

On the wave of Carbon Neutrality, Veolia offers tailor-made ultrapure water system to boost photovoltaic giant

CASE STUDY | Photovoltaics & Microelectronics



In 2020 at the United Nations conference, China demonstrated their goal to fight climate change by striving to “**achieve peak carbon dioxide emissions before 2030 and carbon neutrality before 2060.**” In the 2021 National People's Congress and Chinese People's Political Consultative Conference, the goal "carbon peak as well as carbon neutrality" has been written into the conference report on the work of government becoming popular topic.

| Challenge

China's goal "carbon peak and carbon neutrality" remains both a challenge and an opportunity for the Chinese solar photovoltaic industry. To build a clean, low-carbon, safe and efficient energy system, China's solar photovoltaic industry will expand production on a large scale and enter the era of grid parity. The production process of photovoltaic products requires high-quality pure water. Under the pressure of expanding production, addressing the need for large amounts of pure water is a major challenge for solar photovoltaic enterprises. One leading solar photovoltaic solutions provider turned to Veolia for help with their pure water production needs.

| Solution

In the field of ultrapure water production, the integrated process of **ultrafiltration (UF), reverse osmosis (RO) and electrodeionization (EDI)** provides consistent high-quality water production, simple operation, low operation cost, and easy maintenance all while being an environmentally friendly option.



Products:
E-Cell EDI, ZeeWeed UF and
Reverse Osmosis System

Applications:
Ultrapure water

Capacity:
200m³/h

Commissioned:
2019

Location:
Sichuan, China

This type of process is gradually replacing the traditional multi-media filter (MMF), Strong Acid Cation (SAC), Strong Base Anion (SBA), Mixed Bed (MB) technology and becoming mainstream. While in the photovoltaic industry, UF+RO+EDI with mixed bed polishing does achieve even more premium water quality.

A leading solar photovoltaic enterprise located in Western China proactively created a complete upstream and downstream supply chain. With the

mission to "build a world-class clean energy enterprise for the benefits of mankind", multiple crystalline silicon solar cell expansion projects have been put in commission.

In April 2019, this company invested in constructing a 3.8GW crystalline silicon solar cell production line and related supporting facilities, including 4 sets of pure water treatment.



Figure 1: Pre-Treatment

Veolia played an important role in this project by providing pre-treatment engineering and process solutions for ultrapure water generation with its core products, including: ZeeWeed* UF, AG RO, and E-Cell* EDI. See Table 1 for the specific product models used, and Figure 2 for pictures of the installation.

Table 1: Product Models Used for Solution

Technology	Product Model
EDI module	E-Cell-3X
RO membrane	AG8040F-400
RO membrane	AG8040F-400FR.34
UF Membrane	ZW1500

| Performance

Five months after the system was put into operation, Veolia engineers conducted an on-site follow-up during which system performance was monitored and evaluated.

The results showed that all the UF, RO and EDI membrane systems were operating as expected and all indicators including water production, water quality, water resistance, and desalination rate satisfied design requirements.

| Veolia Ultrapure Water Solutions

Veolia offers a broad range of water treatment equipment, membranes, chemicals, and services to assist industries such as new energy, microelectronics, pharmaceuticals, food & beverage and other industries that have extremely stringent requirements on water quality for their production. Veolia helps build a complete ultrapure water system to ensure product quality, generate substantial savings, and improve environmental compliance.



Figure 2: Membranes used in this project -- ZeeWeed UF (left), E-Cell EDI (right) and RO System (bottom)

With these advanced products, technologies, and industry experience, Veolia can develop a customized ultrapure water solution that:

- Delivers large amounts of stable quality ultrapure water with quick analysis and real-time monitoring
- Utilizes resources in an efficient and seamless integration with existing systems
- Reduces operating, maintenance, and overhead costs
- Ensures regulatory compliance and streamlines chemical and fluid management

Veolia is committed to support the photovoltaic industry on the full-scale needs of water treatment toward the global mutual goal of carbon neutrality.

If you would like more information on our ultrapure water solutions, please visit our website.

Veolia Water Technologies

Please contact us via:

www.veoliawatertechnologies.com