

EERE & AIR EMISSION REDUCTION BENEFITS

Presentation to Solar Peer Network, Council of State Governments, and Clean Energy States Alliance

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OVERVIEW

- **Background**
- **Emissions Trading**
- **Challenges to Achieve Market Benefits**
- **Other Opportunities**



BACKGROUND



IMPORTANCE OF ISSUE

- Increase the value of energy efficiency and renewable energy in the marketplace – e.g. MA and EE;
- Capture air quality and greenhouse gas emission reduction benefits – e.g, MWCOG;
- Seize opportunity for State clean energy funds and others;
- Consider in policy development and implementation – e.g., Regional Greenhouse Gas Initiative (RGGI).

EERE CLEAN ENERGY/AIR QUALITY WORK

- **DOE Clean Energy/Air Quality Integration Initiative** - launched in 2004 by DOE's Office of Energy Efficiency and Renewable Energy
- **Major focus:**
 - Developing and implementing innovative clean air policies to spur EERE projects
 - Facilitating increased collaboration among State and Federal agencies and organizations involved in energy and air quality issues

EERE CLEAN ENERGY/AIR QUALITY WORK

- **Successful work with several States to modify NOx emission trading regulations to spur EERE:**
 - Allocation of NOx allowances to EERE projects
- **Quantification of emission reduction benefits of EERE to support improved air quality – e.g., NJ project**
- **Support of Ozone Transport Commission's High Electric Demand Day Initiative – e.g., CT project**
- **Continuing Opportunities for Support to States**

COMPARE ZERO-EMISSION EERE & FOSSIL FUELS

- **Solar & wind energy, energy efficiency** - zero direct emissions of air pollutants
- **Fossil fuel-fired electric generation** from coal, oil, and natural gas - substantial direct emissions of numerous air pollutants that have adverse impacts on public health and the environment
 - Conventional pollutants (e.g., nitrogen oxides)
 - Hazardous pollutants (e.g., mercury, dioxin)
 - Greenhouse gases (e.g., carbon dioxide)

EERE & THE ELECTRIC GRID

- EERE projects displace fossil fuel generation and reduce emissions at individual power plants
- Solar PV and Wind Energy Examples:
 - Economically preferred power sources because of zero fuel costs and low operating costs
 - When solar PV and wind energy are producing power, they will “back down” more expensive generation – typically fossil fuel-fired



EMISSIONS TRADING

EMISSIONS TRADING BASICS

- **Regulator – EPA, State, or Regional Entity:**
 - Sets an emission cap (in tons) for particular pollutant (e.g., SO₂, NO_x, CO₂) for a specific sector (e.g. electric generation)
 - Distributes allowances that permit emissions of a specified amount of a pollutant in a particular year or season
- **Fossil Fuel Generators** meet requirements by:
 - Reducing emissions;
 - Buying or selling allowances; or
 - Purchasing offsets (under certain CO₂ trading programs).

EMISSIONS TRADING & EERE

- **EERE Projects Help to Meet Emission Reduction Goals (Caps)**

- EERE projects help to meet emission caps by reducing average emissions and lowering pollution control compliance costs faced by owners of fossil fuel-fired units

- **Challenges in Emissions Trading (Cap-and-Trade) Programs**

- Total emissions will not be reduced below the emissions cap when EERE projects come on line unless the cap-and-trade rules are designed to allow this outcome.
- Under the Federal SO₂ emissions trading program, EERE projects generally will not reduce emissions below the level of the emissions cap.
- Under the NO_x trading rules adopted by some States, EERE projects can contribute to emission reductions below the level of the emissions cap.

CAIR & EERE

- CAIR governs NOx emissions trading beginning in 2009
- Many State CAIR rules provide mechanisms that benefit EERE projects – key elements:
 - Allocation of allowances to EE and/or RE projects (nearly half of the States – list on slide 14));
 - Opportunity to aggregate fractions of allowances from several projects – particularly important for small projects, such as solar and EE (option available in certain States).

STATE CAIR RULES & EERE

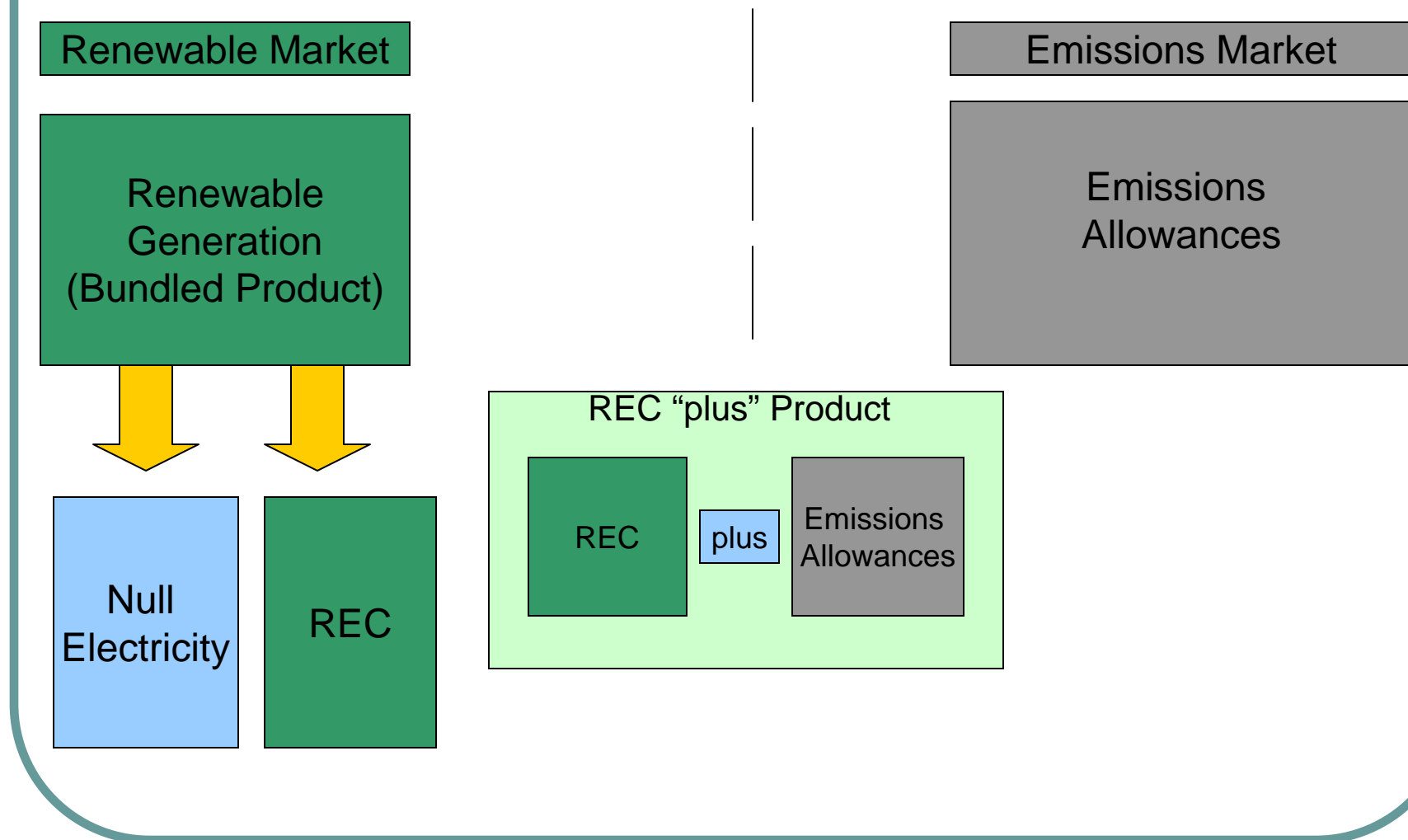
State Rules with Opportunity for NOx Allowance Distribution to EE and/or RE Projects

- **Connecticut** – Project Aggregation for one or more allowances
- **Illinois** -- Project Aggregation authorized
- **Indiana** – Project Aggregation for 1 or more tons of NOx emission reduction
- **Massachusetts** – Project Aggregation for one or more allowances
- **Maryland** – Potential for Project Aggregation Unclear
- **Michigan** – RE only – Project Aggregation above 25MW
- **Missouri** – Project Aggregation for 1 or more tons of NOx emission reduction
- **New Jersey** – Project Aggregation for Board of Public Utilities
- **New York** – Only NYSERDA is Allocated Allowances
- **Ohio** – Potential for Project Aggregation Unclear
- **Pennsylvania** – Project Aggregation for 1 or more allowances
- **Virginia** – Project Aggregation for one or more allowances
- **Wisconsin** – RE only – Project Aggregation for combined units serving generators greater than 25 MW

MARKET VALUE OF NOx ALLOWANCES

- State CAIR Rules that distribute NOx allowances to EERE projects have provided additional market value in several ways:
 - Opportunity for selling NOx allowances (alone or in combination with RECs) directly into emissions market to receive additional revenue – e.g., MA;
 - Retiring the NOx allowances so that the buyer can claim emission reductions – e.g., MWCOG; or
 - Bundling for NOx allowances with RECs for sale into the voluntary green power market (with the retirement of allowances) -- e.g. wind developers.

TWO MARKETS: RECs & EMISSION ALLOWANCES





CHALLENGES
TO ACHIEVE
MARKET BENEFITS

CURRENT CHALLENGES & OPPORTUNITIES

- Assuring a substantial number of applications by EERE proponents for NOx allowances under State CAIR Rules;
 - Need to inform key State energy officials and EERE community of application process and deadlines;
 - Valuable opportunity for State energy agencies and clean energy funds to obtain additional State revenues or assure clean air benefits;
 - State may not sustain distribution of allowances to EERE if few applications.

CURRENT CHALLENGES & OPPORTUNITIES

- Cannot assume that RE projects will automatically flourish under all greenhouse gas (GHG) emissions trading programs;
 - Careful program design is essential to obtain the maximum CO₂ reduction benefits from RE projects.
 - Key program design issues include approaches to allocate allowances, treatment of voluntary RE sales, etc.



OTHER OPPORTUNITIES

STATE IMPLEMENTATION PLANS (SIPs)

- EPA has authorized States to include EERE projects as control measures in State plans (also known as SIPs) to meet national air quality standards, such as ozone;
- States are generally required to assure the retirement of NO_x allowances in conjunction with the EERE projects to receive emission reduction credit.

SUPPLEMENTAL ENVIRONMENTAL PROJECTS (SEPs)

- Tool to incorporate EERE projects in settlement agreements for enforcement of Clean Air Act violations;
- National applicability;
- EPA issued SEP Toolkit in Jan. 2005 – http://www.epa.gov/cleanenergy/documents/sep_toolkit.pdf

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RESOURCES

- General Information on DOE Clean Energy/Air Quality Integration Initiative –
http://www.eere.gov/wip/air_quality_projects.cfm
- Report on NJ EERE Project –
<http://www.eere.energy.gov/wip/pdfs/40477.pdf>
- Information on OTC High Electric Demand Day Initiative –
<http://www.otcair.org/document.asp?fview=meeting>
(Meetings from Dec. 5, 2006 to Mar. 2, 2007)
- EPA Review of State CAIR Submissions -
<http://www.epa.gov/airmarkets/progsregs/cair/rulemakingactions.html>