

Technology Commercialization: A National Laboratory Perspective



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Energy and Environment
Initiative Panel
Discussion**

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Overview

- Introduction to NREL
- Traditional Technology Transfer and Issues
- Commercialization and Technology Transfer with NREL and Alliance for Sustainable Energy
 - Commercialization at speed and deployment at scale
 - Strategy from here to there
 - Best in class commercialization
 - Technology Portal
 - Technology Commercialization and Deployment Fund

Technology Development Programs



Efficient Energy Use

- Vehicle Technologies
- Building Technologies
- Industrial Technologies



Renewable Resources

- Wind and water
- Solar
- Biomass
- Geothermal

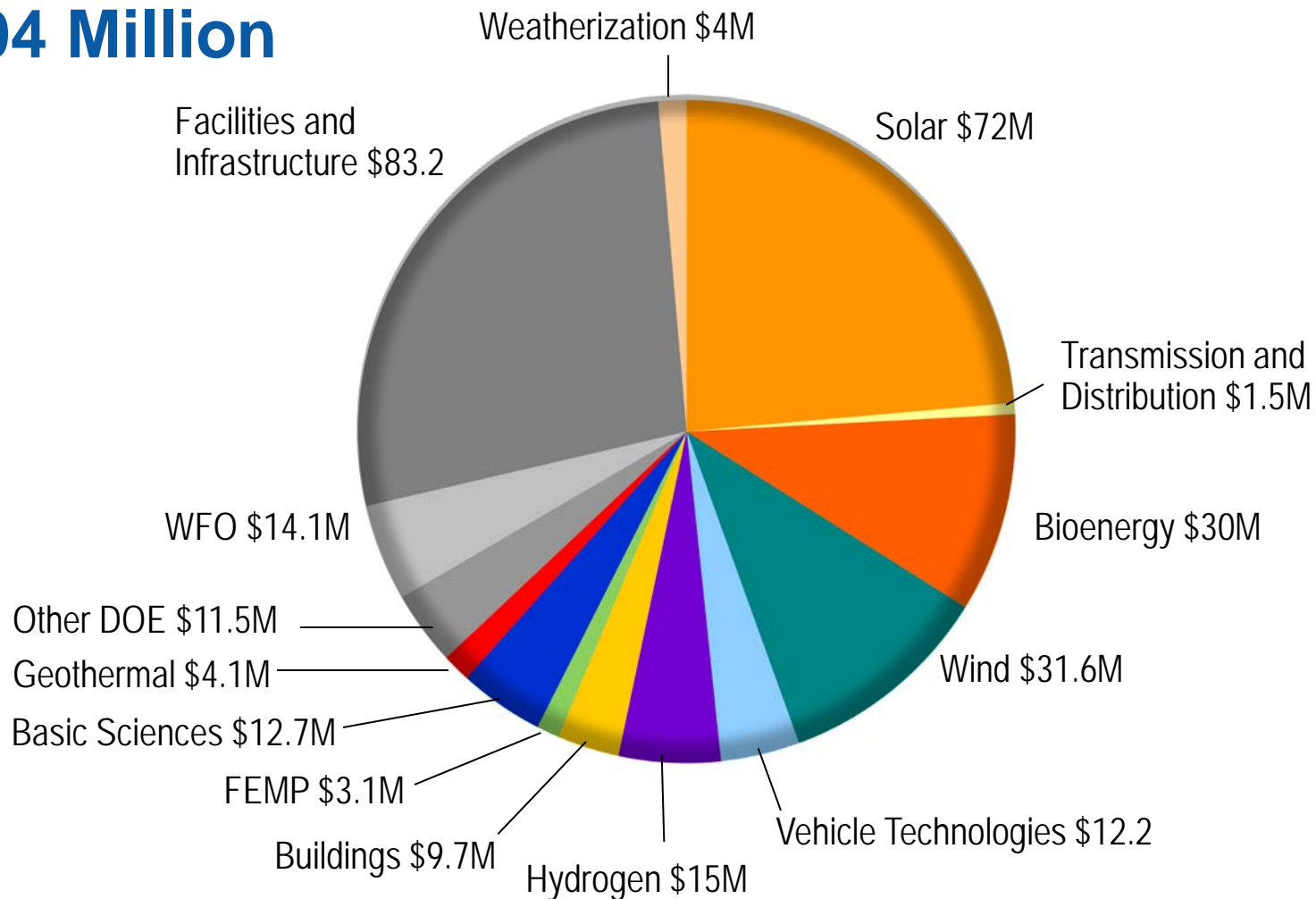


Energy Delivery and Storage

- Electricity Transmission and Distribution
- Alternative Fuels
- Hydrogen Delivery and Storage

NREL FY2008 Program Portfolio

~\$304 Million



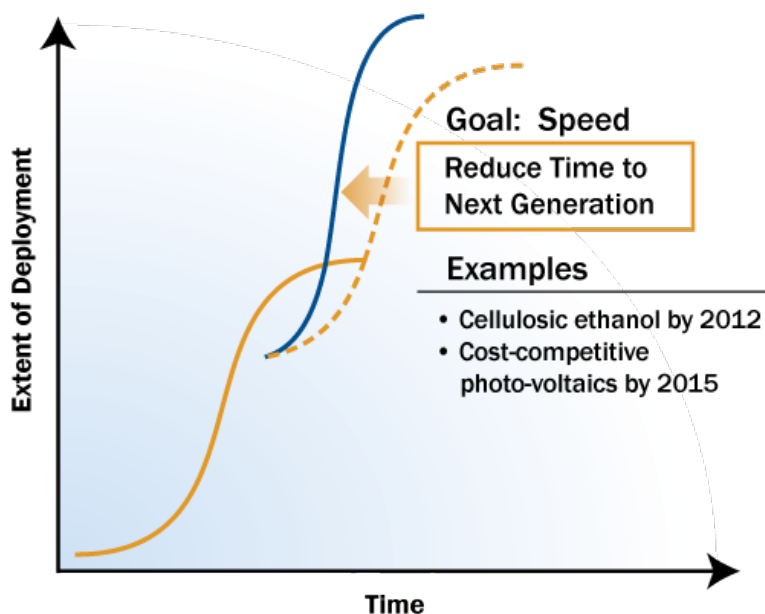
Traditional Technology Transfer

- Methods
 - Licensing
 - Technology Partnership Agreements
 - Publishing
- Concerns
 - Timeliness
 - Technology readiness
 - Access to newest ideas

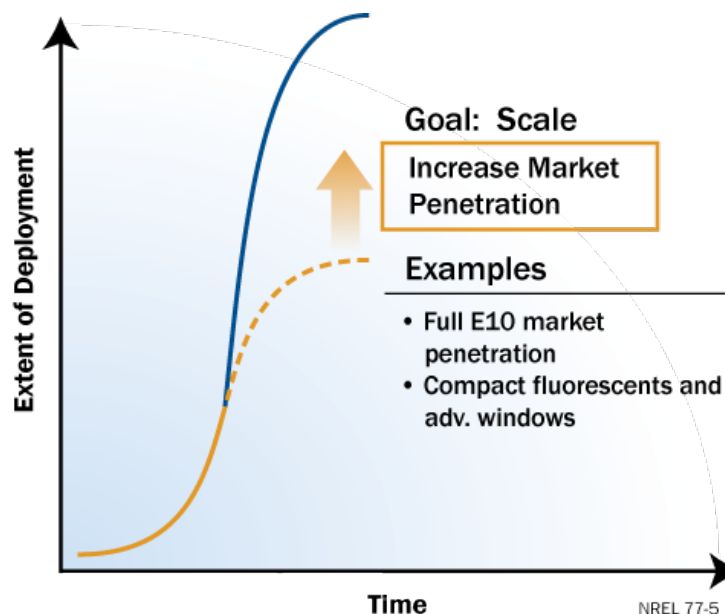
Commercialization and Deployment Goal

Accelerate commercialization and achieve widespread adoption of energy efficiency and renewable energy technologies

Accelerate the availability (speed) of *next generation* technologies



Maximize the deployment (scale) of *current generation* technologies



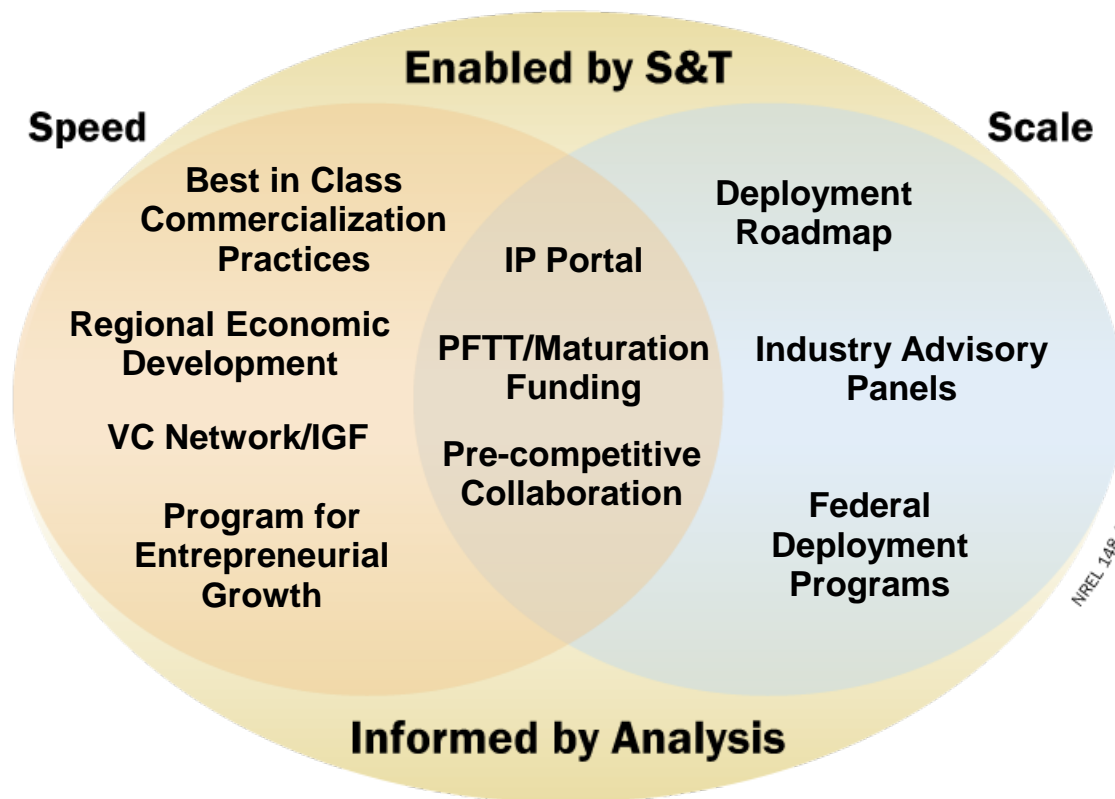
NREL 77-5

Creating the Necessary Conditions for Speed and Scale

An Innovative and Entrepreneurial Environment

Access to Capital

Strategic Engagement with Industry



“Best in Class” Commercialization Practices: Enable Faster and More Impactful Transactions

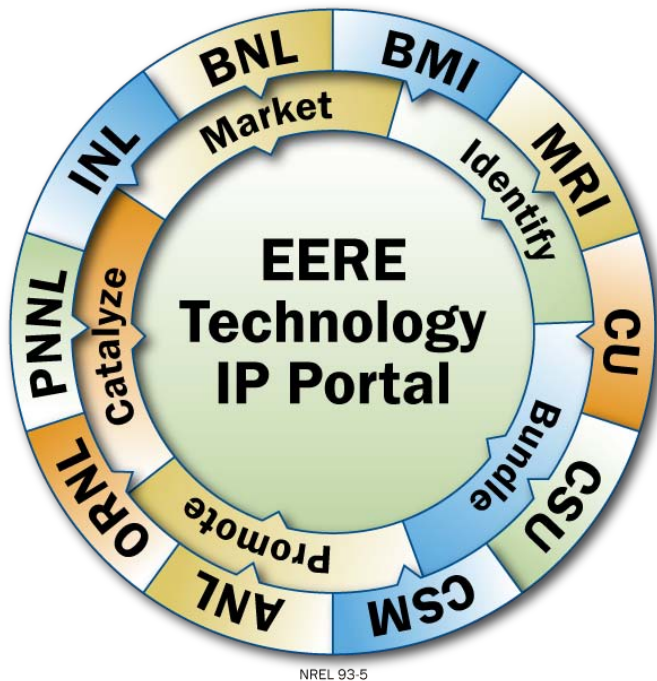
External focus on customers increases customer satisfaction and repeat business

- **Decision-making** on new inventions informed by Analysis for market relevance
- **Model agreements** promote transparency in all customer interactions
- **Transaction authority** within C&D to streamline execution of agreements
- **Customer-driven-timeline** imparts a sense of urgency in all transactions

Internal focus on innovation increases our invention output and our effectiveness with clients

- **LDRD** – Increase the pool, with provisions for seed projects
- **Recognition and rewards** for contributors to the commercialization process
- **Entrepreneur in Residence** – EERE program implementation
- **Improved Mechanisms** for easy disclosure of inventions
- **“Brown Bag”** seminars to promote IP basics
- **Recruiting practices** for researchers with innovation track records

Technology Portal: EE and RE Technology Solutions



- Web-based system which provides listings of energy-relevant technologies of NREL and our collaborators
- Technology seekers (companies, venture capitalists) can **identify and bundle** energy-relevant technologies
- NREL will hold quarterly forums with collaborators to actively **identify and bundle** technology solutions for licensing to established or start-up companies
- Technology Portal provides:
 - “One Stop Shopping” for technology seekers
 - Powerful mechanism for synergizing disparate technologies into solutions
 - Tool for EERE to collect and survey all program funded technologies

TCDF Program

- NREL received \$4MM in pilot program
 - Funding received Sept. 2007
- Designed to help industry commercialize NREL IP
 - Bridge commercialization “valley of death”
- Mandates
 - NREL intellectual property
 - 50% minimum cost share from partner
 - Clear commercialization pathway
 - Greater than \$250k TCDF investment requires DOE approval
- DOE Program Contacts
 - EERE Commercialization Team
 - Wendolyn Holland and Carol Battershell

NREL TCDF Program

- Projects
 - 11 on-going
 - 3 small technology maturation internal projects (cost-shared with license revenue)
 - Initial \$4 MM completely committed
- Areas covered
 - 7 solar
 - 2 thin film, 3 CSP, 1 III/V, 1 future silicon technology
 - 1 biomass
 - 1 hydrogen
 - 1 buildings/energy efficiency
 - 1 weatherization testing



NREL

National Renewable Energy Laboratory

Innovation for Our Energy Future



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