Energy Efficiency and Renewable Energy in State Implementation Plans

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EERE Policy and Program Categories

EPA guidance enables a range of EERE measures in SIPs, including

- On-the-books
- Federally enforceable
- State enforceable
- On-the-way or emerging
- Local voluntary
- Requirement for Credit --
- Permanent, quantifiable, enforceable, surplus

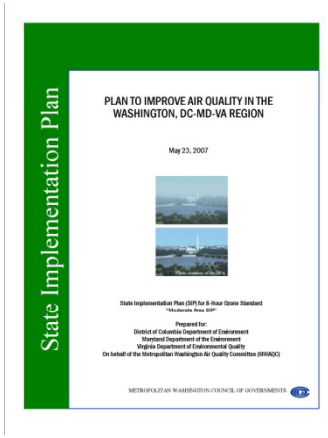
Recent EPA Guidance

Pathways for inclusion of EERE in SIPs

1. Baseline emissions projection
2. Control strategy
3. Emerging/voluntary measures
4. Weight of evidence (WOE)

Current Approach

- Goal:
  - Include EERE in SIPs for the metropolitan Washington region.
- Success:
  - 1-Hour Ozone, 8-Hour Ozone and $PM_{2.5}$ SIPs
  - Local Voluntary Initiatives
  - Weight of Evidence
- More will be needed to meet new lower standards and climate change goals.

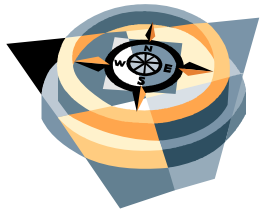


EERE Local Initiatives ("Bundle")

- Programs Included:
  - Wind Energy Purchases
  - Clean Energy Rewards Programs
  - LED Traffic Signal Retrofits
  - Renewable Portfolio Standards
  - Building Efficiency/Green Buildings
  - High Electricity Demand Day (HEDD) Initiative

Inclusion of Voluntary Bundle in the SIP

- Emission Benefits (2009)
  - 0.30 tpd NOx
- Annual Reporting Requirement
- Periodic True-up Evaluation



Moving Beyond the Voluntary Bundle

State Energy and Climate Plans Involve Significant Renewable and Energy Efficiency Initiatives

Maryland

- EmPower Maryland
- Maryland Climate Action Plan
- Renewable Portfolio Std

The District

- District Sustainable Energy Utility
- DC Benchmarking Law
- Renewable Portfolio Std

Virginia

- Virginia Energy Plan
- Virginia Electric Utility Integrated Resource Planning Law
- Virginia Climate Plan

Potential Emission Benefit

State Energy and Climate Plans Involve Significant Energy Efficiency Initiatives

EMPOWER Maryland Example

Total Annual Electric Consumption	181,290,808 MWh (2006)
Potential Energy Savings	27,193,621 MWh
Equivalent Emission Reductions (statewide)	
NOx	33 tons/day
CO_2	>14 million MT CO_{2e}/year

Assumes:

- Assume 15% Reduction
- 8-hour ozone SIP NOx emission factor
- DOE CO_2 regional emission factor

ENERGY STAR PARTNER

What have we achieved? State Programs

State	2010 Net Incremental Savings (MWh)*	Emission Reductions (Avg tons NOx/day)
District of Columbia	41,685	0.1519
Maryland	330,678	1.2047
Virginia	667	0.0025

*Source: ACEEE 2012 State Energy Efficiency Scorecard

State Programs

Program	Annual Energy Savings (MWh)	Emission Reductions (Avg NOx tons/day)
DC Sustainable Energy Utility	38,022	0.1385
EmPower Maryland	1,400,000	5.1002
Dominion DSM Programs (Estimated VA reductions)	148,810	0.5421

Local EERE Programs

Program	Energy Savings (MWh)	Emission Reductions (Avg NOx tons/day)
LEAP-VA (Central VA & NOVA)	7,090 (To-Date)	0.0258
ENERGY STAR Buildings (DC Metropolitan Area)	143,700 (2011)	0.5235
Arlington Initiative to Reduce Emissions (AIRE) Energy Benchmarking & Efficiency Retrofits for Government Buildings	4,923 (2011)	0.0179

Washington Region Leads in Green Building Rankings

Top Metro Areas with the Most ENERGY STAR Certified Buildings in 2011	Top States with most Sq. Feet of LEED-Certified Space Per Capita in 2011
1. Los Angeles	**1. District of Columbia**
2. Washington, DC	2. Colorado
3. Atlanta	3. Illinois
4. Chicago	**4. Virginia**
5. San Francisco	5. Washington
6. New York	**6. Maryland**
7. Houston	7. Massachusetts
8. Dallas-Fort Worth	8. Texas
9. Riverside, CA	9. California
10. Boston	10. New York

Local EERE Programs

ARRA-Funded Projects

Program	Energy Savings (MWh)	Emission Reductions (Avg NOx tons/day)
Loudoun County Efficiency Retrofits	744 (Annual)	0.0027
Frederick County Solar Thermal Installation and County Building Retrofit	551 (Annual)	0.0020
Fairfax County Computer Server Consolidation and Virtualization	5,671 (Annual)	0.0207

RPS Impacts

State	Year	RPS Goal	Estimated Annual Renewable Production (MWh)	Emission Reductions (Avg NOx tons/day)
DC	2012	5%	580,911	2.6584
	2020	50%	2,415,506	11.0538
MD	2012	6.5%	4,104,631	18.7837
	2022	20%	11,761,077	53.8210

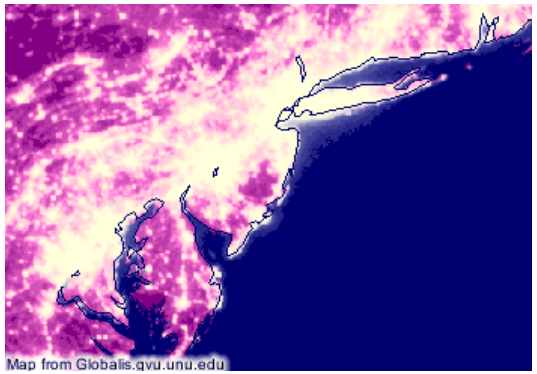
Green Building Code Impacts

State	Current Code	Estimated average annual primary energy reduction, 2010 – 2030 (MWh)	Emission Reductions (Avg NOx tons/day)
DC	2009 IECC with Amendments/ASHRAE 90.1-2007	73,268	0.3170
MD	2012 IECC/ASHRAE 90.1-2010	219,803	0.9510
VA	2009 IECC with Amendments	483,567	2.0921

Source: Building Codes Assistance Project, State Fact Sheets

What will it Take?

- EERE Programs at Scale
- Air and Energy Office Coordination
  - Enforceability
  - Inventory and Projection Challenges
  - Current Designation and SIP Requirements
- PSC Involvement
  - Utility Program Approvals and Oversight
  - Measurement and Verification
- Protocols
  - White Tags?
  - PJM Programs?
  - Emission Quantification



For Further Information

http://epa.gov/airquality/eere/pdfs/EEREmanual.pdf

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