

Tabreed and Masdar Institute of Science and Technology Successfully Complete Pilot Project to Enhance District Cooling Plant Energy Efficiency

- *Project successfully developed 'smart module' capable of automatically controlling equipment to enhance operational performance and reduce energy consumption*

January 23, 2018, Abu Dhabi, UAE: National Central Cooling Company PJSC (DFM: Tabreed), the leading regional UAE-based district cooling utility company and the Masdar Institute of Science and Technology, a part of the Khalifa University of Science and Technology, announced today the successful completion of a 3-year research and development (R&D) pilot project to deliver energy efficiency through enhancing operational performance in district cooling plants.

The Tabreed and Masdar Institute joint project, called 'Optimal Chiller Plant Control', aimed to develop and operate a proprietary next-generation digital 'smart controller' capable of intelligently managing district cooling plants to improve operational performance by decreasing energy consumption.

The pilot project, conducted at Tabreed's plant in Mohammed bin Zayed City, Abu Dhabi, created a prototype for an optimal control system which was implemented following various testing phases.

Following the completion of the pilot project, Jasim Thabet, Tabreed's CEO, said: "We are delighted with the results of the pilot project conducted with the Masdar Institute of Science and Technology. Partnering with such forward-thinking organization reflects our commitment to innovation and to deliver on the country and region's energy efficiency goals. We believe that breakthrough innovation such as this smart model will set new standards in performance, energy and operational efficiency and deliver the energy reductions required for the region's sustainable development."

Tabreed and Masdar Institute successfully developed a prototype digital module that was integrated with the district cooling plants' control system to measure key external variables that impact the operational efficiencies of the plant, such as flow and temperatures of chilled water supply and return, outside temperature and humidity levels. The system then automatically decides at what capacity major equipment such as chillers, water pumps and cooling towers need to operate to meet customers' cooling requirements in the most economical and energy efficient way.

Dr. Steve Griffiths, Vice President for Research and Interim Associate Provost, Masdar Institute, and Interim Executive Vice President for Research at Khalifa University of Science and Technology said: "Research and innovation for advanced cooling technologies is a priority for the Masdar Institute. However, the innovation achieved in this work would not have been possible without strong collaboration from a leading organization such as Tabreed. We are very proud of this demonstration of academic and industry collaboration that provides tangible impact for the UAE's most pressing demand-side energy challenge."

Dr. Peter Armstrong, Associate Professor of Mechanical Engineering at Masdar Institute was the principal investigator for the project.

Commenting on the success of the pilot project, Dr. Peter Armstrong said: "The successful demonstration and positive results of the optimized chiller control system is a critical project milestone for cost-effective, energy-efficient and environmentally sustainable district cooling plants across the UAE and region.

"The models embedded in our optimal control system can also help to identify faults, such as refrigerant loss, fouling of heat exchangers, and problems with cooling tower packing or water distribution," he added.

Projects such as the joint optimal chiller plant control contribute to enhance the benefits of district cooling, which is emerging as an increasingly preferred cooling technology, which will help to deliver significant cost and environmental benefits in the form of reduced CO2 emissions. With energy demand for cooling expected to triple over the next three years, district cooling is also contributing to reduce energy consumption, especially with air conditioning accounting for approximately 50% of all electrical energy consumption in Abu Dhabi and approximately 70% of peak demand on hot summer days.

Tabreed is a partner of choice for organizations across the GCC in providing environmentally friendly district cooling solutions. With 72 district cooling plants located throughout the region, Tabreed currently delivers over 1 million refrigeration tons to key developments in the region including iconic infrastructure projects such as Abu Dhabi's Al Maryah Island, Yas Island, Sheikh Zayed Grand Mosque, Dubai Metro, Dubai Parks and Resorts, and the Jabal Omar Development in the Holy City of Mecca, Kingdom of Saudi Arabia.

-ENDS-



Media contacts:

Leila Mohamed Al Marashi
National Central Cooling Company PJSC Tabreed
Tel: +971 50 4465191
Email: lalmarashi@tabreed.ae

About National Central Cooling Company PJSC (Tabreed)

Tabreed is a UAE-based district cooling utility company that provides energy efficient, cost effective and environmentally friendlier year-round district cooling solutions in the GCC. Founded in 1998, and listed on the Dubai Financial Market, Tabreed's cooling infrastructure is an integral part of the region's growth. The company now delivers over a Million Refrigeration Tons (RT) to major residential, commercial, government and private projects. Tabreed owns and operates 72 plants in its portfolio across the GCC, including 63 plants in the United Arab Emirates, two in the Kingdom of Saudi Arabia, three in Oman, one in the Kingdom of Bahrain and others in the region.