



Cooling as a Service
Refresh the planet

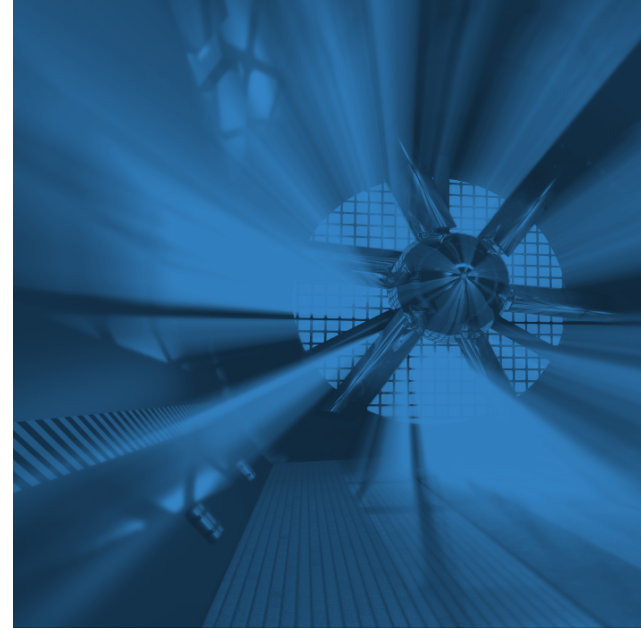
Energy demand for cooling accounts for nearly 10% of global electricity used around the world.

Not only that, cooling is growing fast as economic and demographic growth becomes more focused in hotter countries. Cooling systems rely on human-made Hydrofluorocarbons (HFCs), which could account for nearly 20% of climate pollution by 2050, if not phased down and replaced with existing alternatives.

Cooling as a Service (CaaS) is a promising financial instrument to overcome key market barriers to clean and efficient cooling, without upfront investment, with integrated financial tools to recapitalise technology providers. Based on the servitisation concept which is rapidly penetrating other marketplaces, CaaS enables customers to base their investment decision on life-cycle cost rather than on the purchase price of the equipment, benefitting companies, governments and society at a large.

This knowledge brief presents a deeper look into Cooling as Service:

- The problem
- A global movement
- Cooling as a Service
- The CaaS initiative



KIGALI

COOLING EFFICIENCY PROGRAM

About K-CEP

The Kigali Cooling Efficiency Program (K-CEP) is a philanthropic collaboration launched in 2017 and managed by Climateworks to support the Kigali Amendment of the Montreal Protocol and the transition to energy efficient, climate-friendly, affordable cooling solutions for all.

BASE

About BASE

BASE, a Swiss Foundation and a Specialised partner of UN Environment, designs, develops and implements innovative financial mechanisms to catalyse investments towards sustainable energy.

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THE PROBLEM

Today cooling represents 10% of global electricity consumption – equivalent to 2.5 times the electricity use of Africa - and demand is expected to triple by 2050. The average efficiency of cooling systems sold today is less than half of what is typically available on shelves – and one third of best available technology. Therefore, the cumulative savings potential by 2050 is enormous, equivalent to all the electricity consumed in the EU in 2016 and worth 2.9 USD trillion. In addition, human-made HFCs used in cooling are powerful greenhouse gases significantly contribute to climate change, and must be phased down and replaced with existing alternatives. Moreover, in many regions, cooling is not only a comfort but also a mean of survival with air conditioning and refrigeration necessary for habitable living conditions, food security and life-saving healthcare.

A GLOBAL MOVEMENT

The Kigali Amendment to the Montreal is a legally binding agreement aiming to phase down the production and use of HFC gases. With the Kigali amendment, residential, commercial and public users will need to replace their cooling systems running on these gases, which opens the opportunity to replace them with state-of-the-art equipment. With a market size of 210 billion USD/year, this is a large opportunity for climate finance. However, investments in clean and efficient cooling are not happening at expected pace due to several market barriers.

COOLING AS A SERVICE

Cooling as a Service (CaaS) is an innovative pay-per-use business model that enables customers to base their decision on life-cycle cost rather than on the purchase price of the equipment. The model was endorsed by the Global Innovation Lab for Climate Finance and aims to facilitate clients to benefit from high end and efficient cooling technology without the need of an upfront investment. CaaS involves end customers paying for the cooling they receive, rather than the physical product or infrastructure that delivers the cooling. The technology provider installs and maintains the cooling equipment, recovering the costs through periodic payments made by the customer. These payments are fixed-cost-per-unit for the cooling service delivered (for example, dollars per tonnes of refrigeration, or units of cooled air), and are based on actual usage. The technology provider also pays for the electricity consumed by the equipment, which is an incentive to install the most energy-efficient equipment, and to perform high-quality maintenance.

The technology provider can recapitalise through innovative mechanisms such as sale and leaseback, or the securitisation of cash flows. A payment guarantee can be established to reduce the risk of default from the end-client, which can be endorsed to the banks to reduce their exposure to payment default by technology providers seeking the use of the above-mentioned financing mechanisms.

In addition, the CaaS model supports a circular-economy model, by incentivising technology providers to make their equipment modular, with parts being reusable/recyclable since the ownership of the equipment is never transferred to the client.

The CaaS model helps to overcome many of the current barriers that hinder investments in energy efficient equipment. The customer benefits from lower whole-life equipment costs, the absence of upfront capital investments, industry-leading equipment uptime made reliable through revolutionised predictive maintenance practices, and a transparent pricing structure. The technology suppliers will benefit from a long-term sustainable revenue stream, and access to new potential clients who are interested in the service, but not willing to make the upfront investments for high quality efficiency equipment.

Although interest in service-based competitive strategies is not new and broadly applied in sectors such as software and photocopying services, the concept is still fairly new territory in the energy efficiency and cooling sector.

CAAS INITIATIVE

The Basel Agency of Sustainable Energy (BASE) is leading the CaaS (CaaS) Initiative on behalf of K-CEP with the objective to scale-up the demand for efficient, clean cooling systems, through the use and promotion of the innovative CaaS business model. Through the initiative, BASE is creating tools to enable the use of the model and is supporting the implementation of pilot projects in Latin America and the Caribbean, Africa and Asia. Within the efforts to mainstream the CaaS model around the world, in early 2020 BASE has launched the CaaS Incubator to further support high-efficient technology providers to start offering CaaS in their business lines. In addition, the initiative aims to raise awareness and build capacity among the key stakeholders, including technology providers, financial institutions and policy makers through match-making events, webinars and workshops.