

EVs and PV as Complements

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VOTE SOLAR



MISSION, VISION, VALUES

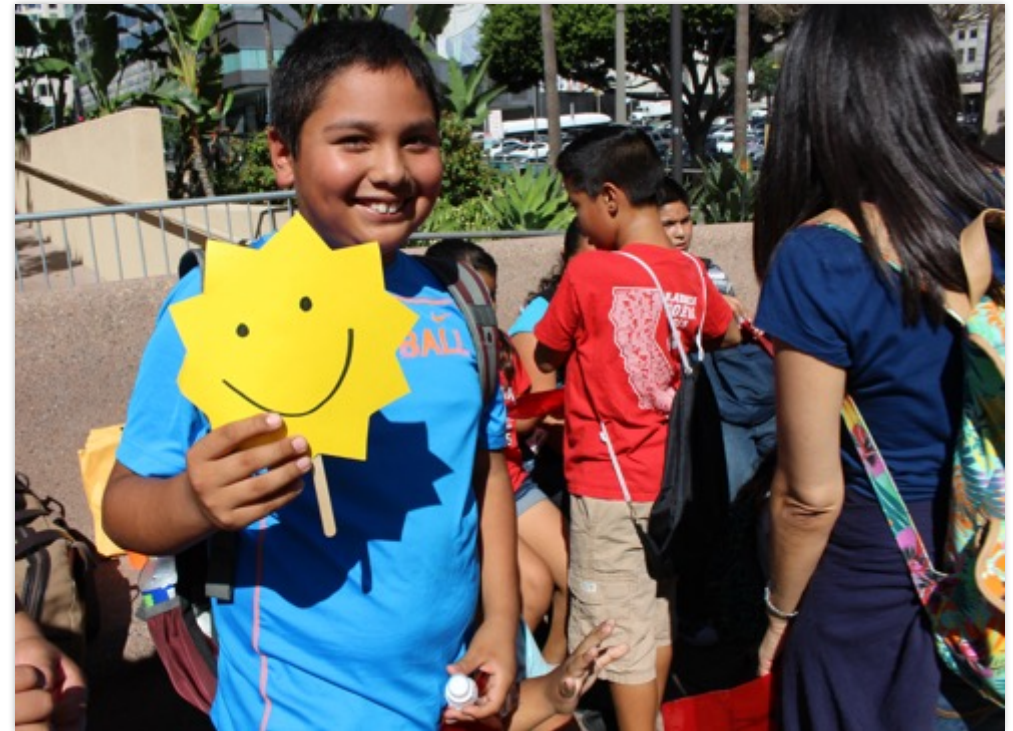


Our mission is to repower the U.S. with clean energy by making solar power more accessible and affordable through effective policy advocacy.

OUR IMPACT

Accelerate our impact in a changing landscape:

- **Solar deployment skyrockets** to 1/3 of US electricity from solar by 2050
- **Clean energy technologies are fully valued** – maximize amount and effectiveness of solar on the electric grid for a high renewable future
- **Consumers are participants** in diverse markets which encourage utility competition and transparent practices
- **Access & equity are central** – foster broad participation and equitable distribution of the benefits from clean energy
- **Mobilize new and growing bipartisan constituencies**, focusing on solar workers & customers, younger generations, underserved communities & communities of color



PROGRAMS

- Utility-Scale Solar
- Rooftop Solar
- Access & Equity
- Community Solar
- **Grid Modernization**



GRID MODERNIZATION

Influence the redesign of regulatory policies and assure that utility planning takes full advantage of the suite of modern distributed clean energy technologies to ensure reliability, minimize costs and maximize the environmental benefits on our pathway to 100% clean energy.

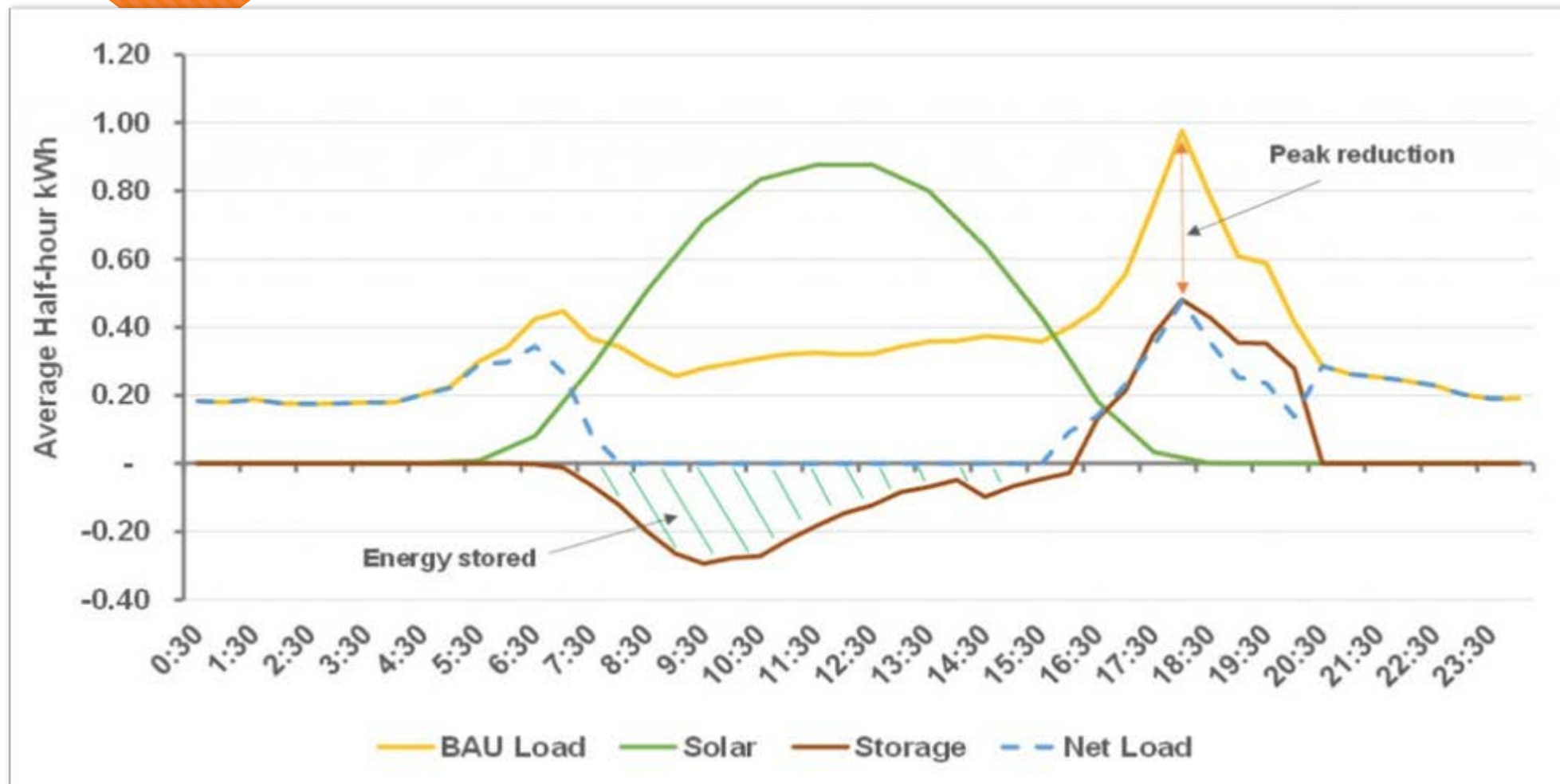


Opportunity for Growth: Critical time in our nation's energy transition to make case for clean energy over new fossil fuel investments. Need to expand geographic & technical capacity to implement vision of grid mod that allows all grid-beneficial technologies and measures to participate in providing grid services and deliver more flexibility and efficiency.

How much solar do we need to decarbonize?

- Assume that future load will be met by a combination of wind and solar, with some hydro and other carbon free resources
- To meet ½ of 2050 Forecasted Electricity Load we estimate a minimum of 2000 GW and as much as 6000 GW of solar capacity if electrification really takes off
- Such a scenario would need a minimum of 2.5 TWh of storage to integrate that variable generation

The Impact of PV + Storage



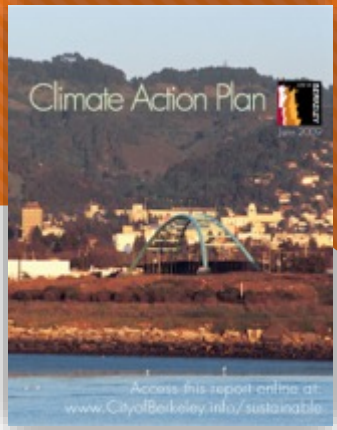
EVs = Mobile Storage

- 263 million vehicles in the US
- Assume full electrification of the fleet with an average 250 mile range (75 kWh) = ~20 TWh of storage!
- Caveat: for the time being, we are only considering managed "charging" not full "vehicle to grid" (V2G) services

Its an Infrastructure thing!

- Taking advantage of the complementarity of EVs and PV means matching charging infrastructure with vehicles in both time and space
- This kind of infrastructure coordination is often the domain of city planners and permitting offices
 - Use of the public right of way
 - Building ordinances
 - Climate Goals
 - Transportation planning

Through the eyes of local planners



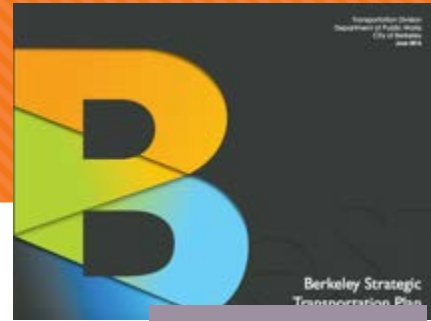
2009

2011



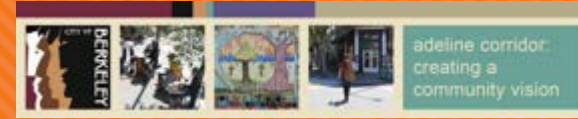
2013

2015



BDG

2017

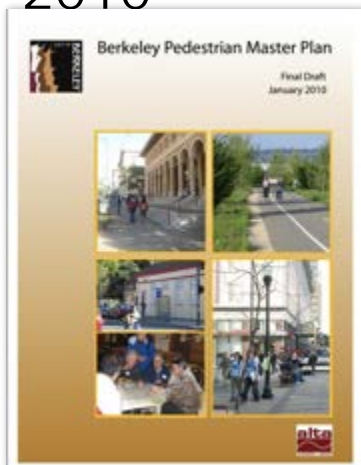


Fossil Free Berkeley-Item 30

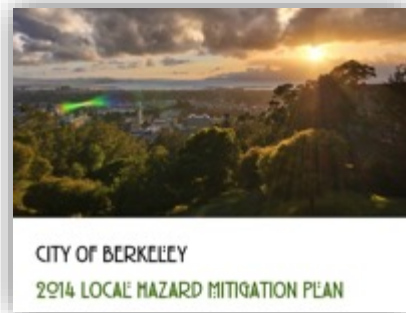
2019



2010

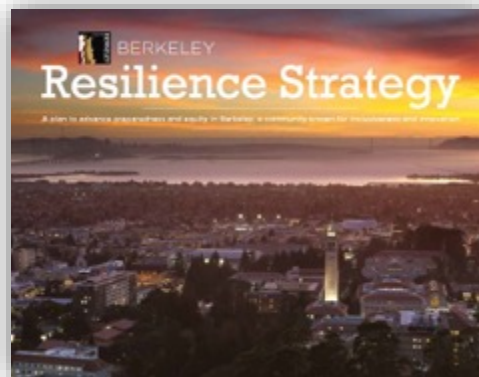


2012



2014

2016



2018



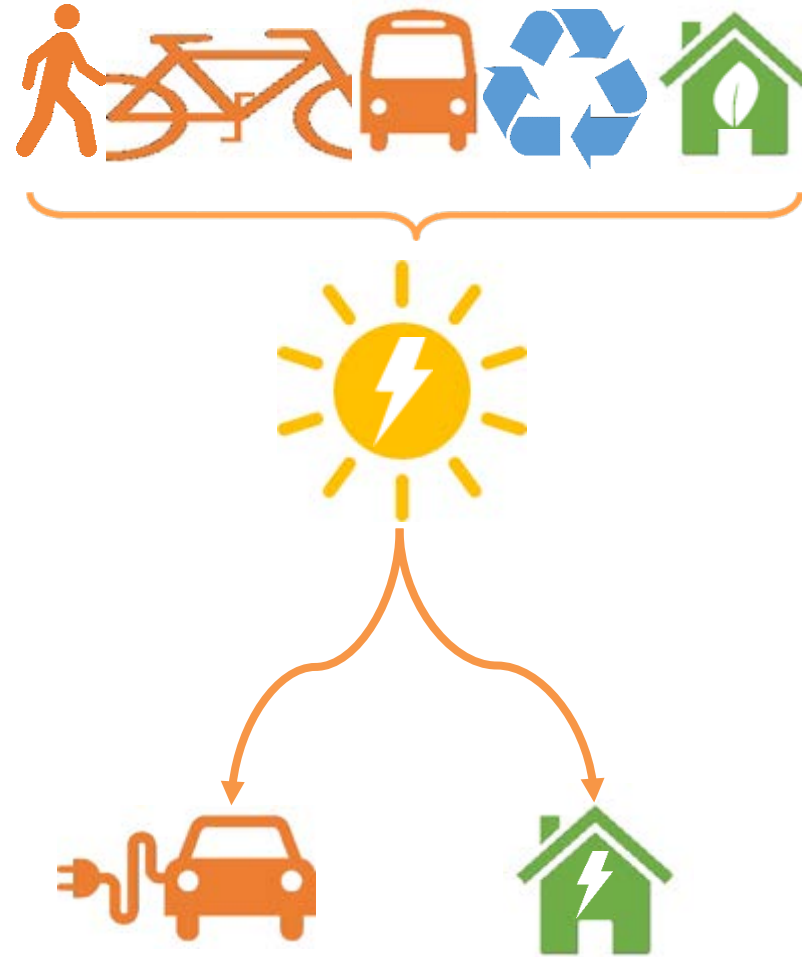
Carbon Sink- Item 49

Path to a Clean Energy Future

1. Reduce energy use
2. Cleaner electricity



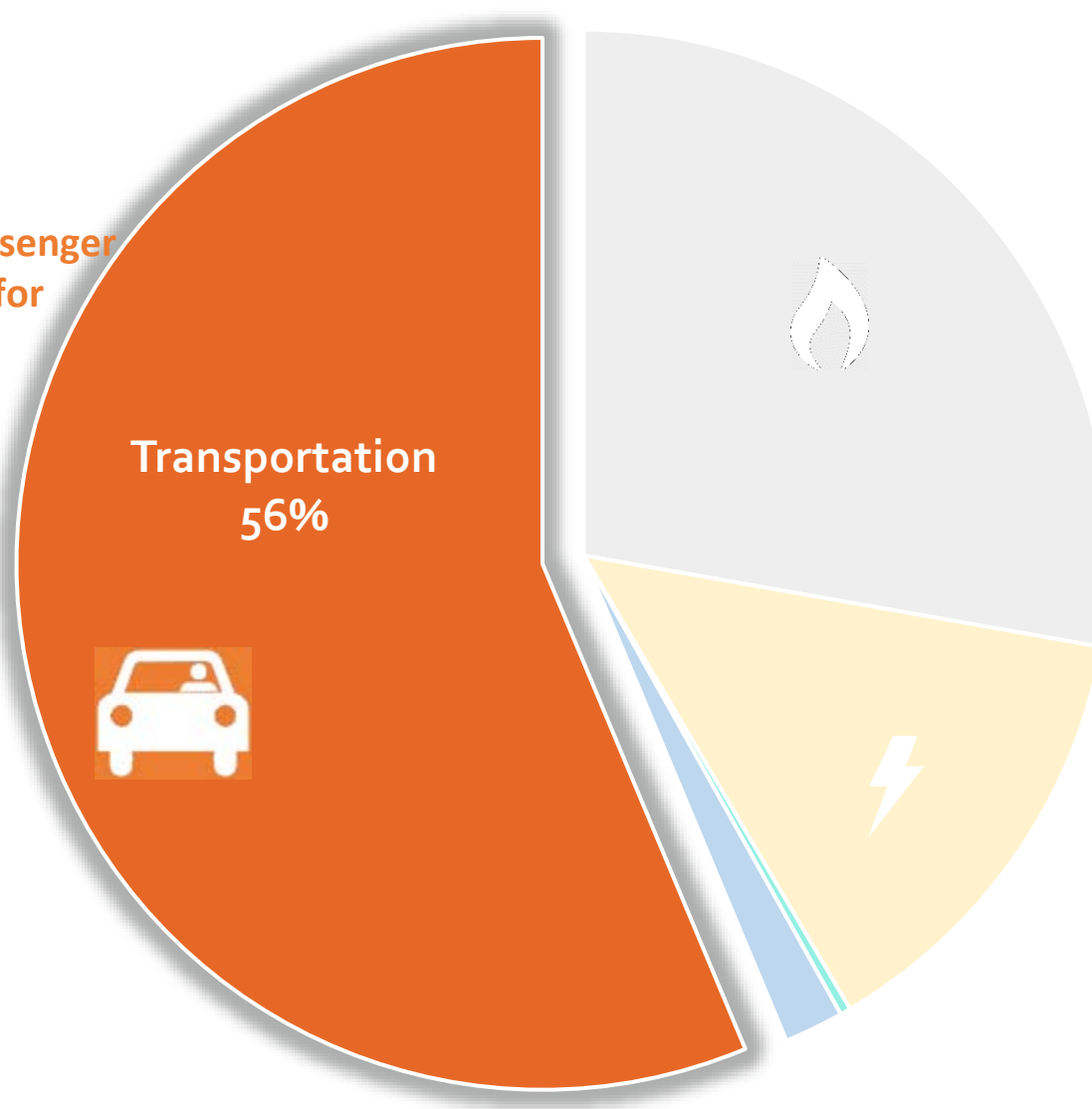
3. Electrify transportation & buildings
 - Electric vehicles
 - Green buildings



2015 Community Emissions



Gas-powered passenger
vehicles account for
70% of all
transportation
emissions



WHAT ARE COMPLETE STREETS?

“Great streets are an important element of creating community, and need to be shaped, comfortable, connected, safe and memorable.”
- Victor Dover





**ZERO NET ENERGY – MICROGRID CAPACITY -
RAINWATER CATCHMENT**



Thank You

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