The Challenges and Opportunities Associated with Developing Renewables on “Marginal Use Properties”

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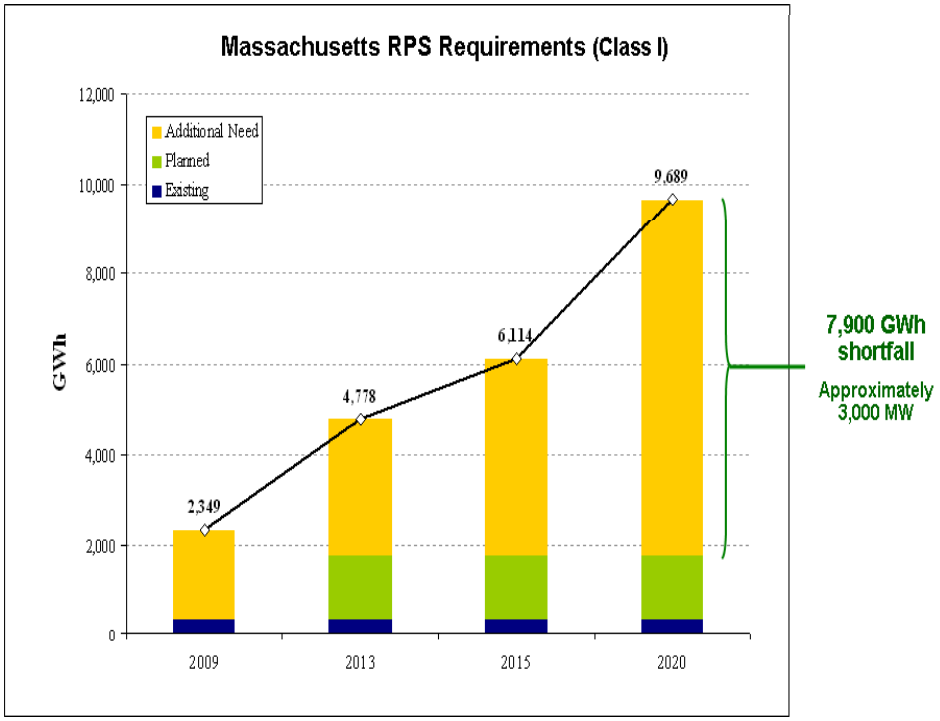
Why Solar? Fulfilling the Commonwealth's RPS objectives requires significant expansion in the development of renewable energy resources.

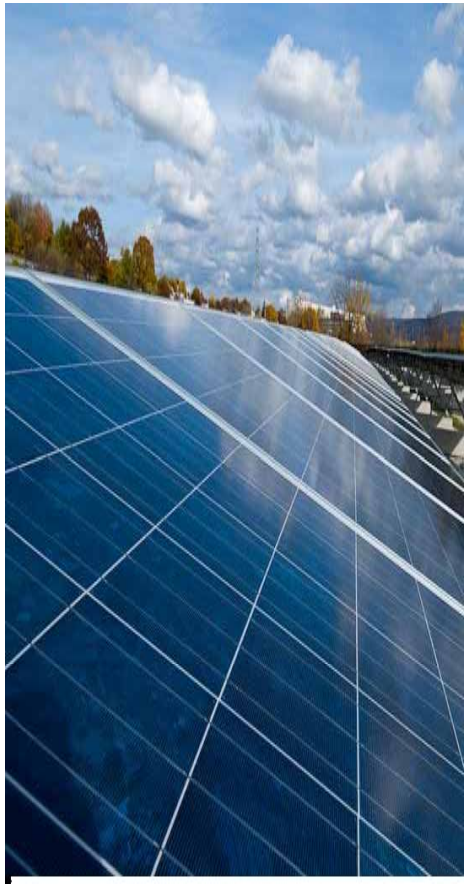
- New England has significant RPS objectives; forecasts indicate a large shortfall in renewable resources.
- Massachusetts has expansive goals for renewable power (particularly solar) supported by enabling policies.
  - 250 MW of solar by 2017
  - An RPS carve-out for solar
  - A robust S-REC program
  - "By Right" zoning for solar
- Progressive policies and good progress notwithstanding, MA is projected to be short on renewables by almost 3000 MW (in in 2020).



Marginal Use properties are an abundant and ideal resource for the development of larger-scale solar energy facilities

WMECo's Solar Program

- On August 12, 2009 the DPU approved WMECo's Solar Program
  - The 1st & largest of its kind in Massachusetts and NE.
  - Utility owned & operated; customers receive energy value
  - Focusing on Landfill, Brownfield & Utility Sites
- Cost effectiveness is a key objective
  - Larger-scale projects offer economies of scale (and lower installation costs)
  - Extensive use of regional solar industry & competitive bidding creates efficiencies.
- Environmental & Community Benefits
  - Re-use of brownfield / landfill sites
  - New source of local property tax revenues



Highlights of the Pittsfield Project – WMECo's Flagship Project

- Consists of two separate parcels
  - 8 acres WMECo owned
  - 2 acres Pittsfield Economic Development Authority (PEDA) property
- WMECo's substation located between the two parcels
- Both sites have a long history of environmental issues
- Complicated permitting processes required for developing on these properties

Major liability was concern for how environmental conditions and/or permitting complexities might affect the scope, schedule and cost of the project.

WMECO Property

- WMECO site – over the last 100 years the site was home to a coal fired power plant and several jet fuel turbines
  - In the 1980's there was a large jet fuel release
  - Site was actively remediated for the next 20+ years
  - Site was underutilized; used as pole laydown area
  - During construction WMECO filed an Activity and Use Limitation (AUL)
    - → AUL fit well with the plans for solar development
    - → 53 groundwater monitoring wells had to be retrofitted and designed around

PEDA Property (Former GE Facility; PCB Impacts)

- Site has environmental restrictions which limited the constructability of the site
  - PV design and construction emphasized “no excavation”
  - No soils for disposal were generated as part of construction (limited via 500$/ton amount in RFP)
  - Very limited site preparation excavation (fence posts and one site light per side)
  - WMECo minimized risk by limiting any digging to the top 6 feet of soil
  - Site preparation work performed by a qualified remediation contractor
  - Detailed notification and excavation timelines had to be followed for the ERE
  - Created lots of seams in the construction process that had to be closely managed
  - Strict Training requirements for all contractors
  - Future access for GW monitoring had to be accommodated

Additional Permitting Obstacles

- The majority of both parcels were within the 100-year floodplain
  - Site was fully built out, there was no place to get the required compensatory storage on-site
  - WMECo obtained required compensatory storage from neighboring PEDA property
  - Intense Compensatory Storage permitting process
  - Had to determine volume of solar development on a foot-by-foot basis for permitting.
    - → Calculations performed down to the level of determining the circumference and thickness of the conduit runs
- Construction also involved work within the wetland buffer
  - Submitted Notice of Intent/Order of Conditions issued
- Special Permit Needed for Construction in a Floodplain
  - Variances for Fence Height and setbacks were also obtained
- Local Permitting process was cumbersome and time consuming

Site Use Agreement

- **Usage Rights**
  1. Surface Rights only; defined cost & terms
  2. Clear limitation on subsurface liabilities
     a) Grantor – responsible for all pre-existing liabilities
     b) Grantee – responsible for all PV-related liabilities
  3. Ensures adherence to site use restrictions

- **Encumbrances**
  1. Had to work around existing encumbrances (sewer lines, etc.)
     - Limits design/development potential
     - Site access issues
     - Potential implications for future panel relocations
  2. Access to Solar Array required by property Owner for continued compliance obligations (GW monitoring and inspections)
  3. Also, included a solar easement
     > Rights to unobstructed sunlight

- **Additional twist added on WMECo lakefront property**
  - Redevelopment Plan proposed by GE (as part of consent order) included beautifying our property along the lake with large trees
  - Had to modify redevelopment plans to include low growing trees and shrubs to avoid shading impacts (buy in needed from all parties)
  - Parties and EPA have agreed to modified site “beautification” plan

Site Use Restrictions

- Limiting excavation and associated soil disposal reduced our liability and cost implications
- One area where we absolutely had to excavate was in our substation for the interconnection
  - Performed necessary test pits
  - Reportable levels of PCBs detected
  - Formal cleanups initiated
    - → Limited Removal Action
    - → Performance Based Cleanup
  - Delineation and disposal of 100+ tons of PCB contaminated soil and concrete
    - → Soils and concrete went to four different facilities for disposal
    - → Confirmation sampling and arranging for soil removal ate up several weeks of valuable construction time
    - → Costly disposal
- If we had allowed unfettered excavation on the rest of the property it could have had dramatic effects on the project costs and the timelines of the project.

Still There Were a Few Surprises

Second Project Indian Orchard - Up in Smoke!

First Steps Soil Pile Removal

Collaboration with LSP on Record Was Key

Surprises Along the Way


buried drum again


sink hole


microburst damage


mysterious white powder

What Were the Opportunities

- Allowed us the opportunity to work with and create valuable relationships with regulators, which will help facilitate the success of our future renewable projects.
- These projects have proven that this level of complexity can be resolved to not only minimize the company's liability, but also to complete projects under budget and on schedule.
- Provided us with a level of comfort that our model for future solar projects on brownfields/landfills can be done successfully.
- Collaboration is a critical success factor to these types of projects;
  1. Energy Policy – DPU, AG, etc.
  2. Compliance & Permitting – Federal, State & Local
  3. Zoning & Development – Municipal ordinances (by right zoning, etc.)
  4. Engineering & Design – balancing PV design w/environmental restrictions

Opportunities to further leverage each of the four factors above can be a powerful catalyst in moving the development of renewables of marginal use properties forward.

Where We Are Today

Pittsfield

•1.8 MW of capacity

•6,500 panels, ground-mounted on 8 acres

•2M kWh's of annual energy production

•$9.5M of investment

Indian Orchard

•2.3 MW of capacity

•Over 8,000 panels on 12 acres

•One of the largest solar facilities in New England

•We are currently in the development stages on our 3rd project

Contact Information

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LSP Services for WMECO Solar Projects Provided By:

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