



End-use efficiency under the CDM: Status, issues & opportunities

Hans Jürgen Stehr
Outgoing Chair, CDM
Executive Board
& Visiting fellow
International Center for
Business and Politics
Copenhagen Business
School

Scaling Up Energy Efficiency under the CDM - Do
we Need a "Plan B"?

Friday, 7 December 2007
(13:00 - 15:00, Room Wind)
Bali, 2007

The EB response to EE | CDM

- Energy efficiency currently accounts for only a small fraction of projects in the CDM pipeline, with no registered DS projects
- The Board is interested in exploring possibilities for creating an environment that would better enable the provision of qualified energy efficiency projects and programs under CDM
- As of EB31 the Board has engaged in a set of task to enable this
- More of this later from the secretariat.....

What is Energy Efficiency | One of many definitions!

“Energy efficiency involves products, systems or practices using less energy to provide the same or improved level of service in an economically efficient way as compared to a conventional approach”

3 types of energy efficiency, requiring distinct approaches, technologies, regulatory frameworks and methods for evaluation

- Energy supply (supply side)
 - Improvements in the equipment or techniques used to generate electricity, either at central station plants or onsite facilities
- Transportation
 - Improvements in efficient transport technologies or systems
- End use (demand side)
 - Improvements in buildings, facilities or other stationary sources that use energy to accomplish activities in the industrial, commercial, residential and service infrastructure sectors

Approved Methodologies | Energy Efficiency

- AM0017 EE industry (EE improvement of steam use at a refinery)
- AM0018 EE industry (EE in ammonia fertilizer plant)
- AM0038 EE industry (EE in electric arc furnaces in SiMn alloy production)
- AM0044 EE industry (EE improvement, boiler rehabilitation or replacement in industrial & district heating sectors)
- AM0056 EE industry (EE improvement of fossil fuel-fired steam boiler (systems) by boiler replacement or rehabilitation)
- AM0058 EE industry (New primary district heating system)
- AM0020 EE service (Water pumping efficiency improvement)
- AM0031 EE Transport (Expansion of the bus system in Bogota)
- AM0046 EE House holds (Large scale replacement of incandescent lamps by compact fluorescent lamps)

Approved SSC Methodologies | Energy Efficiency

- AMS II.C (Demand-side energy efficiency programmes for specific technologies)
- AMS II.D (Energy efficiency & fuel switching measures for industrial facilities)
- AMS II.E (Energy efficiency & fuel switching measures for buildings)
- AMS II.F (Energy efficiency & fuel switching measures for agricultural facilities and activities)

Large Scale

- AM0060 EE Programmatic (Power saving through replacement by energy efficient chillers)
- AM0061 EE Industry (Methodology for rehabilitation and/or energy efficiency improvement in existing power plants)
- AM0062 EE Industry (Energy efficiency improvements of a power plant through retrofitting)

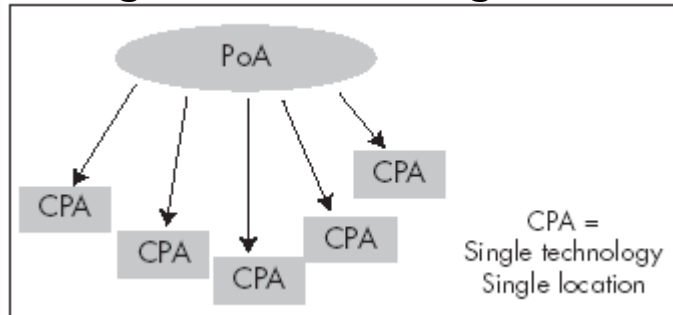
Small Scale

- AMS III.S Transport (Introduction of low-emission vehicles to commercial vehicle fleets)

- A PoA is a “voluntary coordinated action by a private or public entity which implements any voluntary or mandatory policy/measure or stated goal (i.e., incentive schemes and voluntary programmes), which leads to GHG emission reductions...”
- A program of activities (PoA) operates on two levels: the program level and the program activity level
- The program provides the organizational, financial, and methodological framework for the emission reductions to occur, but the program does not actually achieve the reductions.
- The emission reductions are attained at the level of the “CDM program activities” (CPAs), the specific measures through which the emission reductions are actually achieved.

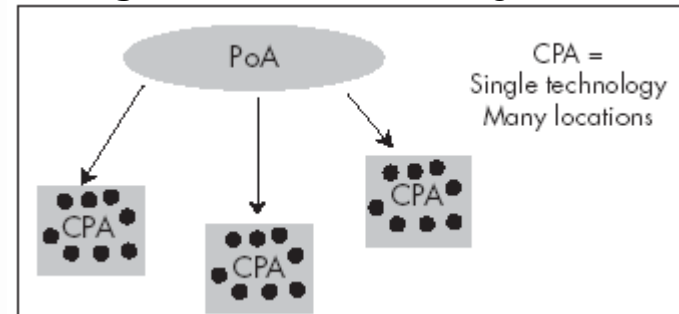
Types of PoAs | Measures & Locations

Single measure, single location



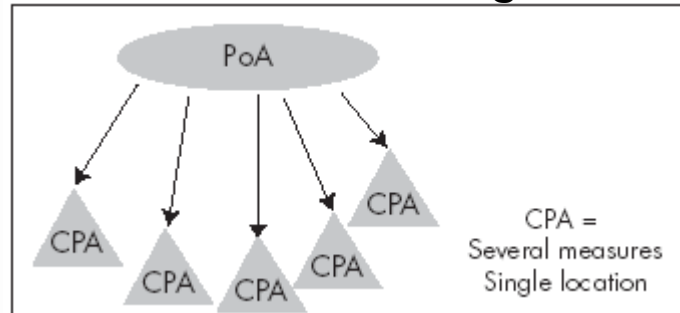
such as improved insulation in buildings.

Single measure, many locations



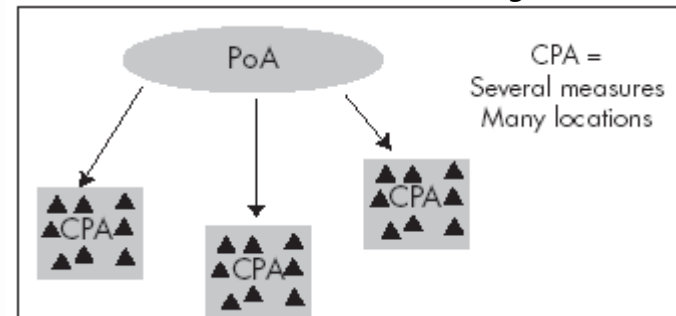
such as replacement of inefficient light bulbs, to many locations

Several measures, single location



such as a set of EE measures applied to multiple boilers in the same industrial facility

Several measures, many locations



such as a city or suburb, where a group of efficiency measures e.g. efficient lamps, ballasts, air conditioners, fans are applied to homes in the area

Key Challenges for EE under the CDM | CDM

- Increasing the number of approved methodologies for demand side (end use) energy efficiency in the industrial, commercial, residential and services sectors
- Measuring energy savings and concomitant GHG reductions with adequate accuracy and precision, given the number of independent factors that may affect energy consumption that are not related to energy efficiency improvements (e.g., weather, energy prices, operation and maintenance practices)
- Setting boundaries for the analysis
- Equipment lifetime for retrofit, replacement and new construction projects
- Establishing appropriate baseline scenarios that account for historical usage, changes in operation, technology degradation and naturally occurring conservation and changes in system characteristics
- Free-ridership and measurement uncertainty
- Changes in system characteristics
- Balancing the convenience of using ex ante measurements against increased accuracy and transaction costs associated with ex post measurement