

## Town of Breckenridge Roadmap to Renewables

### Current Renewables Picture in Breckenridge

Average Annual Electric Consumption\* (Town Facilities): 5,408,698 kWh (kilowatt hours)

\*Based on 2011 to 2015 Xcel data

	Annual Generation in Kwh	
Solar Garden Production 2016	595,690	Based on panels allocated to the Town from McCain, Stillson, and Lake County solar gardens
Power Purchase Agreement (PPA) Production	545,293	Annual average of solar panels on Town facilities (e.g., Rec Center, Police, Ice Rink).
<b>TOTAL Annual Estimate</b>	<b>1,140,983</b>	

Current Percentage of Renewable Sources for Town Facilities: 21 %

kWh remaining needed to reach 100% (Town Facilities): **4,267,716 kWh**

New Renewable Initiatives:

Add 400 kw/year:

400 kw x 1,400 multiplier = 560,000 kWh x 8 years = **4,480,000 kWh**

At 400 kw/year: **Goal for Town Facilities reached in 2025**

### 8 Year Plan to Get to 100% Renewable Municipal Electric Use

2017/2018 McCain (280,000 kWh)  
Neighboring County Solar Garden (1,120,000 kWh)

2019/2020 Power Purchase Agreement (280,000 kWh)  
Summit County Solar Garden (1,120,000 kWh)  
Town Energy Efficiency Projects (250,000 to 500,000 kWh)  
Second Neighboring County Solar Garden (1,120,000 kWh)

2021-2025 Third Neighboring County Solar Garden (1,120,000 kWh)

If implemented, the above projects would cumulatively exceed the needed 4.5 million kWh needed to reach 100 % renewables. These projects are described in more detail below.

### **2017/2018 Projects**

McCain Solar Garden            200 kw (280,000 kWh)

Attract a solar provider to construct a 500 kw solar garden. Town would be anchor tenant, receiving 200 kw allocation from the garden for around \$3.60/watt (eight to ten year payback with power

produced). Note: Close to \$120,000 is needed to grade the site at McCain. We have received two proposals to develop a garden at this site—both have requested the Town pay for the grading work.

Neighboring County Solar Garden up to 800 kw (1,120,000 kWh)

Partner with a solar provider to construct a 2 megawatt system, with Town being anchor tenant and receiving 800 kw of the garden. There are numerous variations on how this could be accomplished: a) becoming anchor tenant where solar provider assumes all upfront costs; b) purchasing panels in a garden from solar provider at costs similar to McCain scenario above; or c) Town actively seeks out and purchases land in Leadville or Fairplay area where a solar garden could be installed and then attracts solar providers/investors.

**2019/2020 Projects**

Power Purchase Agreement 200 kw (280,000 kWh)

Similar to 2011 project, attract an investor who will earn five years of tax credits by paying for installation of solar arrays on various Town properties. Potential locations include the new water treatment plant roof, the roof on the new tennis center, and other properties the Town owns, including the possibility of considering some valley floor open space properties (e.g., French Creek).

Summit County Solar Garden up to 800 kw (1,120,000 kWh)

Participate, potentially as an anchor tenant or as a major subscriber, in a solar garden constructed near the Summit County Landfill. This could potentially be up to a 2 megawatt system.

Town Energy Efficiency Projects from 250,000 to 500,000 kWh

The Town continues to perform energy efficiency upgrades and accelerates the schedule for certain upgrades. This is an ongoing project starting in 2017 and going through the 2025 timeline. With continued implementation, we could see savings of from 250,000 to 500,000 kWh electricity use annually. A further recommendation is to consider another energy audit of Town facilities, since it has been close to ten years since the last one. In those last ten years, we saw a decrease of almost one million kWh annually because of upgrades. One caveat, this does not consider the additional loads that will be created by new facilities (e.g., second water treatment plant, tennis court).

Second Neighboring County Solar Garden up to 800 kw (1,120,000 kWh)

Same as described above under 2017/2018 projects.

**2021 to 2025 Projects**

Third Neighboring County Solar Garden up to 800 kw (1,120,000 kWh)

Same as described above under 2017/2018 projects.

## **Other Initiatives**

Should the following prove feasible, they may be moved into the above years 2017 to 2025 schedules.

**Hydro power at Tarn Dam:** may not be feasible but will analyze potential

**Small scale hydro and wind energy:** work with NREL to determine feasibility

**Discussions with Xcel Energy:** efforts to get Xcel to move towards 100% renewables

**Solar panels on Town workforce housing projects**

**Town policies:** all new buildings built "solar-ready" and LEEDS equivalent

**Community outreach:** Renewables education to community businesses and residents and potential financial incentives for renewable installation

## **Town-Wide 100% Goal**

Can be helped by above project, but since Town facilities only account for 4% of overall town energy, this requires a strong partnership with Xcel to move towards 100% town-wide.

## **Town Fleet**

Plan to purchase first two electric buses in 2019. Goal to move buses and other town vehicles to electric in upcoming years.