

Carbon Credits & Energy Efficiency An Overview



Presentation Roadmap

- About Us
- Role of CDM in promoting Energy Efficiency
- Current Statistics
 - Number of Projects Registered
 - Issuances
 - Approved Methodologies
- Current Methodological Challenges
- Industrial Energy Efficiency – A Case Study
- Sectoral / Programmatic CDM Perspectives

Deloitte Overview

- Deloitte Touche Tohmatsu (DTT) is one of the world's largest professional services firm having presence in over 140 countries and drawing on the experience of around 169,000 professionals
- Over 5000 qualified professionals in various disciplines located across 13 cities in India
- DTT member firms serve over 80% of the Fortune Global 500 companies



Well Balanced Global Spread

Deloitte & Climate Change

- Deloitte is a member of the World Economic Forum, and also a member of G8 Climate Change Round Table.
- Since January 2002, Deloitte has been instrumental in setting up the Greenhouse Gas registry with the World Economic Forum and other leading business houses
- Deloitte is the global member of International Emissions Trading Association (IETA), and has contributed significantly in developing Public Policy and Corporate Strategy for over a decade, in various countries
- Tohatsu Evaluation and Certification Company (TECO), a Deloitte Japan subsidiary, was accredited as a Designated Operational Entity (DOE) by the CDM Executive Board in 2006.



CDM – A Critical Role in Promoting Energy Efficiency

CDM helps meet the financing challenges

Low Value

- EE has comparatively lesser volume of funding requirements than greenfield.

No Differential & Stand Alone apparent revenue streams

- Quantification of savings in Energy Consumption, prior to the implementation, always a grey area

No Collateral

- Most Retrofitting / EE initiatives carried out by minor changes existing equipments .

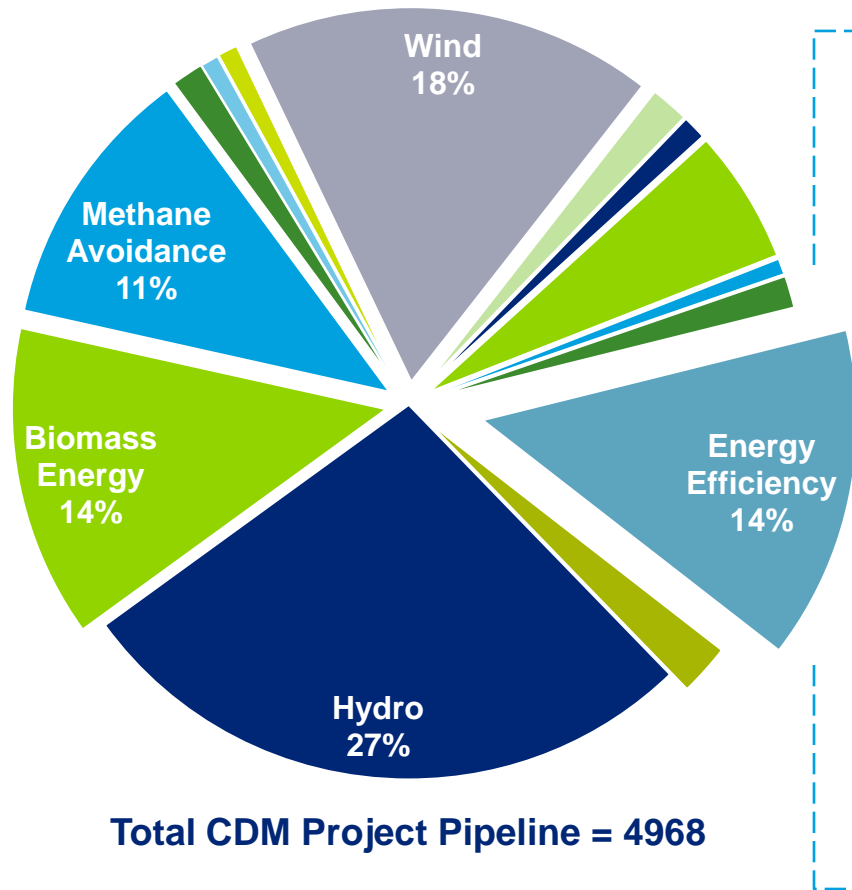
Financing Energy Efficiency Projects is one of the Major Challenge

Critical Role of CDM

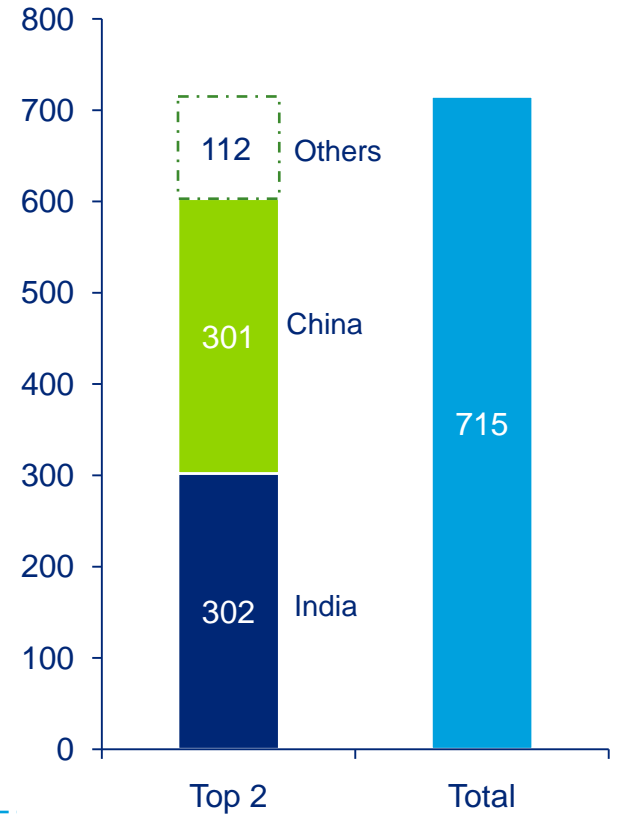
- As a result of low value, lack of standalone revenue streams, and collateral charge, there is very less interest demonstrated by funding institutions/banks
- CDM, facilitating additional carbon revenues, (apart from technology transfer) provides key motivation to project proponents....and helps meet the financing challenges

Largest Share in India, China Close Behind

Out of Total 715 EE projects registered so far, 302 are from India



Energy Efficiency Projects



Source: UNEP Risoe, CDM Pipeline, 12th March

Industrial EE – A success story so far

- It can be observed that majority of the projects, apart from own generation, within the energy efficiency space are from the industrial domain.
- Household energy efficiency projects are increasingly being looked into, for further development under the programmatic approach

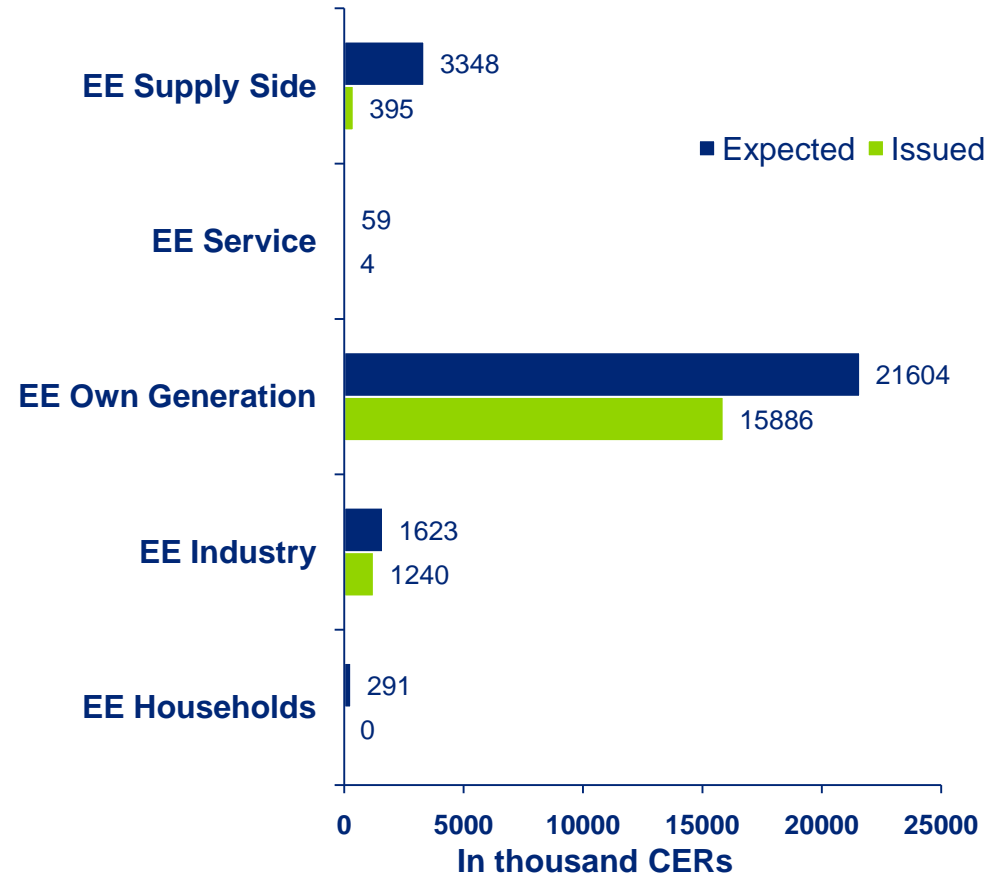
	At Validation	Requesting Registration	Registered	Total Expected
EE Households	24	1	7	32
EE Industry	81	4	56	141
EE Own Generation (including waste heat recovery based)	309	14	132	455
EE Service (including fuel switch to biomass)	12	0	5	17
EE Supply Side	48	3	19	70

Source: CDM Pipeline, UNEP Risoe, 12th March

Fairly Decent Issuance Rates

- A total of about **27 million CERs are expected to be issued per year**, out of the **all the energy efficiency projects registered** so far.
- While there has been **no request for issuance, for the registered energy efficiency projects in the household sector**, maximum requests have been made till date for own generation energy efficiency projects.
- There have been fair number of requests for issuance against registered **energy efficiency projects in the Industrial sector, with issuance success rates at a high 86%**

Comparison –
CERs Expected Out of Registered Projects
till Now v/s Total Issuance as of Now



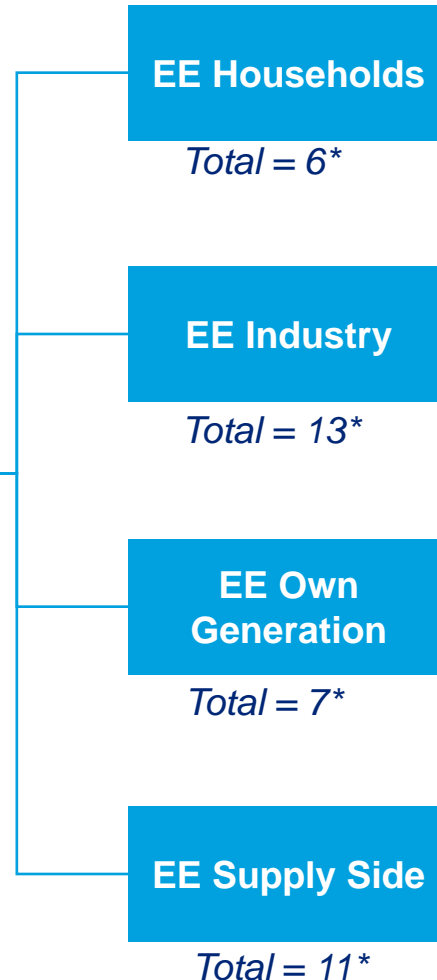
Source: UNEP Risoe, CDM Pipeline 12th March 2010

Snap Shot of Approved Methodologies

Total Large Scale Methodologies – 25

Total Small Scale Methodologies - 9

Major Approved Methods



- Distribution of Light Bulbs
- Manufacture & Servicing of domestic Refrigeration Appliances
- Steam System Improvements / Optimization Systems
- Boiler Efficiency Improvement
- Efficient Chilling Systems
- Waste Gas/ Heat / Pressure based Energy Systems
- Recovery & Utilization of Waste Gas in Refineries
- Natural gas based co-generation
- Conversion from single cycle to combined cycle
- Efficiency improvement in power plants

** Total may not add up correctly, as 3-4 methodologies are applicable across and are double counted*

Present Day Methodological Challenges

Demonstration of Additionality

- Most projects face difficulties in demonstrating additionality, especially considering the quantum of investment required, to initiate energy efficiency is not as large, compared to greenfield projects.
- Also, most projects, not additional on the technical or common practice side.

Establishment of Baseline Emissions, and Computation of Reductions

- Most energy efficiency projects require establishment of baseline, based upon historical data. However service delivery may not remain constant, and thus difficulties may arise in comparing project activity scenario. Also, the chances of a separate energy meter, pertaining to the project activity equipment/device may be bleak.
- Thus, it would be imperative to develop mathematical relationships between actual consumption (based upon historical data) and the service delivery. The relation can be subsequently used to compute a conservative value of energy consumption in the baseline scenario.

Industrial Energy Efficiency – A Case Study

Project Brief

- Developed for one of the largest public sector undertakings in the country.
- Involves energy efficiency improvements by undertaking retrofitting in heavy duty pumping systems
- Approved Methodology used AMS IID

Project Additionality

- Based upon Technical Barriers.
- Project Activity Intervention: One of its kinds in the Region

Computation of Emission Reductions

- Mathematical relationship between energy consumption and service delivery by Regression on historical date
- Monitoring of actual energy consumption and service delivery in the project case scenario to be carried out.
- Estimations of baseline emissions accordingly, carried out by application of the actual project case service delivery values in the mathematical relationship

Sectoral Approach – Will it Help

Expected to overcome the current methodological challenges

As discussed, implementation of energy efficiency projects faces the challenges with respect to

- Demonstration of Additionality
- Conservative, Fair and True Approach in computation of emission reductions
- Comparison against Common Practices

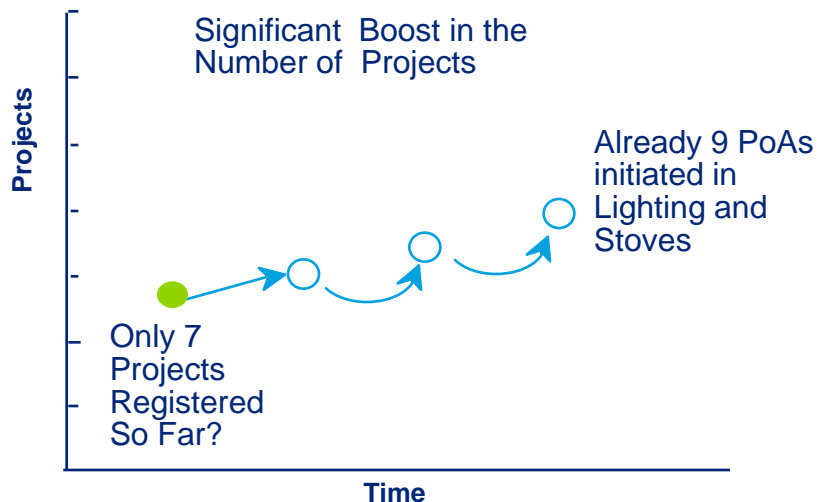
These Challenges are major Causes of Project Rejections as well.....

Sectoral Approach expected to benefit energy efficiency projects the most, amongst all the categories due to

- Establishment of Benchmarks
 - Benchmarks if developed carefully, would help simply demonstration of additionality.
 - The efficiency improvements, and corresponding reduction in energy consumption, over an established benchmark per unit service delivered, allows for easier comparison.
 - Common practice issues can also be taken care of, with the development of regional benchmarks

Programmatic CDM – Living upto the Buzz....

An Example



Household EE Project
[Distribution of CFL's etc]

- As in other under represented CDM sectors, **Programmatic Approach holds great promise** in the EE projects as well
 - ✓ in expanding the current coverage to least developed countries (LDCs)
 - ✓ in facilitating more equitable distribution of CDM projects across sectors
- An as example – till now, in the household energy efficiency sector, only seven stand alone projects are registered till date, too small a number. However, in response – out of a total 42 PoAs initiated, 9 are from household EE sector, including the Bachat Lamp Yojana.

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