



U.S. Department of Energy

National Energy Technology Laboratory



November 28, 2000

MEMORANDUM FOR ROBERT S. KRIPOWICZ
ACTING ASSISTANT SECRETARY FOR FOSSIL ENERGY

FROM: RITA A. BAJURA
DIRECTOR, NETL [Handwritten signature: Rita A. Bajura]

SUBJECT: Approval of Exception Circumstance Determination for Inventions
Arising Under the Solid State Energy Conversion Alliance (SECA)

This memorandum is a request that you approve the attached Exceptional Circumstance
Determination for Inventions Arising Under the SECA. This Determination, drafted by NETL in
consultation with Headquarters patent counsel, finds that circumstances surrounding SECA are
exceptional and justify modified intellectual property arrangements as allowed by the Bayh-Dole Act
(35 U.S.C. 202(a)(ii)). We ask that you approve the attached Determination by December 1, 2000.
Your approval by this date would enable us to note such approval as a modification to the
solicitation for SECA Industrial Teams. The closing date for this solicitation is early January 2001.

Background

The Department of Energy (DOE) is implementing the SECA through the Strategic Center for
Natural Gas at NETL. In partnership with the Pacific Northwest National Laboratory, NETL will,
through SECA, develop highly efficient, cost-effective, and mass-producible solid-oxide fuel cell
systems for a broad range of applications.

SECA's approach is to apply mass-customization to solid-oxide fuel cell technology. Mass
customization is a process through which mass-market goods and services are "individualized" to
satisfy specific customer needs at affordable prices. Affordable prices allow earlier market
penetration. Thus, SECA offers a route to improve the overall efficiency of power generation by a
factor of two compared to traditional technologies, while greatly reducing emissions.

SECA comprises a two-tier structure: Industrial Teams and a Core Technology Program. The Industrial Teams will develop the fuel cell stack, system, manufacturing capability, and the packaging needed for different markets; the number of teams will depend on the level of commitments from funding sponsors. The Core Technology Program will focus on finding solutions to the more difficult shared technical barriers identified by the Industrial Teams. In order for the link between the Industrial Teams and the Core Technology Program to succeed, the Industrial Teams will require guarantees to licenses of technologies developed by Core Technology Program participants. However, most of the Core Technology Program participants are expected to be small businesses or nonprofit organizations, such as universities. These entities are entitled under the Bayh-Dole Act to retain title to any inventions they conceive or first actually reduce to practice under their government-funded awards.

However, the Bayh-Dole Act also allows an agency to make an exceptional circumstance determination when it finds that restricting or eliminating the right to retain title to any subject invention will better promote the policy and objectives of the Bayh-Dole Act.

Specifics of SECA Exceptional Circumstances Determination

The proposed intellectual property arrangement will require members of the Core Technology Program to offer to each of the Industrial Teams the first option to enter into a non-exclusive license upon terms that are reasonable under the circumstances, including royalties, for subject inventions developed under SECA. Field of use of the license would be limited to solid-oxide fuel cell applications, although greater rights could be offered at the discretion of the invention owner.

Participants in the Core Technology Program must hold open offers to Industrial Teams for at least 1 year after U.S. patents are issued. The invention owner must agree to negotiate in good faith with any and all Industrial Teams that indicate a desire to obtain at least a non-exclusive license. Exclusive licensing may be considered if only one Industrial Team expresses an interest in licensing the invention. Partially exclusive licenses in a defined field of use may be granted to an Industrial Team, provided such license would not preclude any other Industrial Team that indicates a desire to license the invention from being granted at least a non-exclusive license. If no agreement is reached after nine months of negotiations, the Industrial Team Members can take action in a court of competent jurisdiction to force licensing on reasonable terms and conditions. In the proposed Determination, DOE does not require the licensing of any background patents owned by the invention owner.

In developing the draft Determination, NETL strove to minimize the licensing rights that the Core Technology Program participants would have to agree to. They would retain title to their inventions and would be free to enter into additional licenses in other fields of use (besides solid

oxide fuel cells) at any time. Additionally, after 1 year, they would be free to enter into licenses with any and all solid oxide fuel cell developers. Nor are any background patents involved.

The duration of the Determination will be 10 years from the date it is signed by the General Counsel or her designee. At the end of that time period, the DOE will assess the results and the benefits to the SECA program, and consider if the Determination should be reissued. Further, the intellectual property disposition model described in this Determination is being implemented under the SECA program as a pilot. After the Determination has been in place for at least 2 years, the DOE will assess whether it is generating the desired benefits before applying this model to any non-SECA programs.

Justification for Approving the SECA Exceptional Circumstance Determination

Exceptional circumstance determinations are authorized by the Bayh-Dole Act when the agency determines that restricting of the right to retain title to an invention resulting from federally sponsored research and development will better promote the goals of the Act, e.g., to use the patent system to:

- Promote collaboration between commercial concerns, and nonprofit organizations and small businesses, universities, and non-profit laboratories;
- Ensure that inventions made by such organizations are used to promote free competition and enterprise; and
- Promote the commercialization and public availability of inventions made in the United States by United States industry and labor.

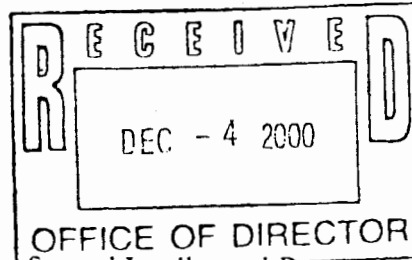
NETL believes the proposed modification to the standard intellectual property allocation meets these goals:

- An expanded market for the intellectual property is being created. Participants in the Core Technology Program will have a ready set of potential licensees to which they can license their invention(s). If the Industrial Teams are successful in commercializing their fuel cell systems, they will reap income in the form of royalties or other cash payment. Parallel negotiations for non-exclusive licenses and time limits imposed by the Exceptional Circumstance Determination should significantly shorten the time it takes to implement new intellectual property. In addition, once an agreement is reached with one Industrial Team, agreements with other Teams should quickly follow if the intellectual property has general applicability.
- By making the intellectual property available to the Industrial Teams on a non-exclusive basis, the value of an individual license may be diminished, but its cumulative value may be enhanced. If the intellectual property is important, most of the Industry Teams will need to have it to remain competitive.

- Making the intellectual property available to all Industrial Teams ensures that technology solutions developed under the Core Technology Program will be available to all developers who can benefit from them, not just the highest bidder.
- It assists the Core Technology Program participants by providing them definitive information on the technological issues that need to be addressed to commercialize the SECA technology. The two-tiered SECA approach enlists Industrial Teams to identify crosscutting technical issues that can be addressed by the Core Technology Program participants, and to help guide the research. However, for Industrial Teams to participate, they must be ensured of having licensing rights to the technology being developed under the Core Technology Program. If DOE does not approve the Exceptional Circumstance Determination, the Industrial Teams will likely not be willing to participate in the Core Technology Program. Similarly, if Core Technology Program participants were free to exclusively license to anyone, including firms not participating in SECA, it is unlikely that Industrial Teams would be willing to collaboratively define Core Technology Program objectives.
- The potential Core Technology Program participants who will be affected by this Determination will be notified of this Determination and of their right to appeal its implementation. DOE is required to provide a copy of this Determination to the Department of Commerce, who will in turn notify potentially affected entities. In addition, potential Core Technology Program participants will be notified of this Determination in any solicitation DOE issues for the Core Technology Program and will be given an opportunity to appeal to the Department or to the United States Court of Federal Claims.

Cons to the SECA Exceptional Circumstance Determination

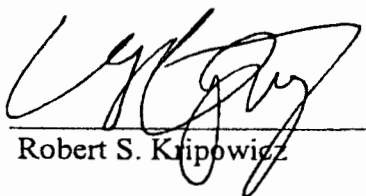
- Based on past fuel cell program experience, Industrial Teams in general would prefer to keep most development work in-house. However, NETL feels this is not necessarily the best technical approach or best use of public funds. Individual companies would typically not possess a concentration of the best talent; redundant equipment and facilities would have to be purchased; and redundant research and development efforts would have to be performed. This would negate the SECA goal of leveraging the most difficult problems to accelerate commercialization of this nationally important technology.
- Some affected entities, especially universities, may object in principle to any restrictions of their intellectual property rights, no matter how compelling the logic is. Entities who believe that the Determination is contrary to the intent of Bayh-Dole may: (a) complain to Departmental officials and/or members of Congress; (b) pursue an administrative appeal to DOE; or (c) file a petition for review in the United States Court of Federal Claims. In addition, the Secretary of Commerce has the statutory authority to object to this Determination. However, NETL feels that DOE can adequately justify its action in the face of a challenge.



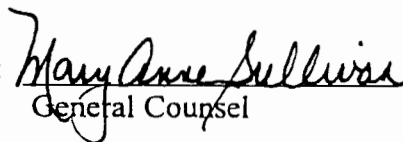
Conclusion

Both the Headquarters Office of Technology Transfer and Intellectual Property and David Heyman in the Secretary's Office agree with the above logic and are willing to proceed, with your concurrence. George Rudins is also aware of and supports this Determination.

NETL believes that approval of the Exceptional Circumstance Determination will benefit DOE program objectives, the Industrial Teams, and the Core Technology Teams. If you have questions, Joe Strakey and the Headquarters Office of Patent Counsel, in particular Paul Gottlieb and Bob Marchick, are available to discuss this issue with you.

Concurrence: 
Robert S. Klipowicz

Date: 11/28/00

Concurrence: 
General Counsel

Date: 11/30/00

Attachment

- E Mail cc: G. Rudins, FE/HQ
- V. Der, FE/HQ
- P. Gottlieb, GC/HQ
- B. Marchick, GC/HQ
- R. Carabetta, NETL
- J. Strakey, NETL
- K. Markel, NETL
- M. Williams, NETL
- B. Utz, NETL
- L. Jarr, NETL
- R. Jarr, NETL
- C. Zeh, NETL

STATEMENT OF ANALYSIS OF DETERMINATION
OF EXCEPTIONAL CIRCUMSTANCES FOR WORK PROPOSED
UNDER THE SOLID STATE ENERGY CONVERSION ALLIANCE (SECA)
PILOT PROGRAM

For the reasons set forth below, the Department of Energy (DOE) has determined, pursuant to 35 U.S.C. § 202 (a)(ii), that the circumstances surrounding the DOE's Solid State Energy Conversion Alliance (SECA) formed by the National Energy Technology Laboratory (NETL) and the Pacific Northwest National Laboratory (PNNL), to optimize solid-state fuel cell systems described within various solicitations and National Laboratory calls implemented under the SECA program, are exceptional. Accordingly, a disposition of patent rights different from that generally available under Public Law 96-517 and Public Law 98-620 for funding agreements with small businesses, universities and other nonprofit organizations, and work done by DOE government-owned, contractor-operated (GOCO) National Laboratories, whether operated by nonprofit or for profit organizations, is warranted. This disposition will better promote the policies and objectives of 35 U.S.C. § 200, as described in detail below.

The DOE is exploring a new business model by implementing the SECA Pilot Program through NETL in partnership with PNNL to develop solid-oxide fuel cell technology for a broad range of applications. One of the major elements of this pilot program is the development of highly-efficient, cost-effective and mass-producible solid state fuel cell systems. This applies the mass-customization approach developed by U.S. industry. Mass customization is best defined as a delivery process through which mass-market goods and services are individualized to satisfy a very specific customer need, at an affordable price. Mass customization is designed to give consumers a unique end product when, where and how they want it. Examples are the automobile and personal computer industries where there are an "almost infinite" number of options, all of them mass produced. This concept offers the prospect of improving the overall efficiency of power generation by a factor of two over traditional technologies and with greatly reduced emissions. These solid-state fuel cell systems have also been identified as one of the key enabling technologies for achieving the efficiency goals in DOE's "Vision 21 Program Plan: Clean Energy Plants for the 21st Century."

SECA will be structured into Industrial Teams, and a Core Technology Program or crosscutting technology program consisting of universities, National Laboratories, and other research-oriented organizations. A government-led project management team will coordinate both activities. The Industrial Teams will develop the fuel cell manufacturing capability and the packaging needed for different markets; the number of teams will depend on the level of commitments from sponsors. The Core Technology Program will be focused on finding solutions to the crosscutting technical barriers identified by the Industrial Teams. The alliance requires commitment to the concept of mass-customization as a route to significant reductions in the cost of fuel cells, but clearly establishes responsibility for commercialization decisions with the Industrial Teams. Each team is responsible for meeting the market requirements for its targeted customers. The teams will have available to them common technologies, design

elements, and materials essential to achieving breakthrough performance.

It is anticipated that the government share of the budget for this 10-year pilot-program will be in the neighborhood of 350 million dollars. It is expected that the Industrial Teams will provide a minimum 50% cost-share. The organizations participating in the Core Technology Program will provide 20% cost-share.

The exception to the disposition of patent rights from that generally available under Public Law 96-517 and Public Law 98-620 for funding agreements between small businesses, universities and other nonprofit organizations and for work done by DOE GOCO National Laboratories involves requiring the participants in the Core Technology Program to offer to each of the Industrial Teams or individual Team members the first option to enter into a non-exclusive license upon terms that are reasonable under the circumstances, including royalties, for subject inventions developed under the SECA program. The field of use of the license could be limited to solid oxide fuel cell applications, although greater rights could be offered at the discretion of the invention owner. The offer must be held open for at least one year after the U.S. patent issues and the invention owner must agree to negotiate in good faith with any and all Industrial Teams or Team members that indicate a desire to obtain at least a non-exclusive license. Exclusive licensing may be considered if only one Industrial Team or Team member expresses an interest in licensing the invention. Partially exclusive licenses in a defined field of use may be granted to an Industrial Team, as long as doing so would not preclude any other Industrial Team that indicates a desire to license the invention from being granted at least a non-exclusive license. However, the Government will not require the patent owner to grant any exclusive or partially exclusive licenses. The Core Technology Program participant that owns or controls the invention must enter into good faith negotiations with the individual Industrial Team or Team member. In the event the parties to the negotiation cannot reach agreement on the terms of the license, as set forth above, within nine months of initiating good faith negotiations, the Industrial Team Members shall have the right of a third party beneficiary to maintain an action in a court of competent jurisdiction to force licensing on reasonable terms and conditions. Any assignment of the invention must be made subject to these requirements. Any requirement to obtain adequate recognition for the transfer of technology developed under SECA to foreign companies will be addressed in the contractual agreement between the DOE and the Core Technology Program participant.

The duration of the Determination will be 10 years from the date it is approved by the General Counsel or her designee. At the end of that time period, the DOE will assess the results and the benefits to the SECA program, and consider if the Determination should be reissued. Further, the intellectual property disposition model described in this Determination is being implemented under the SECA program as a pilot. After the Determination has been in place for at least 2 years, the DOE will assess whether it is generating the desired benefits before applying this model to any other programs outside of the SECA program.

The above described licensing option is believed to result in the minimum rights that the Industrial Teams need to ensure that the technology developed by the Core Technology Program participants is available to promote commercialization of the solid oxide fuel cell technology. The Core Technology Program participants would retain title to the inventions and would be free to enter into additional licenses with entities other than the Industrial Teams, including potentially exclusive licenses in other fields of use. This licensing for outfield uses could accelerate the SECA program because commercialization of outfield uses often benefits the commercialization of infield uses. The DOE believes that this approach would ensure the most broad-based applications for the technology developed under the pilot program. To further demonstrate the fact that this licensing option minimizes the rights being extracted, the Core Technology Program participants would not be required to license their background patents. The duration of this exceptional circumstance determination shall be ten (10) years from the date it is approved by the General Counsel or her designee. At the end of that time period, the DOE will assess the results and the benefits to the SECA program, and consider if the exceptional circumstance determination should be reissued.

Because of the nature of this proposed alliance, without this exceptional circumstance determination, the small businesses, universities, other nonprofits and DOE National Laboratories participating in the Core Technology Program would automatically be entitled, pursuant to P.L. 98-620 and P.L. 96-517 or advance patent waivers, to elect to retain title to their inventions. Should this occur, the Core Technology Program participants described above would be under no obligation to share the technology/innovations developed with those participants working on the Industrial Teams, or in the alternative, could choose to share the developed technology with only certain members, or even one member of the Industrial Teams. This would create a situation where certain Industrial Team participants, although contributing to the pilot program, would not have assurance of licensing rights to use the new technology developed. Such a situation, if allowed to occur, would certainly stifle the ability of the Government to obtain a broad base of various participants in the pilot-program and would indeed stifle the widest application of the developed technology, the very intent of the proposed effort.

The implementation of this exceptional circumstance determination will further the goals of 35 U.S.C. § 200, e.g., to promote collaboration between commercial concerns, and nonprofit organizations and small businesses. Exceptional circumstance determinations are authorized by 35 U.S.C. § 202(a) when the agency determines that restricting of the right to retain title to an invention resulting from federally sponsored research and development "will better promote the policy and objectives of this chapter." This exceptional circumstance determination will better promote the following policy and objectives of the Congress as described in 35 U.S.C. § 200: to use the patent system to promote the utilization of inventions arising from federally supported research or development; to promote collaboration between commercial concerns and nonprofit organizations, including universities; to ensure that inventions made by nonprofit organizations and small business firms are used in a manner to promote free competition and enterprise; and to promote the commercialization and public availability of inventions made in the United States by United States industry and labor.

The following discussion provides additional justification for the SECA pilot-program exceptional circumstance:

- If Core Technology Program participants could exclusively license to anyone they chose, including outside of the SECA Industrial Teams, then it would be unlikely that Industrial Teams would be willing to collaboratively define the Core Technology Program objectives. Based on past fuel cell program experience, Industrial Teams in general would prefer to keep most development work in-house. This is not necessarily the best technical approach or best use of public funds since one company would typically not possess a concentration of the best talent, redundant equipment and facilities would have to be purchased, and redundant research and development efforts would have to be performed. This would negate the SECA goal of leveraging government funds to address the most difficult problems in an effort to accelerate commercialization of this nationally important technology.
- Making the intellectual property available to as many Industrial Teams as want it, would ensure that the individual technology pieces are incorporated into the best designs versus that of only the highest bidder (not necessarily the technology with the best chance for commercial deployment). This would benefit U.S. national interests.
- A market for the intellectual property is being created. The Core Technology Program members will have a ready set of potential licensees to which to license their invention(s), and, if the Industrial Teams are successful in commercializing their fuel cell systems, reap income in the form of royalties. Also, in many cases companies can find ways to bypass intellectual property held by others. There is less incentive for a company to circumvent another entity if the intellectual property is readily and immediately available.
- By making the intellectual property available to everyone on the Industry Teams on a non-exclusive basis, the value of an individual license may be less but the cumulative value may very well be greater. If the intellectual property is important, all Industry Teams will need to have it to remain competitive.
- If the intellectual property was held by a small company, university, or National Laboratory that is unwilling to negotiate in good faith, that technology could be unavailable for an extended period of time. This would be detrimental to U.S. national interests.

For the foregoing reasons, the Department of Energy has determined that exceptional circumstances exist as provided in 35 U.S.C. § 202(a)(ii) in any agreement with a small business, university or other nonprofit organization, or GOCO National Laboratory selected as a Core Team Program participant under SECA, such as to give rise to the need for the licensing provisions addressed herein.

Under 35 U.S.C. § 202(b)(4), a contractor has a right to appeal any agency's exceptional circumstances determinations. Accordingly, each Participant to which this determination applies will be provided with notice of this determination and a right to appeal.