Distributed Energy Storage module
EcoFlex eHouse to support the grid with battery energy storage

The energy storage module (ESM) in EcoFlex eHouse solution, with integrated energy storage, provides a buffer of power and energy to maximize system efficiency. Typical applications are peak power demand control, energy back-up and frequency regulation. The different versions of the pre-engineered and industrialized ESM allow scalability, reduction of installation costs, high reliability and reduced project execution times. This solution utilizes a Connection Equipment Module (CEM) on an EcoFlex eHouse and battery module enclosed, also in the EcoFlex, as a complete solution. ISO dimensions makes this solution easy to ship, load and offload.

Features of solution
- ISO dimensions for ease of transportation
- Lockable enclosures to prevent unauthorized entry
- Compact design to reduce footprint installation
- Pre-tested at factory
- Robust design

Equipment description
The solution comprises two pieces of delivery. One of the EcoFlex eHouse enclosures typically houses a low voltage switchboard with protection devices, ie circuit breakers or fused disconnects, the battery system and the control system. The other EcoFlex eHouse is comprised of the medium voltage switchgear (up to 40.5 kV), transformers (oil or dry-type) and the bidirectional AC/DC converter.

Technical data

<table>
<thead>
<tr>
<th>Key specifications</th>
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<tr>
<td>Medium voltage level</td>
<td>from 2.4 – 40.5 kV</td>
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<tr>
<td>Typical ratings (kVA)</td>
<td>Up to 4600 kVA in one skid</td>
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<tr>
<td>Storage power</td>
<td>Up to 1800 kW per EcoFlex</td>
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<tr>
<td>Storage capacity</td>
<td>Up to 1800 kWh per EcoFlex eHouse</td>
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<tr>
<td>Trafo type</td>
<td>Oil</td>
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<tr>
<td>Protection degree</td>
<td>IP 54 (MV SWGR, LV and storage- IP00 for trafo)</td>
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<tr>
<td>Applicable standards</td>
<td>IEC, GB, AS, GOST, ANSI, CSA, and more</td>
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Optional equipment
- Seismic certifications
- HVAC
- Fire extinguishing system
- SCADA ready
- Remote monitoring
- Remote monitoring and control
- Energy management systems

Installation
- Factory assembled and tested
- MV connection and interconnection between two modules needed at site
- Reduced site works
- Compact design for reduced footprint
- No heavy crane needed
- No special lifting devices needed

Single line diagram

Energy storage module with skid and EcoFlex eHouse