Storing Electricity for Our Future

May 2017

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617.714.5723
www.ambri.com
Electric grid: largest supply chain without warehouses

“The greatest engineering achievement of the 20th century”
- National Academy of Engineering

A future grid with electricity storage will...

- Allow for substantially more wind and solar power
- Reduce electricity prices
- Reduce the need for new power plants, transmission and distribution lines
- Improve reliability
Industry built on low asset utilization

Electricity is the most capital intensive industry – in the US, $3 of assets required for $1 of annual revenues

New England Load Factor, Summer Peak, 1991-2024

Load factor has dropped by ~15%

US Peaking Power Plant Utilization

50% have < 2% capacity factor

Sources: EPA, ISO-NE
Ambri’s investors

Ambri has raised over **$50 million** in equity financing since its founding in 2010; Ambri’s investors share our long-term vision for developing an electricity storage technology that will transform the electric power industry everywhere.

<table>
<thead>
<tr>
<th>Series</th>
<th>2010</th>
<th>2012</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Series A</strong></td>
<td>undisclosed</td>
<td></td>
<td></td>
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<tr>
<td><strong>Series B</strong></td>
<td>$15MM</td>
<td></td>
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<tr>
<td><strong>Series C</strong></td>
<td>$35MM</td>
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</tbody>
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**Bill Gates**
Chair, co-founder and former CEO Microsoft

**Total**
Founded in 1924; 2012 revenue of $240 billion

**Khosla Ventures**
Founded in 2004; Over $2 billion under management

**KLP Enterprises**
Family office of Karen Pritzker and Michael Vlock

**GVB**
Founded in 1807; Swiss insurance firm; ~$350B insured assets

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**2014**
- NECEC awards Ambri “Emerging Company of the Year”
- Global Cleantech 100
- Ambri named one of 25 most audacious companies named by Inc. magazine

**2013**
- Global Cleantech 100 and Rising Star of the Year Award
- Ambri named MIT Technology Review’s 50 Disruptive Companies

**2012**
- Sadoway’s TED Talk on Ambri’s Liquid Metal Battery has over 1.5 million views
- Professor Sadoway named Time’s 100 most influential people in the world

**2010**
- David Bradwell named MIT Technology Review’s 35 innovators under 35
The Liquid Metal Battery is a battery platform*

“A liquid metal battery comprises two liquid metal electrodes separated by a molten salt electrolyte that self-segregate into three layers based upon density and immiscibility…”

* Initial chemistry from MIT was Mg||Sb; Ambri commercializing different undisclosed chemistry with lower operating temperature, higher voltage, lower cost
Ambri’s Liquid Metal Battery cell technology is an innovative approach to grid-scale storage

Negligible Fade

100% Depth of Discharge Cycles

Ambri Energy Storage System
- 750 to 1,250 kWh
- 80% round trip efficiency
- 20 year design life
- Respond to signals in milliseconds
- Focused on 4-12 hour applications
- Unaffected by ambient temperature
Island case study: profiles

**SOLAR ALONE:**
with 80 MW of solar, net load swings are dramatic and not all solar generation is able to be consumed

**SUSTAINABLE SOLAR WITH STORAGE:**
storage enables 30+% solar generation mix

**SOLAR AND STORAGE TRANSFORMATION:**
storage enables 60+% solar generation mix
Island case study: economics

As an island utility adds increasingly more solar and storage, the approximate retail rate decreases.

### Total Annual Island Utility Expenses with 160 MW solar, 360 MWh storage

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Annual Expenses (current resource mix)</td>
<td>$145.9M</td>
</tr>
<tr>
<td>Cost of solar generation</td>
<td>$12.2M</td>
</tr>
<tr>
<td>Reduced diesel due to solar</td>
<td>$26.5M</td>
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<tr>
<td>Required flexible capacity investment due to solar</td>
<td>$12.2M</td>
</tr>
<tr>
<td>Total Annual Expenses (160 MW solar, no storage)</td>
<td>$143.8M</td>
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<tr>
<td>Storage cost</td>
<td>$14.4M</td>
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<tr>
<td>Storage O&amp;M</td>
<td>$1.8M</td>
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<tr>
<td>Cost of additional solar for load shifting</td>
<td>$9.0M</td>
</tr>
<tr>
<td>Reduced diesel due to storage</td>
<td>$19.6M</td>
</tr>
<tr>
<td>Avoided T&amp;D expenses due to storage</td>
<td>$23.6M</td>
</tr>
<tr>
<td>Avoided new flexible capacity investment due to storage</td>
<td>$12.2M</td>
</tr>
<tr>
<td>Total Annual Expenses (160 MW solar, 360 MWh storage)</td>
<td>$113.7M</td>
</tr>
</tbody>
</table>
Ambri on path to transform global power markets

Electricity demand worldwide is increasing as populations and economies grow. Massive infrastructure investment is needed -- $17 trillion; storage can significantly reduce needed infrastructure. Storage will change how electric systems are engineered – building to average demand rather than peak.

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Source: IEA, World Energy Outlook 2012
Thank you for your interest

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