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INTERNATIONAL CLIMATE INITIATIVE

Leveraging the Cooling Sector for Ambitious NDCs: Policy Instruments and Holistic Mitigation Approaches in Grenada

NDC4 Webinar #6

12 April 2024 l 2 to 3 pm UTC

Agenda

Topic	Speaker
Opening Remarks	**Marion Geiss**, Head of Projects, GIZ Grenada
Cool Contributions fighting Climate Change II (C4 II)	**Jiminy Scott**, Technical Advisor, GIZ Grenada
Policy Instruments for Addressing Refrigerant and Energy-related Emissions	**Irene Papst**, HEAT GmbH
Insights into Grenada's strategies for leveraging the cooling sector to enhance its NDCs: processes, challenges and achievements	**Leslie Smith**, National Ozone Officer, Grenada
Questions & Answers	All participants

Welcome Remarks

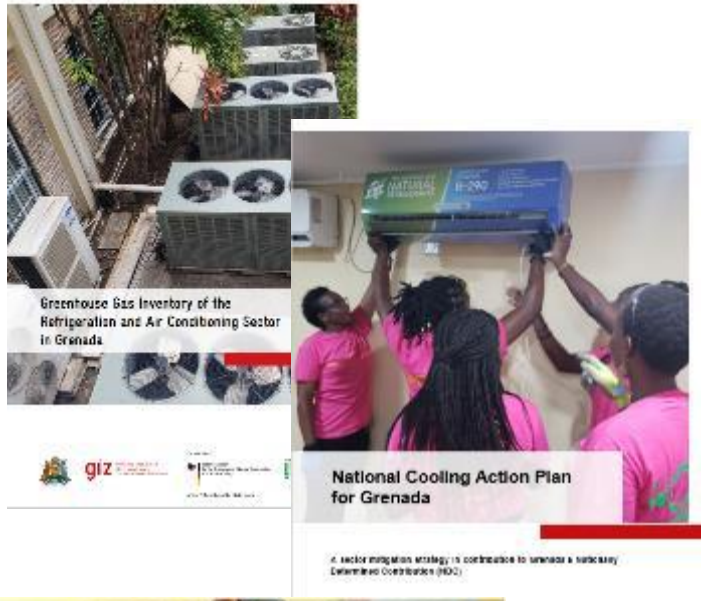
Marion Geiss
Head of Projects, GIZ Grenada

Cool Contributions fighting Climate Change II

Jiminy Scott
Technical Advisor, GIZ Grenada

Highlights C4 I - Grenada

- Development of RAC Sector GHG Inventory as a basis for target-oriented implementation of emission reduction measures in the sector
- R290 split-AC pilot projects: Installation and monitoring of 30 propane split ACs in public buildings → documented by Deutsche Welle
- Introduction of natural refrigerant label
- Cool Training of RAC technicians (regional)
- 2 days regional MRV Training
- Development of National Cooling Action Plan focusing on UAC sector



Participant of the Cool Training and Fit for Split Workshop in Grenada

Cool Contributions fighting Climate Change (C4) Achievements

- Since 2019, **climate-friendly ACs are sold in stores in Grenada**
- Grenada has also launched a **major advertising campaign for natural refrigerants** to raise awareness among the public, including a radio jingle and a TV commercial.
- In 2020, another milestone was reached: Grenada integrated the refrigeration and air conditioning sector into its **Nationally Determined Contributions (NDC)**. Thus, Grenada officially declared its political commitment to climate-friendly cooling.
- Additionally showed its commitment in publishing the ambitious **National Cooling Action Plan**
- GIZ will continue to support Grenada in its ambitious goals to become the **world's first HFC-free island** through a **second phase of the C4 project** until 2024.

C4 II Activities Grenada

Support in the implementation of NDC measures in the RAC sector

- Update RAC GHG Inventory & provide recommendations on institutionalizing MRV for RAC sector
- NDC cooling implementation roadmap (2023-2030)
- Status Quo Analysis of implementation and update of National Cooling Action Plan (NCAP) for Grenada

Assistance in developing national financing mechanisms

- Elaborate ways to implement green loan/credit line for the refrigeration and air conditioning sector in cooperation with local banks
- Workshop “Financing Green Cooling – Opportunities for Financial Institutions in Grenada” (02/11/2023)

Monitoring, Reporting & Verification

- Advisory on implementing a product registration database & operators’ registry

C4 II Activities Grenada

Awareness raising

- Develop Materials/events to promote R290 ACs and other Green Cooling technologies
- Implement information campaigns and capacity development to complement regulatory policies or financial support policies and inform about their existence and benefits
- Demonstrat **solar-powered Green ACs** in the **hotel sector**: Implementation of pilot project to demonstrate technical and economic feasibility in the region

Enhancing capacity on the safe use and handling of natural refrigerants

- Grenada Cool Training with 28 participants
- Demonstrate solar-powered Green ACs in the hotel sector: Implementation of pilot project to demonstrate technical and economic feasibility

Replication of proven experience from Grenada in other SIDS

- Identify and disseminate proven concepts (i.e. NCAP) for CARICOM region
- Improve Green Cooling Network in CARICOM region

Policy Instruments for Addressing Refrigerant and Energy-related Emissions

Irene Papst
HEAT GmbH

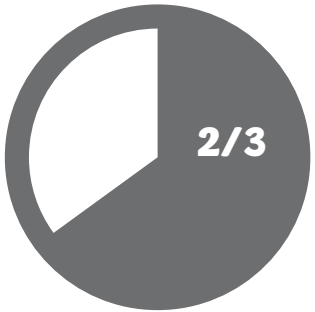
Content

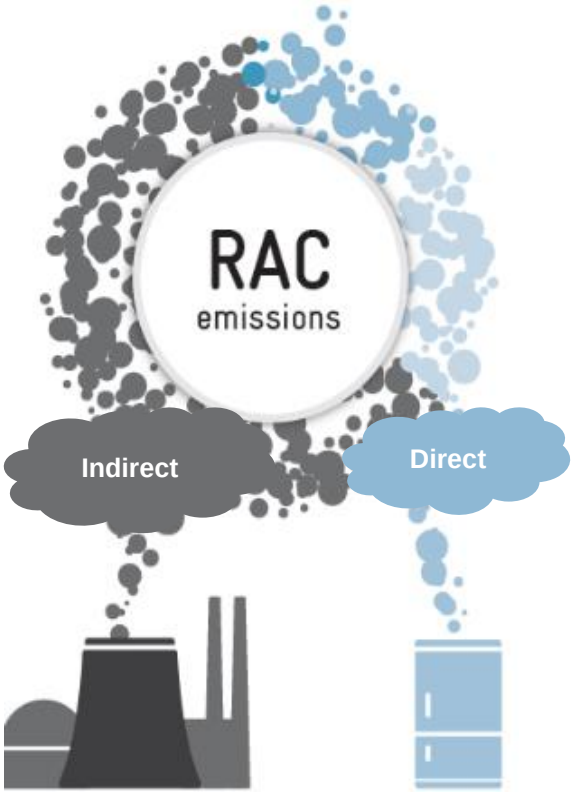
Integrated approach to sustainable cooling

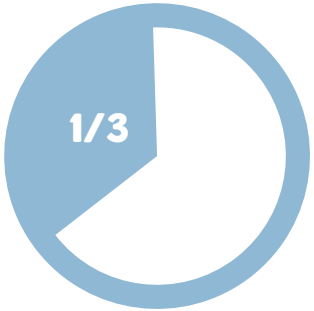
Main policy concepts

Grenada’s RAC emissions

Emissions from the RAC sector







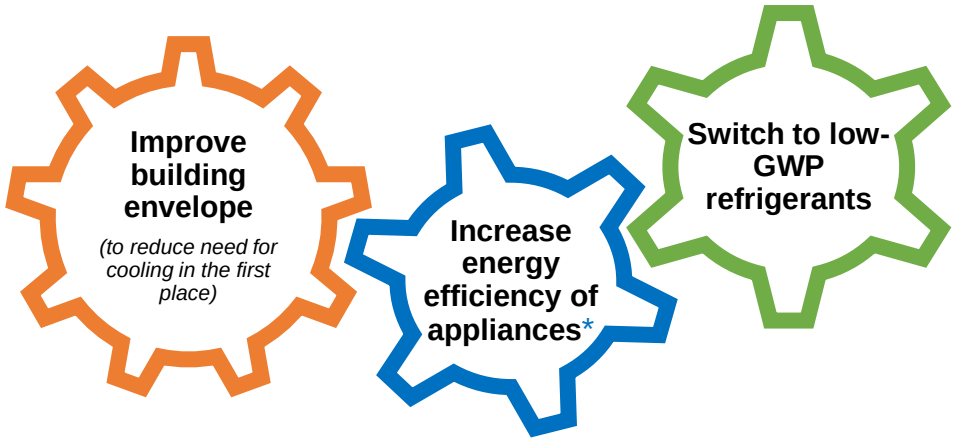
Indirect emissions are related to the energy consumption of cooling appliances.

Direct emissions arise when refrigerants are released.

Source: GIZ Proklima;

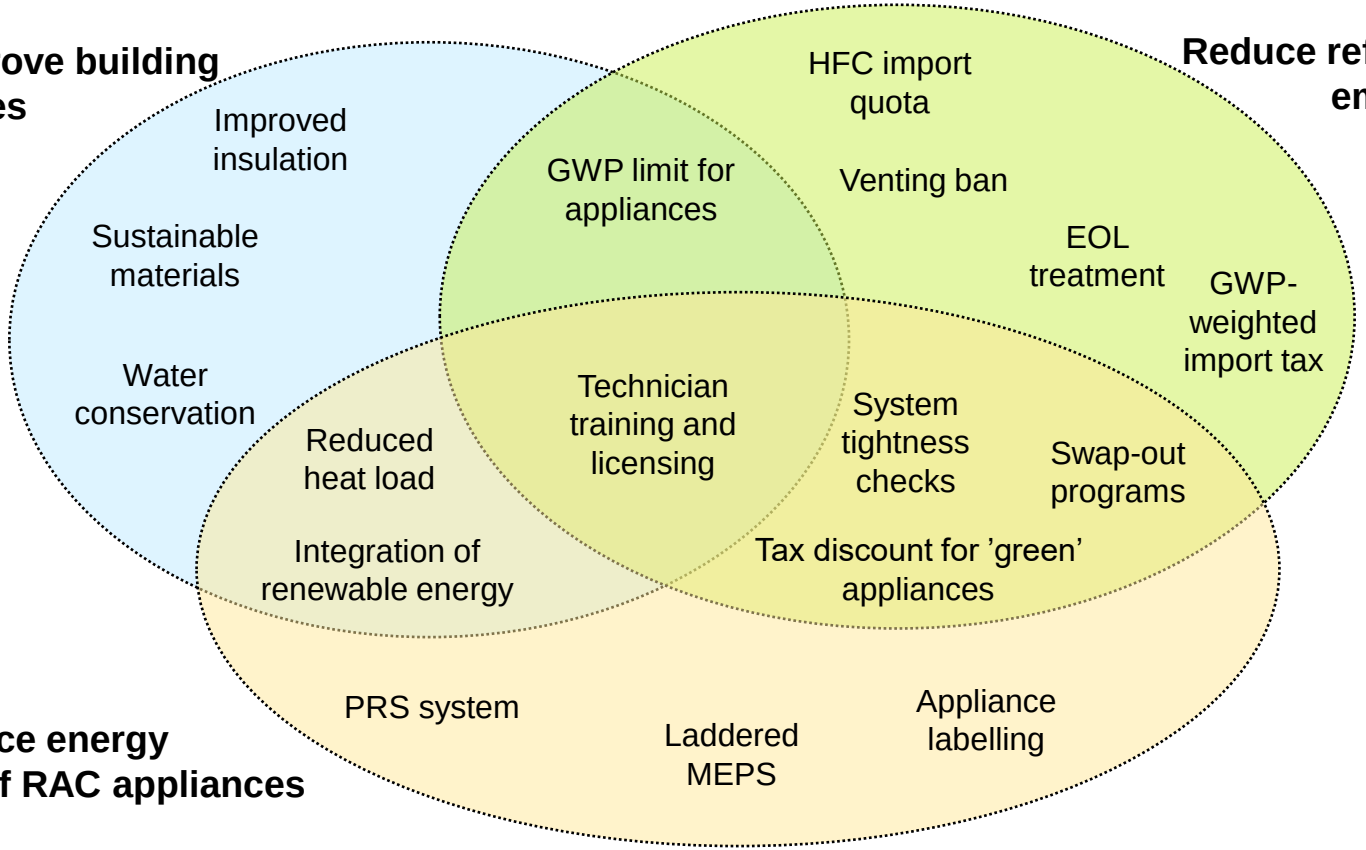
Transition to sustainable cooling

A transition to low-carbon cooling is only possible when adopting an **integrated approach**, entailing the following three **intervention areas**



The electricity supply for cooling appliances has to be sourced increasingly from renewable energy sources.

Integrated Approach



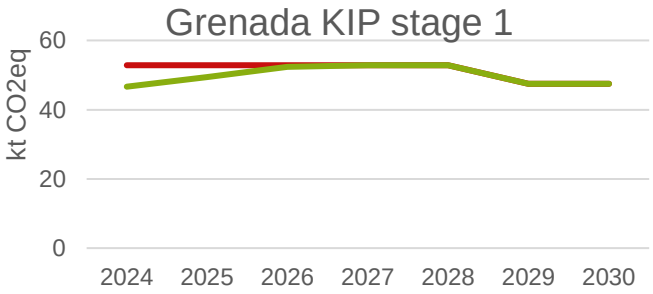
Technician training and licensing

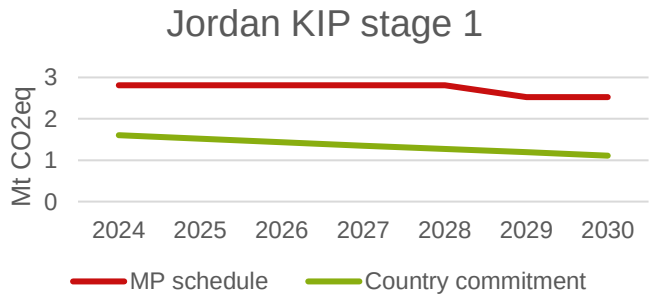
- Technicians and engineers are the brain and the hand to implement any policy on the ground.
- Responsible for building design to choosing the most efficient RAC equipment to installation, control setting, maintenance and repair
- Efficiency of the individual appliance depends mainly on skilled technicians.
- Policies to only allow trained and certified technicians to work on refrigerant cycles are key
- Technician training with meaningful certification testing and licensing is integral to implementing such policies

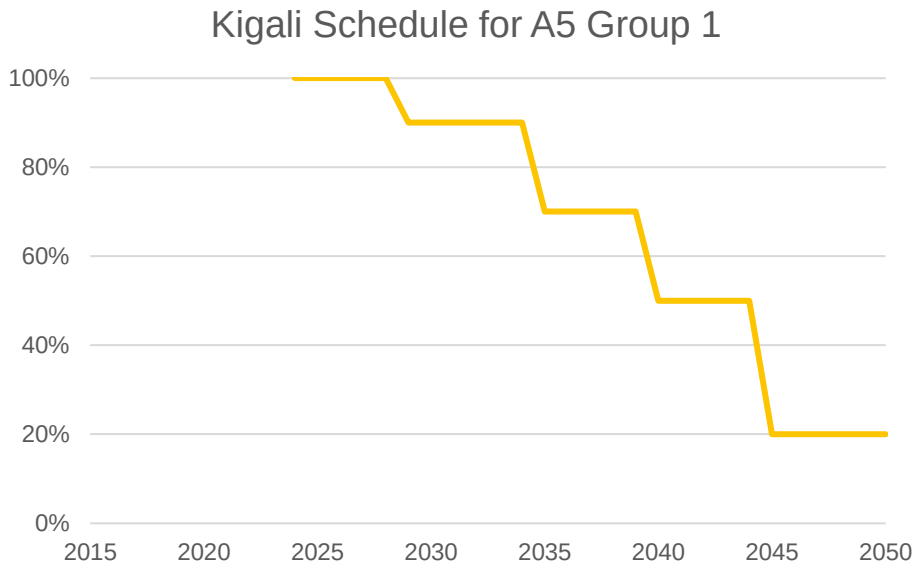
HFC quota system

Phase-down schedule according to Kigali amendment or more ambitious country-specific reduction steps.

Several KIPs go beyond Kigali schedule







MEPS/GWP limits for certain appliances

Recommended to cover both aspects in combination when they concern the same appliance type. The MEPS regulation could also state GWP limits such as these below (EU F-gas regulation 2024/573):

Equipment Type	Cooling Capacity	Requirements on new equipment
Self contained: Movable Plug-in	-	After 2020: GWP < 150
Self contained: Monoblock	≤ 12 kW	After 2027: GWP < 150 After 2032: No F-gases
	12-50 kW	After 2027: GWP < 150
Self contained: Others	-	After 2030: GWP < 150
Single Split	< 3kg charge	After 2025: GWP < 750
Split air-water	≤ 12 kW	After 2027: GWP < 150
Split air-air	≤ 12kW	After 2029: GWP < 150
Split systems	≤ 12 kW	After 2035: No F-gases
	> 12 kW	After 2029: GWP < 750 After 2033: GWP < 150

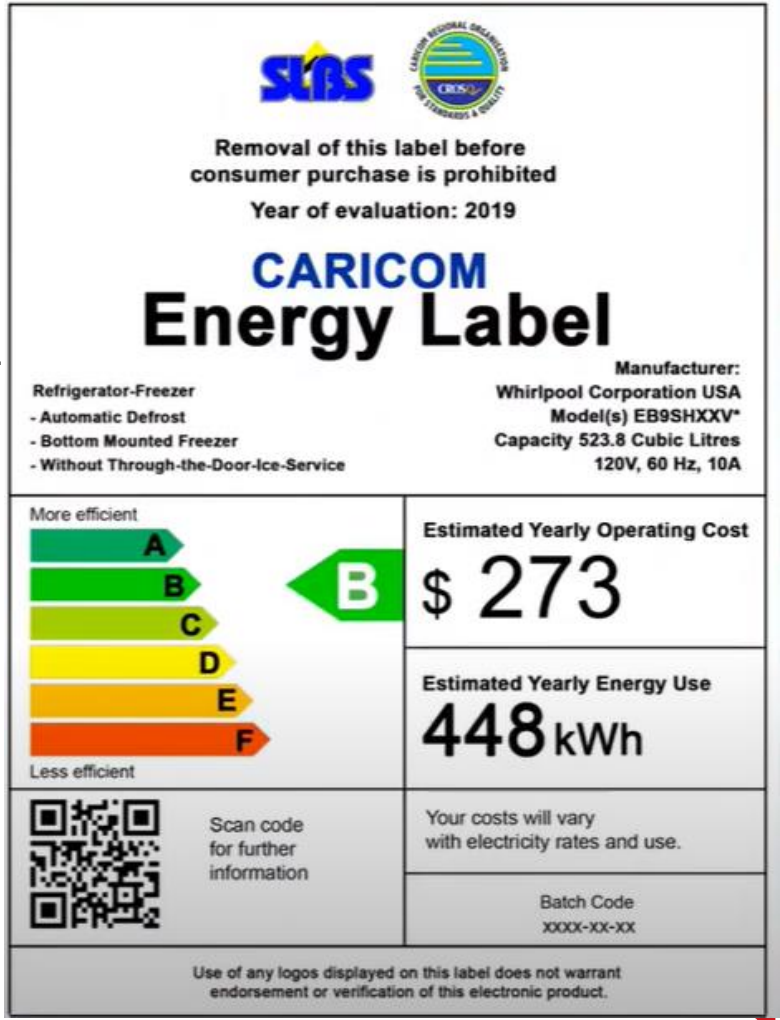
Labelling schemes

Labels are usually associated with energy efficiency information.

Guidance on ambitious efficiency label categories are provided in United4Efficiency's model regulation guidelines.

Possibility to include information on CO2 equivalents of the refrigerant on the efficiency label.

EU requires labelling of F-gas containing products



Incentive schemes

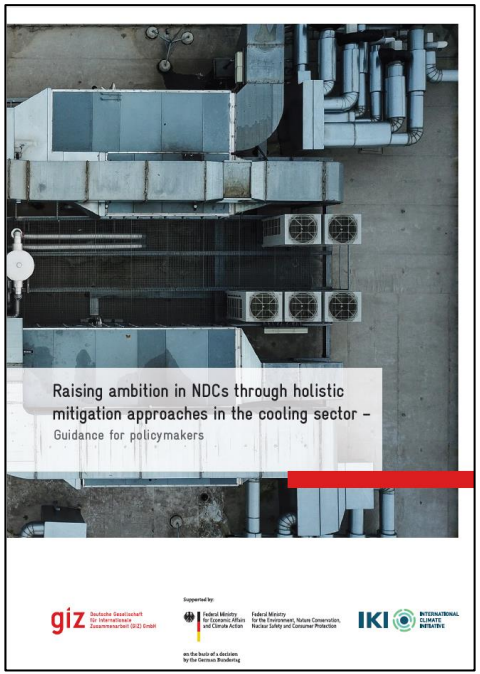
Depending on energy efficiency (meeting a certain target efficiency/label category) and refrigerant (e.g. only natural refrigerants), incentives can be granted:

- Import duty exemption
- VAT discount/exemption
- Favourable credit lines
- Subsidy on purchasing price

Main policy concepts - summary

Policy option	Refrigerant	Energy efficiency
Technician training and licencing	Proper handling reduces emissions Knowledge on alternatives promotes safe market uptake	Proper design, system settings and maintenance keep energy efficiency high over equipment lifetime
HFC quota system	Direct impact	Market guidance to develop (efficient) appliances using low GWP refrigerants
MEPS/GWP limits for certain appliances	Bans for high GWP refrigerants in appliances where alternatives exist	Bans for inefficient equipment
Labelling scheme	Label can include info on climate impact of refrigerant	Primary focus on highlighting most efficient appliances
Incentive scheme e.g. by VAT discount/ import duty exemption	Promotion of natural refrigerant alternatives	Promotion of highly efficient alternatives

RAC NDC guidance for policy makers

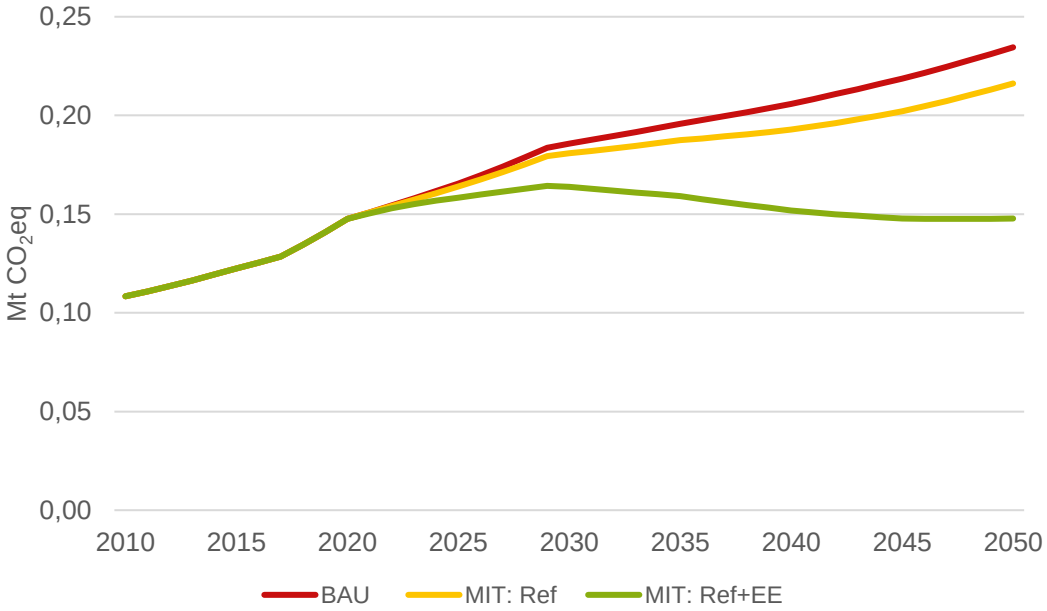


Policy instruments	Refrigerants	Energy efficiency
Overall target	1	
Financial instruments	6	
Regulatory instruments	20	12
Market related instruments	6	7
Capacity building	3	
Tracking and MRV	5	
Enforcement		4

Published in 2022

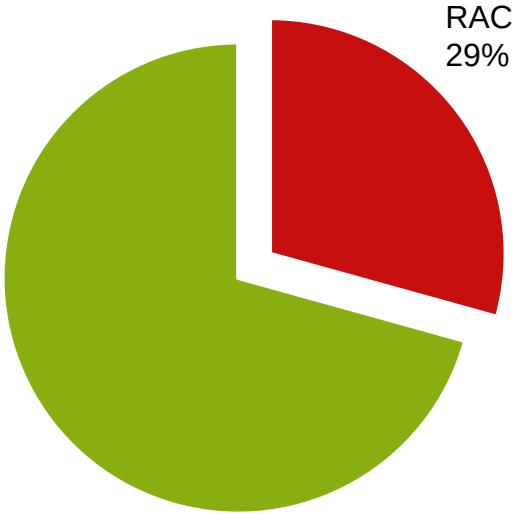
Grenada's RAC sector emissions

- Total RAC GHG emissions: 160 kt CO_2eq (2024)
- Expected to increase by 45% by 2050 (230 Mt CO_2eq)
- Building sector responsible for >50 % of these GHG emissions, > 70% by 2050

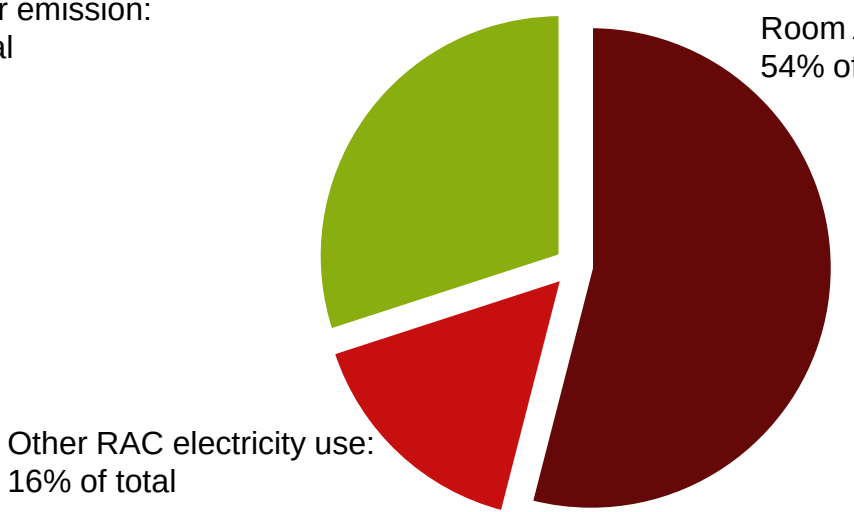


RAC sector emission as share of Grenada' total emissions

Greenhouse gas emissions (2014)



Electricity Use (2020)



Grenada's Nationally Determined Contributions (2020)

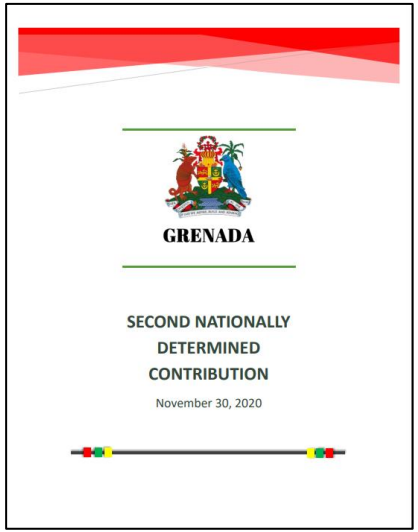
Submitted to UNFCCC in 2020: 2nd NDC (1st NDC in 2016)

Target: -40% of CO_2e emission in 2030 relative to 2010 emissions (conditional on international financing)

Covered gases: CO_2, CH_4, **F-gases** (HFC and HCFC?)

Reported emission 2010: 217 kt CO2e

Target emissions 2030: 130 kt CO2e



Questions?

Irene Papst

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NDC4 Webinar Series

Leveraging the Cooling Sector for Ambitious NDCs: Policy Instruments and Holistic Mitigation Approaches in Grenada.

Friday April 12th, 2024

Leslie Smith:
National Ozone Officer,
Grenada

OUTLINE

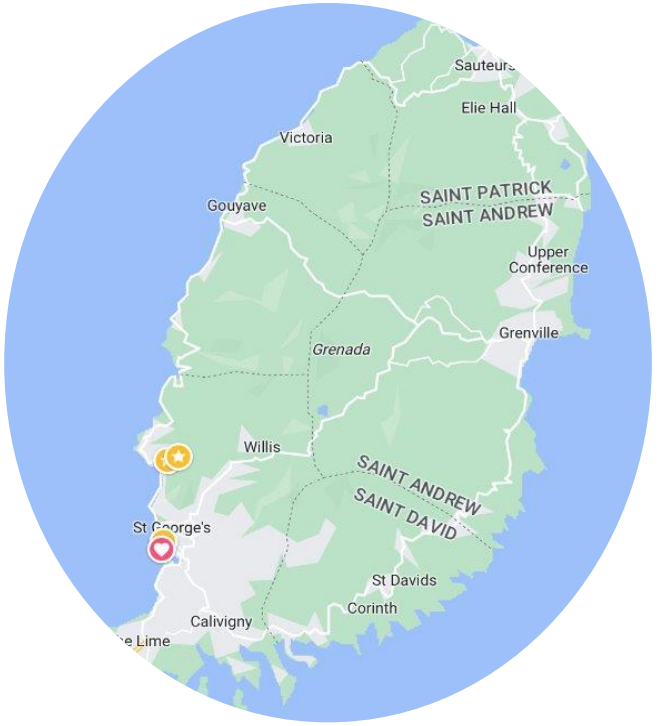
Today's Topic:

Insights into Grenada's strategies for leveraging the cooling sector to enhance its NDCs: processes, challenges and achievements

- Introduction: Grenada's NDC - process & targets
- Enabling Activities:
  - Policy and Legislation
  - Capacity Development
  - Public Awareness and Education
  - Monitoring and Evaluation
- Achievements
- Challenges and Opportunities

The Ultimate Goal

HFC Free Island



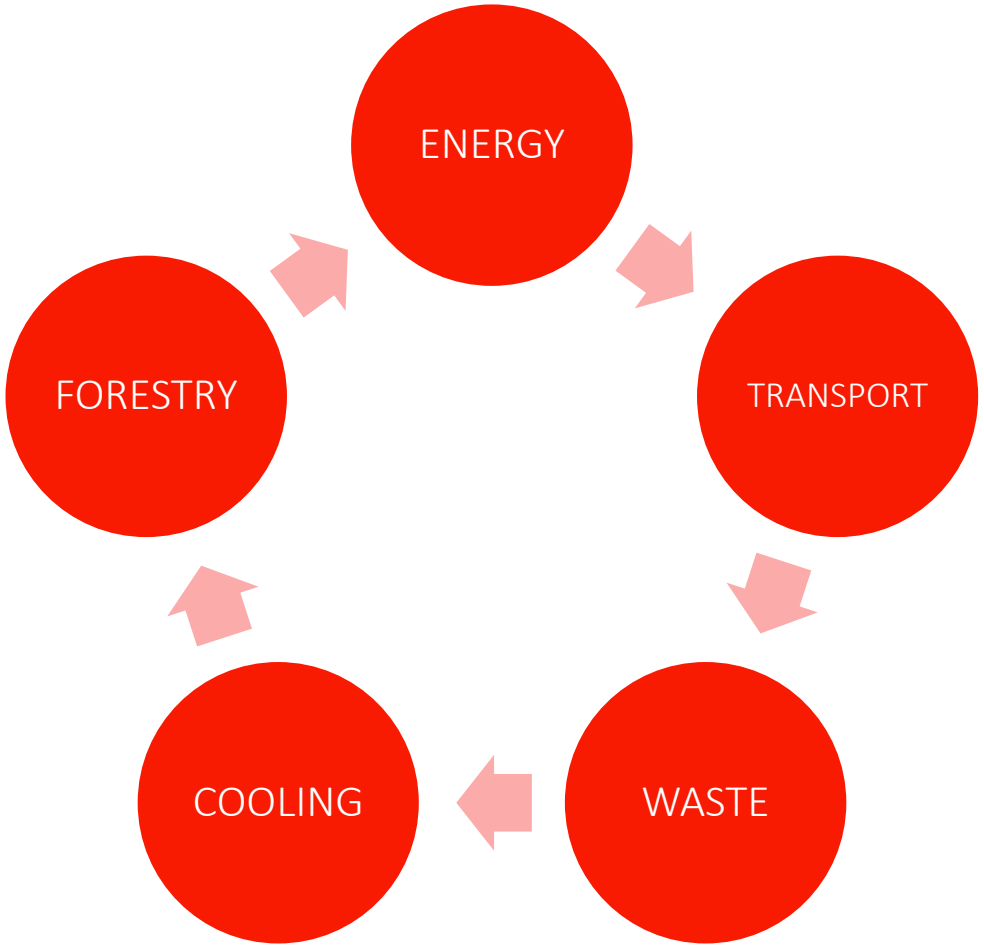
Or

Natural Refrigerant Island

Introduction: Grenada's NDC Process and Targets

2015	• Grenada submits its iNDCs • INDCs became NDCs
2020	• NDCs reviewed and updated • Mitigation Centric
2020	• Second NDC submitted • Main updates were the inclusion of **F-gases**, gender and youth

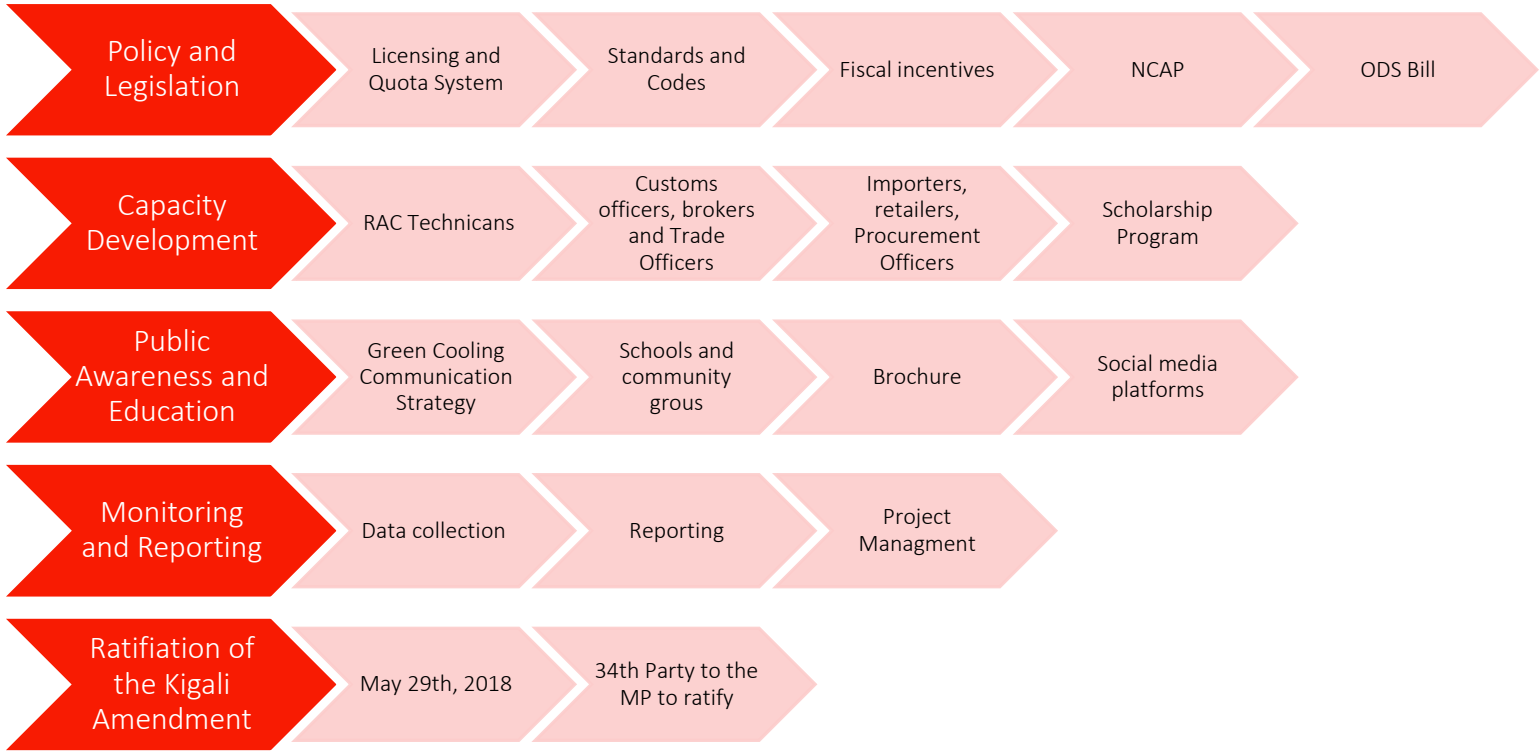
5 Sectors Identified for Mitigation actions (20+ MEASURES)



Overall Goal

- To reduce Grenada's greenhouse gas emissions by 40% by 2030, based on the 2010 level

Enabling Activities: For RAC NDC Implementation



Licensing and Quota System

- Established in 2013
- Very functional
- Covers all refrigerants
- Operational stakeholders include Customs, Dept of Trade and the NOU
- Quota system in place for HCFC
- HFC quota system to be stablished in 2024

Standards and Codes

SCOPE

- The CARICOM Regional Organization for Standards and Quality (CROSQ) establishes CARICOM Regional Standards
- These standards are intended to improve the energy performance of RAC equipment.
- The application of the standards is expected to improve energy efficiency within CARICOM Member States via the availability, selection and usage of more energy efficient RAC appliances.

Information For Decision Making

- The respective Standard provides consumers with information for consideration when making a purchasing decision.

Technology Upgrade

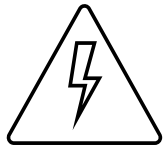
- The requirements of the standard is expected to drive manufacturers, importers and retailers to provide more options to consumers, as they compete to offer value for money.

Alignment

- The standards are aligned with the CARICOM Energy Policy and its objectives which state, inter alia:
- Increase energy efficiency and conservation in all sectors; and
- Establishment and enforcement of labelling and standards for the importation of electrical appliances.

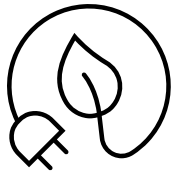
IMPORTANCE OF STANDARDS

Standards and regulations play a crucial role in the HVAC sector in Grenada for several reasons



SAFETY

- To ensure that systems are designed, installed and operated safely and to reduce the risk of accidents and hazards.

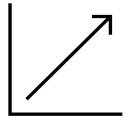


ENERGY EFFICIENCY

- Compliance with MEPS reduces energy consumption. Lower cost and minimizes environmental impact

ENVIRONMENTAL PROTECTION

- To address the use of and disposal of refrigerants. Proper handling and disposal are critical for minimizing their environmental impact.

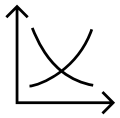


PERFORMANCE CONSISTENCY

- Standards establish performance criteria for HVAC equipment, ensuring that consumers receive products that meet certain quality and efficiency levels.

COMFORT AND HEALTH

- Proper ventilation standards ensure that indoor air quality is maintained, which is essential for occupant comfort and health.



MARKET FAIRNESS

- Regulations can level the playing field for manufacturers and service providers, preventing unfair competition and ensuring that products meet specified criteria.

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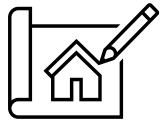
- Compliance with standards can be essential for warranty coverage and can also have implications for liability in case of equipment failure.



BUILDING CODES

- HVAC standards are often integrated into building codes, ensuring that HVAC systems are correctly designed and installed in new construction and renovations.

ADAPTATION TO TECHNOLOGY

- Standards can help the industry adapt to technological advancements and innovations by setting guidelines for their safe and effective integration into HVAC systems.

Scope of the Standards Established for the HVAC Sector

Scope

- The CARICOM Regional Organization for Standards and Quality (CROSQ) establishes CARICOM Regional Standards
- These standards are intended to improve the energy performance of RAC equipment.
- The application of the standards is expected to improve energy efficiency within CARICOM Member States via the availability, selection and usage of more energy efficient RAC appliances.

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List of HVAC-R Standards Established In Grenada

GDS 135:2016	GDS1 39:2018	GDS1: PART 10:2022	GDS1: PART 11:2022
• REQUIREMENTS FOR LABELING: LABELING OF REFRIGERANT CONTAINERS	• CODE OF PRACTICE FOR THE SAFE USE, HANDLING, STORAGE AND TRANSPORTATION OF REFRIGERANTS	• ENERGY LABELING – REFRIGERATING APPLIANCES - REQUIREMENTS	• ENERGY LABELING – AIR-CONDITIONER - REQUIREMENTS

Minimum Energy Performance Standards (MEPS) *are included in the Energy Labelling Standards*

Fiscal Incentives

- **The Government of Grenada is currently offering up to 100% concession on duties and taxes on:**
  - Refrigerating appliances that use a refrigerant with a GWP of less than 150 or meet the MEPS for refrigerating appliances
  - Air conditioning appliances that use a refrigerant with a GWP of less than 750 or meet the MEPS for AC appliances.
  - RAC appliances that are powered by Renewable Energy (Solar PV)

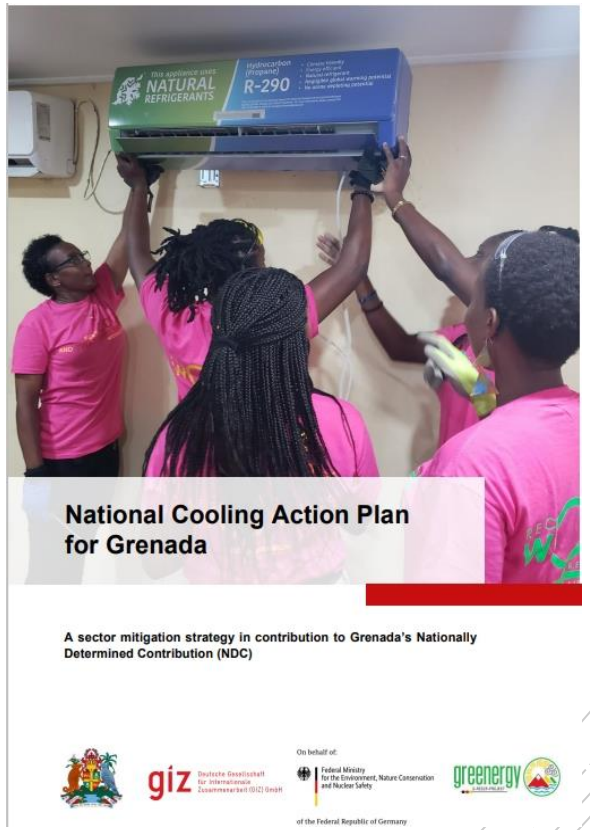
National Cooling Action Plan (NCAP)

- Published in 2021
- Developed to assist the country in meeting its new obligations under the Kigali Amendment to the Montreal Protocol and to contribute to the NDC implementation strategy.
- Will be updated in 2024

Key Components

National Cooling Action Plan (NCAP)

- Building Performance Standards
- Increase EE of RAC Appliances
- Shift to nat Refs and New Technologies
- Communication and awareness
- Capacity Development
- Support Policies



Montreal Protocol Control Substances Bill

An ACT to give effect to Grenada's obligations under the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer and the amendments thereto by controlling the import, export, sale, storage and use of Montreal Protocol Controlled substances and for related matters.

Keys Elements of the MP Control Substances Bill

PART II ADMINISTRATION	• Section 10: National Policy for the protection of the ozone layer and HFC phase down strategy
PART III PHASING OUT AND PHASING DOWN OF CONTROLLED SUBSTANCES	• Section 11: Limitation and Prohibitions • Section 12: Quota System
PART IV MANAGEMENT OF CONTROLLED SUBSTANCES	• Section 13: Restrictions on import and export • Section 16: Permits for storage and processing of Controlled substances
PART IV MANAGEMENT OF CONTROLLED SUBSTANCES	• Section 17: Recovery, Recycling and Reuse of Controlled substances • Section 18: Retrofitting
PART V OFFENSES AND PENALTIES	• Section 24: Unlawful discharge of controlled substances • Section 25: Recovery of Controlled substances
PART VI MISCELLANEOUS	• Section 36: Licensing of existing technicians • Section 37: Licensing of new technicians

MP Control Substances Bill

Key Elements

(6) (a) No person may on or after the Act comes into force import or export any air-conditioner, air-conditioner unit, with a condensing unit, with a cooling capacity of up to two tons of refrigeration (2 TR) or twenty-four thousand British Thermal Units per hour (24,000 BTU/hr) that contains or uses any Ozone Depleting Substance or Controlled Substance with a GWP of 750 or greater.

(b) No person may on or after the Act comes into force import or export any condensing unit or compressor with a cooling capacity of up to two tons of refrigeration (2 TR) or twenty-four thousand British Thermal Units per hour (24,000 BTU/hr), that contains or uses any Ozone Depleting Substance or Controlled Substance with a Global Warming Potential (GWP) of 750 or greater.

MP Control Substances Bill

Key Elements

(c) No person may on or after the Act comes into force import or export any, refrigerator, refrigeration unit, freezer, combination refrigerator and freezer up to a capacity of sixty-four (64) cubic feet/181 litres, with a compressor, that contains or uses any Ozone Depleting Substance or Controlled Substance with a Global Warming Potential (GWP) of 150 or greater.

MP Control Substances Bill

Key Elements

25. (1) A person who owns or is in control of any disposable apparatus or equipment that contains any controlled substance must, where possible,

ensure that the controlled substance is recovered prior to disposal of the apparatus or equipment.

(2) A person who owns or is in control of any apparatus or equipment that contains any controlled substance must ensure that when the apparatus or equipment is serviced or repaired, **the controlled substance, where practicable, is replaced with a suitable substitute that is not a controlled substance.**

MP Control Substances Bill

Key Elements

ANY REFRIGERATING OR AIR-CONDITIONING APPLIANCE THAT IS:

1. *POWERED BY RENEWABLE ENERGY AND/OR*

2. *MEETS THE MINIMUM ENERGY PERFORMANCE STADARDS ESTABLISHED; AND/OR*

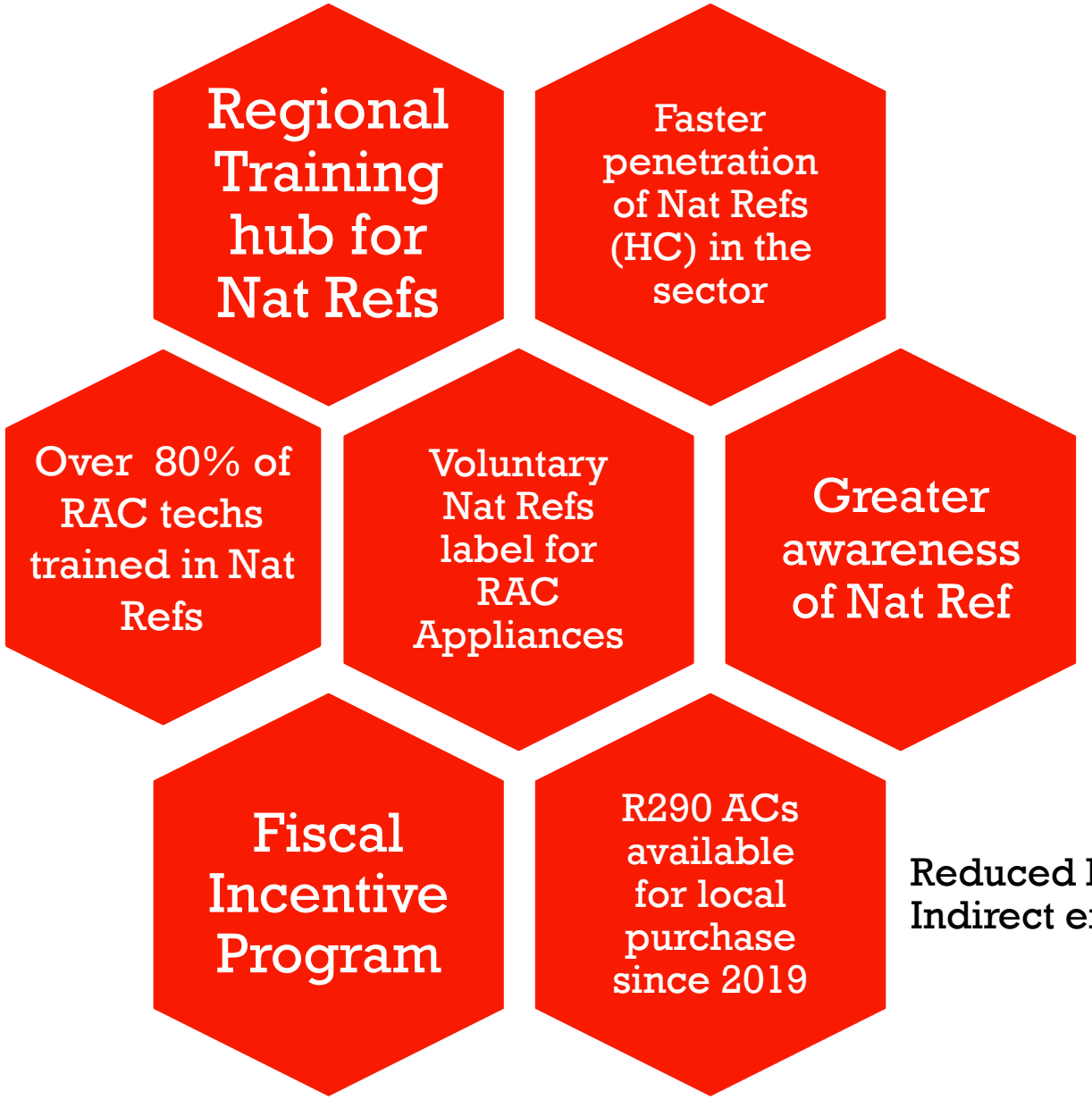
3. *REFRIGERATING APPLIANCES THAT USE A REFRIGERANT WITH A GWP LESS THAN 150, AND/OR*

4. *ANY AIR-CONDITIONING APPLIANCE THAT USE A REFRIGERANT WITH A GWP LESS THAN 750,*

IS EXEMPTED FROM ALL IMPORT DUTIES AND TAXES.

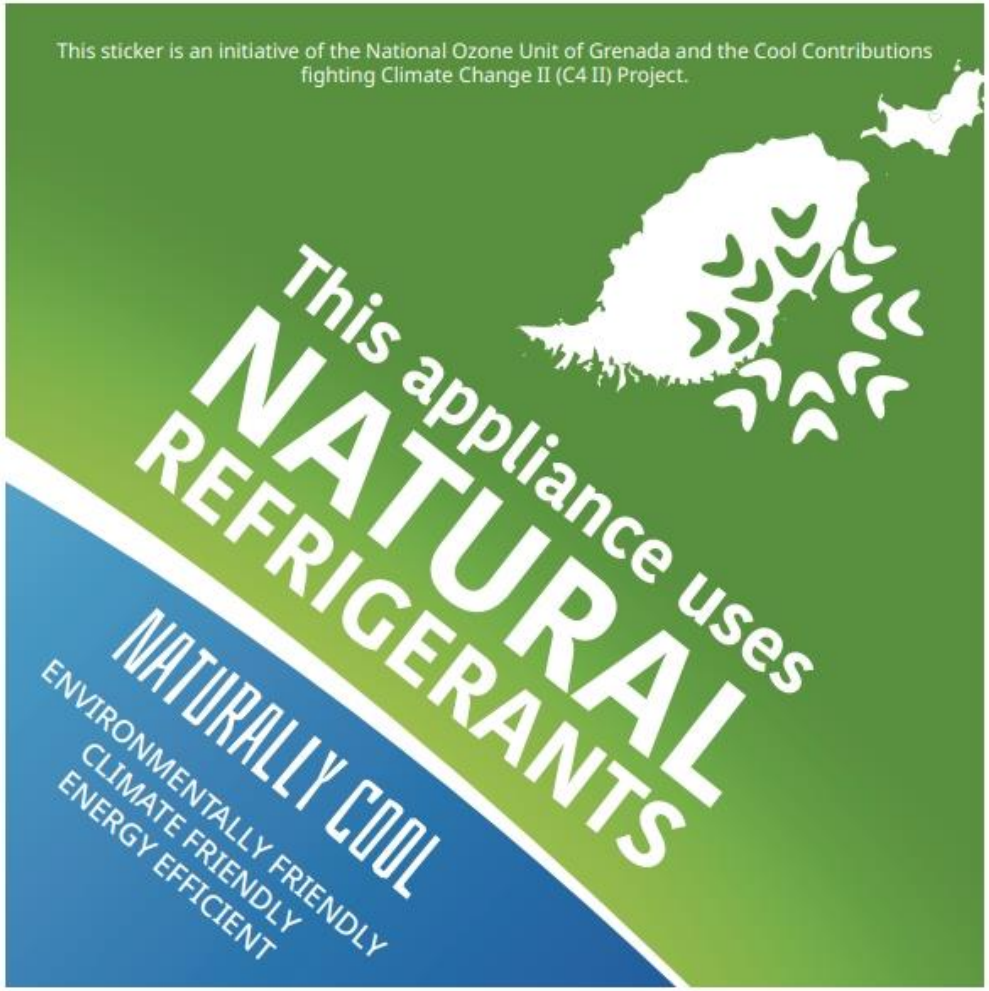
THIS MUST BE APPLIED FOR ON EACH IMPORT AND IS SUBJECT TO APPROVAL FROM THE NATIONAL OZONE UNIT.

Achievements



Reduced Direct and Indirect emissions

Voluntary Label



Reclamation Center Established at the Grenada Solid Waste Management Authority (GSWMA)


NATIONAL OZONE UNIT (NOU)
NOU
GRENADA
Scholarship Program
FOR REFRIGERATION AND AIR-CONDITIONING STUDENTS
ATTENDING THE T.A. MARRYSHOW COMMUNITY COLLEGE
(TAMCC) For YEAR 1 STUDENTS, 2022-2024
10
Scholarships Available
Application forms are available at the NOU,
Financial Complex, Carenage, St. George's.
For More Info, Contact the NOU at:
Email: nou@gov.gd
Office: 473 435 8708
Mobile 473 409 8128

Opportunities

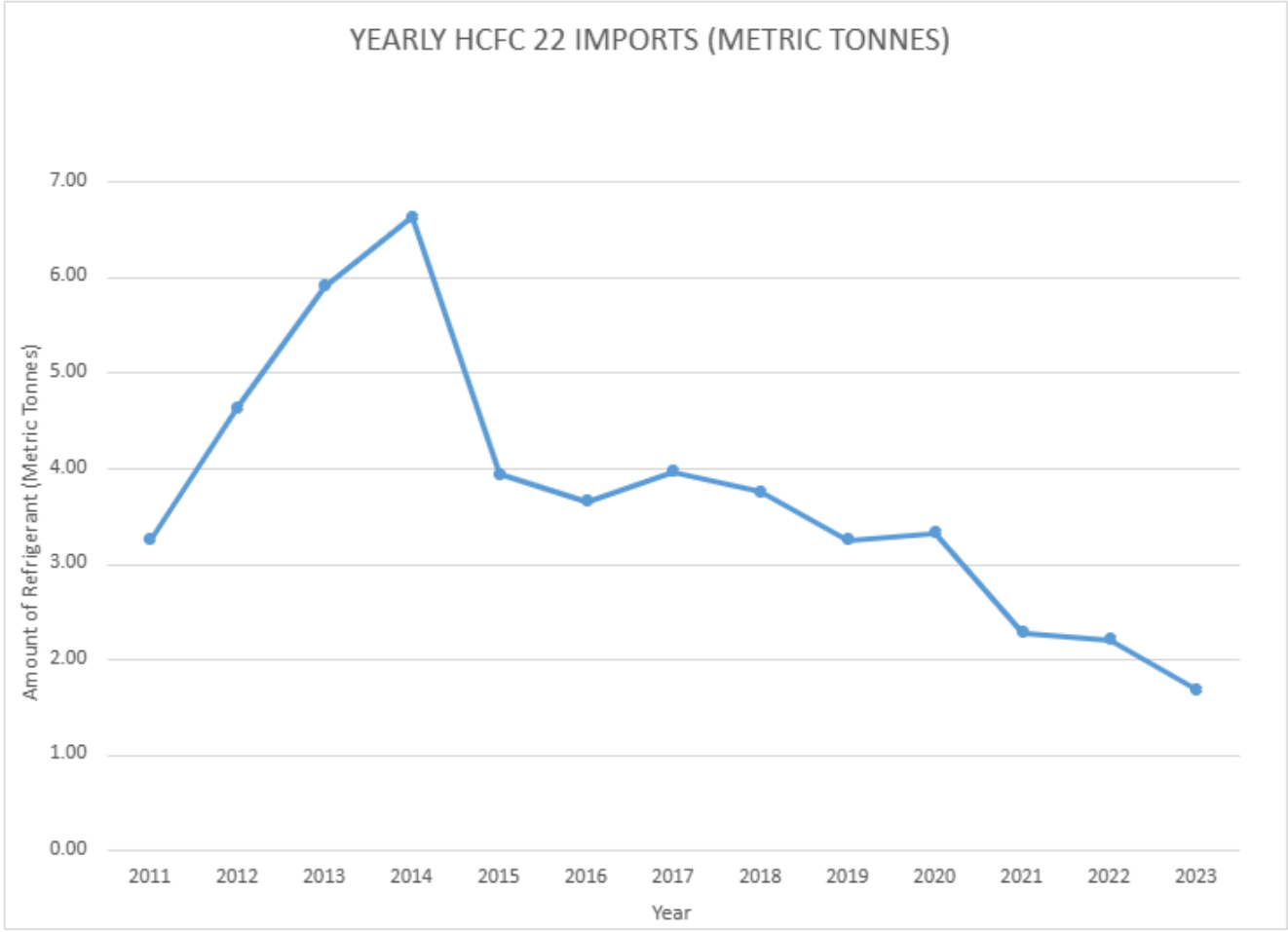
- Policy and Legislative review and update
- Strengthening of capacity of RAC technicians
- Market availability of R290 Unitary ACs
- New Business opportunities
- Gender inclusivity
- Regional Networking and sharing
- Global Recognition

Challenges

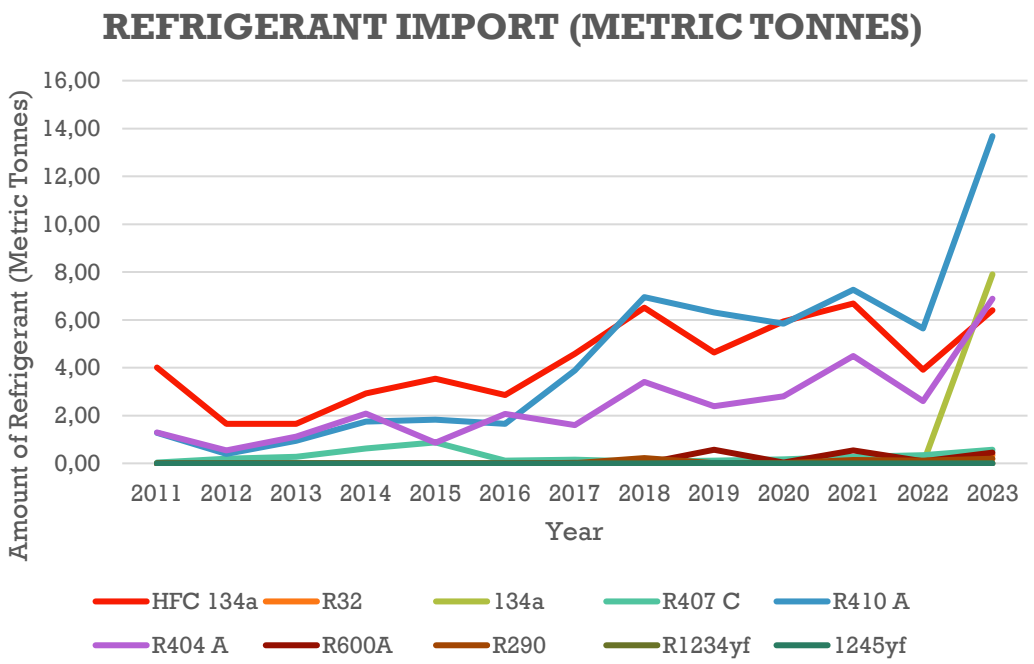
- Financial Infrastructure
- Availability and Access to Nat Ref Technologies
- Market fairness
- Market Acceptability
- Cost considerations
- Capacity Development
- Limited Servicing tools and equipment
- Disposal

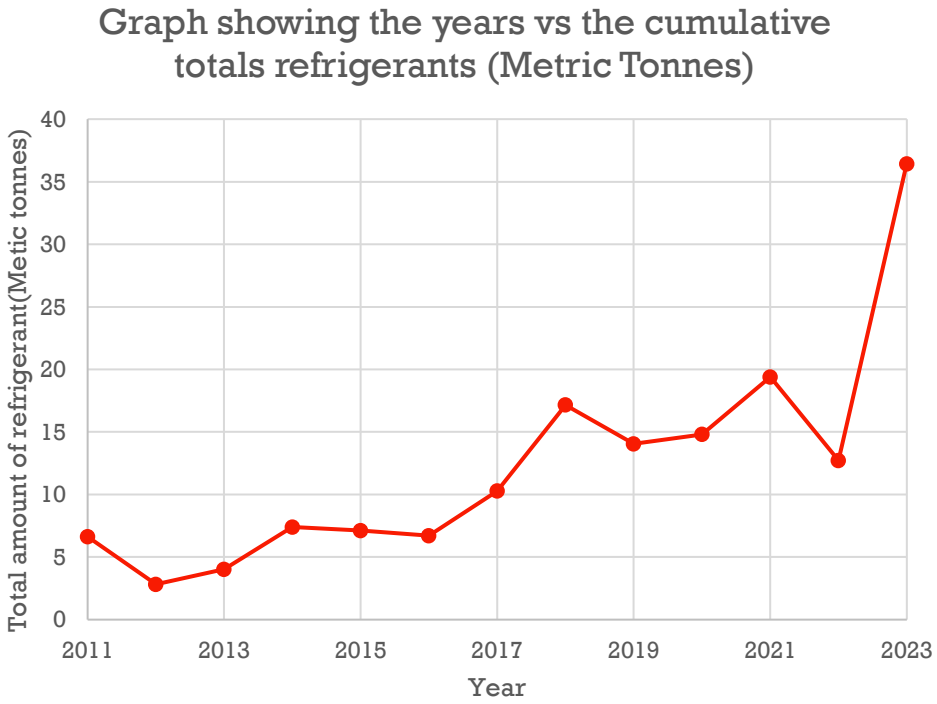
How are we doing?

HCFC Consumption Data



Baseline: 15.8 MT


REFRIGERANT IMPORT (METRIC TONNES)
Amount of Refrigerant (Metric Tonnes)
16,00
14,00
12,00
10,00
8,00
6,00
4,00
2,00
0,00
2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
Year
HFC 134a
R32
134a
R407 C
R410 A
R404 A
R600A
R290
R1234yf
1245yf


Graph showing the years vs the cumulative totals refrigerants (Metric Tonnes)
Total amount of refrigerant(Metic tonnes)
40
35
30
25
20
15
10
5
0
2011 2013 2015 2017 2019 2021 2023
Year

PUNCHING ABOVE YOUR WEIGHT

GRENADA

THANK YOU!!

Questions & Answers

Join our Alliances

Join the Green Cooling Network

green cooling initiative

The members of the

Green Cooling Network

are all committed to energy-efficient and climate-friendly refrigeration & air conditioning.

Join the network and become part of the Green Cooling community today!

www.green-cooling-initiative.org/network

Become a COPA member

COPA

Cutting refrigerant emissions

The **Climate and Ozone Protection Alliance (COPA)**

is open to all countries and organisations willing to support the global shift to sustainable refrigerant management and closing the loop to a circular economy in the cooling sector.

Find more information on the COPA Website:

Climate and Ozone Protection Alliance - Become a Member (copalliance.org)

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NDC Helpdesk for the cooling sector

The NDC Helpdesk is your resource for expert guidance in the field of Green Cooling. Our mission is to assist policymakers in designing and implementing ambitious Nationally Determined Contributions (NDCs) in the cooling sector.

Areas of Support

- Development and implementation of National Cooling Action Plans
- NDC cooling sector integration and formulation of trackable mitigation targets
- HFC emission calculation and reporting under the UNFCCC (Tier 1 and Tier 2)
- GHG Inventories in the cooling sector
- Development of a Monitoring, Reporting and Verification (MRV) system in the cooling sector
- Any question concerning our provided tools and guidelines

Request our support here:

Contact: ndc4@giz.de

Implemented by

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Supported by:

Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection

IKI INTERNATIONAL CLIMATE INITIATIVE

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Contact

Thank you for your participation!
Please do not hesitate to contact us with any concerns, questions or requests.

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