Methodological Issues Arising Across Different Types of Energy Efficiency Projects

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Who is QT

- Developer of four approved methodologies including two in energy efficiency.
- AM0017 and AM0020 – steam and water pumping efficiency.
- Developer, with Ghana Energy Foundation, of NM0072 – appliance standards methodology.
  - This would be first policy-based CDM project.

Background on E^2 and CDM

- Generation, transmission and distribution efficiencies
- Energy consumption
  - Only three E^2 methodologies approved to date – industrial and end-use.
  - Many other proposed, including two focusing on mass deployment of E^2 appliances.

Opportunity

- Less than 2% of CERs in the Pipeline are from Energy Efficiency
- Energy Efficiency opportunities account for an estimated 2/3 of potential emission reductions
- Growth in Energy Consumption (2/3) will occur predominantly in developing countries

Barriers to E^2 CDM

- **Project Boundaries-** End Users can spread over large geographic area with little linkage or across diverse operations in industrial facilities
- **Baseline**- Typically require Dynamic Baselines or similar alternatives to account for fluctuation in production, demand, supply, and normal efficiency improvements
- **Monitoring**- Often smaller measures requiring aggregation and innovative monitoring
- **Size** – E^2 projects tend to be small unless mass deployment/multiple sites strategies are used.

Barriers Differ Based on End Use Categories

- Industrial
  - Single Energy Consumer but often great diversity of uses
  - Varying products and production levels create baseline problems
  - Monitoring many small efficiency improvements problematic
- Transport
  - Multiple Small Point Sources-Monitoring Issues
  - Potential ownership Issues
  - Fuel Switching may have legal/policy implications

Barriers Differ Based on End Use Categories

- Commercial and Individual End Users
  - Aggregation
  - Ownership
  - Double Counting
  - Incentives
  - Monitoring

Tools To Manage Some E2 Project Issues

- Individual Technology (AM0017 Steam Traps)
- Mass Balance Approach: Plant, system, or fleet level (AM0020 Water Efficiency)
- Statistical Sampling for mass deployment of E^2 on regional, national level (NM0072 Appliance Standards)

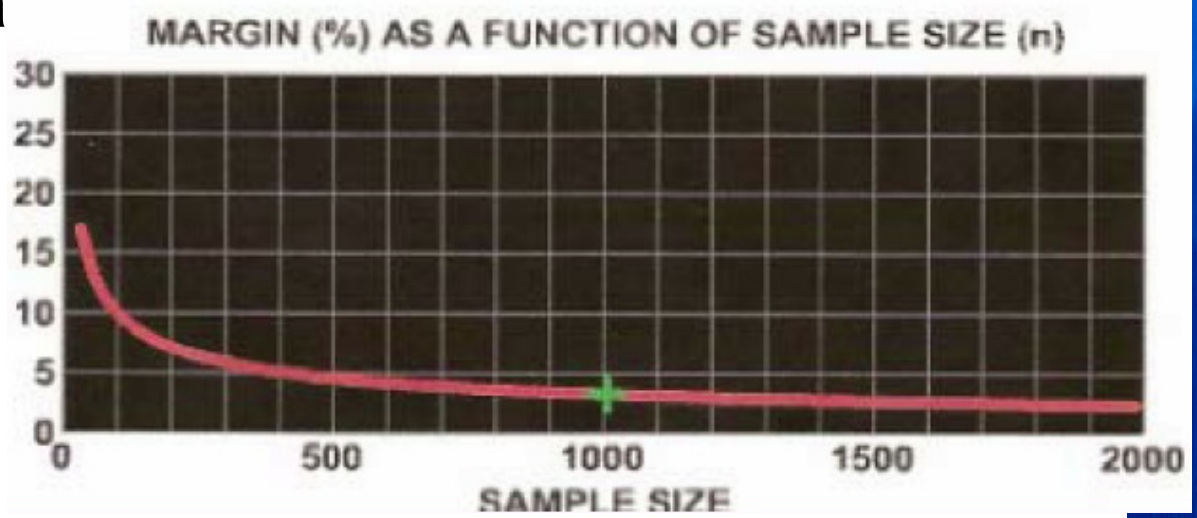
Tools To Manage E^2 Project Baselines

- Efficiency of Production (AM21 Water Efficiency - kwh/m3 pre and post project)
- Benchmarking (AM17 Steam- Five Control Group Plants)

- Historical Rate of Improvement (Best Annual Improvement in last 3 years as baseline)

Tools To Manage E² Project Monitoring

- Sampling
  - Use 95% level of confidence (proposed in NM0072)
  - Use conservative end of margin of error
    - Likely to induce larger sample sizes and better da



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- Appropriate Monitoring Intervals
  - It may be better to monitor less frequently and eliminate some potential credits to reduce costs
  - But the less frequent monitoring, the more risks there are. In AM17 If a trap is found malfunctioning it is assumed to have been malfunctioning since the day after the last survey)
  - Project developer must balance the cost of monitoring vs. potential loss of ERs b/c EB/Meth Panel will always require erring on conservative side.

Other Issues and Tools

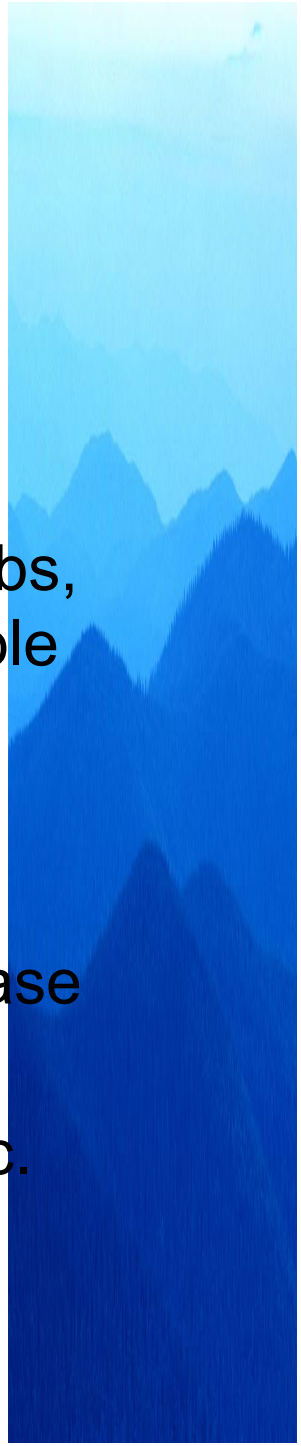
- Additionality: For projects with quick payback use the Barriers analysis in the EB's Additionality Tool
- Increased Capacity vis a vie efficiency & Suppressed Demand- Efficiency of Production (AM21 Water Efficiency - kwh/ m3)
- Repair versus Replacement: Use Manufacturer Norms or benchmarks to determine appropriate retirement age and adjust credit accordingly

Some Conclusions

- E^2 methodologies require a bit more creativity and expertise in multiple disciplines
- Lack of Clarity or Rules of Thumb regarding the Use of Tools Such as Sampling, Benchmarking, use of control groups
- Clearly need to Open the Door to Programmatic and Policy Driven CDM to Reach out to Transportation, Commercial and Individual Energy Consumers

Helping E^2 CDM Reach Beyond Current Limitations

- Programmatic CDM, such as utility DSM programs.
  - Focus on Specific Technology (Motors, light bulbs, etc.) Difficult to do in, say, industries with multiple technologies. Or difficult to focus on peak load reduction.
  - Define Incentive (rebates, giveaways, etc.)
  - Determine Baseline Scenarios (historical purchase records, equipment retirement averages, etc.)
  - Use Statistical sampling to determine usage, etc.



DSM Results in US

Table 9.2. Demand-Side Management Program Annual Effects by Program Category, 1992 through 2003												
Item	**2003**	**2002**	**2001**	**2000**	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**	**1993**	**1992**
Annual Effects - Energy Efficiency												
Large Utilities[1]												
Actual Peak Load Reduction (MW)[2]	13,581	13,420	13,027	12,873	13,452	13,591	13,327	14,243	13,212	11,662	10,368	7,890
Energy Savings (Thousand MWh)	48,245	52,285	52,946	52,827	49,691	48,775	55,453	59,853	55,328	49,720	41,119	31,779
Annual Effects - Load Management												
Large Utilities 1												
Actual Peak Load Reduction (MW)	9,323	9,516	11,928	10,027	13,003	13,640	11,958	15,650	16,349	13,339	12,701	9,314
Potential Peak Load Reductions (MW) [3]	25,290	26,888	27,730	28,496	30,118	27,840	27,911	34,101	33,817	31,255	29,140	24,552
Energy Savings (Thousand MWh)	2,020	1,790	1,816	875	872	392	953	1,989	2,093	2,763	4,175	4,114

Helping E^2 CDM Reach Beyond Current Limitations

- Policy Based CDM (appliance standards, building codes, ethanol blending, etc.)
  - Using CDM to induce E^2 Government Policies is vital to reach critical sectors for emission reductions
  - Policies govern much of the possible actions in sector such as transportation, commercial, individual energy consumption are likely to be under represented in CDM
  - While Governments are not likely to be ideal project developers, the potential CERs will likely bring private sector ideas, know-how, and financing to the table
  - Brings transparency to key economic sectors

Helping E^2 CDM Reach Beyond Current Limitations

- Developing Countries need real progress towards sustainable development in the sectors mentioned above that represent much of their anticipated growth in emissions. Lack of effort now makes the problem much more difficult to solve in the future.
- Some key issues need to be figured out, particularly additionality – policy makers need to show that policy cannot be implemented without CDM – may require a revised additionality tool.

Example: Appliance Standards

Standards and labels shift the distribution of energy-efficient models sold in the market upward.

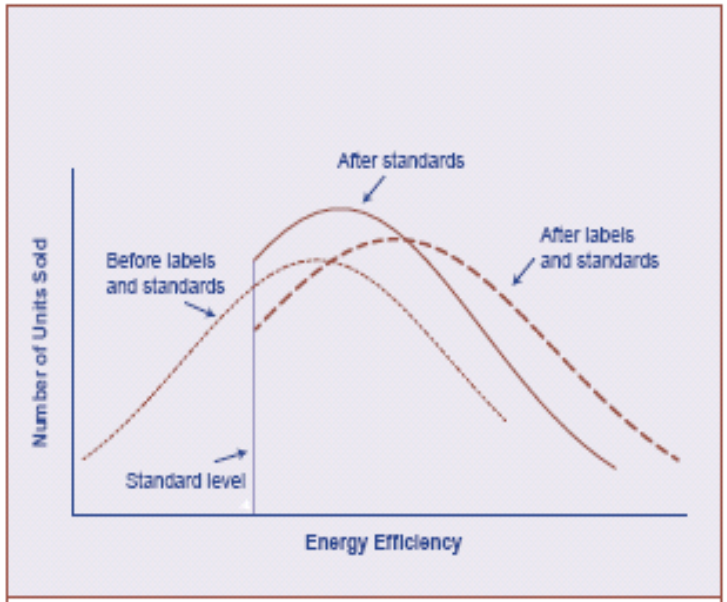


Figure 2-1 The impact of energy-efficiency labels and standards on the distribution of products in the marketplace: the concept

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