Amid Supply Crunch, 1.33L Litres Required To Run ACs: Recycling Systems On The Anvil

Battling shortage, metro rail mulls ways to cut dependence on water

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Metro rail has made commuting in Chennai the most comfortable and easier, but it takes a large amount of resources like water to keep the facility running.

More than 300 litres of water is used to run 12 metro stations every day. Nearly 64% of that goes towards air conditioning systems in the 12 underground stations while the rest is used for the functioning of the 13 elevated stations and for other purposes.

Underground stations consume the most—800 litres a station every day—as air-conditioning systems are kept running both at the concourse and platform levels during the operational hours from 4 a.m. to 11 p.m.

"The AC systems require 7,800 litres a day for one station as water is used as a primary cooling medium and refrigerants as the secondary medium," a metro rail official said.

Nearly 3,600 litres of water is used for the functioning of the concourse and platform levels. It is mostly used to power the AC systems inside the station control rooms and other ancillary systems that house power systems.

"The water required for daily operations is supplied by Metrowater," a metro rail official said. "But Metrowater's supply is stressed to meet the city’s water demands after an already delayed Northeast monsoon failed to fill the reservoirs that feed the city."

According to India Meteorological Department, rain deficit in Chennai was nearly 65% in the October-December monsoon last year.

To reduce its dependency on Metrowater and to cut down on the massive water consumption on a daily basis to run the network, metro rail has come up with several measures. It has started constructing a sewage treatment plant at Guindy metro station with a capacity of 100,000 litres per day. Officials said it is likely to be commissioned in a month.

"We will use this recycled water in restrooms, cleaning the stations and for gardening. We will also be building similar plants in other stations," an official said.

At present, around 400 litres collected from AC condensation and RO reject are being reused in restrooms and air-conditioning systems. But the biggest effort would come from metro rail adopting a new gas-based air conditioning technology for three underground stations under construction for phase-I extension line to link north Chennai.

The new variable refrigerant flow (VRF) technology will use refrigerants as the cooling medium. To be installed in three stations—Kanchipuram, Tambaram and Korukkupet—the new technology, according to metro rail, is energy-efficient, requires less space and is cheaper than the existing system. Metro rail is also planning to adopt the same system in its line 6 phase-II project.

WITH ACs SWITCHED OFF, COMMUTERS FEEL THE HEAT

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Commuters walking into underground metro stations hoping to "cool off" and end up sweating more in the platforms as air conditioning systems are switched off during non-peak hours. But metro rail officials said air conditioning systems that work on water are switched off from noon to 5 p.m. due to water scarcity. By filling up, they are saving 89% water in each station every day.

Commuters who go underground metro stations such LIC, Nandanam, High Court and Anna Nagar East complained of suffocation, particularly in the afternoon hours. After sweating, they hope there will be air conditioning in the stations.

"But it is just a matter of time until the platform," said V. Kannan, a commuter who boards the train at Thirumullaivoyal.

Commuters said although cool air blows from the starting counter at the concourse level where there is air circulation due to proximity to the station entry points, there is no ventilation at the platform. "It's the other point in having fun. They are not the same as AC," said Philip Raman, a commuter.

Metro rail officials said they turn off the air conditioning at noon water but switch it on for a few minutes every hour to maintain a temperature of 30°C. "Metrowater supply is erratic. We function with water supplied every day through Metrowater tankers for which we pay in advance," an official said.

However, room for better coordination and communication and control systems and the UPS have variable refrigerant flow air conditioning system which works on refrigerant. "Though, VRF consumes less power, we cannot use it for the entire station because it is expensive," the official said.