Innovative Concepts Program

Inventions and Innovation Program
U.S. Department of Energy

MASTER

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Innovators have many steps to climb on the way to commercialization of their inventions. Many government and private sources of funding are available. The Innovative Concepts Program helps innovators in the early steps of the process.

Helping Good Ideas Find Their Way to Market

Moving an idea from a concept to the marketplace is a long and difficult climb. At each step, trials and pitfalls can hinder an innovator's progress. Many innovators manage to overcome those obstacles with the help of the U.S. Department of Energy's (DOE's) Inventions and Innovation Program (IIP).

Throughout the country, creative thinkers are finding new ways to save energy and increase industrial productivity. IIP nurtures those ideas and helps inventions become commercialized. IIP is one of a team of programs supported by DOE's Office of Energy Efficiency and Renewable Energy, which has the goal of developing cost-effective renewable energy and energy-efficiency technologies that protect the environment and support the nation's economic competitiveness.

The Innovative Concepts Program (InnCon) provides valuable assistance in the beginning of the process when innovators are just starting to explore their concepts. The InnCon Program provides seed money to allow innovators to determine if their ideas are technically and economically feasible. Through the Pacific Northwest Laboratory, InnCon also provides valuable non-financial support by helping innovators find technical partners, commercial sponsors, and new sources of funding. One example of this support is sponsorship at a technical trade show or conference, at which the innovators are given a chance to present their initial findings to a wide audience of private and commercial investors. InnCon also produces a one-page fact sheet for each innovator. These are distributed to potential sponsors by mail and at technology forums.

InnCon works with the innovators to promote their ideas among government organizations, businesses, and industries that could be interested in the technology. This approach has allowed InnCon to leverage its initial investment, providing significant added value to innovators.

InnCon-supported development of a concept may lead to additional support through the Energy-Related Inventions Program (ERIP), which is also part of IIP. Because ERIP funds a more capital-intensive stage of development, ERIP grants are up to five times larger than InnCon grants. ERIP also accepts proposals at any time, whereas InnCon operates in well-defined cycles targeted toward specific energy-related topics.

A Unique Program

Since the Innovative Concepts Program began in 1983, 100 projects have been funded, of which 85 have been completed. Of those completed, 55% have received funding from other sources to continue the work, leading to numerous journal articles, masters and Ph.D. theses, and patents. Many projects have found commercial applications. This section provides a brief description of how the InnCon Program works and how it has grown since 1983.

How the Innovative Concepts Program Works

InnCon operates in cycles of roughly 1–2 years. For each cycle, the InnCon Program chooses an energy-related topic and invites innovators to submit proposals for funding of projects that relate to that topic. In the most recent cycle, for instance, the topics were environmental and transportation-related.

Up to 15 innovators per cycle are awarded seed money—typically \$20,000 to \$22,000—to explore the technical and economic feasibility of their concepts. The InnCon program also seeks funding from other federal organizations that may benefit from the InnCon projects. The involvement of other organizations increases the number of grants provided, increases the visibility of the projects, and enhances the potential to yield commercial products.

As part of the program to foster success in innovation, each innovator attends the InnCon-sponsored commercialization planning workshop to receive training in all aspects of the commercialization process. The workshop helps innovators plan strategies for developing their concepts. It covers topics such as

selecting a commercialization strategy, analyzing markets for new technologies, finding sponsors, raising capital, and licensing. This training is one feature of the InnCon program that has helped over half of the projects funded to attract follow-on sponsorship.

In each InnCon cycle, the innovators are invited (and funded) to participate in a professional symposium, conference, or other forum to showcase their innovation through a presentation and a display. This feature of the program exposes the innovation to sources of follow-on financial support from a wide audience of businesses and industry, state and Federal government sponsors, and international sponsors.

A Brief History of the Innovative Concepts Program

The first InnCon cycle sought new approaches to saving energy in buildings. Of about 40 proposals, 12 were selected to receive funding. Those 12 proposals fell under the general categories of natural lighting methods, building materials, and building systems.

The second InnCon cycle, begun in 1984, funded 10 projects that developed innovative approaches to saving energy in industrial processes. The industrial theme continued in the third InnCon cycle,

which sought innovative concepts for reducing energy use in industrial separations processes, specifically chemical processes, biotechnology separations, and waste or fuel recovery methods. Of the 39 proposals received, 10 were granted funding.

The fourth InnCon cycle focused on methods to reduce energy consumption in buildings through improvements to heating, ventilating, and air-conditioning (HVAC) systems; electrical and control systems; building materials; and natural lighting methods. In response to the solicitation, 62 proposals were received; 8 of these received funding.

The use or reduction of waste streams was the goal of the fifth InnCon cycle. More than 100 proposals were submitted, and 15 were selected for assistance. For the first time, the technology fair was co-sponsored by the U.S. Bureau of Mines, the Environmental Protection Agency, and DOE's Environmental Management Division.

Because of the success of cycle five, the sixth InnCon cycle again focused on methods to use or reduce waste streams in mining, harvesting, manufacturing, construction, and process industries. Of the 135 proposals received, 15 received funding. Co-sponsors of the technology fair included the State of Texas Department of Commerce and several DOE

offices: the Office of Technology Utilization, the Office of Industrial Technologies, the Office of Fossil Energy, and the Office of Environmental Restoration and Waste Management.

The seventh cycle was a broad-based topic of industrial process improvement and

Track Record of Past Innovators

<i>Technology Fair Topic</i>	<i>No. of Concepts Funded</i>	<i>InnCon Seed Funds Awarded</i>	<i>Follow-on Funding No. of Concepts</i>	<i>Awards from Other Sponsors</i>
Building Materials	12	\$ 171K	5	\$13.0M
Industrial Processes	10	\$ 158K	5	\$ 7.3M
Separations Processes	10	\$ 148K	7	\$ 1.6M
Building Retrofit	8	\$ 160K	2	\$ 1.1M
Waste Minimization I	15	\$ 300K	7	\$ 1.2M
Waste Minimization II	15	\$ 300K	14	\$ 8.4M
Industrial Processes II	15	\$ 330K	6	\$ 0.8M
Total for 7 Cycles	85	\$1567K	47	\$21.7M

sponsored 16 of the 90 proposals received. The funded concepts ranged from ultrasonic sensors to scrap-tire recycling. Co-sponsors for the cycle included several Colorado state agencies and two industrial partners.

Two specific topics were chosen for the eighth cycle. The first, co-sponsored by the U.S. Environmental Protection Agency, was adsorbents for removal of heavy metals; and the second, sponsored by the Transportation Materials Division of DOE, was development of lightweight materials for transportation use. Fifteen of the 50 proposals received were funded.

Who Should Participate

As the name implies, the Innovative Concepts Program is intended to fund novel ideas for energy efficiency that are significant departures from existing technologies. It is not intended for incremental improvements of existing technologies or for promotion of existing technologies. Well-developed inventions that are past the conceptual stage should apply to ERIP rather than to InnCon.

With that caveat, everyone with an innovative concept that addresses the current InnCon-selected topic is invited to apply. In the past, awards have been made to individuals, small companies, start-up companies, university researchers, and consultants. However, restrictions apply to most current or former DOE employees or employees of organizations owned or controlled by current or former DOE employees.

Rights to Inventions and Data

Because one aspect of InnCon is to promote the projects that it is funding and to draw the interests of potential sponsors, the InnCon Program retains unlimited rights to publish the data generated by InnCon-funded projects. However, any proprietary data are kept confidential. Inventors are encouraged to document their inventions before accepting InnCon funds in order to retain all patent rights to their inventions.

How to Apply

The InnCon Program maintains a mailing list of potential contributors, who are notified of opportunities to apply. To add your name, contact Robin Conger (see box).

How the Program is Advertised

At the start of each program cycle, a Request for Proposals is published in the *Commerce Business Daily* and the *Federal Register*. However, because many innovators do not read these publications, the program is also advertised in technical journals relevant to the cycle's topic. Information is also sent to the contributors' mailing list.

How Projects Are Chosen

For each program cycle, proposals are first reviewed to assure that the applicant is qualified and the proposal meets

general InnCon requirements. The remaining proposals are screened using the criteria listed below and rated by a panel of experts who choose 10–20 projects.

Selection Criteria

1. Technical potential and novelty of the concept,
2. market potential,
3. previous investment by the principal investigator(s),
4. adequacy of work plan, and
5. value of the work to be conducted.

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