

**The 2nd CDM Capacity Building Workshop in the Pacific
Under the EC ACP MEA Project**

Energy Efficiency CDM Projects (small-scale) - Bundling & PoA

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EE CDM Projects - Issues

- Energy Efficiency is one of the **key areas of action** for **climate change mitigation**
- Energy Efficiency solutions & projects are **dispersed in different sectors** (residential & commercial buildings, transport, industry) and **end-use technologies** (boilers, air conditioners, lighting etc)
- **End-use energy efficiency** one of the most promising sectors for **energy security** in developing countries
- Energy efficiency sector contributes to a meagre **13%** of projects under CDM- **dispersed nature**
- **Bundling** and **Programme of Activities** in particular benefiting uptake of EE SSC projects

Small scale CDM (SSC) projects

- **Type I:** Renewable energy project activities with a maximum output capacity of **15 MW** (or an appropriate equivalent)
- **Type II: Energy efficiency improvement project activities which reduce energy consumption, on the supply and/or demand side, limited to those with a maximum output of 60 GWh per year**
- **Type III:** Other project activities limited to those that result in emission reductions of **less than or equal to 60 kt CO₂ equivalent** annually

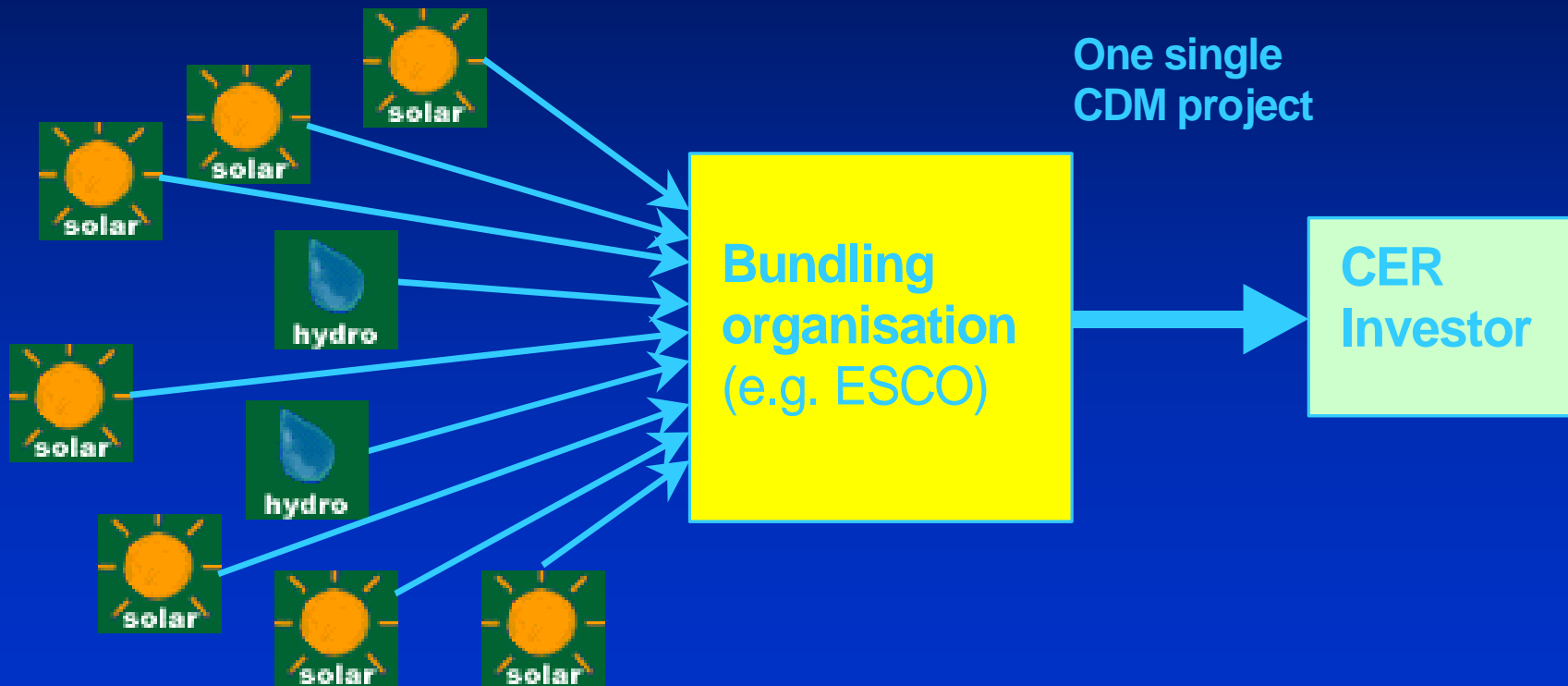
Bundling of SSC EE Projects

- bringing together of several SSC EE project activities into a single project document
- Can have sub bundles
- Same crediting period including start date
- Projects in bundle can be removed, not added after registration
- Has limits: 60GWh (small scale project activity limits), same technology etc

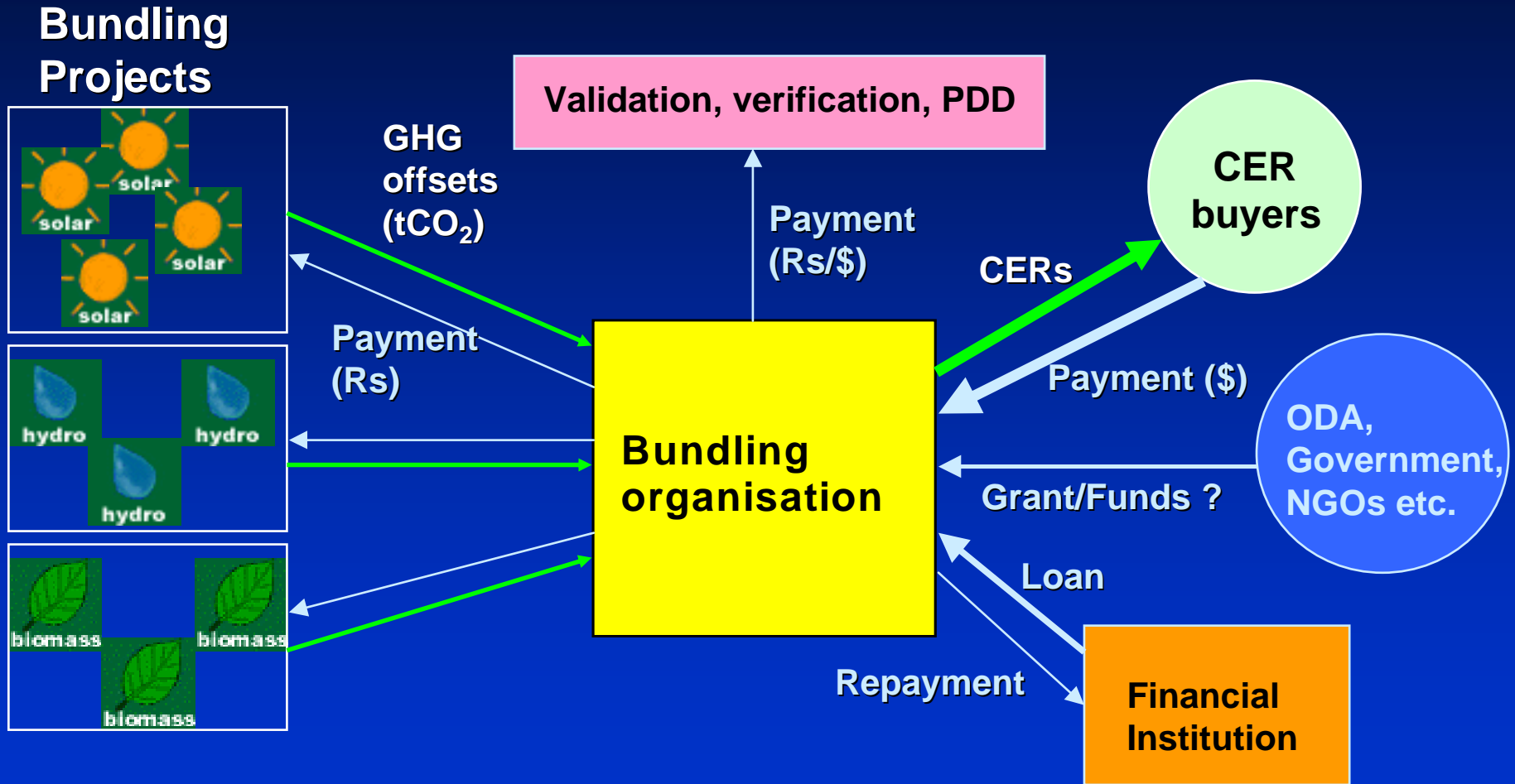
Role of Bundling Organisation

Multiple
greenhouse gas
reducing projects

Simply an intermediary between
project developer/owner and the
CER buyer



Functions of Bundling Organisation



CDM Programme of Activities

- A Programme of Activities (PoA) (often called Programmatic CDM) is:
 - **a voluntary coordinated action** by a private or public entity which
 - **coordinates and implements any policy/measure or stated goal** (i.e. incentive schemes and voluntary programmes), which leads to
 - **GHG emission reductions or increased net greenhouse gas removals by sinks**
 - **that are additional** to any that would occur in the absence of the PoA, via an unlimited number of **CDM programme activities-CPAs.**

CDM PoA or pCDM is suited to small-scale, dispersed activities

Energy Efficiency



Improved kiln design



Upgrades to hotel chiller units

Renewable Energy



Solar water heaters



More efficient cookstoves

Transport



Fuel efficiency / fuel switch



Biogas digesters

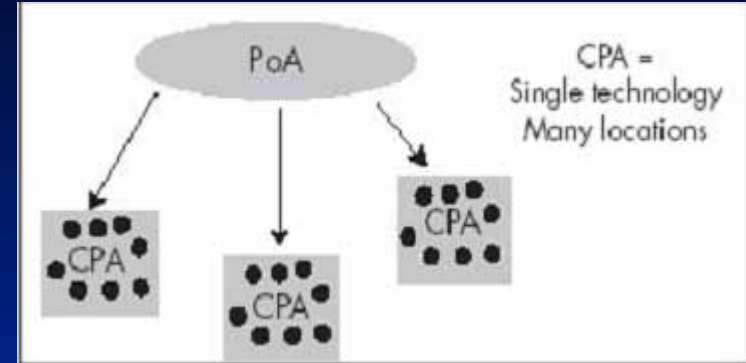
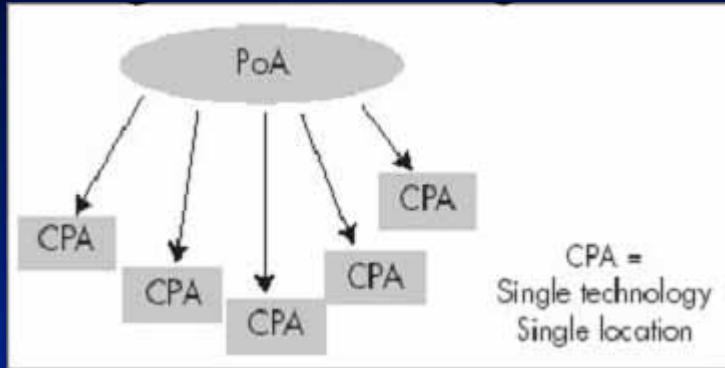
Programmatic CDM

- **Programmatic CDM procedures involves registration at two levels:**
 - **CDM PoA** – a CDM Programme of Activities - At the **programme level**, the PoA is the organizational and financial framework that provides structure to the effort, and is managed by a coordinating entity
 - **CPA** – a CDM Programme Activity - At the **programme activity level**, the CPA is a single measure or a set of measures to reduce greenhouse gases that is applied to many plants / installations of the same type over a period of time

CDM EE PoA – Project Examples

Single measure Single location

Single measure Many locations

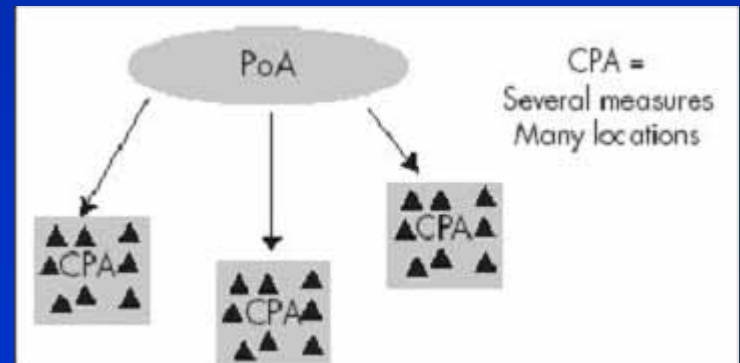
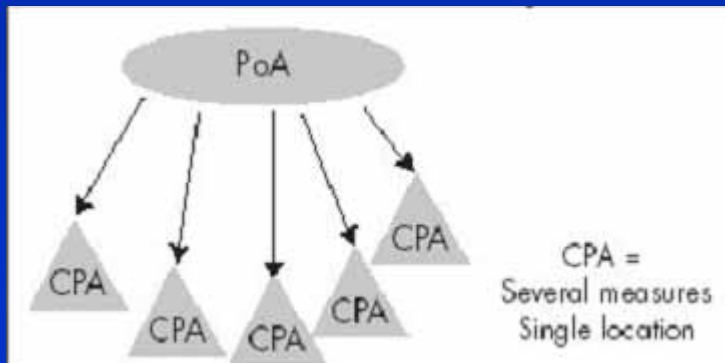


Such as improved insulation in buildings

Such as replacement of inefficient light bulbs in many locations

Several measures Single location

Several measures Many locations



Such as a set of EE measures applied to multiple boilers in same industry

Such as EE measures in a city or suburb

Bundling vs CDM PoA

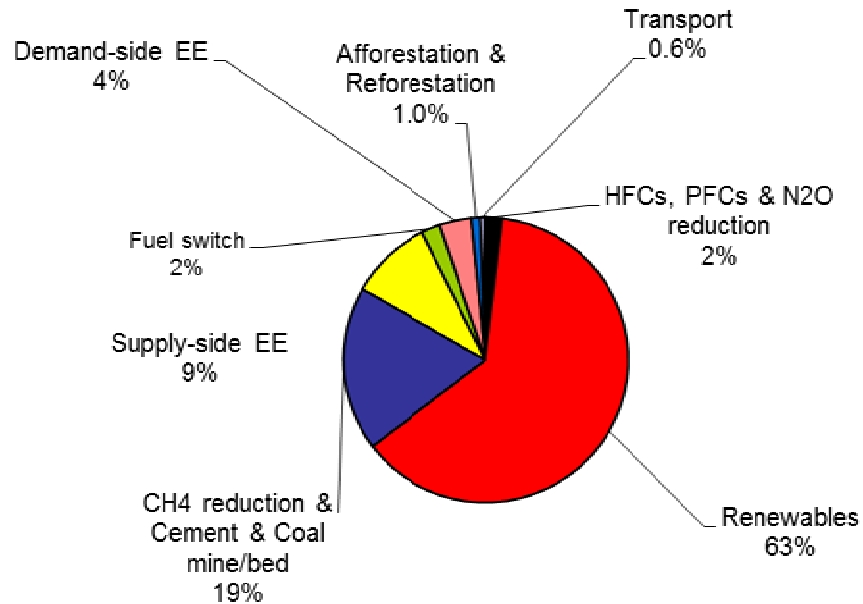
	Bundle	Programme
Sites	<i>Ex ante</i> identification of exact sites	Exact sites may not be known, but type and maximum potential volume is known
Project participants	Each single activity is represented by a CDM project participant	Only the entity implementing the programme represents the project activity as a CDM project participant
	Project participants are identical to entities achieving reductions	The project participant does not necessarily achieve the greenhouse gas emission reducing activities, but rather promotes others to do so
Project activities	Each activity in the bundle is an individual CDM project activity	The sum of all individual activities under the programme is the CDM project activity
	Composition of the bundle does not change over time	No pre-fixed composition (because, for example, uptake of an incentive could be unknown)
	All projects in a bundle must be submitted and start at the same time	Activities can be added to the programme on an ongoing basis
	Verification is performed as for a stand-alone CDM project	Verification can be done by sampling

Approved SSC Methodologies- EE CDM

- AMS-II.A** Supply side energy efficiency improvements – transmission and distribution — Version 10.0
- AMS-II.B.** Supply side energy efficiency improvements – generation — Version 9.0
- AMS-II.C.** Demand-side energy efficiency activities for specific technologies — Version 13.0
- AMS-II.D.** Energy efficiency and fuel switching measures for industrial facilities — Version 12.0
- AMS-II.E.** Energy efficiency and fuel switching measures for buildings — Version 10.0
- AMS-II.F.** Energy efficiency and fuel switching measures for agricultural facilities and activities — Version 9.0
- AMS-II.G.** Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass — Version 2.0
- AMS-II.H.** Energy efficiency measures through centralization of utility provisions of an industrial facility — Version 2.0
- AMS-III.X.** Energy Efficiency and HFC-134a Recovery in Residential Refrigerators — Version 2.0
- AMS-III.Z.** Fuel Switch, process improvement and energy efficiency in brick manufacture — Version 3.0
- AMS-III.AA.** Transportation Energy Efficiency Activities using Retrofit Technologies — Version 1.0
- AMS-III.AE.** Energy efficiency and renewable energy measures in new residential buildings — Version 1.0
- AMS-III.AP.** Transport energy efficiency activities using post – fit Idling Stop device — Version 1.0

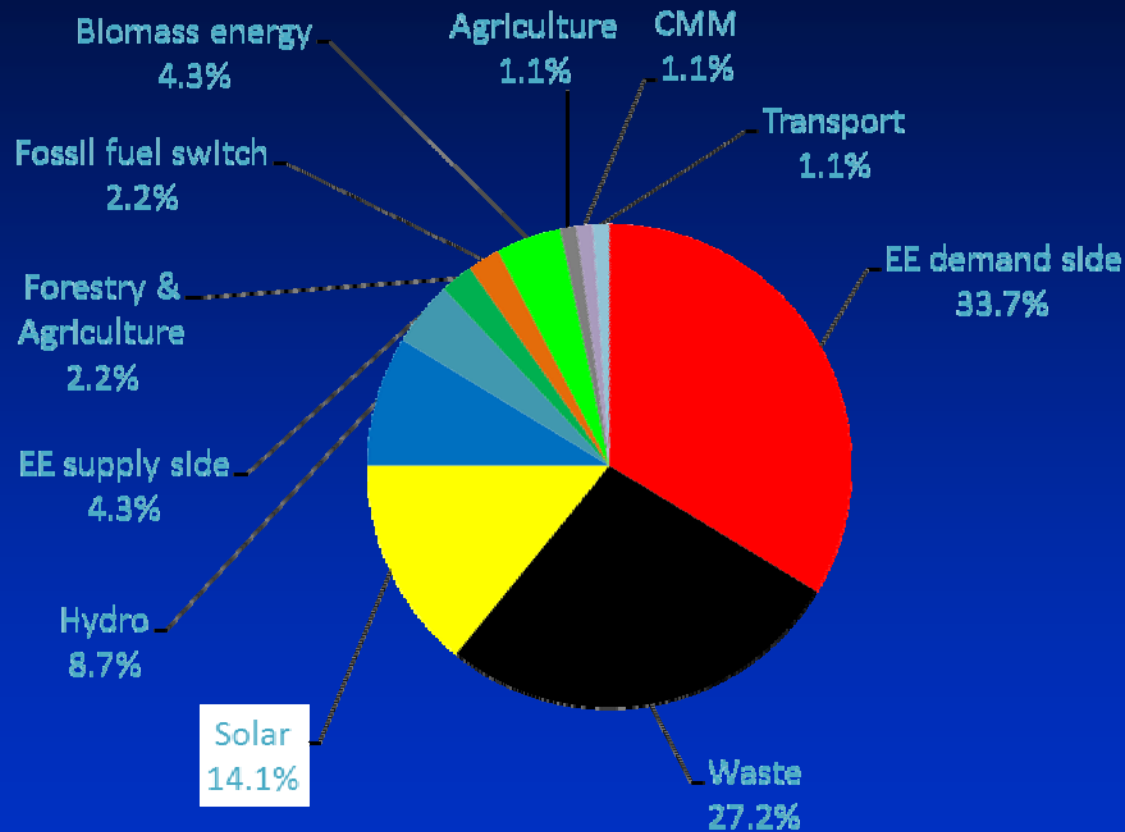
Categories of CDM Project Distribution

Number (%) of CDM projects in each category



Type of Submitted PoAs

PoA distribution by type



Registered PoAs

Registered	Title	Host Parties	Other Parties	Methodology *	Reductions **	Ref
12 Apr 11	SASSA Low Pressure Solar Water Heater Programme	South Africa	United Kingdom of Great Britain and Northern Ireland	AMS-I.C. ver. 17	76945	4302
12 Feb 11	SGCC In-advance Distribution Transformer Replacement CDM Programme	China	Spain	AMS-II.A. ver. 10	4079	2896
12 Jan 11	Promotion of Biomass Based Heat Generation Systems in India	India	United Kingdom of Great Britain and Northern Ireland	AMS-I.C. ver. 16	400000	4041
21 Aug 10	Masca Small Hydro Programme	Honduras	Netherlands	AMS-I.D. ver. 13	4395	3562
29 Apr 10	CFL lighting scheme – “Bachat Lamp Yojana”	India		AMS-II.J. ver. 3	34892	3223
12 Apr 10	Uganda Municipal Waste Compost Programme	Uganda		AMS-III.F. ver. 6	83700	2956
29 Oct 09	Methane capture and combustion from Animal Waste Management System (AWMS) of the 3S Program farms of the Instituto Sadia de Sustentabilidade	Brazil	United Kingdom of Great Britain and Northern Ireland	AMS-III.D. ver. 13	591418	2767
31 Jul 09	CUIDEMOS Mexico (Campana De Uso Inteligente De Energia Mexico) - Smart Use of Energy Mexico	Mexico	United Kingdom of Great Britain and Northern Ireland	AMS-II.C. ver. 9	520365	2535

Registered EE PoA Example

- CUIDEMOS Mexico, Smart Use of Energy Programme of Activities (PoA)
- CDM sectoral scope
 - Energy Demand - 3
- Source of emission reductions
 - Abatement of GHG emissions through avoided electricity usage by distribution of 30 million energy efficient light bulbs to households across Mexico
- Baseline scenario
 - Usage of inefficient incandescent bulbs for lighting
- Approved baseline methodology
 - Type II.C – Demand side energy efficiency activities for specific technologies (II.C./Version 9)
- Preliminary estimate of emission reductions
 - 27,000 tCO₂e

Potential EE CDM Project Examples for Bundling & PoA

➤ Residential Energy Efficiency

- Changing building practices, efficiency improvement in household appliances, building construction & design, heating & cooling, ventilation, cooking etc

➤ EE in Commercial & Service Sector

- Similar to EE improvements in residential sector except commercial improvements maybe larger with greater capacity

➤ EE in Industries

- Heating & Cooling Processes that do not require electricity – Updating boiler design, fuel switching, better insulation, heat exchange etc
- Electricity driven equipment and electricity delivery – variable speed motors instead of stoking, reducing friction & suction heads, transmission & conversion losses

Potential EE CDM Project Examples for Bundling & PoA

- **Improving EE in Buildings** – Building design & orientation, material, insulation etc
- **Space heating & cooling** – heat pump, passive solar heating
- **Efficient electric room air conditioning** (heating & cooling)
- **Solar thermal** water heating
- **High efficiency lighting, PV lighting**
- **Improving efficiency of electrical appliances**
- **Energy efficient stoves** including solar & biomass stoves
- **Combined household/commercial & service sector EE improvement**
- **Waste heat recovery and fuel switching** in industries
- **Optimisation of process equipment and heat exchangers**

Barriers for EE Projects in Pacific

- Energy is often a **small proportion of expenditure** so potential savings aren't believed to **justify the investment in time and effort** necessary to determine and implement energy efficiency improvements.
- Organisations do not have **easy access to the expertise or tools** to identify or take advantage of available energy efficiency opportunities.
- Governments tend to begin programmes (such as DSM support) but are **seldom consistent in terms of policies and resources** over the long-term.
- Architects and builders in the region seldom receive **training in energy efficiency/or designs** appropriate to the climate and often construct buildings that are energy intensive.

Barriers for EE Projects in Pacific

- lack of clear **evidence of achievements** within the region from energy efficient applications and government measures because of poor measuring, monitoring and reporting of past efforts.
- There is **very limited information** about **quantities and patterns of current energy use** within government and commercial buildings within the PICs so planners often don't realize how much is being spent on energy services.
- very **few local companies or individuals** with the skills to carry out **good energy audits and recommend cost-effective investments** to reduce energy use.

Barrier Mitigation Measures for EE Projects in Pacific

- Providing **access to cost-benefit information** for project developers on energy efficiency projects
- Training the stakeholders to overcome **behavioural barriers and inertia** for developing energy efficiency projects
- Capacity building of stakeholders & project developers on **advantages & benefits** of implementing energy efficiency projects
- Development of **ready to use toolkits & models** for energy efficiency assessments.

Barrier Mitigation Measures for EE Projects in Pacific

- Development of long term energy efficiency programmes, policies & regulations
- Initiating targeted capacity building activities in the energy efficient building sector.
- Compilation of past experiences and lessons learnt in implementing energy efficiency projects in the PIC's
- Carrying out energy use assessment for government, private and commercial buildings/utilities within the PICs in order to ascertain the energy savings potential
- Capacity building of local stakeholders to carry out energy audits and project implementation & monitoring.

EE CDM Bundling & PoA -Sources of Further Information

- Development of long term energy efficiency programmes, policies & regulations
- Initiating targeted capacity building activities in the energy efficient building sector.
- Compilation of past experiences and lessons learnt in implementing energy efficiency projects in the PIC's
- Carrying out energy use assessment for government, private and commercial buildings/utilities within the PICs in order to ascertain the energy savings potential
- Capacity building of local stakeholders to carry out energy audits and project implementation & monitoring.

THANK YOU