Annex 2

Recommendations for the revision of definition of Small Scale Project Activities

1. General background

The Board at its twenty-third meeting requested the SSC WG to make recommendations on the definitions of small scale project activities "taking note of guidance from COP/MOP at its first session, the Board requested the SSC WG to make recommendations on revisions to definitions of small-scale project activities referred to in paragraph 6 (c) of decision 17/CP.7."

The guidance from the COP/MOP referred to in the request from the Board above is reflected in 'Decision 7/CMP.1 and further guidance relating to the clean development mechanism' "*Invites* the Executive Board to review the simplified modalities, procedures and definitions of small-scale project activities referred to in paragraph 6 (c) of decision 17/CP.7 and, if necessary, make appropriate recommendations to the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its second session".

Paragraph 6 (c) of decision 17/CP.7 states:
"(c) To develop and recommend to the Conference of the Parties, at its eighth session, simplified m modalities and procedures for the following small-scale clean development mechanism project activities:
(i) Renewable energy project activities with a maximum output capacity equivalent of up to 15 megawatts (or an appropriate equivalent);
(ii) Energy efficiency improvement project activities, which reduce energy consumption, on the supply and/or demand side, by up to the equivalent of 15 gigawatt hours (GWh) per year;
(iii) Other project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnes of carbon dioxide equivalent annually."

Further the Board at its twenty fifth meeting "…noted the recommendation by the SSC WG that the limit on all type III project activities be based on the emission reductions as the project direct emissions in many cases do not relate to the size of the project activity and are therefore not best suited for defining a limit for small scale project activities. The Board requested the SSC WG to continue its work in this regard and provide an analysis as the basis for recommending revisions to definitions of all the three types, taking into account the projected annual emission reductions of project activities that have the highest projected annual emission reductions among all currently registered type I project activities."

2. Methodological issues concerning the present definition

a. Type III

As is evident from the data on projects in the CDM pipeline, the principal issue concerning the qualifying limit for small scale activities relates to the definition of the Type III. For Types I and II, although there is no linear correlation between emission reduction and the defining characteristic of the activity it is possible to identify a relatively narrow 'range' of values within which a direct or indirect relationship can be established. However for Type III the definition follows a different approach and it is seen that such a 'range' would be unacceptably wide. For some of the projects activities e.g. burning biomass to avoid methane emissions, the total project direct emissions can be low and consequently the emission reductions achieved by the project activity could be therefore very high in comparison to project activities under type I or II.

To address this issue it is therefore proposed to change the definition of Type III linking the limit to the emission reductions of the project activity.

b. Type II

The number of registered projects under Type II is small. The inputs received for the public call and the research made by the SSC WG and a consultancy report commissioned by the SSC WG all pointed to the fact that the threshold value of 15 GWh/year energy savings has been a barrier to the development of small scale energy efficiency project activities. As a matter of consistency it should be noted that typical Type II activities (cogeneration of electricity and steam with fossil fuel) cannot qualify as small scale activities, while activities with similar output capacity ranges (cogeneration with biomass) can qualify under small scale as Type I activities.

Attached to this document are graphs showing the main findings of the above-mentioned research by the working group.

3. Recommendations for the revision of definitions

The SSC WG recommends two options as below, however the SSC WG considered that option 2 was the most appropriate:

1. A common threshold to limit the emission reductions of the activities under the three types can be proposed. Taking into account the highest projected annual emission reductions among all the currently registered type I project activities, 60 $ktCO_2$/year is proposed as the common limit.

2. Under this option it is proposed to leave the present Type I limit based on output capacity unchanged and derive the limits for Type II and III from the limit for Type I. Thus the limit for Type II will be calculated as the amount of energy saved by a typical Type II activity that could be considered as a small scale activity and the limit for Type III will be calculated as the emission reduction that could be obtained by a typical Type III activity that could be considered as a small scale activity.

Option	1	2
Type I	60 $ktCO_2$/year	15 MW
Type II	60 $ktCO_2$/year	40 GWh /year
Type III	60 $ktCO_2$/year	50 $ktCO_2$/year

a. Derivation of limits for Type II under option 2

The limit for Type II is determined by considering a 35% reduction in energy consumption achieved by producing electricity and steam simultaneously (cogeneration), instead of supplying the same requirement by using different equipment. The parameters included in the calculation are 45 MW of power input and 90% load factor.

Energy savings = 35% x 45 MW x 8760 hrs x 90% PLF = 124173 MWhth/year or approximately 40 GWh/yr in electrical units.

Based on the above calculations 40 GWh/year is proposed as the limit for type II.

Taking an emission factor of a grid (1000 tCO_2/GWh), which is considered to be on the higher side, a possible higher value of emission reductions that can be conceived with the proposed limits, can be estimated as below:

Emission reduction = 40 x 1000 = 40 $ktCO_2$/year

On the other hand, the amount of energy savings that could be conceived from an activity resulting in a 60 $ktCO_2$/year emission reduction can be calculated as follows. An emission factor of a grid that could be considered as a typical average value (700 tCO_2/GWh) is used for this calculation.

Energy savings = 60 / 0.7 = 85 GWh/year

The SSC WG noted that a limit of 85 GWh/year could potentially allow some activities that are currently considered large scale to qualify as small scale project activities.

The SSC WG therefore considered that 60 ktCO2/year emission reduction should not be adopted as a limit for Type II as this could potentially result in project activities currently considered as large scale project activities qualifying as small scale project activities.

It is also noted that industrial and transportation energy efficiency projects are relatively profitable and CER revenues will not improve the profitability significantly.

b. Derivation of limits for Type III under option 2

The limit for Type III is determined by considering the emission reductions of a hypothetical project activity replacing coal by natural gas in a 45 MWth power generating unit.

50 tCO2e/yr is proposed as the limit.

The calculations are as below:

- Output capacity of the power plant: 15 MW or 45 MWth
- Plant Load Factor: 85%
- Emission factor for Coal: 98.3 tCO2e/TJ
- Emission factor for Natural Gas: 56.1 tCO2e/TJ
- 45 MWh thermal energy is equivalent to 0.162 TJ.
- Emissions from the power plant with coal as the fuel [C]: 111562 tCO2e/yr
- Emissions from the power plant with natural gas as the fuel [N]: 63690 tCO2e/yr
- Emission reductions [C-N]: 47872 tCO2e/yr

4. Relative merits of the options

a. Option 1

The strength of this option is the apparent simplicity. One of the weaknesses of the option is related to the procedures to determine additionality, small scale activities have simplified requirements to prove that projects are additional as compared to the large scale. The limit defined in emission reductions, and not in the physical characteristics of the project activity such

as the output capacity, could potentially be an incentive for project activities with a level of emission reductions higher than 60 $ktCO_2$/year that were not additional as large scale activities, to propose the project activity as a small scale activity. Such a limit could also in some instances result in the undercutting of potentially feasible emission reductions to qualify as a small scale activity resulting in lost opportunities for emission reductions. It should be noted that emission reduction is a derived value and therefore is dependent on the baseline spatial and temporal characteristics.

b. Option 2

The main strength of this option is related to the use of verifiable and legally enforceable industry standards, which will result in the consistent application of the limits globally at any time. This option also follows the rationale for the limits established in the Marrakech Accords. The only difference is related to the definition of the Type III limit, which is proposed to be based on the emission reduction of a typical Type III project activity.

Type		Energy efficiency measure		Energy saving potential (GWhe/yr)	
				Minimum	Maximum
II.A		a1	Low- loss electrical wire	5	75
		a2	High-efficiency distribution transformers	2	30
II.B		b1	Repowering	38	229
		b2	High efficiency steam turbine plant	10	61
		b3	Thorough implementation of daily management and maintenance	4	24
II.C		c1	Demand-side energy efficiency improvements (Lighting conversion etc)	0.004	12
II.D	Iron&Steel	d1	Converter waste heat recovery device	77	385
		d2	CDQ(Coke Dry Quenching)	77	237
		d3	TRT(Top Pressure Recovery Turbine)	55	277
		d4	CMC(Coal Moisture Control)	28	139
		d5	Re-generative burner system	3	19
	Cement	d6	Utilization of waste heat for power generation	25	90
		d7	Vertical roller mill	8	34
		d8	Pregrinder	5	30
		d9	High-efficient clinker cooler	8	24
		d10	High-efficient separator replacing cyclone type separator	4	11
	Paper & Pulp	d11	Pulping black liquor combustion-type high temperature odor free-type recovery boiler	25	75
		d12	Continuous digesters: cellulose digestion process	9	36
	Petroleum	d13	Fluid catalytic cracking unit-power recovery system	49	162
		d14	Vacuum distillation unit	11	38
II.E		e1	Hotel building	1.6	22.4
		e2	Public building	0.004	11.6
		e3	Commercial building	0.04	9.3
		e4	Medical building	0.4	6.1
		e5	Office building	0.01	3.5
		e6	University building	0.01	5.4

Figure 1. Energy Saving Potentials of the typical energy efficiency improvement measures under each of the type II categories determined by a survey of experts

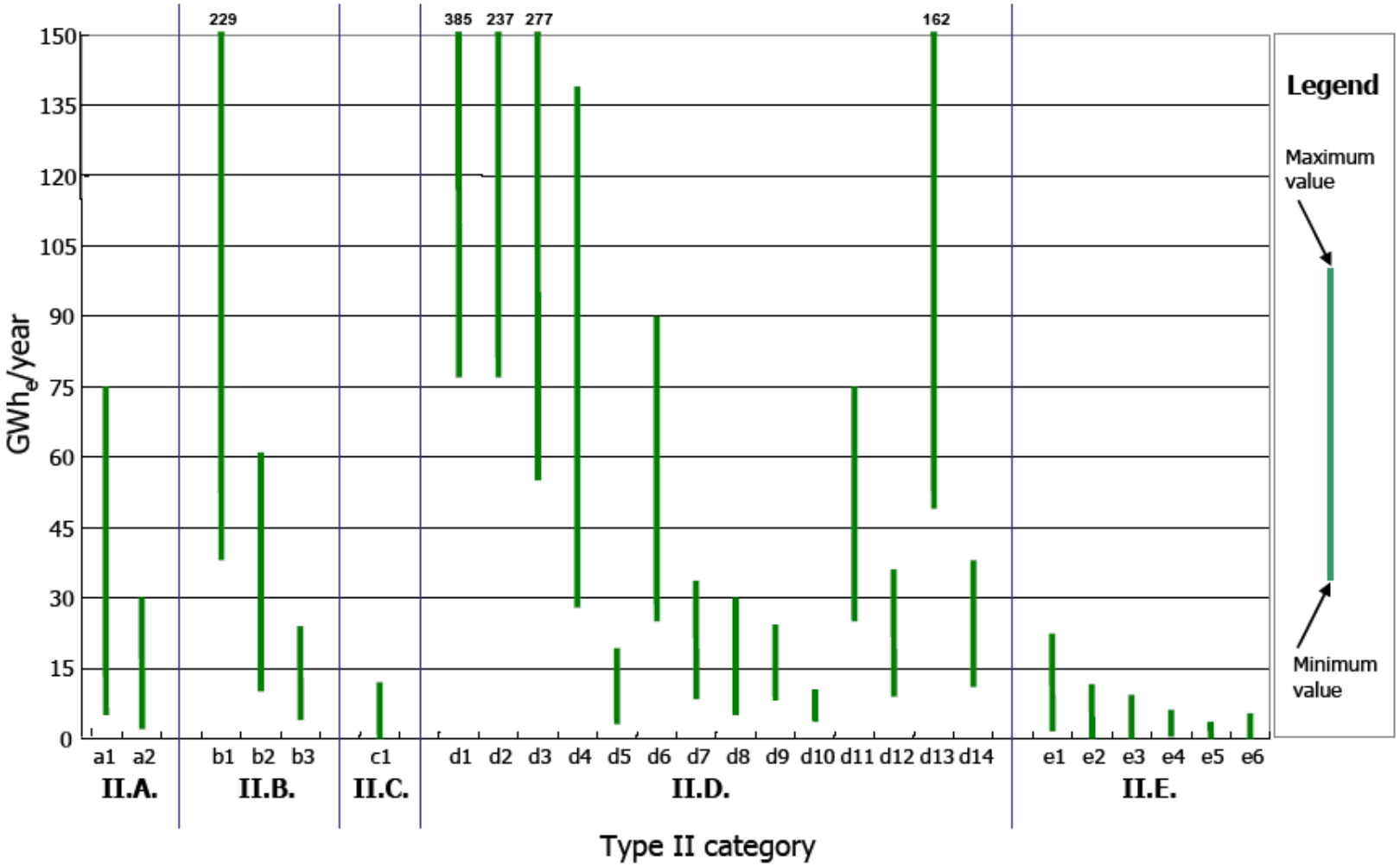
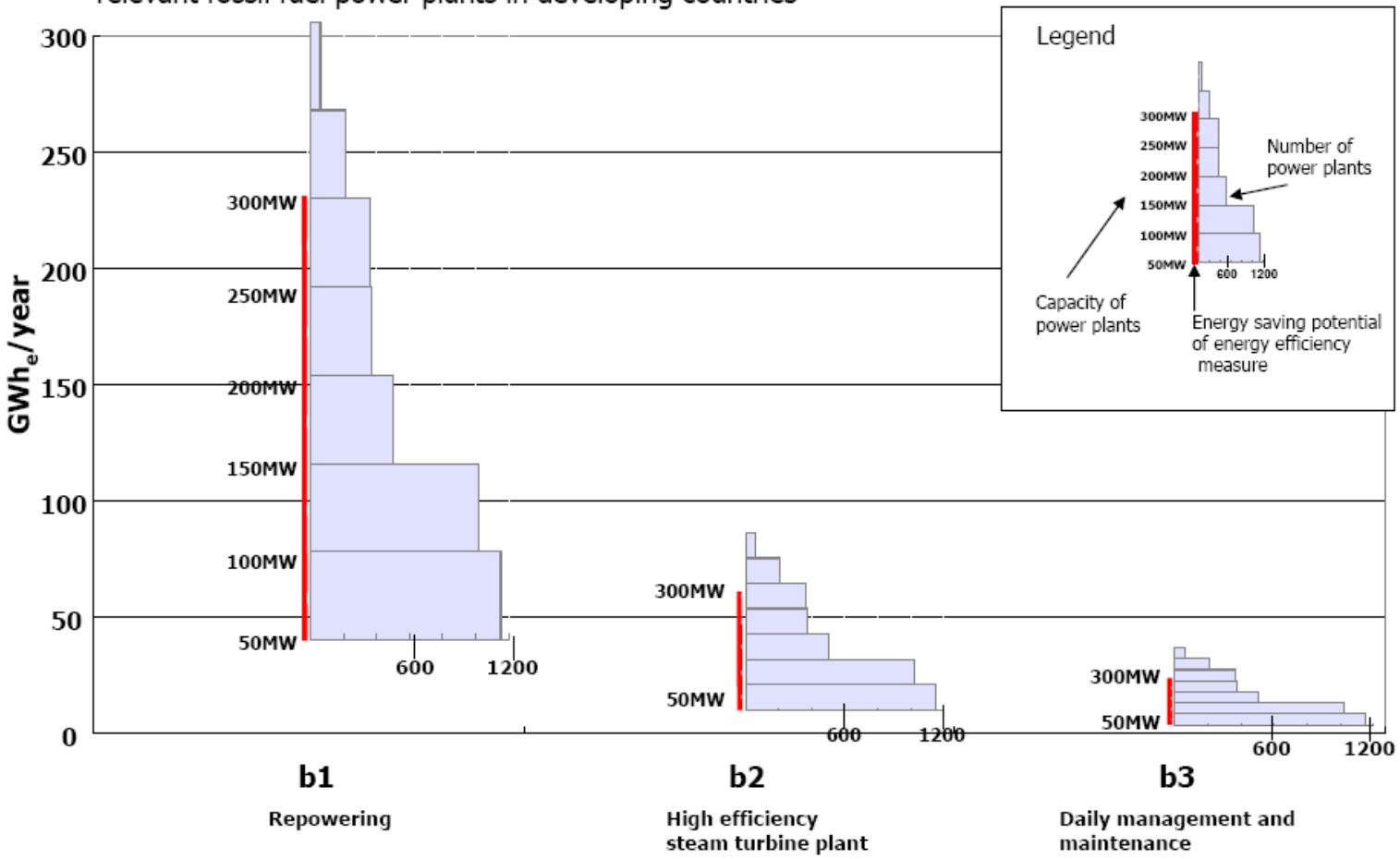


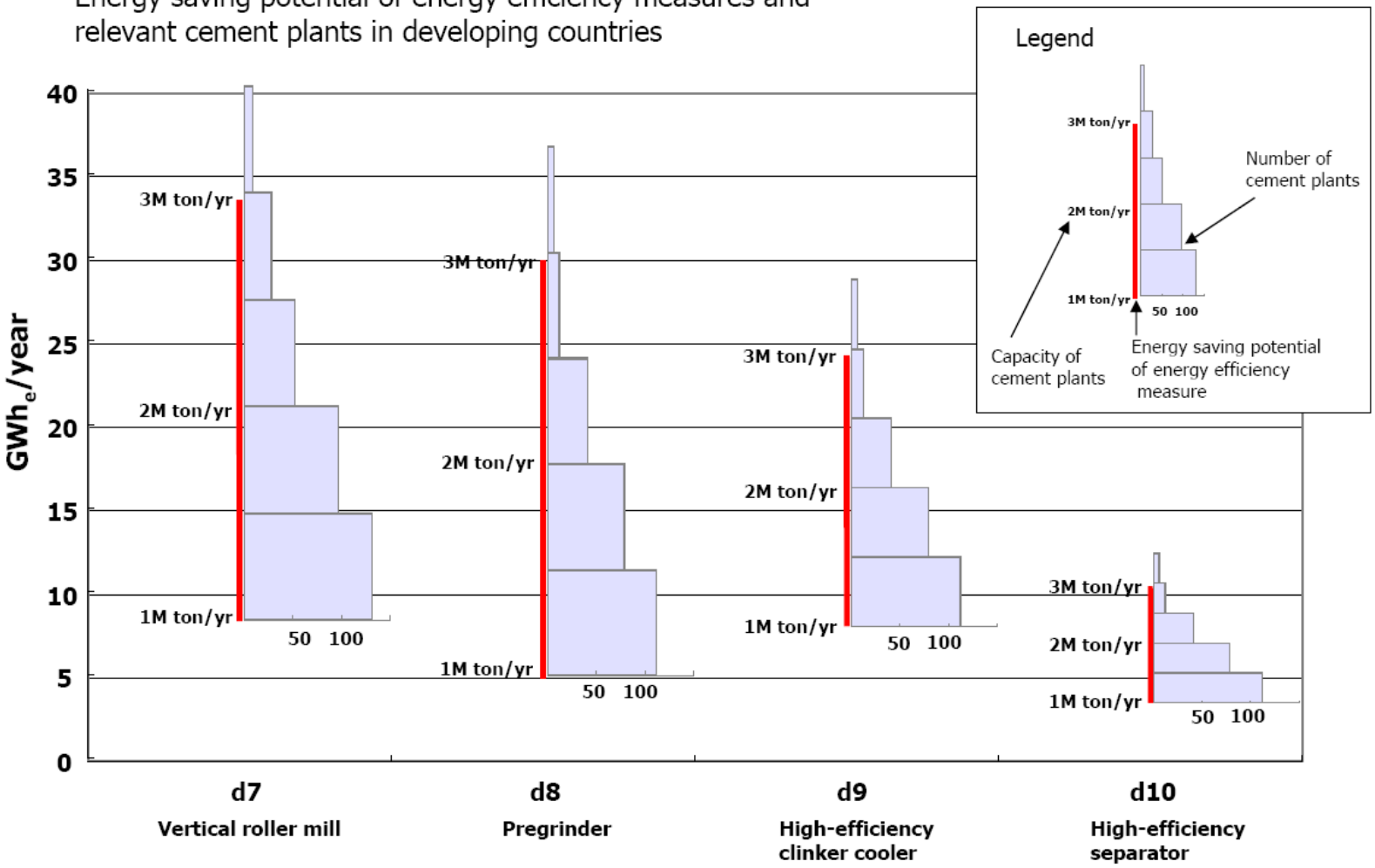
Figure 2. Energy Saving Potentials of the typical energy efficiency improvement measures under each of the type II categories determined by a survey of experts

Attachment 1:
Energy saving potential of energy efficiency measures and relevant fossil fuel power plants in developing countries



Energy efficiency measures in power plants

Attachment 2:
Energy saving potential of energy efficiency measures and relevant cement plants in developing countries



Energy efficiency measures in cement plants