

Submission by Türkiye

1. Name of the party

Türkiye

2. Please provide the names and locations of existing centres of excellence for sustainable cooling and testing centres for energy efficiency in your country or region

Türkiye currently does not have a single formally designated national “Centre of Excellence for Sustainable Cooling” dedicated exclusively to sustainable cooling, low-GWP refrigerants and RACHP energy efficiency under the Montreal Protocol framework. the following private-sector testing centres/laboratories have been identified as relevant to energy efficiency testing and verification in the cooling, refrigeration and HVAC-R sectors:

1. Turkish Standards Institution (TSE) – Energy-related Testing and Calibration Laboratory Infrastructure

Location: TSE operates laboratory infrastructure in several provinces and campuses across Türkiye. Relevant energy-related laboratory capacity includes TSE’s Anadolu Yakası Energy, Materials and Calibration Laboratories structure in İstanbul.

TSE provides testing, calibration, conformity assessment, certification and standards implementation services. Its infrastructure is relevant for energy-related product testing, conformity assessment, certification and the implementation of national and international standards. TSE also has an important role in strengthening HVAC-R testing capacity, including fan-coil testing through cooperation with Eurovent Certification.

2. Martek Soğutma Sistemleri – R&D / Martek R&D Laboratory

Location: Selimpaşa Mahallesi, 5008 Sokak No:20/A, Silivri / İstanbul, Türkiye

The laboratory conducts performance, temperature and energy consumption tests for commercial refrigeration equipment.

3. Systemair TR – 365 Performance Center

Location: Demirciler Mahallesi, Makine Organize Sanayi Bölgesi, 5. Cadde No:5, 41455 Dilovası / Kocaeli, Türkiye

The centre conducts thermal, leakage and fan tests for data centre cooling units and air handling units, including factory acceptance testing and annual performance data analysis.

4. Daikin Isıtma ve Soğutma Sistemleri Sanayi Ticaret A.Ş. – R&D Cooling Reliability Laboratories

Location: Kargalıhanbaba OSB Mahallesi, Organize Sanayi 1 Sokak No:28, 54300 Hendek / Sakarya, Türkiye

The laboratories support seasonal efficiency, performance, acoustic, safety and transportation durability verification activities for HVAC and air-conditioning products.

5. Friterm Termik Cihazlar Sanayi ve Ticaret A.Ş. – R&D Centre / R&D Laboratory and

Performance Testing Laboratories

Location: İstanbul Deri Organize Sanayi Bölgesi, Dilek Sokak No:10, X-12 Özel Parsel, 34957 Tuzla / İstanbul, Türkiye

The laboratories conduct experimental studies for the determination of energy efficiency, thermal performance and pressure drop characteristics of heat exchangers and HVAC-R equipment.

3. Are there plans to set up a centres of excellence for sustainable cooling and/or testing centres for energy efficiency in your country/region? If yes, please provide more information on these ongoing efforts

Yes. The establishment of a Centre of Excellence for Sustainable Cooling and/or related testing capacity is considered under Türkiye's Kigali Implementation Plan (KIP), which was approved in 2024. The process is still at an early stage, and further work is ongoing to define the most appropriate institutional and operational model. Current considerations include whether the centre should operate as a regional facility, be hosted by a university or an existing research/testing institution, or be developed through another suitable partnership model. Issues such as governance, business model, staffing, financial sustainability, technical scope and long-term operation are still being assessed. The planned component is expected to support sustainable cooling technologies, energy efficiency testing, technical assessment, capacity building and knowledge-sharing, but its exact scope and implementation arrangements remain under development.

4. Please describe policies implemented in your country/region that support the setting up and operations of such centers of excellence for sustainable cooling and testing centers for energy efficiency

Türkiye's policy framework for sustainable cooling, energy efficiency testing and related excellence centre capacity is being further developed within the context of the Kigali Implementation Plan (KIP). Since the establishment and/or strengthening of sustainable cooling testing capacity is included among the planned KIP activities, related policy development, institutional coordination and integration processes are ongoing.

The implementation of the Kigali Amendment provides the main policy basis for strengthening testing, verification, training and institutional capacity for energy-efficient and climate-friendly cooling technologies. This process is also supported by Türkiye's broader energy efficiency policies, eco-design and energy labelling alignment processes, and the existing standards, testing, certification and accreditation infrastructure.

In this context, the Turkish Standards Institution (TSE) and the Turkish Accreditation Agency (TÜRKAK) have important roles in standards implementation, testing, certification, conformity assessment and laboratory accreditation. The detailed

institutional and operational model for the planned sustainable cooling testing and excellence centre capacity remains under development.

5. Please describe activities and specific functions of the existing/planned centres of excellence for sustainable cooling and testing centres for energy efficiency

Türkiye does not currently have a formally designated Centre of Excellence for Sustainable Cooling. Therefore, the existing capacity mainly consists of public testing/conformity assessment infrastructure and company-based R&D/testing facilities relevant to refrigeration, HVAC-R, heat pumps, heat exchangers, data centre cooling and energy efficiency.

TSE provides national laboratory capacity for testing, calibration, certification, conformity assessment and standards implementation, including energy-related product testing. It forms an important public-sector basis for strengthening Türkiye's sustainable cooling and HVAC-R testing ecosystem.

Company-based facilities also support relevant testing functions. Martek conducts commercial refrigeration tests, including temperature, performance and energy consumption testing in line with standards such as ISO 23953. Systemair TR's 365 Performance Center tests data centre cooling units and air handling units, including thermal, leakage, fan and factory acceptance tests. Daikin's R&D laboratories conduct performance, capacity, seasonal efficiency, cooling/heating, airflow and water-side tests for air-conditioning, heat pump and fan-coil products. Friterm's laboratories conduct performance and capacity tests for heat exchangers and HVAC-R equipment, including prototype validation and air/fluid-side measurements.

6. Please share key lessons learned, including best practices and challenges encountered in establishing or operating the centres of excellence for sustainable cooling and testing centres for energy efficiency

Best practices and lessons learned

1. Existing public testing infrastructure is a strategic foundation

TSE's national laboratory infrastructure provides an important basis for standards implementation, product testing, conformity assessment and certification. This public infrastructure can support the future development of more structured sustainable cooling testing capacity.

2. Distributed capacity provides a useful starting point

Although there is no single national centre of excellence, Türkiye has relevant distributed capacity across TSE, public institutions, sectoral organizations, universities and private-sector laboratories. This provides a useful basis for developing a more coordinated sustainable cooling testing ecosystem.

3. Private-sector laboratories are important drivers of technical capacity

Export-oriented HVAC-R and refrigeration manufacturers have developed in-house testing and verification facilities to meet product development, customer, certification and international market requirements. This has contributed to practical testing know-how.

4. Integration of testing with R&D and product development is effective

Laboratories are closely linked to R&D, prototype development, product validation and quality improvement processes. This enables test results to be used directly for product optimisation and energy efficiency improvement.

Challenges

1. Human resources and technical capacity

Advanced testing laboratories require qualified engineers, laboratory specialists, technicians, quality managers and continuous training programmes. Personnel recruitment, retention and capacity development are critical issues.

2. Accreditation and international recognition

Strengthening accreditation, quality management and international recognition remains important, particularly for testing activities intended to support market surveillance, conformity assessment, export competitiveness and international certification.

3. High investment and operational costs

Establishing and operating advanced testing infrastructure requires significant investment in equipment, calibration, safety systems, skilled personnel, maintenance and quality management systems. Long-term financial sustainability is therefore a central design issue.

4. Coordination among institutions

Responsibilities related to energy efficiency, industry, climate policy, refrigerants, standards, accreditation, vocational education and market surveillance are distributed across several institutions.

7. Please provide any supporting documentation (e.g. policy documents, reports, website links etc.)

No answer provided.

8. Any other information

No answer provided.