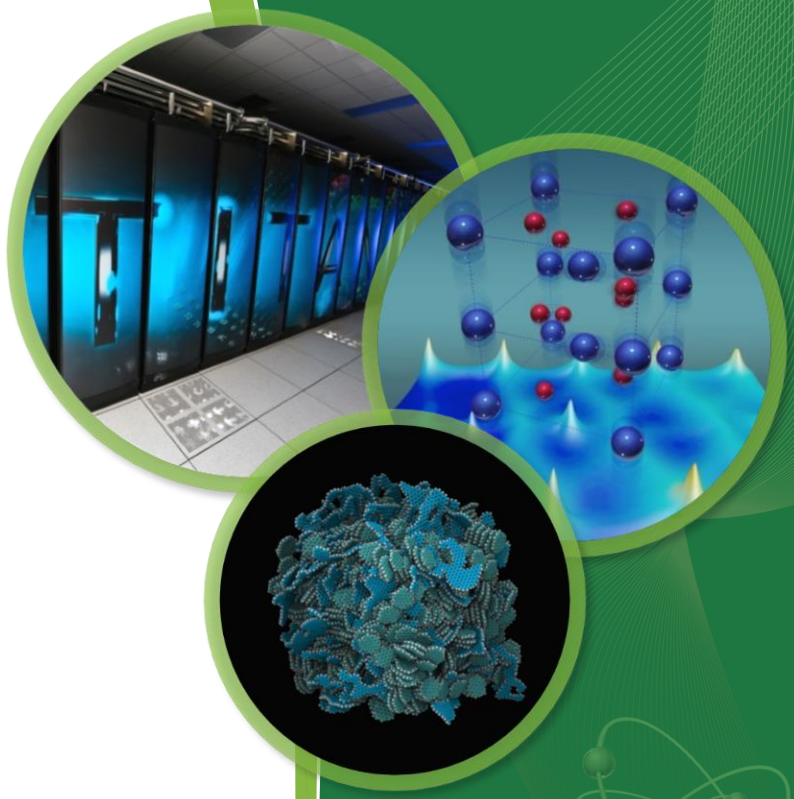
ORNL Technology Innovation Program

Mike Paulus

Director, Technology Transfer



ORNL is managed by UT-Battelle
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OAK RIDGE National Laboratory

Welcome to Oak Ridge National Laboratory!

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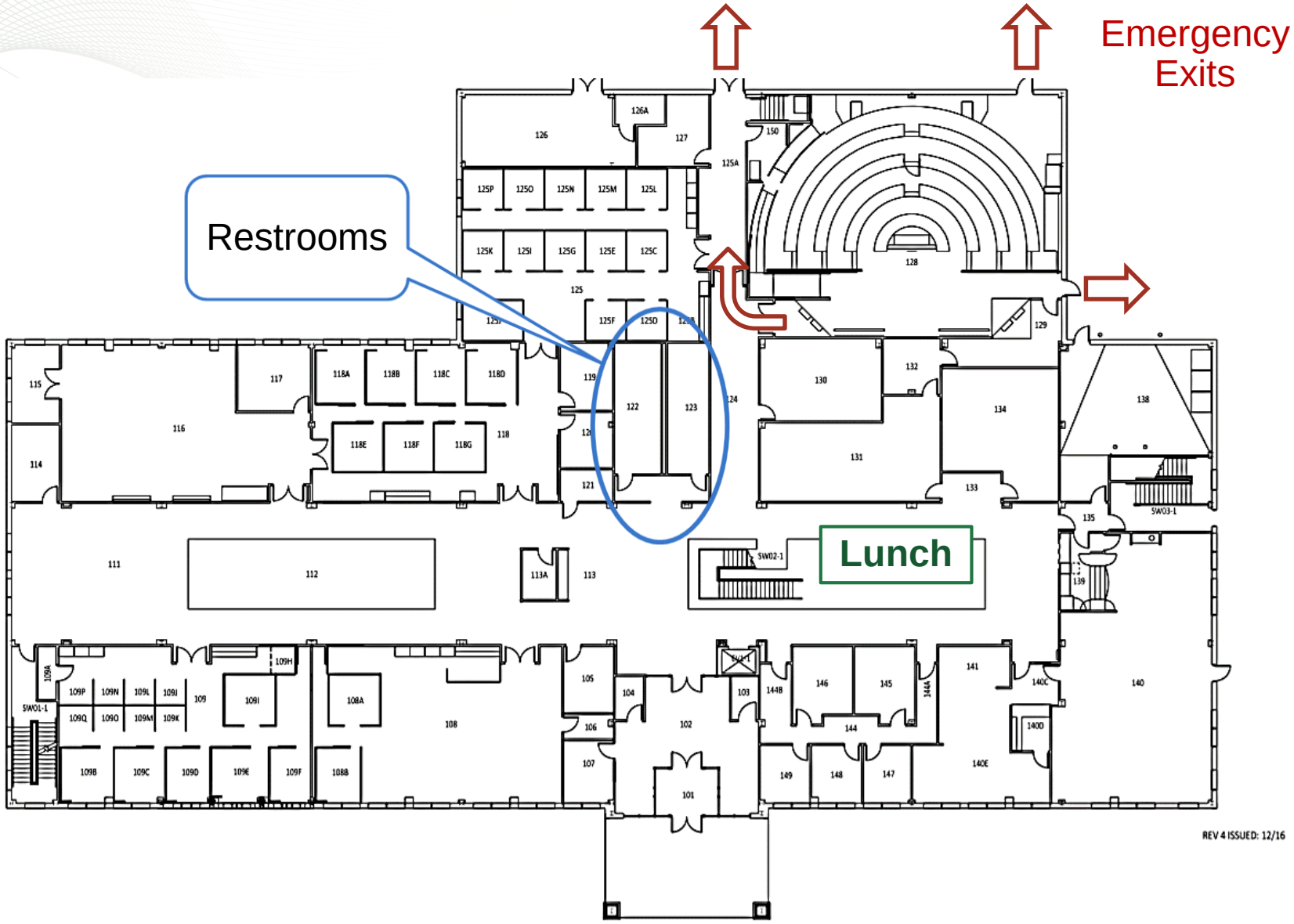
Building Logistics



Orange badged visitors must be escorted at all times

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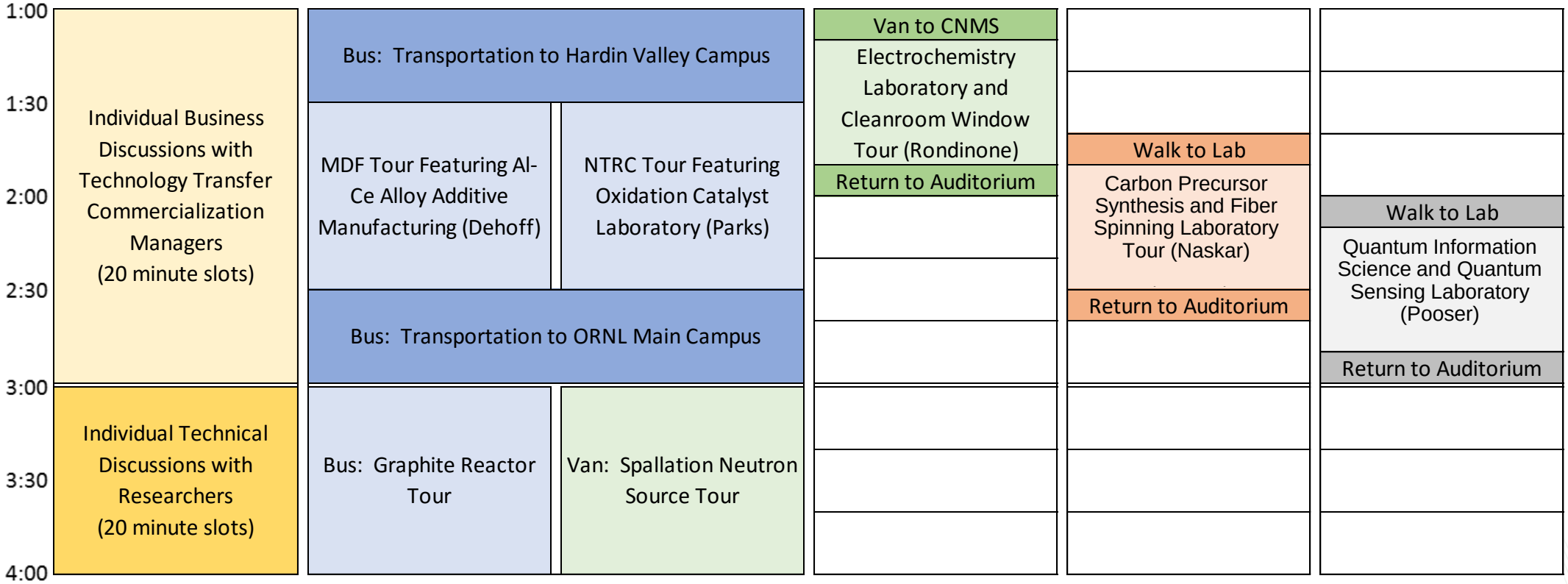
Afternoon Tours and Meetings

2017 Technology Innovation Program Showcase Afternoon Tour Schedule



We will not reconvene at 4:00

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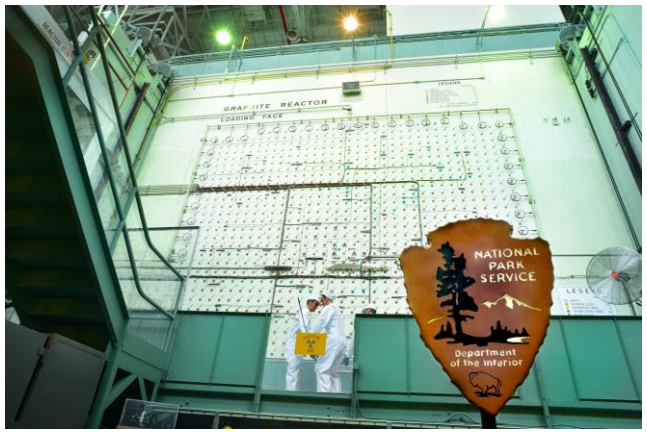
ORNL at a Glance

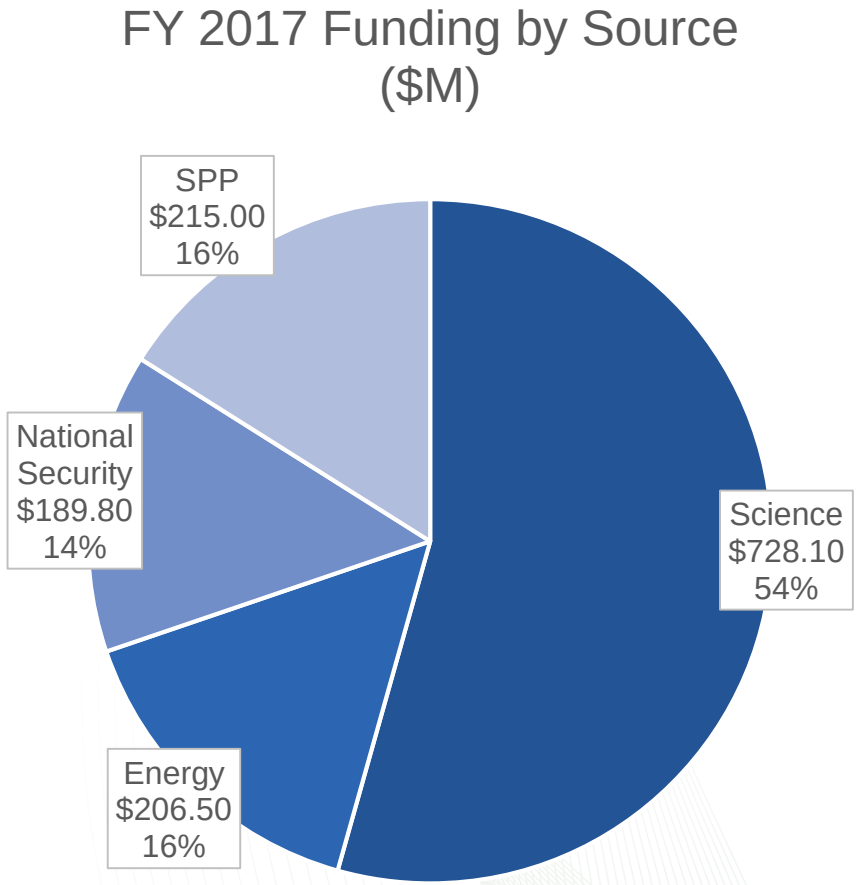


Statistics

- 4,368 full time employees
- 520 students
- 3,115 facility users
- 2,280 visiting scientists
- 4,421 acres and 196 buildings
- Founded in 1943

Science and Technology Initiatives

- Neutron science
- High performance computing
- New materials for energy
- Nuclear technologies and systems
- Biological, environmental and climate systems
- Advanced manufacturing and integrated energy systems
- Global security



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Technology Innovation Program (TIP)

- Competitively select 4-5 promising technologies with near-term potential for commercial impact
- Invest ~$1M in R&D to de-risk those technologies
  - Bench top demonstration
  - First steps toward scale-up
  - Data generation to enable prospective partners to make informed licensing decisions
- Aggressively identify and engage with a pool of high quality prospective licensees
- Execute licenses
- Projects that result in licenses are eligible to compete for Year 2 funding to ensure a clean “hand off”

The objectives for TIP are to mature promising technologies; to facilitate license agreements with high quality, motivated commercial partners; and help those partners succeed

Some Recent TIP Highlights

Optically Clear Superhydrophobic Coatings

UPT UNITED PROTECTIVE TECHNOLOGIES

SAMSUNG

Nanofermentation: Low-Cost Nanomaterials for PV Devices

nano elements source, LLC

Roll-to-Roll Graphene

GENERAL GRAPHENE

Smart Smoke Alarm

Kidde
United Technologies

"Genetically Modified Plants for Reduced Lignin Content"

Forage Genetics International

GREENWOOD RESOURCES

"Leveraging the TNT-cloning System Potential"

SimPathS

23 projects funded since FY12
18 licenses and options executed

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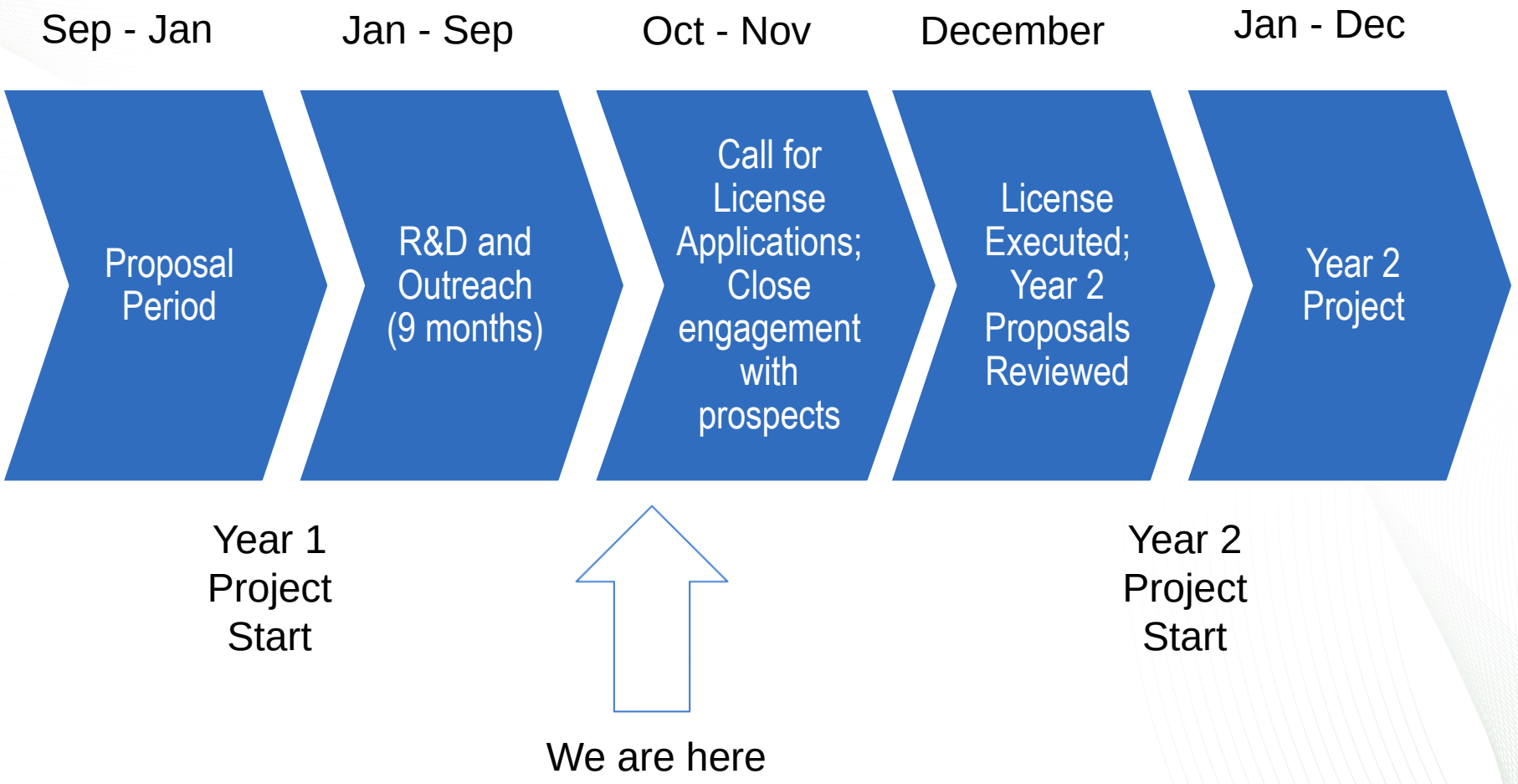
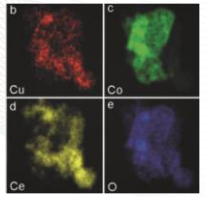
TIP Process



Goals for Today's Meeting

- Provide technical overviews of the 2017 TIP technologies
- Provide time for 1:1 meetings with researchers and technology transfer team
- Help you determine if the technologies are a fit for your company
- Begin a conversation that (hopefully) leads to a long term partnership

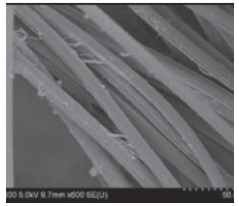
FY17: five new projects funded



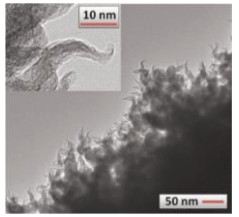
- Low Temperature Oxidation Catalyst

- High Temperature Aluminum Alloy Design for Additive Manufacturing

- Integrated Self Correcting True Random Number Generator



- Enhancing Properties of Textile PAN Precursors and the Derived Carbon Fibers



- Commercial Applications of Electrochemical Conversion of Carbon Dioxide to Ethanol

License Applications are Due by November 1

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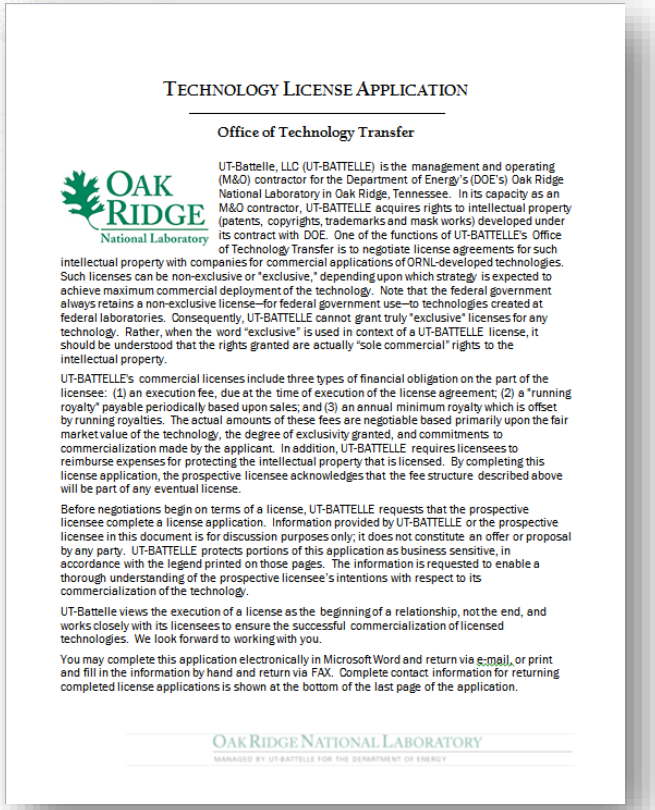
License Application



TECHNOLOGY LICENSE APPLICATION

Office of Technology Transfer

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UT-Battelle, LLC (UT-BATTELLE) is the management and operating (M&O) contractor for the Department of Energy's (DOE's) Oak Ridge National Laboratory in Oak Ridge, Tennessee. In its capacity as an M&O contractor, UT-BATTELLE acquires rights to intellectual property (patents, copyrights, trademarks and mask works) developed under its contract with DOE. One of the functions of UT-BATTELLE's Office of Technology Transfer is to negotiate license agreements for such intellectual property with companies for commercial applications of ORNL-developed technologies. Such licenses can be non-exclusive or "exclusive," depending upon which strategy is expected to achieve maximum commercial deployment of the technology. Note that the federal government always retains a non-exclusive license—for federal government use—to technologies created at federal laboratories. Consequently, UT-BATTELLE cannot grant truly "exclusive" licenses for any technology. Rather, when the word "exclusive" is used in context of a UT-BATTELLE license, it should be understood that the rights granted are actually "sole commercial" rights to the intellectual property.

UT-BATTELLE's commercial licenses include three types of financial obligation on the part of the licensee: (1) an execution fee, due at the time of execution of the license agreement; (2) a "running royalty" payable periodically based upon sales; and (3) an annual minimum royalty which is offset by running royalties. The actual amounts of these fees are negotiable based primarily upon the fair market value of the technology, the degree of exclusivity granted, and commitments to commercialization made by the applicant. In addition, UT-BATTELLE requires licensees to reimburse expenses for protecting the intellectual property that is licensed. By completing this license application, the prospective licensee acknowledges that the fee structure described above will be part of any eventual license.

Before negotiations begin on terms of a license, UT-BATTELLE requests that the prospective licensee complete a license application. Information provided by UT-BATTELLE or the prospective licensee in this document is for discussion purposes only; it does not constitute an offer or proposal by any party. UT-BATTELLE protects portions of this application as business sensitive, in accordance with the legend printed on those pages. The information is requested to enable a thorough understanding of the prospective licensee's intentions with respect to its commercialization of the technology.

UT-Battelle views the execution of a license as the beginning of a relationship, not the end, and works closely with its licensees to ensure the successful commercialization of licensed technologies. We look forward to working with you.

You may complete this application electronically in Microsoft Word and return via e-mail, or print and fill in the information by hand and return via FAX. Complete contact information for returning completed license applications is shown at the bottom of the last page of the application.

OAK RIDGE NATIONAL LABORATORY

MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

Email paulusmj@ornl.gov to receive an application

- Basic information about company (name, location, nature of business, etc.)
- Potential conflicts of interest
  - Current / former laboratory employee affiliation with company
- Company preferences
  - Specific intellectual property
  - Type of license (exclusive, non-exclusive, R&D, etc.)
- Preferred field of use
- Initial thoughts on reasonable financial terms
- Brief business plan and financial forecast requested

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Brief Business Plan (Example Outline)

- Company Overview
- Existing and Planned Products and Services
- Market Opportunity/Quantification
- Technology Development Roadmap with Key Milestones
- Capitalization Plan
- Facilities and Production Plan
- Marketing and Sales Plan/Milestones
- Management Team

UT-Battelle is required under its prime contract with the Department of Energy to protect marked Proprietary or Confidential Information. We will also be happy to enter an NDA to confirm your business sensitive information will be protected.

Pro Forma Financial Statement

- Simple profit and loss projection for ~5 years
- Format is not important
- Can be as simple as annual projections for the following:
  - Sales/COGS/Gross Profit
  - Operating Expenses (Categorized)
  - Capital Cost
  - Taxes
  - Net Income

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Basis for competitive selection of licensee

The overarching goal is to maximize the economic impact in the United States resulting from a license agreement

- US job creation
- US wealth creation
- Deployment of ORNL technology

Specific Selection Criteria

- Management team
- Company's ability to develop a new product or service
- Company's ability to market a new product or service
- Company's ability to produce, distribute and support a new product or service
- Company's commitment to commercialize the technology
- Company's commitment to manufacture in the United States
- Company's status (US Small Business, US Based Business, US Controlled Business)

Score Sheet (provided with license application)

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Oak Ridge, TN 37831-6196
(865) 574-1051 | pbulusm@ornl.gov

Commercialization Plan Evaluation

This scoresheet is used to evaluate applications to license Oak Ridge National Laboratory technologies. Where company resources or capabilities are not yet in place, plans to obtain the necessary resources or capabilities are evaluated.

Management Team (10 points)	
Experience	
Expertise (CEO, CFO, CTO, etc.)	
Ability to Develop Product (10 points)	
Access to Capital (Funds Available; Funding Plan)	
Track Record in Target or Related Market	
Anticipated Time to Market	
Product Development Team Capabilities	
Ability to Market Product (10 points)	
Depth of Market Opportunity Analysis	
Strength of Go-To-Market Plan	
Anticipated Business Volume	
Marketing Team Capabilities	
Ability to Produce, Distribute and Support Product (10 points)	
Strength of Ramp Up Strategy	
Facilities (Actual and Planned)	
Production/Distribution/Support Team Capabilities	
Commitment to Technology (10 points)	
Resources Committed	
Proposed Performance Milestones	
Proposed License Terms (Execution Fee, Minimum Royalties, Running Royalty Rate)	
Commitment to Manufacture in the United States (10 points)	
US Manufacture of materials sold in the United States	
US Manufacture of materials sold in the rest of the world	
US Small Business (5 points)	
Yes/No	
US Based and Controlled Business (5 points)	
US Based? (Y/N)	
US Controlled? (Y/N)	

3/15/2016

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Have a Great Meeting!