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Redstone CSP plant to save 440,000 tons of CO2 emissions in South Africa

John Cockerill will supply the molten salts thermo-solar receiver located at the top of the tower of the power plant. John Cockerill, as an international engineering Group, will supply molten salt thermo-solar receivers to the 100 MW Redstone concentrated solar power (CSP) plant in Northern Cape Province, South Africa. The receivers will be located at the top of the Redstone solar tower, making it possible for the project to efficiently store energy and produce power round the clock.

Developed by ACWA Power – a leading Saudi developer, investor and operator of power generation and water desalination plants in 13 countries – and constructed by EPC SepcoIII, Redstone CSP plant will generate an output capacity of 100 MW, which will supply 200,000 households with clean power and save nearly 440,000 tons of CO2 emissions per year upon completion.

The state-of-the-art technologies utilized in the project will produce electricity round the clock due to the use of molten salts as heat-transfer fluid. These salts will feed the receiver at the top of the tower and will be heated to 565°C. Once brought back down, they will conserve heat for up to 12 hours, enabling electricity to be produced night and day.

Jean-Luc Maurange, CEO of John Cockerill, said: *“We are very proud of this new substantial reference in the domain of solar towers. With this storage capacity, the volume of CO2 avoided and the number of households supplied, John Cockerill is once again demonstrating that it is capable of responding to the needs of our times. This future realization again highlights the strength of innovation which is the very DNA of our Group, and also our position of technological leader in this domain. And it is one more step in the decarbonization of our world”.*

Rajit Nanda, Chief Portfolio Management Officer and Acting Chief Investment Officer at ACWA Power, said: *“ACWA Power is honored to lead the development of the largest renewable energy investment in South Africa to date, the Redstone CSP project, and simultaneously play a prominent role in supporting South Africa’s decarbonization efforts. We extend our gratitude to our partners for contributing to our mission to reliably and responsibly deliver power at an affordable cost while efficiently delivering clean energy to the national grid. The Redstone project is not only a milestone in South Africa’s clean energy record, but also a notable contributor to the socioeconomic development of the local communities by creating job opportunities and utilizing local supply chains.”*

Storage is a major challenge associated with the use of renewable energy, and hence, the need for efficient energy storage solutions is rapidly increasing to bolster the growing penetration of photovoltaic and wind power plants. The CSP technology utilized in the Redstone project also enables an alternative and competitive solution for the continuous supply of 100% renewable electricity. Energy storage is particularly challenging when storage needs last for more than a few hours; however, with the use of molten salt thermo-solar receivers, power will be available twenty-four hours a day.

Going beyond solar, the John Cockerill Group is working on various projects which combine renewable solutions, of which in particular are projects in green hydrogen. More than ever, the Group is positioning itself as a leader in the energy transition by developing renewable energies, whether in solar, wind, green hydrogen, biomass or hydroelectricity.

The Redstone solar power plant equipped with a John Cockerill solar receiver will be the fifth John Cockerill solar tower in the world and the second project undertaken by the company in South Africa. This follows, most notably, the Khi Solar One solar power plant (50 MWe) in service in South Africa and that of Haixi in China (50 MWe), which recently achieved a production record. A third solar tower is in operation in Chile, the Cerro Dominador plant (110 MWe) which was connected to the network a short time ago. A fourth power plant which is also being developed by ACWA Power, is currently under construction in Dubai, and is expected to be connected to the electricity network at the end of the year.

The Redstone power plant in figures:

- A 250-meter-high tower, at the top of which is installed the John Cockerill solar receiver (itself measuring 40 meters high)
- A solar receiver weighs more than 2,000 tons
- Molten salts heated up to 565 degrees centigrade
- An electricity production capacity of 100MWe
- Electricity for an equivalent of 200,000 households
- 440,000 tonnes of CO2 saved annually

About John Cockerill in energy

John Cockerill is a world player in the energy transition. With the strength of more than 200 years of experience in energy and industry behind it, the Group is today developing innovative technological solutions which contribute to the decarbonization of human activities, whether by developing new electricity production capacities from renewable sources, storing green electricity or optimizing the electricity output of existing electric power plants and industrial installations. It adapts its technologies and expertise – heat recuperation boilers for combined cycle gas-steam electric power plant, units for the production, storage and distribution of green hydrogen, receivers for thermo-solar power plants, integrated units for the production, storage and management of green electricity, industrial boilers, wind turbine and hydroelectric installation maintenance, nuclear pipe-work, the automation of industrial processes – to the specific needs of its clients in the industrial and energy domains. John Cockerill is thus providing its technological contribution to the fight against climate change. In 2020 it achieved turnover of 1.01 billion Euros in 19 countries across 5 continents.

About ACWA Power

ACWA Power is a developer, investor and operator of power generation and desalinated water production plants. Registered and established in 2004 in Riyadh, Saudi Arabia; ACWA Power employs about 3,500 people and is currently present in 13 countries in the Middle East, Africa, Central Asia and Southeast Asia. ACWA Power's portfolio includes 64 assets with an investment value of SAR 248 billion (USD 66 billion), producing 42 GW of power and 6.4 million m³/day of desalinated water delivered on a bulk basis to address the needs of state utilities and industries on long term, off-taker contracts under utility services outsourcing and Public-Private-Partnership models.

ACWA Power's mission is to reliably deliver electricity and desalinated water at a low cost, thereby contributing effectively to the sustainable, social and economic development of communities and countries. ACWA Power is committed to the values of Safety, People and Performance in operating its business across all geographies. For more information, please visit www.acwapower.com.

John Cockerill, enabler of opportunities

Driven since 1817 by the entrepreneurial spirit and passion for innovation of its founder, the John Cockerill Group develops large-scale technological solutions to meet the needs of its time: preserving natural resources, contributing to greener mobility, manufacturing sustainably, combating insecurity and facilitating access to renewable energy.

Its offer to businesses, governments and communities consists of services and associated equipment for the sectors of energy, defence, industry, the environment, transport and infrastructures.

With over 5000 employees, John Cockerill achieved a turnover of 1.01 billion euro in 19 countries on five continents in 2020.

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