Moving Forward

March 2018
U-Battery Single Unit

Key to Layout
1. Turbine Generator
2. Heat Exchanger
3. Reactor
4. Maintenance Floor
5. Fuel Cartridge Store
6. Fuel Store Ventilation
7. Fuel Handling Facility
8. Control Room

At a Glance
- Single unit – U-Battery produces 10MWe which can be delivered in a CoGen configuration with up to 4MWe electricity or 750°C process heat.
- Gas cooled – Helium in primary circuit, nitrogen in secondary circuit.
- High integrity TRISO fuel – Enables simplicity of design.
- Construction – Adaptable configuration to meet local need. It can be installed above or below ground level.
- Flexible – Installation can be single or in multiple units.
U-Battery Fuelling Route
Design and Development

- Conceptual design reviews completed
- Cost estimate model developed
- Supply chain (Tier 1) engaged
- International market development
Applications

Initial Strategic Markets

- Remote Locations
- Heavy Industry
- Nuclear Backup
- Specific Purposes
Projected Demand

- Rest of the World
- UK

[Source: Updated from Collinson-Grant study April 2014]
## Demand-Led International Growth

<table>
<thead>
<tr>
<th>Region</th>
<th>Countries/Regions</th>
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<tbody>
<tr>
<td><strong>UK</strong></td>
<td>• Export-focused technology, manufacturing &amp; supply chain opportunity</td>
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<tr>
<td></td>
<td>• High tech IP, advanced manufacturing facility &amp; jobs</td>
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<td></td>
<td>• Decarbonise energy intensive industry (power &amp; heat)</td>
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<td>• Global leadership in a new global energy technology sector</td>
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<td>• UK vendor, with potential joint design/engineering in Canada</td>
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<td><strong>NORTH AMERICA</strong></td>
<td>• <strong>Canada</strong> – 300+ remote communities, plus heavy industry and mine sites</td>
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<td></td>
<td>• Federal commitment to secure low-carbon embedded power</td>
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<tr>
<td></td>
<td>• “Hatch” study recommended U-Battery to Federal and Ontario Government</td>
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<tr>
<td></td>
<td>• Demonstration site offered by Canadian Nuclear Laboratories</td>
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<td></td>
<td>• Registration for VDR with Canadian Nuclear Safety Commission</td>
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<td></td>
<td>• Potential Canada-UK design/engineering collaboration</td>
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<tr>
<td><strong>EU</strong></td>
<td>• <strong>Poland</strong> – carbon intensive heavy industry</td>
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<tr>
<td></td>
<td>• Seeking long-term energy independence</td>
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<td>• U-Battery identified by Polish authorities as potential solution for industry</td>
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<td>• Letter of Intent to investigate early deployment</td>
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<td>• In January 2018, Polish Task Force for high-temperature gas reactor development recommended preparation for deployment.</td>
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<td>• Potential UK-Poland cooperation government to government</td>
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<tr>
<td><strong>Asia</strong></td>
<td>• <strong>Japan</strong> - Technical cooperation offered by JAEA</td>
</tr>
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<td></td>
<td>• Early interest from <strong>India</strong></td>
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</tbody>
</table>
Facilitators for development

• UK and Canada
  – goal-based licensing;
  – regulators are open to engagement with developers of advanced reactors; and
  – regulators are interested in international co-operation.

• Both countries have a depth of ambition to develop commercially-viable advanced nuclear reactors for deployment at home and for export – reactor developers, utilities or other end-users, supply chain, fuel cycle companies, national laboratories, universities and those interested in low-GHG emission power sources.

• Governments and utilities are trying to understand the business case for supporting advanced reactors
  – In UK
    • Advanced Modular Reactor Competition
  – In Canada
    • NRCan and COG Roadmaps
    • NRCan Clean Growth Program
Why Canada?

Opportunity
- 300+ remote communities
- Remote heavy industry & mining
- Carbon intensive & logistically challenging
- Need secure low-carbon embedded power
- Interest in early deployment at Chalk River Laboratories
- Application for early phase funding under Clean Growth Program

Demand
- U-Battery recommended to Natural Resources Canada and Ontario Energy Ministry
- Specific interest in micro-scale (2-20MW)
- Potential deployment, development & supply chain
- Interest in global potential for micro-nuclear
A recent CNL study found that the potential market for off-grid SMRs in Canada consists of over 600 power plants, with a total power demand of 35 GWe. Another important finding was that most of these power plants require an installed capacity of less than 5 MWe.

Delivered Cost of Power

UK Levelised Cost Estimates for Projects Commissioning in 2025 Compared to Diesel Generation in Canadian Northern Territories

Key Developments
International Development Milestones

June 2016  Collaboration agreement with Polish National Centre for Nuclear Research

November 2016  Master Task Agreement and MoU with Canadian Nuclear Laboratories

March 2017  Vendor Design Review registration with Canadian Nuclear Safety Commission

May 2017  Memorandum of Cooperation with Japan Atomic Energy Agency

July 2017  Approval to incorporate in UK from URENCO Board

October 2017  MoU with Bruce Power

February 2018  Approval to incorporate in Canada from URENCO Board
Company Structure

URENCO Limited

U-Battery Limited

U-Battery Canada Limited

U-Battery Developments Limited
Strategic Goals
2018
Moving Forward in 2018

Strengthened investment in Canada
- Established Canadian subsidiary company in 2018
- Formally establish project management and licensing support in Canada
- Regular relationship-building with government and industry stakeholders
- Focus on UK and Canada as top market opportunities

Launch and advance in regulatory process
- Phase 1 Vendor Design Review with CNSC
- Initial submission to CNSC vendor design process
- Leverage relationship with Kinectrics, Wood, Bruce Power and CNL for support

Advance planning and design activities
- Develop Strategic Deployment Plan - basic design to operating demonstration unit; overall project execution plan
- Basic or Front-End Engineering Design
- Site ranking and evaluation process; prepare for environmental assessment
Moving Forward in 2018

Potential collaboration/partnership with utilities
- Early phase investor
- Site licensee
- Owner/operator for First-Of-A-Kind reactor
- Fleet deployment

Raise awareness and build confidence
- Regular meetings and correspondence with key departments/ministries and industry stakeholders
- Participation at key industry events and conferences
- Competitive differentiation and market development
- Engage with Canadian supply chain

Seek funding and investment opportunities
- Funding for short, medium and long-term activities
- Industry partners and financial investors
- Government grants
U-Battery: Opportunity

- Low Risk
- Low Cost
- Delivering