



Photo: Hei Lau

Energy Case Story

Kigali Cooling Efficiency Program

Ambitious and urgent action from actors across all sectors is necessary to ensure universal access to affordable, reliable and sustainable energy. A growing number of initiatives have been engaged in tackling the challenge of transitioning to low-carbon energy systems. The [Kigali Cooling Efficiency Program](#) (K-CEP) is a philanthropic collaboration at the crossroad of the Montreal Protocol, UNFCCC, and the SDGs in support to the Kigali Amendment of the Montreal Protocol.

The aim of K-CEP is to support energy-efficient, low-global warming potential cooling^a in developing countries, by focusing not only on air-conditioning and refrigeration, but also on other cooling solutions such as improving buildings (e.g. cool roofs), optimizing systems (e.g. district cooling), and thinking thermally (e.g. ice batteries). In its first year, K-CEP provided support to 38 developing countries across Africa, the Middle East, Asia, Latin America, and the Caribbean.

The initiative, launched in March 2017 and housed at the ClimateWorks Foundation, is a collaboration between 18 foundations and individuals who pledged USD 52 million to

increase the energy efficiency of cooling in developing countries. Through K-CEP, these funds assist nations transitioning to more efficient cooling, while they phase down the production and use of hydrofluorocarbons (HFCs) and replace them with newer, climate-safe coolants.

Under the Kigali amendment,^b countries commit to cut the production and consumption of HFCs – potent greenhouse gases used in refrigeration and air conditioning – by more than 80 per cent over the next 30 years. This has the potential to avoid up to 0.5° C of global warming by the end of the century.^c In addition to HFC use, current cooling systems are highly energy-consuming. Cooling is responsible for 10 per cent of total electricity consumption and related GHG and air pollutant emissions, and these emissions are projected to double by 2030.^d

Demand for cooling is booming, and will increase further as the world urbanizes, economies grow, and the planet heats up. Cooling is, however, often overlooked as an urgent development issue. Globally, over 1 billion people are at high risk of heat

a. Low global warming potential cooling refers to the use of refrigerant gases with a lower potential to warm the atmosphere than the ones used in standard cooling systems

b. Which enters into force in 1 January 2019

c. K-CEP (2018). Available at: <https://www.k-cep.org/>

d. IEA (2018). 'The Future of Cooling'. Available at: <https://www.iea.org/cooling/>

e. K-CEP (2018). Annual Report – Windows to the Future. Available at: <https://www.k-cep.org/year-one-report/>

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related health problems because they lack access to cooling.^g Access to refrigeration to ensure safe food production, storage, use, and transportation – as well as to keep temperature-sensitive medicines, such as vaccines – is also becoming ever-more critical as average temperatures and the number of weeks with above-threshold temperatures increase.

K-CEP aims to deliver results through 2020 by supporting activity across four programmatic areas of focus, or ‘windows’, namely: institutional strengthening (training, national planning, technical support for businesses, enforcement); policy, standards and programmes; financial mechanisms; and access to cooling solutions. K-CEP’s approach is to promote ownership by countries, with fast implementation and south-south sharing of knowledge to ensure more effective progress. Early-adopter countries and companies can catalyse similar work in other countries.

Albeit quite new, the initiative had tangible results to present by the end of its first year: in addition to 27 National Cooling Plans being drafted with technical assistance of K-CEP, the program is supporting 23 countries in drafting or revising their minimum energy performance standards (MEPs) for cooling appliances – in Brazil, such legislation has successfully passed recently.

So far, USD 35 million in grant has been committed by the initiative to over 20 organizations in a range of projects. In Rwanda, for example, K-CEP is working together with UN Environment and the Government on its National Cooling Initiative (R-Cool). The collaboration includes an energy efficiency market survey, development of a National Cooling Strategy, and exploration of energy performance standards and labeling, as well as green building standards to encourage smart design and the use of construction materials and techniques for passive cooling.

The Kigali Amendment to phase-down F-gases requires manufacturers to retool their production lines to produce appliances which use climate-friendly refrigerants. The Multilateral Fund (MLF) is starting to fund manufacturing plant conversion investment projects, presenting an opportunity to switch to energy efficient appliance designs at the same time. K-CEP is therefore co-financing projects with the MLF in countries such as Bangladesh and Mexico to maximize the energy efficiency of appliances produced by leading domestic manufacturers, as countries move to using low-GWP refrigerants.

Together with the Environmental Investigation Agency (EIA), Shecco and the Consumer Goods Forum (CGF) – a global industry network which brings together consumer goods retailers and manufacturers to drive positive change, including greater

efficiency – K-CEP is also working to integrate efficiency into the CGF Refrigeration Resolution approved in 2016. The Resolution commits CGF members to install new equipment that utilises only natural or ultra-low global warming potential refrigerants, in all refrigeration equipment along the food and beverage supply chain.

In China, the world’s largest manufacturer, consumer and exporter of room air conditioners, K-CEP is supporting the Energy Foundation China (EFC) – which is leading the China Cooling Efficiency Initiative – to maximize the mitigation potential in residential and commercial air-conditioning through the development of energy efficiency standards and labels and complementary market transformation programs. The estimated pollution reduction potential is 43.6 Gt CO₂e over the period 2020-2050.

As part of its work to improve the monitoring of emissions from cooling K-CEP is supporting the International Energy Agency’s (IEA) new [Global Exchange Platform](#). The first deep-dive module within this platform is on cooling, serving as the Kigali Progress Tracker and bringing together all cooling-related information into a single resource. This platform is enabling both the IEA and K-CEP to track the success of the programme, while also using the data and analysis to design improved policies, better allocate funding, and identify appropriate technology opportunities.

Finally, K-CEP is also working with the finance sector to learn lessons from existing energy efficiency financing and determine how philanthropy can help unlock much needed finance for cooling efficiency. Support is provided for various financing mechanisms including ‘on-bill’ financing, Cooling as a Service (CaaS), rebates, interest rate buydowns and credit lines.^f Finance is coming from public and private sources, at concessional and market rates.

By fostering a collaborative learning environment and leveraging various types of expertise within the network of participants as a key part of the approach, K-CEP is successful in scaling up and rapidly encouraging best practice sharing. Keeping a clear Business Plan and following a ‘scorecard’ against which to monitor outcomes also enables K-CEP to achieve results in a relatively short timeframe, additionally showing that milestone-driven approaches such as these can be a good example of how to ensure value for money and accountability for results.

f. *On bill financing* allows the utility to incur the cost of the clean energy upgrade, which is then repaid on the utility bill, while *CaaS* involves end customers paying for the cooling they receive, rather than the physical product or infrastructure that delivers the cooling. A *Buydown* is a mortgage-financing technique with which the buyer attempts to obtain a lower interest rate for at least the first few years of the mortgage. The builder or seller of the property usually provides payments to the mortgage-lending institution, which, in turn, lowers the buyer’s monthly interest rate and therefore monthly payment.