the Mankato campus is a 40KW rooftop solar system and a 1 MW community solar garden.

Novel Energy Solutions (NES) introduced themselves at just the right time and helped the sisters become 100% renewable in their electrical purchases for the next 25 years. The sister's commitment to sustainable practices and how NES approached development of solar energy very much paralleled each other. The long term commitment of NES in Minnesota and solar energy production was impressive. The leadership of the sisters was also impressed with the professionalism shown by NES in their presentations and written materials. There was never a hard sell and the dedication to providing renewable energy to Minnesota made the decision to work with them quite easy.

Throughout the process, from the first presentation all the way to seeing those first solar credits on the Xcel Energy bills, I was always kept in the loop. I acknowledge Rick Masloski with the majority of credit for that accomplishment. All my questions were answered timely and a presentation suggestion was acted upon for future presentations. The overall experience with Novel Energy Solutions was extremely positive. I have recommended them to a number of other companies as I feel the community solar garden program is something all eligible companies need to take part in. I encourage Novel Energy Solutions to give my name and number to any group looking into the possibility of partnering on a solar project.

Respectfully,

Bill L. Ward

Bill L. Ward

Facility Administrator

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Transforming the world through education

More cities across Minnesota are turning to renewable sources of energy

Solar, wind and hydro fill increasing roles in municipal power grids

By Matt McKinney Star Tribune staff

JUNE 23, 2018 — 7:39PM

Aaron Lavinsky, Star TribuneA 220-kilowatt solar array powers the St. Cloud Wastewater Treatment Plant, along with a biodigester that turns sewage into energy.

Text size

ST. CLOUD – The sewage plant in this city does something even a non-engineer might find remarkable: It makes so much of its own energy that on some days, when the sun shines bright, the plant's managers don't need to buy electricity.

Instead, they sell it.

That's despite the fact that such plants are notorious energy hogs, burning up the equivalent of a small neighborhood's monthly electrical use every single day to move and clean city water.

In St. Cloud, though, a pair of powerful solar arrays and a state-of-the-art biodigester that turns sewage into electricity, heat and fertilizer sometimes generate more power than the plant can use.

That happened for the first time on April 12 of last year. Since then, it's happened on 30 additional days, most recently on June 5.

Those "net zero" days in St. Cloud are among a wave of positive anecdotes from municipalities across the state about early efforts to adopt renewable energy. Driven by favorable economics and, to a lesser extent, constituent proddings, many cities have turned to solar and other renewables so quickly that even the people pushing for the change say they're surprised.

"It comes down to how can you say 'no' to saving money and doing something for the environment," said Abby Finis, senior energy planner with the Great Plains Institute of Minneapolis.

That momentum was driven by the state's 2007 renewable energy standard and solar energy laws passed in 2013 that require public utilities to generate 1.5 percent of electricity from solar by 2021, said Matt Privratsky of Fresh Energy, a Minnesota nonprofit that advocates for renewables.

Solar has grown so quickly in Minnesota, in fact, that between 2016 and 2017 the amount of solar power produced didn't just double or triple, but grew by a factor of 72, according to the Minnesota Department of Commerce. That was enough to raise solar power from .03 percent of all electricity generated in the state in 2016 to 1.2 percent a year later.

The surge has prompted several Minnesota city governments, including Minneapolis, to set bold goals to go 100 percent renewable by a set date.

Of the municipalities racing to get there, St. Cloud may be the leader. Its subscriptions to solar gardens and use of geothermal and conservation measures have it claiming an 83 percent renewable rate for the city government. (This does not include private homes or businesses.)

"Our goal was to be aggressive because we knew what the potential was, particularly in the area of solar," said St. Cloud Mayor Dave Kleis.

As recently as 2014, the city government used just 5 percent renewables for its electrical demand, but that was also the year that the St. Cloud utilities department laid plans to dramatically improve the sewage plant's efficiency. Those plans soon spread across other city departments, and with Xcel Energy's help, St. Cloud began a comprehensive review of energy use.

The city has since subscribed to 32 solar gardens — at least 20 commissioned last year alone — for a total of 23 million kilowatt-hours of solar energy, or enough to meet about three-quarters of demand.

Solar panels were also installed on the roof of the police headquarters, a fire station, a senior center and three other city buildings. A conversion to LED helped cut in half electrical use for streetlights between 2015 and 2017. Efficiencies at the sewage plant lowered its power demands as the new biodigester and solar panels came online. The public transportation system, meanwhile, converted nearly two-thirds of its bus fleet to compressed natural gas. That lowers carbon emissions and has saved St. Cloud Metro Bus about $450,000 in fuel costs over the past three years.

The savings from the solar garden subscriptions alone amount to $28 million over 25 years, according to a city analysis. The sewage plant spends about $400,000 a year less for electricity, money that for 14 years will go to pay a bond issued for the solar panels and biodigester. After that, the city can keep the savings.

And none of these calculations include the city's long-running hydroelectric plant, which generates nearly twice as much electricity as the city needs every day. All of that power goes to Xcel Energy for use on the grid, so the city hasn't considered it in their renewables calculations.

Renewables elsewhere

Few cities in Minnesota can match St. Cloud, but Minneapolis might come closest, where measures already underway will push the city government's use of renewables to about 65 percent by the end of this year.

St. Paul stands at about 25 percent renewable and has subscribed to solar gardens that, once built and put online, will raise the city's number closer to 50 percent. Among other large cities: Mankato will hit 52 percent by next year, Rochester is at about 17 percent and Duluth about 14.

"It's not just the right thing to do, it actually makes a lot of sense financially to do it," said Alison Zelms, Mankato's deputy city manager. Her city will save $273,000 a year starting in 2019 thanks to subscriptions to solar gardens, a pair of city-owned solar arrays and a suite of conservation measures that include installing LED lights.

Smaller cities have switched to renewables, too. In Red Wing, the city government approved solar garden subscriptions in 2016 that would cover 100 percent of municipal demand. So far, about 40 percent of the gardens have been built, enough for the city to save about $33,000 on its power bill last year. Once all the gardens are online, the city expects to save $6.6 million over 25 years.

Meanwhile, a five-megawatt solar garden that went online in February 2017 helps power the Red Wing School District, which expects to save $7.7 million over 25 years.

In Inver Grove Heights, City Administrator Joe Lynch said his city both subscribed to solar gardens and installed rooftop solar on city buildings, eventually finding that the latter didn't deliver the predicted savings while the solar gardens did. He said conversations are now underway about how to raise their renewable electricity rate of about 48 percent, perhaps by saying 'yes' to one of the solar vendors who call him pitching more solar gardens.

"We're being petitioned regularly," said Lynch.

In Woodbury, the city's subscriptions to solar gardens are expected to deliver about $67,000 a year in savings, or about $1.69 million over the life of a 25-year contract. The city recently signed up for more solar gardens and expects to have about 70 percent of its electrical demand matched by its subscriptions.

"Everybody has been really happy with the way that this is going," said Jen McLoughlin, the city's sustainability specialist. "We are seeing the savings."

The city installed its own solar panels on the public safety building, but analysis continues on whether that's a better move than joining more solar gardens, said McLoughlin.

Activism vs. economics

For cities making the plunge into renewables, the economics have often been at the center of the argument. Plummeting costs for wind and solar energy make it about the cheapest way to keep the lights on at City Hall. Some of the solar farms and wind stations also generate lease payments and property taxes that, in places like Jackson County, in the wind-rich region of southwest Minnesota, contribute a substantial amount to local government's bottom line.

But on top of the talk of dollars and cents are creative campaigns by environmentalists who want to push their cities to move faster.

One of the most successful projects has been led by kids like Olya Wright, 12. Last year, Wright, along with other members of a nature group she started, delivered bad news to her City Council in Grand Marais. Using a questionnaire and directions she took from the youth environmental group iMatter, based in St. Louis Park, Wright told the City Council that she had assessed its environmental efforts and determined that they were nearly failing.

"They got a grade," Wright said recently from her home in Grand Marais. "It was a D-plus."

The council passed a climate resolution that night, vowing to shrink the city's carbon footprint.

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