Promoting Integration of Air Quality and Energy Efficiency/Renewable Energy

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EE/RE SIP Background

- EPA's 2004 guidance has yielded few examples of EE/RE integration in SIPs
  - Voluntary control measures in 1-hour and 8-hour ozone SIPs Washington, DC Region:
  - Control measure in Dallas, TX 8-hour ozone SIP
  - Voluntary control measure in 8-hour-ozone EAC SIP revision for Shreveport, Louisiana
  - Connecticut WOE demonstration in 8-hour ozone SIP
- Variety of reasons states have not implemented guidance

Time is Right to Renew Implementation of EE/RE Guidance

- Significant growth in state investments in electric EE programs to over $5 billion in 2011
- Twenty-nine states (and DC) have adopted renewable portfolio standards
- States need to find greater emission reductions to meet revised NAAQS
- Information on the energy and emissions impacts of EE/RE is increasingly widely available

What EPA has Made Available

- Manual that serves as a roadmap to existing EE/RE guidance
  - Detailed and comprehensive
  - Accessible and easy to read
  - Provides four different pathways for incorporating EE/RE policies and programs into SIPs
  - Includes four approaches for quantifying EE/RE emissions impacts
- Draft tools to be peer reviewed that quantify the emissions benefits of EE/RE strategies
  - Power Plant Emissions Calculator (P-PEC)
  - Hourly Marginal Emissions Tool (HMET)
    - ***To be released***
- Energy savings information for existing state EE policies
- Online training on the electric energy sector

Main Body of Manual

- Section 1.0: Purpose and Roadmap Organization
- Section 2.0: Activities for Getting Started
- Section 3.0: Decision-Making for Navigating the Four Pathways
- Section 4.0: Baseline Emissions Projection Pathway
- Section 4.0: Control Strategy Pathway
- Section 5.0: Emerging/Voluntary Measures Pathway
- Section 6.0: Weight of Evidence Pathway

Decision-Making Hub

- The hub is a flow chart to help agencies navigate the decisions for how to incorporate EE/RE in SIPs
- Identifies the most important EE/RE policy and program characteristics and questions agencies should consider when selecting pathways

Initial Steps States Can Take

- Learn about:
  - Existing EPA EE/RE SIP guidance
  - EE/RE policies and programs in the jurisdiction
  - Electric energy system
  - Roles and responsibilities of key state energy-related organizations
- Determine magnitude of potential emission benefits
  - Conduct initial screening analysis to see what potential could come from a jurisdiction's EE/RE policies and programs

Appendices

- Appendix A: Glossary
- Appendix B: Overview of the U.S. Electric System
- Appendix C: Existing EPA Energy Efficiency/Renewable Energy Guidance
- Appendix D: Understanding State Energy Efficiency and Renewable Energy Policies and Programs
- Appendix E: Baseline Emissions Projection Pathway
- Appendix F: Control Strategy Pathway
- Appendix G: Emerging/Voluntary Measures Pathway
- Appendix H: Weight of Evidence Pathway
- Appendix I: Methods for Quantifying Energy Efficiency and Renewable Energy Emission Reductions
- Appendix J: Draft Methodology for EPA's Analysis of Existing State Energy Efficiency/Renewable Energy Policies
- Appendix K: State Examples and Opportunities

Baseline Emissions Projection Pathway (*Appendix E*)

- Incorporation of the impact of EE/RE policies and programs in SIP/TIP EGU emissions forecast
- Best suited for already adopted EE/RE policies and programs
- Pathway checklist:
  - Identify and describe EE/RE programs and policies to include
  - Ensure they will be in place for the duration of the planning period
  - Perform an analysis of the expected energy impacts
  - Ensure EE/RE emission reductions in the baseline emission projections are mandatory and not accounted for elsewhere in SIP

Control Strategy Pathway (*Appendix F*)

- Incorporation of EE/RE policies and programs in a SIP/TIP as a control strategy
- Best suited for new EE/RE policies adopted after emissions forecast preparation but before it submits its SIP/TIP to EPA
- State of TX included impact of EE programs as control measure in Dallas, TX 8-hour ozone SIP
  - EE measures implemented in new construction

Control Strategy Pathway (*Appendix F*)

- Pathway checklist:
  - Identify and describe the EE/RE programs and policies included in the pathway
  - Demonstrate they are permanent
  - Estimate the magnitude of potential emission reductions before undertaking more comprehensive analysis
  - Demonstrate EE/RE programs and policies are surplus
  - Ensure EE/RE programs and policies are federally enforceable

Control Strategy Pathway (*Appendix F*)

Permanent	Enforceable	Quantifiable	Surplus
• Evidence that regulation or legislation is mandated through the attainment year	• EPA has ability to enforce EE/RE policies and programs brought into SIPs as control strategies • Federal enforceability is key for expanded SIP credit	• Use a reliable and replicable emissions quantification approach that illustrates which EGUs will reduce emissions based on EE/RE policies and programs	• Document no double counting of emissions reductions • Demonstrate emission reductions are not used for other CAA requirements (e.g., under a cap and trade program)

Emerging/Voluntary Measures Pathway (*Appendix G*)

- Incorporation of the impact of EE/RE policies as emerging and/or voluntary EE/RE measures (i.e., those that are difficult to enforce and/or quantify)
- Best suited for locally-based initiatives designed to encourage or require citizens, businesses or local government to reduce emissions
- Pathway checklist:
  - Identify and describe measures
  - Calculate emissions reductions
  - Make an enforceable commitment to:
    - Implement those parts of the measure for which the agency is responsible
    - Monitor, evaluate, and report at least every three years on progress toward emission reductions
    - Remedy any SIP/TIP credit shortfall
  - Certify EE/RE policies and programs are permanent and surplus

Emerging/Voluntary Measures Pathway (*Appendix G*)

Permanent

- Should be fully implemented during the term for which emission reductions are granted

Enforceable

- Flexibility for voluntary measures by requiring agency to assure that emission reductions credited in the SIP/TIP occur
- Agencies would commit to monitor, assess and report on emission reductions resulting from voluntary measures and to remedy shortfalls

Quantifiable

- For emerging/voluntary measures, presumptive SIP credit limit is 6 percent
- Flexibility for emerging measures to receive provisional SIP credit upfront when quantification uncertain

Surplus

- Jurisdictions cannot "double-count" emissions

Emerging/Voluntary Measures Pathway (*Appendix G*)

- Examples of voluntary EE/RE measures:
  - DC Region (via the MWCOG)
    - Voluntary control measures in 1 hour and 8 hour ozone SIPs
    - Wind energy purchase and LED traffic lights
  - Shreveport, LA
    - Voluntary control measure in 8 hour ozone early-action compact SIP revision (LA)
    - EE measures in municipal buildings (LA)

Weight of Evidence Pathway (Appendix H)

- Incorporation of the impact of EE/RE policies as part of a WOE demonstration
- Analyses may be used in a *weight of evidence determination* to show that attainment is likely despite inconclusive modeled results
- Analyses can include the impact of EE/RE policies and programs
  - Best suited for EE/RE policies and programs where modeling the impacts is either too resource intensive or not feasible for other reasons and/or the jurisdiction is not interested in SIP/TIP credit
- State of CT included impact of EE programs as "weight of evidence" in the 8-hour ozone SIP submitted to EPA in 2007

Weight of Evidence Pathway (Appendix H)

- Pathway checklist:
  - Identify and describe the EE/RE policies and programs to included in the pathway
  - Ensure they will be in place for the duration of the attainment planning period
  - Perform an objective analysis of the benefits expected
  - Ensure that any EE/RE emission reductions included in the WOE demonstration are not double counted

Methods for Quantifying EE/RE Policies and Programs (*Appendix I*)

- Basic approach: eGRID sub region "non-base load" emission rates
  - Suitable for WOE pathway
- Basic approach: Capacity factor emission rates
  - Suitable for control strategy, emerging/voluntary measures and WOE pathways
- Midrange approach: Historical hourly emission rates
  - Suitable for baseline emissions projection, control strategy, and WOE pathways
- Sophisticated approach: Energy models
  - Suitable for baseline emissions projection, control strategy, and WOE pathways

Examples of Potential SIP EE/RE Policies, Programs and Measures

- Energy Efficiency Resource Standards
- State energy efficiency appliance standards
- State-mandated municipal government electricity consumption reductions
- Renewable Portfolio Standard
- Local Renewable Energy Certificate purchases

Important Elements for Successful Incorporation of EE/RE in SIPs

- EE/RE policies and programs
  - More aggressive state-wide policies produce greater potential emission benefits
    - For example, the higher the percentage target of a state-wide renewable portfolio standard, then the greater the potential emission benefit
    - Working regionally to combine impacts is also beneficial
- Dialogue with energy agencies
  - Establishment of strong working relationships and partnerships among energy and environmental agencies within a state or locality
    - Greater understanding of the details of relevant EE/RE policies and the associated emission benefits
    - Transfer of energy information needed for SIP documentation
    - Facilitate successful monitoring of compliance with adopted EE/RE policies

Important Elements for Incorporating EE/RE in SIPs

- Quantification of whether and to what extent the EE/RE initiative is affecting a particular nonattainment area
  - Appendix I of the roadmap describes emission quantification approaches states can apply to understand the magnitude and location of EE/RE policy and program emission impacts

States that May Want to Consider EE/RE Going Forward

- Ozone Advance areas
  - To date, 23 areas in 17 states have signed up to participate in the program
  - These areas may want to consider quantifying EE/RE emissions benefits under this program
- 2008 ozone NAAQS
  - Areas designated nonattainment that have to prepare attainment demonstrations may want to consider quantifying EE/RE emissions benefits under this program
  - Could incorporate EE/RE benefits in the upcoming SIP
- Other areas may want to plan for possible, tighter NAAQS in the future
  - Consider quantifying EE/RE emissions benefits under this program

Next Steps

- Plan to conduct national webinar
  - August 27, 1:30-3pm ET: https://www1.gotomeeting.com/register/414731616
- Interested in working with state and local agencies to apply manual and quantify EE/RE
  - Plans underway to develop examples with MA, NY and MD
  - Several other states have started to engage
- Providing technical assistance, tools and training