



Partnership on Transparency
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Federal Ministry
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the German Bundestag



Ministry of Climate, Energy and Environment
Greenhouse Gas Inventory
and Research Center

Singapore's BTR2: GHG inventory development and improvement plan

25 February 2026, PATPA Asia
Regional Workshop



Ministry of Sustainability
and the Environment
— SINGAPORE —



STRATEGY GROUP
PRIME MINISTER'S
OFFICE



United Nations
Framework Convention on
Climate Change

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Agenda

Singapore's GHG inventory process

Improvements planned for BTR2 Inventory

- **Reporting of full time series**
- **Bridging gaps in national inventory**
- **Review of NID**



Singapore's National Inventory Process





Singapore's National Inventory Process





Singapore's National Inventory Process



1. Planning and Preparation

- a. Progressively Identify areas of improvement through QA/QC and Technical Expert Review (TER) and incorporate into National Inventory Improvement Plan (NIIP)

2. Data Collection and Management

- a. Gather activity data across all 5 sectors through collaboration with various stakeholders
- b. Select most appropriate emission factors for emission sources across sectors based on resources available.



Singapore's National Inventory Process



3. Data Processing and Quality Control (QC)/Quality Assurance (QA)
 - a. Estimate GHG emissions across all source categories using IPCC Guidelines
 - b. Assess quality of GHG inventory estimates through QC process
 - c. Ensure accuracy and completeness of calculated data
 - d. Implement QA process through personnel not involved in the inventory process



Singapore's National Inventory Process



4. Reporting

- a. Compile the calculated GHG emissions for all IPCC sectors
- b. Endorsement by SG's Measurement Reporting and Verification Task force (MRV-TF) co-Chairs before formal submission to UNFCCC



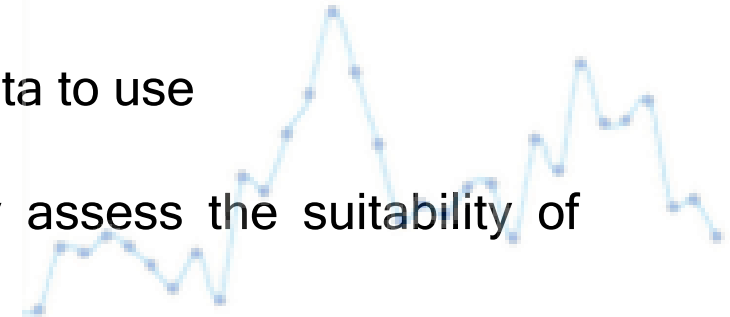
Improvements planned for BTR2 inventory





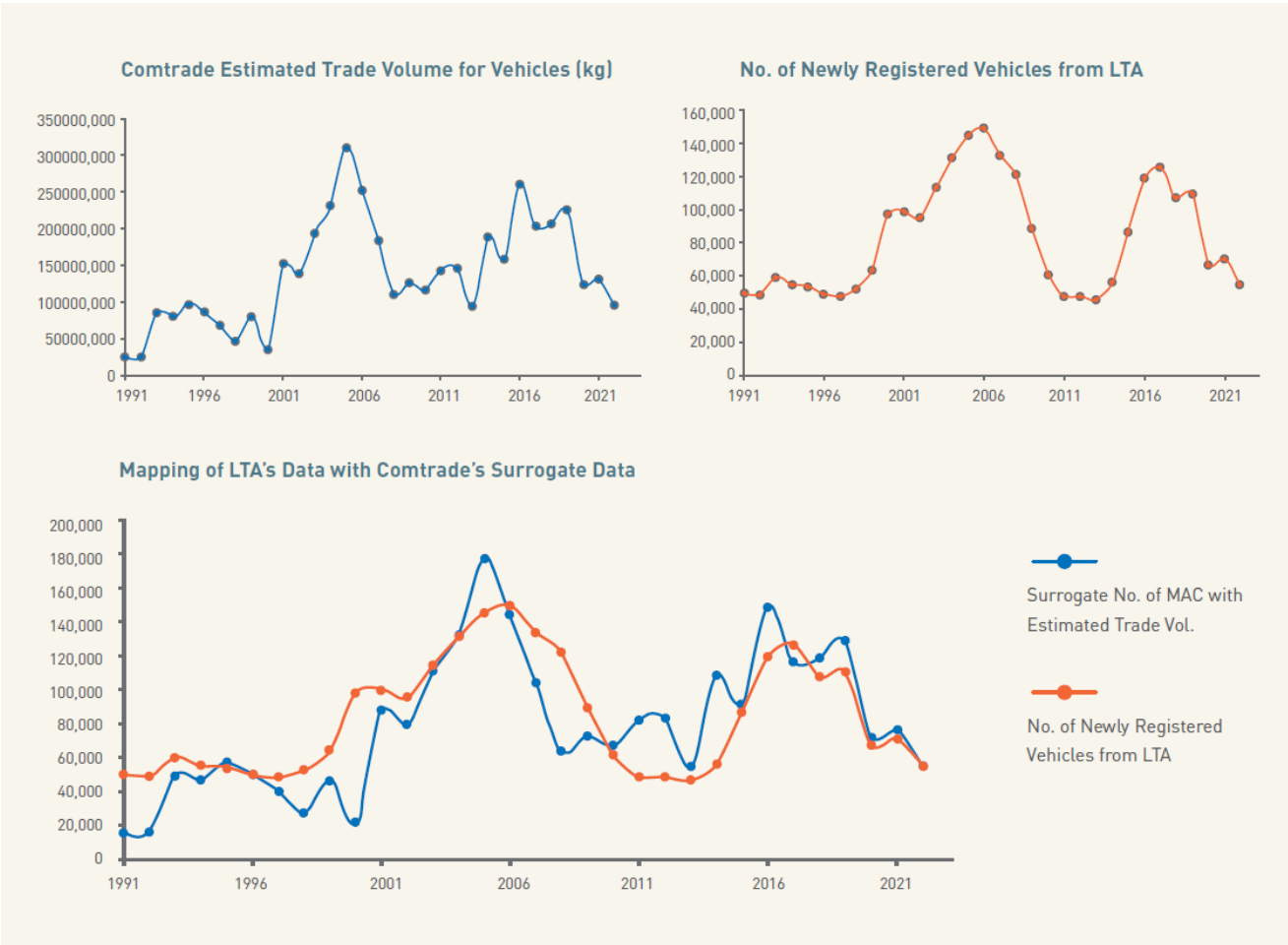
Planned Improvements - Full time series

1. Reporting of full time series: 1990 to 2024
 - a. Background: Flexibility was exercised for BTR1 to report only from 2000 onwards
 - b. Surrogate data used to estimate data points in historical years where actual data not available
 1. Existing time-series trends and surrogate data were used for back-projection
 2. Consulted industry experts to determine best surrogate data to use
 3. Used quantitative uncertainty estimates to quantitatively assess the suitability of surrogate data used for back-projection





Planned Improvements - Full time-series



- Used Comtrade data as surrogate data to extrapolate HFC End-Of-Life and operating emissions
- Validated use of Comtrade as an indicator of market trends with Land Transport Authority data



Extracted from SG NID 2024 page 113



Planned Improvements - Bridging Data Gaps

2. Addressing Inventory data gaps raised during TER

- a. Consulting industry stakeholders to obtain more robust activity data/emissions data to improve transparency of national GHG inventory
- b. Reviewing emissions estimation methodologies used, perform recalculations where needed

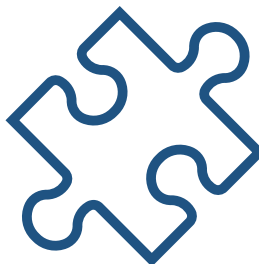




Planned Improvements - Bridging Data Gaps

Example of Bridging of Data Gap - Fugitive emissions from NG pipelines

- a. Desktop research of SP Group's annual sustainability reports before linking up with their Sustainability team to obtain more robust activity data
- b. Gained deeper understanding of the emissions calculation methodology used for the reports



SP Group - owns and operates Singapore's natural gas transmission and distribution network



Planned Improvements - Review of NID

3. Feedback from TER on increasing transparency in NID
 - a. Include more details on the documentation of SG's inventory preparation process such as elaboration on institutional arrangements, QA/QC protocols, uncertainty analysis etc.
 - b. Use of appropriate notation keys to increase transparency such as "C" (confidential) where confidential emissions have been reported instead of solely "IE".





Thank you!



Technical Expert Review in Singapore (5-9 May 2025)



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