

## **Four YORK chillers earns SABC R7.9 million in energy savings per annum**

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SABC Auckland Park has replaced its six 40-year-old chillers with four new YORK chillers from Johnson Controls. The R8.5 million investment in new Chillers is part of a central plant upgrade project that delivers a more efficient cooling solution, offers improved controls and will provide the SABC with sufficient capacity to meet its growing needs. The time to return on investment: a little over two years for the total project – much of it in the form of significant savings in energy consumption that the new system delivers.

“The SABC’s Auckland Park premises extend over roughly 165,868m<sup>2</sup> lettable floor area and house approximately 6,000 people on a daily basis. Our existing six chillers were 40 years old – they had been well maintained but had reached end of life. By making use of newer technology, centralising our plant equipment, and leveraging existing investments, we determined that we could improve environmental control across our facilities, increase our flexibility in terms of failover, gain significant energy savings and gear the broadcaster to meet future HVAC needs,” explains Bruce Phipson of SABC.

Reliability, standby operations and efficiency were high on the SABC’s list of requirements. Aurecon were appointed as the consultants to do the design, Airgro and Johnson Controls were appointed by tender process to do the installations. Johnson Controls’ YORK chillers were selected to provide the best solution. Four chillers – two water-cooled and two air-cooled – were identified as suitable to meet the SABC’s core and standby needs.

### **A new configuration for greater control and efficiency**

The two YORK YK centrifugal water chillers take the complete complex load, replacing all six legacy chillers. The two air-cooled chillers will be placed on the SABC’s generator or standby grid for use in case of a power cut or water cut. One will be used as standby for the SABC’s Radio block, and the other for the TV block.

“The two air-cooled chillers give the SABC greater flexibility, reducing its dependence on water, and reducing the complexity of ancillary equipment such as pumps and cooling tower fans,” notes Russell Hattingh, Engineering Manager at Johnson Controls Systems & Service. “We also expect that the SABC will see significant savings with the new design. A reduced number of chillers results in reduced ancillary loads (as there are fewer pumps), and controlling two chillers is easier, limiting the risk of leaving chillers running when they are not required. And, of course, the newer chillers are much more efficient, which means SABC will enjoy reduced power consumption during both peak and off-peak periods.”

The total Auckland Park complex maximum demand has dropped from 8.45MW per month to 7.66MW. Average consumption per annum has dropped from 60.93GWh to 54.49GWh. “This brings energy and running costs down by R7.9 million per annum, effectively ensuring a return on this investment in two and a half years. Maintenance savings have not been factored into this calculation,” says Phipson.

With the addition of the Johnson Controls Central Plant Optimisation (CPO 10) application, further savings are expected. CPO 10 allows programming of complex chiller plant configurations and at its core has a chiller selector that determines which chillers meet the building cooling load requirements and selects the combination of chillers that operates most efficiently. The SABC is also exploring use of Johnson Controls’ Building Management System which will allow it to effectively monitor and optimise utility spend.

The water-cooled chillers were commissioned in June 2015 and the air-cooled chillers in 2016.

“We are pleased with the performance of the system and the support provided by the Johnson Controls team. We are seeing quantifiable cost and efficiency improvements and have better localised control. The water-cooled chillers have also been put through their paces with good results. And we are not getting queries from staff – a strong indication that their environments are comfortable and HVAC is working as it should,” concludes Phipson.