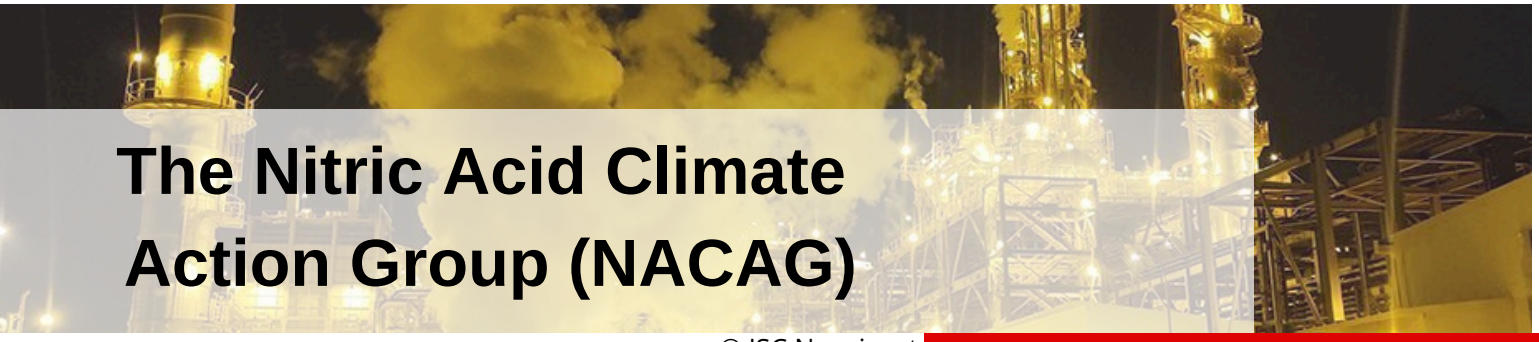

The Nitric Acid Climate Action Group (NACAG)

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Frequently Asked Questions

1. Why did the German Government launch the Nitric Acid Climate Action Group (NACAG)?

The German government launched the NACAG at the UN Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) 21 in Paris to incentivize early climate action and long-term emission abatement in the nitric acid sector. The abatement of nitrous oxide (N2O) emissions from nitric acid production represents a low-cost mitigation potential that was previously widely exploited under the Clean Development Mechanism (CDM). However, with plummeting certificate prices under the CDM, N_2O abatement projects have stalled, leaving this significant mitigation opportunity largely untapped.

2. Why did the German Government decide to focus on nitrous oxide emissions from the nitric acid industry?

N_2O, a by-product of nitric acid production, possesses a global warming potential (GWP) 273 times greater than CO_2. However, these N_2O emissions can be abated relatively easily and usually at a lower cost compared to most other measures aimed at GHG emission abatement. Effective abatement technology is already widely available and can be installed quickly in existing plants. In the face of the urgent challenge of climate change, it is imperative to cease emitting avoidable emissions with such moderate efforts.

3. What is the global warming potential (GWP) of N_2O?

The GWP on a 100-year time horizon is expressed in relation to the potential climate impact of CO_2. Currently, three different values for the GWP of N_2O are being used. All of these have been determined by the IPCC but have been updated over time, resulting in a situation where different regulations refer to different values (usually the most recent at the time of release). The Intergovernmental Panel on Climate Change (IPCC) lists N_2O's GWP as 273 in its Sixth Assessment Report.

While this value represents the latest scientific findings, all emission reductions generated under the regulations of the second commitment period (2013–20) of the Kyoto Protocol (CMP Decision 4/CMP.7 paragraph 5) are calculated using a GWP for N_2O of 298. Meanwhile, under the EU's emissions trading system (ETS) and regulations on its third commitment period, the previously employed value of 310 remains valid and is still being applied. Despite these variations, it's clear that N_2O's GWP significantly exceeds that of CO_2, underscoring its status as a potent GHG.

4. Why did NACAG broaden its approach to include Caprolactam?

Given the technological parallels between caprolactam and nitric acid production, as well as the similarity in N2O emissions and mitigation characteristics between the two, NACAG decided to broaden its scope to encompass caprolactam facilities. This decision aligns with NACAG's mission to reduce global N2O emissions. Instead of launching a separate initiative, NACAG chose to expand its support for the caprolactam sector within its existing framework.

This strategic expansion leverages NACAG's established infrastructure, network, and potential synergies. The technical overlaps between the industries facilitate seamless integration into the initiative. Furthermore, this extension enhances NACAG's attractiveness to nations hosting both sectors. By addressing the challenges of N2O reduction in caprolactam plants alongside ongoing efforts, NACAG promotes collaborative solutions and maximizes its impact.

5. Why is NACAG of interest to the chemical industry?

Both from a technical and economic perspective, GHG abatement in the nitric acid and caprolactam sectors is generally easier and less costly than other forms of GHG abatement. This presents an opportunity to reduce GHG emissions in a technically feasible and cost-effective way by tackling the sector's emission reduction potential early on before moving on to other mitigation options, which are more difficult and expensive to implement. Given the international community's goal to keep global warming below 1.5°C, it is highly likely that N_2O emissions from nitric acid and caprolactam production will eventually be abated in all countries. NACAG's offer of support presents chemical industry actors with a rare opportunity to access funding for the implementation of abatement activities.

Once national regulations have been established to mitigate the emissions from those sectors sustainably, the industry's will not have to bear the considerable initial investment costs these regulations will likely entail. Moreover, plant operators will have already gained experience in operating the technology and meeting monitoring and reporting standards. In short, NACAG intends to boost the use of relatively cheap and easy-to-harness emission reduction potentials and, at the same time, help the nitric acid and caprolactam sectors to prepare for the future task of sustainably mitigating process-related N_2O emissions.

6. What is NACAG's vision?

Around the world, the majority of nitric acid plants still operate without N_2O abatement technology. NACAG is therefore incentivizing the installation and sustained operation of N_2O abatement technology in all existing nitric acid plants worldwide. The group is working to phase out global N_2O emissions from nitric acid production by supporting quick mitigation efforts and encouraging the regulation of the sector in partner countries in the future. NACAG's vision is that all countries worldwide will cover N_2O abatement from nitric acid production in their Nationally Determined Contributions (NDCs) under the Paris Agreement.

7. What support does NACAG provide?

To encourage the nitric acid and caprolactam sector to phase out its N_2O emissions, NACAG offers technical, political and financial support to governments, business organizations and companies, considering this mitigation action. NACAG's technical support encompasses advisory services aimed at guiding the installation, operation, and upkeep of appropriate abatement technologies. Additionally, the initiative provides financial backing for the implementation of these mitigation measures. The financial support is granted on the condition that countries commit to maintaining emission reduction measures in the future and is reserved for ODA countries that have limited resources to procure emission reduction technology.

8. What kind of technical support does NACAG offer?

NACAG offers technical support at both the government and plant level. The initiative provides governments with advice and support on the general technical aspects related to implementing abatement activities in the nitric acid and caprolactam sectors as well as on the different options for their integration into national policies and climate change plans (e.g. inclusion in NDCs, national emission trading schemes, etc.). Additionally, NACAG supports governments in establishing structures at national level that are necessary for the effective and sustainable continuation of emission reduction measures in the future. At plant level, technical support consists of advisory services and direct support on the physical implementation of the abatement activity (feasibility and technical evaluation, choice of appropriate abatement and monitoring technology, etc.). As part of the technical support, and to ensure that plant operators have the skills and knowledge they need to meet future requirements, local plant personnel will receive training in the operation of the abatement technology and all its associated monitoring and reporting activities.

9. Who can benefit from NACAG´s offer?

NACAG offers advisory and general technical support to all countries and interested stakeholders intending to contribute to attaining the initiative's goals. Financial support, however, is only offered to countries that need financial assistance. A country's eligibility for Official Development Assistance (ODA) is a necessary pre-condition for receiving NACAG funding. Additional criteria may apply.Another prerequisite for financial support is the political commitment of the respective government to a climate-friendly transformation of the entire sector(s). At the plant level, additional eligibility criteria apply, and a case-by-case due-diligence evaluation is conducted. The initiative is also inviting countries and organizations to join the initiative as financing partners. In this way, they can help NACAG achieve its ambitious goals by increasing its funds.

10. How can technical support be received?

For technical requests, please contact the NACAG Secretariat. We are happy to enter into a dialogue that may help advance the initiative's goals and to offer support where applicable.

We will consider all requests on a case-by-case basis and discuss possible further steps. Project owners or plant operators from countries eligible for financial support (under the NACAG Support Facility) will be provided with full technical support alongside any financial support they receive.

11. How can one show support for NACAG and what does the signature of the NACAG Declaration entail?

Governments, institutions or private sector actors can endorse NACAG´s objectives by signing the NACAG Declaration. The signature signifies support without legal obligation. The signature signifies support without legal obligations. Interested parties can submit the Declaration to the NACAG Secretariat.

12. How do governments officially join NACAG?

To join NACAG officially, governments ought to sign a document called Statement of Undertaking. By signing this document, they commit to permanently mitigate N2O emissions from their country's nitric acid or caprolactam industry in the future. The statement includes the pledge to introduce regulations or incentive-based mechanisms which ensure the long-term mitigation of N_2O emissions in the country's nitric acid or caprolactam industry. While NACAG offers technical support, policy choices remain with the government. Signing the Statement enables access to NACAG funding for mitigation technologies.

13. Do nitric acid and caprolactam plants have to fulfil certain requirements for NACAG support?

Nitric acid or caprolactam plants must be in countries with signed Statements of Undertaking. At the same time, plant operators must also undergo a technical, legal and financial due diligence assessment. In this process, the plant and its administration will be subject to a screening of aspects such as safety and security, compliance with environmental and quality standards, human rights, the technical status of the installation as well as financial stability and others.

As NACAG operates with public financial resources, this is a necessary step to minimize the risks associated with the investment. All findings of this process will be treated confidentially.

14. Does NACAG work with plants producing nitric acid for weaponry or military use?

Facilities associated with the manufacture of weapons or explosives that are not produced solely for civilian purposes are not eligible for any support from NACAG.

15. Will NACAG support projects that have previously participated in any of the flexible mechanisms of the Kyoto Protocol?

Abatement activities that were previously developed under the CDM mechanism can generally be supported. However, NACAG can support financially only projects in ODA eligible countries.

16. What role do NDCs play in the NACAG approach?

Nationally Determined Contributions (NDCs) play an important role in the context of NACAG. They are the key instrument in the bottom-up framework of the Paris Agreement. Using NDCs is integral to NACAG's approach because specific emission sources may be included in permanent national mitigation actions. Alongside its vision of incentivizing the installation of effective N_2O abatement technology in all nitric acid and caprolactam plants worldwide.

NACAG aims to ensure the achievement of permanent abatement. NDCs constitute the appropriate platform to reach this goal.

17. Which costs does the NACAG´s offer cover?

The financial support provided by NACAG will cover all costs related to the actual technical implementation of the abatement activity. This includes the investment, shipping and installation costs related to the abatement technology and monitoring equipment. If applicable, also staff costs will be funded.

18. How can chemical companies apply for funding from the NACAG Support Facility to finance N_2O mitigation technology for their nitric acid/caprolactam plants?

Plant operators can apply for funding by submitting a Grant Application Notice (GAN) to the NACAG Secretariat. The document includes detailed explanations of the funding process and an application form that needs to be completed with basic technical information about the plant.

After a first assessment and approval of the submitted GAN, the NACAG Secretariat will carry out a comprehensive technical and commercial due diligence process before signing a Grant Agreement with the plant operator, which frames the funding process and the installation of the mitigation technology.

19. What are the next steps after nitric acid plants have applied for funding?

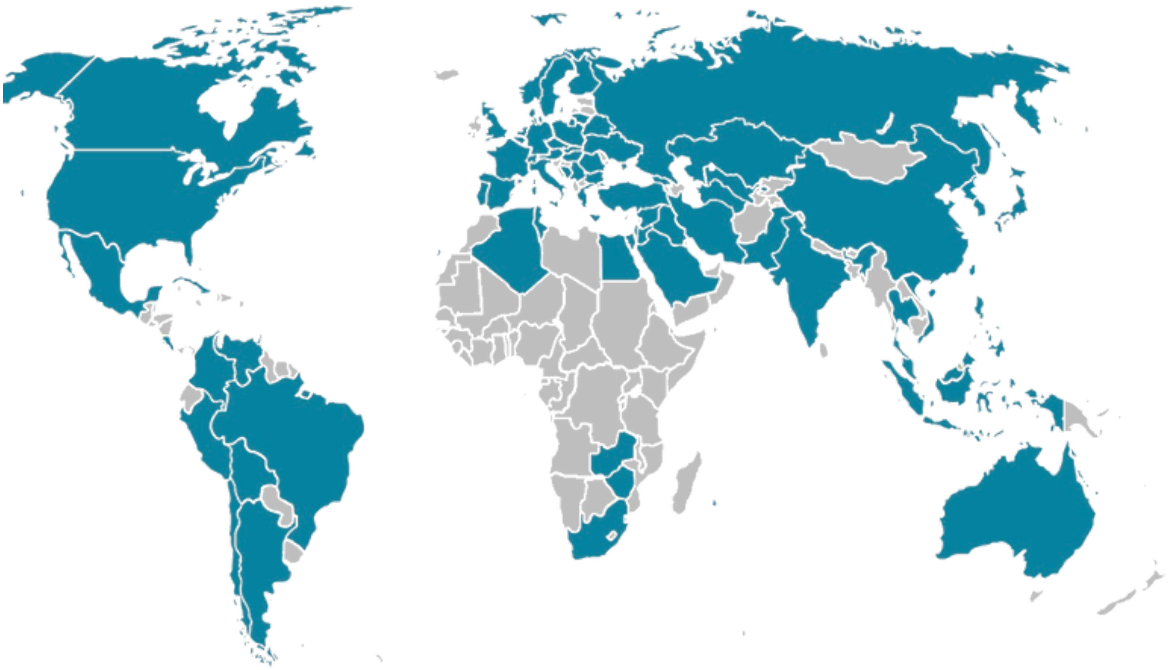
After the plant operator signs the Grant Application Notice, the NACAG Secretariat initiates the process of signing a grant agreement for the abatement technology. The plant operator has the freedom to choose the most suitable abatement technology for their specific plant. NACAG will offer technical advice to assist in this decision-making process. Following this, the NACAG Secretariat will conduct a due diligence assessment. If the assessment yields positive results, a grant agreement can be signed between GIZ and the plant operator, covering all costs related to N_2O emissions abatement, provided that the country's government has signed the Statement of Undertaking (SoU). Subsequently, the plant operator will solicit offers for the abatement technology through a competitive public tender process. Once a supplier has been selected, the plant operator will directly enter into a contract with the chosen supplier for the abatement technology.

20. Who will decide on the choice of abatement technology?

In general, the decision regarding which technical approach (secondary or tertiary catalyst) will be employed remains with the plant operator. NACAG maintains a technology-neutral and provider-neutral stance, meaning it does not prescribe any specific technology or provider to plant owners. However, to secure financial support, owners must consider all relevant technical and economic aspects and demonstrate that their requirements are reasonable. The NACAG Secretariat can provide interested parties with access to experts who can offer advice and consultancy on the choice of appropriate technology. It is required that companies establish an official public tender process and select the technology provider through this process.

21. What is the abatement efficiency of secondary and tertiary catalysts?

The abatement efficiency of catalysts can reach up to 99%. However, practical experience has shown that the abatement efficiency of secondary catalysts often only ranges between 70% and 90%. Tertiary catalysts, operating under perfect conditions, can achieve up to 99% abatement efficiency. It must be stressed that the efficiency levels ultimately achieved for both kinds of catalysts depend on the specific situation and condition of the nitric acid plant. Additionally, it should be noted that the secondary catalyst material is gradually consumed during operation, leading to a decrease in abatement efficiency over time. Consequently, the catalyst material needs replacement, either partially or completely, at some point. Replacement cycles range from 3 to 10 years or more, depending on the technology employed and plant conditions.



Global overview of nitric acid producing countries

Number of nitric acid plants worldwide: approx. 500

NACAG Nitric Acid Climate Action Group

For more information please visit our website www.nitricacidaction.org or write an e-mail to contact@nitricacidaction.org