Solar Energy

St. Cloud Nutrient, Energy and Water Recovery Facility

ST.CLOUD GREATER
SOLAR INITIATIVE TIMELINE

Solar Initiative Resolution of Support
- Approved by City Council in July 2015

First Solar Install
- at the St. Cloud Nutrient Energy & Water Recovery Facility

8 Behind the Meter Solar Installations
- at City facilities generating electricity

Solar RFP
- City issued a Request for Proposals for Solar related Services and Projects

Community Solar Gardens
- City subscribed to over 20 million kWh’s

2019
- NEW Facility
  - 200 kW Array
  - 40 kW Array
ENERGY TRACKING

Wastewater Treatment Plant
525 80th St S Saint Cloud, MN 56301

Waste Water Treatment Plant
Plant Design Flow Rate: 17.9 MGD

Meters (6 meters)

<table>
<thead>
<tr>
<th>Meter Name</th>
<th>Status</th>
<th>Type</th>
<th>Utility</th>
<th>Meter #</th>
<th>Account #</th>
<th>First Reading</th>
<th>Last Reading</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biofuel Generator</td>
<td>✔️</td>
<td>PV Renewable Meter</td>
<td>Owner</td>
<td>161200359</td>
<td>51-5187789-1</td>
<td>1/12/2017</td>
<td>9/23/2017</td>
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<tr>
<td>Flow Meter</td>
<td>✔️</td>
<td>Flow Meter</td>
<td>(Unknown)</td>
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<td>12/1/2009</td>
<td>10/1/2017</td>
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<td>WWTF Pilots/Lab</td>
<td>✔️</td>
<td>Natural Gas Meter</td>
<td>Xcel Energy</td>
<td>20339497</td>
<td>51-5187789-1</td>
<td>12/29/2007</td>
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<td>WWTF SOLAR PV 220KW</td>
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<td>PV Renewable Meter</td>
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<td>51-5187789-1</td>
<td>5/19/2017</td>
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<td>WWTF SOLAR PV 20KW</td>
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<td>PV Renewable Meter</td>
<td>(Unknown)</td>
<td>18980348</td>
<td>51-5187789-1</td>
<td>1/26/2016</td>
<td>9/25/2017</td>
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</table>
ENERGY EFFICIENCY

1,600,000 Kilowatt-Hours

164 Homes’ Electricity (Use for one year)

1,200,000 Pounds of Coal

2,700,000 Miles Driven (By a passenger vehicle)
NEW RECOVERY FACILITY • SOLAR

350,000 kWh ANNUAL PRODUCTION

FIRST SOLAR ROOFTOP INSTALL 20 kW
FIRST BEHIND THE METER INSTALL 220 kW
NEW - % from Renewable Energy Sources

<table>
<thead>
<tr>
<th>Year</th>
<th>Onsite</th>
<th>Purchased from Grid</th>
<th>Biofuel</th>
<th>Onsite Solar</th>
<th>Community Solar Garden</th>
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<tbody>
<tr>
<td>2016</td>
<td>&lt;1%</td>
<td>5.3M kWh</td>
<td></td>
<td></td>
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<td>2017</td>
<td>75%</td>
<td>3.7M kWh</td>
<td>339K kWh</td>
<td>1.4M kWh</td>
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<tr>
<td>2018</td>
<td>82%</td>
<td>4.4M kWh</td>
<td>512K kWh</td>
<td>533K kWh</td>
<td>512K kWh</td>
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</table>

Onsite 91% w/ CSG
NEW Recovery Facility
Purchased Energy (kWh)

2018 = 81% Reduction in Purchased Energy
St. Cloud & Community Solar Gardens

- Subscribed to over 22,000,000 kilowatt-hours
- 32 Gardens
- 25 gardens commissioned since 2017
- 7 Project Sites
- 5 Solar Developers
Projected Annual Savings
Community Solar Gardens

Projected Savings of $28,000,000 over the next 25 years
<table>
<thead>
<tr>
<th>Company</th>
<th>Total Cost</th>
<th>Total Credits</th>
<th>Total Savings</th>
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</thead>
<tbody>
<tr>
<td>NordicSolar</td>
<td>$117,373.42</td>
<td>$128,768.10</td>
<td>$11,394.68</td>
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<td>Potentia</td>
<td>$383,864.42</td>
<td>$409,788.15</td>
<td>$25,923.73</td>
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<td>SoCore/Project Co</td>
<td>$1,044,017.85</td>
<td>$1,181,429.84</td>
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<td>US Solar</td>
<td>$2,394.00</td>
<td>$2,565.15</td>
<td>$171.15</td>
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<td><strong>Totals</strong></td>
<td><strong>$1,689,959.10</strong></td>
<td><strong>$1,864,859.85</strong></td>
<td><strong>$174,900.75</strong></td>
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</table>
Energy Fund 760

REVENUE

- Made in Minnesota Rebates (3)
- Solar Lease Revenue
- Renewable Energy Credits
- Community Solar Garden Savings

City Services used **11.8 M kWh** from CSGs

**$159,000 Savings from CSG Solar Credits**

Jan. – Sep. 2018