

*Exceptional service in the national interest*



## COMS 2016 - Commercialization of Micro, Nano, and Emerging Technologies



# Technology Transfer from a National Laboratory “Best Practices from Sandia National Laboratories

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Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

# Sandia Executive Leadership

“Scientists and engineers drive technological change through discovery, innovation, and real-world application. Sandia’s technologies and their application are vital to national security, and moving them swiftly to the marketplace advances U.S. economic competitiveness. Sandia is committed to strategic partnerships with industry and universities to strengthen and accelerate our technology transfer.”

*Jill Hruby, President and Laboratories Director  
Sandia National Laboratories*

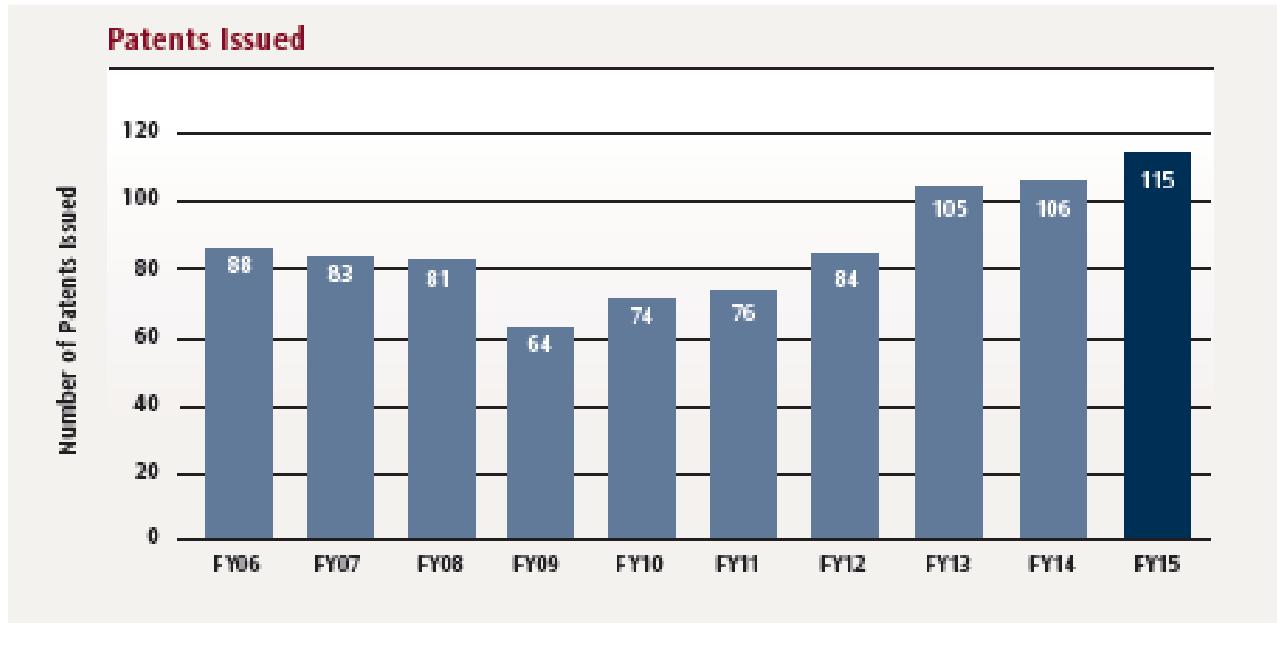


# Partnership/Technology Transfer Tools



- Cooperative Research and Development Agreements (CRADAs)
- Strategic Partnership Projects, Non-Federal Entity (SPP/NFE) Agreements
- Sandia Science & Technology Park (SS&TP)
- New Mexico Small Business Assistance (NMSBA)
- Entrepreneurial Separation to Transfer Technology (ESTT)
- Small Business Vouchers (SBV)
- Center for Collaboration and Commercialization (C3), Proposed

# Intellectual Property and Licenses



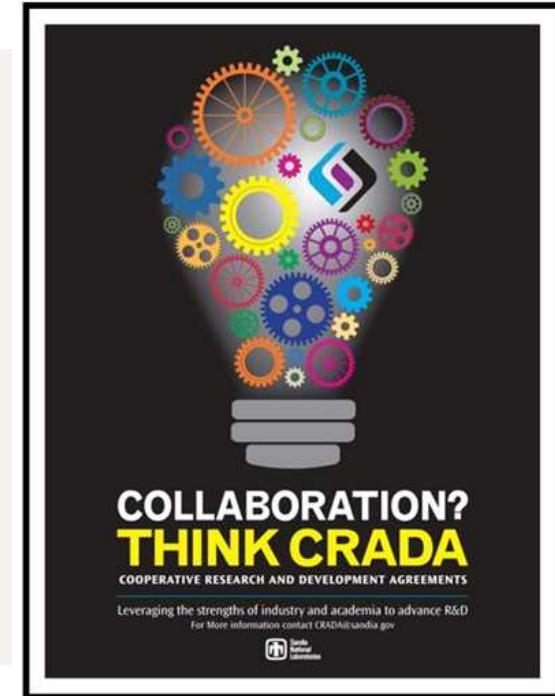
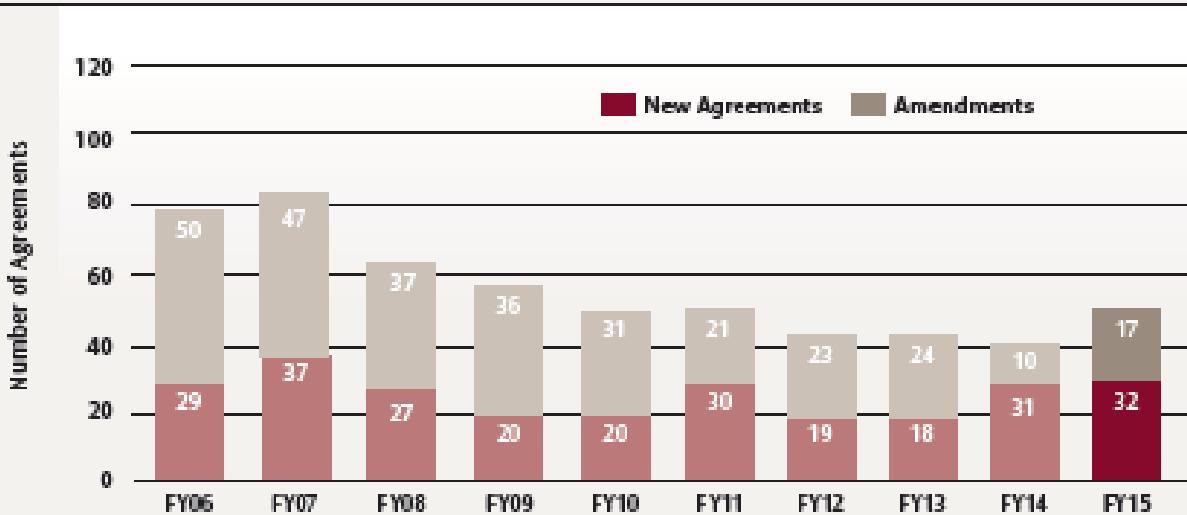
**SANDIA'S INNOVATION MARKETPLACE**  
A Quarterly update of Available Technologies for Industry



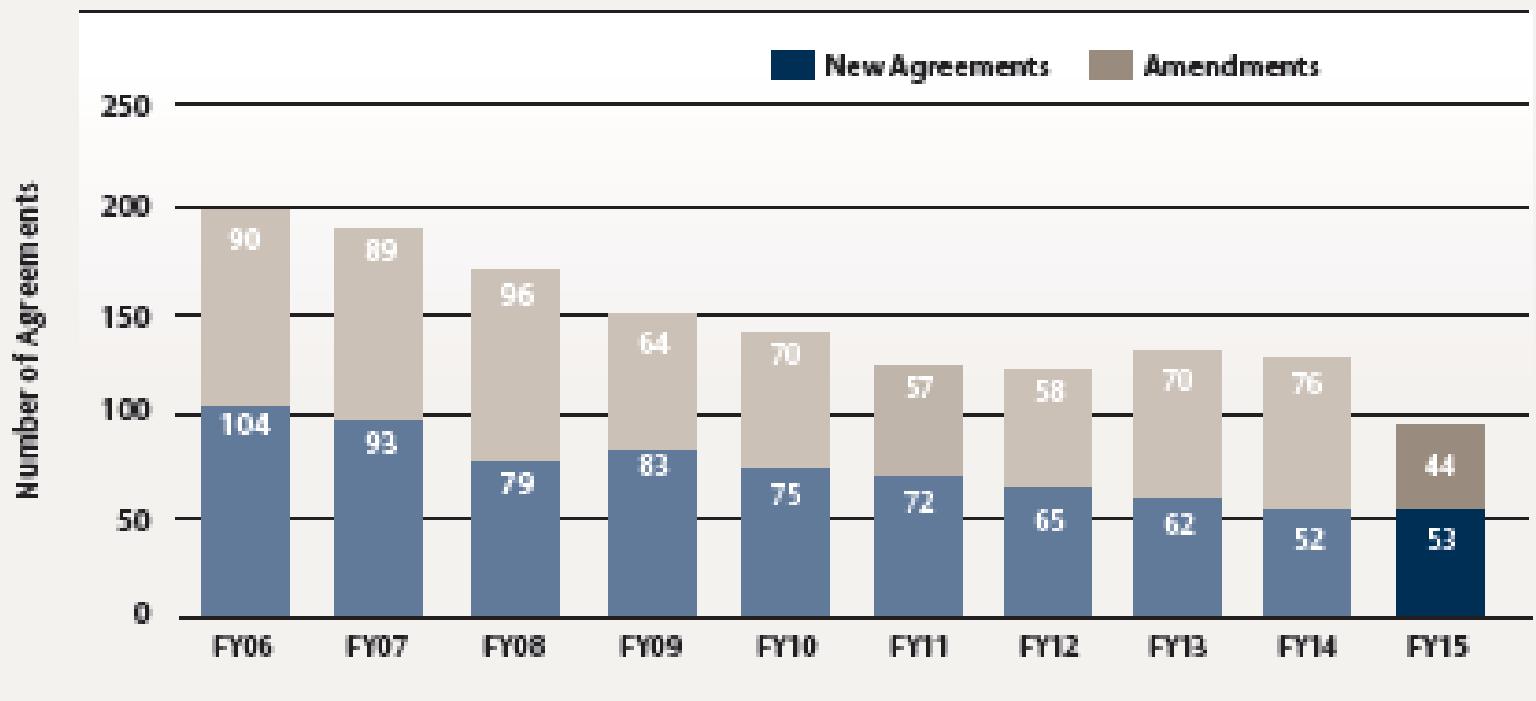
<http://ip.sandia.gov>

# CRADAs

## Cooperative Research and Development Agreements (CRADA)



## Strategic Partnership Projects, Non-Federal Entity (SPP/NFE) Agreements



# Partnerships/Technology Transfer Lead to Economic Development



**SANDIA SCIENCE &  
TECHNOLOGY PARK**



*Solving New Mexico's Small Business Challenges*



CENTER for  
COLLABORATION *and*  
COMMERCIALIZATION

# Sandia Science & Technology Park (SS&TP)



- 300+ Acre Master-Planned Technology Community
- Public-Private Partnership
- Provides Easier Access and Close Proximity to the Labs

# Center for Integrated Nanotechnologies (CINT)



# SS&TP Metrics & Economic Impact

METRICS	
<b>Number of Companies</b>	<b>42</b>
<b>Number of Employees</b>	<b>2163</b>
<b>Number of Buildings</b>	<b>25</b>
<b>Funds In to Sandia from Park Companies since 1998</b>	<b>\$29.7 Million</b>
<b>Contracts from Sandia Procurement to Park Companies since 1998</b>	<b>\$461 Million</b>
<b>Contracts between Park Companies since 1998</b>	<b>\$12.5 Million</b>
<b>Public and Private Investment in the Park since 1998</b>	Public Private Total
	<b>\$89.0 Million</b>
	<b>\$286.4 Million</b>
	<b>\$375.4 Million</b>
ECONOMIC IMPACT	
<b>Cumulative Impact on Taxable Consumption (Goods and Services)</b>	<b>\$2.5 Billion</b>
<b>Cumulative Increase in Wage and Salary Disbursements Attributable to Park Activities</b>	<b>\$4.4 Billion</b>
<b>Average Salary for Each Full-Time Job in the Park</b>	<b>\$83,100</b>
<b>Average Salary for Each Full-Time Job in Albuquerque</b>	<b>\$44,400</b>

# New Mexico Small Business Assistance (NMSBA)



- Governed by NM Statute
- Public/Private Partnership with Sandia National Laboratories, Los Alamos National Laboratory, State of New Mexico, and New Mexico Small Businesses
- Allows up to \$2.4M per lab per year in assistances
- Must be a New Mexico for-profit small business to qualify
- Companies in rural counties are eligible for \$20K per business each year, urban counties are eligible for \$10K per business each year

# NMSBA Example



Trilumina

- Company has demonstrated a technology capable of powering hundreds of individual lasers in perfect synchronization
- Came to Sandia looking for help with a laser-array-submount assembly
- Sandia's RF and Opto Microsystems Department assisted the company by recommending design changes to the submount that enhanced its performance with the lasers
- Assistance from Sandia helped the company attract additional investors, which enabled Trilumina to hire two new employees

# NMSBA Program Results

NMSBA Metrics	2000-2015	2015
Number of Small Businesses Served	2495	366
Number of Counties Supported (out of 33)	33	24
Value of Assistance Provided	\$48.5M	\$4.77M

NMSBA Accountability & Economic Impact	2000-2014*
Small Business Jobs Created and Retained	4,863
Increase in Revenue	\$236M
Decrease in Operating Costs	\$105M
Investment in NM Goods and Services	\$98M
New Funding/Financing Received	\$87M

\*Surveys are performed six months to one year after project completion

# Entrepreneurial Separation to Transfer Technology (ESTT)



- Participants may **start up** or help **expand** small tech-based businesses
- Participants terminate their Sandia employment
  - Term of separation is up to two years with the option to request a third year
  - Participants are guaranteed reinstatement by Sandia before ESTT expiration

# ESTT Example



- Microsystems Enabled Photovoltaics technology developed at Sandia
- One of inventors left Labs through ESTT program to form a startup company with the goal of commercializing the technology
- Potential applications in space, rooftops and large solar-power farms

mPower

# ESTT Metrics

<b>Sandia scientists and engineers who left on ESTT</b>	<b>152</b>
• To start-up companies	67 (44%)
• To expand companies	85 (56%)
<b>Companies impacted by ESTT</b>	<b>104</b>
• Start-ups	52
• Expansions	52

# Small Business Vouchers



- DOE/EERE Program
- \$20M in Funding, Provided as Technical Vouchers from the National Labs
- \$50K to \$300K per voucher
- Must be for-profit business with no more than 500 full time equivalent employees worldwide
- Must be U.S.-based and U.S. - owned
- Technology Sectors
  - Advanced Manufacturing
  - Bio-energy
  - Buildings
  - Fuel Cells
  - Geothermal
  - Solar
  - Water
  - Wind
  - Vehicles

# Proposed Center for Collaboration and Commercialization (C3)



# C3 Goals

## ***Increase Sandia's Collaboration and Commercialization Activities by***

- Creating an inspiring and energizing **place** that would serve as the “front door” to Sandia, provide access to Sandia, and build linkages with the external community
- Providing **programs and services** to maximize interaction with our broad array of partners – industrial/private sector, academic, and government – and facilitate successful technology commercialization

### Proposed Spaces

- Sandia Offices
- Partner Offices
- Technology Showroom
- Incubator Space
- Co-working Space
- 400+ Person Conference Facility
- Small Conference Rooms
- Café/Catering Kitchen

### Proposed Programs & Services

- Entrepreneurial Training and Services
- Small Business Assistance
- Interactive Intellectual Property Library
- Tech Maturation
- Investor Access
- Scientific and Technical Consulting
- Retiree Mentoring



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