United Nations Framework Convention on Climate Change

Agenda item 3.4.
Paragraph 19 of the annotated agenda

Draft Mechanism Methodology: N_2O abatement from nitric acid production

Article 6.4 Supervisory Body – 21st meeting
Bonn, Germany, 18 to 21 May 2026

UNFCCC Secretariat
Mitigation Division

Procedural background

- **Bottom-up submission of a methodology PMM002: "N_2O abatement from nitric acid production"**

- **Methodology published for call for public inputs according to the procedure**
  - 16 to 6 July 2025;
  - 1 submissions received (11 comments);

- **MEP012 finalized draft methodology and agreed to launch a second call for public call for input** on an exceptional basis, since the methodology was significantly revised compared to the original submission
  - 17 March to 7 April 2026
  - 6 submissions received (15 comments) + 1 confidential input;

- **MEP013** considered the public inputs, conducted further data analysis and **recommended the draft methodology for approval by the Supervisory Body**

Purpose

To define requirements for Article 6.4 activities that involve the abatement of N_2O emissions at nitric acid production lines.

Overview of key elements of the methodology and project type

- Applicable to introduction, restart and enhancement of N2O abatement at nitric acid production plants:

  a) Secondary N_2O abatement: installation of a catalyst inside the ammonia reactor

  b) Tertiary N_2O abatement: treatment of the flue gas

- Highly standardized approach: demonstration of many requirements at the level of the methodology
- Baseline determined based on best available technology (BAT): global emission factor without secondary or tertiary N_2O abatement derived from CDM and JI data and available literature
- Very small project and leakage emissions

1. Types of eligible activities

Types of activities	Historical situation	Project scenario conditions
Type 1: **Introduction** of N_2O abatement	No secondary or tertiary N_2O abatement has been installed at any point since the start of operation of the nitric acid production line	Introduction of secondary and/or any type of tertiary N_2O abatement
Type 2: **Restart** of N_2O abatement	Secondary and/or tertiary N_2O abatement has been installed at the nitric acid production line but has been discontinued	Restart of secondary and/or any type of tertiary N_2O abatement
Type 3: **Enhancement** of N_2O abatement	One of the following two forms of N_2O abatement (but not a combination thereof) has been in operation at any point since 1 January 2021: secondary N_2O abatement or an NSCR abatement system	Complementing or replacing the pre-existing N_2O abatement system by a new form of N_2O abatement system

2. Elements addressed at the methodology level vs. activity level

	Methodology	Activity
Applicability		X
Additionality • Regulatory analysis • Lock-in analysis • Investment analysis • Common practice analysis	 X X 	 X X

Baseline
• Nitric acid production level
• Emission factor
  ○ BAT
  ○ Conservative BAU
  ○ Comparison BAT / conservative BAU
• Baseline from legal requirements
	
	X
	X
	X
	
		X
		
		X

Project emissions	X (default emission factors)	X
Leakage emissions	X (default emission factor)	X

3. Key applicability conditions

- Single nitric acid production line (except for CDM transition projects)
- Abatement equipment is newly produced
- No increase in NO_x emissions and compliance with regulations for other air pollutants
- No policies that may affect N_2O emissions from nitric acid production – other than legal requirements
- No subsidies or funding other than revenues from A6.4ERs for abating N_2O emissions

4. Demonstration of additionality

Performed at activity level	Performed at methodology level
Regulatory analysis • Law/regulation integrates the mechanism as instrument for implementation or • No legal requirements which would require the abatement, including no participation in a support scheme / penalty scheme ➔ If not, only emission reductions beyond legal requirements can be claimed	**Analysis of lock-in risk** • Secondary abatement: lifetime < 10 years • Tertiary abatement: technology with lowest GHG intensity ➔ Project types does not cause lock-in
Common practice analysis: (as per tool) • Approach A (“similar” vs. “different” activities) • Stock based approach (not uptake)	**Investment analysis:** • Simple cost analysis • Applicability conditions ensure that activities have no revenues (other than from A6.4ERs) and do not generate cost-savings

5. Baseline

$BE_{adj,\,y}$ = MIN [$BE_{adj,BAT,y}$; $BE_{legal,y}$]

$BE_{legal,y}$ → Baseline emissions that occur due to any legal requirements

Determination of $BE_{adj,BAT,y}$:

- Emission factor:
  - Global BAT emission factors, derived from 120 CDM and 28 JI production lines
  - Comparison between BAT and conservative BAU: BAT is always lower
- Capped production volume of nitric acid for crediting purposes
  - Maximum production level in the last 5 years (if available)
  - If not available: nameplate capacity multiplied with default utilization factor
- Annual downward adjustment: 1%, 3%, or 5% depending on plant performance, in order to provide incentives to move towards higher performance (as per Baseline Standard)

6. Conservative BAU scenario and comparison with BAT (at methodology level)

Type of activity		BAT (for all plant pressures)	Conservative BAU (for all plant pressures)
		(kg N_2O / t HNO_3)	(kg N_2O / t HNO_3)
Type 1: Introduction of N_2O abatement Type 2: Restart of N_2O abatement		3.74	3.99
Type 3: Enhancement of N_2O abatement	BL= secondary	0.56	0.60
	BL=NSCR	0.56	0.60

7. Comparison of BAT baseline with conservative BAU scenario (at methodology level)

➔ BAT baseline emission factors is always lower than conservative BAU emission factor

➔ Confirmation of BAT-based baseline

8. Project emissions

Mechanism methodology	Sources/Tools
Sources of emissions: - Residual N_2O in flue gases →	Tool: Mass flow of a greenhouse gas in a gaseous
• Continuous measurement	
- Operation of tertiary abatement	
• Electricity →	Tool: Emissions from electricity generation and consumption
• Steam →	Default values for coal/oil/natural gas boilers (conservative)
• Fossil fuel use →	Same approach as AMM001
• Other inputs (e.g.: ammonia, urea) →	Default values (conservative)

9. Leakage emissions

- Conservative default factors for upstream emissions associated with secondary / tertiary abatement system (production, transport and disposal)

Summary of public inputs received (MEP007)

First call for public input: 1 submissions received containing 11 inputs

- Allow upgrades from secondary abatement to tertiary abatement system or a combination secondary + tertiary
- Differentiate emission factors between greenfield and existing plants
- Need to align the baseline setting approach with the relevant standard
- Discrepancy observed in IPCC 2006 and 2019 values for N_2O emissions from nitric acid production
- Revision to the formula for downward adjustment in subsequent years
- For tertiary abatement, measure baseline emissions before the abatement system and project emissions after it
- Potential double counting

Summary of public inputs received (MEP012)

Second call for public input: 6 submissions received containing 15 inputs. Main comments:

- Enhance clarity on applicability conditions
- Allow for more project types
  - Optimization of existing abatement systems
  - Greenfield nitric acid production plants
- Amend applicability conditions to not require abatement systems to be newly produced
- Legal requirements to be re-checked only at renewal of crediting period
- Change the cap on production considered for crediting to nameplate capacity
- Use of higher baseline emission factors
- Use of monitored baseline emission factors
- Lower downward adjustments
- More flexible treatment of data gaps in monitoring

Summary of public inputs received (Recommendations from the MEP to SBM 021)

Call for public input (Recommendations from the MEP to SBM 021): 1 submissions received containing 8 inputs. Main comments:

- Address the situation where the annual cap limits baseline emissions but project emissions are based on continuous measurement
- Change the cap on production considered for crediting to nameplate capacity
- Consider introduced legal requirements only from the time these would affect N_2O emissions
- Allow multi-line plants as one PDD
- Update the BAT and BAU to corrected monitoring reports

Summary of public inputs received

Views on how the comments could be addressed (in consultation with the MEP small group)

⇨ For information purpose only

- Update BAT and BAU (to final validated or verified data)
- Allow multi-lines plants as one PDD (and for transition projects, also PDDs covering lines at different plants)
- Use nameplate capacity as cap – on hourly basis (for operating hours)
- Revise para. 31 to take into account the point in time legal requirements would impact (rather than "*enter into force*")

Impacts

Approval of this mechanism methodology will enable the development of Article 6.4 activities that abate N_2O emissions at existing nitric acid production lines.

Subsequent work and timelines

The mechanism methodology will be:

- amended in the future to include methodological requirements for other scales(e.g. PoAs);
- revised once the work on the revision of the following CDM TOOLs is concluded and the respective standard(s) are adopted by the Supervisory Body:
  - TOOL03 “Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion’;
  - TOOL15 “Upstream leakage emissions associated with fossil fuel use”.

Recommendations to the Supervisory Body

To adopt the draft mechanism methodology.