



Cooling and Refrigeration Emissions and Energy Data – CREED

**IIR and UNEP Led - Cool Coalition Working Group
Led by IIR Commission E2 with Commissions B2, C2, D1, D2, E1, E2**

TERMS OF REFERENCE

INTRODUCTION

In accordance with Article XIX of the International Agreement concerning the IIR and articles 15 to 18 of the Internal Regulations of the Scientific Council of the IIR, the setting up of a Commission E2 Working Group (WG) is proposed. The following Terms of Reference (ToR) further define the role of the WG.

BACKGROUND

At COP28, over 60 countries signed the UNEP-led Global Cooling Pledge¹, thereby committing to join a collaborative effort to reduce cooling-related emissions in 2050 across all sectors by at least 68% globally compared to 2022 levels. One of the 16 commitments is to

“Commit to publishing a national cooling action plan, considering cooling when publishing a national action plan, or publishing a regulation or equivalent by 2026 and to reflect relevant efforts in designing nationally determined contributions under the Paris Agreement and HFC phase-down plans;”

Critical to development of a national plan requires good understanding of emissions and energy consumption, however, due to the diversity of the sector, this is a complex task. Indeed, it is imperative to aggregate sector-wide assessment outcomes in a way that enables sector to sector comparison in terms of their current size and future growth, measured by cooling demand, demand-side energy consumption, refrigerant demand, and GHG emissions.

IIR and UNEP-led Cool Coalition are proposing to establish a working group, bringing together experts in the field, to share experience, discuss and agree on a consistent methodology and sectoral delineation, for an accurate estimation of the current GHG emissions from the cooling and refrigeration sectors, with an aim to arriving at a best estimate of future emissions.

While the preliminary country-context mapping of the cooling landscape is expected to be a high-level assessment that mostly relies on existing data, secondary research,

and inputs from experts, analytical work is required to aggregate sector-wide assessments such as GHG emissions and estimated savings potential.

GHG emissions are typically estimated using the bottom-up and top-down methods. These methods have different level of complexity, assumptions and boundaries which makes the results often difficult to compare. Most available data/figures on GHG emissions from the refrigeration sector are high level estimates calculated using the top-down approach. In the other hand, the main challenge with the bottom-up approach is the high granularity of the model requesting a significant amount and detailed data which is not easily available. However, this will also show where data is lacking and where information will need to be improved. Data availability varies greatly between countries as well as between refrigeration sectors. To date, one can note there is no robust methodology available to provide accurate bottom-up estimates also predicting future emissions based on a well identified and quantified drivers of change.

The aim is to pull together data sources, knowledge and develop metrics and indicators that can support a common methodology which will support countries and governments with the appropriate scenarios to reduce their greenhouse gas footprints arising from cooling sectors and enable an enhancement and achievement of more ambitious NDCs.

The main purpose of this working group is to pool evidence and understanding from across IIR and UNEP-led Cool Coalition members to develop a suite of resources, assumptions and methods that can be adopted to assess emissions and energy consumption locally and this could be potentially aggregated to support tracking of cooling emission targets highlighted in the Pledge.

SCOPE, AIM & OBJECTIVES

Scope

The scope should be open to any cooling or refrigeration application and the title of the working group should reflect both cooling and refrigeration,

Aim

To work together to identify and evaluate gaps, existing resources, assumptions to enable countries to evaluate their cooling/ refrigeration emissions and energy consumption.

Objectives

- Bring together those working in this area,
- Assimilate methodologies, converge as much as possible in terminology/nomenclature for cooling/ refrigeration related datasets,
- Collate/access assumptions/ datasets that exist at multiple levels of governance related to cooling/ refrigeration, mapping regional/sectoral data, market-based

data available, as well as understanding assumptions behind the existing cooling related data globally,

- Work on alignment and developing agreement on indicators and metrics for data (and proxies where data not available) that can be used to measure progress in national strategies to reach near-zero emissions from cooling by 2050 (MEPS, building codes, Kigali implementation).

To operationalize, we discussed having 4 WPs led by individuals as follows:

WORK PLAN OF THE WORKING GROUP

WP no.	WP Description	WP lead
WP1	To support the Global Cooling Pledge – to track quantifiable progress towards sustainable cooling with Pledge Countries and contribute to the Global Watch report.	Ray Gluckman & Antonio Rossetti in support
WP2	To draw up and regularly update an inventory of existing databases/ studies/ data, Develop a harmonized categorization of cooling subsectors, Provide countries with a potential method, assumptions and parameters to be able to assess cooling and subsector emissions, Identify gaps in data and what's needed to fill. Country level + future scenarios	Xinfang Wang/ Mirka Della Cava
WP3	Investigate and develop proxies for estimation	Omar Abdelaziz
WP4	To bring colleagues working in this area together, create a forum, communicating on activities. Disseminate findings and encourage countries to estimate emissions.	UNEP led-Cool Coalition / IIR

INVOLVEMENT OF IIR COMMISSIONS

Lead Commission: Commission E2

Cooperating Commissions: B2, C2, D1, D2, E1, E2

MEMBERSHIP

WG members are expected to be either Commission members from IIR, private members or representatives of corporate members of the IIR and UNEP-led Cool Coalition with a technical expertise enabling them to contribute to the work of the WG.

We encourage broad membership of the WG from those interested in contributing as well as those keen to learn from the activities.

CHAIRMAN AND BUREAU

Chair: Graeme Maidment

Vice-Chair: Xinfang Wang

Secretariat: Souhir Hammami (IIR STID Director) and Shikha Bhasin (UNEP-led Cool Coalition)

Publicity and Communications: Souhir Hammami (IIR STID Director) and Anya Magotra (UNEP led-Cool Coalition).

The Working Group will designate its officers at its first meeting.

WEBPAGE

A webpage will be hosted in the IIR/ UNEP-led Cool Coalition websites (which will be linked), will be set up to disseminate relevant information and to promote the activities of the Working Group.

DOCUMENTS

Working documents will be held on a Ms Team site.