

## **Renewables Challenges Working Group**

1. Model legislation regarding the following: siting issues, local zoning ordinances and the interpretation of same, as well as mandatory implementation of RE on the local level;
2. Lack of reliable specific data regarding both the state's existing resources and the current available equipment to harness those resources;
3. Underdeveloped and basically uninformed target market;
4. Recognizable incentives that the lay person outside "our industry" can understand and use;
5. How we are going to integrate with other regions;
6. Legal issues;
7. Impediments to implementation (regulatory, other);
8. Integration into the electric distribution system.

Mike Mercurio:

I believe we need to address wind in this state as a major Class 1 renewable. We have to address the class of types of wind there are, such as: small wind, commercial wind and utility wind. Also model ordinance should be put into place for towns to refer to for this important issue.

A must add-on should be current technology for offshore wind. This will achieve the basis load for renewable energy. Also hydrogen applications should be in the mix. I hope we are talking mostly about net metering projects for a decentralized interconnect.

Also would like to address a model ordinance for towns to adopt for zoning on wind. Much need to classify different types of wind power.

Joe Porrovecchio:

1. Suggest that this subgroup take on the responsibility to integrate the other working subgroups to achieve a broader outreach and education on issues addressed:
  - statement of the problem
  - considerations in formulating alternative solutions
  - understand the potential outcomes
  - basis for a selected solution
  - explanation of implementation process and desired end state condition
2. Based on the difficulty of producing RFP's that result in common denominator responses (that can be apples to apples compared) for best value, the EMP should clearly derive the attributes and selection alternatives that permit commodity procurement of best practice installations. We should therefore obtain and review RFPs and executed contracts with performance history to develop a best practice template that can be replicated by schools, municipalities, hospitals, commercial and residential consumers of solar and other renewable power projects.

3. Regarding NJ Meadowlands Regional Renewable Energy District, here is their suggestion:

As far as BPU goes, I think the one pressing concern is for them to rework the SREC program so that it makes financial sense to investors. Also, they are resistant to commissioning SRECs for in-ground solar energy installations, thus limiting the potential for solar energy in NJ by refusing to recognize the ground-mounted systems.

Jim Torpey:

**1. Integration of significant renewables (22.5% by 2020) into the electricity distribution grid in New Jersey.**

In order to take advantage of 22.5 % renewables in 2020, New Jersey must implement complementary policies that will address potential issues related to the full integration of these resources into the NJ distribution grid. For example, there are technical challenges to increasing the amount of distributed renewables within a particular area, including impacts on local grid operation. This may include impacting the operation of equipment such as switches, capacitors, etc. within particular circuits. Since renewables are generally intermittent resources, there may be a need to coordinate increasing amounts of renewable energy with traditional resources and/or storage. There may be a need to invest in the grid (create a “smart grid”) in the years between now and 2020 in order to prepare the grid for the full integration of renewable energy, particularly distributed renewable energy.

**2. Coordination of the New Jersey renewable market with regional electricity and emission markets such as PJM, New York ISO, New England ISO, RGGI, etc.**

The supply and price of RECs in New Jersey will depend on the availability of renewable resources within the PJM region. Currently, the supply and price of solar RECs depends upon the geography where the solar is installed. New Jersey’s rules require that the solar energy system be installed in an area that feeds directly into the NJ distribution grid. Should this policy continue? If New Jersey determines that state economic development is a parallel goal of the renewable energy program, there may be a reason for extending the same requirement to other renewable technologies. What are the interstate commerce implications of such an approach?

How will the price of RECs be impacted by the actions of neighboring states? How can the rules for participating in the REC market be rationalized and coordinated across states in the region so that market efficiencies based on scale can be implemented? What role will emerging emission trading markets have for the development of renewable resources?

Don Kasten

I think that legal issues are put in a different sub-group. My particular interest has to do with policy issues if and when the state decides to assist with financing. We here at CAES have been doing the selection for the CHP awards now for three years, and these are the kind of issues we have had to deal with. The marketplace will decide which of the technologies is the least expensive, and left alone, that is the technology that will be adopted. Does the state want to allocate funds for specific reasons? For example: Does the State want a set-aside for each technology? We fund a fuel cell every year, even though it does not compete financially.

Along those lines, other issues are -- do they want to fund different entities such as municipal, institutional, educational, and industrial?

What is the value of in-state vs. out of state production?

What is the environmental cost of each?

Do we use first cost or life cycle cost?

Do they get credit for being self sufficient, even if it is with fossil fuels. I am not saying that self sufficient is necessarily desirable, but leaving the back-up power to the utilities may not always be the best situation. This especially comes into play if the facility is an Emergency Management Site.

Essentially I am getting into rating system issues.

Sky Sims

Many challenges are technology specific. In order to properly address them for each technology we will need a determination from the Class 1 working group on which technologies we will be focusing on in our group.

These are some of the obvious class 1 technologies, please add to the list;

- 1) photovoltaics
- 2) wind
- 3) hydroelectric
- 4) tidal
- 5) OTEC
- 6) Geothermal

Some challenges are uniform across all of the technologies. Perhaps this can be the beginning of that list (please add to it):

- 1) Permitting local and state
- 2) Space (acceptable areas for installation of class 1 energy --- technology specific)
- 3) Optimal Points of interconnection for large scale systems (greater than 1mgw)
- 4) Idle generation during peak power production of intermittent class 1 technologies (maximizing value of class 1 energy)
- 5) Under-sized energy supply and distribution infrastructure (which areas of NJ are most prone to brownouts and blackouts)
- 6) Upfront costs of developing infrastructure (coordinate with the financial working group on this challenge)
- 7) Training and education

Fred Lynk

Here is what I propose be the scope of the work group:

- 1) Coordination with Other Regions
  - a) PJM and other ISO's
  - b) RGGI
- 2) Legal and Regulatory Issues not related to financing
  - a) Siting
  - b) Permitting
  - c) Codes
  - d) Development of model ordinances
  - e) Modifications to the current SREC market
- 3) Implementation
  - a) Outreach and education
  - b) Market segmentation (e.g., around technologies or customer segments such as municipal, educational, residential, commercial, etc.)
  - c) Development of model RFPs for procurement of renewable resources
  - d) Training
- 4) Integration of renewables (22.5% by 2020) into the electricity distribution grid in New Jersey.
  - a) Reliability issues
  - b) Security issues
- 5) R&D – Should the state fund this in anyway?
  - a) Emerging technologies
  - b) Market development

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