

Salgenx Unveils Hybrid Solar-Thermal Power System with Integrated Desalination and Grid-Scale Saltwater Battery Storage

Salgenx announces hybrid energy system with solar PV-driven supercritical CO₂ power generation, waste-heat desalination, and Salgenx saltwater battery storage.

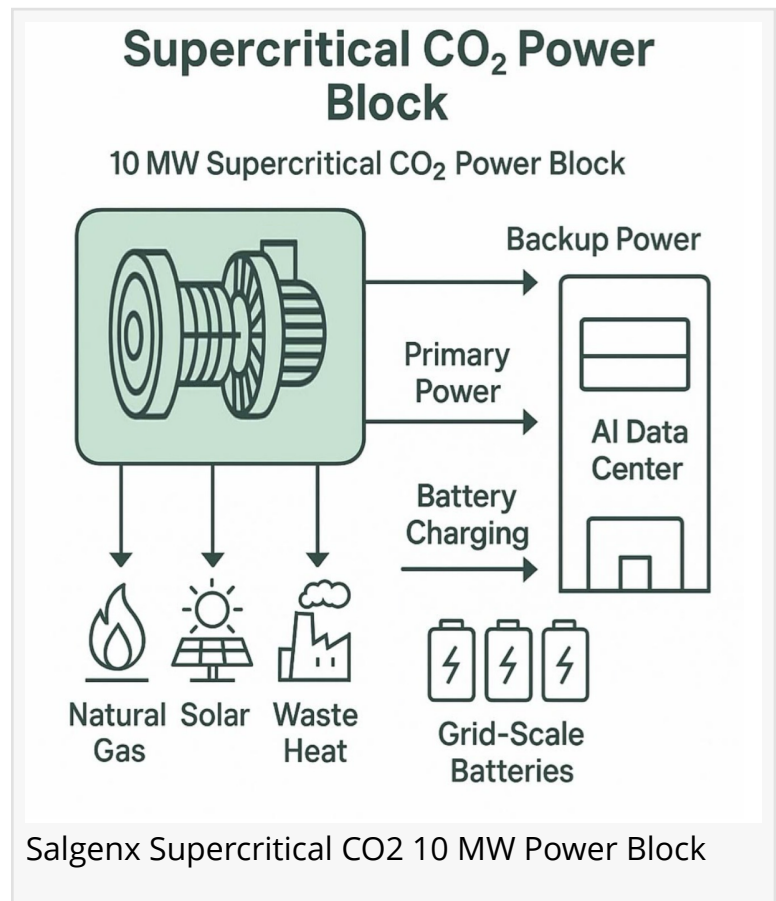
MADISON, WI, UNITED STATES, October 17, 2025 /EINPresswire.com/ -- Salgenx, a leader in renewable energy innovation, has unveiled a revolutionary hybrid solar-thermal power generation system that combines photovoltaic, supercritical CO₂ turbine, and desalination technologies into one integrated platform—storing all generated electricity in Salgenx's patented saltwater flow batteries for grid-scale deployment.

A New Standard for Solar Efficiency

- The system uses solar photovoltaic (PV) panels to power a supercritical CO₂ compressor in a Brayton Cycle, dramatically reducing internal power demands in the turbine cycle.
- At the same time, concentrated solar thermal collectors heat the compressed CO₂ to 500 °C or higher, enabling turbine efficiencies exceeding 40 percent—well above traditional thermal cycles.
- This dual solar input—electrical and thermal—maximizes total conversion efficiency and provides stable, dispatchable electricity rather than intermittent power.

Desalination from Waste Heat

- The waste heat from the turbine's thermal cycle, normally released to the environment, is now harnessed to desalinate seawater or brine, converting low-value heat into a valuable freshwater by-product.
- This approach provides both clean power and clean water, addressing two global challenges



simultaneously.

Stored in Salgenx Saltwater Batteries

- All generated electricity is stored in the Salgenx Grid-Scale Saltwater Battery, a non-toxic, flow-type energy storage system capable of handling megawatt-scale power.
- The battery uses abundant saltwater electrolytes and offers multi-day storage capacity, eliminating the need for lithium or rare-earth materials.
- With this configuration, solar-generated electricity can be dispatched on demand, stabilizing the grid and supporting 24-hour renewable operation.

Economic and Environmental Advantages

- Compared with standard solar PV (22 percent efficiency), the [hybrid sCO₂ system](#) offers greater total energy yield and firm, dispatchable power without relying on costly lithium-ion batteries.
- Integrated desalination adds a secondary revenue stream and enhances the sustainability profile of remote or coastal installations.
- The combined system reduces carbon intensity, water scarcity, and grid instability—three of the most pressing issues facing renewable energy adoption today.

About Salgenx

Salgenx develops advanced saltwater flow battery systems and integrated renewable power solutions designed for large-scale grid storage, industrial, and desalination applications. The company's mission is to enable sustainable, closed-loop energy systems that transform waste heat and renewable energy into long-term economic and environmental value.

Salgenx systems are designed for grid stabilization, renewable integration, and industrial energy management, offering a revolutionary alternative to lithium-ion and vanadium redox systems.

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Supercritical CO2 Turbine

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