

BILL CASSIDY, M.D.

6TH DISTRICT, LOUISIANA

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**SUBCOMMITTEE ON INSULAR AFFAIRS,
OCEANS AND WILDLIFE**



Congress of the United States

House of Representatives

Washington, DC 20515

November 15, 2010

WASHINGTON OFFICE:

506 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
PHONE: (202) 225-3901
FAX: (202) 225-7313

DISTRICT OFFICE:

5555 HILTON AVENUE, SUITE 100
BATON ROUGE, LA 70808
PHONE: (225) 929-7711
FAX: (225) 929-7688

<http://cassidy.house.gov>

Secretary Robert Gates
Department of Defense
1400 Defense Pentagon
Washington, D.C. 20301-1400

Dear Secretary Gates:

Please see the enclosed letter from my constituent. I would appreciate if you would respond directly to my constituent about the issue raised in this correspondence. Any information and/or assistance that you can provide will be gratefully received. Thanks in advance for your interest in this matter.

Sincerely,

A handwritten signature in cursive script that reads "Bill Cassidy".

Bill Cassidy
Member of Congress

OSD 13844-10



ENERVANA Technologies, LLC

8000 G.S.R.I. Ave., Bldg. 3000, Baton Rouge, LA 70820
Phone: (225) 766-5979 Fax: (225) 578-3975 Email: info@enervanatech.com

Date: November 8, 2011
To: Congressman Bill Cassidy, M.D.
506 Cannon Building
Washington, DC 20515
Subject: Targeted R&D for specific Federal Agencies

Dear Congressman Cassidy:

We are writing to ask for your assistance in bringing the attention of the Federal Government to a project we have been developing as one part of a private-public partnership between Enervana Technologies LLC of Baton Rouge, Louisiana (Enervana) and Louisiana State University Department of Mechanical Engineering (LSU ME).

Enervana was founded on November 26, 2008 in Baton Rouge, Louisiana with the mission of developing and commercializing metal-based microsystems. The company is based on research carried out at LSU ME over the past decade, supported by three consecutive National Science Foundation (NSF) grants [i]. This research resulted in three issued and pending U.S. patents [ii], with LSU being the patent assignee. Mindful of its mission of helping Louisiana develop and diversify its economy through technology creation and transfer, LSU has been very supportive of Enervana since its inception. At the present time, LSU and Enervana have executed an exclusive, royalty-bearing, licensing agreement for this patent portfolio. This licensing agreement offers an intellectual property (IP) foundation on which Enervana is founded, and makes Enervana and LSU true partners in commercializing the technology developed at LSU ME.

Enervana secured, through an open, rigorous, and competitive evaluation process, NSF Small Business Innovation Research (SBIR) Phase I [iii] and Phase IB [iv] funding in 2009 and 2010 to develop liquid-based cooling of microelectronic chips in next-generation, higher performance computers. LSU is the sub-awardee of this NSF SBIR grant, thereby extending the Enervana-LSU private-public partnership into the technology development arena. Through this Enervana-LSU partnership, we have made groundbreaking advancements in the technology of metal-based microchannel heat exchangers that combine higher heat transfer performance with lower area/volume footprint at the chip location, hold competitive advantages over other liquid-based chip cooling products currently being developed, and may become the critical enabler of next-generation computers with much increased computing power. The implementation of Enervana's credit-card-chip-cooler (C⁴) into computers and other equipment operated by agencies and departments of the Federal Government can ensure device and system operations at much increased power and performance levels at high reliability and low cost, and should positively contribute to improving the missions of Federal agencies and departments. Incorporating Enervana's C⁴ into applications of Federal agencies and departments strengthens LSU R&D stature and improves Enervana's economic viability as a technology-based job provider in the state of Louisiana.

The current Enervana board is comprised of Wen Jin Meng, Glenn B. Sinclair, R. J. Juneau, and Fanghua Mei, in the respective roles of President-CEO, Vice President, Business Manager-CFO, and Principal Engineer.

Wen Jin Meng is the founder of Enervana. He obtained his Ph.D. in Applied Physics from Caltech in 1988. He joined LSU ME in 1999 and is currently the Gerald Cire and Lena Grand Williams Professor of Mechanical Engineering. Prior to joining LSU, he served as a staff research scientist at the General Motors/Delphi Automotive Systems R&D Center from 1989 to 1999. His R&D output includes co-inventorship on 7 issued and pending U.S. patents and co-authorship on 75 publications in technical journals.

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Glenn B. Sinclair obtained his Ph.D. in Applied Mechanics from Caltech in 1972. He is currently the Groves Hodge Professor of LSU ME, and served as the LSU ME department Chair for six years. Prior to joining LSU ME in 2001, he was a professor of Mechanical Engineering at Carnegie Mellon University and Head of Carnegie Mellon's Mechanical Engineering Department from 1986 to 1992. He has also kept an active consulting business from 1974 to present, focusing on structural design as well as stress and failure analysis. His R&D output includes co-inventorship on 2 issued U.S. patents and co-authorship on 80 publications in technical journals.

R.J. "Dick" Juneau is a retired small business executive, and co-founder/co-owner of eight successful small businesses. He obtained his B.S. degree from LSU ME in 1960. He co-founded/co-owned Wyesco in 1975, IMR in 1978, CMR in 1981, and other small businesses followed. He was inducted into the 2008 LSU College of Engineering Hall of Distinction, and the 2009 LSU Alumni Hall of Distinction. He is currently chairman of the LSU ME Industrial Advisory Board. He and his wife endowed a Distinguished Professorship in LSU ME.

Fanghua Mei is the co-founder of Enervana. He obtained his Ph.D. degree in Mechanical Engineering from LSU in 2009. Prior to joining LSU, he worked as a process engineer at the Taiwan Semiconductor Manufacturing Company in Shanghai, China. At LSU, his Ph.D. dissertation research focused on microfabrication. His R&D output includes co-inventorship on 2 pending U.S. patents and co-authorship on 30 publications in technical journals.

On behalf of Enervana and its partner in technology development and commercialization, LSU, we respectfully request that you submit our proposal, along with the enclosed supporting documentation of our product, to all Federal Agencies which you feel could benefit from Enervana's state-of-the-art technology: especially Departments of Defense, Energy, and Homeland Security, and possibly Transportation, Agriculture, Interior, and State. In addition, your assistance with promoting and establishing specific/targeted/related R&D alliances between Enervana and interested Federal Agencies would be sincerely appreciated. Thank you in advance for your assistance to Enervana and LSU with actively helping our technology along the path of commercialization.

Sincerely,

Wen Jin Meng, Ph.D.
President-CEO, Enervana Technologies LLC
225-573-9349

Gerald Cire and Lena Grand Williams Professor
Department of Mechanical Engineering
Louisiana State University
225-578-5832

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- [1] NSF Grant #DMI-0124441, 9/2001-8/2005, PI, Meng; NSF Grant #DMI-0400061, 5/2004-4/2008, PIs, Meng and Sinclair; and NSF Grant #CMMI-0556100, 5/2006-4/2010, PI, Meng
 - [2] W. J. Meng, "Microscale compression molding of metals with surface engineered LIGA inserts", U.S. patent 7114361 (2008); W. J. Meng and Fanghua Mei, "Metal-based microchannel heat exchangers made by molding replication and assembly", U.S. patent application 61/020,789 (2008); W. J. Meng and Fanghua Mei, "Continuous microscale forming of metal-based microchannels and microchannel devices", provisional U.S. patent application 61/296,204 (2010).
 - [3] NSF IIP-0912492, \$100,000, 07-12/2009, PI Fanghua Mei.
 - [4] NSF IIP-1003493, \$50,000, 01-06/2010, PI Fanghua Mei.