

A smart overhaul for Dubai's District Cooling System

EMPOWER Case Study

16° C

11,600 BTU/h

6° C

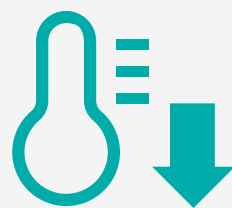




A SMART OVERHAUL FOR DUBAI'S DISTRICT COOLING SYSTEM

With summer temperatures regularly reaching over 40°C, air conditioning is a part of daily life in Dubai. In recent years, the city has adopted District Cooling Systems (DCS) as the most energy-efficient alternative to traditional aircon systems. This involves water being chilled and delivered to buildings through supply pipelines. Heat is then extracted from the building's secondary chilled water systems and the water is returned to the original cooling system. In the UAE, the leading supplier of DCS is the Emirates Central Cooling Systems Corporation (EMPOWER).

In 2018, EMPOWER turned to Diehl Metering to set up an innovative M-BUS fixed network, enabling it to aggregate data and automate readings from meters made by multiple manufacturers. This provided EMPOWER with a clear overview of the network, allowing it to uncover new efficiencies and strengthen its position as leader in the DCS market.



THE CHALLENGE: HOW TO COMBINE DISPARATE DATA FROM DIFFERENT METER BRANDS?

EMPOWER's network is made up of over 70,000 cooling meters from different brands. Together, those meters measure the cooling consumption in some 300 buildings throughout Dubai. This includes a large number of Diehl Metering ultrasonic BTU sub-meters, which facilitate user billing by measuring the energy content of liquid flow in British Thermal Units.

Because many meter manufacturers have their own data management software, EMPOWER was struggling to get a comprehensive overview of the data. The challenge for Diehl Metering was to deliver a solution that merged the disparate meter data from various brands and allowed it to be monitored and managed from a single platform.

ABOUT EMPOWER

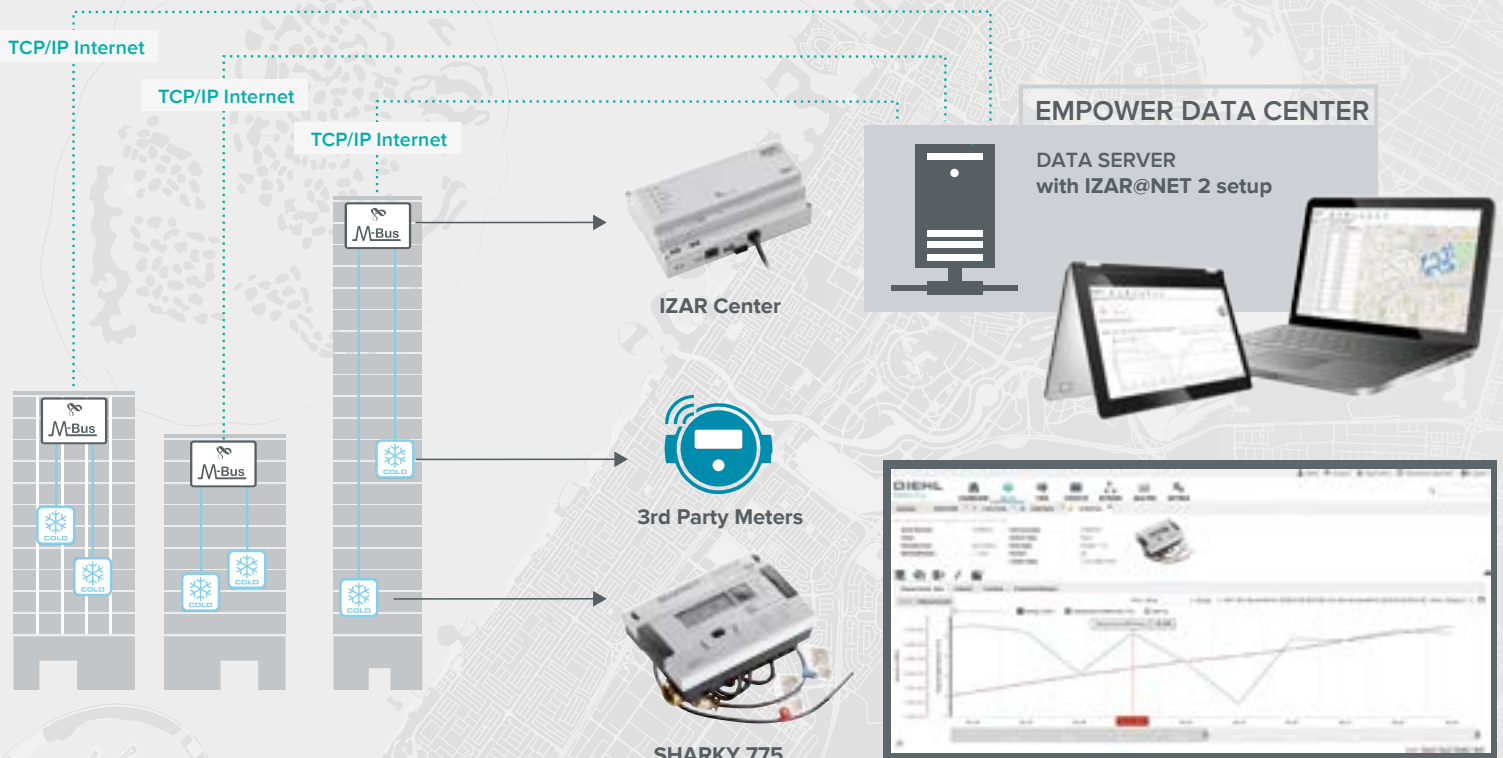
The Emirates Central Cooling Systems Corporation (EMPOWER) was founded in 2003 in Dubai. Its aim is to make the use of energy sources in the real estate sector more efficient through the deployment of smart District Cooling Systems.

- With more than 70,000 customers, EMPOWER is the world's biggest DCS provider in terms of cooling capacity
- It has a 70% market share in the UAE and around 700 employees
- It can provide around 1 million refrigeration tons (RT) in district cooling capacity

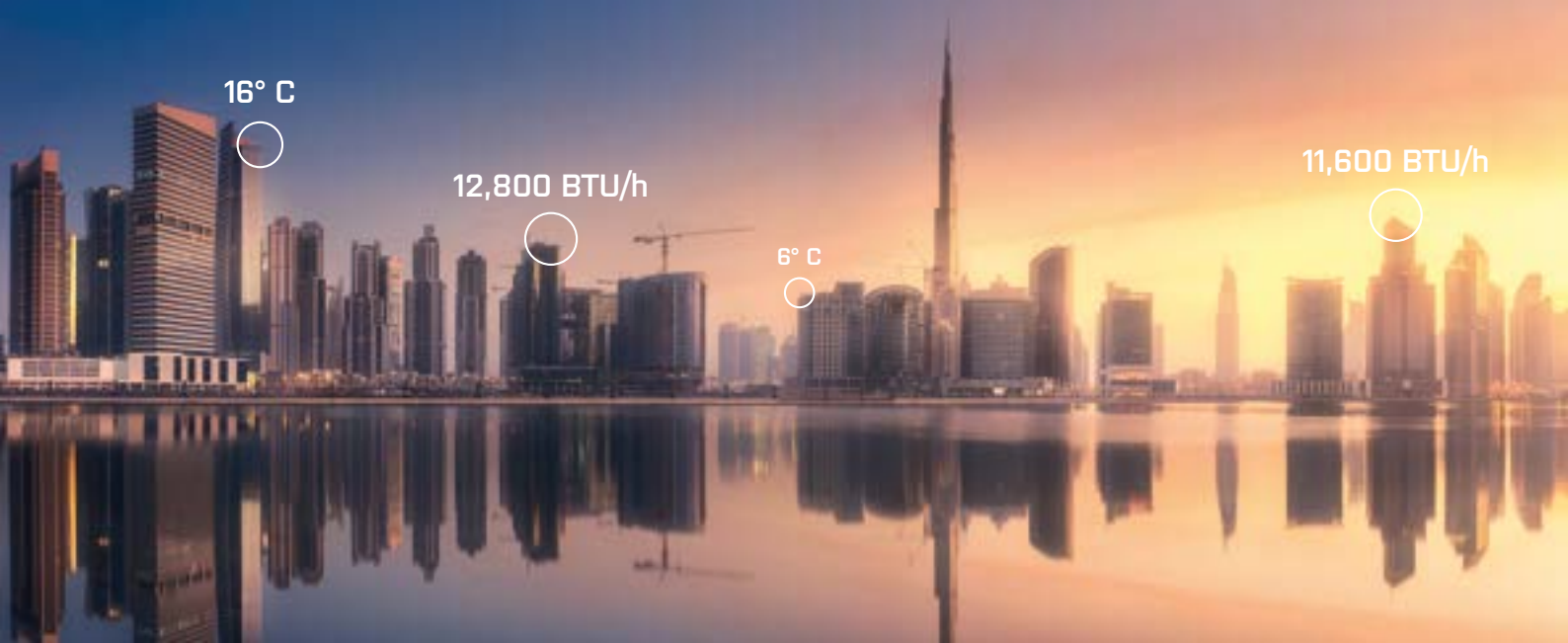
THE SOLUTION: A SEAMLESS CENTRAL SYSTEM TO POWER SMART METERING

Working with EMPOWER, we installed and commissioned the state-of-the-art IZAR@NET 2 software on their servers. The next step was to create interfaces along IZAR@NET 2 to allow third-party M-BUS meters to connect, no matter what their brand. While Diehl Metering provided specialist engineering expertise and technical knowhow, our local partner oversaw the execution of this step.

As part of the solution, we equipped each of the 300 buildings with an IZAR CENTER (M-BUS master) to enable regular automatic reading of all the energy meters. All 70,000 BTU sub-meters are now integrated into a M-BUS fixed network solution, and the meter data is transferred via internet to the IZAR@NET 2 analysis and management software at EMPOWER every 2 hours.



IZAR@NET 2
intuitive admin interface allows real-time overview of the network and potential inefficiencies.



THE BENEFITS: OPTIMISING THE NETWORK THROUGH INTELLIGENT DATA ANALYSIS

Using Diehl Metering’s solution, EMPOWER’s vast district cooling network, which covers most of Dubai, has been extensively modernised and upgraded.

The new central platform receives up-to-date data every 2 hours from each installed meter – whether a Diehl Metering or a third-party meter. This enables EMPOWER to have a precise overview of the network at all times, allowing it to closely monitor the thermal energy consumption of its customers. The data can also be used to make better-informed decisions and optimise the network. In addition, a total of 28,000 SHARKY 775 ultrasonic cooling meters have also been installed

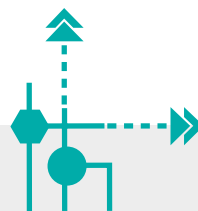
into EMPOWER’s district cooling network. These offer long-term stability and low power consumption. Most significantly, SHARKY 775 is also capable of transmitting additional data on an ongoing basis, including the flow and return temperature, flow rate, current output, energy consumption and alarm messages. In combination with IZAR@NET 2, the SHARKY 775 meters allow EMPOWER to optimise its entire cooling network using smart analysis. For example, the utility can view the difference between the forward and return temperature for each SHARKY 775 meter and instantly recognise a sub-optimal (low) Delta T. Started in 2018, the project was realised extremely quickly and was ready for

handover in July 2019. At this time, our specialist execution partner provided a comprehensive training session for EMPOWER’s technical team. Since handover, the solution has proved so successful that EMPOWER has acquired an IZAR@NET 2 licence for 200,000 devices. Due to Diehl Metering’s scalable and flexible design, new additional sensors can be integrated seamlessly at any time. The integrated solution has helped to considerably enhance EMPOWER’s reputation as the biggest DCS provider worldwide. With our innovative smart metering solutions, we continue supporting EMPOWER in the ongoing implementation of District Cooling Systems throughout the region.



ONE DATA PLATFORM

70,000 BTU sub-meters from different brands seamlessly integrated into one data platform.



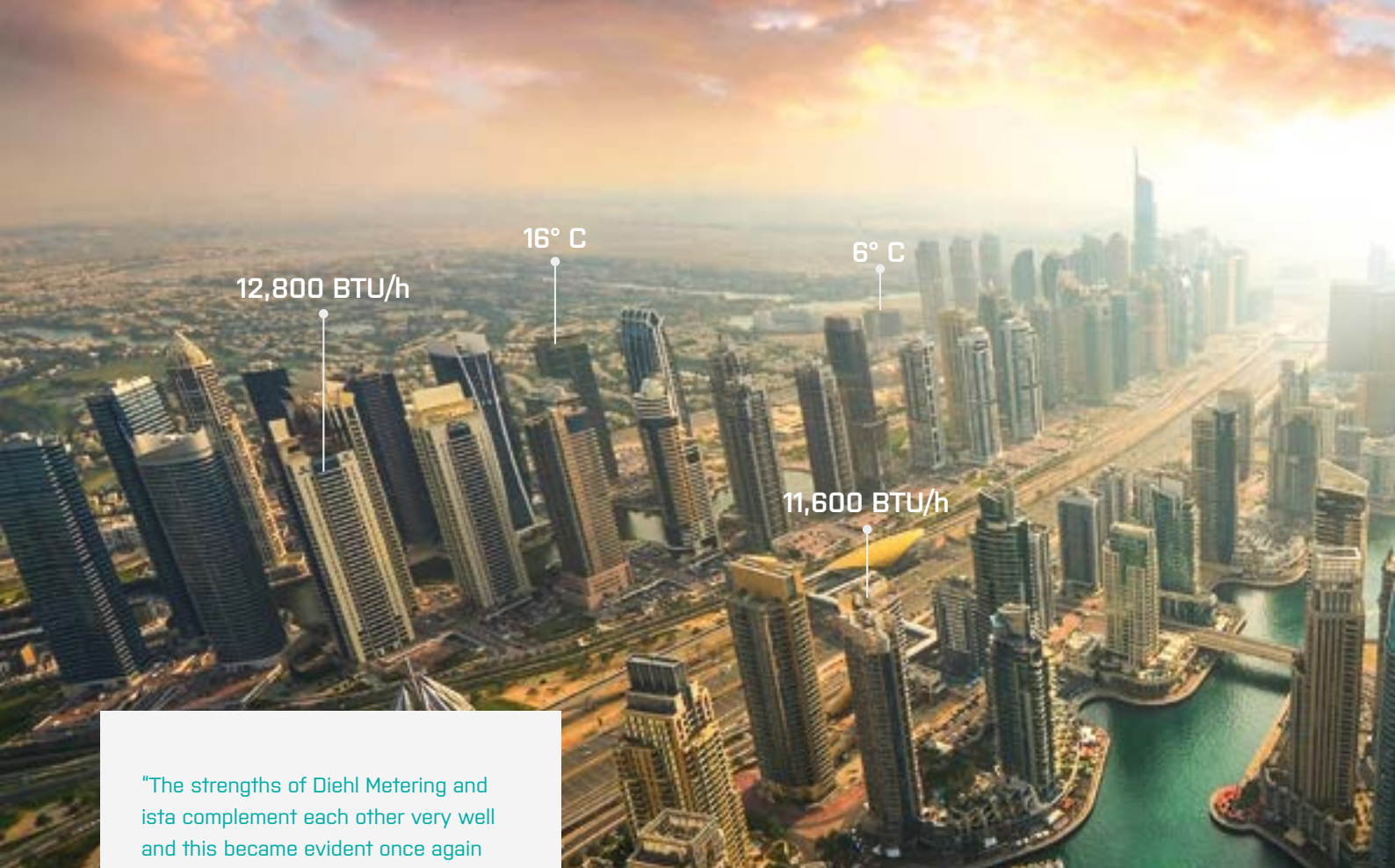
SCALABLE AND FLEXIBLE DESIGN

New additional sensors can be easily integrated at any time.



SMART MONITORING

Precise overview of the network at all times for complete energy optimisation and to realise cost savings.



"The strengths of Diehl Metering and ista complement each other very well and this became evident once again in dealing with such a prestigious and demanding client. Diehl Metering is one of the leading meter manufacturers in the world and has excellent metering solutions that can be customized for UAE requirements while ista is well known for its experienced and qualified technical projects team, with a proven track record of smoothly executing mega projects and managing the expectations of clients in UAE.

Our prestigious client Empower hugely benefitted from the joint solution offered by Diehl Metering & ista in this MDMS project (Meter Data Management System). State-of-the-art MDM software from Diehl Metering fulfilling Empower requirements and ista technical team ensuring successful implementation of this mega project, the first project of its kind in UAE which integrated approx. 300 buildings & approx. 70,000 BTU meters in one central MDM software.

We are proud to have Diehl Metering as one of our strategic and trusted partners in UAE."

Oliver Sporrer,
Managing Director of ista Middle East

ABOUT DIEHL METERING

Diehl Metering is a worldwide leader in the design, manufacture and supply of smart metering solutions. With over 150 years of experience, we empower utilities, municipalities and industries to take control of their infrastructures, bringing new efficiencies to the way they manage water and energy.

Our extensive range of services and solutions includes data-driven insights, IoT connectivity, fully-flexible software, and seamless intelligent metering. We also utilise artificial intelligence to boost performance and deliver cost savings for our customers.

Headquartered in Germany, we are a family-owned business with an international reach. We are proud to maintain our founding principles of quality, reliability and customer proximity while proactively shaping a better future for our customers and the communities they serve. Our approach is to think global and act local. By anticipating trends and remaining agile, we adapt and develop our strategy with our customers and for them.

In supporting their long-term growth, we also contribute to the sustainability of the planet, crafting innovations that enable our customers to make ever better use of the natural resources we all rely on.

