National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Adopting district energy system in Indian context- what are the promises and obstacles
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Venue	: Seminar room, Dept of Planning and Architecture
Date and Time	: 14 May 2024 (12noon)
Abstract	: A district energy system (DES) has the potential to bring about a paradigm shift in individual building heating and cooling and create a resource efficient neighbourhood. The system offers higher efficiency and can generate alternate renewable energy solutions. In a DES, underground piping network carries chilled/hot water to heat exchangers in buildings from centralized chiller/boiler plant for cooling/heating purpose and the system may also combine with power generation. In India, district cooling is relevant for majority of climate zones. In 2019 UNEP started advocating DES in India and recently in 2023 a new guideline came up advocated by the Bureau of Energy Efficiency of India. Though previously DES has been a success in Gift City Gujrat and few other affluent parts of India, its potential has been challenged by a recent techno-economic study carried out in Bhubaneswar, a Tier-I city, the capital of Odisha and one of the major growth centres of east India. Our study aims at carrying out feasibility analysis of DES in Rourkela, a steel township and Tier-II city of the same state. Rourkela enjoys a high rank as a coveted 'smart city' of India. The city's new domestic airport, that came up in January 2023 upon conversion of the Steel authority's pre-existing private airport, is going through an airport-based development with upcoming high income residential settlements around. The mixed land-use has a potential of providing 'anchor' buildings generating requisite cooling demand during daytime to balance residential cooling demand at night. Our study would map the cooling demand in these buildings using bottom-up primary surveys. We would assess 'promises', in terms of energy and emission gains, and 'obstacles' in terms of technical, economic and human behavioural barriers towards implementing DES in such urban Indian context, acting as a pathway towards cooling decarbonisation in buildings and urban green futures.