

DOE Support for Cold Fusion Industrialization

This website discusses some of the technical complexity involved in industrial development of cold fusion technology. Next steps, for example, involve improved modeling of phonon processes, the energy produced in individual reaction material sites, summation of energy from the reaction material (cathodes) and heat flow through the reaction vessel and into a boiler/heat exchanger. Improvements are needed in reaction material for higher temperature operation.

The Atomic Energy Commission, now known as the Department of Energy (DOE), was established in 1946 by the Atomic Energy Act (Public Law 79-585) to direct the research and development of peaceful uses of nuclear energy and to control the development and production of nuclear weapons. It established U.S. policy that the development and utilization of atomic energy shall be directed, so far as practicable and subject at all times to the paramount objective of assuring the common defense and security, toward improving the public welfare, increasing the standard of living, strengthening free competition in private enterprise, and promoting world peace. It provided for programs of assisting and fostering private research and development to encourage maximum scientific progress; for control and dissemination of technical information to encourage scientific progress and for sharing of information concerning the practical industrial application of atomic energy; of federally conducted research and development to assure the Government of adequate scientific and technical accomplishment; for control over fissionable materials; and, of administration that will enable Congress to be informed so that it could take further appropriate legislative action.

The Atomic Energy Act (Section 3) directed the agency to insure the continued conduct of research and development by private or public institutions or persons and to assist in the acquisition of an ever-expanding fund of theoretical and practical knowledge in nuclear processes; the theory and production of atomic energy; utilization of fissionable and radioactive materials for medical, biological, health or military purposes; utilization of fissionable and radioactive materials and processes entailed in the production of such materials for all other purposes, including industrial uses; and the protection of health during research and production activities.

Since cold fusion deals with nuclear energy, and the peaceful uses of nuclear energy, it appears incumbent on the DOE to support related research and development. Climate change now is recognized as a crisis that requires this support. It can be assumed, therefore, that DOE is very interested in the recent progress made by industry in cold fusion.

Cold fusion was discussed on May 5, 1993, in a hearing of the U.S. House of Representatives' Committee on Science, Space, and Technology, Subcommittee on Energy. DOE representatives discussed hot fusion, magnetic confinement work. A researcher from industry expressed concern that DOE's tokamak hot fusion funding excluded virtually all research on new ideas and systems. A scientist explained research to develop energy from a chemical process related to cold fusion. A researcher on cold fusion indicated that absence of U.S. policy on cold fusion was inhibiting development of a vital legal and intellectual property infrastructure, that the U.S. patent office was not issuing patents in this field, and that the field was so new that training people will not be an easy or rapid task. Supporting written testimony was provided from several other individuals and organizations.

The DOE held a meeting on August 23-24, 2004 to review progress to develop cold fusion technology. Information about the review and DOE's report from the review are available on the web at

https://lenr-canr.org/wordpress/?page_id=455.

The review was requested from the DOE by several scientists who considered the field of cold fusion to be sufficiently mature at that time to receive substantial government funding. Scientists who requested the review provided a paper to the DOE to support the review entitled, "New Physical Effects in Metal Deuterides," August 1, 2004 (also on the web) that discussed the production of excess heat, helium, and other nuclear emissions, along with 137 supporting background papers. Eighteen (18) reviewers provided their comments; eleven (11) reviewers participated in the DOE meeting. The resulting DOE report dated December 1, 2004 is succinct with only five pages. Lines 11-24 on page 3 indicate that about half of the reviewers at that point thought that excess power was produced; lines 10-13 on page 4 indicate that approximately seven (7) of the 18 reviewers felt that low energy nuclear reactions were produced. The reviewers focused mainly on deuterium-deuterium reactions to produce helium-4. Only a few mentioned reactions to produce either helium-3 or neutrons. The reviewers were not explicitly tasked for comments on the issue of reproducibility, which was only infrequently mentioned in their comments (also on the web). Line 23 on page 3 of the DOE report indicated that most reviewers felt the effects are not repeatable.

Reproducibility is discussed in "Evidence of Operability and Utility from Low Energy Nuclear Reaction Experiments," NUCAT Energy LLC Report 2017-01, dated August 1, 2017. This report was written by one of the scientists who requested the DOE meeting in 2004, and is available on the web at

<https://www.lenr-canr.org/acrobat/NagelDJevidenceof.pdf>

This report on reproducibility is based upon the idea that operability can be demonstrated when a cold fusion or low energy nuclear reaction device produces heat or nuclear reaction products. Examples of devices that have produced heat and helium are provided on pages 10-19 and 28-36. It also shows that utility of an operable device can be demonstrated when its design is subsequently used in the design of another “operable” cold fusion or low energy nuclear reaction device. Reproducibility can be demonstrated with the same or different devices.