

UNEP/ASHRAE Assessment Program:  
**Sustainable Operation and Maintenance of  
Air Conditioning and Refrigeration Plants**

# UNEP/ASHRAE Biennium joint Work Plan 2017-2018

- At the ASHRAE 2017 Winter Conference, UN Environment (UNEP) and ASHRAE launched their Biennium joint Work Plan of 2017-2018 which titled “Working beyond High-GWP Refrigerants”.
- One of the main elements of the new work plan is to develop an **assessment program for the sustainable operation and maintenance of refrigeration and air-conditioning plants**.
- A related effort is the Refrigerant Drivers License (RDL) program which is focused on safe and sustainable refrigerant management practices for technicians.

# Why Needed...

- There are many guidelines and codes (comprehensive) for the buildings envelope but none for Refrigeration and Air-Conditioning installations
- HVAC&R installations norms and standards are mostly for the different components and elements of the installation or for design/commissioning purposes
- HVAC&R installations Operation and Maintenance work is scattered at tens, if not hundreds, of standards, guidelines and publications
- This project is an attempt to offer an important reference for industry that can be used either as Guideline for operation and maintenance of installations (Checklist) or can be even upgraded to become an enforceable Benchmarking Tool if there is case for that.

# Overview of the Project

- This ambitious project would entail the compilation of best practices related to the following areas related to the operation and management of air-conditioning and refrigeration systems/plants:
  - Safe storage and proper handling of refrigerants
  - Periodic leak checking and proper documentation
  - Checklist for maintaining equipment to extend life and maintain energy efficiency
  - Fault detection and preventative maintenance
  - Proper commissioning and recommissioning practices to optimize system performance
  - Minimum required servicing equipment and tools
  - Proper disposal of equipment and reclamation of refrigerant at end of product life.
  - Competencies of personnel/companies responsible of operating and/or maintaining the refrigeration and air-conditioning plants
- The final resulting Guideline will be provided free of charge to the intended users as per the arrangement between ASHRAE and UN Environment.

# Viability Business Cases: A Key to Success

The following products are foreseen to be generated by this exercise:

## Main Product:

O&M Practices Guideline (Check List) – Main Product

## Supporting products *(by ASHRAE):*

1. O&M Practices Support Documentation
2. O&M Resource Center
3. O&M Training
4. O&M Credential

# Project Stages:

The work is being completed in 4 separate stages over approximately 18 months with formal approval “gates” at the end of each stage:

- Stage I: Specification and Business Case Development
- Stage II: Development of technical modules with resulting checklists and procedures
- Stage III: Formal review and pilot of the program
- Stage IV: Launch and Outreach

# Stage I: Ad Hoc Presidential Committee

- Bill McQuade (ASHRAE Board Member, Refrigerant Regulation Chiller Design) - **Chair**
- Prof. R. S. Agarwal (ASHRAE Member, Expert on Refrigeration and AC Design, India)
- Richard Rooley (Presidential Member, Expert on Reliability and Maintenance Practices)
- William Walter (ASHRAE Board Member, Expert on Safety Codes)
- Pro. Essam E. Khalil (ASHRAE Member, Expert on Refrigeration and AC Design, Middle East)
- John Vucci (ASHRAE Member, University of Maryland Physical Plant)
- Barbara Minor (ASHRAE Member, Refrigerant Expert, Member of the Low GWP MTG)
- Robert Bates (ASHRAE Member, Expert on Sustainable Operation)
- Ayman Eltalouny (ASHRAE Member, UN Environment)

# Status of Work & Timeline

- Stage I kicked off on July, 11<sup>th</sup> 2017 with biweekly web meetings.
- The team determined equipment types and applications to be covered within the program.
- Scope of work for the program dimensions 80% complete
- Business case development 85% complete.
- Goal is to submit project scope document for review by December , 2017.
- Stage-II should kickoff by early 2018
- Development, review and finalize documentation is estimated to take around 12-18 months
- Pilot and final launch to follow which should take around 6-9 months