

CHALLENGES IN INCENTIVIZING ENERGY EFFICIENCY SAVINGS THROUGH GHG REDUCTION PROGRAMS



CDM

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AWMA
Greenhouse Gas
Strategies in a Changing
Climate

Why Energy Efficiency?

- Cost effective compared to renewable sources of energy or GHG removal strategies
- Estimate 50% of predicted electricity & natural gas demand growth in US between now and 2025 may be mitigated by energy efficiency measures.

Energy Efficiency

- Improve housekeeping & maintenance
- Install more efficient/properly sized equipment
- Optimize processes
- Minimize/reuse waste products/heat



National Action Plan for Energy Efficiency. 2008. Vision for 2025: A Framework for Change. November.

GHG Reduction Programs

- U.S. Department of Energy – Energy Efficiency and Conservation Block Grant Program
- Renewable Portfolio Standards
- Carbon Offset Credit Markets
- EPA Prevention of Significant Deterioration/Title V Permit Best Achievable Control Technology Analysis

U.S. Department of Energy (DOE) Energy Efficiency and Conservation Block Grant (EECBG) Program

- Authorized in 2007 by the Energy Independence and Security Act
- Funded by the American Recovery and Reinvestment Act of 2009
- >\$3 billion in grants
- Cities, counties, local governments, states, territories, and Indian tribes
- Goals: increase energy efficiency, reduce energy and fuel use (and emissions), and create jobs
- Funding for 1. strategy development and 2. implementation
- Quarterly report on financial, job, and environmental impacts and annual estimate of GHG reductions

<http://www1.eere.energy.gov/wip/eeecbg.html>

EECBG Eligible Projects

- Develop strategies
- Conduct energy audits and inspections
- Establish financial incentive programs and grants
- Develop & implement building codes
- Implement technologies to conserve energy and/or reduce/capture GHG
- Install onsite renewable energy technology
- Develop public education programs

EECBG Results

The Good

- Gave necessary funding to implement energy efficiency and GHG reduction projects
- Leverage funds for implementing future projects
- Promote sustainable communities

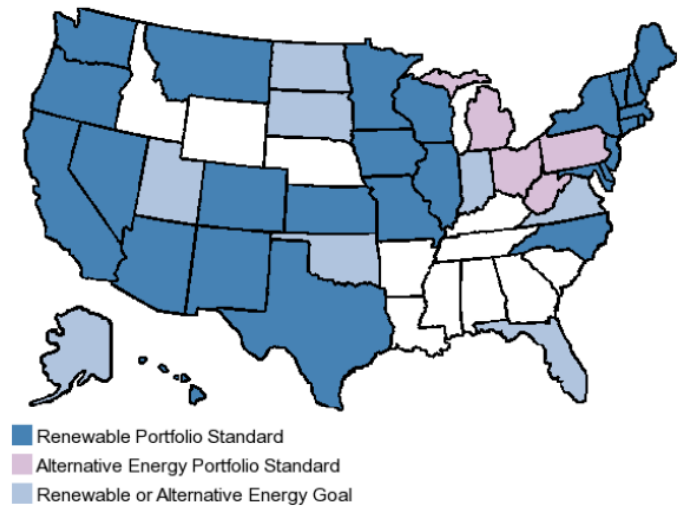
The Not-so-Good (for energy efficiency)

- Political pressure to create jobs
- More jobs vs. more energy reduction per \$

Renewable Portfolio Standards (RPS) Programs

- Requires electricity utilities and providers to supply a percentage of load from renewable energy
- Reduce GHG emissions and dependence on foreign oil
- Currently various state RPS programs exist
- Energy Efficiency Resource Standard (EERS)
 - electricity and/or natural gas utility energy savings

State RPS



State	Energy efficiency component
Connecticut	4% of goal may be >50% efficient CHP
Hawaii	Qualify for RPS until 2015, then EERS
Illinois	Reduce electric usage by 2% of demand by 2015 (RPS/EERS)
Kansas	Energy efficiency provision
Michigan	Energy optimization schemes
Nevada	<25% of standard (RE has better incentives)
North Carolina	12.5% of demand by 2012 (either RE or EE)
Ohio	22% energy savings by 2025 through EE
Oklahoma	25% of goal (voluntary program)
West Virginia	Energy efficiency projects count towards RPS

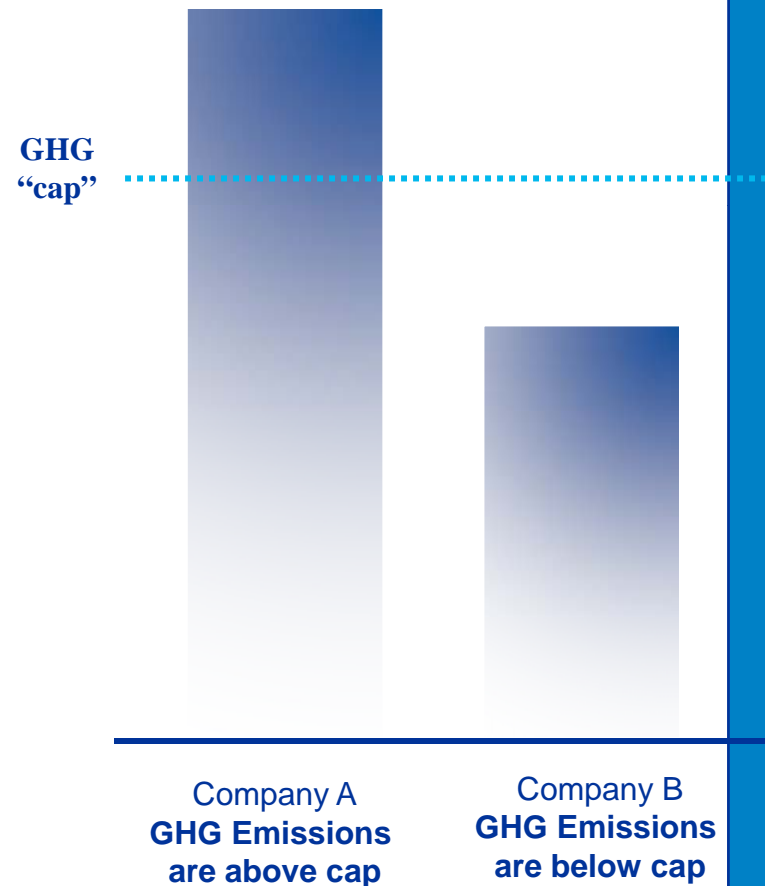
CHP = combined heat and power; RPS = renewable portfolio standards; EERS = energy efficiency resource standard; EE = energy efficiency; RE = renewable energy
<http://www.pewclimate.org/sites/default/modules/usmap/pdf.php?file=5907>

Downside of RPS

- Different standard for each state – Federal?
- Energy efficiency is not widely included in RPS programs
- Energy efficiency works differently than RECs because the energy is completely displaced rather than replaced
- EERS/EEPS may be a better program for energy efficiency
- RECs compete with carbon offsets

Carbon Markets

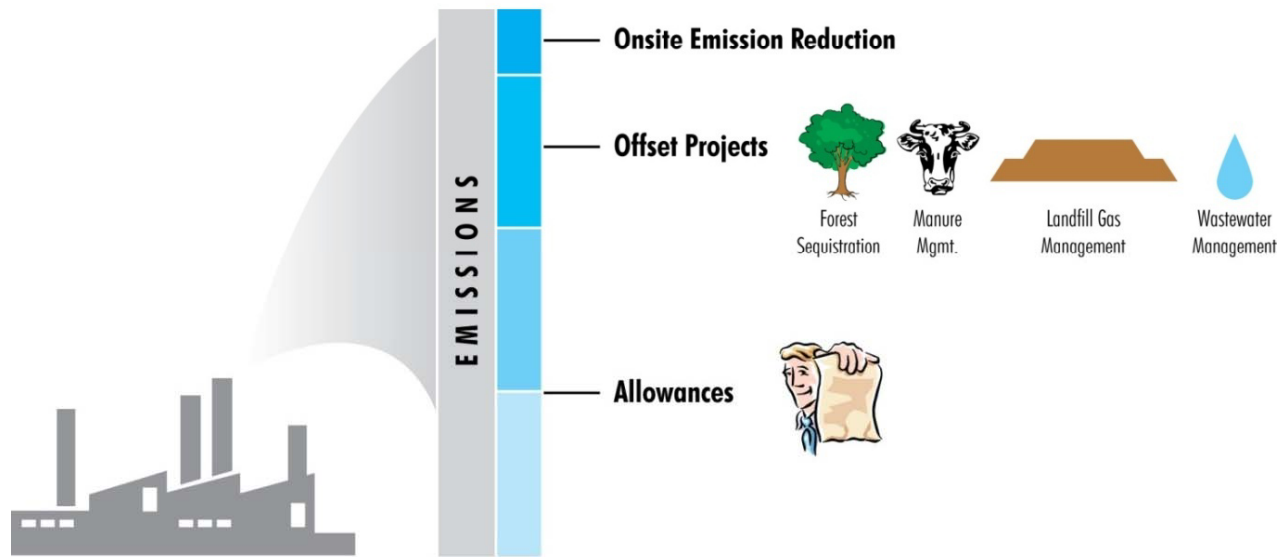
- **CAP:** Program limits the total amount of GHG emissions.
- **ALLOWANCES:** Program allocates or auctions rights to emit GHGs below cap
- **OFFSETS:** GHGs removed from -- or prevented from entering -- the atmosphere.
- **TRADING:** To comply with cap, companies can buy or sell offsets and possibly allowances via:
 - auction,
 - company to company, or
 - brokers or traders



Offset Credits

- Credits generated from non-regulated entities
- May be sold to regulated entities to aid in meeting their compliance obligation

GHG COMPLIANCE OBLIGATION (cap and trade program)



Requirements for Offset Credits

- Real
 - Must be *ACTUAL* net GHG emissions reductions
- Surplus/Additional*
 - Beyond “business-as-usual”; No regulatory requirements
- Permanent
 - Guarantee that emission reductions cannot be reversed
- Verifiable*
 - Third party verification – measurable GHG emissions reductions
- Enforceable
 - Define ownership of offsets and liability for noncompliance

Example: Regional Greenhouse Gas Initiative (RGGI)

- Offsets limited to 3.3% of reduction requirements
- End-use efficiency projects:
 - Improvements in space/water heating combustion equipment efficiency and distribution systems
 - Improvements in thermal/passive solar performance of buildings
 - Replacement of natural gas, oil, or propane consumption with renewable energy
- Must be in participating RGGI state or state with MOU
- Project must have commenced on or after Dec. 20, 2005
- Requirements:
 - Not required by state law
 - Not funded by the consumer benefit allocation
 - Did not receive credit or allowance under any other GHG program
 - Annual monitoring and verification report to demonstrate reduction

Limitations of Carbon Markets

- Many programs are still developing a list of eligible offset projects.
- “High quality” offset (meet all requirements)
- Additionality - significant energy savings with short payback period may be ineligible
- Jurisdictional limitations
- Reporting requirements

EPA Prevention of Significant Deterioration (PSD)/Title V Tailoring Rule

- PSD & Title V permitting requirements for GHGs
- New major stationary sources and major modifications to existing major sources require PSD permit
- Best Available Control Technology (BACT) requirement
 - Most effective control technology
 - Technically feasible
 - Limited/no additional energy and environmental impacts
 - Cost effective

Limitations of the PSD/Title V program GHG BACT requirement

- Limited emission control technologies for GHGs
- Energy efficiency
 - More efficient process/design
 - Reduce demand of onsite heat/electricity generation
 - Benchmarking resources : ENERGY STAR program's Energy Performance Indicators (EPIs)
- Carbon capture and storage may be feasible for some
- Applies to major sources and modifications and is being implemented in a tiered fashion

Summary

- There are programs that promote both energy efficiency and the reduction of GHG emissions
- Obstacles in implementing energy efficiency:
 - Other metrics, driven by politics
 - Geographical and source limitations
 - Competing programs
 - Programs not standardized
 - New, evolving, or undeveloped programs
- GHG BACT provides the best linkage and incentives
- New programs continue to emerge that include energy efficiency components (EPA Boiler MACT/GACT)

Thank You

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