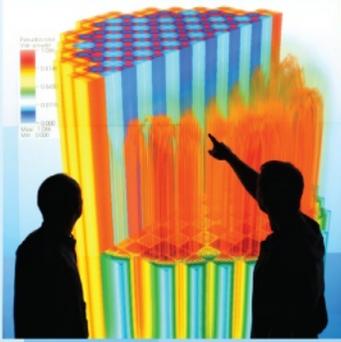


Power upgrades
and plant life extension

CASL-U-2011-0036-001



Engineering design
and analysis



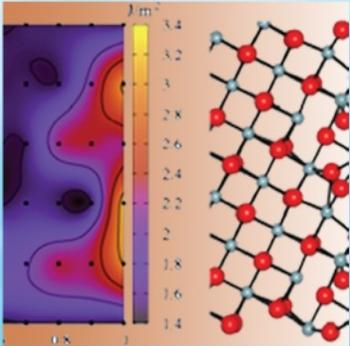
Intellectual Property Management Plan L3:NFA.CC.P2.01

Science-enabling
high performance
computing



May 4, 2011

Fundamental science



Plant operational data



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

REVISION LOG

Revision	Date	Affected Pages	Revision Description
2.0	06/10/11	All	Added Revision Log. Changed acronyms back to "" and in bold

DEFINITIONS AND ACRONYMS

Background IP	INFORMATION or Intellectual Property that was created under funding other than CASL Funding
CASL	Consortium for Advanced Simulation of Light Water Reactors (CASL) is a program (“ CASL Program ”) funded under an award given by the U.S. Department of Energy (“ DOE ”) to UT-Battelle, LLC, management and operating contractor of Oak Ridge National Laboratory (“ ORNL ”) under Contract No. DE-AC02-00OR22725 in connection with Funding Opportunity Announcement number DE-FOA-0000170 and funding may be disseminated by UT-Battelle in accordance therewith (“ CASL Funding ”).
CASL Distribution	The distribution of income from the licensing of CASL VR IP
CASL Funding	Funding for CASL awarded by DOE to ORNL under Contract No. DE-AC02-00OR22725 in connection with Funding Opportunity Announcement number DE-FOA-0000170
CASL Inventions	Inventions conceived or first actually reduced to practice by CASL Members under CASL Funding.
CASL IP	New Intellectual Property created with CASL Funding.
CASL IP Owner	CASL Member that owns or creates CASL Intellectual Property under CASL Funding.
CASL Master NDA	CASL Master Non-disclosure Agreement. All CASL Members have executed the CASL Master NDA, dated August 02, 2010, which, unless otherwise agreed in writing, governs disclosure of “ INFORMATION ” among CASL Members and with respect to third parties. INFORMATION as a defined term in Article 2 of the CASL Master NDA reads as follows: information of each of the Parties related to the CASL program activities including, but not limited to, research and development objectives, plans, and management plans.
CASL Members	CASL Program participants include universities, DOE National Laboratory management and operating contractors, non-profit institutes, federal corporations, industrial research organizations, and such other industry and non-profit participants as may be added as CASL Members from time to time to the CASL Program. New CASL Members will be required to execute this IPMP and to execute the CASL Master NDA.
CASL Program	A program funded under an award given by the U.S. Department of Energy (“ DOE ”) to UT-Battelle, LLC, management and operating contractor of Oak Ridge National Laboratory (“ ORNL ”) under Contract No. DE-AC02-00OR22725 in connection with Funding Opportunity Announcement number DE-FOA-0000170

CASL VR IP	CASL IP which claims such computational environment forming the Virtual Reactor
CD-adapco	Analysis & Design Application Co., Ltd.
Council	The CASL Program will form a Commercialization Council (“ Council ”) to oversee the rapid dissemination of information, including intellectual property (“ IP ”), by and among the CASL Members and to provide guidance on IP issues and policies to the CASL Members, as it deems appropriate. The Council will be chaired by a representative from ORNL, and comprised of one representative from each of the CASL Members for as long as that CASL Member is an active member of the CASL Program, i.e., during the period of time that a CASL Member continues to receive CASL Funding or they are a CASL IP Owner.
DOE	U.S. Department of Energy
FOU	Field of use.
INL	Idaho National Laboratory, operated by Battelle Energy Alliance, LLC or its successor.
IP	Intellectual Property means patents, copyrights, trade secrets, information or data that may be proprietary, sensitive, restricted, or confidential, as well as information that may be patentable under Title 35 of the U.S. Code or copyrightable under Title 17 of the U.S. Code, including any analysis technique, process, procedure, method of operation, design, discovery, invention or improvement, which is conceived and/or first actually reduced to practice, made, or generated in performance of the CASL Program, including Subject Inventions as defined in 37 CFR 401, patent applications, issued patents, copyrights, rights in any technical data, computer software, trademarks or mask works, which are first made or generated in performance of the CASL Program.
IPMP	Intellectual Property Management Plan
LANL	Los Alamos National Laboratory, operated by Los Alamos National Security, LLC or its successor
LWR	light water reactor
M&O Contractors	DOE National Laboratory management and operating contractors
ORNL	Oak Ridge National Laboratory, operated by UT-Battelle, LLC or its successor.
Sandia	Sandia National Laboratory, operated by Sandia Corporation or its successor.
TVA	Tennessee Valley Authority

VR A Virtual Reactor (“**VR**”) to rapidly and successfully transfer nuclear reactor simulation and modeling technologies to the nuclear industry in order to facilitate sustaining today’s operating reactors and the design and analysis of next-generation reactors and fuel technologies. The VR will comprise the use of computer models that will simulate nuclear power plant operations for the predictive simulation of light water reactors (LWRs). CASL IP incorporated into or which claims or which is embodied by such computational environment forming the VR, will be referred to as **CASL VR IP**. This may also be referred to as VERA (Virtual Environment for Reactor Analysis).

Westinghouse Westinghouse Electric Company LLC.

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1. INTRODUCTION

Consortium for Advanced Simulation of Light Water Reactors (“**CASL**”)* is a program (“**CASL Program**”) funded under an award given by the U.S. Department of Energy (“**DOE**”) to UT-Battelle, LLC, management and operating contractor of Oak Ridge National Laboratory (“**ORNL**”) under Contract No. DE-AC02-00OR22725 in connection with Funding Opportunity Announcement number DE-FOA-0000170 and funding may be disseminated by UT-Battelle in accordance therewith (“**CASL Funding**”).

*Definitions listed in Definitions and Acronyms (incorporated herein by reference)

CASL Program participants (“**CASL Members**”) include universities, DOE National Laboratory management and operating contractors (“**M&O Contractors**”), non-profit institutes, federal corporations, and industrial research organizations. The research of the CASL Program is envisioned to be performed by the following CASL Members:

- UT-Battelle, LLC - Oak Ridge National Laboratory (“**ORNL**”)
- Electric Power Research Institute
- Battelle Energy Alliance, LLC - Idaho National Laboratory (“**INL**”)
- Los Alamos National Security, LLC - Los Alamos National Laboratory (“**LANL**”)
- Massachusetts Institute of Technology
- North Carolina State University
- Sandia Corporation - Sandia National Laboratory (“**Sandia**”)
- Tennessee Valley Authority (“**TVA**”)
- Regents of the University of Michigan
- Westinghouse Electric Company (“**Westinghouse**”)
- ASCOMP GmbH
- Analysis & Design Application Co., Ltd. (“**CD-adapco**”)
- City University of New York
- Florida State University
- Imperial College London
- Rensselaer Polytechnic Institute
- Texas Engineering Experiment Station (of Texas A&M University System)
- University of Florida
- The University of Tennessee
- University of Wisconsin
- University of Notre Dame

and such other industry and non-profit participants as may be added as CASL Members from time to time to the CASL Program. New CASL Members will be required to execute this Intellectual Property Management Plan (“**IPMP**”) and to execute the CASL Master Non-disclosure Agreement (“**CASL Master NDA**”). All CASL Members must sign this IPMP in order to receive CASL Funding. CASL Members may elect to have certain obligations performed by their designated patent management organizations.

The effective date of this IPMP shall be **February 28, 2011** (“Effective Date”).

The principal goals of this IPMP for the CASL Program include:

- Rapidly and successfully transferring nuclear reactor simulation and modeling technologies to the nuclear industry in order to facilitate sustaining today's operating reactors and the design and analysis of next-generation reactors and fuel technologies;
- Openly disseminating scientific reports and results for public benefit;
- Broadly and rapidly disseminating information among the CASL Members to maximize productivity and progress, and
- Complying with all federal intellectual property law.

CASL intends to follow the guiding principles for technology transfer at DOE facilities as identified by the *Secretarial Policy Statement on Technology Transfer at DOE Facilities* signed January 28, 2008 (Appendix A). These principles include;

- DOE facilities must ensure fairness of opportunity, promote domestic economic interests, prevent inappropriate competition with the private sector and protect national security in partnering transactions;
- In partnering transactions, DOE programs shall seek opportunities to leverage DOE resources; and
- Royalties and equity interests received as a result of licensing transactions are not the measure of success and will not be the centerpiece for negotiation of any partnering transaction.

2. CASL COMMERCIALIZATION COUNCIL

The CASL Program will form a Commercialization Council (“**Council**”) to oversee the rapid dissemination of information, including intellectual property (“**IP**”), by and among the CASL Members and to provide guidance on IP issues and policies to the CASL Members, as it deems appropriate. For this IPMP, the term IP includes patents, copyrights, trade secrets, information or data that may be proprietary, sensitive, restricted, or confidential, as well as information that may be patentable or copyrightable, as further defined in Definitions and Acronyms.

The Council will be chaired by a representative from ORNL, and comprised of one representative from each CASL Member for as long as that CASL Member is an active member of the CASL Program, (meaning, during the period of time that a CASL Member either owns CASL IP, continues to receive CASL Funding, or both).

A function of this Council is to review and evaluate new IP owned or created by a CASL Member (“**CASL IP Owner**”) during the term of this IPMP using CASL Funding (“**CASL IP**”), and consider the technical merit and commercial potential of such CASL IP. The Council is intended as a forum for discussion regarding further maturation and sharing of insights about market opportunities. It may also provide recommendations to the CASL IP Owners regarding protection of CASL IP. This Council will serve as a communications means and a clearing house for distribution of information about CASL IP among the CASL IP Owners and CASL Members. The decision to commit resources for CASL IP protection, e.g., patenting or copyright registration, will remain with the respective CASL IP Owner(s).

CASL Program goals include rapid and successful transfer of nuclear reactor simulation and modeling technologies (through a Virtual Reactor (“**VR**”)) to the nuclear industry in order to help sustain currently operating reactors and facilitate the design and analysis of next-generation reactors and fuel technologies. The VR will be comprised of computer models that will predict and simulate light water reactor (LWR) nuclear power plant operations. CASL IP incorporated into, or which

claims, or which is embodied by such computational environment forming the VR, will be defined as **CASL VR IP**.

The progress of any CASL VR IP protection will be appropriately monitored by this Council. As CASL VR IP strategies are developed and market analyses are conducted, this Council will explore licensing leads and commercialization opportunities. Licensing inquiries will be communicated to the Council by any CASL Member who receives such expressions of interest. ORNL will serve as coordinator for the Council.

This IPMP will be reviewed by the Council on an annual basis. Proposed modifications to the IPMP must be recommended by the Council and are conditioned upon the unanimous approval of the CASL Members.

3. INFORMATION SHARING

It is the intention of the CASL Program that the results of its research be widely and promptly disseminated, with a goal of maximizing the impact of the research and its long-term benefit to the U.S. and to society. Even in those situations in which protection of CASL IP is desirable, e.g., to induce further commercial development, or is required under specific funding obligations, such CASL IP is also expected to be widely and promptly disseminated for the public good.

All CASL Members have executed the CASL Master NDA, dated August 02, 2010, which, unless otherwise agreed in writing, governs disclosure of “INFORMATION” among CASL Members and with respect to third parties.

4. CONFLICT OF INTEREST

CASL Members agree to have safeguards in place to manage personal and organizational conflicts of interest that may arise from the licensing of CASL IP.

5. OWNERSHIP OF INVENTIONS AND RIGHT TO ASSERT COPYRIGHT

The following statutes governing disposition of title to new inventions under agreements of the DOE and its contractors will apply to inventions conceived or first actually reduced to practice under CASL Funding (“**CASL Inventions**”):

- A. The Bayh-Dole Act, 35 U.S.C. 200 et seq., requires that universities, non-profits and small businesses who are participating under a funding agreement (as defined in the Bayh-Dole Act) will have the option to retain title to the respective CASL Member CASL Inventions.
- B. The Federal Non-Nuclear Energy Research and Development Act of 1974, 42 U.S.C. 5908 (the Act), will govern disposition of title of CASL Inventions for all other parties, regardless of whether the other party(ies) receives U. S. Government funding, and the Act requires that the U. S. Government obtains title to new inventions unless a waiver is granted.
- C. CASL Inventions created by an employee(s) of a CASL Member that is an M&O Contractor will be subject to the terms and conditions of the respective M&O Contract with respect to ownership of such CASL Inventions. M&O Contracts generally provide that the M&O Contractor has the right to elect to retain title to inventions created by its employees.

It is anticipated that each CASL Member receiving CASL Funding will be able to elect to retain title or be granted the right by DOE to elect to retain title to CASL Inventions made in the performance of work using CASL Funding. Each CASL Member receiving CASL Funding will have the advanced approval from DOE to assert copyright in any copyrighted works, including but not limited to, computer software, created in the performance of work using CASL Funding.

6. PROTECTION OF CASL IP

Each CASL Member will protect its CASL IP according to its standard practices. Each CASL Member will be responsible for the costs of any domestic and foreign protection that it chooses to pursue at its sole discretion. DOE will have the right to protect CASL IP if the CASL Member disclaims (in writing to the Council) its interest in doing so, after which disclaimer DOE may allow other CASL Members to protect the CASL IP.

7. LICENSING OF CASL VR IP

- A. Each CASL Member is granted a non-exclusive, royalty free, non-transferrable license for its own use, without the right to sublicense, in all CASL IP, including CASL VR IP, created by the other CASL Members. Notwithstanding the foregoing and subject to Section 13 of this IPMP, the license would be transferrable to an entity that acquires a majority, controlling interest (including an acquisition of all or substantially all of the assets) in the business of a CASL Member, or in the event that a CASL Member is replaced by DOE with another M&O Contractor.
- B. Each CASL Member has and retains the authority to grant non-exclusive, royalty bearing licenses to CASL IP that it develops or creates in accordance with that CASL Member's own policies.
- C. Each CASL Member grants to ORNL (acting through the Council) a nonexclusive license, with the right to sublicense as provided in Section D below, to its CASL IP only as part of the CASL VR IP.
- D. Where CASL IP is part of CASL VR IP, ORNL will have the sole authority to sublicense the CASL IP of any CASL Member when "bundled" with the CASL IP of one or more other CASL Members in order to grant a license to such CASL VR IP to third parties, And ORNL, as coordinator for the Council, will be responsible for all export compliance reviews associated therewith. Notwithstanding the foregoing, Westinghouse will have the authority to sublicense CASL VR IP that has been modified by Westinghouse with Westinghouse funds. For each such sublicense granted by Westinghouse, Westinghouse shall remit to CASL a fee equal to the average fee charged by CASL for VR sublicenses granted to non-CASL Members. All such revenue submitted by Westinghouse to CASL will be distributed to the appropriate CASL IP Owners in accordance with Section 8 of this IPMP.
- E. Unless otherwise specifically agreed in writing, if a CASL Member makes available any INFORMATION or IP that was created under funding other than CASL Funding ("**Background IP**") owned by or licensed to the CASL Member which has not been disclosed, licensed or otherwise provided to the CASL Program for the benefit of the CASL Program, and such Background IP was invented by a researcher who is the recipient of CASL funding, each CASL Member is hereby granted a nonexclusive research license to use such Background IP as long as that CASL Member is an active member of CASL (see

Section 2, paragraph 2 of this IPMP), and solely for the CASL Program work, to the extent such rights are available for licensing. Such Background IP remains owned by the CASL Member and the CASL Member has no obligation to otherwise license such Background IP to the CASL Program or any of the CASL Members, nor shall any CASL Member (including the U. S. Government) acquire any right, title or interest in the CASL Member's Background IP without the CASL Member's written agreement.

- F. The licensing of CASL VR IP will be on a non-exclusive basis. Before executing any license agreement for a field of use (“FOU”), the CASL Program (through ORNL Council chair/CASL Member representatives) will evaluate the capabilities of the potential licensee, and the potential licensee must demonstrate that it has the expertise and capital needed to further the development of the subject technology and successfully bring the technology to market in the FOU(s) in which a license would be granted. CASL VR IP will be licensed to licensees only in the FOU(s) in which the potential licensee is capable and committed to bringing the technology to market, saving other FOU(s) for additional licensees.

8. LICENSING REVENUE ALLOCATIONS

Each CASL Member that is a CASL IP Owner of CASL IP included in the CASL VR IP licensed to a non-CASL party is entitled to a percentage of any royalties or other income from such licenses. Licensing income from each such license will be distributed annually as follows (“CASL Distribution”):

- A. A 10% administrative fee will be retained by ORNL to offset ORNL's expense of license administration;
- B. License income from each license after expenses will be distributed equally to each CASL IP Owner that contributed CASL IP to the CASL VR IP.

For the licenses to the CASL VR IP, licensing income includes fees (such as license royalties, including fixed, running, and minimum royalties) but does not include reimbursement of negotiated patent costs.

CASL Distributions shall be reviewed annually and approved by a 70% majority vote of the council members participating in the Commercialization Council Annual Meeting/Telecon.

9. REPORTING TO DOE

Each CASL Member shall report its CASL Inventions to DOE in accordance with the agreement under which it receives CASL Funding. In addition, each CASL Member shall disclose promptly (in writing) to CASL, through the Council, all CASL Inventions, copyrightable software, and tangible research products resulting from CASL Funding.

10. DOE M&O CONTRACTORS AND SUBCONTRACTORS

Notwithstanding any other article herein, for each CASL Member that is a M&O Contractor, its M&O Contract with DOE will take precedence over this IPMP as to such M&O Contractor to the extent there are any inconsistencies between such M&O Contract and this IPMP. Similarly, any CASL Member having a DOE subcontract under which it is performing CASL work scope shall have such DOE subcontract take precedence over this IPMP as to such subcontractor to the extent there are any inconsistencies between such subcontract and the IPMP.

11. AGREEMENT TERM

This IPMP shall terminate on the latter of (a) five (5) years from the Effective Date or (b) the last expiration date of any licenses to third parties granted rights to CASL VR IP in accordance with this IPMP.

12. GOVERNING LAW

This IPMP shall be construed in accordance with, and the rights of the CASL Members shall be governed by, the laws determined applicable by a Federal court of competent jurisdiction.

13. EXPORT LAWS AND REGULATIONS (EXPORT CONTROLLED CASL IP)

CASL Members acknowledge that the export or deemed export of CASL IP and CASL VR IP disclosed hereunder from the United States may require some form of export control license from the U. S. Government and that failure to obtain such export control license may result in criminal liability under the laws of the United States. CASL Members acknowledge the need for prompt advanced notification should any CASL Members identify an export control restriction for any CASL IP or CASL VR IP disclosed or received under this IPMP. In order to promote increased awareness of export control issues, the CASL Members agree to cooperate in the development of export control guidance documentation for CASL IP or CASL VR IP disclosed and received under this IPMP.

Acceptance

Member Institution: _____

By: _____

Name: _____

Title: _____

Date: _____

APPENDIX A: SECRETARIAL POLICY STATEMENT ON TECHNOLOGY TRANSFER AT DOE FACILITIES

File included with the distribution of this document in Adobe Acrobat format.