

## Agenda item 4.1(b)(c)

Paragraph 30(i), 27(d) and 27(c) of the annotated agenda

# Assessment of positive list in TOOL21, ACM0002 and AM0103

**CDM EB 100**

Bangkok, Thailand, 27 to 31 August 2018



- **Tool 21: Demonstration of additionality of small-scale project activities**
  - EB87 (Nov. 2015) renewed positive list in Tool 21 after a reassessment and necessary adjustments ( positive list was originally approved in 2012)
  - EB94 (May 2017) retained 3 years as frequency for reviewing positive list
    - **next assessment became due by November 2018;**
- **ACM0002: Grid-connected electricity generation from renewable sources**
  - Positive list in ACM0002 was valid till Nov 2017
  - EB99 (April 2018) extended the positive list for one year and requested MP to reassess and recommend



- **AM0103: Renewable energy power generation in isolated grids**
  - EB87 (Nov. 2015) requested MP to include positive list in AM0103 as in ACM0002.



## Purpose

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- To present the analysis and recommendations of MP on validity of positive lists in:
  - TOOL21;
  - ACM0002; and
  - AM0103
- Present the public inputs received on these items



## Extract from ACM0002 (current version) on positive list

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- The simplified procedure to demonstrate additionality is applicable to the following grid connected electricity generation technologies (positive list):
  - a) **Solar photovoltaic technologies**;
  - b) Solar thermal electricity generation including concentrating Solar Power (CSP);
  - c) Off-shore wind technologies;
  - d) Marine wave technologies;
  - e) Marine tidal technologies;
  - f) Ocean thermal technologies.
- A specific technology in the positive list is defined as automatically additional if at the time of PDD submission any of the following conditions is met:
  - a) The **percentage share of total installed capacity** of the specific technology in the total installed grid connected power generation capacity in the host country **is equal to or less than two per cent**; or
  - b) The total **installed capacity** of the technology in the host country is **less than or equal to 50 MW**.



## Extract from ACM0002 (current version) on positive list

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- The positive list of technologies indicated in paragraph above **is valid for one year from the date of entry into force of version 18.0 of ACM0002** on 26 April 2018; the Board may reassess the validity of these simplified procedures and extend or update them if needed. Any update of the simplified procedures does not affect the projects that request registration as a CDM project activity or a programme of activities by 25 April 2019 and apply the simplified procedures contained in version 18.0 of ACM0002.



## Key issue and proposed solution

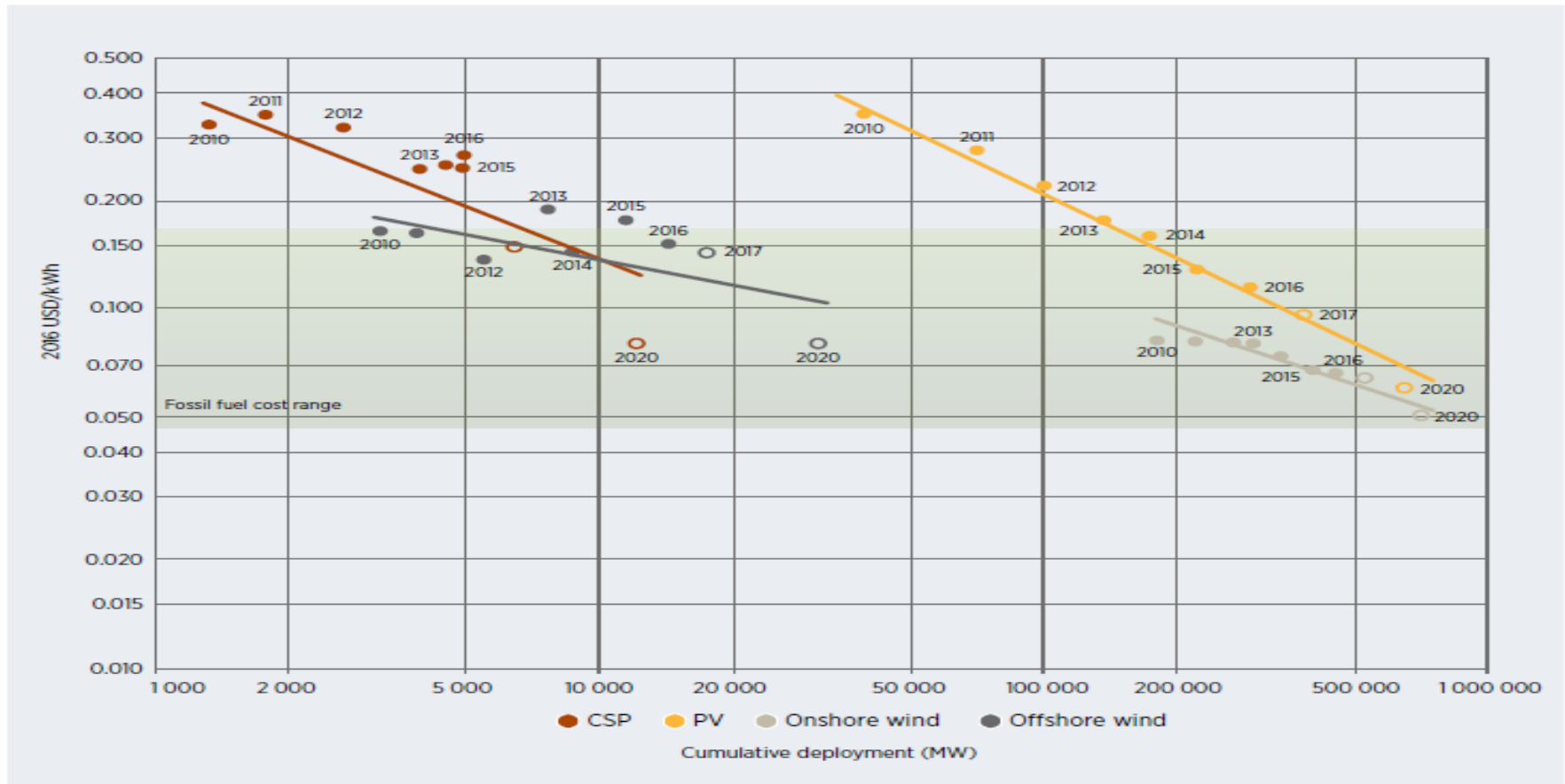
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- Board's approved **criteria to re-assess positive list under TOOL21:**
  - **Grid connected RE technologies (RETs);**
    - **Levelised Cost of Electricity generation (LCOE)** of specific RET is **equal to 150 % or higher** compared to the fossil fuel electricity generation technologies; and
    - **Global penetration rate** of specific RET is **less than 3 %**.
  - **Off-grid** RETs having individual units are up to 100 kW
    - Investment cost of specific RET is **higher by at least 3 times** than that of fossil fuel electricity generating technology.
- MP used the above criteria also to;
  - **Assess existing positive list** under ACM0002 and AM0103.



# LCOE – Renewable Power Generation Costs in 2017, (IRENA, 2017)

**Figure ES.3** Learning curves for the global weighted average levelized cost of electricity from CSP, solar PV and onshore and offshore wind, 2010-2020



Based on IRENA Renewable Cost Database and Auctions Database; GWEC, 2017; WindEurope, 2017; MAKE Consulting, 2017a; and SolarPower Europe, 2017a.

Note: Each circle represents an individual project, or, in some cases, auction result where there was a single clearing price at auction. The centre of the circle is the value for the cost of each project on the Y axis. The thick lines are the global weighted average LCOE or auction values by year. For the LCOE data, the real WACC is 7.5% for OECD countries and China, and 10% for the rest of the world. The band represents the fossil fuel-fired power generation cost range.



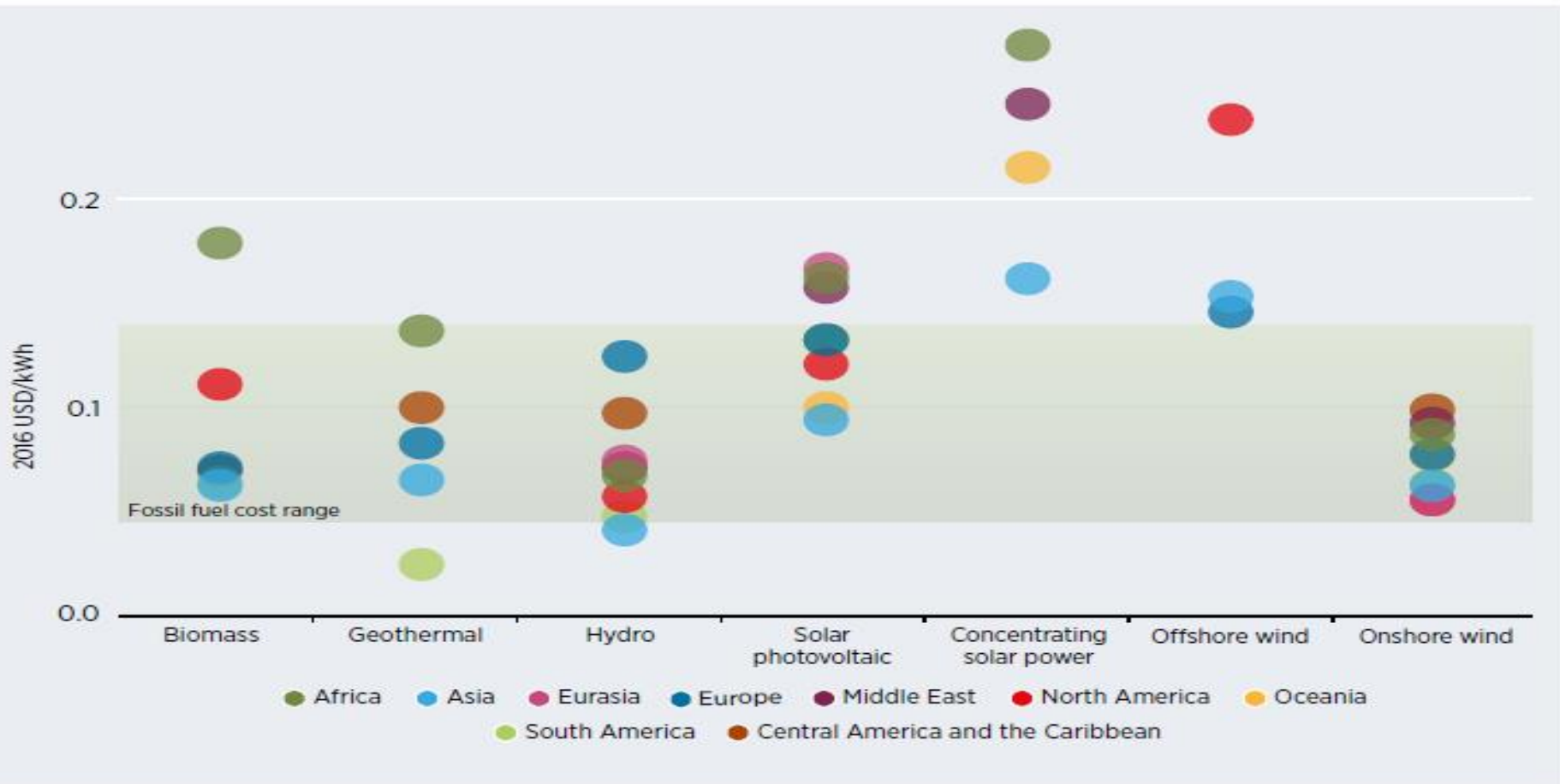
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# LCOE – Renewable Power Generation Costs in 2017, (IRENA, 2017)

**Figure 2.3** Regional weighted average levelised cost of electricity by renewable power generation technology, 2016 and 2017



Source: IRENA Renewable Cost Database.



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## Key issue and proposed solution

No.	Technologies	Global average LCOE (USD <sub>2016</sub> /MWh)	% of average FF LCOE	Global penetration
1	<b>Solar photovoltaic technologies</b>	<b>100</b>	<b>133</b>	<b>&gt; 3% (8%)</b>
2	Solar thermal electricity generation including concentrating Solar Power	150	200	<3%
3	Off-shore wind technologies	150	200	<3%
4	Marine and ocean thermal technologies (e.g., wave and tidal)	358	477	<3%
5	Fossil fuel technologies	75	-	-

Source – (a) IRENA, 2017 - IRENA's report on "Renewable Power Generation Costs in 2017; (b) IEA, 2017 - World energy outlook; (c) Lazard, 2017 - Levelised Cost of Energy Analysis; (d) REN21, 2018 - Renewables 2018 Global Status Report; and (e) World Energy Council, 2016 -



## Key issue and proposed solution

No.	Off-grid RE Technologies in Tool21	Investment cost (USD/kW)	Investment cost is > 3 times cost of fossil fuel tech
1	Micro/pico-hydro (unit size ≤ 100kW)	4,175	Yes
2	Micro/pico-wind turbine (unit size ≤ 100kW)	5,000	Yes
3	PV-wind hybrid ((unit size ≤ 100kW)	3,000 – 5,000	Yes
4	Geothermal (unit size ≤ 200kW)	2,600	Yes
5	Biomass gasification/biogas (unit size ≤ 100kW)	2,000	Yes
6	Diesel generator (100 kW)	478	-



## Public inputs to MP

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- 3 stakeholders provided input to MP related to this agenda item.
- Input was analyzed by MP through an electronic consultation process.
- MP noted that all **3 inputs propose not to exclude grid-connected “Solar photovoltaic technologies” from the positive list citing** persistent barriers to implementation.
- Inputs also **suggest not to derive the positive list using global reference points**, but rather use host country specific benchmark of LCOE and technology penetration rates.



## Public inputs to MP

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- MP has been using multi-criteria analysis to recommend positive list i.e. cost (step 1) and penetration (step 2)
- MP noted that positive list in TOOL21 and ACM0002 are **globally applicable**
  - a) MP considered that country specific assessment (e.g. penetration rates) is deemed necessary only when the criteria based on LCOE (cost) is satisfied
- MP noted proposed changes **do not exclude other options for additionality demonstration** i.e. Combined tool, Additionality tool or barrier analysis under TOOL21 or microscale tool where applicable may be applied
- MP (via Electronic Consultation) agreed to maintain the recommendation **to exclude** solar PV from TOOL 21, ACM0002 and AM0103



## Recommendation

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- MP recommends that the Board **approve the revision** of TOOL21, ACM0002 and AM0103.



## Public comments on the annotated agenda of EB 100

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One input was received from **Project Developers Forum** on annotations to agenda item of EB 100 concerning **Agenda item 4.1. Standards/tools** on the following documents:

27.(d) Methodology “ACM0002: Grid-connected electricity generation from renewable sources”, as contained in annex 6 to the 76th MP meeting report.

30.(i) Methodological tool “TOOL21: Demonstration of additionality of small-scale project activities”, as contained in annex 16 to the 76th MP meeting report.



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## Public comments on the annotated agenda of EB 100

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- **Requested** the Board **not to exclude** solar PV from positive list, due to the following concerns:
  - a) Due to intermittent nature of solar PV, it is not comparable to other technologies
    - Lower availability (utilisation rates) and dispatchability needs to be compensated
  - b) Countries with less than 2% of solar PV do not have domestic production of solar panels
    - will need to import the technology, impacts countries' trade balances;
  - c) Solar PV is affected by high upfront capital costs, lack of access to capital
    - Sometimes foreign currency is needed leading to exposure to exchange rate fluctuations and increased capital cost





## Public comments on the annotated agenda of EB 100

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- Proposed change negatively impacts countries facing the most significant challenges to adopt the technology, and that did not yet have the chance to build the basic enabling environment for its implementation.
- Therefore, the proposed changes are in conflict with the objective to facilitate and accelerate the broad and equitable adoption of transformational technologies by all parties.
- **In summary requests the Board to note to exclude Solar PV from Positive list**

