



A Strategic Plan for Local Solar in Austin

Austin Local Solar Advisory Committee
November 2012

Austin's Local Solar Advisory Committee (LSAC)

- Established by City Council in April 2012
 - Charge: develop a “strategic plan with specific recommendations to ensure the optimum utilization of Austin’s local solar energy resource base”
 - 20 members appointed by City Council, representing a broad cross-section of the Austin community
- LSAC met 16 times from May to November 2012 to create strategic plan and recommendations
- Achieved unanimous vote in favor of Strategic Plan and included goals and recommendations on November 1, 2012

LSAC Members

Jose Beceiro	Greater Austin Chamber of Commerce	Colin Meehan	Environmental Defense Fund
Mark Begert	Meridian Solar	Tuan Q Pham	PowerFin Partners
Bernie Bernfeld	Electric Utility Commission	Stan Pipkin	Lighthouse Solar
Monica De La Rosa	Lava's Energy Efficient Supply Stores	Varun Rai	University of Texas at Austin
Ron Van Dell	SolarBridge Technology	Tom "Smitty" Smith	Public Citizen
Gabe Flores	National Electrical Contractors Association	BJ Stanbery	HelioVolt
Joseph Hawkins	A New Thing	John Sutton	Building Owners and Managers Association (BOMA)
Christine Herbert	Resource Management Commission	Steve Wiese (Chair)	Texas Renewable Energy Industries Association (TREIA)
Michael Kuhn	Solar Austin/Imagine Solar	Roger Wood	CCARE
Sunshine Mathon	Foundation Communities	Salvador (Sal) Valdez	RZ Communications

Benefits of Solar, and Local Solar

Benefits of solar

- Peak coincidence, price stability, hedging against fuel price volatility, minimal environmental impact

Additional benefits of local solar

- Reduces line losses and congestion, reduces transmission costs, reduces local health costs as a result of reduced local pollution, spurs local economic development, provides high-skilled jobs, promotes innovation clustering and leadership, strengthens local capital investment, supports local institutions through the tax base

Comparative Economic Impact

- While local solar has greater installed costs, local benefits associated with local solar development greatly exceed the local benefits associated with development of larger-scale and far-away solar installations, on a per MW basis.

Local Economic Development Impact per 10 MW of Installed Capacity*				
	Residential	Commercial	Large Local	Large Non-Local
Installed Costs (\$/Wdc)	\$3.90	\$3.30	\$2.40	\$1.80
Local Jobs				
During construction and installation period	341	281	165	--
During operating years	2.60	1.48	1.25	--
Local Wages \$000				
During construction and installation period	\$15,512	\$13,398	\$7,508	--
During operating years	\$137	\$81	\$69	--
Local Economic Output \$000				
During construction and installation period	\$42,575	\$35,670	\$19,511	--
During operating years	\$259	\$151	\$126	--

*Installed costs are derived from working group reports and industry information. Local jobs, wages, and economic output are modeled using 2011 wage information in the National Renewable Energy Laboratories' (NREL's) Jobs and Economic Development Impact (JEDI) model. Results do not consider local tax or manufacturing benefits.

What would an optimal environment
for growing solar energy in Austin
look like?

How can we create that optimal
environment?

Key Themes

1. Expand Breadth/Scope of Conversation about Local Solar
2. Adopt Specific Interim and Long-Term Solar Goals
3. Encourage Solar Development that Supports the Utility
4. Grow Customer-Owned Solar While Pivoting to Market Drivers
5. Develop and Promote Solar Financing Options
6. Expand Access to Solar
7. Consider Alternative Approaches
8. Evaluate Progress and Update Solar Plans

Scenarios Considered

- Business as usual
 - 200 MW total
 - ~3% of 2020 total energy from solar
- Equaling projected growth in peak demand with new solar
 - 400 MW total (200 MW local)
 - ~5-6% of 2020 total energy from solar
- Replacing generation from Decker or Fayette with a combination of resources including solar
 - 600 MW total (300 MW local)
 - ~8-9% of 2020 total energy from solar

Recommendations to City Council

1. **Adopt** a long-term (2020) goal to, at a minimum, meet projected demand growth with solar energy, expand programs and policies to enable fulfillment of this goal, while meeting current affordability goals. Our review of costs, policies, programs and options support a 2020 solar goal of at least 400 MW, including 200 MW of local solar, as technically and economically achievable.

2. **Direct** Austin Energy to develop and present a detailed plan

Local Solar		Today	2016	2020
	Residential	6.4	20	45
	Commercial	1.4	20	55
	Large Local	31	45-80*	100
Other Solar		0	50-80*	200
Total Recommended Solar Goal		38.8	135-200*	400

*Costs and economic benefits were calculated based on the minimum of this range.

and planning assumptions required for meeting the 400 MW solar goal and an interim (2016) goal of 135-200 MW, including 85-120 MW of local solar as recommended herein, as part of the Generation Plan.

Recommendations to City Council

3. **Consider** increasing local solar goals as market conditions and environmental requirements change, in order to maximize the benefits of local solar while supporting the stability of our utility and the sustainability of our community.
4. **Direct** Austin Energy to incorporate evaluation criteria for the utility's investment in local solar into the Generation Plan. These criteria would consider and quantify local solar's impacts on transmission and distribution costs, line losses, local jobs and economic development, and the environment.

Austin's Existing Solar Goal – 200 MW by 2020



200 MW

all solar – local and non-local

LSAC's Recommended Solar Goal – 400 MW by 2020



Residential Solar

current: 6.4 MW | 2016 goal: 20 MW | 2020 goal: 45 MW

- **Big picture: reduce rebate budgets and incentive levels while increasing the capacity of new installations annually, achieving 40-50 MW by 2020.**
 - **Financing** – accelerate/magnify rebate program results with financing
 - **Access** – community solar, solar green choice
 - **Transparency** – publish multi-year program projections, establish targets and metrics for tracking local economic development, continue EUC and RMC involvement
 - **Rates** – support Value of Solar approach, consider a floor value, clarify mechanics of interaction with time of use rates
 - **Other options** – facilitate neighborhood buying opportunities, streamline permitting, integrate inspection process

Residential



45 MW
rebates

Commercial Solar

current: 1.4 MW | 2016 goal: 20 MW | 2020 goal: 55 MW

- **Big picture: increase volume of PBI annual commitments while phasing PBI incentive level to zero, achieving 50-60 MW by 2020**
 - **PBI program** – increase project eligibility cap to 1 MW, consider shorter-term PBI or PBI/rebate hybrid options targeted to small commercial and non-profit customers to shorten payback
 - **Rates** – consider credit against demand charge for customers with solar, increase net metering eligibility cap to match PBI project eligibility cap, study application of Value of Solar rate to commercial solar installations in lieu of proposed demand credit
 - **Transparency** – publish multi-year program projections
 - **Other options** – establish community solar/solar green choice options for commercial and industrial customers, consider allowing large customers to opt into self-directed solar programs, obtain legal opinion on whether PBI payments are taxable

Commercial



55 MW

PBI

Local Utility-Owned/-Contracted Solar

current: 31 MW | 2016 goal: 45-80 MW | 2020 goal: 100 MW

- **Big picture: utility projects around Austin combine benefits of large solar while benefiting the utility and local economy**
 - **Projects** – developed on rooftops, covered parking facilities, on empty lots, incremental, location of development at utility's discretion
 - **Contracting** – utility procures power via reverse auction or standard offer, bundles energy into the rate base and/or sells it under voluntary community solar or solar green choice models
 - **Identifying available land/rooftop space** – competitive rooftop lease bid process engages local land and building owners to participate in solar development
 - **Other recommendations** – bundled/coordinated purchases attract capital investment to Austin, coordination of/with local taxing jurisdictions facilitates predictable/consistent local market

Local Utility



100 MW

PPA auction or standard offer

Other Utility-Scale Solar

current: 0 MW | 2016 goal: 50-80 MW | 2020 goal: 200 MW

- **Big picture: the utility should take a flexible approach to capitalize on purchasing opportunities through 2020**
 - balance market opportunities with cost of new solar versus cost of other generation resources, federal investment tax credit (ITC) availability
 - bundling or coordinating these purchases with other goals (residential, commercial, local utility-owned or -contracted, community solar, solar green choice) can boost local economic development.

Other Utility-Scale

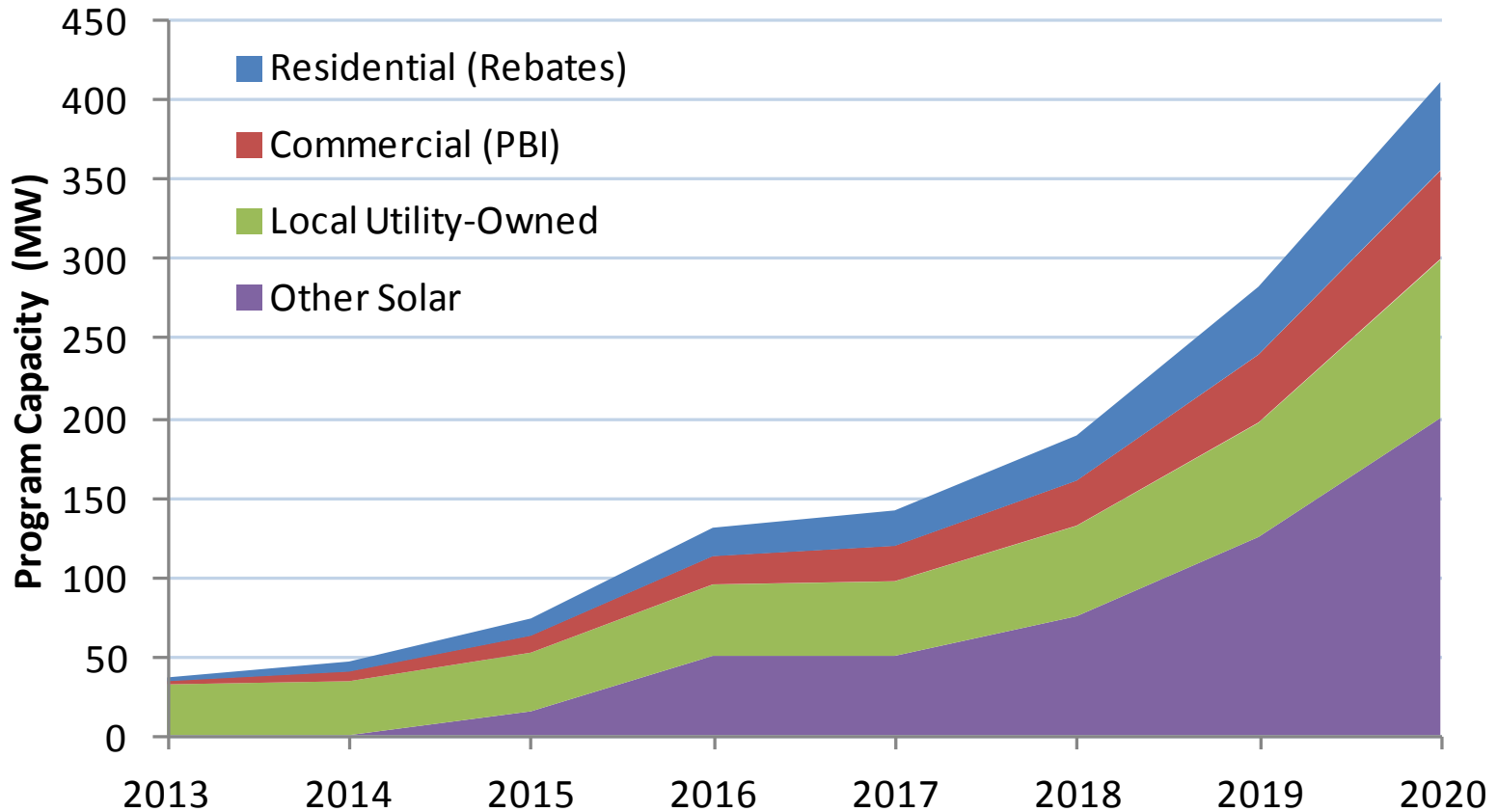


200 MW

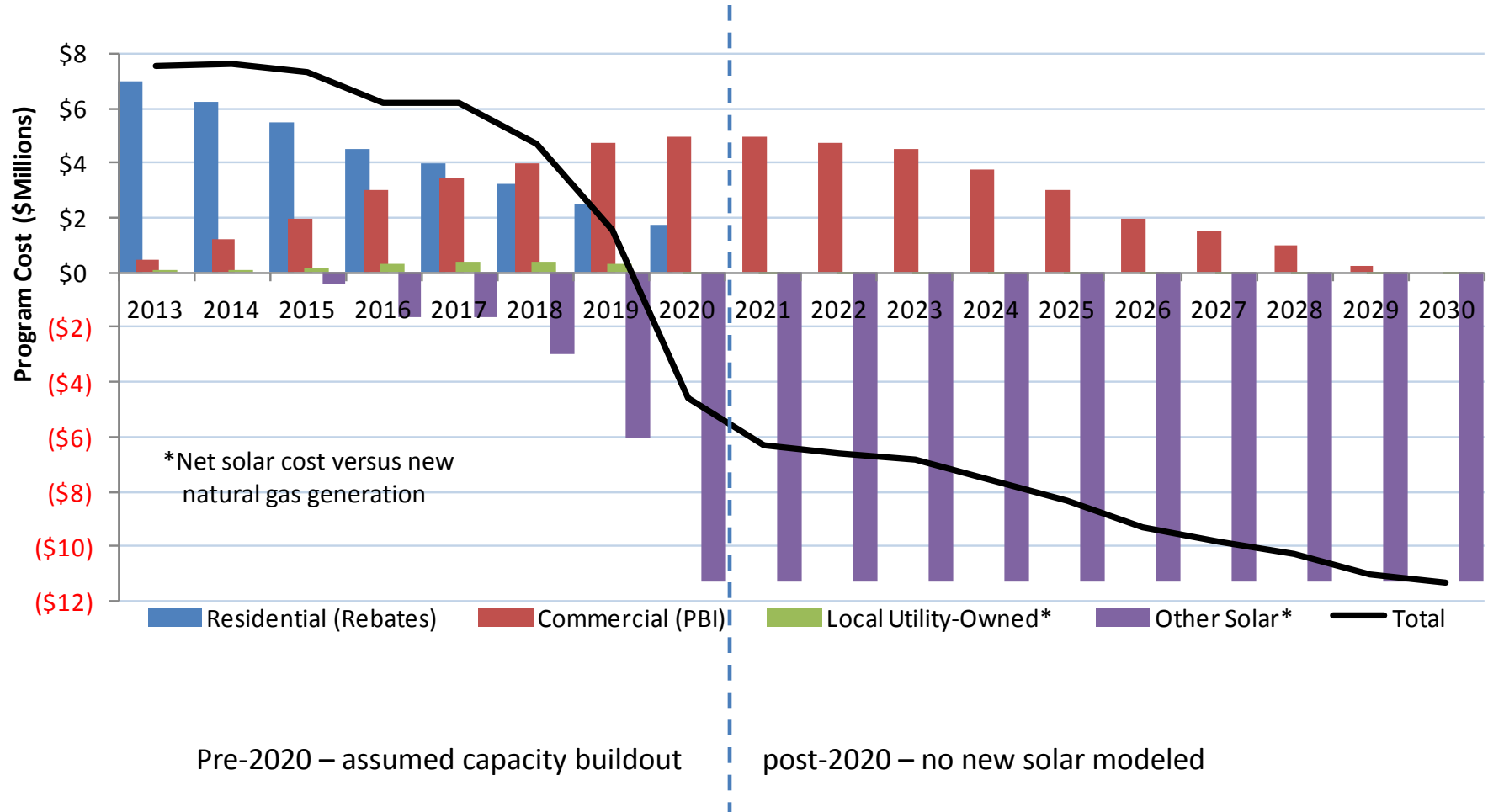
Financing and Accessibility

- **Developing Options for Solar Financing**
 - Engage the financial community, form strategic financing partnerships; engage in co-marketing efforts; explore on-bill repayment, grants or low interest options; enable lease, lease-to-own, and other third party ownership options; work to mitigate current legal and regulatory barriers; support efforts to make property assessed clean energy (PACE) financing work in Texas
- **Expanding Solar Accessibility**
 - Foster development of community solar and/or solar green choice options that work with residential, commercial and industrial customers; work proactively with property developers to facilitate opportunities for solar to be incorporated into infrastructure buildout plans; eliminate city solar code in favor of nationally accepted practices

Capacity Buildout Model



Annual Utility Costs and Savings



Total Utility Costs and Savings

		2013-2020		2013-2030	
Total Costs (\$M)		\$ Nominal	\$ (NPV _{5%})	\$ Nominal	\$ (NPV _{5%})
■	Residential (Rebates)	\$34.75	\$29.31	\$34.75	\$29.31
■	Commercial (PBI)	\$24.00	\$18.29	\$49.71	\$33.02
■	Local Utility-Owned*	\$1.73	\$1.37	\$1.21	\$1.10
■	Other Solar*	(\$23.94)	(\$17.11)	(\$136.60)	(\$75.98)
Total		\$36.54	\$31.87	(\$50.93)	(\$12.56)

*Net solar cost versus new natural gas generation

Costs/Savings as % of Revenue

Year	Solar Cost as % of Est. Tot. Revenue (Local and Other)	Solar Cost as % of Est. Tot. Revenue (Local Only)	Aff. Limit
2013	0.30%	0.30%	2.00%
2014	0.30%	0.30%	2.00%
2015	0.27%	0.30%	2.00%
2016	0.18%	0.31%	2.00%
2017	0.18%	0.31%	2.00%
2018	0.05%	0.28%	2.00%
2019	-0.19%	0.27%	2.00%
2020	-0.64%	0.20%	2.00%

These figures indicate that utility investments required to meet the 400 MW goal as recommended by the Committee could be under the current 2 percent annual affordability limit, depending on the cost of new gas generation and solar prices looking forward. Flexibility (timing and capacity) in utility/contractor owned purchases will be crucial to accommodate deviations of new natural gas and solar prices from those assumed in the analysis.

Local Economic Impact

200 MW of local solar development as recommended in this plan produces:

- Local Jobs and Wages
 - 3,364 local job-years (2,514 direct jobs, 850 induced)
 - Average of 420 local direct and induced jobs each year from 2013 to 2020
 - Average wages estimated at approximately \$46,000 per year
 - Local wages through 2020 total \$157 million, NPV 5% is \$124 million
- Local Economic Output
 - \$360 million, NPV 5% is \$285 million
- Potential Additional Impact of Non-Local Solar
 - Benefits may be enhanced by investments in non-local solar using purchasing and contracting strategies that consider and reward local economic development

	2013	2014	2015	2016	2017	2018	2019	2020	Total	NPV _{5%}
Local Jobs	283	225	416	439	564	398	640	398	3,364	na
Local Wages	\$13,074	\$10,425	\$19,460	\$20,549	\$26,470	\$18,645	\$30,030	\$18,622	\$157,276	\$124,223
Local Economic Output	\$32,373	\$25,547	\$44,253	\$46,473	\$58,753	\$42,787	\$66,960	\$43,420	\$360,566	\$285,403

All dollar figures in thousands. Modeled with the National Renewable Energy Laboratories' Jobs and Economic Development Impact (JEDI) model.

Health and Environmental Impacts

Impacts on local health:

- Reduced pollution offsets real economic costs to the community such as emergency room visits, premature deaths, and missed work days.
- We estimate the economic impact of pollution that could be offset by 200 MW of local solar as recommended herein to be approximately \$15 million.
 - If non-local solar also displaces local fossil generation, impact could be higher. Health impacts may not entirely accrue within Austin Energy's service area due to geographic dispersion of the generation portfolio. The JEDI model's quantification of local economic benefits does not include health benefits.

Impacts on the local environment:

- Reduced water consumption for the production of energy
- Reduced smog
- Healthier ecosystems, cleaner rivers, soils and air

Summary

The Local Solar Advisory Committee's recommendations:

- Are fiscally sound and affordable
- Are supportive of our municipally-owned utility
- Result in net economic and environmental benefits for the community

The Strategic Plan for Local Solar in Austin, adopted unanimously by the members of the Local Solar Advisory Committee in November 2012, represents a path forward for Austin to become an optimal environment in which solar can grow, keeping Austin a healthier, economically vibrant, and visionary community for years to come.