POWER GENERATION

ACC Commissioning in the Nile Delta region

Wastewater had to be limited, so reverse osmosis was not suitable for this project. Two high volume custom loaded demineralization systems carried a power station under construction through its commissioning without a single interruption to supply.



CLIENT	LOCATION	SERVICE	DURATION
EPC – new build Gas CCGT	Egypt	Commissioning: High-flow demineralization	6 months

800 GPM	<0.1 µS/cm	2 days
PEAK PRODUCTION FLOW	PRODUCT WATER CONDUCTIVITY	SETUP AND COMMISSIONING

THE CHALLENGE

High flow, large capacity, and no room for a supply interruption

Production of demineralized water at a flow rate up to 800 GPM using ion-exchange resin was the only option. Discharging of wastewater was restricted so reverse osmosis was unsuitable, despite its usefulness for remote and large flow projects in commissioning of new CCGT power stations under construction.

A previous supplier was unable to meet the capacity and flow required to ensure each of the power plant commissioning phases would be performed without downtime. If the demin water supply stopped it was likely the whole process would need a restart, costing valuable time and capacity of the ion-exchange resin.

KEY DATA

Application	ACC commissioning — high-flow demin
Industry	Power generation
Feed water source	Condensate and DI mix
Feed quality	<20 NTU, <50 µS/cm, <50 ppb SiO_2

The Ecolutia systems, built within shipping containers for ease of transportation, would also need to be set up and configured on site within 2 days to reclaim some lost days in the construction schedule. As this was a major consideration for the customer a new design and setup procedure was needed for the commissioning to be completed smoothly and efficiently.

THE SOLUTION

Remote location demineralization in two Proteus systems

With the high flow and high capacity in mind, Ecolutia designed and installed a configuration that would be capable of exceeding the customer's expectations and provided contingencies in a project location where alternatives are limited.

The project design consisted of a prefiltration unit that would reduce backwashing and therefore reduce wastewater. The design also included an ability to backwash each filter tank separately, while still producing a high flow of demin water, should a need arise.

After the filtration, 2 Proteus units, with a specialist combination of ion-exchange resin and tank configuration, produced the demineralized water. This allowed Ecolutia to achieve a higher production capacity using fewer units.

These 2 systems could operate in series or parallel to meet the periods of high flow demand during the commissioning. Due to the flexibility of the configuration Ecolutia was able to isolate certain tanks for additional polishing should it be required. This also allowed for greater certainty in managing the resin capacity.

TREATMENT FLOW PATH



THE RESULTS

No backwashes, no downtime, no replacement units

The project design and system configuration proved successful in meeting the phased demands of the project. The large capacity of Ecolutia's filtration system played a significant role in the project's success, which meant no backwashes were needed throughout the project.

The consistent and large flow rate allowed the customer to finish commissioning and avoid unnecessary downtime from potential interruptions

Production flow rate
Up to 800 GPM

Product water quality
<20 ppb SiO_2, <0.1 µS/cm

Treatment flow path
Basket filters, MMF, SAC, SBA, MB

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to the supply of demineralized water at critical times.

The capacity of the ion-exchange resin was more than required and therefore the customer did not have to worry about replacement units and further delays to their commissioning schedule.

COMMISSIONING A NEW PLANT?

Demin water at the flow you need.

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