

DEPARTMENT OF ENERGY AND RESOURCES (DOER)
SMART PROGRAM COMMENTS/RECOMMENDATIONS
SOLAR HIGHWAY/RAIL NOISE/SOUND BARRIERS
“Transportation Based Adders”

We truly appreciate and support the Massachusetts Department of Energy and Resources (DOER) efforts to design and implement the innovative Solar Massachusetts Renewable Target (SMART) Final Program and facilitate the transition from SREC II. After careful review of the program, we noticed that our solar technology (Solar Highway/Rail Sound Barriers) was not included into “Adder Values” which may be considered somewhat similar to the “Solar Canopy” category; however, it is different in some technical and economic aspects. We believe our technology would be most appropriately grouped under the “Transportation Based Adders” in the “Adder Values” category or included in the “Location Based Adders” category as the last level which could be named “Transportation”. It is proven that the “Solar Highway/Rail Sound Barriers” have more beneficial qualities than “Solar Canopy”. Therefore, we would like to provide our comments and recommendations for the final program.



COMMENTS/RECOMMENDATIONS:

The technologies associated with our Solar Highway/Rail Sound Barriers have significantly more benefits than “Solar Canopy Adders”. They also have additional costs due to their nature; however, we believe the benefits of the technology greatly surpass the costs when installed in the right locations. The “Solar Highway/Railway Sound Barriers” demonstrate a greater degree of the technical feasibility and many tangible and measurable environmental, social, and financial benefits. Furthermore, these technologies would simultaneously accelerate the use of PV modules allowing the highway noise barriers to greatly contribute to the achievement of national/state objectives concerning climate change, noise pollution, air quality improvement, and reduction of energy dependency. If the technology is commercially applied to utility scale systems, the following benefits may be achievable:

- Absolute minimum soils/site/land disturbance;
- No cost to state or state agencies;
- Creation of extra sources of income for federal, state and local governments;
- Investment of private capital to fund solar projects;
- Reduction of local government power obligations, specifically DOT and other state agencies;
- Potential receipt of annual tax revenue from the solar structure by local governments;
- A significant sustainable development message delivered to the public and investors;
- Increased deployment and reduction in cost of solar equipment in the state and US;
- Reduction in residential and commercial solar installation prices;
- Reduction in installed costs;
- Generation of a new type of businesses (e.g., operators, installers, bankers, etc.);
- Supply of renewable electricity to thousands of homes and businesses and, in some cases, offers of major financial investments;
- Generation of income with energy generation and distribution
- Sound/noise prevention; and
- Net increases in the use of solar energy.

It is our recommendation that “\$0.08” per kWh should be considered for the “transportation” based layer considering “\$0.06” per kWh was granted to the “solar canopies”. Some of the reasons for this rate include:

1. Solar panels are installed vertically or on vertical surfaces. These surfaces/installations can be as high as 24-30 feet high. Special logistics and special construction equipment (to accommodate the height and limited access) will be required to perform the installation.
2. The mounting system for solar barriers will need to be built using stronger materials and/or using more materials than a comparable carport support structure. The system will have to endure higher wind loads and pressures.
3. Unlike parking lots where carports are installed, solar barriers are installed on highways and that brings additional costs such as signage, police details, coordination with DOT, etc.
4. DOT may limit access to a site based on traffic patterns and that may result in working after hours, thereby affecting the labour cost unfavourably.
5. Transportation logistics are more expensive as storage onsite is impossible or at best limited.
6. Sound/noise studies and adjustments will result in additional expenses for both stand alone and retrofit highway/rail sound barriers.

August 26, 2016 VOX article clearly points out two facts about falling costs of US solar power: First, there are no clear economies of scale in utility-scale solar. Bigger plants do not seem to be producing cheaper power. The article continues that this is in part due to the increased regulatory and land-use hassles that come with these sites which cancel out savings. Second, more saving is expected from “Soft Costs” – finding new customers, installation, maintenance,

regulatory compliance and other various administrative costs. Our solar highway/rail sound barrier technology addresses resolving both issues and enables us to achieve the desired results.

The other transportation-related solar energy projects may also be considered under the transportation section. We strongly believe that “Transportation Based Adders” are far more beneficial to the Commonwealth of Massachusetts. Please review following charts:

Solar Comparison by Mount Location				
	Solar Carport	Rooftop Solar	Ground Mount Solar	Solar Sound Barrier*
<i>Dollars per watt</i>	\$3.99	\$3.58	\$3.86	\$3.93
<i>Percentage need met</i>	88.50%	90.60%	96.80%	85.50%
* Estimated				

Capacity Factor Assumptions			
Market Segment	Installation Type/Land Classification	Project Size Range (kW)	Net Capacity Factor %
<i>Residential</i>	Roof	<15	13.00%
<i>Commercial</i>	Roof/Ground	15-500	14.39%
<i>Large-Scale Ground</i>	Ground (Greenfield)	500-6,000	14.65%
<i>Large-Scale Ground</i>	Landfill	500-6,000	14.65%
<i>Sound Barrier/Transportation*</i>	Sound Barrier	15-6,000	14.51%
* Estimated			

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