



*Energy Generation
Sub-Committee*

*Work Plan
November 25, 2008*

Subcommittee Organization

-- Energy Generation --

Subcommittees	Members (Chair)
Baseline: Develop baseline of Town energy utilization and spending, including school facilities	Suzanne Newark, Parashar Patel , Chris Smith
Energy Generation: Identify ideas for renewable energy generation	John Baudreau, Suzanne O'Brien, Maura Snow
Green: Identify opportunities for Town residents to become "greener" through energy conservation and use of alternative energy sources	John Baudreau, John Varga
Grants: Identify grants and other funding sources for Energy Committee ideas	Ginny Murphy, Maura Snow
Outreach to Other Towns: Identify efforts made by other Towns	John Roth, Chris Smith

Alternative Energy Sources

✧ 1st Order review of type

- ✧ Different alternative energy sources were considered, assessed and prioritized at a macro level.

- ✧ Low Priority

- ✧ Geothermal, due to complexity of making heat useful at scale, installed cost, uncertainty of best technology and real estate/energy distribution considerations.

- ✧ Medium Priority

- ✧ Wind Power, more favorable due to compactness, direct electricity generation and maturity of technology. Criticality and analysis of site selection a drawback.

- ✧ High Priority

- ✧ Photovoltaic Solar Panels, most favorable due to maturity, direct usage and ease of siting.

Hopkinton Project Information

- ✧ 350-400KW system (still being finalized)
- ✧ \$7.50/watt for a \$2.7MM project value
- ✧ Involves the High School, Middle School, Fire and Police Stations
- ✧ Hopkinton is planning a 15% reduction in electrical demand. Projected savings total ~ \$500K in 20 yrs.
- ✧ They specifically mandated non-school buildings in the process.
- ✧ Saved roof space for future technology opportunities.

The Solar Option

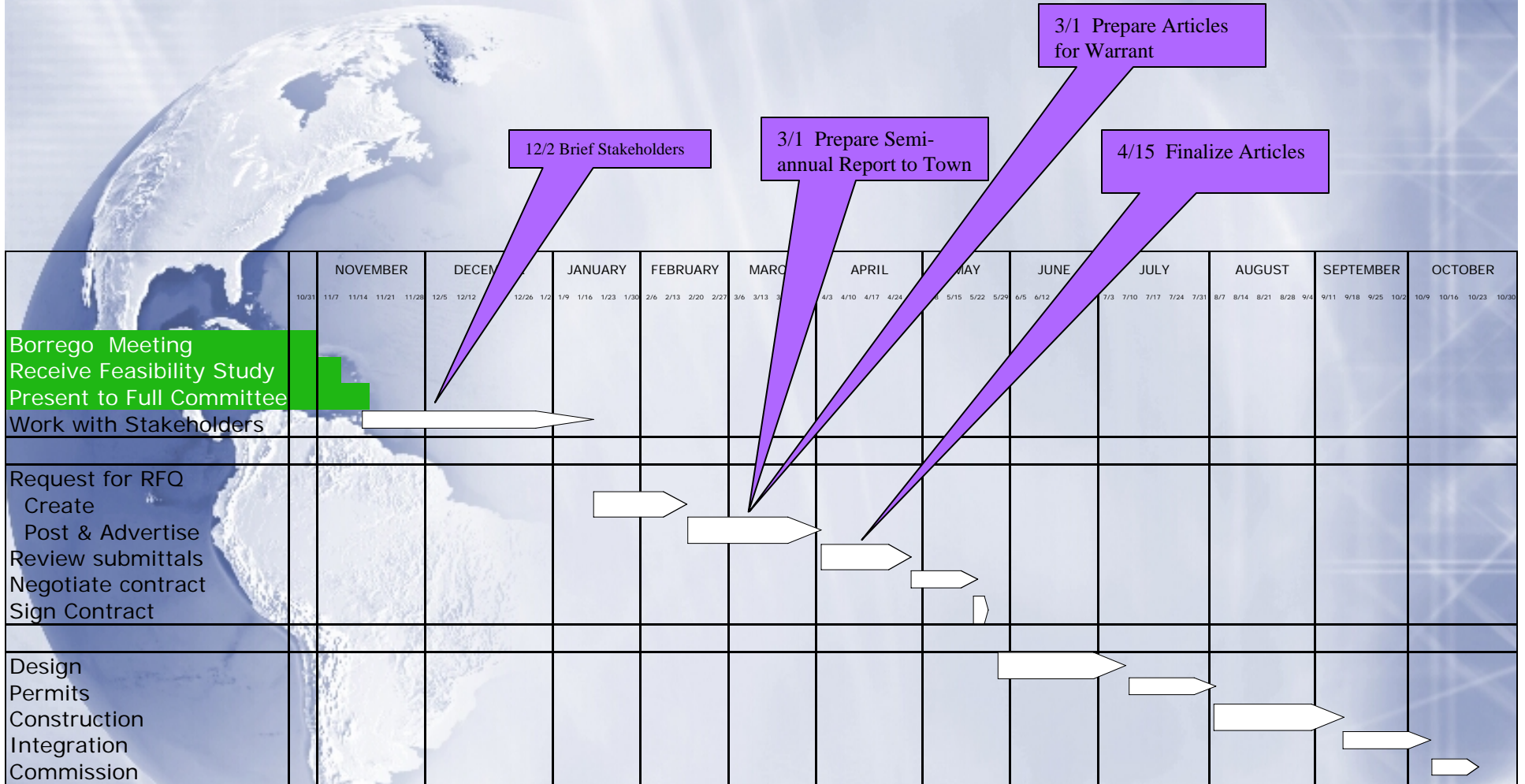


- ✧ Energy Generation has begun to evaluate the Solar Option
 - ✧ Had an informational meeting with one provider to gain information
 - ✧ Reviewed the Power Purchase Agreement (PPA) form of Contract
 - ✧ No Cost To Town
 - ✧ Fixed, lower electrical cost for a portion of demand
 - ✧ Fixed contract price - known costs moving forward
 - ✧ Rebates subsidize the installation, hence electrical costs

Next Steps

- ✧ Establish Solar Power first order feasibility
 - ✧ Borrego Solar has provided 1st order feasibility review
 - ✧ Substantial savings opportunity
 - ✧ Further fact finding re: alternative partners
 - ✧ Borrego Solar, Commonwealth Solar, 1 or 2 others
- ✧ Define key decision points
 - ✧ Project's energy goals:
 - ✧ Least Cost
 - ✧ Predictable energy costs
 - ✧ Reduce Carbon Footprint
 - ✧ Assess whether PPA form makes most sense
 - ✧ Can/should we influence a local manufacturer preference
 - ✧ Project team makeup

Initial Timeline



Technical Baseline

- ✧ Energy budget

- ✧ Project to offset ~18% of schools, senior center

- ✧ Installation considerations

- ✧ To be covered in subsequent discussions

- ✧ Emerging Technology outlook

- ✧ Need to review what's around the corner

- ✧ Thin Film is getting a lot of attention

Where Do PPA Risks Lie?

- ✧ Fixed Contract Energy price:
 - ✧ Driven by installed cost and investment dynamics
 - ✧ investors include major insurance and financial institutions
 - ✧ Aided by Rebates and Promotions
- ✧ The risks are:
 - ✧ In locking in the wrong price
 - ✧ In agreeing to the wrong escalation rate
 - ✧ In badly negotiated buy-outs
 - ✧ In a poor choice in partner/owner
 - ✧ In not defining removal option at end of term

Recommendations

- ✧ Further pursue PPA Solar project feasibility
 - ✧ Prioritize RFQ to begin information flow
- ✧ Develop overall project plan