City of Northfield Community Solar Garden Subscription Approval

August 8, 2017

Background - Process

- City of Northfield received proposals for Community Solar Garden Subscriptions from 3 developers that currently have permitted projects in Rice County or an adjacent county
  - Innovative Power Systems
  - ReneSola
  - MN Community Solar/Novel Energy Solutions
- Proposals were reviewed by staff and discussed with the Council at the July 18, 2017 meeting
- Passed a motion to approve a subscription, pending legal review, to MN Community Solar's garden for 1.5MW at a flat rate of .11296/kWh
  - .11296/kWh represents a 1 cent discount from current Xcel rates, initially an 8% discount
  - 1.5MW represents approximately 88% of Rice County usage, excluding Ice Arena
  - Represent approximately 27% of City of Northfield's total power usage

Background - MN Community Solar

- MN Community Solar (a subsidiary of Novel Energy Solutions)
  - MN based, HQ St. Charles
  - Partners with Northfield Area Community Solar (NACS) – NACS will be redistributing commission back into Northfield community
  - Cypress Creek Renewables (Financing Partner) has 5 gigawatts of local solar farms deployed or in development
- References
  - City of Dodge Center – subscribed to this garden
  - Hayfield Schools, Cotter Schools, City of Gibbon, City of Stewart, City of Ruthton
- Proposed Garden Location
  - Rural Waseca, Steele County

Background - Solar Garden Subscription Capacity

- City of Northfield has usage in both Rice and Dakota County
  - 5.5MW total usage
    - 3.3MW usage in Dakota County (Wastewater treatment plant significant usage)
    - 2.2MW usage in Rice County
      - 1.7MW usage in Rice County, excluding Ice Arena
- Subscriptions to community solar gardens must be located in or adjacent to county with usage
  - Only the City of Northfield's Rice County usage is eligible for subscription in this garden

Background - Concerns in a Community Solar Subscription

- 25 year term
- Energy rates decrease - potential to pay a premium if utility prices fall below the community solar subscription price
- Emergence of new technologies
- Termination fees apply if subscription terminated prior to 25 year term
  - Subscriptions can be transferred internally (without a fee) or externally
- Long term viability of the provider could disrupt the program
- Impact on City of Northfield resident's Xcel energy rates
  - If Xcel's costs rise (due to cost of solar energy) and costs are passed on through rates to general consumers, energy costs for local residents could rise
    - Xcel price to purchase solar energy could increase cost, other cost savings in transmission & distribution or peak pricing could reduce cost; both have potential impact to ratepayers
    - Program is mandated by MN Legislature and any rate increases due to solar would impact residents even if the City does not subscribe
      - Attachment C; MN Community Solar addresses concerns regarding ratepayer costs

Scenario Analysis

- Proposals were submitted assuming 1.5MW power usage subscription and 2.75% annual Xcel rate
- Under these assumptions, MN Community Solar estimates a $2.3 million in savings over the 25 year period
  - In addition, staff prepared scenario analysis changing the assumed annual Xcel rate increases ranging from a 2.75% annual increase to a 2.0% annual decrease
    - .73% decrease in annual rates is the breakeven point in energy costs
    - For an average annual decrease that is greater than .73%, the City of Northfield would pay a premium for the portion of it's power usage subscribed

Scenario Analysis of Xcel rates

City of Northfield - Community Solar Garden - Scenario Analysis of Savings														
	Annual Savings based on assumed Xcel annual rate change													
Average Annual Rate Change		**2.75%**		**1.00%**		**-**		**10% drop 10 yrs**		**0.73%**		**-1.00%**		**-2.00%**
Beginning Xcel Rate	$	0.12296	$	0.12296	$	0.12296	$	0.12296	$	0.12296	$	0.12296	$	0.12296
Ending Xcel Rate	$	0.21744	$	0.15613	$	0.12296	$	0.11066	$	0.10309	$	0.09661	$	0.07572
Cumulative Rate Change	$	0.09448	$	0.03317	$	-	$	(0.01230)	$	(0.01987)	$	(0.02635)	$	(0.04724)
Cumulative % Rate Change		76.8%		27.0%		0.0%		-10.0%		-16.2%		-21.4%		-38.4%
25 Year Savings Total	**$**	**2,313,064**	**$**	**1,152,927**	**$**	**450,508**	**$**	**104,024**	**$**	**2**	**$**	**(153,065)**	**$**	**(672,712)**

- See attachments at end for savings by year detail

Termination Fees by Year

- Termination fee of $2.39 million if terminated in year 1
- Termination fee of $1.92 million if terminated in year 10
- Transfer fee of $5,000 does not apply if usage transferred within eligible City meters

Year	Estimated Maximum Termination Fee	Estimated Refund for Resubscription	Estimated Net Termination Fee
1	$2,390,491	$2,174,455	$216,036
2	$2,348,412	$2,133,456	$214,956
3	$2,304,132	$2,090,251	$213,881
4	$2,257,471	$2,044,660	$212,812
5	$2,208,698	$1,996,950	$211,748
6	$2,156,707	$1,946,018	$210,689
7	$2,101,699	$1,892,064	$209,635
8	$2,043,429	$1,834,842	$208,587
9	$1,982,047	$1,774,503	$207,544
10	$1,916,463	$1,709,956	$206,507
11	$1,846,753	$1,641,279	$205,474
12	$1,772,581	$1,568,134	$204,447
13	$1,693,942	$1,490,518	$203,424
14	$1,609,759	$1,407,352	$202,407
15	$1,519,940	$1,318,545	$201,395
16	$1,424,028	$1,223,640	$200,388
17	$1,321,810	$1,122,424	$199,386
18	$1,212,217	$1,013,828	$198,389
19	$1,094,934	$897,537	$197,397
20	$969,340	$772,929	$196,410
21	$834,940	$639,511	$195,428
22	$690,672	$496,221	$194,451
23	$535,918	$342,439	$193,479
24	$369,835	$177,323	$192,512
25	$191,549	$0	$191,549

Legal Review

- Flaherty & Hood reviewed the contract with MN Community Solar (CF Novel Solar Gardens Five, LLC)
  - Also reviewed similar contracts with City of Winona
- Currently negotiating the subscription agreement
  - A number of revisions have been discussed and are under review
  - Subscription agreement will be included in supplemental distribution

Recommendation

- Resolution to approve contract with MN Community Solar, pending additional legal review and substantiation of all legal agreements
  - Subscription includes 1.5MW usage for 25 year term
    - Solar Garden project is located in Steele County and is eligible to subscribe energy usage in Rice County
  - A 1.5MW subscription represents approximately
    - 88% of the City of Northfield's Rice County energy usage, excluding the Ice Arena
    - 27% of the City of Northfield's total energy usage

Attachment A: MN Community Solar estimated savings by year

Estimated Total Savings: Flat Rate Option

Year	Subscriber Energy Production (kWh)	Subscriber Energy Production (kWh)	Bill Credit Rate ($/kWh)	Estimated Total Bill Credit ($/yr)	Subscription Rate ($/kWh)	MNCS Subscription ($/yr)	Estimated Annual Savings
1	6,247,500	1,912,500	$0.12296	$235,161	$0.11296	$216,036	$19,125
2	6,216,263	1,902,938	$0.12579	$239,373	$0.11296	$214,956	$24,417
3	6,185,181	1,893,423	$0.12870	$243,685	$0.11296	$213,881	$29,804
4	6,154,255	1,883,956	$0.13169	$248,098	$0.11296	$212,812	$35,286
5	6,123,484	1,874,536	$0.13476	$252,615	$0.11296	$211,748	$40,868
6	6,092,867	1,865,163	$0.13792	$257,238	$0.11296	$210,689	$46,550
7	6,062,402	1,855,837	$0.14116	$261,970	$0.11296	$209,635	$52,335
8	6,032,090	1,846,558	$0.14449	$266,813	$0.11296	$208,587	$58,226
9	6,001,930	1,837,325	$0.14792	$271,769	$0.11296	$207,544	$64,225
10	5,971,920	1,828,139	$0.15143	$276,841	$0.11296	$206,507	$70,334
11	5,942,061	1,818,998	$0.15505	$282,031	$0.11296	$205,474	$76,557
12	5,912,350	1,809,903	$0.15876	$287,343	$0.11296	$204,447	$82,896
13	5,882,788	1,800,854	$0.16258	$292,778	$0.11296	$203,424	$89,354
14	5,853,375	1,791,849	$0.16650	$298,340	$0.11296	$202,407	$95,932
15	5,824,108	1,782,890	$0.17053	$304,031	$0.11296	$201,395	$102,635
16	5,794,987	1,773,976	$0.17467	$309,854	$0.11296	$200,388	$109,466
17	5,766,012	1,765,106	$0.17892	$315,812	$0.11296	$199,386	$116,426
18	5,737,182	1,756,280	$0.18329	$321,909	$0.11296	$198,389	$123,519
19	5,708,496	1,747,499	$0.18778	$328,146	$0.11296	$197,397	$130,749
20	5,679,954	1,738,761	$0.19239	$334,528	$0.11296	$196,410	$138,118
21	5,651,554	1,730,068	$0.19714	$341,057	$0.11296	$195,428	$145,629
22	5,623,296	1,721,417	$0.20201	$347,738	$0.11296	$194,451	$153,286
23	5,595,180	1,712,810	$0.20701	$354,572	$0.11296	$193,479	$161,093
24	5,567,204	1,704,246	$0.21215	$361,564	$0.11296	$192,512	$169,052
25	5,539,368	1,695,725	$0.21744	$368,716	$0.11296	$191,549	$177,167
Estimated Total Savings							$2,313,048

Attachment B: Scenario Analysis of Xcel rates savings/premium by year

City of Northfield - Community Solar Garden - Scenario Analysis of Savings							
	MNCS Subscription	Annual Savings based on assumed Xcel rate change					
Year	**Rate Inc**	**2.75%**	**1.00%**	**-**	**0.73%**	**-1.00%**	**-2.00%**
1	0.11296	$ 19,125	$ 19,125	19,125	$ 19,125	$ 19,125	$ 19,125.00
2	0.11296	$ 24,415	$ 21,369	19,029	$ 17,317	$ 16,690	$ 14,349.67
3	0.11296	$ 29,802	$ 23,614	18,934	$ 15,539	$ 14,301	$ 9,714.74
4	0.11296	$ 35,286	$ 25,859	18,840	$ 13,791	$ 11,959	$ 5,216.61
5	0.11296	$ 40,865	$ 28,104	18,745	$ 12,072	$ 9,663	$ 851.77
6	0.11296	$ 46,554	$ 30,350	18,652	$ 10,382	$ 7,412	$ (3,383.22)
7	0.11296	$ 52,335	$ 32,597	18,558	$ 8,720	$ 5,205	$ (7,491.68)
8	0.11296	$ 58,222	$ 34,844	18,466	$ 7,087	$ 3,041	$ (11,476.88)
9	0.11296	$ 64,233	$ 37,092	18,373	$ 5,481	$ 920	$ (15,342.00)
10	0.11296	$ 70,329	$ 39,341	18,281	$ 3,902	$ (1,159)	$ (19,090.11)
11	0.11296	$ 76,562	$ 41,590	18,190	$ 2,351	$ (3,196)	$ (22,724.25)
12	0.11296	$ 82,894	$ 43,841	18,099	$ 826	$ (5,193)	$ (26,247.35)
13	0.11296	$ 89,358	$ 46,092	18,009	$ (673)	$ (7,150)	$ (29,662.28)
14	0.11296	$ 95,936	$ 48,344	17,918	$ (2,146)	$ (9,067)	$ (32,971.83)
15	0.11296	$ 102,641	$ 50,597	17,829	$ (3,593)	$ (10,945)	$ (36,178.74)
16	0.11296	$ 109,472	$ 52,852	17,740	$ (5,016)	$ (12,785)	$ (39,285.65)
17	0.11296	$ 116,426	$ 55,107	17,651	$ (6,413)	$ (14,588)	$ (42,295.17)
18	0.11296	$ 123,519	$ 57,364	17,563	$ (7,786)	$ (16,354)	$ (45,209.81)
19	0.11296	$ 130,748	$ 59,622	17,475	$ (9,135)	$ (18,083)	$ (48,032.03)
20	0.11296	$ 138,110	$ 61,881	17,388	$ (10,460)	$ (19,777)	$ (50,764.24)
21	0.11296	$ 145,637	$ 64,142	17,301	$ (11,762)	$ (21,436)	$ (53,408.78)
22	0.11296	$ 153,292	$ 66,404	17,214	$ (13,041)	$ (23,060)	$ (55,967.93)
23	0.11296	$ 161,090	$ 68,667	17,128	$ (14,296)	$ (24,650)	$ (58,443.91)
24	0.11296	$ 169,044	$ 70,932	17,042	$ (15,529)	$ (26,207)	$ (60,838.89)
25	0.11296	$ 177,169	$ 73,199	16,957	$ (16,740)	$ (27,730)	$ (63,154.98)
25 Year Savings Total		**$ 2,313,064**	**$ 1,152,927**	**$ 450,508**	**$ 2**	**$ (153,065)**	**$ (672,712)**

Attachment C: MN Community Solar Development and Ratepayer Costs

Solar Development and Ratepayer Costs

A small fee for a lot of power: Though we cannot comment on how Xcel breaks down their costs, these recent fees were announced with 74 MW of Community Solar activated on Xcel's grid this year. By the end of the year there is expected to be 325 MW of additional Community Solar on the grid, with upgrades, construction, and costs already factored in to the current rate announcement.

Fees: The current fees for solar falls under the Renewable Energy Standard rider, which allows Xcel to recover the costs of acquiring renewable energy from ratepayers. These costs are reevaluated on a yearly basis and include fees associated with other forms of renewable energy such as wind and hydro.

Current cost recovery:
.0497% of three charges on your current bill make up this recovery.
-basic service charge, energy charge, demand charge

Benefits Of the Community Solar Gardens ("CSGs") Are:

- ✓ Based off of our own development costs, we can estimate developers will spend out-of-pocket over $40 million on grid upgrades that benefit all utility customers, and aren't paid by the ratepayers.
- ✓ Community Solar Gardens provide predictable power during peak times, which helps lower payments made to peaking plants (saving us all - utilities and rate payers - money)
- ✓ CSGs makes the grid more reliable and lowers transmission and distribution costs since they are spread out across the grid
  - ➢ Saving us all money, and making the grid less prone to blackouts and more resilient to natural disasters
- ✓ The CSGs create local jobs and benefits the local economy (savings to subscribers, landowner payments, construction jobs, etc.), while producing clean energy. Why get all your power from a plant located outside rural MN, when you can benefit your surrounding area?

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By Novel Energy Solutions