MAXIMIZING VALUE THROUGH ENERGY STORAGE
FOR UTILITIES, MICROGRIDS, COMMERCIAL & INDUSTRIAL
Commerically-Deployed, Breakthrough Energy Storage Solution

- Advanced Vanadium Redox Flow Battery

- All-in-one flexibility - energy & power applications
- Proven high performance electrolytes & stacks
- Industrial engineering of fully integrated AC system
- Optimized power electronics & unmatched controls

Flexible, Long Life, Safe, Economic

1MW, 4.0 MWh
Customer and Industry Adoption

- **UET Installations 2014-Q1 2016  4.850 MW/19.4MWh**

- Harbour Pointe Energy Storage Project (Mukilteo, WA) **May 2014**
  - 500kW/2MWh Uni.System™, over 250MWh discharged to Snohomish PUD grid, over 140,000 frequency regulation cycles

- Citizens Wind Park (Braderup, Germany) **Sept 2014**
  - 250kW/1MWh, exceeded performance requirements

- Avista Energy Storage Project (Pullman, WA) **Dec 2014**
  - 1MW/4MWh Uni.System, largest capacity flow battery in North America and Europe (largest containerized in the world)
  - Grid-connected and customer-side: Schweitzer Engineering Lab

- Mission Produce (Oxnard, CA) **Q4 2015**
  - 500kW/2.0MWh Uni.System at packing & ripening center
  - Peak-shaving and energy savings

- Snohomish PUD Energy Storage Project (Everett, WA) **Q4 2015**
  - 2MW/8.0MWh Uni.System at Everett Substation

- Terna Energy Storage Project (Italy) **Q4 2015**
  - 500kW/2MWh Uni.System™, part of 35MW procurement

- City of New York (New York, NY) **Q1 2016**
  - 100kW/400kMWh ReFlex™ system at Bronx hospital

- More coming ....
UET Solution Key Features

- **Flexible**
  - Full range of power (kW) and energy (kWh) applications: **all-in-one**
  - From short- to long-duration including simultaneously, e.g. ramping and frequency regulation: **at same time**
  - No state-of-charge (SOC) or duty cycle limitations, operational between \(-40^\circ C\) to \(+50^\circ C\): **global**

- **Long Life**
  - 20-year system life, unlimited cycles (proven over >12,000 cycles, 0-100% SOC, over 7 years)
  - Top-of-class, field-proven components, including battery stacks, power electronics, and controls

- **Intrinsically Safe**
  - Aqueous electrolyte is safe – moderate pH, zero reactivity and flammability
  - No thermal runaway mechanisms, unlike other chemistries

- **Economic**
  - Lowest levelized cost
    - CapEx+OpEx+O&M/GWh over life
  - 100% capacity access over life time
  - Captures multiple value streams
Market Segments and Applications

Utilities/ Grid
- T&D deferral
- Flex capacity/ramping
- Load shifting
- Ancillary services

Microgrids
- Reliability (critical facilities, military)
- Remote communities & mining
- Integrating renewables
- Fuel savings ("Diesel off")

Commercial & Industrial
- Demand charge mitigation
- Time of use savings
- Integrating renewables
- Incentive programs
Utilities: NY’s Reforming the Energy Vision (REV)

- Resiliency, peak reduction, and renewable penetration
- 25% peak load less than 1,000 hours/yr
- Multi-billion $ commercial markets in NYC as of today

Courtesy of Iwan Bann and Getty Image
Utilities: Solving the California Duck Curve

- Storage enables ramp management, reduced load peak, and better renewable integration system-wide
- Requires long duration storage where UET's Uni.Systems excel
- California: 1.325GW of Storage Mandated by 2020

6GW Flexible Capacity
Equivalent performance to 12GW of fossil peakers

3GW/3h storage by 2020:
- Absorb solar over-generation;
- Halve ramping to 2013 levels;
- Reduce system peak by 3GW and also yield system-wide
- frequency regulation
- voltage control
- resiliency
- black start

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Utilities: 100MW Gas Turbine vs. 100MW Battery

Energy storage can provide much greater benefits per MW as a flexible resource!

VS.

100 MW Gas Turbine
- 10 minute ramp
- 50 MW flexible range
- 2768 useable hours/year
- 6500 gallons per hour
- Status quo GHG emissions

100 MW Energy Storage
- <1 second ramp
- 200 MW of flexible range
- >8300 useable hours/year
- Little to no water usage
- Reduces GHG emissions by up to 90%

Energy Storage Benefits
- >600x the ramp rate
- >4x the flexible range
- >3x the operational hours
- Less water usage
- Lower GHG emissions
- Investment lowers costs

* Source: STRATEGEN, ESNA, September 2013
Microgrids: Enabling Diesel Displacement with Solar

- Reduce energy costs by >50% to 26¢/kWh (2015)
- Cut fossil fuel consumption & emissions by 90%
- Hawaii, Alaska, other US locations (65 utilities in the US over 26¢/kWh)
- Military, mining, campuses, islands

<table>
<thead>
<tr>
<th>Indicative LCOE</th>
<th>Diesel</th>
<th>PV</th>
<th>Uni.System</th>
</tr>
</thead>
<tbody>
<tr>
<td>10MW diesel-only load</td>
<td>20MW for 100% load</td>
<td>134MWh/d burning 45,000l/d</td>
<td>8,800t CO₂ annual emissions</td>
</tr>
<tr>
<td></td>
<td>$16M CapEx + $300k/y OpEx</td>
<td>4.3Mgal @ $6/gal = $26M/y</td>
<td>-</td>
</tr>
<tr>
<td>10MW diesel-only load</td>
<td>20MW for 70% load</td>
<td>94MWh/d burning 32,000l/d</td>
<td>6,160t CO₂ annual emissions</td>
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<tr>
<td></td>
<td>$16M CapEx + $300k/y OpEx</td>
<td>3Mgal @ $6/gal = $18M/y</td>
<td>-</td>
</tr>
<tr>
<td>10MW diesel-only load</td>
<td>10MW for 10% load</td>
<td>14MWh/d burns 4,000l/d</td>
<td>880 t CO₂ annual emissions</td>
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<tr>
<td></td>
<td>$8M CapEx + $150k/y OpEx</td>
<td>0.4Mgal @ $6/gal = $2.4M/y</td>
<td>-</td>
</tr>
<tr>
<td>10MW diesel-only load</td>
<td>20MW for 90% load</td>
<td>153MWh/day</td>
<td>Discharge 64MWh/day</td>
</tr>
<tr>
<td></td>
<td>$30M CapEx + $400k OpEx/y</td>
<td>$2.4M/y</td>
<td>$45M CapEx + $1.2M OpEx/y</td>
</tr>
</tbody>
</table>

Assumptions: Financial: 20-year PPA, 8% cost of debt • Diesel: 3kWh/liter; 0.18kgCO₂/kWh; 32% efficiency • PV: 6.2-7¢/kWh • Battery: 70% efficiency; no capacity fade; full SOC flexibility; 20y life
Microgrids: Grid-Connected Distributed Energy Resources (DER)

- Requires battery with:
  - No capacity fade
  - 100% SOC flexibility
  - 20-year life
  - Recyclable
  - Safety

- Islands, remote towns, mining & military at 50-75c/kWh

- 20-year PPA pricing of PV + Uni.System™ + diesel

- Precipitous drop in PV LCOE

- Decade of Disruptive Change
Commercial & Industrial: Customer Savings

- Demand Charge and Time-of-Use Savings + Reliability
- Many states (CA, NY, NJ, CT) offer generous storage-related incentives/financing
Breakthrough Chemistry: **PNNL & UET Innovation**

- Developed at and licensed from PNNL
- Improved and commercialized at UET

- VO$_2$Cl(H$_2$O)$_2$

- $V^{5+}$  $V^{4+}$  $V^{3+}$  $V^{2+}$

- $30M$ DOE & PNNL investment, $20$ scientists & $5$ years R&D with full stack/system validation
- Won the US Government’s highest Award of Excellence in Technology Transfer to UET
- Unlimited cycle life, no capacity degradation, $100\%$ of state of charge (SOC) available for use, power& energy decoupled, safe
- Extraordinary electrolyte stability, from $-40^\circ C$ to $+50^\circ C$
- $2X$ energy density improvement

$\rightarrow$ $5X$ product footprint reduction
First-of-its-Kind Containerization: Highly Integrated Design

- Modular, efficient production
- Built-in secondary containment
- Full factory integration
- System-level factory testing
- Ready for transport
- No onsite building required
- More rapid permitting
- “Plug and Play” deployment
- Incremental deployment
- Option for relocation or removal
  » Enables lease financing as non-fixed assets

Uni.System™ Configuration

- Plascoat corrosion protection
- Titanium fasteners
- 4 battery modules in series
- Radiators
- Full secondary containment
- ISO clamps & cableways
- Concrete bolts
- Hardware interlock loop
- BMS
- Ground fault protection
- PCS
- Switchgear
- Wireless monitoring
- Medium Voltage Xfmr
- Battery System
Proven, High-Performance Stacks: 9 Years of Deployments

1kW Stack in 2006
2kW Stack in 2008
5kW Stack in 2008
10kW Stack in 2010
22kW Stack in 2011
25kW Stack in 2012
31.5 kW Stack in 2014

- Mature, powerful stack
- ISO9000/14000, GB/T28001 Certified
- Individual cell voltage data
- 108,000 ft² facility
- 100MW annual stack capacity, scale up to 300MW in 2016

>7 yr testing, over 12,000 cycles and counting

100%SOC cycling

Energy Efficiency
Robust Control System Architecture

**SIEMENS**

**Siemens Components**

- Each string is controlled by a single Siemens PLC
- String consists of four batteries, the PCS, minimal cooling and communications
- The PLC is master of the PCS
- The site controller controls up to 100 strings using Siemens’ new WinCC OA on an industrial PC

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Value-Added Services

- **Applications Engineering and Analysis**
  - Storage asset configuration (and +PV)
  - Single and multiple use-case benefit analysis
  - Pre-engineered site configurations

- **Deployment**
  - Logistics and site engineering assistance
  - System installation and commissioning

- **Maintenance**
  - Scheduled maintenance
  - Performance reporting
  - Performance warranty management

- **Monitoring and Operating Analysis**
  - OSI PI - Industry standard data historian
  - Real-time monitoring and notifications
  - Custom analysis and reporting such as asset utilization and use-case economic analyses

Diagram:
- Monitoring and Decisionmaking
  - Performance analysis
  - Predictive analysis
  - Reports
  - Monitoring
  - Notifications
- Service Management
  - Call Center Management
  - Service Procedures
  - Spare Parts Inventory Management
  - Work Order Management
  - Preventive Maintenance/Regular Service Management
  - Dispatch
- CMMS System
  - CMMS Interface
  - Live Monitoring
- Field Service
  - UET Containers
Safety: UniEnergy is Safest Grid-Scale Battery Available

- **Inherent Safety Features**
  - No thermal run away or explosion
  - Minimal fire hazard
  - Benign operating temperature
  - Full system shutdown capability
  - Benign chemistry

- **Passive Safety Features**
  - Primary containment
  - Secondary containment
  - Electrical safety
  - Ambient pressure operation

- **Active Safety Features**
  - Real-time status monitoring and automated response
  - Hardware interlock loop
  - Fire suppression (customer option)

- **Operational Safety**
  - Onsite control
  - Fault response
  - Remote monitoring
  - Proven operational safety
  - Reuse and recycling
  - Chemical handling procedures
  - Spill handling procedures
# Uni.System™ Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2015 Uni.System™ (AC)</strong></td>
<td></td>
</tr>
<tr>
<td>Peak Power</td>
<td>600 kW&lt;sub&gt;AC&lt;/sub&gt; over 2 hours</td>
</tr>
<tr>
<td>Nominal Rating</td>
<td>500 kW&lt;sub&gt;AC&lt;/sub&gt; over 4 hours</td>
</tr>
<tr>
<td>Maximum Energy</td>
<td>2.2 MWh&lt;sub&gt;AC&lt;/sub&gt; over 8 hours</td>
</tr>
<tr>
<td>Cycle and Design Life</td>
<td>Unlimited cycles over 20 year life</td>
</tr>
<tr>
<td>Available State-of-Charge</td>
<td>100%</td>
</tr>
<tr>
<td>Frequency Reg. Efficiency</td>
<td>75%&lt;sub&gt;AC&lt;/sub&gt;</td>
</tr>
<tr>
<td>Peak Shaving Efficiency</td>
<td>70%&lt;sub&gt;AC&lt;/sub&gt;</td>
</tr>
<tr>
<td>Response Time</td>
<td>&lt;100 ms</td>
</tr>
<tr>
<td>Voltage Range</td>
<td>465-1000 V&lt;sub&gt;DC&lt;/sub&gt;</td>
</tr>
<tr>
<td>Max. Current</td>
<td>1500 A&lt;sub&gt;DC&lt;/sub&gt;</td>
</tr>
<tr>
<td>Footprint</td>
<td>820 ft&lt;sup&gt;2&lt;/sup&gt; (41'W x 20'D x 9.5'H)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ambient Temp.</td>
<td>-40°C to 50°C (-40°F to 122°F)</td>
</tr>
<tr>
<td>Total Weight</td>
<td>170,000 kg</td>
</tr>
<tr>
<td>Self Discharge</td>
<td>Max energy loss &lt;2%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup>Five 20’ standard size containers: four battery plus one power container;  
<sup>b</sup>Self-discharge limited to only the residual volume of electrolyte left in stacks;  
no discharge of energy remaining in electrolyte tanks over time.
## ReFlex™ Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>2016 ReFlex™ (AC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Rating</td>
<td>100 kW&lt;sub&gt;AC&lt;/sub&gt;/4 hours</td>
</tr>
<tr>
<td>Peak Power</td>
<td>120 kW&lt;sub&gt;AC&lt;/sub&gt;</td>
</tr>
<tr>
<td>Maximum Energy</td>
<td>450 kWh&lt;sub&gt;AC&lt;/sub&gt;</td>
</tr>
<tr>
<td>Cycle and Design Life</td>
<td>Unlimited cycles over 20 year life</td>
</tr>
<tr>
<td>Available State-of-Charge</td>
<td>100%</td>
</tr>
<tr>
<td>Efficiency &lt;sub&gt;peak shaving&lt;/sub&gt;</td>
<td>75%&lt;sub&gt;AC&lt;/sub&gt;</td>
</tr>
<tr>
<td>Efficiency &lt;sub&gt;frequency regulation&lt;/sub&gt;</td>
<td>70%&lt;sub&gt;AC&lt;/sub&gt;</td>
</tr>
<tr>
<td>Response Time</td>
<td>&lt;100 ms</td>
</tr>
<tr>
<td>Voltage Range</td>
<td>400&lt;sub&gt;AC&lt;/sub&gt; -10% to 480V&lt;sub&gt;AC&lt;/sub&gt; + 10%</td>
</tr>
<tr>
<td>Footprint</td>
<td>160 ft&lt;sup&gt;2&lt;/sup&gt; (8′W x 20′D x 9.5′H)&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ambient Temp.</td>
<td>-40°C to 50°C (-40°F to 122°F)</td>
</tr>
<tr>
<td>Total Weight</td>
<td>40,000 kg</td>
</tr>
<tr>
<td>Self Discharge</td>
<td>Capped at &lt;2%&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup>A 20′ standard size container;

<sup>b</sup>Self-discharge limited to only the residual volume of electrolyte left in stacks; no discharge of energy remaining in electrolyte tanks over time.
100MWh battery comparison: UET vs. Tesla

**UET**
- Capacity: 100% SOC access for 20 years
- Unlimited, no-fade cycles over 20 years
- Nonflammable; nonreactive; fire retardant
- -40°C to 50°C electrolyte temp
- Requires controlling only 2 SOCs per MWh

**Tesla**
- Capacity: assuming 50% SOC access for 5 years cycle life
- Tesla limits SOC access to ~50% for heavy cycling, increasing the required installed capacity
- Risk of combustion, propagation and thermal runaway requires ample aisle space and eliminates stacking
- Lower capacity <0°C and accelerated degradation >35°C
- 166,000 cells per MWh must be monitored and also controlled for temperature, voltage & current

<table>
<thead>
<tr>
<th></th>
<th>Tesla</th>
<th>UET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Footprint</td>
<td>2 acres</td>
<td>½ acre</td>
</tr>
<tr>
<td>Solar heat load</td>
<td>8MW</td>
<td>2MW</td>
</tr>
<tr>
<td>Operating temp</td>
<td>23°C</td>
<td>45°C</td>
</tr>
<tr>
<td>Substation prep</td>
<td>$2.5MM</td>
<td>$800k</td>
</tr>
<tr>
<td># of SOC's (states of charge)</td>
<td>&gt;16MM</td>
<td>200</td>
</tr>
</tbody>
</table>

## Comparison with Other Battery Chemistries

- Uni.System compared with solid (consumable) electrode batteries including lithium and other flow battery chemistries

<table>
<thead>
<tr>
<th>Technology</th>
<th>Capacity degradation %/year</th>
<th>Footprint, System level</th>
<th>Safety</th>
<th>Recyclability</th>
<th>Opex (% of Capex)</th>
<th>System AC-AC Efficiency</th>
<th>Operational Flexibility</th>
<th>Cycle life</th>
<th>LCOE ¢/kWh</th>
</tr>
</thead>
<tbody>
<tr>
<td>UET Uni.System</td>
<td>0%</td>
<td>up to 240MWh/acre</td>
<td>Intrinsically safe</td>
<td>95wt%, e’lyte fully reusable</td>
<td>2%</td>
<td>65-75%</td>
<td>Both KW &amp; kWh applications</td>
<td>≥12,000 (100%SOC)</td>
<td>Targeting &lt;10¢</td>
</tr>
<tr>
<td>Traditional VFB</td>
<td>0%</td>
<td></td>
<td></td>
<td>95wt%, e’lyte fully reusable</td>
<td>3-5%</td>
<td>60-70%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Na-S</td>
<td>6-10%</td>
<td></td>
<td></td>
<td>Partially recoverable</td>
<td>3-5%</td>
<td>60-75%</td>
<td></td>
<td>6,000 20-80%SOC</td>
<td></td>
</tr>
<tr>
<td>Na-NiCl</td>
<td>5-8%</td>
<td></td>
<td></td>
<td>Partially recoverable</td>
<td>3-5%</td>
<td>60-75%</td>
<td></td>
<td>&lt;5,000 20-80%SOC</td>
<td></td>
</tr>
<tr>
<td>Li-ion</td>
<td>2-7%</td>
<td></td>
<td></td>
<td>Lithium non-recoverable</td>
<td>2-4%*</td>
<td>75-85%</td>
<td></td>
<td>3,000~5,000 20-80%SOC</td>
<td></td>
</tr>
<tr>
<td>Adv. Pb-Acid</td>
<td>10-25%</td>
<td></td>
<td></td>
<td>95wt%</td>
<td>3-6%</td>
<td>65-75%</td>
<td></td>
<td>&lt;1,000 25-75%SOC</td>
<td></td>
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<tr>
<td>ZnBr</td>
<td>Requires stripping</td>
<td></td>
<td></td>
<td>Mostly recoverable</td>
<td>6~8%</td>
<td>55~65%</td>
<td></td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td>Na-ion MnO₂-C</td>
<td>No number reported</td>
<td></td>
<td></td>
<td>Mostly recoverable</td>
<td>No field experience</td>
<td>60-70%</td>
<td></td>
<td>3,000</td>
<td></td>
</tr>
</tbody>
</table>

* Li-ion O&M includes minimum repowering requirements to maintain rated capacity
Summary: Competitive Edge of UET

- **Flexible Asset**
  - Separation of power (kW) and energy (kWh) enables flexible use
  - Effective for long-duration energy and short-duration power applications
  - Provides multiple applications, including simultaneous
  - Broader operational capabilities: temperatures, SOC, marine air

- **Long life (20yrs) and unlimited cycles** (No capacity fade or SOC limit)

- **Superior safety** over Li-ion, Na-S, Na-salt, advanced lead acid; no fire accidents in vanadium redox flow battery (VRFB) history

- **Most competitive LCOS** (levelized cost of storage, targeting <10¢/kwh)
  - Competitive CapEx and OpEx
  - Low deployment price, 15~20% of CapEx
  - Low maintenance price, 2.0~2.5% of CapEx
  - Good efficiency, superior SOC availability, no capacity degradation

→ Maximizing Value to Customers
Field Experience: +15MW/41MWh deployed or pending

- Bolong Holding group has invested a combined $250M into vanadium flow battery technologies, companies, and products
- The group includes UniEnergy Technologies (US), Rongke Power (China), Bolong New Materials (China) & Vanadis (Germany)
- With the Uni.System commercialized in 2014 and multi-MW’s already deployed in 2015, UET is booking 2015-16 production and deployments now.

<table>
<thead>
<tr>
<th>Site#</th>
<th>Year</th>
<th>Projects</th>
<th>Applications</th>
<th>Power</th>
<th>Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2008</td>
<td>China Electric Power Res. Inst.</td>
<td>Distributed energy storage</td>
<td>100kW</td>
<td>200kWh</td>
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<tr>
<td>2</td>
<td>2008</td>
<td>Tibet Electric Energy Res. Inst.</td>
<td>PV integration</td>
<td>5kW</td>
<td>50kWh</td>
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<tr>
<td>3</td>
<td>2009</td>
<td>Green Residential House</td>
<td>Off grid storage</td>
<td>3.5kW</td>
<td>50kWh</td>
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<tr>
<td>4</td>
<td>2010</td>
<td>Green Office Building</td>
<td>Off grid storage</td>
<td>60kW</td>
<td>300kWh</td>
</tr>
<tr>
<td>5</td>
<td>2010</td>
<td>EV Charging Station</td>
<td>Peaking capacity, power quality</td>
<td>60kW</td>
<td>600kWh</td>
</tr>
<tr>
<td>6</td>
<td>2010</td>
<td>Telecom Station</td>
<td>Remote Area Power Supply</td>
<td>3.5kW</td>
<td>54kWh</td>
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<tr>
<td>7</td>
<td>2011</td>
<td>Island Keeper House</td>
<td>Off grid storage</td>
<td>10kW</td>
<td>200kWh</td>
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<tr>
<td>8</td>
<td>2011</td>
<td>Telecom Station</td>
<td>Remote Area Power Supply</td>
<td>3.5kW</td>
<td>48kWh</td>
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<td>9</td>
<td>2011</td>
<td>Ningxia Electric Power Group</td>
<td>Off grid storage</td>
<td>3.5kW</td>
<td>14kWh</td>
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<tr>
<td>10</td>
<td>2012</td>
<td>Wind Turbine Supplier</td>
<td>Smart microgrid storage</td>
<td>200kW</td>
<td>800kWh</td>
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<tr>
<td>11</td>
<td>2013</td>
<td>Wind Farm near Shenyang</td>
<td>Wind smoothing</td>
<td>5MW</td>
<td>10MWh</td>
</tr>
<tr>
<td>12</td>
<td>2013</td>
<td>Wind Farm</td>
<td>Wind smoothing</td>
<td>3MW</td>
<td>6MWh</td>
</tr>
<tr>
<td>13</td>
<td>2014</td>
<td>Wind Farm</td>
<td>Wind smoothing</td>
<td>2MW</td>
<td>4MWh</td>
</tr>
<tr>
<td>14</td>
<td>2014</td>
<td>UET Facility, Washington</td>
<td>3rd party test; Volt Stability</td>
<td>0.5MW</td>
<td>2MWh</td>
</tr>
<tr>
<td>15</td>
<td>2014</td>
<td>Wind Farm, Germany</td>
<td>Wind smoothing</td>
<td>0.25MW</td>
<td>1MWh</td>
</tr>
<tr>
<td>16</td>
<td>2015</td>
<td>Utility &amp; Customer, Washington</td>
<td>Grid-connected &amp; customer-side</td>
<td>1MW</td>
<td>4MWh</td>
</tr>
<tr>
<td>17</td>
<td>4Q15*</td>
<td>Industrial Facility, California</td>
<td>Peak-shaving, energy savings</td>
<td>0.5MW</td>
<td>2MWh</td>
</tr>
<tr>
<td>18</td>
<td>4Q15*</td>
<td>Utility Substation, Washington</td>
<td>Grid-connected energy &amp; power apps</td>
<td>2MW</td>
<td>8MWH</td>
</tr>
<tr>
<td>19</td>
<td>4Q15*</td>
<td>Utility Site, Italy</td>
<td>Demonstration of energy &amp; power apps</td>
<td>0.5MW</td>
<td>2MWH</td>
</tr>
<tr>
<td>20</td>
<td>1Q16*</td>
<td>Hospital Campus, New York</td>
<td>Peak-shaving, energy savings</td>
<td>100kW</td>
<td>400kWh</td>
</tr>
</tbody>
</table>

* Pending/in manufacturing

TOTAL 15.3MW 41.7MWh
Selected Installation #1: Field Testing and 3rd Party Validation

- Uni.System™, 500kW/2MWh
- Adjacent to UET facility
- Approved in Snohomish PUD & BPA interconnection processes
- Began operation May 2014
- >250MWh dispatched to grid
- 140,000 frequency regulation cycles, zero capacity loss
- Combined frequency regulation & load shifting
- Scheduled & utilized by SnoPUD
- 3rd party testing
  - Independent consultant, Garth Corey
  - Sandia National Labs, DOE
Selected Installation #2: AVISTA Project in Pullman, WA

- 800kW/4h; 1MW_p; 4MWh_p Uni.System™
- Grid connected and customer-side @ Schweitzer Engineering Labs
- Deployed December 2014
- Use cases:
  - Grid-tied and islanding operation
  - Avista smart grid enhancement
    - Energy shifting
    - Grid reliability
    - Improved distribution system efficiency
    - Enhanced voltage control
    - Optimized utilization of energy storage
- Project partners
  - AVISTA
  - UET
  - WA State Dept. of Commerce
  - PNNL
Selected Installation #3: Snohomish PUD Project in Everett, WA

- 2MW / 8.0MWh Uni.System™
- Everett Substation
- Begin deploying Q4 2015
- Use Cases
  - Energy shifting
  - Improved distribution system
  - Enhanced voltage control
  - Optimized utilization of energy storage
- Project Partners
  - SnoPUD
  - UET
  - 1Energy
  - WA State Dept. of Commerce
  - PNNL
UET’s DNA & Strategic Partnerships: $250M Invested

NEW ELECTROLYTE
- 2X energy density
- -40°C to +50°C
- Improved reliability

PRODUCT ENGINEERING, ASSEMBLY & SERVICE
60,000ft² design, development & production facility in Seattle

ELECTROLYTE PRODUCTION
- 1,324,000 ft² production facilities
- Electrolyte production capacity >1.5GWh/year
- ISO9001:2008 Certified

FIELD EXPERIENCE
- ~42MWh of UET and Rongke Projects
- German subsidiary

INNOVATION + PARTNERSHIPS + QUALITY

STACK PRODUCTION
- 108,000 ft² manufacturing facility
- Ramping to 300MW annual production capacity
- ISO9000/14000, GB/T28001 Certified

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