

Principles for National Cooling Plans

This brief provides high-level guiding principles for countries to draw on in considering their development of National Cooling Plans (also known as Cooling Action Plans, or roadmaps). It draws on K-CEP's work in over 25 countries on developing National Cooling Plans

K-CEP's work on National Cooling Plans

National cooling plans (NCPs) and roadmaps are a key part of K-CEP's work in its institutional [Strengthening for Efficiency](#) window. We are working with over 25 countries on developing NCPs or roadmaps, which integrate consideration of HCFC phaseout and HFC phasedown, energy efficiency and access to cooling. While work is ongoing in developing NCPs in countries supported by K-CEP, India has led the way with the first draft Cooling Action Plan published (draft for review in October 2018). K-CEP will share lessons in due course as we gain experience from our projects, and welcomes the opportunity to support and facilitate knowledge sharing between countries.

NCPs can offer major benefits for countries, including

- Delivering cost savings through enhanced energy efficiency for businesses and consumers;
- Reducing emissions which cause to climate change, while creating a stronger, more sustainable energy system and cleaner air;
- Reducing food waste, improving health, and increasing productivity through improved access to cooling;
- Promoting forward planning for a rapidly warming climate. Even countries which are not currently high ambient temperature would benefit from an NCP.

Guiding principles

The following guiding principles have been developed to help countries as they are considering their national cooling plans and broader cooling policy:

1) National cooling plans can take a range of positions and levels of integration within national policy landscapes. The right solution will vary depending on national context:

- Cooling plans can be standalone or integrated into existing climate, energy, or development plans. There is a spectrum of level of effort in terms of linking cooling plans to existing policies.

- At a minimum, we suggest that countries should look at their HCFC phase-out management plans (HPMPs) and future HFC phase-down plans with a view to identifying actions to promote benefits of improved energy efficiency alongside the F-gas transition.
- Good practice would be to encourage closer coordination between the Montreal Protocol F-gas phase-down timeline, and the five yearly Nationally Determined Contribution (NDC) ratcheting timescale of the UNFCCC. NDCs drive energy efficiency requirements and harmonization would allow businesses and consumers to make better investment and purchasing choices.
- Longer term plans are preferable, and should include shorter term implementation plans as well as provision to both ratchet ambition on cooling and efficiency policies (e.g. Minimum Energy Performance Standards - MEPS) and to consider the longer term trajectory of the cooling plan in relation to existing national legislation, policy and roadmaps.
- Best practice would be closely linking cooling plans to the economy, jobs, trade, health and energy security efforts, as well as to an understanding of how cooling impacts on the delivery of public services.

2) Evidence based policy-making requires research into the costs and benefits of cooling in terms of impacts on the economy, energy system, health, climate change, and the environment:

- National cooling plans could promote circular economy principles such as cooling as a service, and innovation to boost industry competitiveness. Similarly, investment in the refrigeration and air conditioning servicing and technician sector is a source of skilled jobs.¹
- Cooling plans should include consideration of cold chains for food, vaccines, medicines, and blood.

¹ K-CEP has produced knowledge briefs with further information on ways to harness the benefits of clean, efficient cooling. These are available at: <https://www.k-cep.org/insights/resources/>

- Equity is key, including access to cooling for living and working, but also adequate accessible provision for disasters and heatwaves. This is particularly important for High Ambient Temperature countries.

3) *Demand and market considerations should be used to ground national cooling plans in terms of current and project cooling demand domestically (and internationally as relevant):*

- Market assessments are a first step in understanding the opportunities and challenges for delivering efficient, clean cooling in each sector: space cooling, stationary refrigeration, and mobile refrigeration.
- A cooling plan should adequately consider future markets, based on best projections of demographics and temperature increases along with prices and technology changes. Exporting countries will want to consider international demand projections.

Content considerations for national cooling plans and roadmaps

Sample content overview for national cooling plans

- 1) Overview of domestic cooling sectors;
- 2) Roadmaps and timetables to adopt enhance MEPS for room ACs and residential refrigerators;
- 3) Links to the countries' existing energy policies, refrigerant transition plans, Nationally Determined Contributions, etc.;
- 4) Assessments of potential to use financial mechanisms, such as bulk procurement of high-efficiency cooling equipment, to address first cost barriers; and
- 5) References to addressing cooling demand through building codes, cool roofs, shading, etc.

Scope

NCPs should ideally include a long time horizon (20 years or more), harmonize with existing HPMPs and future HFC phase-down plans, and with countries' wider climate mitigation plans as set out in their regular review of NDCs. Active and passive cooling should be included alongside demand management plans. Ideally, energy efficiency measures, the refrigerant transition, research and development (R&D), and even work conditions should be included. Cooling is a matter of sustainable development in all its elements (environmental, economic, and social). A broad-spectrum approach should be used when defining and assessing the cooling sector. This allows all relevant gaps to be clearly identified and enables clear prioritization of future actions. It may be helpful to apply

the prioritization lens to any listed recommendations (e.g. identify the five most important recommendations for overall success).

Building on the identification of the main recommendations, NCPs should also include more detailed 'action plans'. The actions plans show more detailed recommendations, subsequent action(s), urgency (near/medium/long term), the appropriate responsible agency within government, other stakeholders to be involved, indicative costs (high/medium/low), and the key existing policy to link to.

Policy Mechanisms

1) Minimum Energy Performance Standards (MEPS) and Labels

Strong MEPS and labels not only form the core of an effective cooling plan, but position countries well to maximize opportunities from the rapidly growing cooling industry globally. Strong MEPS maximize efficiency and access to cooling benefits, with the associated energy savings, health, productivity, and climate benefits. NCPs should identify how energy consumption data will be collected, monitored, and operationalized to allow key recommended actions in the NCPs (such as stronger MEPS) to be put into practice.

2) Natural refrigerants and Safety Standards

Where NCPs seek to promote natural refrigerants, wider buy-in could be achieved by undertaking outreach on risk mitigation regarding the safety of natural refrigerants. Wherever feasible, development of new safety standards should take advantage of applicable standards that already exist and so only need updating rather than full development.

3) Financial mechanisms and procurement

NCPs should assess potential to use financial mechanisms, such as electricity utility finance mechanisms, bulk procurement of high-efficiency cooling equipment, energy service contracts, green finance, or other mechanisms to address first cost barriers (see IEA Energy Efficiency 2018 report). NCPs can usefully describe how to optimize procurement guidelines for bigger RAC equipment, but also foam blowing agents, fire suppression, vending machines, ice machines, water coolers, aerosols and

solvents. Better procurement across these cooling and HFC applications will also reduce HFC emissions².

Cooling Sectors

1) Buildings and residential

NCPs could incorporate more efficient, clean cooling into housing and urban development plans, for example through:

- Requiring lenders who receive public funds for low-income housing to prioritize developments that include thermal comfort measures – for example: passive design, shading, and cool roofs (both upgrades and new developments).
- Requiring new low-income developments receiving public funding directly to demonstrate that they have included thermal comfort measures.
- Nationally convening local municipalities where individual leaders have been identified to help spread best practice.
- Promotion of solar (including solar home system) super-efficient fans and low-tech domestic cooler solutions, along with district thermal systems and their integration with renewables.

2) Supermarkets and hypermarkets

Systems and technologies to consider including in NCPs regarding supermarkets and hypermarkets include: CO₂ indirect systems, cascade systems and trans-critical booster systems.³ Additional levers are available to reduce emissions in this sector including from leaks and end of life through refrigerant management, recovery, and destruction.

3) Cold chain

In many countries, cold chain solutions are primarily driven by the private sector – both established companies and smaller start-up companies. The right policy enabling environment can help companies to adapt and adjust their business models and offerings to better serve the needs of smallholder farmers and their communities, who may not be able to easily access the cold chain solutions described in the cooling plan. It is also important to ensure effective coordination, in order to facilitate continuous and effective cold chains.

NCP recommendations can include technological improvements, but also how to address logistical barriers, which are a key reason for cold chains breaking down and perishable food being wasted. Logistical solutions such as improving ‘last mile’ transport as well as between cold chain components is an important part of a cold chain improvement strategy.

4) Manufacturing and export opportunities

Countries manufacturing AC or refrigerator parts or units, for domestic and/or export markets should consider their manufacturing sectors in their NCPs as there is a market opportunity in producing highly efficient and affordable units for export. Demand for efficient clean cooling is growing and higher MEPS are progressing in key export markets. For example, the Kigali Cooling Efficiency Program is working with more than 30 countries and supporting the development of MEPS in 10 key markets. Additionally, opportunities will exist in other areas such as servicing, financing and professional services.

Further resources and feedback

We are very open to comments and welcome feedback and direction to new resources in relation to cooling plans. The resources below may be useful for countries during the analysis and drafting process for NCPs:

- UN Environment and UNDP have produced National Cooling Plan skeleton templates for developing countries.
- UN Environment is developing model MEPS for countries to use as guidance in their cooling plans and policies.
- Sustainable Energy For All’s *Chilling Prospects* report shows the risks faced in countries and regions from lack of access to cooling, including access to food, medicine, and exposure to heatwaves.
- IEA’s [Global Exchange on Efficiency](#) platform has a cooling specific website, which brings together data and information on cooling and serves as a progress tracker for the Kigali Amendment.
- The [TEAP report](#), published ahead of the Open-Ended Working Group (OEWG) in Vienna in July 2018 contains guidance on sources of finance, including for energy efficiency in cooling.

² See https://content.eia-global.org/posts/documents/000/000/351/original/HFC-free_Procurement_Report.pdf?1468590500 for further information.

³ See: <http://www.supersmart-supermarket.info/s/2-eco-friendly-supermarkets-an-overview.pdf>