



Moving Beyond the Oil Drum

The global energy mix has become increasingly more diversified, with improvements in technology enabling generation from new renewable sources. Finding innovative ways of storing and transporting the energy generated from renewable sources is set to become a key challenge for the future of the energy market.

Improving the efficiency in storing energy will assist with the transition from traditional grids to smarter grids fit for the 21st Century. Developments in the market for electric vehicles add to the need for transportable energy solutions. Since the cost of an electric car's battery currently can account for half of its price tag, any improvements in cost effectiveness should improve the appeal of electric cars amongst consumers.

Challenge: Propose a New Transportable Energy Storage System

The Fundamental Ideas Energy Storage Challenge was an initiative launched in 2010 to find the best ideas from around the world for new systems to store and transport energy. Powered by InnoCentive and supported by the US Office of Naval Research (ONR), the competition sought to create an energized and diverse community of Solvers to tackle this pressing technological Challenge.

InnoCentive worked closely with the ONR to develop a set of rigorous criteria and inducements to ensure the Challenge produced fresh and exciting innovations. Proposals needed to demonstrate that they were different from existing systems and fit within a range of size restrictions.

Finalists were invited to attend PitchLive, a two-day innovation marketplace at the Business Design Centre in London, and present their ideas before sponsors, investors, peers, and a panel of independent judges. Judges evaluated entries on their level of innovation and their potential impact. They also considered the development plan for the proposals, and whether the prize fund would speed up or enable an idea to be developed where it otherwise might not. Finally, they appraised the technical feasibility of proposals from an engineering point of view.

InnoCentive reached out to thousands of Solvers in over 25 countries, creating in effect a global energy storage community. In addition to deploying social media and publishing tools to reach Solvers, InnoCentive ran localized challenges in India, China, and Israel to find and compare energy storage innovations happening on the ground there with what was being produced in the US and Europe. By combining a local focus with global reach, the Energy Storage Challenge brought together a diverse network of Solvers to uncover ideas with the potential to transform what the energy landscape will look like in the future.

Solution: The Power of Prizes to Attract New Ideas

At the PitchLive event in October 2011, seven finalists hailing from India, Israel, Europe, Canada, and the US presented their innovative ideas for transportable energy storage systems to a panel of expert judges. The event was a way for

CHALLENGE SPECS

CHALLENGE

Energy Storage Challenge

DISCIPLINES

Energy, Storage, Transportable, Renewable, Biological, Chemical, Electrical, Electromechanical, Thermal

SOLUTIONS

Over 120 Received, 7 Finalists

CHALLENGE AWARD

\$250,000

“We’re really pleased to win the Energy Storage Challenge award. I think more than anything else it’s going to help us accelerate one of our most important projects, one where we can use our hydrogen technology to make a practical demonstrator.”

**Professor Stephen Bennington,
Chief Scientific Officer
for Cella Energy**

“The pool of entrants was richly diverse.”

them to gain valuable feedback from industry leaders and peers, and to raise the profile of their potentially transformative ideas.

UK-based Cella Energy was awarded a prize fund worth \$250,000 for its proposal to develop low-cost hydrogen storage materials. Cella Energy’s hydrogen fuel has more energy than gasoline or lithium-ion batteries, and can be handled safely in the open air and pumped like a fluid. The hydrogen fuel will be rolled out in two stages. The first will be as a fuel additive, enabling lower emissions without any change to the fuelling infrastructure or to regular vehicles. The second stage would require changes to vehicles, providing a pure hydrogen solution with zero carbon emissions.

Impact: A Global View of a Rapidly Developing Industry

Over 120 proposals were submitted to the Fundamental Ideas Energy Storage Challenge. Universities, private consultants, SMEs, and large corporations from North America, Asia, and the South Pacific all participated in the Challenge. The pool of entrants was richly diverse, including 20 ideas submitted from the Chinese Academy of Science, and 15 from groups in Israel.

The Challenge enabled the main sponsor (ONR), industry stakeholders, and researchers to see beyond their own networks and gain a global perspective on transportable energy storage that they otherwise would not have had. The focus of the ideas submitted included nanoplasmonics, flow batteries, methane hydrate fuel cells, magnetic capacitors, thermic fluid storage, solar thermal concentration, ultra-capacitor, and supercap technology.

By providing a forum whereby stakeholders could survey innovations at all stages of development, the Challenge provided not only a view of where the industry is now, but what it might look like in 10 or 20 years.

Conclusion: Powering the Future

The Challenge’s global scope and inclusivity helped to facilitate a community of connections with the potential to produce transformative synergies and partnerships. It raised the profile of innovations in energy storage and transport hoping to have a major impact.

Energy Storage Challenge finalists are already doing big things. Cella Energy has received a new round of financing, including a \$1 million investment by Space Florida. US-based SustainX has recently built a 40 kW demonstration plant and is partnering with AES to build a 2MW system, while ITM Power has received substantial funding from a government body to bring its technologies to the mass market.

“The Energy Storage Challenge will play a key role in fostering energy storage innovation and development. Innovators, investors, and industry will all benefit from participating in the process. As an investor with a focus on energy storage, I’m delighted to be involved in this initiative.”

**David Wells, Partner,
Kleiner Perkins
Caufield & Byers**

To learn more about InnoCentive visit www.innocentive.com

About InnoCentive, Inc.

InnoCentive is the open innovation and crowdsourcing pioneer that enables organizations to solve their key problems by connecting them to diverse sources of innovation including employees, customers, partners, and the world’s largest problem solving marketplace. InnoCentive’s proven Challenge Driven Innovation methodology, network of millions of problem Solvers, and cloud-based technology platform combine to fundamentally transform the economics of innovation and R&D through rapid solution delivery and the development of sustainable open innovation programs. Leading commercial, government, and nonprofit organizations such as Booz Allen Hamilton, Eli Lilly & Company, Life Technologies, NASA, Nature Publishing Group, Popular Science, Procter & Gamble, Roche, Rockefeller Foundation, and The Economist partner with InnoCentive to solve problems and innovate faster, more cost effectively, and with less risk than ever before. For more information, visit www.innocentive.com or call 1-855-CROWDNow.

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