

# Innovative Wind Support by State Clean Energy Programs

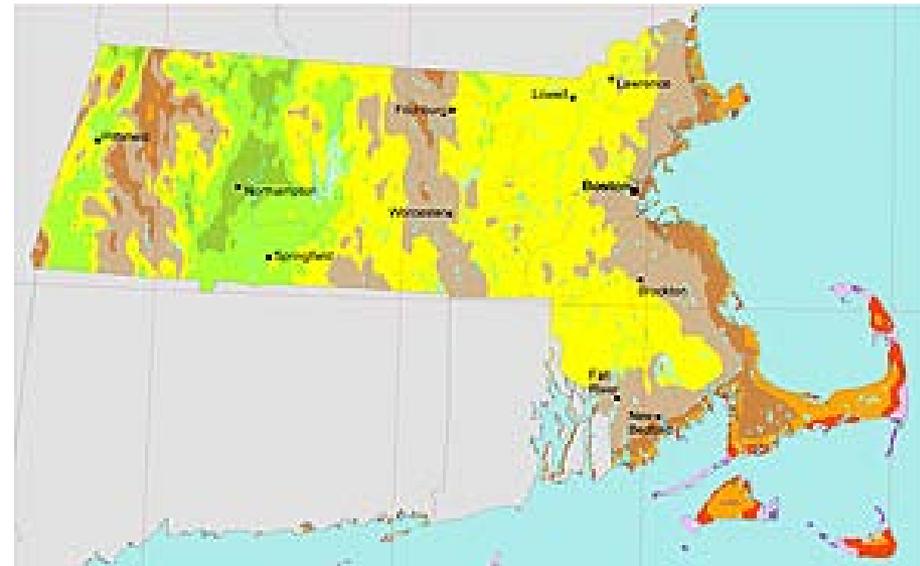
Wind Powering America All States Summit  
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# Agenda

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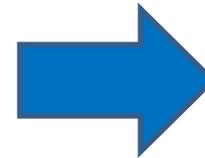
- Introduction
- Challenges
  - Competitiveness
  - Public acceptance
  - Technical
- Strategies to confront challenges
  - Traditional project development offerings
  - New offerings
  - Special projects and research efforts
- Conclusions



# Background

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- MassCEC's mission is to support and accelerate growth in all aspects of the Commonwealth's clean energy sector
- Created in 2008, MassCEC took over administration of the state's long-standing clean energy incentive programs
- To date, MA hosts
  - 61 MW of installed wind power
  - 42 MW of wind power under construction
- Why MA is different:
  - Limited space and wind resource
  - High electricity prices and strong clean energy policies
- MassCEC supports appropriately-sited wind development and incentivizes rigorous analysis of projects prior to development



**100 MW**  
by end of  
2012

# Challenges

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“Successful wind projects *are all alike; every* unsuccessful project *is* unsuccessful *in its own way.”*

–Adapted from Leo Tolstoy’s *Anna Karenina*

Successful projects overcome each of these challenges:

1. Competitiveness
  - Out-of-state generation, or
  - Other renewables
2. Public Acceptance / Permitting
3. Technical Feasibility

# Competitive Challenges

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- Commercial Wind Offtake Agreements
  - MA Green Communities Act of 2008 designated a percentage of in-state renewable energy offtake requirements for utilities
  - TransCanada lawsuit of 2010 successfully challenged this provision on the basis of the Interstate Commerce Clause
  - Since then, MA projects compete regionally for PPAs and have difficulty being competitive with larger, out-of-state projects
- Net Metering
  - Smaller projects (2 MW and under) can typically net meter
  - However, total state-wide NM capacity is nearing regulatory caps, with other technologies quicker to completion
  - Competition for existing NM credits by other renewable energy sources
    - For example, Solar PV, with SRECs selling for ~\$200 to \$550/MWh

# Public Acceptance Challenges

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- Most projects in MA face organized opposition and sometimes lawsuits
- Almost all permitting hearings face questions about acoustic impacts, shadow flicker, health impacts, property value impacts, etc.
- Local decision-making Boards find it difficult to understand these issues, and many projects recently denied permits
- Project developers (esp. municipalities) may choose to abandon projects when facing vocal opposition
- Other renewable energy sources often seen as a viable, easier alternative

# Technical Challenges

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- As with all projects, technical challenges may exist:
  - Development
    - constructability
    - transport
    - interconnection
    - siting
  - Operational
    - performance
    - reliability
- Development challenges can be clearly identified in FSs
- Operational challenges can be addressed through program reqs:
  - Expected performance
  - Certification



# Strategies to Confront Challenges

	Challenge	Strategy/Offering	Effectiveness
1	Competitiveness	Design, Development, and Construction grants	<b>Low/Moderate:</b> Effective for well-performing, community wind projects. Ineffective for marginal projects, small projects, commercial projects.
2	Public Acceptance / Permitting	<ul style="list-style-type: none"> <li>• Feasibility Studies</li> <li>• Development Studies</li> <li>• Research Projects</li> <li>• Education</li> <li>• Stakeholder Process Support</li> </ul>	<b>Moderate:</b> Can effectively answer most questions, but may still not be sufficient for project development.
3	Technical	<ul style="list-style-type: none"> <li>• Feasibility Studies</li> <li>• Development Studies</li> <li>• Program Reqs for certification, performance</li> </ul>	<b>High:</b> Can largely address all questions about development. Increasing sophistication re: performance, reliability.

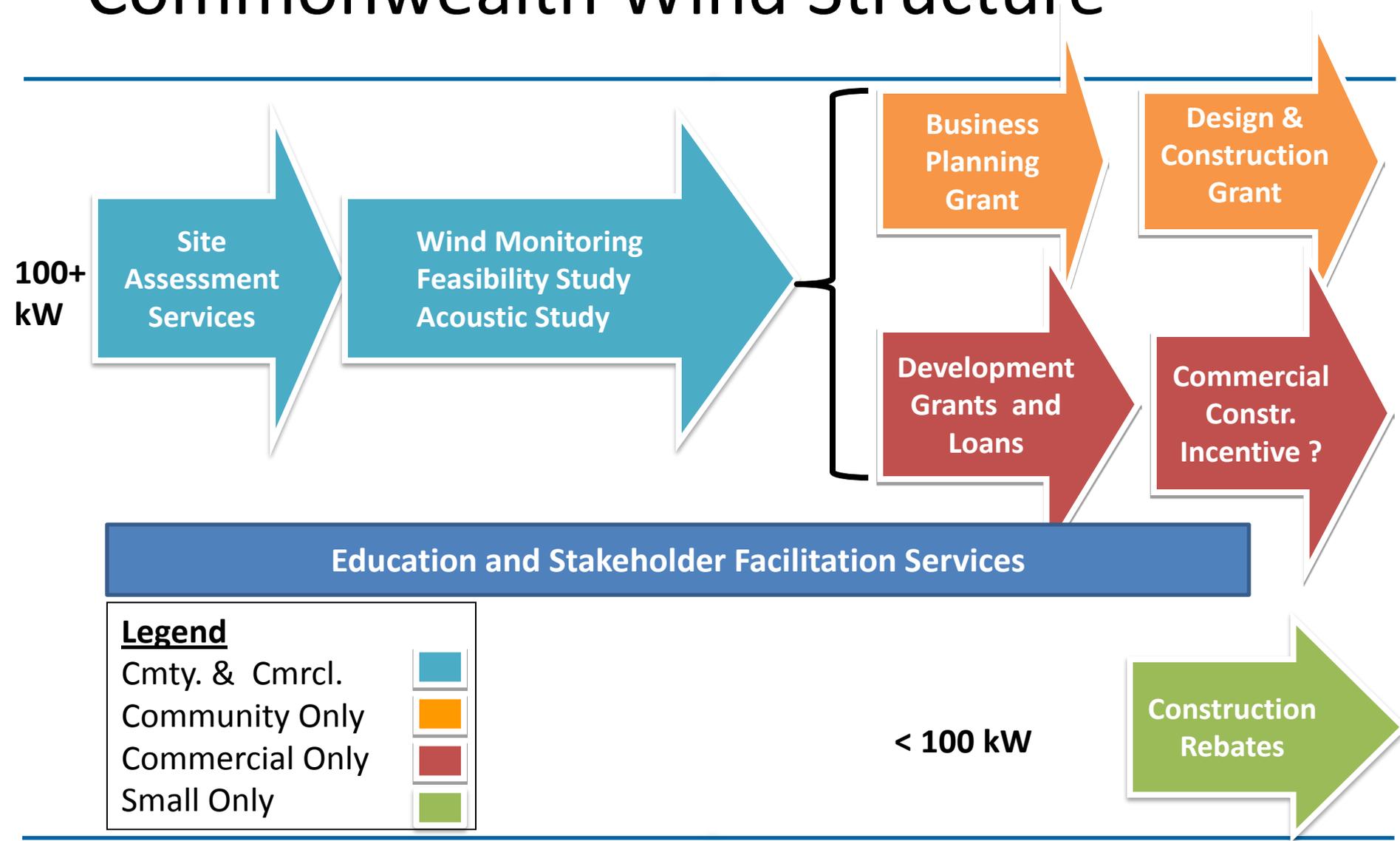
# Commonwealth Wind Offerings

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MassCEC focuses primarily on supporting early-stage project analysis, where risk is high and siting decisions are made

- Site Assessment
  - High level fatal flaw analysis
  - Identifies project sites
- Feasibility Studies
  - Wind Monitoring (met, sodar, lidar)
  - Business Planning
  - Acoustic Studies (New!)
- Development Studies (avian, environmental, historical, geotech, etc.)
- Design & Construction

# Commonwealth Wind Structure



# Commonwealth Wind Offerings

Service	Grant Amount /Cost Share				Likelihood of Project Completion (approx.)
	Public		Non-Public		
Site Assessment	~\$10,000	0%	~\$6,500	35%	10%
Feasibility Study	\$50,000	5%	\$40,000	20%	20%
Wind Monitoring	\$20,000	5%	\$15,000	20%	20%
Acoustic Study	\$15,000	0%	\$12,000	20%	20%
Design/Development	~\$200,000	0%+	\$100,000	25%+	40%
Construction	~\$200,000	0%+	\$160,000	25%+	80%
Operation	\$0	-	\$0	-	100%

# Commonwealth Wind Requirements

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- Application Review
  - Project must meet siting guidelines, requirements for site control, viable permitting pathway, minimum wind speeds, public outreach, etc.
  - Project team must have demonstrated experience
- Program Offerings have detailed scopes
  - Feasibility study scope includes topics of siting, permitting, community impacts, wind resource/energy production, economics, etc.
  - Acoustic study scope: [www.masscec.com/windacousticmethodology](http://www.masscec.com/windacousticmethodology)
- MassCEC's program continues to adapt
  - Mandatory acoustic studies for many projects
  - Public education plans must be presented
  - MassCEC supports stakeholder engagement process

# Research Projects

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Goal: to address questions that are not thoroughly understood

- Research Study on Acoustics and Wind Turbines
  - Working towards conducting a broad study of 8-12 operating projects
  - Interested in investigating sound quality and characteristics, including wind resource effects, ILFN, amplitude modulation, structure response
  - Not focused on compliance evaluation
- Property Value Study
  - Evaluating effects of New England projects on residential property values
  - Wind projects are typically smaller and include many close to homes
- Wind Turbine Health Impact Study
  - Conducted by Depts. of Environmental Protection and Public Health
  - Expert review of literature on health effects from wind turbines

# Special Projects

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Goal: to provide guidance to the public and decision-makers to better understand wind energy impacts

- CLF Ventures: “Land-based Wind Energy: A guide to understanding the issues and making informed decisions”  
[www.clfventures.org/wp-content/uploads/Wind\\_Guide.pdf](http://www.clfventures.org/wp-content/uploads/Wind_Guide.pdf)
- Coordination of outreach and education to decision-makers
- Funding support for 3<sup>rd</sup> party review of studies for municipalities
- Re-evaluation of Application Siting Review Criteria
- Coordinating with external public discussion forums (for example, New England Wind Energy Education Project)
- Massachusetts Wind Working Group continuation

# Summary and Conclusions

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- MA has supportive policies and market potential
- Remaining challenges, esp. competitiveness, public acceptance
- MassCEC adapting to address these challenges
  - Research efforts and special projects
  - Public education and process facilitation
- Best practices and lessons learned:
  - Thorough Feasibility Studies lead to better projects
  - Pre-construction acoustic studies reduce surprises
  - Good, reputable information helps everyone
  - Some issues could use greater study to be better understood
- MA continues to seed good wind projects in the face of challenges

# Thank you!

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