



# Community Solar+

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Advancing Innovation and  
Decarbonization with the Next Generation  
of Community Solar

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# Rocky Mountain Institute (RMI) Is an Independent, Non-Partisan, Nonprofit Organization Dedicated to Accelerating a Prosperous, Clean Energy Future for All

## What We Do:

- *Founded in 1982, RMI now operates across the United States and in over 60 countries – working with utilities, governments, communities, industry, financial institutions, and many others*
- *We combine techno-economic research, whole-systems thinking, and unconventional partnerships to think creatively, act boldly, and scale clean solutions globally*



# Community Solar Enables Communities to Share the Benefits from Medium-Scale, Local Projects

**These are projects within the customers' utility service territory and connected to the distribution grid**



**Multiple customers (residents, businesses, etc.) share the production**



**Customers receive credits based on energy produced to offset part of their utility bill**



**This enables greater access to solar energy for renters, multifamily residents, and others**

# Community Solar+ Encourages Hosts and Developers to Think More Expansively to Enhance Total Value

## Whole-Systems Approach

- Community Solar+ (CS+) is a ***whole-systems approach for unlocking added value and greater scale with community solar***

## Community Solar as an Enabling Mechanism

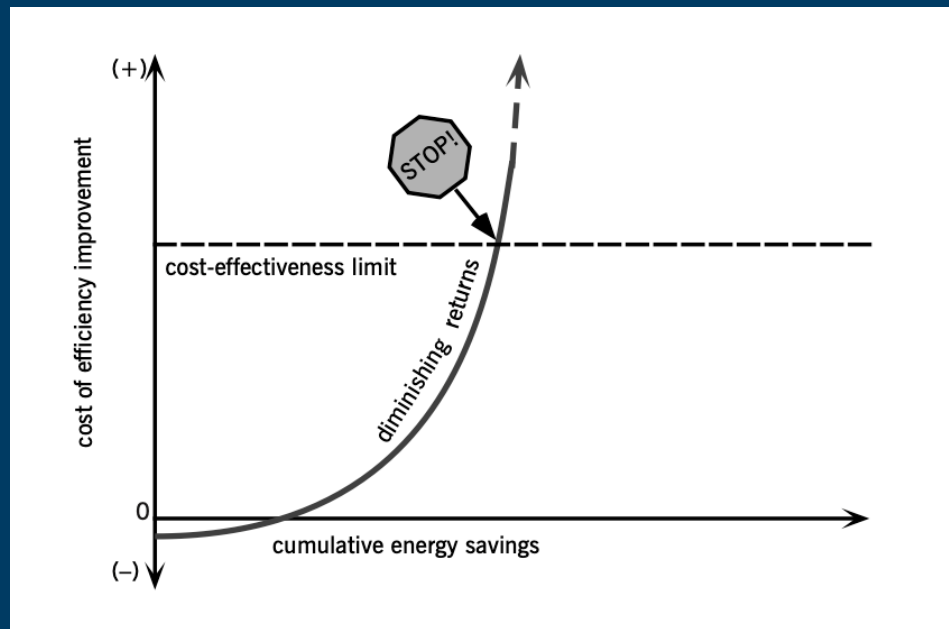
- Community solar removes the need for projects to serve an individual building's load and expands the pool of "buyers" who can benefit

## Full Project Value, Not Just Cost

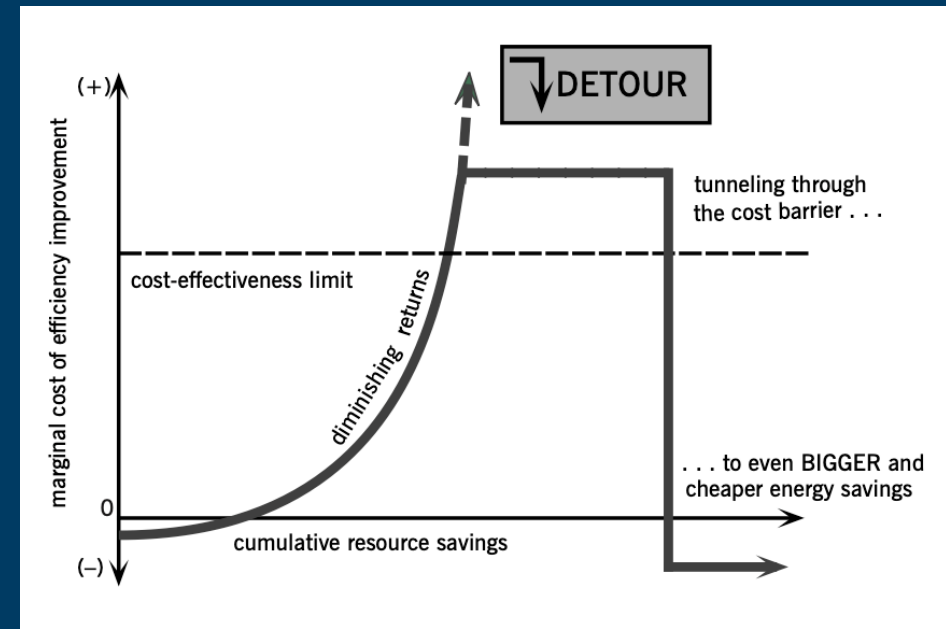
- Ultimately, we hope to encourage communities, utilities, and developers to think more deliberately about ***full project value*** to advance community-wide goals

# Whole Systems Thinking Can Unlock Greater Value for Communities

Traditional Approach of Evaluating Each Improvement in Isolation



Whole Systems Approach of Evaluating Improvements Collectively



Source: Lovins, Amory & Lovins, L. Hunter. (1999). Natural Capitalism.

# Community Solar+ Seeks to Scale Community Solar with Mutually Reinforcing Strategies

Exhibit 2

## How Community Solar+ Seeks to Scale Community Solar



Unlocks local value streams through intentional project design



Scales local solar in population centers

# RMI's Community Solar+ Report Considered 9 Potential “Value Streams”

These provide varying levels of:

1. Easily Monetizable Benefits
2. Soft Cost Reductions
3. Additional Community Benefits

## Value Stream Potential



Generating clean energy



Expanding solar access



Boosting local jobs and economic investments



Accelerating investment in EV charging infrastructure



Increasing energy resilience for critical assets and vulnerable communities



Aligning evolving grid and customer needs for an electrified future



Creating a more equitable energy system



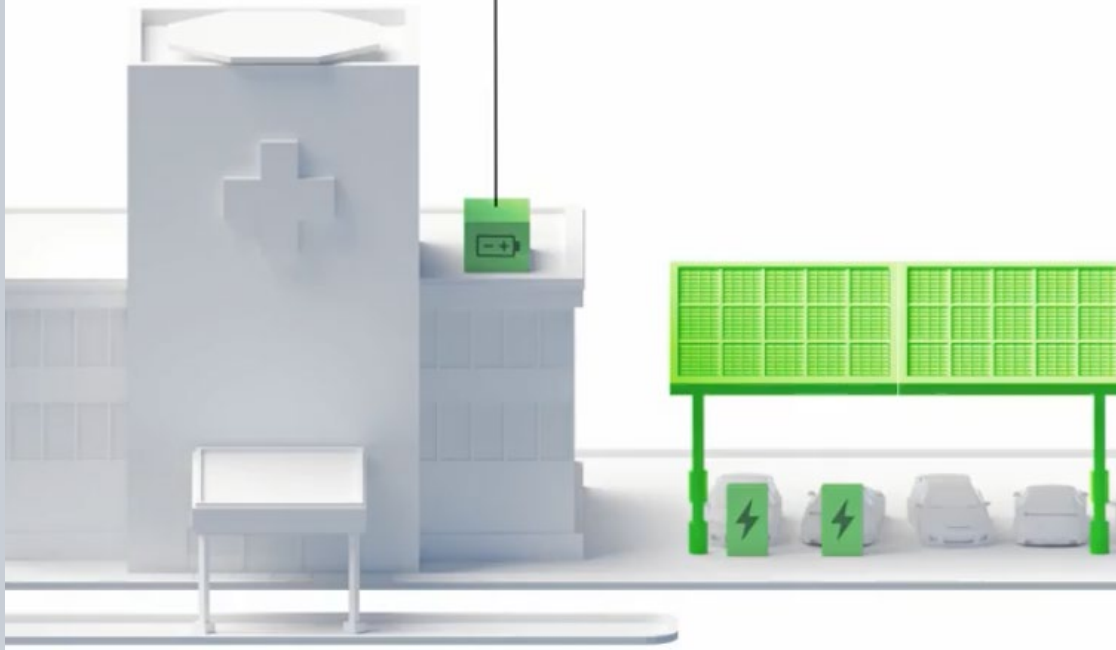
Providing covered parking and weather protection



Mitigating the urban heat island effect

### **Increasing energy resilience**

During grid disruptions, CS+ with storage can help keep the lights on by increasing local grid reliability.



### **Providing covered parking**

Deploying solar canopies can help scale CS+ in dense areas while protecting vehicles from weather and direct sun.

### **Accelerating EV infrastructure**

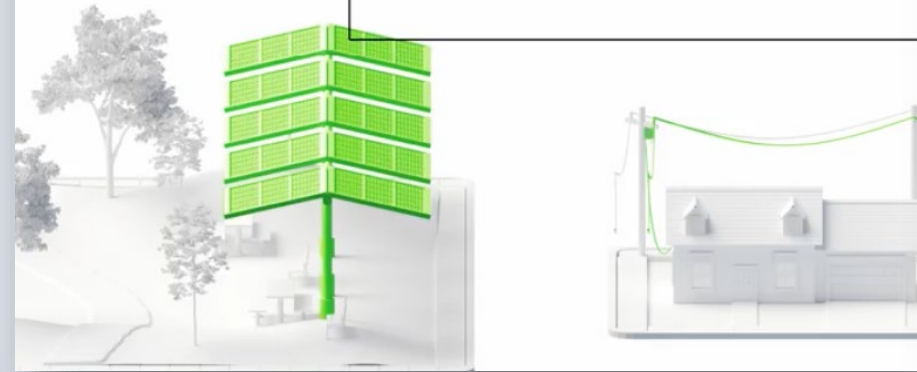
CS+ can help scale EV charging by bundling electrical infrastructure and installation with community solar to lower costs.





### Reducing grid investments

As homes and buildings electrify appliances, heat, and vehicles...



...installing local solar can help manage increases in electricity use and limit stress on the grid during peak demand.



### Creating a more equitable system

CS+ creates community benefits that combine clean energy, resilience, and other added values – even for multifamily units and renters.





# Community Solar+ Examples

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**Denver is installing 16 community solar gardens, including solar canopies, to provide renewable energy, shade, and support to families that need relief on their utility bills**



Source: <https://www.denvergov.org/Government/Agencies-Departments-Offices/Agencies-Departments-Offices-Directory/Climate-Action-Sustainability-and-Resiliency/Cutting-Denvers-Carbon-Pollution/Renewable-Energy/Denver-Community-Solar-Program>

# San Antonio's Municipal Utility, CPS, Partnered with Big Sun Solar to Install Canopies on Privately Owned Parking Lots and Unlock Increased Parking Revenues

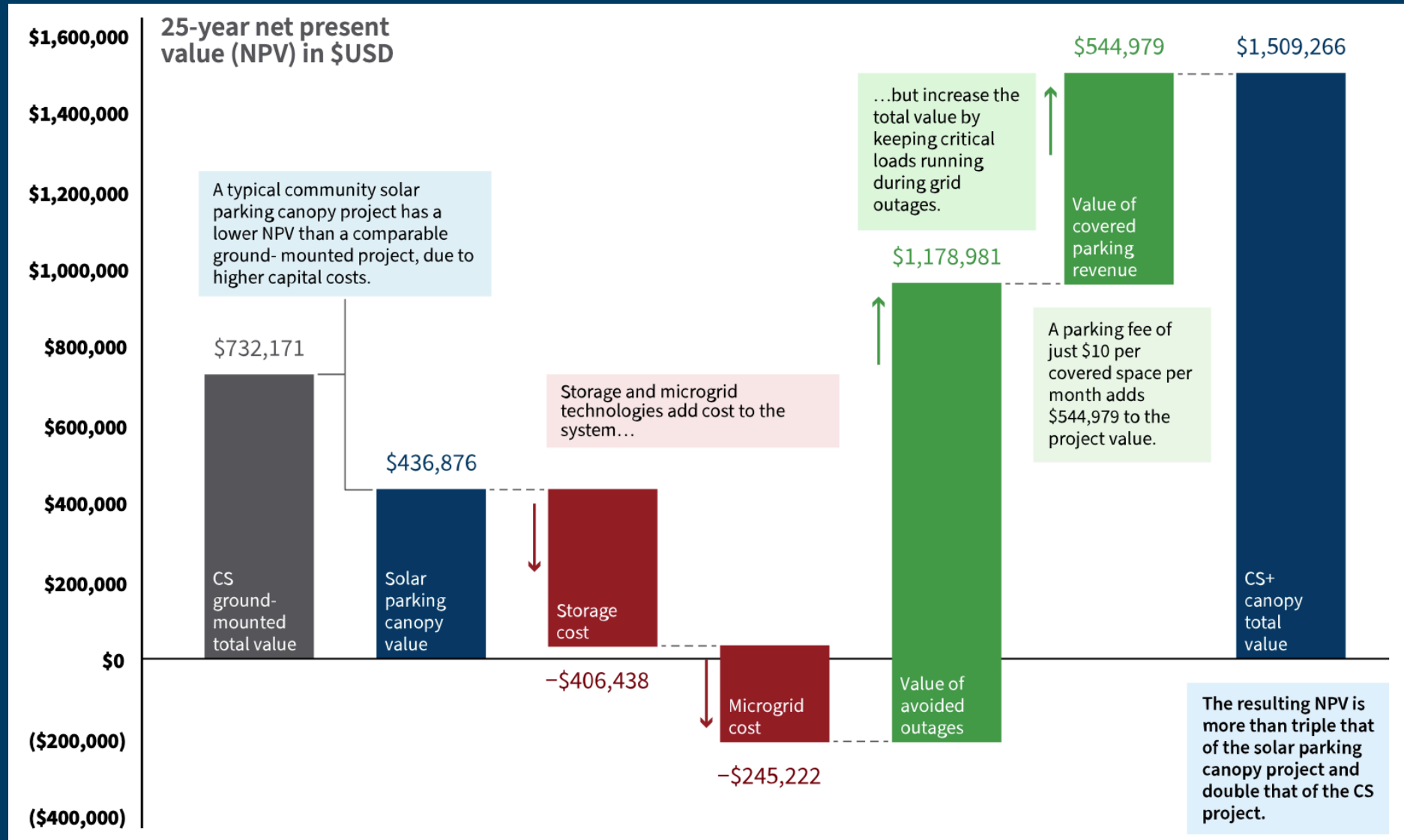


# Washington, DC's Transit System Similarly Hosts Canopy Community Solar Projects for Residents



***Illustrative Example: A Vermont municipality  
intends to develop and manage a 1 MW  
community solar project on either an open field  
(ground mount) outside the city or a large  
parking lot (canopy) adjacent to a local hospital***

# CS+ Value Streams Can Triple the Lifetime Value of a Canopy Project



*“Sometimes a problem can’t be solved not because it’s too big, but because it was framed so narrowly that its boundaries don’t encompass the options, degrees of freedom, and synergies needed to solve it. CS+ aims to fix that by expanding the boundaries.”*

– Amory Lovins, RMI Cofounder and Chairman Emeritus







# *Questions?*

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# Key Assumptions the Illustrative Example

## Overall:

- The CS ground-mounted and CS+ parking canopy net present values (NPV) incorporate upfront and ongoing project costs plus revenue from subscriptions.
- The original parking canopy project has an NPV nearly \$300,000 less than that of the CS ground-mount project.
- With the added value and project costs, the total value of the project becomes \$1.1 million *greater than* that of the solar parking canopy project and \$777,000 *greater than* that of the CS ground-mount project.

## Site Assumptions:

- Both sites are municipally-owned, so site acquisition costs are assumed to be \$0.
- The city will be able to levy an additional fee to monetize the covered parking spaces, conservatively assumed to be \$10/space/month.

## Valuing Solar:

- The assumptions for ground-mounted and parking canopy projects differ only in installed cost, assumed to be \$2.08/W and \$2.81/W, respectively.
- For both systems, the subscription rate is set to \$4.80/panel/month, allowing subscribers to have positive cashflows in year one and onwards.
- This is based on real-world costs from Vermont from 2014-2015. Note that other states and regions may have a range of different market and policy considerations impacting project cost and value.
- No federal tax credits from the Inflation Reduction Act are assumed.

## Valuing Resilience:

- Battery storage was sized using the NREL's REopt tool to power 15% of the hospital's load through an 8-hour outage when the hospital is at its peak load.
- The cost of the 1,282 kWh, 150 kW battery system and ability to island (12% of system capital costs) were included in the model.
- The cost of lost load during an outage is assumed to be \$100/kWh.