



44 Portland Street
Worcester, MA 01608

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I would like to address a number of issues in the current Next Generation Solar Incentive Straw Proposal as presented by the DOER on September 23, 2016.

First, let me express my appreciation for the DOER's process of providing for an opportunity for dialogue around the future incentive structure in the state.

In doing that, let me encourage you to do it earlier in the process. Given my assessment of the current proposal, I think a working committee that includes individuals throughout the state actually engaged in the day-to-day sales, finance, and operations of the industry would have gone a long way to have headed off some of the shortcomings of the current proposal.

While many of us appreciate industry associated organizations and consulting groups such as the ones you did involve, I think most on-the-ground professionals would also attest that such organizations often miss the mark when attempting to speak for the industry in discussions like this. They may represent a "Senatorial" presence on your committees, but you would do well to have a grassroots "House of Representatives" speaking for those in the trenches.

To digress momentarily, let me give a brief biography. I am a second generation contractor with a NABCEP Solar Installer certification. I began my work in solar by overseeing and managing the construction of my first 250 systems in Ontario in 2009 and 2010. Since then, I have gone on to consult for, sell, provide financing for, or in some other way touch close to 1,000 systems in sizes ranging from 4 kW to 5 MW. I currently provide hunting and due diligence services for boutique financiers serving the 1 MW to 5 MW commercial market and oversee a company providing project bidding and consumer protection to residential clients throughout the northeast. I have been involved in project finance and development in 8 states and 1 Canadian Province.

Here are my comments from my view of the industry.

1) A feed-in-tariff style incentive goes the wrong direction.

Ontario chose the FIT as their incentive of choice and is now sorting through the aftermath of that decision as they seek to transition to net-metering. A FIT confirms grid-as-usual policy and ultimately puts the utility and not the rate payer in charge after the FIT period ends. Pushing workable net-metering solutions to another time and place only postpones the inevitable and temporarily props the industry. Ultimately, I believe a combination of falling prices and energy management through battery storage will make the net metering debate moot anyway and utilities

will be forced to change the way they do business to reflect a business model based on grid management and not on energy plant ownership and resale of kWh.

Take away: For a forward-thinking state known for our educational prowess, I am surprised to find us ducking the real issue and choosing a bandaid over a long-term solution. We could have done better.

2) The real problem is poor policy and regulatory inefficiency.

Changing the incentive type or arguing about how much it should be is not at the heart of the real issue. Ultimately, adoption is driven by market forces that are specific and mathematical (I will show in a later point how the new structure falls short of meeting the current financial standards necessary for commercial sector success). For now, I want to point out the real issues affecting us in Massachusetts. As a financier's representative working with projects across the US, I can say definitively that Massachusetts specifically has the highest installation costs in the nation for commercial and residential solar (NJ is close). Here are a few reasons:

- a) Policy around permitting: Unlike New York which has enacted consistent solar permitting practices statewide (one application for every jurisdiction), Massachusetts remains dedicated to supporting the parochial practices of every municipality and town in the state resulting in a confusing and time-sucking process for permitting and designing what should be a simple and elegant energy solution.
- b) Policy around labor: Massachusetts requires one (1) licensed electrician for every other laborer on a site. Having inspected multiple systems across both the US and Canada, I can testify that this results in no quality increase, but can double the cost of labor. Many solar installation activities are more suitable for commercial carpenters, pipefitters, and roofers than they are for electricians. Policy should be framed around meeting code requirements under the supervision of licensed individuals and not around work-site ratios. Labor costs in the midwest and southeast are often less than 60% of Massachusetts costs, and even California projects are running up to 25% less in labor.
- c) Avoidable Soft Costs: Developing a solar project in Massachusetts requires filling out similar pieces of paper with multiple organizations (at least 4) and shepherding the same through multiple processes and timelines (often not concurrent). This increases mistakes, management costs, and ultimately increases development time, inflating development costs and interest costs on money invested but not earning a return during a long development timeline. Solar is a far simpler system than most HVAC or home electrical systems, yet permitting (broad term covering all required permissions) regularly takes weeks or months compared to days in the case of other technologies. One system for data entry and processing seems to be a simple solution that could reduce development time and the man-hours needed to manage the process.
- d) Policy around taxation: Each jurisdiction in Massachusetts differs widely in their approach to valuing and taxing a commercial solar installation. This means that the process of arriving at a value often takes weeks or months and involves legal and accounting costs for both the town and the developer. Since solar is based on a math-model directly related to the production and sale of an asset (kWh of electricity) it would seem that taxation could be reduced to a formula applied based on the production and profit of each system saving money for all.

- e) Lack of Utility Transparency: Much time is wasted on project locations that ultimately won't work because utilities (they are public aren't they) refuse to transparently share where solar works for them and where it does not. Why not direct incentives and therefore projects toward locations on the grid that are good for everyone? A significant percentage of the cost of a successful project is allocated to covering the costs of the failures. Both the utility, the developer, and ultimately the ratepayer are financially impacted by this obfuscation.
- f) Incentives are set too high (Current SRECs - not the new straw proposal). My solar compatriots may nail me for this one, but I do believe that overplaying an incentive also drives cost inflation in the market. Land lease rates are high, taxes, labor, development fees . . . The structure we have had is good and represents one of the most stable policies in the nation, but they have not kept us accountable to reflect declining costs of materials and increasing efficiencies in project pricing and have contributed to a gold-rush mentality in the region.

3) **The incentives in the proposal do not work as they stand.**

Taking a plain-vanilla approach to the simplest possible project (a 1 MW rooftop under a PPA) I calculated the incentive (\$.15 per kWh plus \$.02 per kWh rooftop adder). When applying a build and develop price of \$2.25 per watt (this is low for many MA projects) making this constant over 15 years and then dropping to the assumed wholesale rate and accounting for current tax averages, production rates of 1.2 kWh for every kW installed, insurance, O and M, and leveraged finance at competitive rates, I came up with a project that few current financiers will invest in with an IRR rate less than many midwest projects (I am happy to share my spreadsheets). For me, I believe we should address this in the following ways:

- a) Address the policy and structure issues related in point 2 of my comments to allow us to achieve pricing achievable in other regions (\$1.55 to \$1.80 for a project of this size)
- b) Stay with net metering, keep a REC (not SREC) with the system owner, allow a building owner to go to a standard (non-demand) rate when installing solar and incentivize energy storage/management when coupled with solar (or when standing alone and storing up regular grid energy during non-peak times)
- c) For stand-alone systems (non-net metered) two strategies apply. 1 - A FIT is a workable policy provided that stand-alone systems be required to incorporate storage so they truly address peak demand and the FIT extends for 20 years to match finance demands. 2 - Community Solar may apply net-metering rates as long as community arrays also address energy management demands and are sited where best suited to offsetting other potential grid upgrade costs.

Take Away: The unnecessary complexity of the DOER proposal reflects poorly on the process used to get there. Complexity always involves cost and results in miscommunication and miscalculation. This straw proposal, as it stands, resembles a kluge that seems like it grew out of the desire to make everyone happy. Unfortunately, it doesn't achieve that and fails to provide a long-term viable forward path for solar and the other renewables that will shortly follow.

There are other issues that should be addressed.

The complexity, size, and values of the tariff block structure.

The pause in development caused by the timelines proposed for the new structure.

The costs to the industry as sales models and development retools for the new plan. Websites need to be redone, software rewritten, sales material reprinted . . .

The removal of forest and agricultural land from the pool of available sites. What about the millions spent on development of sites already significantly “down the road” that will not qualify? Do we intend to bar other forms of development on such sites and permanently restrict a private property owners right to do what he wills with his property?

Summary: I can appreciate the work that must have gone into this, but for all the time and expense, I find it to be unusually short-sighted compared to what I have come to respect in the stability and reasonable nature of Massachusetts solar policy as proposed by the DOER. Having said that, I can only assume that the information shared with the DOER in the process was also flawed, but it seems we are in danger of over-complicating and further complicating an already complex policy issue.

I have not addressed the additional customer-facing issues that arise when a state policy changes so drastically and I encourage the DOER to consider that the “better” way proposed is actually an “already been done and doesn’t work well” solution. Another way to look at this is how it affects the prosperity of our communities. The current net-metering model is easy to explain and means that more and more homeowners and small businesses own their solar, pushing the benefits as local as possible. In the new residential model, Financiers will find a way to make it work (depreciation and inflated development costs not available to homeowners helps), but homeowners will have trouble seeing it. Do we really want a model that prefers third party ownership over private local ownership?

Ultimately - I have faith in our resiliency and ability to make lemonade out of lemons, but I and my financiers are already turning away from Massachusetts and to other opportunities, given the complexity of what we see hear. There is no doubt we will continue to do business in MA when we find ideal projects in ideal spots, but I thought this was about making solar more accessible not less.

I find this proposal to be a step in the wrong direction am disappointed that I can no longer brag about the level-headed, consistent approach my state has to renewable policy.

With Hopes for a Better Future,

A handwritten signature in black ink, appearing to read 'Ethan DeSota', with a stylized, cursive script.

Ethan DeSota
Chief Innovation Officer
Intelligen.energy
e.desota@intelligen.energy