



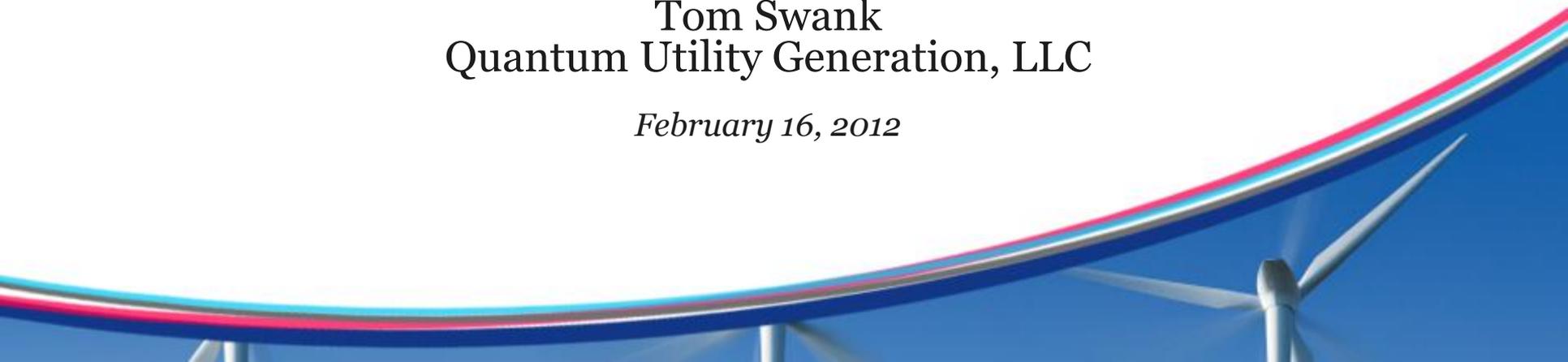
QUANTUM UTILITY GENERATION

# NECA's 9<sup>th</sup> Annual Renewable Energy Conference

## *Grid Scale Renewable Generation in New England Challenges and Opportunities*

Tom Swank  
Quantum Utility Generation, LLC

*February 16, 2012*



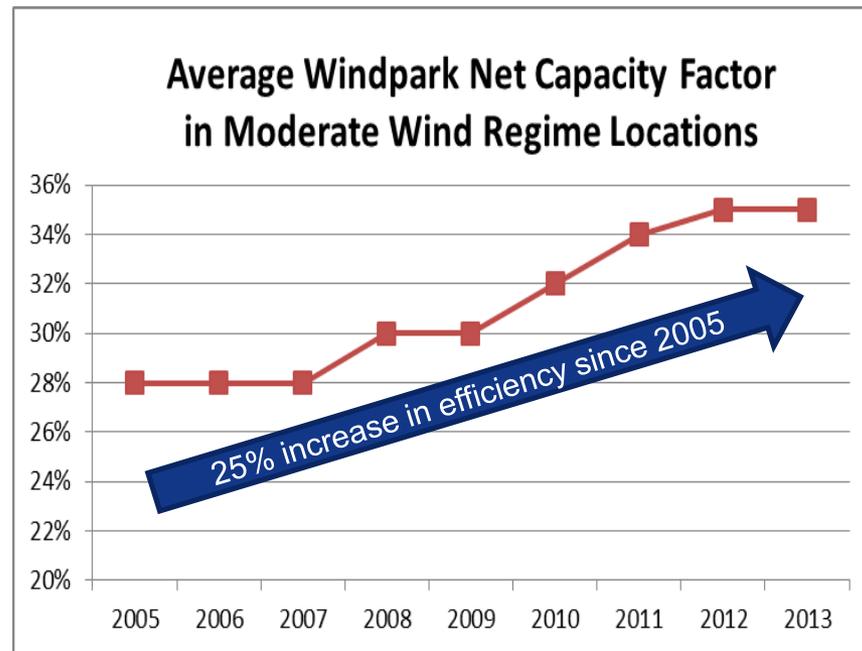
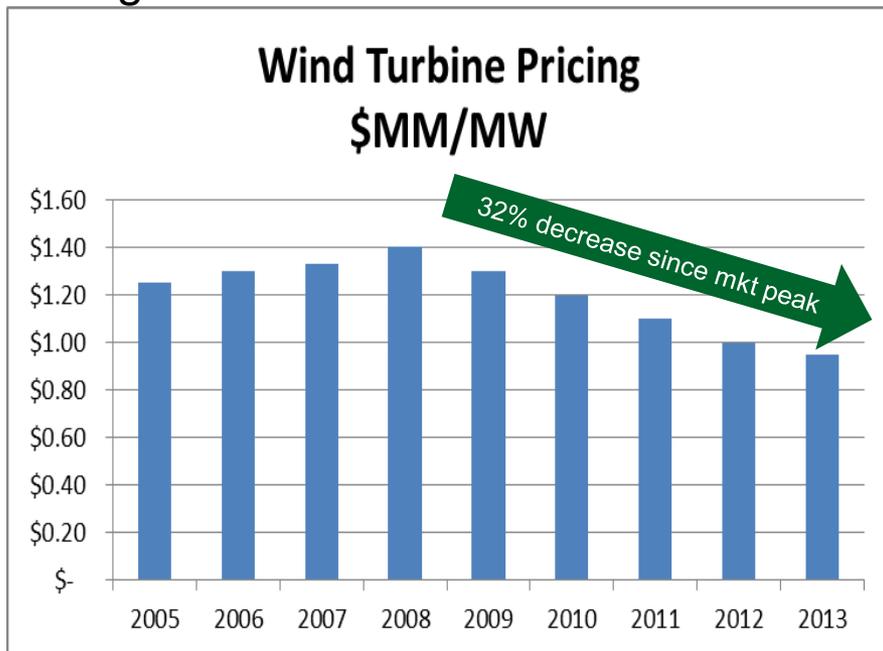
# About Quantum Utility Generation

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- Quantum Utility Generation, LLC (“QUG”) is a \$1B investment fund focused on the development and acquisition of utility scale power generation assets, both conventional and renewable
- QUG’s focus is to work WITH utilities to develop generation solutions to meet utility needs.
- QUG owns 866 MWs of operating generation across the U.S.
- QUG recently purchased the wind power development business of Noble Environmental Power, LLC, one of the largest U.S. wind power development companies over the past several years
- Renewable development portfolio includes 1,000 MWs of wind projects across the United States, including ISO NE (Maine and Connecticut), and 20 MWs of PV solar.
- Acquisition by QUG of Noble’s development business underscores the continued focus of financially strong companies on grid-scale wind development in New England

# Improvement in Wind Turbine Efficiency and Economics

Developers' ability to competitively develop wind projects in moderate wind regimes continues to improve, with turbines becoming less costly, and increasing efficiency of turbines specifically designed for moderate wind regimes.



*These changing market fundamentals have dramatically improved the ability to develop cost-competitive on-shore wind projects in all regions of New England.*

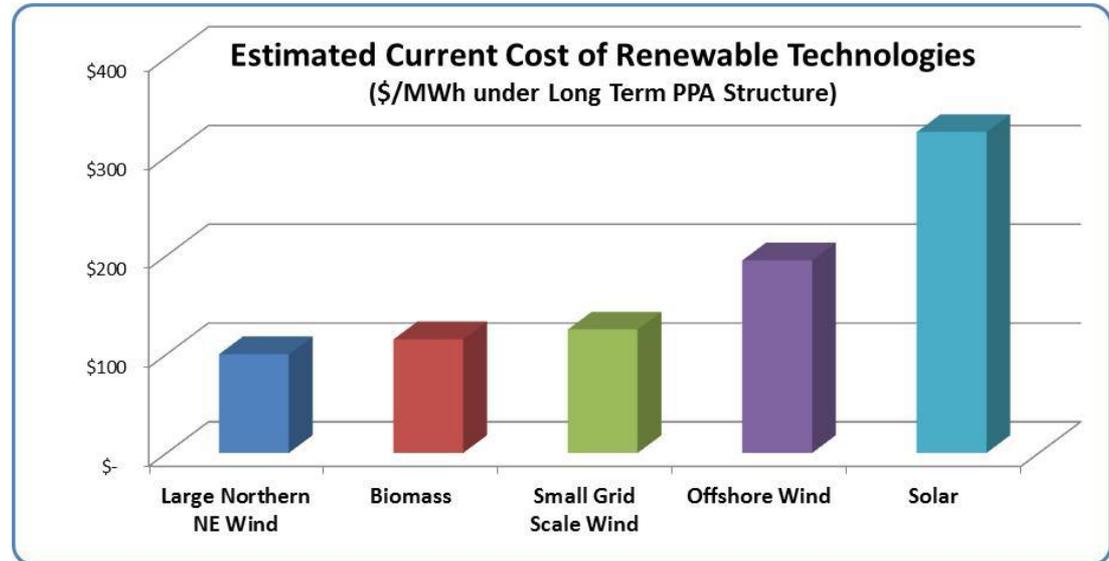
## Wind Power in New England – Maine vs. “Rest of Pool”

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- Vast majority of wind built and planned in ISO-NE has been built in Maine to-date (8 utility-scale projects COD in Maine, 2 NH, 1 MA)
- Wind resource, land availability, and reasonable permitting regime has driven this Maine growth; transmission becoming a challenge now
- Outside Maine, wind resource assessment, coupled with transmission line access and site suitability evaluations, shows potential for significant amount of smaller utility scale on-shore wind development in areas with less transmission challenges (MA, CT, NH, VT)
- Non-Maine wind projects more likely to be smaller, in range of 15 – 35 MW
- Limited number of “high wind” locations outside of Northern New England, however recent technological improvements increase wind viability significantly
- Locating wind generation closer to load (vs. purchasing from Northern Maine) provides load support benefit, helps avoid costly transmission upgrades
- Offshore wind is an option, but at what cost?

# Balanced Plan to Meet Renewable Goals

- To-date, procurement strategy has jumped from low-cost, northern NE wind up to higher cost Offshore Wind and Solar
- Smaller sized grid scale wind can provide similar benefits to offshore and solar (close to loads), but at a lower cost
- Biomass can be cost competitive, but typically experiences transmission issues (located in northern NE) and puts additional risk on utilities (some projects require PPA fuel adjustment clauses not seen in wind/solar deals).
- States and LSEs need to look at a balanced approach to meeting the renewable goals, not skipping over to higher cost options
- Focus should be on running a clear procurement process, with long-term contracting to help drive costs to utilities as low as possible (shorter term contracting only acts to increase overall project costs).





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