NEEDHAM SOLAR ENERGY EXPLORATORY COMMITTEE

Solar Photovoltaic Electricity at the Closed Landfill

Background

- Solar Energy Exploratory Committee was authorized last fall by Board of Selectmen and funded ($15,000) by Town Meeting
  - 7 member committee began meeting in January
  - Investigated economics, logistics and barriers
    - Many towns have installed solar PV on their capped landfills
    - Massachusetts has many incentives in place
    - Department of Energy Resources and Department of Environmental Protection strongly supports solar PV
    - Needham's landfill is ideally suited and other uses are impractical
      - Large, flat, south-facing plateau
      - High winds and limited parking (especially weekends) limit recreational use
      - Landfill cap cannot be disturbed which limits construction options
      - No wetland or conservation issues and no line-of-sight neighbors
      - 3-phase electrical line on Central Avenue for inter-connect

Procurement Process

- Contracted with expert "Owner's Agent" to guide us through the process in June
  - Works exclusively on behalf of municipalities
- Addressed potential issues with various boards
  - Selectmen
  - Planning
  - Conservation
  - Park and Rec
  - Finance
- Issued a Request for Proposal under M.G.L. c. 25A in September soliciting comprehensive proposals
  - 11 Responses received October 4th from highly qualified firms
- Analyzed responses and conducted 4 interviews in October
- Awaiting action of Town Meeting to proceed

What is the Proposed Project

- Lease land to, and contract with, an independent developer to:
  - Finance, install and maintain Solar Photovoltaic (SPV) systems on top of Needham's capped landfill
  - Sell electricity generation to Needham through NStar's "Net Metering"
- Utilize an unused, and unusable Town asset
- Provide income to the Town for 20 years in the form of lease and tax agreement payments
- Generate renewable energy to preserve fossil fuels
- Raise awareness of the potential for renewable energy through school-wide and town-wide outreach and educational programs

Needham Landfill

Example of Solar PV Landfill Installation

Project Overview

- Key Attributes:
  - Economic:
    - Solar generation provides a sustainable renewable source of energy at a delivered cost lower than the cost of traditional energy
    - Solar generation provides revenue streams by converting a Town-owned asset from a cost center, into a profit center through lease and tax agreement payments
  - Environmental:
    - Solar photovoltaic generation is a proven technology, providing long-term sustainable benefits
    - Re-use of the Landfill for renewable generation transforms an environmentally sensitive Town-owned asset into a productive environmentally beneficial source of energy
  - Educational:
    - The project will provide specific outreach and educational tools including interactive kiosks, public access to system operations, and educational curriculum enhancement.

Why is this good for Needham

- No investment (other than Owner's Agent services)
  - Developer pays all costs including decommissioning the system
  - Developer sells electric generation to Needham at a lower cost than market-based delivered electricity under a Power/Net Metering Purchase Agreement
    - Needham gets full-value of the "Net Metering" credit from NStar for the amount generated and pays the developer a portion of the credit value
  - Contract includes minimum production guarantees, bonding, maintenance and decommissioning
- Twenty-year economic benefits to the Town
  - Revenue Benefits:
    - Lease of land (potential for $1 million over 20 years)
    - Payment In Lieu of Taxes (potential for $1 million over 20 years)
  - Operating Budget Cost Savings:
    - Lower energy cost per kilowatt for electricity generated at the landfill
    - Potential savings of $5 to $10 million over 20 years

Illustrative Economics of Solar

Term	Annual Projected Solar Generation (kWh)	Town Payments to Developer (cents/kWh)	Payments from NStar to Town (cents/kWh) *	Net Savings from solar generation	Illustrative Lease Revenue	Illustrative PILOT Revenue	Total Economic Benefits to Town
			Range				
Year 1	4 - 8 million	6 to 10	16	$260K to $730K	$50K	$50K	$360K - $830K
20 Year Term	80 -160 million	6 to 11	16	$5 to $11 million	$1 million	$1 million	$7 to $13 million

* Conservative assumption of no escalation

Risks of Delay

- "Net Metering" CAP likely to be reached early in 2014
  - Available CAP room has dropped from 80MW to under 34MW from April to present
- Solar Renewable Energy Credits (SRECs) will have less value starting in 2014
  - New SRECs generated at landfills are now worth only 80% of the SRECs generated before July 2013
- Change in incentives in 2014 could impact attractiveness of the Needham project investors
  - 11 bidders submitted proposals and expressed urgency
- Project success is contingent upon passage of Warrant Articles

The Articles

1. Amend zoning by-law to allow installation of large-scale, ground-mounted solar PV
2. Define an Overlay District at RTS for the proposed zoning
3. Authorize Town to negotiate up to 30 year lease of land and 20 year purchase of power
   - Maximum term allowed under Section 25A sec.11 procurement
4. Authorize Town Manager to execute a 20 year land lease for solar PV and an Energy Management Services Agreement
5. Authorize PILOT agreement
   - These costs are passed on to Needham by providing less savings on electricity
6. Appropriate $15,000 for additional services
   - Continue the services of our Owner's Agent through contract negotiations