

Danfoss assists in energy-sustainable creation of Egypt's first smart city

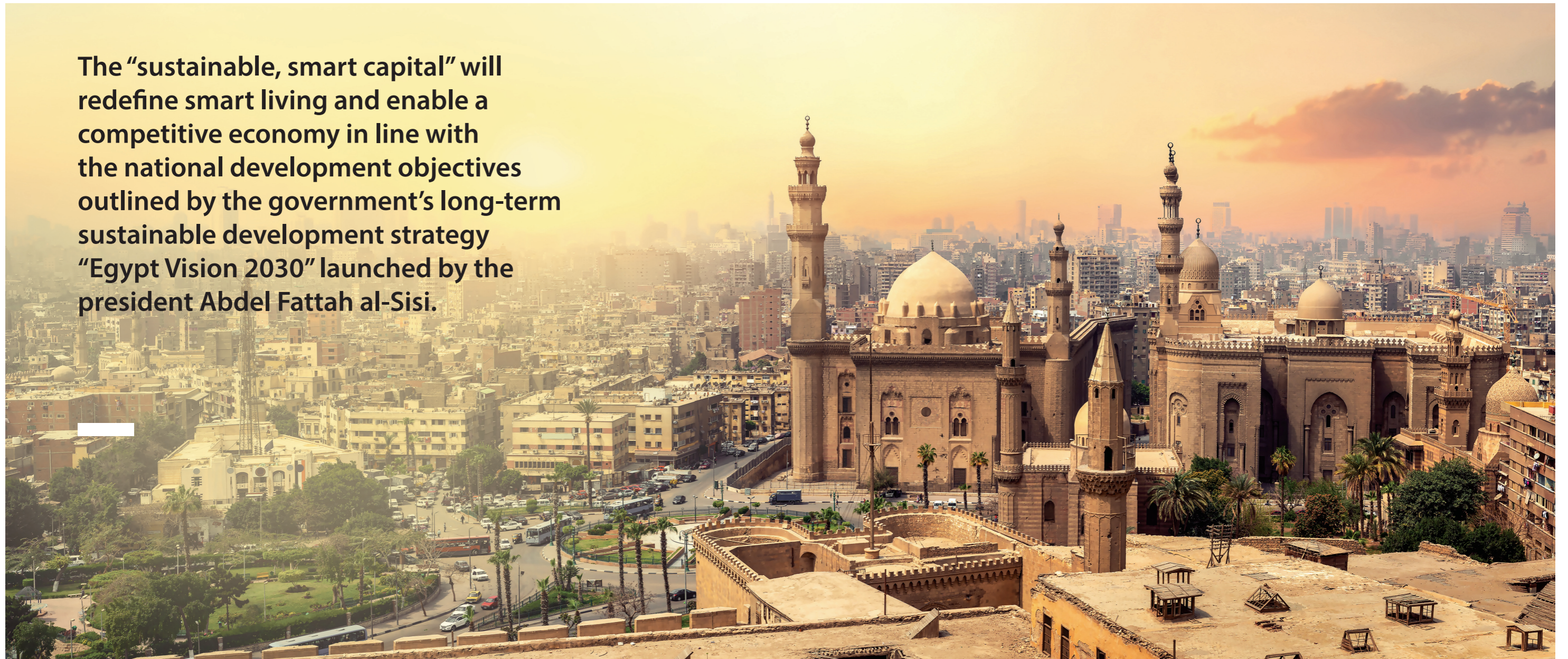




Egypt's New Administrative Capital is an ultra-modern megaproject involving the creation of the country's first smart city, 35km east of Cairo. The area will house the main government departments and ministries and other key political and economic entities. The owner and developer, the Administrative Capital for Urban Development (ACUD), is thus playing a crucial role in Egypt's plans to strengthen its economic potential, both internally and in the wider region.

Danfoss, together with its preferred partner, El Gammal Industrial Systems, recently supplied smart buildings solutions to the ministerial buildings to provide optimal indoor comfort for employees. Danfoss variable frequency drives (VFDs), with their noted energy and costs savings, were selected for the heating, ventilation and air conditioning (HVAC) systems and water pump systems. El Gammal in turn collaborated with Red Sea International Contracting to supply the Danfoss solutions.

The “sustainable, smart capital” will redefine smart living and enable a competitive economy in line with the national development objectives outlined by the government’s long-term sustainable development strategy “Egypt Vision 2030” launched by the president Abdel Fattah al-Sisi.



The challenge:

energy savings plus durable solutions in short time-frame

(Red Sea International Contracting) explains:

“Enabling office employees to work in functional and comfortable buildings plays a crucial role in productivity, but at the same time, costs generally need to be kept under control. The project’s technical challenges included the harsh environment, requiring protection of the outdoor installation from the high ambient temperature and surrounding dust and sand. In addition, the consultant required limited voltage harmonic distortion levels.”



Solution:

Danfoss HVAC FC-102 plus required customisation

Danfoss and El Gammal Industrial Systems together overcame these challenges by providing a reliable VFD dedicated for HVAC, namely the Danfoss HVAC Drive FC-102 with passive filter modules, additionally making use of the professional capabilities and resources in Egypt to build it inside IP54 enclosures for outdoor installation.

“The robust design of the Danfoss HVAC Drive FC-102, with its high ambient operation of up to 50°C, made it most suitable for this project’s outdoor installation. Further, the Fieldbus availability features of the FC-102 fulfilled the required communications with the existing building management systems (BMS) such as BACNet embedded Modbus RTU.”

Moaz Al Ibrahim
(Business Development Manager, Drives MENA Danfoss) clarifies

“As the ACUD is a champion of environmental sustainability, energy efficiency was paramount. The high efficiency – at over 98 percent - of the Danfoss HVAC FC-102 compared to other competitors’ products was reinforced. We therefore installed 800 FC-102 HVAC drives with their advanced harmonic filters (AHF), with power ratings from 1.1KW to 90 KW.”

Mohammed Mokhtar
General Manager, El Gammal



Work was carried out to assemble the AHFs with proper cooling and customer-specific requirements, to successfully meet the stringent quality specifications. The El Gammal team facilitated a very quick assembly of the AHF inside enclosures at their facility.

Red Sea International Contracting outlines, **“We delivered the Danfoss drives with passive filters and AHF to meet the required power quality standards (IEEE519 STD) as a simple and traditional solution, at competitive prices. The Danfoss solution for this project presented a lower required energy consumption than the other harmonic solutions offered by a competitor - the FC-102’s ability to work up to 50°C boosts energy efficiency as it avoids a derating. It is suitable for outdoor installation without having to be accommodated inside an enclosure, which makes the design more compact and enables the drives to take up less space.”**

Results

“We proved the strength and reliability of our service with our team in Egypt,” notes Red Sea International Contracting, “and several site visits from the Danfoss team in the UAE region office also helped to increase the client’s trust in both the product and service support.”

“The fast delivery of the drives assisted with ACUD’s tight schedule and the return on investment is estimated at being less than two years. We are very pleased to play our part in this exciting megaproject that is such an important part of Egypt’s next planned evolutionary stage,” concludes Moaz Al Ibrahim.

Red Sea International Contracting specialises in civil and roads construction, petroleum and marine services, cement and interlock bricks manufacturing, and water desalination and purification plants.

About El Gammal Industrial Systems operates in a variety of industries, including cement, steel and metals, aluminium, petrochemical, oil and gas, and water and wastewater sectors.

