

---

# CITY OF FLAGSTAFF SUSTAINABILITY OFFICE: SOLAR REBATE PROGRAM FRAMEWORK PROPOSAL

---

## PROGRAM STATEMENT OF PURPOSE

---

In 2021, Flagstaff City Council adopted the Carbon Neutrality Plan, respectively, to guide equitable solutions for mitigating and adapting to local climate change threats and reaching carbon neutrality by 2030. The Plan emphasize the need to decrease Flagstaff’s dependence on fossil fuel-derived energy and shift towards renewable energy sources. Previous initiatives to increase renewable energy use include the installation of solar panels at several municipal facilities and the Solar United Neighbors Northern Arizona Solar Co-op, which enabled more affordable access to solar panel installation to households in Flagstaff, Sedona, and surrounding communities, 83 households have signed contract to install systems totaling 641 kilowatts (kW).

The proposed solar rebate program would build on prior momentum by providing financial incentives for solar panel installation and energy production. The program framework:

- Proposes three scenarios (A, B, C) for a Residential program
- Assumes a \$50,000 incentive budget for the program
- Features an equity component to assist low-income community members

---

### COMMON COMPONENTS OF CITY AND STATE SOLAR REBATE PROGRAMS<sup>1</sup>

---

- Dollars-per-kilowatt or watt rebate
  - For household systems, varies by state from \$100–650/kW (\$0.10–0.65/W)
- Solar system equipment credit
  - Dollar amount or percentage of solar panel system cost paid to homeowner in the form of a rebate or state tax deduction
- Property tax exemption
  - Homeowner is not required to pay additional property tax if solar panels raise property value
- Sales tax exemption
  - Homeowner is not required to pay state sales tax on solar system equipment
- Net metering
  - Excess solar power generated by system is fed into the electricity grid in exchange for utility bill credit back to the homeowner

## RESIDENTIAL PROGRAM PROPOSAL

---

### **Scenario A – Moderate Rebate**

- Dollars-per-kilowatt (\$/kW) rebate
  - \$250/kW up to \$1,000
  - Modeled after Fort Collins, Colorado municipal solar rebate program<sup>2</sup>
- Income-based flat rebate for equipment/installation costs
  - \$3,500 (25.58% of average system cost)
  - Modeled after the federal residential solar tax credit<sup>3</sup>
  - In addition to \$/kW rebate
  - Low-income households (annual income ≤80% AMI) eligible
- Scenario Impact: 11–50 households

### **Scenario B – Aggressive Rebate**

- Dollars-per-kilowatt (\$/kW) rebate
  - \$450/kW up to \$3,000
- Income-based flat rebate for equipment/installation costs
  - \$3,500 (25.58% of average system cost)
  - Modeled after the federal residential solar tax credit
  - In addition to \$/kW rebate
  - Low-income households (annual income ≤80% AMI) eligible
- Scenario Impact: 7–16 households

### **Scenario C – Maximum Rebate**

- Dollars-per-kilowatt (\$/kW) rebate
  - \$650/kW up to \$5,000
  - Modeled after Rhode Island’s Commerce RI Renewable Energy Fund<sup>4</sup>
- Income-based flat rebate for equipment/installation costs
  - \$3,500 (25.58% of average system cost)
  - Modeled after the federal residential solar tax credit
  - In addition to \$/kW rebate
  - Low-income households (annual income ≤80% AMI) eligible
- Scenario Impact: 5–10 households

---

### FOCUS ON EQUITY

---

- There are few existing examples of equity-based rebates, and almost all are provided by state or utility providers rather than municipalities.<sup>5</sup>
- For this program, low-income refers to the federally defined threshold of “low-income,” which means at or below 80% of area median income (AMI).
- The average cost for a home 6-kW solar panel system in Arizona is \$13,680.<sup>6</sup> For a family of four in Flagstaff making ≤80% of AMI, this cost is 22.26% of the annual household income.<sup>7</sup>
- The biggest hurdle for low-income households is the upfront cost of equipment and installation.<sup>8,9</sup>
- Tax credits are not as beneficial for low-income families because they may not pay enough income tax to take advantage of these credits.<sup>10</sup> However, the percentage of such tax credits can serve as a model for a flat rebate amount.

- The federal residential solar tax credit is 26% for systems installed 2020–2022 and 22% for systems installed in 2023.<sup>11</sup>
- Using the range of the federal residential solar tax credit as a model, this program proposes a \$3,500 flat rebate for low-income households, which is 25.58% of the average cost of a 6-kW solar panel system in Arizona.
- There should be further discussion on low-income and if the City defines income thresholds or follow the federal threshold.

**Table 1:** Residential solar rebate program impact by scenario. Each scenario includes two situations: all low-income households (representing the lowest maximum number of households served) and no low-income households (representing the highest maximum number of households served). Incentive differences among scenarios are highlighted.

<b>Residential Scenario A – Moderate Incentive</b>			
All low-income customers		No low-income customers	
\$250/kW maximum	\$1,000	\$250/kW maximum	\$1,000
Income-based flat rebate	\$3,500	Income-based flat rebate	\$0
Maximum rebate/household	\$4,500	Maximum rebate/household	\$1,000
Total incentive budget	\$50,000	Total incentive budget	\$50,000
Total households	<b>11.11</b>	Total households	<b>50</b>

  

<b>Residential Scenario B – Aggressive Incentive</b>			
All low-income customers		No low-income customers	
\$450/kW maximum	\$3,000	\$450/kW maximum	\$3,000
Income-based flat rebate	\$3,500	Income-based flat rebate	\$0
Maximum rebate/household	\$6,500	Maximum rebate/household	\$3,000
Total incentive budget	\$50,000	Total incentive budget	\$50,000
Total households	<b>7.69</b>	Total households	<b>16.67</b>

  

<b>Residential Scenario C – Maximum Incentive</b>			
All low-income customers		No low-income customers	
\$650/kW maximum	\$5,000	\$650/kW maximum	\$5,000
Income-based flat rebate	\$3,500	Income-based flat rebate	\$0
Maximum rebate/household	\$8,500	Maximum rebate/household	\$5,000
Total incentive budget	\$50,000	Total incentive budget	\$50,000
Total households	<b>5.88</b>	Total households	<b>10</b>

**Table 2:** City and state residential solar rebate program examples. All incentives have been converted to kW for comparison.

City	State	Incentive	Maximum
Austin <sup>12</sup>	Texas	Flat \$2,500	\$2,500
Colorado Springs <sup>13</sup>	Colorado	\$100/kW	≤40% of system cost
Columbia <sup>14</sup>	Missouri	\$150–625/kW tiered by kW produced	Additive rebate tiers
Fort Collins <sup>15</sup>	Colorado	\$250/kW	\$1,000
statewide <sup>16</sup>	Rhode Island	\$650/kW	\$5,000
Santa Clara <sup>17</sup>	California	\$350/kW	\$1,050 (3 kW)

---

## ADDITIONAL CONSIDERATIONS FOR A RESIDENTIAL REBATE PROGRAM

---

- Adding rebates for additional solar equipment and appliances
  - Fort Collins, Colorado has an additional rebate program for battery storage.<sup>18</sup>
  - Vermont<sup>19</sup> and Columbia, Missouri<sup>20</sup> have an additional rebate program for solar water heaters.
- Multi-level or tiered rebate for different categories of kW produced
  - Columbia, Missouri's solar rebate program is structured in additive rebate tiers with the total rebate calculated by adding all rebate tiers together<sup>21</sup>:
    - 0–10 kW: \$375–\$625 per kW
    - 10–50 kW: \$300–\$500 per kW
    - 50–100 kW: \$150–\$250 per kW
    - >100 kW: No additional rebate offered
- Maximizing rebate based on solar panel system capacity
  - Rhode Island's state solar rebate program offers maximum incentive for solar panel systems that produce over 7.7 kW.<sup>22</sup>
- Property tax exemption for homeowners on additional property tax if solar panels raise their home's property value
- Sales tax exemption on solar system equipment
- Net metering utility bill credit for excess solar power generated by homeowners' system that is fed into the electricity grid

## Endnotes

---

- <sup>1</sup> Hurst, J. “10 States with the Best Tax Incentives for Solar Energy.” EcoWatch. 17 Aug 2021. <https://www.ecowatch.com/top-states-for-solar-tax-incentives-2654465836.html>. Accessed 16 Dec 2021.
- <sup>2</sup> “Go Solar in 2021” City of Fort Collins.
- <sup>3</sup> “Homeowner’s Guide to the Federal Tax Credit for Solar Photovoltaics”. Office of Energy Efficiency and Renewable Energy. <https://www.energy.gov/eere/solar/homeowners-guide-federal-tax-credit-solar-photovoltaics>. Accessed 20 Dec 2021.
- <sup>4</sup> “Renewable Energy Fund: Small-Scale Program” funding flyer. Rhode Island Commerce Corporation. 15 Nov 2021. <https://commerceri.com/financing/renewable-energy-fund/>. Accessed 16 Dec 2021.
- <sup>5</sup> “Low-income solar incentives in the US.” SolarReview. 3 Nov 2020. <https://www.solarreviews.com/blog/free-solar-panels-for-low-income-families#low-income>. Accessed 17 Dec 2021.
- <sup>6</sup> Parkman, K. “How much do solar panels cost?”. Consumer Affairs. 19 Nov 2021. <https://www.consumeraffairs.com/solar-energy/how-much-do-solar-panels-cost.html>. Accessed 20 Dec 2021.
- <sup>7</sup> “Housing Authority: Programs and Applying.” City of Flagstaff. 13 Apr 2021. <https://www.flagstaff.az.gov/2342/Housing-Authority>. Accessed 20 Dec 2021.
- <sup>8</sup> Paulos, B. 2017. Bringing the benefits of solar energy to low-income consumers: A guide for states and municipalities.
- <sup>9</sup> O’Shaughnessy, E., Barbose, G., Wiser, R., Forrester, S. and Darghouth, N. 2021. The impact of policies and business models on income equity in rooftop solar adoption. *Nature Energy*(6): 84–91.
- <sup>10</sup> Paulos, B. 2017. Bringing the benefits of solar energy to low-income consumers
- <sup>11</sup> “Homeowner’s Guide to the Federal Tax Credit for Solar Photovoltaics”. Office of Energy Efficiency and Renewable Energy.
- <sup>12</sup> “Solar Solutions: Solar Photovoltaic (PV) Rebate & Incentives”. Austin Energy. 9 Aug 2021. <https://austinenergy.com/ae/green-power/solar-solutions/for-your-home/solar-photovoltaic-rebates-incentives>. Accessed 1 Jan 2022.
- <sup>13</sup> “Solar Energy Program.” Colorado Springs Utilities. <https://www.csu.org/Pages/RenewableRebate.aspx>. Accessed 1 Jan 2021.
- <sup>14</sup> “Solar Rebates”. City of Columbia. 2021. <https://www.como.gov/utilities/columbia-power-partners/solar/solar-rebates/>. Accessed 16 Dec 2021.
- <sup>15</sup> “Go Solar in 2021: Residential Solar in Fort Collins.” City of Fort Collins. 2021. <https://www.fcgov.com/utilities/residential/renewables/solar-rebates>. Accessed 16 Dec 2021.
- <sup>16</sup> “Renewable Energy Fund: Small-Scale Program” funding flyer. Rhode Island Commerce Corporation.
- <sup>17</sup> “Rebates: Low Income Solar Grant Program”. City of Santa Clara. <https://www.siliconvalleypower.com/residents/rebates-6214>. Accessed 24 Jan 2022.
- <sup>18</sup> “Residential Battery Storage Program.” City of Fort Collins. <https://www.fcgov.com/utilities/residential-battery-storage-program>. Accessed 16 Dec 2021.
- <sup>19</sup> “Available Funding and Financing.” The City of Burlington. <https://www.burlingtonvt.gov/Sustainability/Available-Funding-and-Financing>. Accessed 16 Dec 2021.
- <sup>20</sup> “Solar Water Heaters”. City of Columbia. 2021. <https://www.como.gov/utilities/columbia-power-partners/solar/solar-water-heaters/>. Accessed 3 Jan 2022.
- <sup>21</sup> “Solar Rebates”. City of Columbia.
- <sup>22</sup> “Renewable Energy Fund”. Rhode Island Commerce Corporation.