



August 26, 2013

Mr. Michael Judge
Department of Energy Resources
100 Cambridge Street, Suite 1020
Boston, MA 02114

Dear Mr. Judge,

American Solar Partners (ASP) has been installing solar power systems projects in the Commonwealth of Massachusetts, and many other states, for several years. As an active participant in the Massachusetts solar market, we appreciate the opportunity to share our thoughts on the new policies being considered by DOER. While the policies of DOER have been better designed and implemented than many other states, in our opinion, change is needed to ensure the Commonwealth's citizens, particularly the ratepayers and taxpayers, receive the maximum potential economic benefits resulting from the Commonwealth's new 1600 MW solar goal.

The key to delivering greater benefits to Massachusetts ratepayers and taxpayers is to shift to a focus on **equitable growth** in solar capacity rather than continuing the current focus on rapid growth. A focus on equitable growth means incentives to support greater customer ownership of solar power. Equitable growth also means treating the lease/ppa companies that sell to residential consumers the same as commercial and utility scale solar companies, rather than continuing to equate them with residential solar installers.

The DOER presentation recognizes the need to provide greater support for customer ownership of solar power systems. However, we do not think your solutions are sufficient to fully capture the ownership advantage. Because ownership compared to leasing/ppas delivers far greater savings to the homeowner/ratepayer, adds capacity at a lower cost per kW, and delivers more benefits to taxpayers, it deserves a more robust set of policies and incentives than suggested by the DOER presentation.

In the attachment you will find the graphs from a recently completed study comparing the costs and benefits of the ownership model and the leasing/PPAs model for the Massachusetts residential solar market. The major findings are summarized below.

- 1. Ownership delivers four times more utility cost savings to Massachusetts ratepayers & taxpayers compared to leasing.** A homeowner will save approximately \$48k (net after cost of system) over the useful life of a system they own compared to saving \$12k from a lease, assuming a 35% discount off the price of grid power.
- 2. Ownership produces a 50% lower cost of energy for the homeowner.** Over 30 years, the cost of energy is \$.07/kWh if the system is owned; it is \$0.15 if it is leased. (Net cost of the system or the lease divided by the lifetime output (kWh) = average cost of solar power)
- 3. The cost in tax dollars of the incentives for solar power systems owned by a leasing company is 270% higher than for ownership by an individual homeowner.** It costs taxpayers \$6,256 to support ownership of a typical size system by a homeowner; it costs taxpayers \$16,823 to support ownership by a solar leasing company.
- 4. It costs \$1303 in tax expenditures to add 1 kW of capacity owned by the homeowner (ratepayer-taxpayer); it costs \$3505 in tax expenditures to add 1kW of capacity for a leasing company.**

In light of these findings, to continue the current policies that treat residential leasing as if it had the same value as residential ownership, would be an inequitable and inefficient use of ratepayer and taxpayer funds. If DOER adjusts its policies to bring more equity to the solar market, it will increase the savings enjoyed by ratepayers and taxpayers. We estimate that if the residential market reached 50/50 parity between ownership and leasing, DOER would produce \$172 million in additional savings for solar customers by 2020 and spend \$56 million less in tax expenditures.

To that end, we support the policy adjustments outlined in the stakeholder presentation on August 12th that support direct ownership. For example, we support the concept of forward minting of residential customer generated SRECs. The upfront payment of the value of 10 years of SRECs could help overcome the financing challenges for homeowners. But the Department does not go far enough in its proposals to support ownership. Below are recommendations that would strengthen the DOER commitment to ownership:

1. Forward-minting of Solar Renewable Energy Credits must be reserved for systems that are customer owned. There is no need to extend this benefit to solar leasing companies as they already have ample access to capital. In the last year alone, the solar leasing companies have announced several billion dollars of new financing. In the face of the easy financing available for leasing companies, allowing them to forward-mint their SRECs would be corporate welfare at its most egregious.
2. There should be a higher SREC Adjustment Factor for systems that are owned by the customer.

3. Leasing and PPA providers serving the residential market should be treated the same as companies serving the commercial and utility scale market. The fact they are installing less than 10 kW at a time does not change the fact they own a large system, although in aggregated locations, not centralized. Therefore DOER's policies should treat third-party owned solar energy systems, whether they are installed on a home or a warehouse or a greenfield, like other utility-scale projects by using a (.7) SREC factor, not the (.9) factor currently under consideration for residential systems.

There is no meaningful legal or economic difference between a 1 MW solar energy system with a single owner located at a single site and 1 MW of capacity with a single owner that consists of 166 systems of 6 kW each, located at 166 homes. In fact, the leasing companies tout their ability to achieve utility-like economies of scale in their presentations to investors. As SolarCity said in the recent prospectus for its IPO, "[o]ur size enables us to achieve economies of scale in both installation and capital costs, enabling us to offer our customers electricity at rates lower than the retail rate offered by the utility."

By classifying leased systems as utility-scale for purposes of the SREC incentive, it will reduce their unfair advantage over other solar project developers and ensure the SREC capacity for residential systems is reserved for the ownership market.

4. Forward-minting of SRECs for small systems should be available for small business, not for profit, and community-solar customers. While the definition of "small" is open to debate, we suggest a cutoff of 200 kW because we expect the project finance lenders, having migrated from 1 MW size limits to 500 kW, will eventually reach the 200 kW size project. There is very little financing for small commercial systems. Bank lending is difficult to access because banks favor larger loans and they prefer to make loans on a fully secured basis rather than using the non-recourse structure typical in project finance where the loan proceeds are used to acquire an asset that pays for itself. Forward-minting of the SRECs could provide up to 50 % of the cost of a 200 kW system.

5. Build in more flexibility in the CEC program by allowing incentives to be assignable to a lender or installer. Similarly, the state tax credit should be refundable and assignable to the installer.

6. DOER should consider supporting legislation to establish an on-bill financing program to reduce the access to capital barrier many homeowners face. As a result of the slow economic recovery and the still relatively depressed housing market, many homeowners lack easy access to cash in amounts sufficient to finance the project cost. Ideally, the homeowner would have access to a term loan whose monthly payments, once the incentives have been paid and the loan re-amortized, are less than the utility savings. On bill financing with an interest rate similar to mortgage loans, is perhaps the most cost-effective way to address this need. The program could be capitalized in a variety of ways, including state funds, a taxable bond issue, and utility funding.

7. Stimulate in-state and US jobs by offering a higher SREC factor for systems with the Made-in-Massachusetts content and Made in America content. Ratepayers deserve to have the incentives they fund used in a way that benefits their local economy, rather than creating jobs out-of-state or overseas. Therefore, systems that feature components made in Massachusetts and made in America should be encouraged with a bonus SREC factor of (.1), added to the factor for which the project is available.

In closing, though we like the direction DOER seems to be going in with its policies for the next stage of development of solar power in Massachusetts, you need more significant adjustments in your policies, if you are to make the solar market more equitable for the State's ratepayers and taxpayers. In this case, the more equitable policies will also deliver greater benefits to the State's ratepayers and taxpayers. We welcome an opportunity to further discuss our analysis comparing ownership to leasing and our recommendations. Thank you for your consideration.

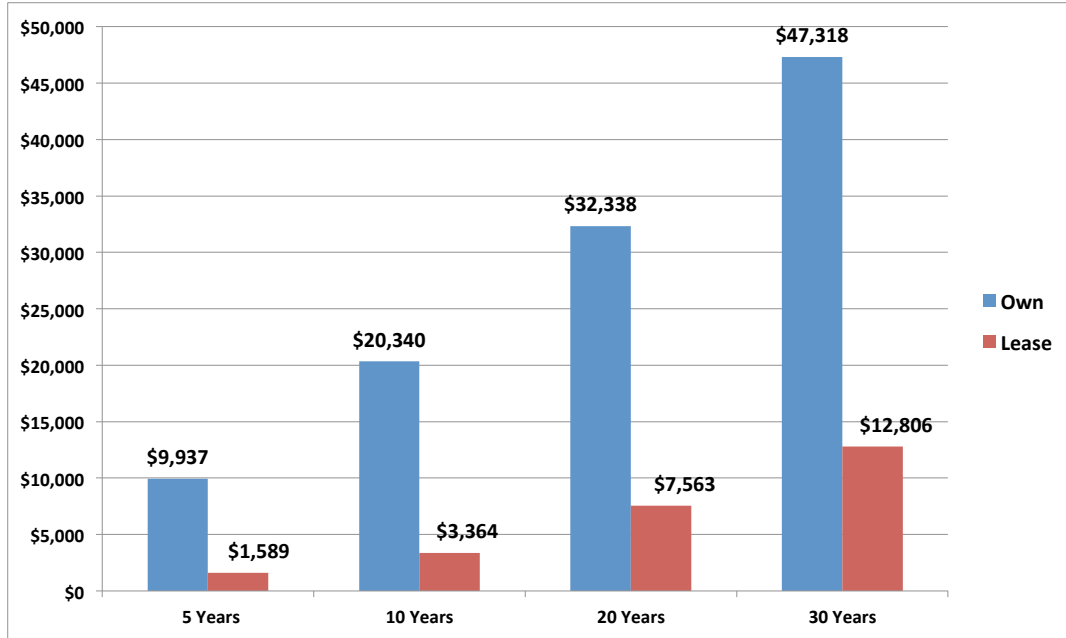
Sincerely,

Lee Smith
Managing Member
American Solar Partners

Residential Solar Power Systems in Massachusetts - 2013
Ownership Compared to Leasing

1. Ownership Delivers 4X The \$ Savings to Massachusetts Residential Customers (Ratepayers & Taxpayers) Compared to Leasing

A homeowner will save approximately \$48k (net after cost of system) over the useful life of a system they own compared to saving \$12k from a lease, assuming a 35% discount off the price of grid power.



Cumulative Savings, Own vs Lease		
Years	Own	Lease
5 Yrs	\$9,937	\$1,589
10 Yrs	\$20,340	\$3,364
20 Yrs	\$32,338	\$7,563
30 Yrs	\$47,318	\$12,806

Table 1 - Projected \$ Net Savings - Ownership			
Year	Annual utility Savings	Annual SRECs	Cumulative Savings and SRECs
1	\$868	\$1,085	\$1,953
2	\$887	\$1,082	\$3,923
3	\$907	\$1,080	\$5,910
4	\$928	\$1,077	\$7,914
5	\$949	\$1,074	\$9,937
6	\$970	\$1,072	\$11,978
7	\$992	\$1,069	\$14,039
8	\$1,014	\$1,066	\$16,119
9	\$1,037	\$1,063	\$18,219
10	\$1,060	\$1,061	\$20,340
Total 1-10			\$20,340
Total 11-20			\$32,338
Total 21-30			\$47,318

Table 2 - Projected \$ Savings - Leasing Cumulative Savings of Lease with 35% Discount (Lease Escalation Rate Set to Match Power Inflation Rate)		
Year	Utility Bill Savings	Cumulative Savings
1	\$304	\$304
2	\$311	\$614
3	\$318	\$932
4	\$325	\$1,257
5	\$332	\$1,589
10	\$371	\$3,364
20	\$463	\$7,563
30	\$578	\$12,806

2. Ownership produces a 50% lower cost of energy for the homeowner.

Over 30 years, the cost of energy is \$.07/kWh if the system is owned; it is \$.15 if it is leased. (Net cost of the system or the lease divided by the lifetime output (kWh) = average cost of solar power)

Cost of Energy (\$/kWh)		
	Ownership	Solar Lease
(\$/kWh, 20 years)	\$0.11/kWh	\$0.13/kWh
(\$/kWh, 30 years)	\$0.07/kWh	\$0.15/kWh

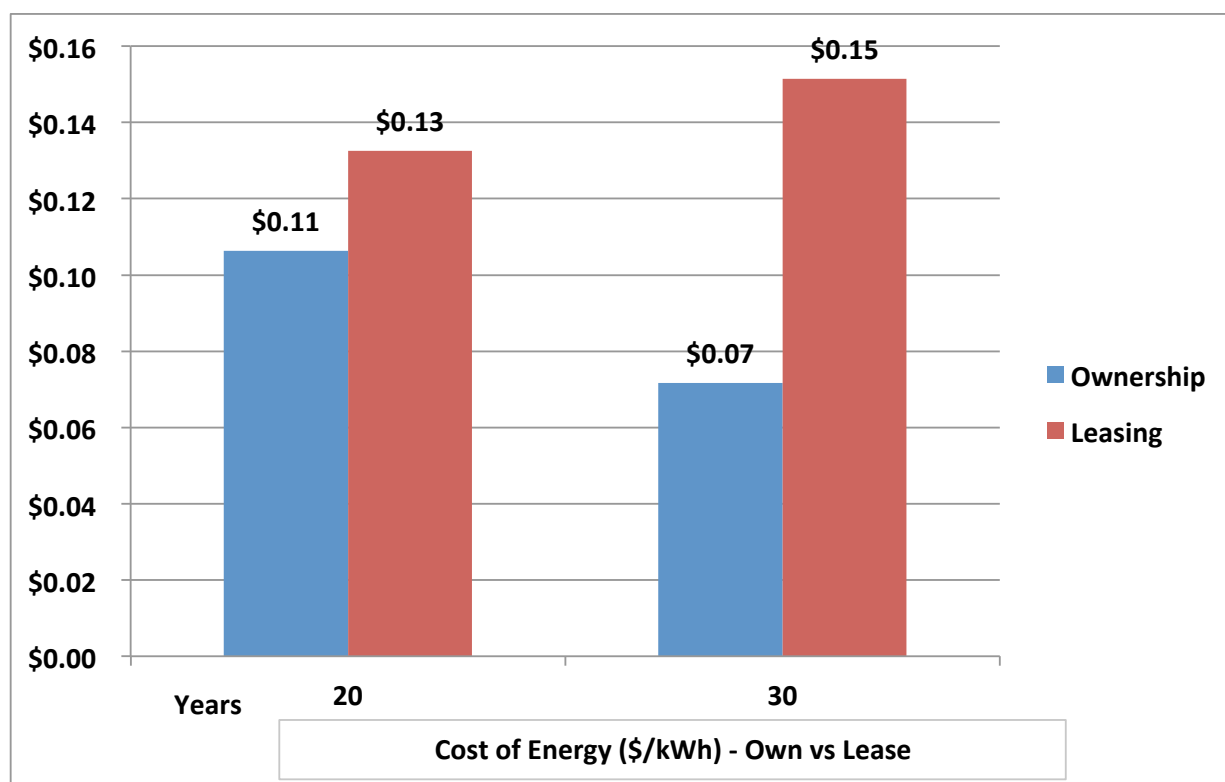


Table 3 - Details on Average Cost: Own v Lease			
Years		Ownership	Leasing
20	Output (kWh)	105961	105961
	Net Cost	\$11,264	\$14,046
	Average Cost	\$0.11	\$0.13
30	Output (kWh)	156986	156986
	Net Cost	\$11,264	\$23,783
	Average Cost	\$0.07	\$0.15

3. Tax Expenditures To Support Ownership By Homeowner Are 60% Lower Than Tax Expenditures to Support Ownership by Leasing Company

It costs taxpayers \$6,256 to support ownership of a typical size system by homeowner; It costs taxpayers \$16,823 to support ownership by the leasing company.

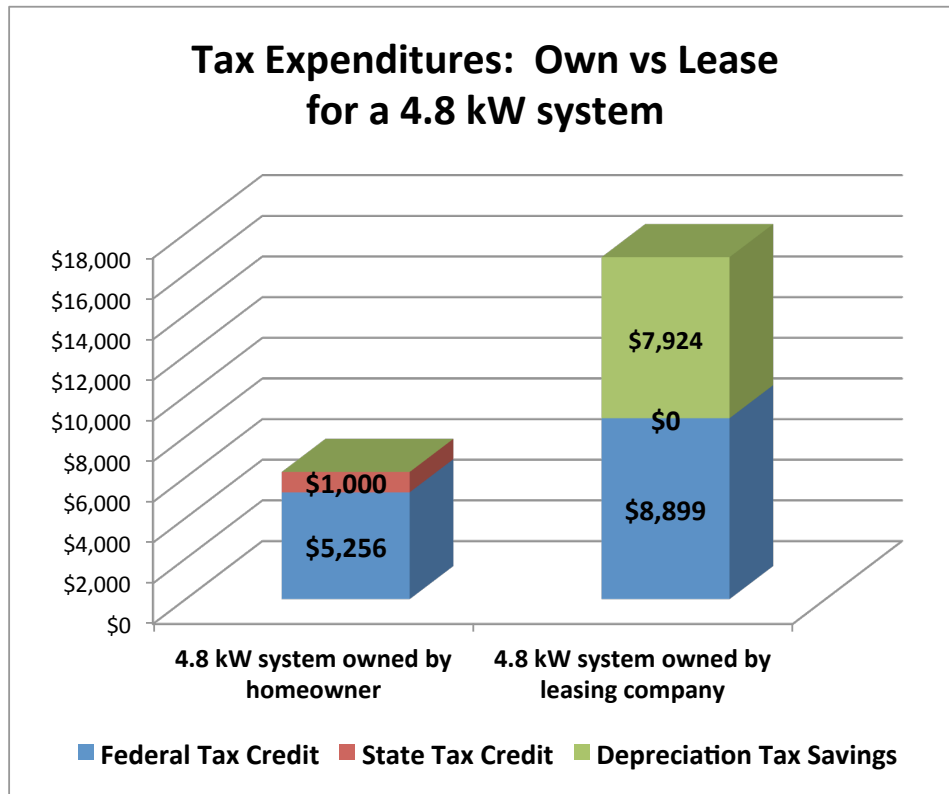


Table 4 - Tax Incentives		
Tax Incentive	4.8 kW system owned by homeowner	4.8 kW system owned by leasing company
Federal Tax Credit	\$5,256	\$8,899
State Tax Credit	\$1,000	\$0
Depreciation Tax Savings	N/A	\$7,924
TOTAL	\$6,256	\$16,823

(1) Assumes Leasing Company treats the rebate as taxable income and takes tax credit against full project cost.

4. It costs \$1,303 in tax expenditures to add 1 kW of capacity if it is owned by the homeowner (ratepayer-taxpayer); it costs \$3,505 in tax expenditures to add 1kW of capacity for a leasing company.

Tax Incentive	System owned by homeowner	System owned by leasing company
Federal Tax Credit (1)	\$5,256	\$8,899
State Tax Credit	\$1,000	
Depreciation Tax Savings (estimate)	N/A	\$7,924
TOTAL	\$6,256	\$16,823
Capacity Added	4.8 kW	4.8 kW
Tax Expenditures per kW of Capacity	\$1,303	\$3,505