

Joint Town Council / School Committee Municipal Wind Energy workshop



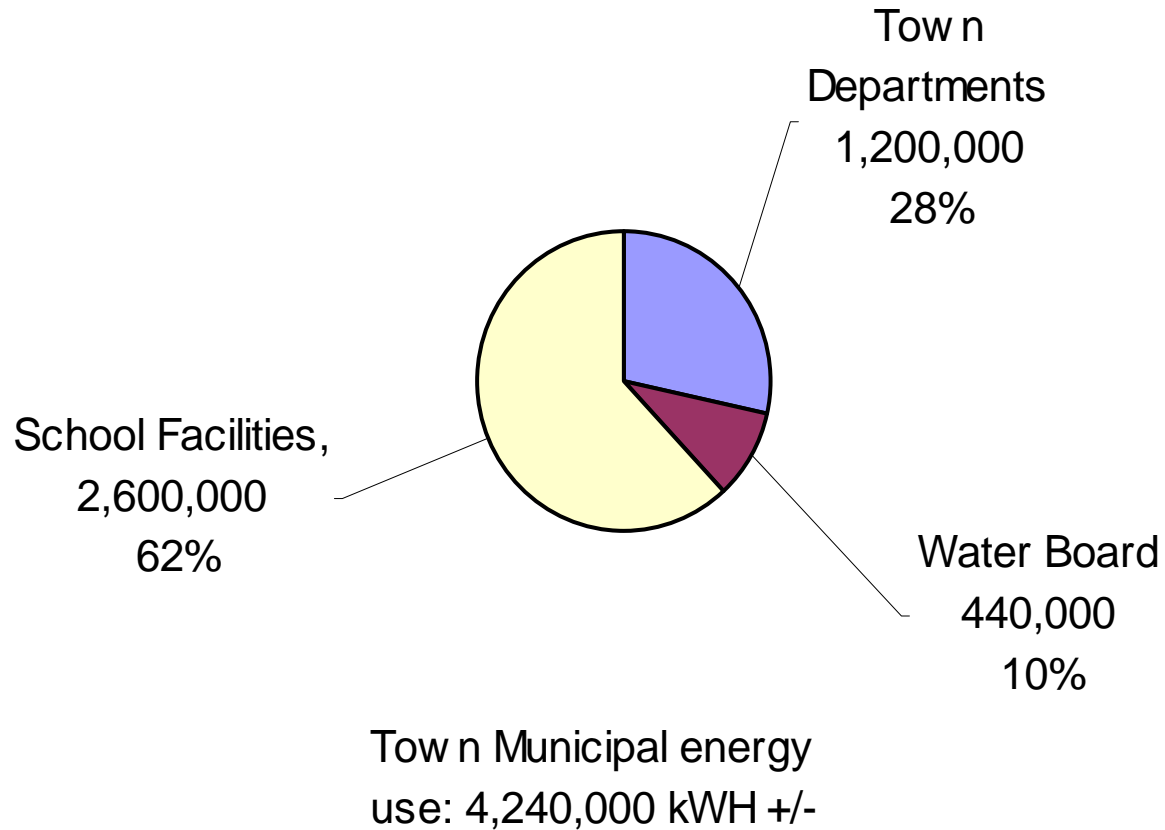
Presented by
Portsmouth EDC Sustainable Energy Subcommittee
Gary Gump
Chairman
Tuesday February 20, 2007

Portsmouth Municipal Wind Energy Activity

- PEDC created Sustainable Energy subcommittee in Q1 2005
- 8 members (6 EDC members and 2 volunteers)
- Participated in National, Regional and Statewide energy forums
- Supported Portsmouth Abbey WTG effort
- Worked with RWU student teams/ Supported RWU Wind energy survey
- Won \$25K feasibility grant from RI REF in Q2 06
- Applied for/ received CREB go-ahead for \$2.6M Zero interest bonds
- Initiated QBS based RFP for HS and MS feasibility study Q3 06
- Reviewed RFP responses. No response selected.
- New reduced RFP issued Jan 16 with 5 responses received Feb 09.
- Lots of work planned for 2007

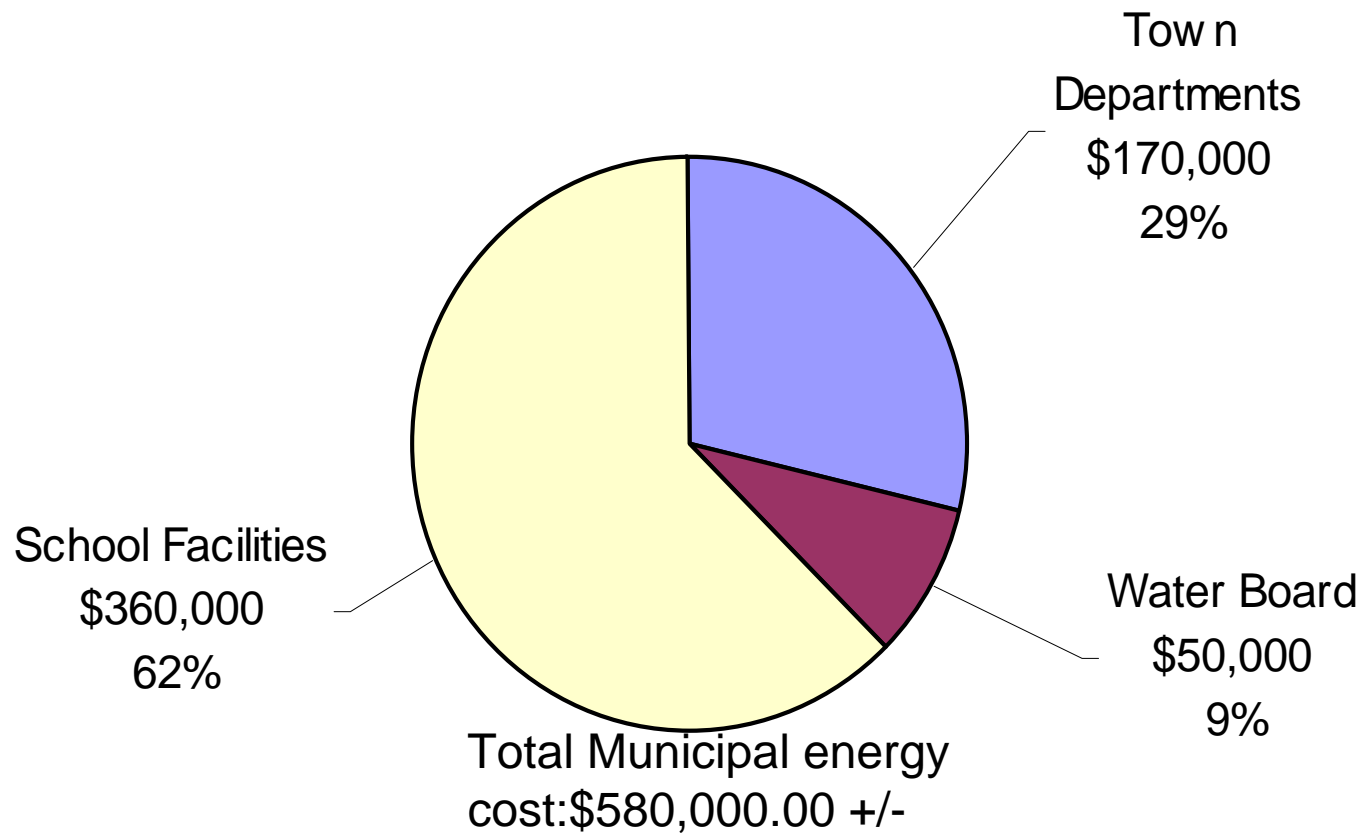
Portsmouth Municipal Energy Use

Portsmouth Municipal energy Use
2005/6 (Nov Oct) kWh

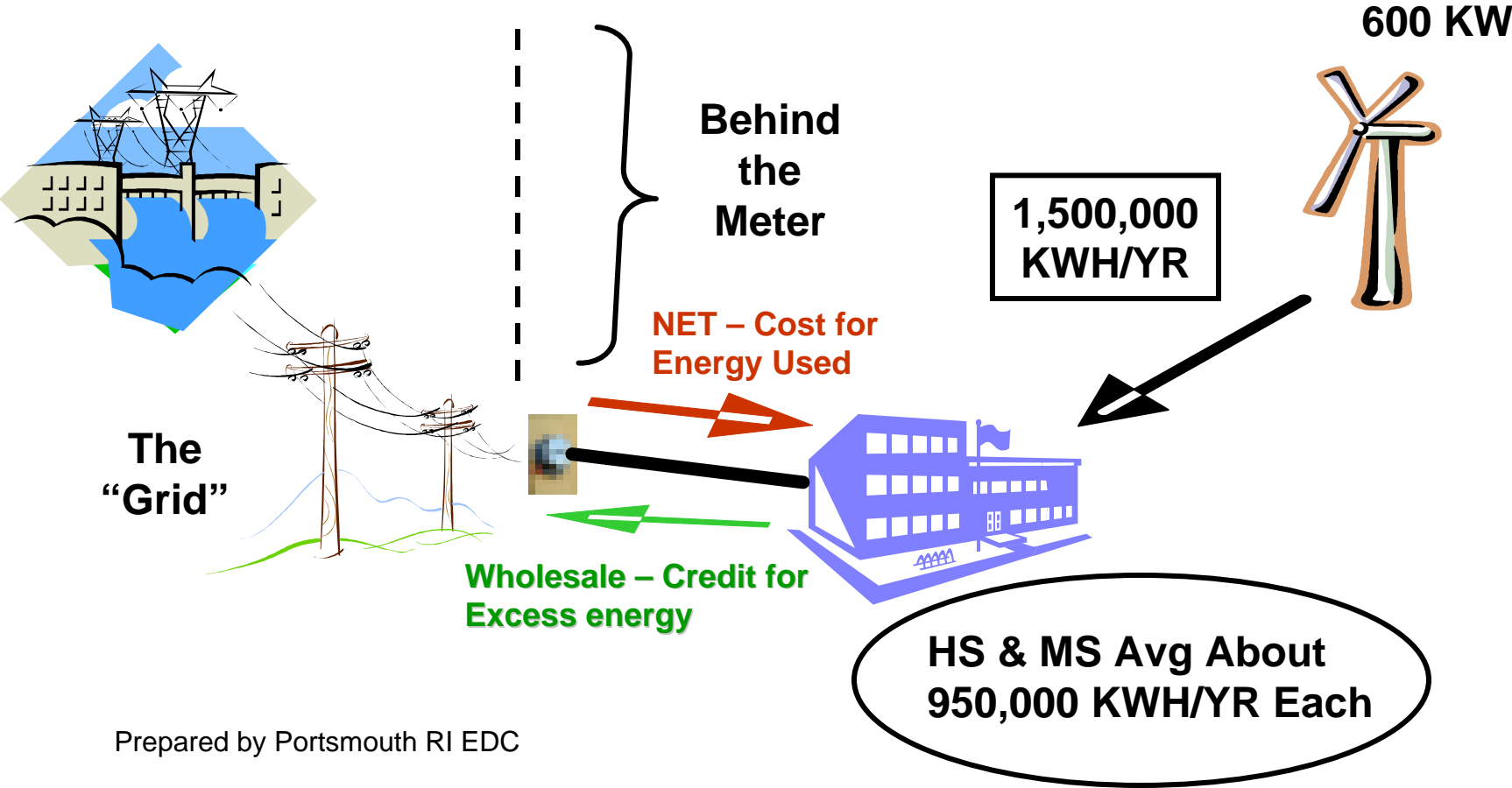


Portsmouth Municipal Energy Cost

Portsmouth Municipal energy cost
2005/06 (Nov-Oct) \$



Power Generation and the “Grid”



Prepared by Portsmouth RI EDC

Portsmouth Municipal Wind Energy Activity

- Initial focus on “behind the meter” applications
- HS and MS best application
 - Preliminary study indicated positive payback
 - Subsequent investigation indicates generation lags demand and weakens business case
- Challenge now is how to balance current reality against future unknowns

Portsmouth Municipal Wind Energy Activity

- HS energy and Value analysis “Behind the Meter”

600 KW model / todays rules			
Total Energy generated	1,500,000	kWH	
HS Net Energy match	600,000	kWH	\$67,000
Excess energy to Grid	900,000	kWH	\$54,000
Total REC (per mWH)	1,500	mWH	\$60,000
	value		\$181,000 (yrs 13-20)
Bond repayment*			\$133,000
Mntc / Opr cost			\$20,000
	total expense		\$153,000
	credit value		\$28,000 (yrs 1-12)
HS Net energy use /cost	950,000	kWH	\$104,000
resultant total energy bill			\$76,000
net energy value	\$0.1118	kWH	
wholesale energy value	\$0.0600	kWH	
REC Value (per mWH of total generated)	\$40.0000	mWH	
Mntc / Opr cost	\$0.0133	kWH	
* \$1.6 M bond / 12 yr payback	\$133,000		
20 year value total for yrs 1-12	\$336,000		
totals for years 13-20	\$1,288,000		
20* yr value current dollars	\$1,624,000		
* Conservative estimate based on 25 - 30 year useful life			

This slide shows a value analysis of a wind turbine at the High School. It is based on preliminary numbers, but shows over \$1.5 Million return on investment over the life of the turbine. We are asking a profession firm to verify our economic analysis.

Portsmouth Municipal Wind Energy Activity

- HS energy and Value analysis with “Commodity” Net metering or DG rules

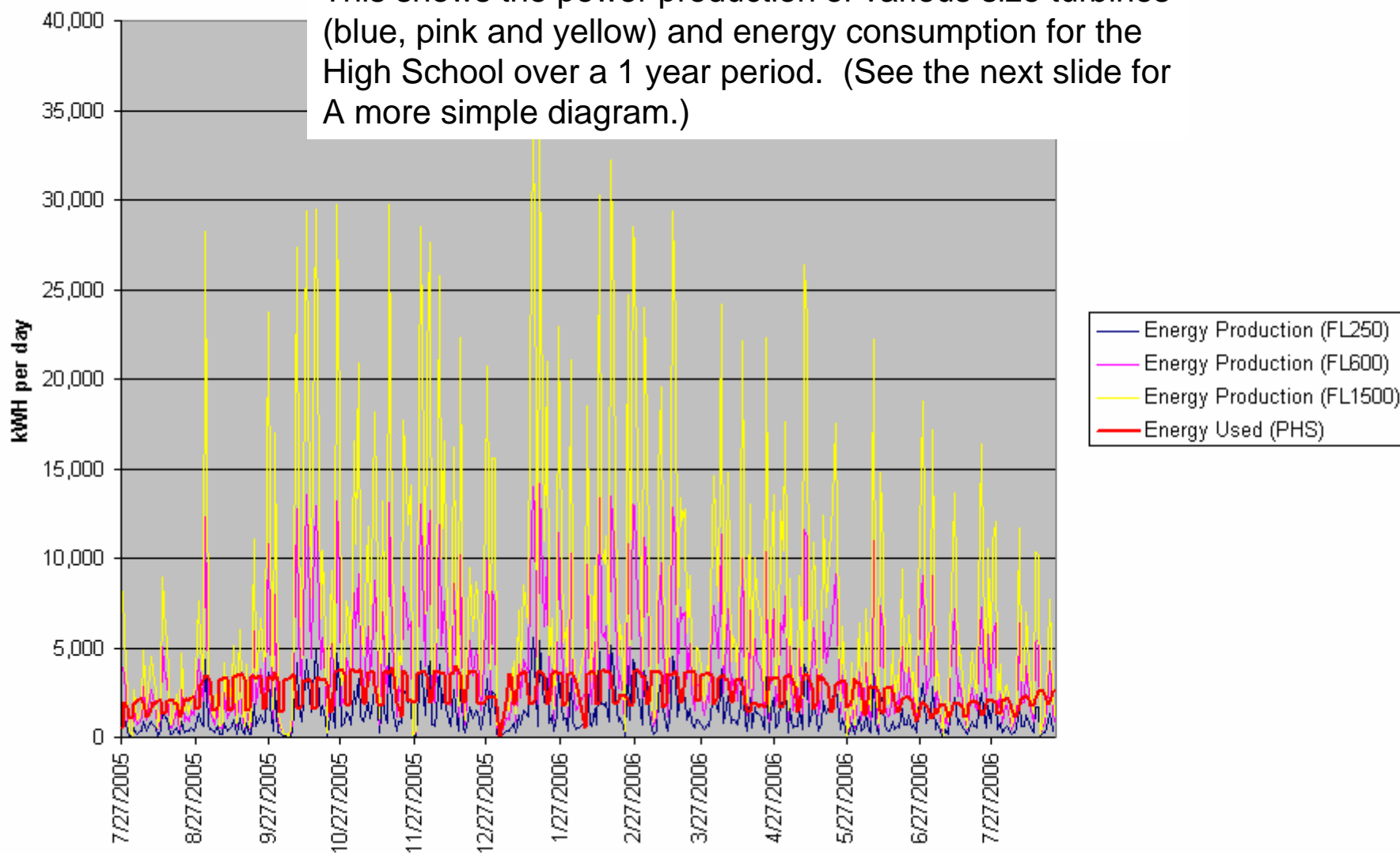
600 kw model with commodity net metering			
Total Energy generated	1,500,000	kWH	
HS Net Energy match	600,000	kWH	\$67,000
Excess energy to Grid	900,000	kWH	\$85,500
Total REC (per mWH)	1,500	mWH	\$60,000
	value		\$212,500 (yrs 13-20)
Bond repayment*			\$133,000
Mntc / Opr cost			\$20,000
	total expense		\$153,000
	credit value		\$59,500 (yrs 1-12)
HS Net energy use /cost	930,000	kWH	\$104,000
resultant total energy bill			\$44,500
net energy value	\$0.1118	kWH	
"commodity" energy value	\$0.0950	kWH	
REC Value (per mWH of total generated)	\$40.0000	mWH	
Mntc / Opr cost	\$0.0133	kWH	
* \$1.6 M bond / 12 yr payback	\$133,333		
20 year value total for yrs 1-12	\$714,000		
totals for years 13-20	\$1,540,000		
20* yr value current dollars	\$2,254,000		
* Conservative estimate based on 25 - 30 year useful life			

If we get some regulatory relief from current rules, the return on the turbine Investment rises to over \$2.2 Million.

Power vs. Use

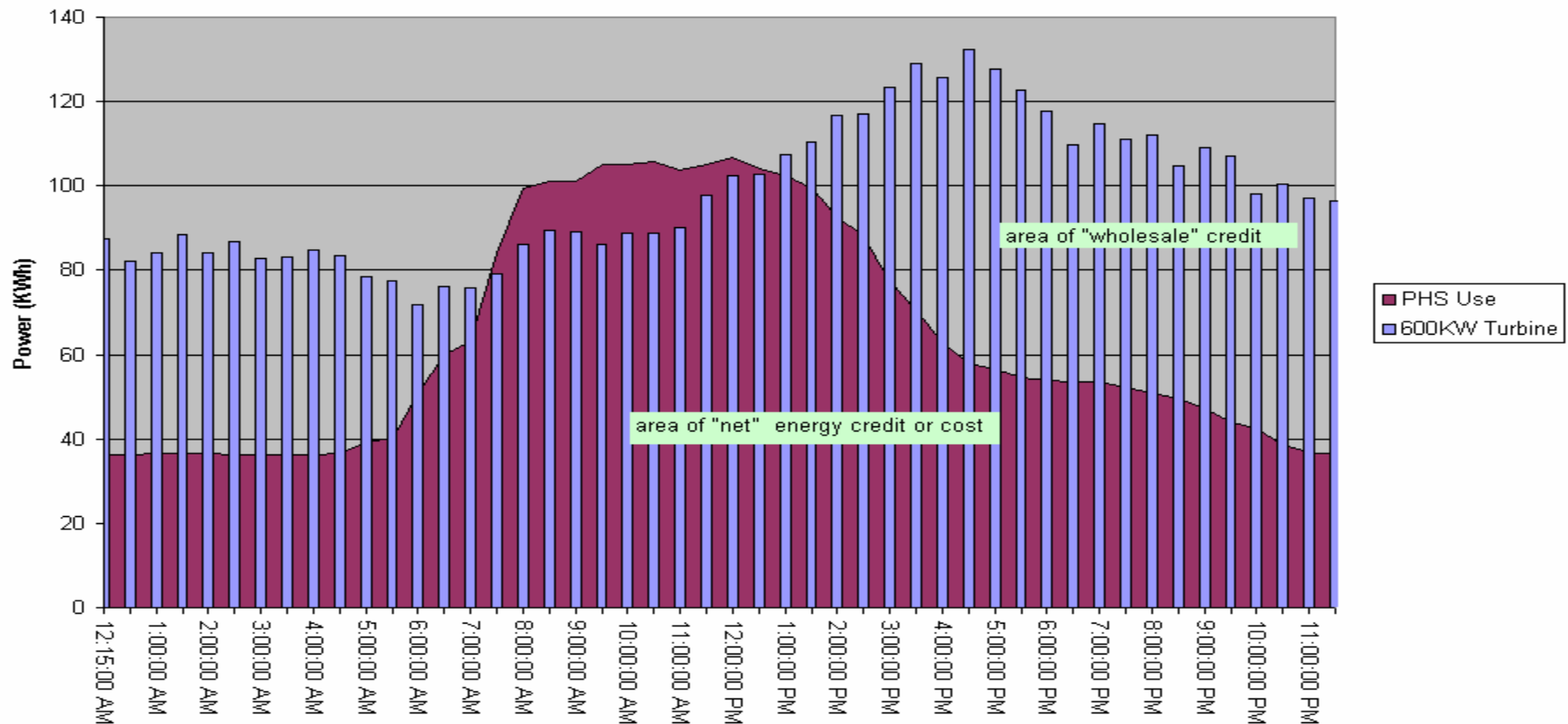
PHS Power Production Vs Utilization

This shows the power production of various size turbines (blue, pink and yellow) and energy consumption for the High School over a 1 year period. (See the next slide for A more simple diagram.)



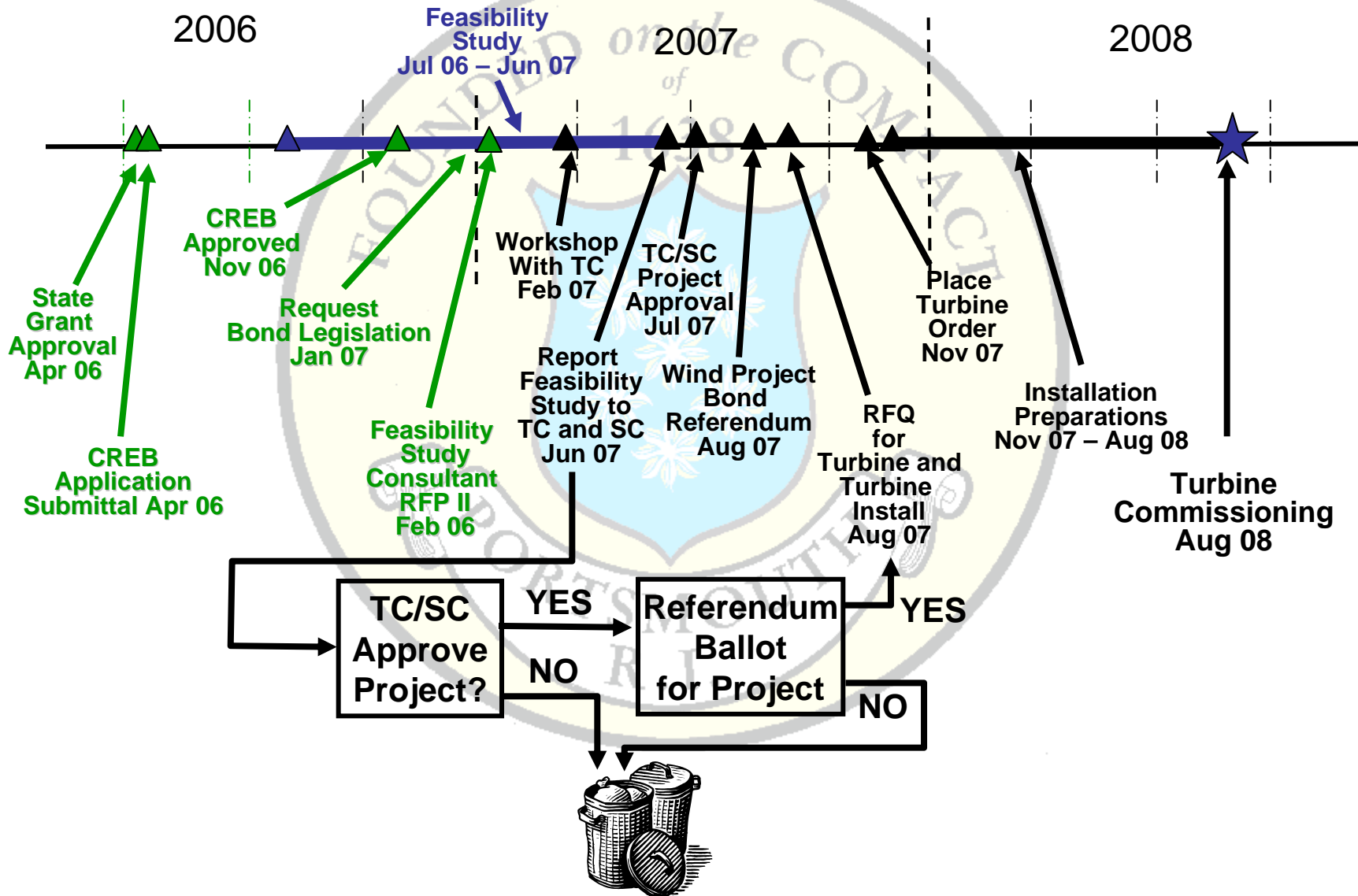
A "Typical Wednesday"

600 KW Mean Turbine Generation vs Portsmouth High School Usage
(Average Wednesday)



This shows energy production (in blue) compared to energy use (in red) for a "typical Wednesday" at the High School. Those areas where the blue line exceeds the red area is when we are "selling" electricity back to the power company (at a wholesale rate). Where the red area exceeds the blue line, we are buying electricity back from the power company (at a retail rate)

Portsmouth School Wind Power Timeline



Portsmouth Municipal Wind Energy Activity

- What to expect next:
 - RFP results for our “expert consultant” help
 - Community Workshops
 - Complete the feasibility study
 - Town Council decision process
 - Town ballot referendum
 - Bond issue and contracting
 - If the Council or Citizens say “NO” the wind project is “dead” and we move on to other sustainable energy initiatives.

Portsmouth Municipal Wind Energy Activity

- We will work with any and all groups in support of an enlightened Alternative energy policy.
- Call on us, we are ready!
- Thanks.

