STAND-ALONE POWER PLANT

POWER PLANT FOR A WIDE RANGE OF APPLICATIONS

POWER PLANT **LEST**

The **LEST** power plant is built on the basis of the basic PBR module/stack. It's a simple, self-contained, ready-to-use, robust platform that's fully scalable.

The power plant provides cost-effective and safe energy generation/storage.

LEST can be used as a load balancing system for public power supply systems during periods of maximum and minimum energy consumption.

POWER PLANT LEST

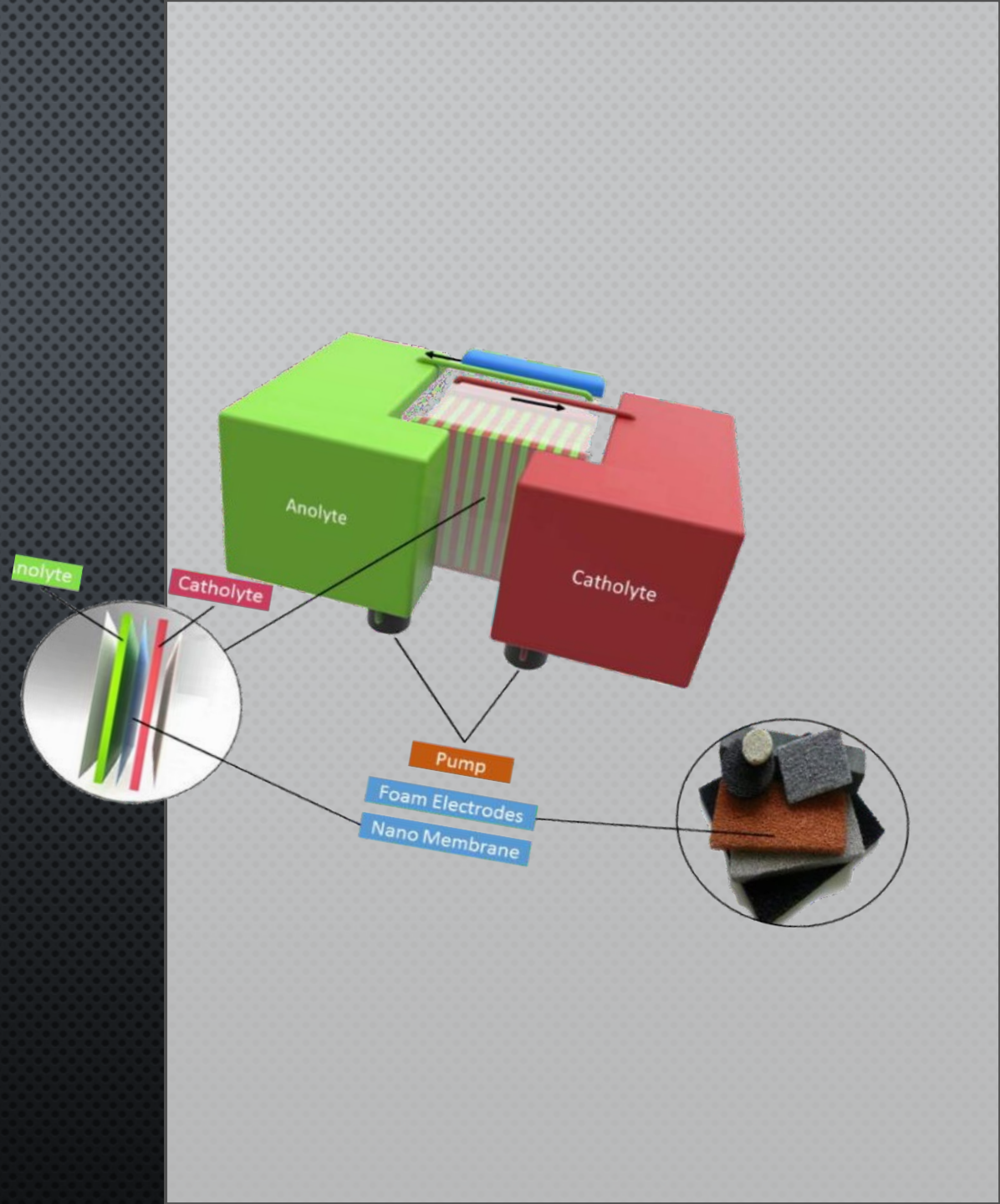
APPLIED **TECHNOLOGY**

A PBR module is used as a source of electrical energy in the power plant.

This is a patented new type of flow-through, rechargeable battery that has two differently charged active components/electrolytes circulating in modules/stacks.

The electrolytes are separated by a membrane inside the PBR.

Due to the circulation of differently charged liquids, ion exchange through this membrane creates an electric current.



POWER PLANT LEST

PBR BASE MODULE/STACK

It's a compact all-in-one device:

- Size: 75x80x40cm
- Capacity: 7.8 kWh
- Power: 3 kW (up to a maximum of 4.5 kW).

Scalability is allowed – sequential installation of multiple **PBR** stacks.

The device is designed for 30000 charge/discharge cycles. At the same time, a deep, almost 100% discharge is allowed.

POWER PLANT **LEST**

APPLIED **TECHNOLOGY**

PBR flow batteries are designed for stationary energy storage with a long service life in the residential, commercial and industrial sectors. They are easily scalable from single battery installation to arrays when deployed to the network.

LEST's PLUG-AND-PLAY energy storage system, based on reliable **PBR** flow batteries, can move and manage large volumes of energy. Our **PBR** technology allows the user to independently manage, protect and monitor their batteries 24/7.

POWER PLANT LEST

ADVANTAGES OF THE **TECHNOLOGY**

DEPTH OF DISCHARGE.

Unlike lithium-ion, they can be constantly discharged «to zero».
PBR batteries do not degrade from deep discharge.

FAST RELOADING/REFUELING CAPABILITY.

SAFETY.

PBR batteries are resistant to high temperatures and do not explode,
no need for air conditioning and fire extinguishing systems.

SAFETY FOR HUMANS AND THE ENVIRONMENT.

PBR batteries do not contain harmful and toxic substances.

The filling of **PBR** batteries can be
EASY TO DISPOSE OF AND REGENERATE.

POWER PLANT LEST

BASIC **SPECIFICATION**

Внешние размеры	20Lx8Wx9.5H ft. 6,058x2,438x2,591 m
Weight dry/with electrolyte	18,000/50,000 lbs 8,165 kg / 22,680 kg
Rated power, kW	24
Energy intensity at rated power, kWh	160
*Operating time at rated power, h	6,7
Maximum power, kW	36
*Discharge time at maximum power, h	1,5
Nominal voltage, VDC	12-48
Nominal current, A	500
Maximum current, A	2000
Number of cycles	20 000
Energy efficiency (at rated power)	> 75%
Power consumption of additional equipment, VAC	208
Interfaces	USB/RS-485/TCP-IP
Humidity in the room, %	5-95
Ambient temperature, ^{0}C	-10...+45

* The discharge time of the LEST power plant is determined by the volume of the electrolyte tanks.

POWER PLANT LEST

SERIES

	Series	LEST T1	LEST 4T1	LEST 8T1
PBR model	PBR quantity			
PBR-S1	16	48kW/160kWh	192kW/640kWh	384kW/1280kWh
PBR-S2	22	65kW/160kWh	256kW/640kWh	512kW/1280kWh
PBR-S3	27	80kW/160kWh	320kW/640kWh	640kW/1280kWh

* The LEST power plant of greater capacity and capacity is manufactured according to a separate customer's technical specification.

POWER PLANT LEST

ADDITIONAL **INFORMATION & FUNCTIONALITY**

- Operating mode: 24/7
- High Energy Density: 600W/kg
- Constant Power Output
- Hibernate mode: pause for a long time at 100% charge
- Quick restart
- Long-term service life
- Fire safety
- Scalability
- 100% recyclable
- 100% eco-friendly
- Operational safety

POWER PLANT **LEST**

POWER PLANT **CONTROL SYSTEM** (BMS)

FUNCTIONS

- Measurements: Voltage, Current, Power, Temperature (VCPT)
- Accurate Reporting (System Operating Control - SOC)
- Available Energy and Charge/Discharge Power (ACDP)
- Real-Time Data Logging (RTDL)
- DC-DC converter control
- DC-AC converter control
- Control and monitoring of thermal management

MONITORING AND CONTROL
in real time

- Overcharge or discharge protection
- PBR stack protection
- Monitoring of leakage sensors
- Electrolyte overheating
- Identification and control of personnel access
- Automatic power control at the end of the discharge regardless of inverter commands

AEP Engineering

THANK YOU!

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