Agenda item 3.4
Annex 3 to MEP 014 meeting report

Proposed mechanism methodology: Electricity generation from renewable sources connected to an electricity system

Article 6.4 Supervisory Body – SBM Briefing on the outcomes of MEP 014
Bonn, Germany, 07 July 2026

UNFCCC Secretariat
Mitigation Division

Procedural background

- SBM 015: approved MEP workplan for 2025, including revision of CDM methodologies “ACM0002: Grid connected electricity generation from renewable sources” and “AMS-I.D.: Grid connected renewable electricity generation” (hereinafter referred to as “the approved CDM methodologies”);
- MEP 012: published a draft version of the mechanism methodology for call for public inputs;
  - 17 March to 7 April 2026
  - 18 submissions were received (compilation of inputs available at https://unfccc.int/sites/default/files/resource/A6.4-INFO-MISC-010.pdf)
- MEP 013: continued working in draft version of the mechanism methodology

Purpose

- The purpose of this draft mechanism methodology is to define requirements for Article 6.4 activities that involve the installation of a greenfield power plant that generates electricity from renewable sources and feeds all electricity generated into an electricity system

1. Applicability conditions

Based on the mandate to support the CDM transition projects, this version of the mechanism methodology includes limitations on eligible activity types compared to the CDM methodology. This could be expanded in future revision processes.

CDM Methodologies		Mechanism methodology
ACM0002	• **Project type: retrofit, rehabilitation (or refurbishment), replacement, or capacity addition** to an existing power plant or construction and operation of a **new power plant/unit** that uses renewable energy sources and supplies electricity to the grid; • **Energy sources: renewable sources except biomass**;	• **Project type: a greenfield power plant** that generates electricity from renewable sources and feeds all the net electricity generated into an electricity system. The power plant may include a battery energy storage system; • **Energy sources: hydro (run-or-river or with existing reservoirs), wind, solar, and geothermal;** • Prioritization of major project types; • Further analysis is needed for critical elements such as baseline setting, CH_4 emissions from reservoirs; • Other methodological tools are needed.
AMS-I.D.	• **Project type:** construction and operation of a **new power plant/unit or retrofit, rehabilitation (or refurbishment), replacement, or capacity addition** of an existing power plant that uses renewable energy sources and supplies electricity to the grid; • **Energy sources: renewable energy** such as solar, hydro, tidal/wave, wind, geothermal, and renewable biomass;	

Specific conditions for certain types of renewable power generation activities also differ between the mechanism methodology and the CDM methodologies.

1. Applicability conditions (cont)

- Host Parties (policy decision by the SBM):
  - **Option A1:** limited to LDCs/SIDS;
  - **Option A2:** no host Party limitation.
- Capacity of hydropower plants (policy decision by the SBM):
  - **Option B1.1:** up to 15 MW for all host Parties or any lower threshold used by the host Party for defining small-scale hydro power;
  - **Option B1.2:** 15 MW for non-LDCs/SIDS and 50 MW for LDCs/SIDS, or any lower threshold used by the host Party for defining small-scale hydro power;
  - **Option B2:** no capacity restriction;

2. Activity boundary

- Site of the Article 6.4 project power plant and all power units physically connected to the electricity system;
  - Baseline emission sources: CO_2 emitted by fossil-fuel fired power plants connected to the electricity system;
  - Activity emission sources: GHG (CO_2, CH_4, N_2O) emitted from the combustion of fossil fuels in solar thermal and geothermal power plants, as well as from fossil fuel use in backup generators; and GHG (CO_2, CH_4 and Hydrocarbon refrigerant) emissions from non-condensable gases and working fluid for geothermal power plants;
  - Leakage emission sources: CO_2 emitted due to wake effect in wind power pants, GHG emitted due to upstream emissions from the manufacturing and installation of BESS;

Inclusion and exclusion of emission sources (Appendix 1)

- Baseline emission sources not accounted:
  - Non-CO_2 emissions from fossil fuel combustion of power plants in the electricity system;
  - Emissions from the operation of renewable power plants in the electricity system (e.g. biomass or geothermal power generation);
  - Upstream emissions from the construction of power plants in the electricity system;
  - Upstream emissions from the production, processing and transportation of fossil fuels used in power plants in the electricity system;
- Leakage emission sources not accounted:
  - Upstream emissions from the construction and operation of power plant, except for BESS;
  - Use of pre-used equipment (covered under applicability conditions of project equipment);
  - Competition for water use (covered under applicability conditions such as impact on upstream or downstream power plants, water volume of the reservoir, irrigation availability, and water rights, etc.)
  - Rebound effect.

3. Demonstration of additionality

3.1. Regulatory Analysis

- Law or regulation refers to or formally integrates the mechanism as an instrument for implementation;
- Legal requirements do not require the installation of renewable power plants at the same site;
- Legal requirements do not indirectly require the implementation of the Article 6.4 activity or another form of renewable electricity generation;
- Assessment shall be conducted in each monitoring period.

3.2. Assessment of lock-in risk

- Application of the lock-in risk analysis tool
  - Applicable in case of geothermal power plants only (literature review: some systems reported GHG emission intensities around 100 – 400 gCO_2eq/kWh, with some exceptional systems exceeding 1,000 gCO_2eq/kWh);
  - Methodology specifies the technology to be assessed, the lifetime and the approach to calculate the GHG intensity. Assessment of resources and scale assessment are not required.

3. Demonstration of additionality

3.3. Investment Analysis

- Application of the investment analysis tool
  - Alternative scenarios: activity not registered in the A6.4 mechanism, generation by existing and/or new power plant, electricity generation by new power plants of any type other than the activity – additional scenarios for hydropower plants implemented in existing reservoirs;
  - Analysis method: investment comparison analysis or benchmark analysis;
  - Financial indicator: NPV (investment comparison or benchmark analysis) or IRR (benchmark analysis);
  - Implementation entity: either activity participant only, or activity participant or other entities;
  - Sensitivity analysis: variation of +/- 10%;

3. Demonstration of additionality

3.4. Common practice analysis

- Application of the common practice analysis tool
  - Approach for common practice: Approach A;
  - Indicator: installed power generation capacity (in MW);
  - Stock-based or time-bound approach: time-bound approach (most recent 3 calendar years);
  - Geographical area: physical boundary of the electricity system (widened to host country, continent or global);
  - Scale: all capacity sizes of comparable activities;
  - Thresholds: **[2.5%] [5%] [10%]** for non-LDCs/SIDS; **[5%] [10%] [15%]** for LDCs/SIDS;
  - Comparable and similar activities:
    - Comparable: all power plants connected to the electricity system
    - Similar: all other wind onshore, all other wind offshore, all other solar thermal, all other solar PV, all other geothermal, all other hydropower

3. Demonstration of additionality

3.4. Common practice analysis (cont)

- Threshold also depends on how “similar” activities are defined;
- Implications of 3 alternative thresholds

Number of countries in which relevant renewable power generation technologies would NOT be deemed common practice

		Article 6.4 activities starting in 2021 (average 2018-2020)		
		Wind	Solar	Hydro
Lower thresholds:	LDCs/SIDS	75	56	47
- < 2.5% non-LDCs/SIDS;	Non-LDCs/SIDS	75	71	37
- < 5% LDCs/SIDS	**TOTAL**	**150**	**127**	**84**
Middle thresholds:	LDCs/SIDS	82	69	50
- < 5% non-LDCs/SIDS;	Non-LDCs/SIDS	86	82	42
- < 10% LDCs/SIDS	**TOTAL**	**168**	**151**	**92**
Upper thresholds:	LDCs/SIDS	83	78	52
- < 10% non-LDCs/SIDS;	Non-LDCs/SIDS	102	105	53
- < 15% LDCs/SIDS	**TOTAL**	**185**	**183**	**105**
All countries	LDCs/SIDS	84	84	84
	Non-LDCs/SIDS	130	130	130
	TOTAL	**204**	**204**	**204**

		Article 6.4 activities starting in 2025 (most recent 3 years)		
		Wind	Solar	Hydro
Lower thresholds:	LDCs/SIDS	74	43	47
- < 2.5% non-LDCs/SIDS;	Non-LDCs/SIDS	67	44	40
- < 5% LDCs/SIDS	**TOTAL**	**141**	**87**	**87**
Middle thresholds:	LDCs/SIDS	80	55	51
- < 5% non-LDCs/SIDS;	Non-LDCs/SIDS	79	61	44
- < 10% LDCs/SIDS	**TOTAL**	**159**	**116**	**95**
Upper thresholds:	LDCs/SIDS	82	66	51
- < 10% non-LDCs/SIDS;	Non-LDCs/SIDS	94	80	54
- < 15% LDCs/SIDS	**TOTAL**	**176**	**146**	**105**
All countries	LDCs/SIDS	84	84	84
	Non-LDCs/SIDS	130	130	130
	TOTAL	**204**	**204**	**204**

3. Demonstration of additionality

3.4. Common practice thresholds + applicability conditions (limitation to LDCs/SIDS + capacity of hydropower projects)

- Limitation to scales:
  - No limitation for solar, wind, geothermal;
  - Hydropower plants:
    - Decision to construct large plants: not only economic grounds, but policy decisions by authorities (not covered by the investment analysis tool);
    - Costs of electricity generation are often higher for smaller plants.

3. Demonstration of additionality

3.4. Common practice thresholds + applicability conditions (limitation to LDCs/SIDS + capacity of hydropower projects)

- Eligibility to groups of countries:
  - Costs of renewable electricity generation have declined over time;
  - VMR0017 (VCS): broadens earlier restrictions and uses different country eligibility criteria for different technologies;
  - Gold Standard limits eligibility for LDCs/SIDS/land-locked developing countries (LLDCs), and in low income and low middle-income countries (penetration < 5%).
  - CORSIA: limits to capacity < 15 MW (Phase I), no limitations on eligible countries;
  - ICVCM: recently approved VMR0017;

3. Demonstration of additionality

3.4. Common practice thresholds + applicability conditions (limitation to LDCs/SIDS + capacity of hydropower projects)

- Eligibility to groups of countries (cont.):
  a) Limiting the methodology to specific types of countries (Options A.1) or;
  b) Selecting strict common practice threshold (exclude countries where renewable generation technologies are already more widespread)
  - Trade-offs → Common practice, Limiting to group of countries:
    - Safeguard against "false positives" (given the decrease in the LCoE) ➔ no undermining of the integrity
    - Prevent registration of "false negatives" (activities face financing barriers, policy uncertainty, cost of grid upgrade) ➔ fewer registered projects and higher aggregated mitigation costs;
  - MEP considers that the **uptake of a technology** might be a better indicator for the risk of false positives than whether a host Party belongs to a certain group of countries.

4. Baseline scenario

4.1. Approach

- Existing actual/historical emissions adjusted downwards;

4.2. Baseline scenario:

- The electricity generation by existing and/or new grid-connected power plants;
- Operating the reservoir(s) at its/their current size and using it/them for the same purpose as that prior to the implementation of the Article 6.4 activity (hydropower plants implemented in existing reservoirs);

4.3. Unadjusted baseline emissions:

- Application of the electricity emissions tool
  - Source: electricity generated by the project power plant and fed into the electricity system;
  - Electricity generated or consumed: $EG_{PJ,y}$ or $EG_{PJ,h}$ corresponds to $EG_{s,y}$ or $EG_{s,h}$ in the tool;
  - Type of generation source: wind and solar (with or without BESS) are intermittent; all other technologies are non-intermittent;
  - Scenarios and cases applied: Scenario A in step 3; case 2 in step 4 of the tool;

4. Baseline scenario

4.3. Unadjusted baseline emissions (cont):

- Wind power plants: $EG_{PJ,y}$ or $EG_{PJ,h}$ shall account for the reduction in electricity generation by other wind power plants due to wake effects in year y ($EG_{wake,y}$)
- $EG_{wake,y}$ does not need to be accounted if:
  - Onshore power plants: distance between the wind turbines installed under the Article 6.4 activity and any other wind power plants is greater than 50 kilometers;
  - Offshore power plants: distance between the wind turbines installed under the Article 6.4 activity and any other wind power plants is greater than 100 kilometers;
  - Affected power plants are registered in the A6.4 mechanism;
- $EG_{wake,y}$ shall be determined using wake model (peer-reviewed, conservative or site-representative inputs, apply uncertainty of 50%);

4. Baseline scenario

4.4. Downward adjustment – relative downward adjustment

- Initial downward adjustment: Relative reduction expressed as a proportion

  $DA_{initial} = max(DA_{initial,min} ; DA_{initial,UNC})$

  $DA_{initial,min} = (BE_{EG,y1} – AE_{EG,y1}) \times 0.1 / BE_{EG,y1}$

- In subsequent years: Combining the above proportion with an annual increase of 1 per cent
- Rationale:
  - the absolute initial downward adjustment in the first year of the crediting period may not be representative for other years of the crediting period for Article 6.4 activities where the amount of emission reductions or net removals increase or decrease over time
  - the application of the absolute initial downward adjustment in the last calendar year of the last crediting period would be punitive if that year only includes a short period (e.g., one month).

4. Baseline scenario

4.5. Conservative BAU scenario and emissions

- Deemed to be the same as the baseline scenario: the electricity delivered by the Article 6.4 activity to the electricity system would otherwise be generated by the operation of existing grid-connected power plants and by the addition of new generation sources;
- Conservative BAU emissions will always be higher than the downward adjusted baseline emissions except for the calendar year of the start date of the first crediting period. A discount factor is applied in that year.

5. Activity scenario

- Emissions from fuel consumed, electricity consumed from the electricity system and emissions from the operation of geothermal power plants;

6. Leakage

- Emissions due to wake effect (discounted when determining the baseline emissions);
- Upstream emissions from the manufacturing, transportation and installation of BESS (electricity delivered by the BESS x conservative upstream emission factor)

7. Avoidance of double-counting

- Renewable electricity not claimed by other crediting or certification schemes;
- Reported emission reductions do not overlap with mandatory domestic mitigation schemes, or measures are in place to ensure that any relevant impacts of the activity are not counted towards the achievement of targets or obligations under the mandatory domestic mitigation scheme

8. Data and parameters monitored

- Electricity generated and exported to and consumed form the electricity system (as per the methodological tool);
- Reduction in electricity generation by other wind power plants through wake effects;
- Quantity and properties of the fossil fuel consumed;
- Geothermal power plants: mass of steam produced, mass of steam entering and leaving the power plant, mass fraction of CO_2 and CH_4 in the produced steam, quantity of working fluid leaked/reinjected

Call for public inputs

SECTION OF THE METHODOLOGY	NUMBER OF INPUTS
COVER NOTE	2
1. Introduction	1
2. Definitions	3
3. Applicability conditions	26
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5. Project boundary	5
6. Demonstration of additionality - General	2
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SECTION OF THE METHODOLOGY	NUMBER OF INPUTS
7. Baseline emissions - General	2
7.2. Baseline emissions - unadjusted baseline emissions	5
7.2. Baseline emissions - shadowing effect	12
7.3. Baseline emissions - downward adjustment	12
8. Project emissions	6
9. Leakage emissions	4
11. Avoidance of double-counting	5
12. Alignment with policies	2
13. Data and parameters not monitored	6
14. Data and parameters monitored	3

- Consideration of inputs provided in the cover note

Call for public inputs

- Inputs not considered:
  - Not aligned with RMPs, methodological standards or methodological tools
    - Alternative approaches to calculate the initial downward adjustment or eliminate it;
    - Alternative approaches to demonstrate additionality;
    - Simplified requirements for small-scale projects;
  - Methodology provides simplified and practical approach (focused on enabling the transition from CDM), however proposed changes are not ruled-out (submission of revisions of the mechanism methodology)
    - Capacity increase, modernization, rehabilitation, or replacement of existing power plants;
    - Different types of energy storage projects, such as pumped-storage projects;
    - Power plant exists in the project site, but was shut-down long before;
    - Captive consumption or sale of the renewable electricity to specific end consumers.

Subsequent work and timelines

- Mechanism methodology is only applicable to activities implemented at the project level → will be amended in the future, following the revision to the methodological standards to include requirements for other scales (e.g., Programmes of Activities or large-scale crediting programmes);
- Mechanism methodology should be revised once the work on the revision of the CDM TOOL03 “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion” has been concluded and the tool has been adopted by the Supervisory Body;
- MEP will reflect the approach of a relative downward adjustment in a future revision of the “Standard: Setting the baseline in mechanism methodologies” (A6.4-STAN-METH-004) once the standard will be reviewed – if methodology is approved

Recommendations to the Supervisory Body

- The MEP agreed to recommend that the Supervisory Body consider the draft mechanism methodology, including the options on policy matters included in the mechanism methodology, and adopt the draft mechanism methodology.