

India Smart Grid Forum



TATA POWER





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SESSION – 7: NEW AND EMERGING TECHNOLOGIES FOR ELECTRIC UTILITIES 18 NOVEMBER 2022 | 16:00 ~ 17:30 (IST)

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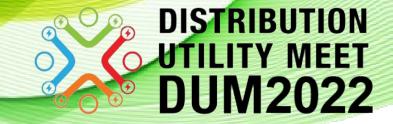




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INTRODUCTION

- District Cooling Systems (DCS) distributes (supplies and collects back) cooling energy in the form of chilled water from a central district cooling plant to multiple buildings.
- This is done through a distribution network of insulated, underground pipes for space and process cooling.
- Individual users purchase chilled water for their own building from the operator of the DCS and do not need to install their own chillers or cooling towers.

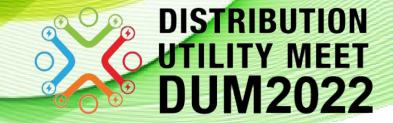












CONTEXT

- Share of cooling in the overall electricity consumption in India is growing rapidly, owing to:
 - Rising ambient temperatures
 - Rapid population growth
 - Increasingly affluent middle class
- Air conditioning demand already accounts for 40% to 60% of peak power load in some Indian cities, putting a tremendous strain on electricity systems.

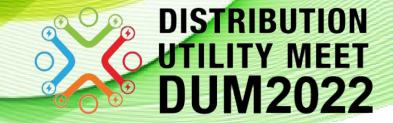










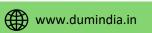


WHY DISTRICT COOLING?

- To lower the installed cooling capacity requirement by aggregating the diversified loads of multiple customers
- To incorporate Thermal Energy Storage (TES) tanks that can take advantage of Time of the Day tariffs, reducing the peak power demand by 25% to 50%
- To have trigeneration plants, reducing the peak power demand by 40% to 60%
- To avail free cooling from rivers, seas and lakes

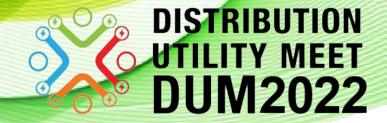










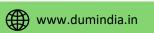


WHAT'S IN IT FOR ME?

- Long-term grid balancing services
- Meeting climate goals
- Reduction in capital investment required for additional power generation, transmission, and distribution infrastructure

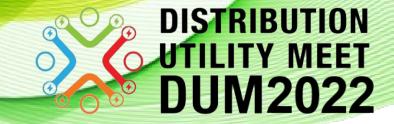












RECOMMENDATIONS

- Roles and responsibilities of discoms are utterly vital to promote DCS for large green field commercial developments in India.
 - Include DCS in their masterplans and infra planning
 - Support MoP in developing guidelines for access to DCS projects
 - Ensure uninterrupted electricity (to operate plants) for land parcels sold with mandatory requirement of taking DCS connection









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