



## District Cooling Systems - A Climate Solution

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Cooling is a topic that touches all of us. It is not only about thermal comfort, but also about protecting our most vulnerable from heat stress, keeping vaccines viable, food fresh from farm-to-fork, and workforces productive. But the conventional cooling industry is polluting and energy-intensive accounting for an estimated 7% of global greenhouse gas emissions. Cooling's large and growing demand for energy – in the major growth markets often generated with coal—undermines our efforts to get to a zero-emission grid and tackle climate change. We have already seen annual residential AC power consumption alone outstrip record additions of solar capacity on the grid and the demand is only set to grow. To win the race to zero, we need to catalyze action towards efficient, climate-friendly cooling. This action must support the adoption of comprehensive measures that avoid or reduce the need for mechanical cooling, improve efficiency of cooling solutions, and shift to the use of renewables and lower global warming potential refrigerants.

For many cities that have developed it, district cooling has emerged as the most efficient, climate-friendly and economic means to provide reliable air conditioning in a dense urban area and it can also be used to provide industrial cooling, such as for agricultural and medical cold storages. What is key is that that district cooling is being promoted alongside better urban design, building and industrial efficiency, and alternatives to air conditioning, such as fans. Many of the most successful companies in the district cooling industry are advancing this model as part of their service offer - advising building developers in the design phase to reduce cooling consumption and during operations on maintaining their HVAC system.

District cooling also allows cities to counteract many of the economic and environmental challenges of cooling. It makes thermal storage and trigeneration more economically competitive – helping to shift the peak power demand from cooling and reduce fossil fuel consumption. Phasing down and phasing out of planet warming refrigerants is easier with district cooling as the centralized approach unlocks better management, safer use of alternative and natural refrigerants and technologies that don't rely on such refrigerants at all. Finally, the use of renewables and waste heat for cooling is easier with the economies of scale offered by district cooling.

In India, district cooling is gaining momentum. The ambitious pilot cities, industry interest and government support we are seeing through the UNEP [District Energy in Cities Initiative](#) is heartening as are the new parallel activities from GIZ, Bureau of Energy Efficiency and ISHRAE. As set out in a recent report "[District Cooling Potentials Study of India](#)" which UNEP co-authored with EESL, **if India grasps the full opportunity of district cooling 25GW of peak power demand could be avoided, 27 million tons of CO<sub>2</sub> and 4,300 tons of refrigerants.** Finance will be crucial to this endeavor both for the upfront investment required and in project preparation. In this EESL can play a critical role and open the market as can support from development banks and private sector. In this regard it is exciting to hear of two UNEP partners, Tabreed and IFC, announcing a \$400 million investment fund for district cooling in India recently.

India's Cooling Action Plan (ICAP) is exemplary in its comprehensive approach to tackle the cooling

challenge. District cooling is identified as a much-needed technology to meet remaining urban cooling demand following strong building efficiency measures and promotion of alternatives to mechanical cooling. ICAP's long-term recommendation of large-scale adoption of not-in-kind technologies such as district cooling needs action now – demonstration projects in cities can grow to city-wide systems in 15-20 years meeting existing and future demand. District cooling can be yet another area of global leadership for India in the cooling sector, with a homegrown industry driven by India's real estate expansion and economic growth. In doing so, district cooling can be the backbone of net-zero emission Indian cities, contributing to the goals of the Paris Agreement, Kigali Amendment to the Montreal Protocol and the 2030 Sustainable Development Goals while bringing cities relief from extreme heat and maintaining our food and vaccine supply chains.

