

Nitric Acid Production Project Protocol

Version 2.0

Public Webinar



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August 31, 2011

Webinar will begin shortly

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Agenda

- Summary of changes from V1.0 to V2.0
- Discussion of proposed changes
 - Summary of updates by protocol section
- Next steps
- Public comments



Why a Version 2.0? What's new?

- Expanded project definition to include tertiary catalyst projects at NAPs with pre-existing NSCR
- Incorporate all errata & clarifications since V1.0
- Add information to Legal Requirement Test regarding US EPA Tailoring Rule (GHG Permitting Rule) impacts on project eligibility
- Organizational changes to Section 5 to improve usability of protocol:
 - Addition of Figures 5.1 and 5.2
 - Change in order of text to reflect proper order of operations
 - Additional equations, which do not affect quantification methodology
 - Changes in terminology; new and renamed variables for clarity
- Updated default IPCC emission factor in tertiary catalyst project methodology

Summary of Errata & Clarifications

to V1.0 (as of March 17, 2011)



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- Revised GHG Assessment Boundaries (Figures 4.1, 4.2, 4.3) and revised SSR table (Table 4.2)
- Determination of $\text{HNO}_{3,\text{MAX}}$ and $\text{HNO}_{3,\text{MAX,scaled}}$ (incorporated into re-ordered Section 5)
- Clarifications regarding statistical tests in Section 5
- Updated monitoring requirements (Section 6) for CEMs system installation and certification, QA/QC, and frequency of testing



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Project Definition

SECTION 2



Project Definition Updates

- Project definition revised to clarify that project includes both installation *and operation* of a N₂O abatement technology (2.2)
 - For the purposes of this protocol, a GHG reduction project is defined as the installation *and operation* of a N₂O abatement technology at a single NAP that results in the reduction of N₂O emissions that would otherwise have been vented to the atmosphere.
 - Also clarified in 2.2.1 and 2.2.2



Project Definition Updates

- Revision of eligibility criteria for NAPs using NSCR (2.2)
 - Secondary catalyst projects at NAPs currently using NSCR or that have used NSCR at any point since December 2, 2007 are not eligible
 - Tertiary catalyst projects are eligible at NAPs where NSCR has operated at any point since December 2, 2007, as long as they continue to operate the NSCR during the project
- Definition for tertiary catalyst project expanded to include a catalyst in the tail gas leaving a pre-existing NSCR unit (2.2.2)
 - A tertiary catalyst project is one that installs and operates a dedicated N₂O abatement catalyst in the tail gas leaving the absorption tower (*or the tail gas leaving a pre-existing NSCR unit*).



Project Developer (2.3)

- Provides additional guidance on the entity that should be the project developer for NAP projects:
 - The project developer must be the entity with liability for the emissions of the NAP (i.e. the entity named on the facility's Title V permit), unless the rights to the emissions reductions have been transferred to another entity.



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Eligibility

SECTION 3



Eligibility Updates

- Applying for a second crediting period:
 - Added new language that “If a project developer wishes to apply for eligibility under a second crediting period, they must do so within the final six months of the initial crediting period.” (3.3)



Legal Requirement Test Updates

- Section on US EPA's GHG Permitting requirements to clarify impacts on project eligibility (3.4.1.1)
 - Tailoring Rule phased-in EPA GHG Permitting starting January 2011
 - Most NAPs assumed affected by the regulation by July 2011 (based on total facility emissions)
- Project eligibility
 - A Title V permit referencing a voluntarily-installed N₂O abatement technology will not create a new legally required permitting condition
 - If, as the result of a BACT analysis, a NAP's PSD permit makes the N₂O abatement technologies credited under this protocol legally required, that abatement technology will become ineligible at that NAP.



Performance Standard Test

- Minor modifications to the language:
 - The Performance Standard Test is applied “as of the project start date, and is evaluated at the project’s initial verification.”
 - If a project chooses to upgrade to a newer version of the protocol, the project must meet the Performance Standard of that new protocol, *applied as of the original project start date*.
 - Projects applying for a second crediting period must meet the Performance Standard Test of the most current version of the protocol, *applied as of the project start date*



Regulatory Compliance

- Clarified that *both* the project activities and the project NAP must be in material compliance with all applicable laws
- Clarified that a signed Attestation of Regulatory Compliance must be submitted prior to each verification
- The Project's Monitoring Plan (Section 6) must include procedures that the project developer will follow to ascertain and demonstrate that the project and project activities continue to be in material compliance with all applicable laws.



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Quantifying GHG Emission Reductions

SECTION 5



Overview of Changes

- Added Figures 5.1 and 5.2 (organizational chart of equations)
- Changed order of text to reflect proper order of operations
- Added equations (5.1, 5.2, 5.3, 5.10) that do not affect the quantification methodology, just reorganize it
- Changes in terminology, renaming of variables, and creation of new variables, for clarity
- Added Appendix B with IPCC default emission factors for tertiary catalyst projects



Changes in Terminology

- “Permitted operating conditions” (POCs) changed to “allowable operating conditions” (AOCs)
- “Campaign length” (CL) changed to “campaign production volume” (CPV)

Variables Renamed for Clarity



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Version 1.0		Version 2.0	
Variable	Equation	Variable	Equation
GWP_{N_2O}	Multiple	310	Multiple
BE_{BC}	5.2, 5.3	N_2O_{BL}	5.4, 5.5
$HNO_{3,BC}$	5.2	$HNO_{3,BL}$	5.4
V_{SGBC}	5.3	F_{BL}	5.5
NC_{SGBC}	5.3	$N_2O_{conc,BL}$	5.5
OH_{BC}	5.3	OH_{BL}	5.5
PE_n	5.4, 5.5	N_2O_n	5.7, 5.8
EF_P and EF_n	5.1, 5.5	$EF_{P,n}$	5.6, 5.7
V_{SG}	5.4	F_n	5.8
NC_{SG}	5.4	$N_2O_{conc,n}$	5.8
OH	5.4	OH_n	5.8
$Cl_{N_2O,i}$	5.7	$N_2O_{conc,in,i}$	5.11
M_i	5.7, 5.9	OH_i	5.11, 5.13
$CO_{N_2O,i}$	5.9	$N_2O_{conc,out,i}$	5.13
EF_{NH_3}	5.10	2.14	5.14
HC_{EC}	5.11, 5.12	$CO_{2,HC}$	5.15, 5.16
HC_{ENC}	5.11, 5.13	$CH_{4,HC}$	5.15, 5.17
GWP_{CH_4}	5.13	21	5.17
M	5.15, 5.16	OH_{RP}	5.19, 5.20
Cl_{cap}	None	CPV_{cap}	None

New Variables



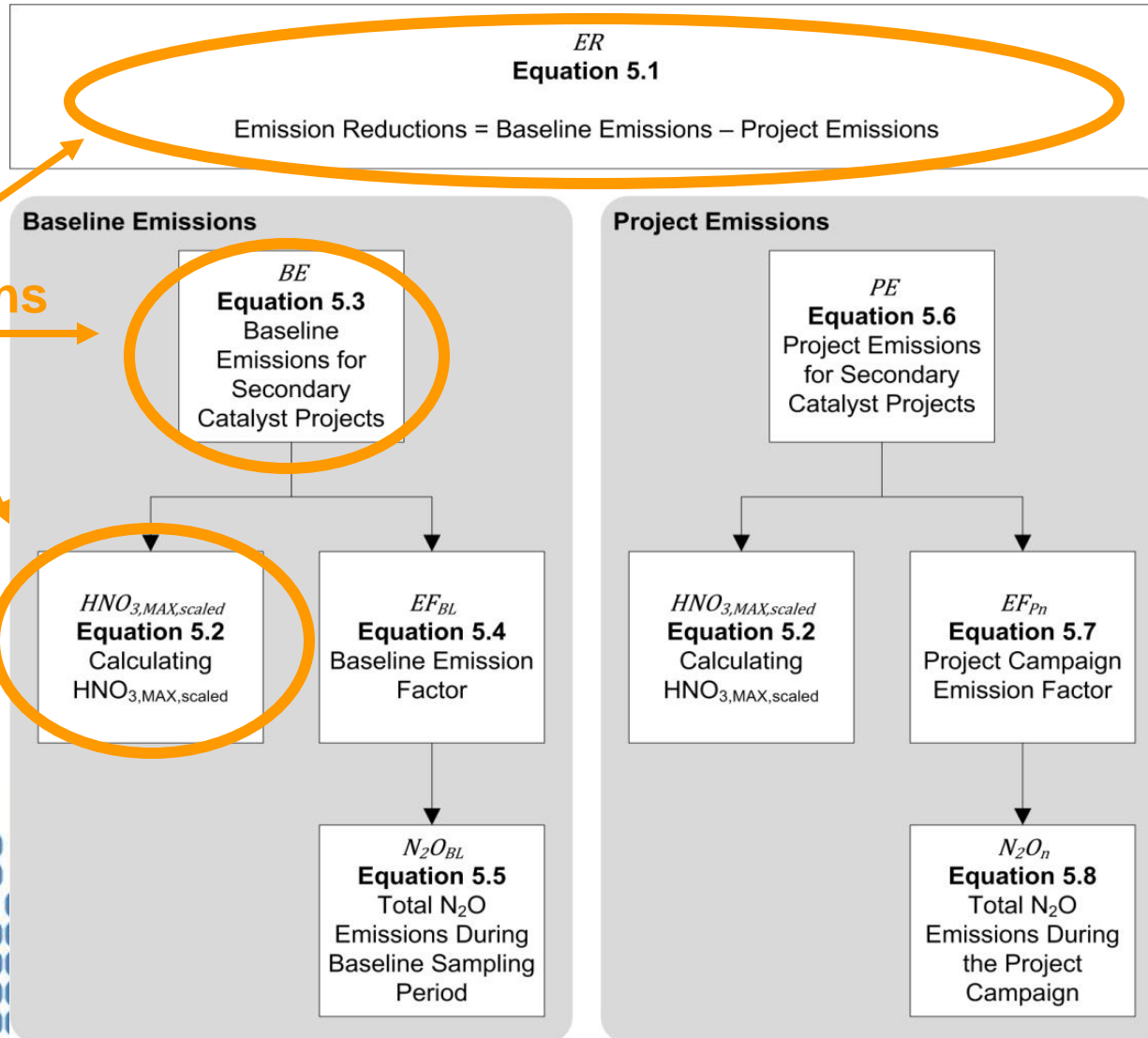
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Name	Description
$\text{HNO}_{3,\text{MAX,scaled}}$	Maximum annual average 100% concentration nitric acid production, scaled to the length of the campaign
BE_i	Baseline emissions during interval i when the NAP is operating outside of Allowable Operating Conditions (AOC)
$\text{HNO}_{3,i}$	Total nitric acid production during interval i when NAP is operating outside of AOC
EF_{IPCC}	Default emission factor from the IPCC ($\text{kgN}_2\text{O/tHNO}_3$)
OD_n	Number of days of operation during the project campaign



Secondary Catalyst Projects

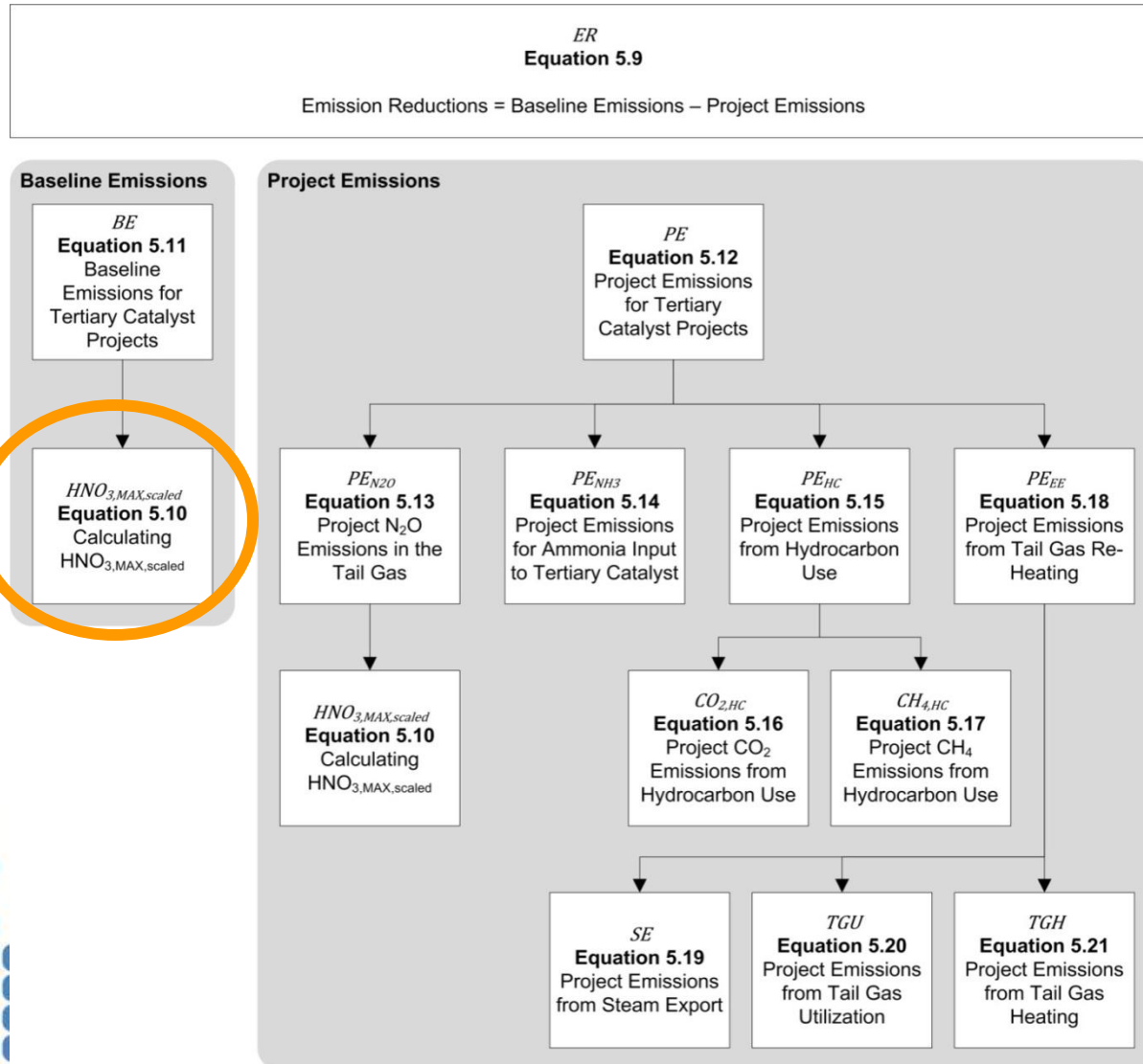
Figure 5.1 Organizational Chart of Equations



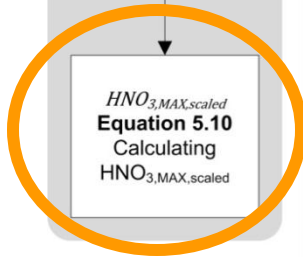
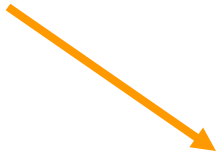


Tertiary Catalyst Projects

Figure 5.2 Organizational Chart of Equations



New equation





Application of AOCs (5.2.2)

- Updated the default IPCC emission factor included in tertiary catalyst project methodology (used when actual average daily operating conditions for T, P, AIFR are outside AOCs) to reflect ACM0019

Year	Emission factor (kgN ₂ O/tHNO ₃)
2009	4.4
2010	4.2
2011	4.1
2012	3.9
2013	3.7
2014	3.5
2015	3.4
2016	3.2
2017	3.0
2018	2.8
2019	2.7
2020	2.5
After 2020	2.5

Tertiary Catalyst Projects at NAPs with Existing NSCR



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- Quantification methodology for this new project type is generally the same as for other Tertiary Catalyst Projects
- The only distinction is guidance with regards to placement of the CEMS for projects at NAPs with existing NSCR:
 - These projects “must sample the tail gas after it leaves the pre-existing NSCR unit, prior to entering the project abatement technology”



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Reporting and Verification

SECTIONS 7 & 8



Reporting & Verification

- Clarification: The reporting period must represent a full campaign, defined as the full length of operation of one set of primary catalyst gauzes
- Clarification: When a campaign spans multiple calendar years, emissions reductions shall be calculated for the entire campaign, and then scaled for each vintage year based on operating hours.
- Additional items added corresponding to the updates in previous sections and Errata & Clarifications



Next Steps

- Submit written comments via Nitric Acid Revision webpage - deadline is **5 PM PDT on Friday, September 9, 2011**
 - <http://www.climateactionreserve.org/how/protocols/adopted/nap/nitric-acid-production-project-protocol-revision/>
- Summary of comments with responses and final protocol will be publicly posted on Nitric Acid Revision webpage week of September 19, 2011
- Will be presented to Reserve Board on September 28, 2011
 - Opportunity for public comment in person (Sacramento) or by telephone



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