

Agenda item 3.3.

Paragraph 8 of the annotated agenda

Electricity generation from renewable sources connected to an electricity system

Methodological Expert Panel – 14th meeting

22 to 26 June 2026

Bonn, Germany



Procedural background

- SBM 015: workplan for MEP in 2025, including the work on the revision of CDM methodologies, methodological tools, standards, and guidelines, including the methodologies “ACM0002: Grid connected electricity generation from renewable sources” and “AMS-I.D.: Grid connected renewable electricity generation”.
- MEP 012: published a draft version of the new mechanism methodology for call for public inputs
 - Call for public inputs: 17 March to 7 April 2026, 18 submissions received;
- MEP 013: continued working on the draft mechanism methodology.



Purpose

- 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 net electricity generated into an electricity system.



1. **Applicability conditions**

- Greenfield power plants (hydro, wind, solar, and geothermal) that generate electricity to an electricity system;
 - Hydro: run-of-river or implemented in an existing reservoir;
 - Power plants may include BESS.
- Specific conditions for:
 - Reservoirs of hydropower plants;
 - Solar power plants (not installed in agricultural and forest lands);
 - Geothermal power plants (working fluids of binary plants are not fluorinated gases);
 - Equipment installed (to avoid leakage);
 - Backup generator (used during emergency or contingency events and not connected to the electricity system).
- Not applicable for activities involving fuel switching, biomass consumption or fuel consumption.



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: CO₂ emitted by fossil-fuel fired power plants connected to the electricity system;
 - Activity emission sources: CO₂ emitted from the combustion of fossil fuels in solar thermal and geothermal power plants, CO₂ emitted from fossil fuel use in backup generators; and GHG (CO₂, CH₄ and Hydrocarbon refrigerant) emissions from non-condensable gases and working fluid for geothermal power plants;
 - Leakage emission sources: CO₂ emitted due to wake effect in wind power plants.



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

- Applicable in case of geothermal power plants only;
- 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

- 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

- 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.



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 ($F_{wake,y}$);
- $F_{wake,y}$ 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 [x] [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 [x] [100] kilometers;
 - Affected power plants are registered in the A6.4 mechanism [or in any other mechanism];
- Options to determine $F_{wake,y}$:
 - Option 1: wake models (peer-reviewed, conservative or site-representative inputs, use at least 2 models, apply the most conservative result of the models used);
 - Option 2: apply a conservative discount factor of 40% to $EG_{PJ,y}$ or $EG_{PJ,h}$.



4. Baseline scenario

4.4. Downward adjustment – Option 1: absolute downward adjustment

- Step 1: Determine initial downward adjustment ($DA_{initial}$)

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

- Step 2: Determine annual increase (INDA)

$$INDA = 0.01 \times BE_{EG,y1} \times (nd_{y1} / cd_{y1})$$

- Step 3: Determine downward adjusted baseline emissions ($BE_{adj,EG,y}$)

$$BE_{adj,EG,y} = BE_{EG,y} - DA_y$$

- DA_y for the calendar year of the start date of the crediting period:

$$DA_y = DA_{initial}$$

- DA_y for the subsequent calendar years of the crediting period:

$$DA_y = \left(DA_{initial} \times \frac{nd_{y1}}{cd_{y1}} \right) + INDA \times \left[\frac{cd_y}{nd_y} + (y - y1) - 1 \right]$$

- DA_y for the last calendar year of the first crediting period:

$$DA_y = \left(DA_{initial} \times \frac{cd_{y-last}}{cd_{y1}} \right) + \left(INDA \times \frac{cd_{y-last}}{cd_{y1}} \right) \times [(y - y1) - 1]$$



4. Baseline scenario

4.4. Downward adjustment – Option 2: relative downward adjustment

- Step 1: Determine initial downward adjustment ($DA_{initial}$)

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

$$DA_{initial,min} = (BE_{EG,y1} - AE_{EG,y1}) / BE_{EG,y1} \text{ or } (BE_{EG,CP1} - AE_{EG,CP1}) / BE_{EG,CP1}$$

- Step 2: Determine annual increase (INDA)

$$INDA = 0.01$$

- Step 3: Determine downward adjusted baseline emissions ($BE_{adj,EG,y}$)

$$BE_{adj,EG,y} = BE_{EG,y} \times (1 - DA_y)$$

- DA_y for the calendar year of the start date of the crediting period:

$$DA_y = DA_{initial}$$

- DA_y for the subsequent calendar years of the crediting period:

$$DA_y = DA_{initial} + INDA \times \left[\frac{cd_y}{nd_y} + (y - y1) - 1 \right]$$

- DA_y for the last calendar year of the first crediting period:

$$DA_y = DA_{initial} + INDA \times [(y - y1) - 1]$$



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**

- Only wake effect needs to be accounted (discounted when determining the baseline emissions).



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 from the electricity system (as per the methodological tool);
- Factor to account for wake effect;
- 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 CO₂ and CH₄ in the produced steam, quantity of working fluid leaked/reinjected.



9. Inclusion and exclusion of emission sources

- Baseline emission sources not accounted:
 - Non-CO₂ 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 (pending review of the analysis in appendix 1);
 - Use of pre-used equipment (covered under applicability conditions);
 - Competition for water use (there are no feasible alternatives in the baseline scenario other than continuing to operate the existing reservoir without changing its size);
 - Rebound effect.



Call for public inputs

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- Consideration of inputs provided in the cover note



Pending issues to be discussed with the whole MEP

- Applicability conditions:
 - Limit the application of the methodology to projects located in LDCs/SIDS;
 - Maximum capacity o 15 MW for hydropower plants;
- Common practice analysis:
 - Thresholds for common practice;
- Unadjusted baseline emissions:
 - Distance between wind-power plants to account for wake effect;
- Downward adjustment:
 - Absolute or relative downward adjustment.



Expected outcome from MEP014

- Recommend the mechanism methodology for adoption by the SBM.

