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DEPARTMENTAL TECHNOLOGY TRANSFER UPDATE

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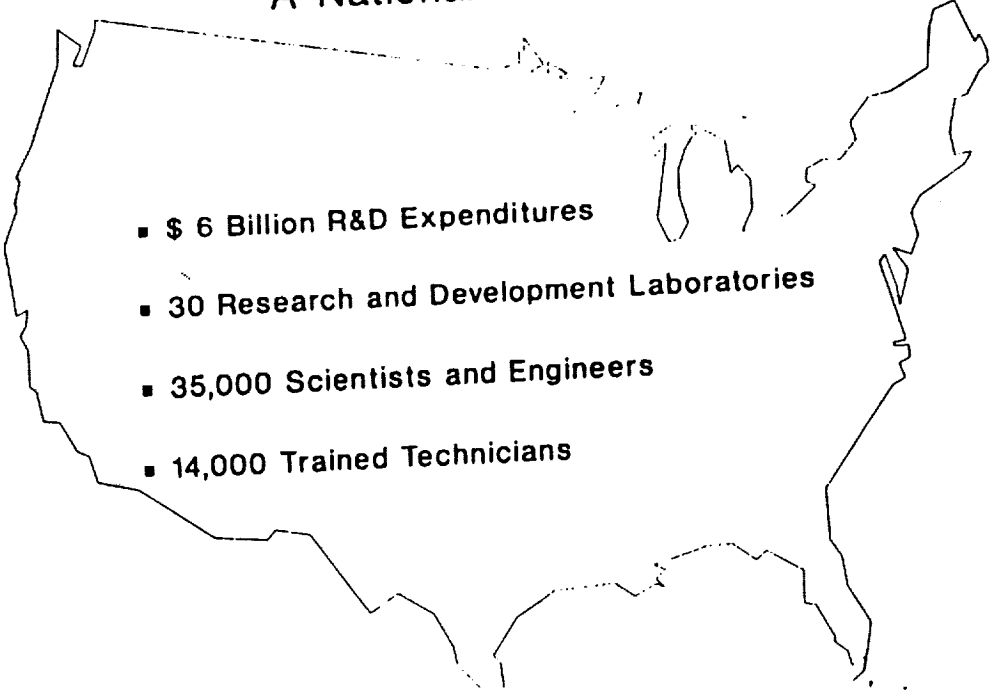
OBJECTIVE

- Provide the Perspective of the Department of Energy
- Emphasize New and Emerging Initiatives
- Address Unresolved Issues that Might Impact Successful Program Implementation

APPROACH

- Provide a brief overview of DOE, its R&D portfolio, and its technology transfer assets
- To briefly describe the evolution of DOE's Enhanced Technology Transfer Program
- To report on specific progress and achievements over the past year--as the spring board for our current and future plans
- To Present our near and longer term plans
- To survey the remaining issues and the resolution process

The DOE Laboratory System: A National Treasure

- 
- \$ 6 Billion R&D Expenditures
 - 30 Research and Development Laboratories
 - 35,000 Scientists and Engineers
 - 14,000 Trained Technicians

Scientific and Technical Capabilities of the Laboratories

- Energy Technologies
- Environment and Waste Management
- Analysis and Instrumentation
- Biology and Medicine
- Computers and Communications
- Materials Science and Manufacturing Processes

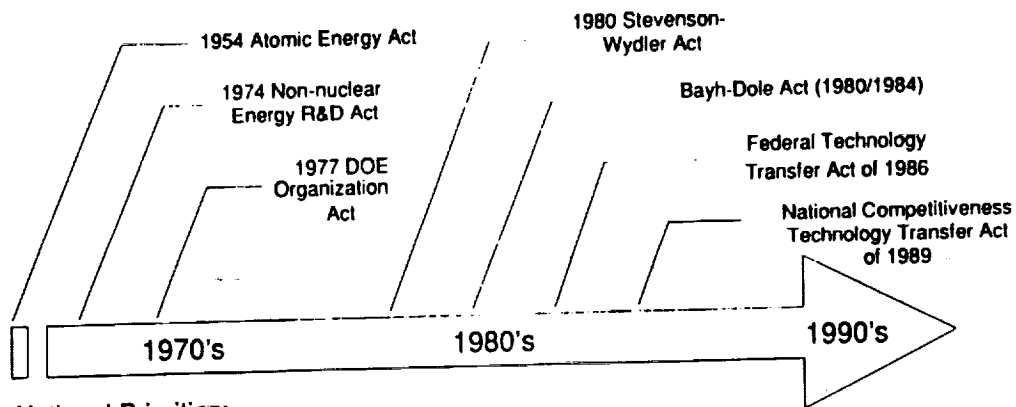
Different Technology Transfer Missions for Different Segments of DOE

<u>Program Office</u>	<u>OMB Budget Category</u>	<u>Tech Transfer Role</u>
Energy Research	Research	Worldwide Access to Scientific Knowledge & Spin-Offs
Fossil Energy Conservation Nuclear Energy	Energy Supply	Direct Transfer of Applied Research
Defense	Defense Activities	Applied Technology Know-How to Critical Defense Industries

DOE's Technology Transfer Menu

- Cooperative Research and Development Agreements (CRADAs)
- DOE Cooperative Agreements
- Cost-Shared Contracts/Subcontracts
- R&D Consortia
- Personnel Exchange Programs
- User Facility Agreements
- Work for Others Agreements
- Licensing
- Data Exchange Agreements
- Joint Ventures

Policy and Legislative Context



National Priorities:

"Oil Crisis"

+ "Competitiveness Crisis"

+ "Environmental Crisis"

DOE Policy Emphasis:

Applied Energy Research

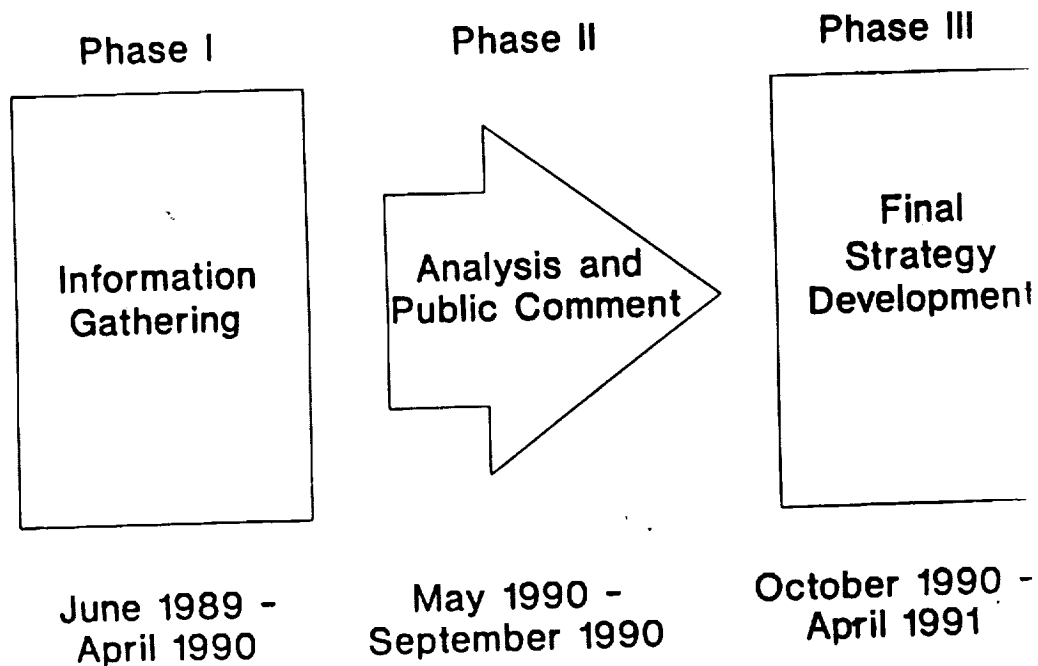
Long-Term High Risk R&D
+ Lab Technology Transfer

An Integrated Approach

THE EVOLUTION OF DOE'S ENHANCED TECHNOLOGY TRANSFER PROGRAM

- DOE impacted very little by early legislation
- 1989 Developments
 - NCTTA
 - National Energy Strategy process started
- 1990
 - NES action completed--integrated approach
 - Technology Transfer Project Group Policy--Management--R&D Programs
- Technology Transfer Field Task Force
 - 200 individuals (DOE, other agencies, contractors)
 - Initial model CRADA/Guidelines released
- January 1991
 - Secretary of Energy Notice
 - Major orientation initiative
- February 1991
 - NES issued as Administration Policy

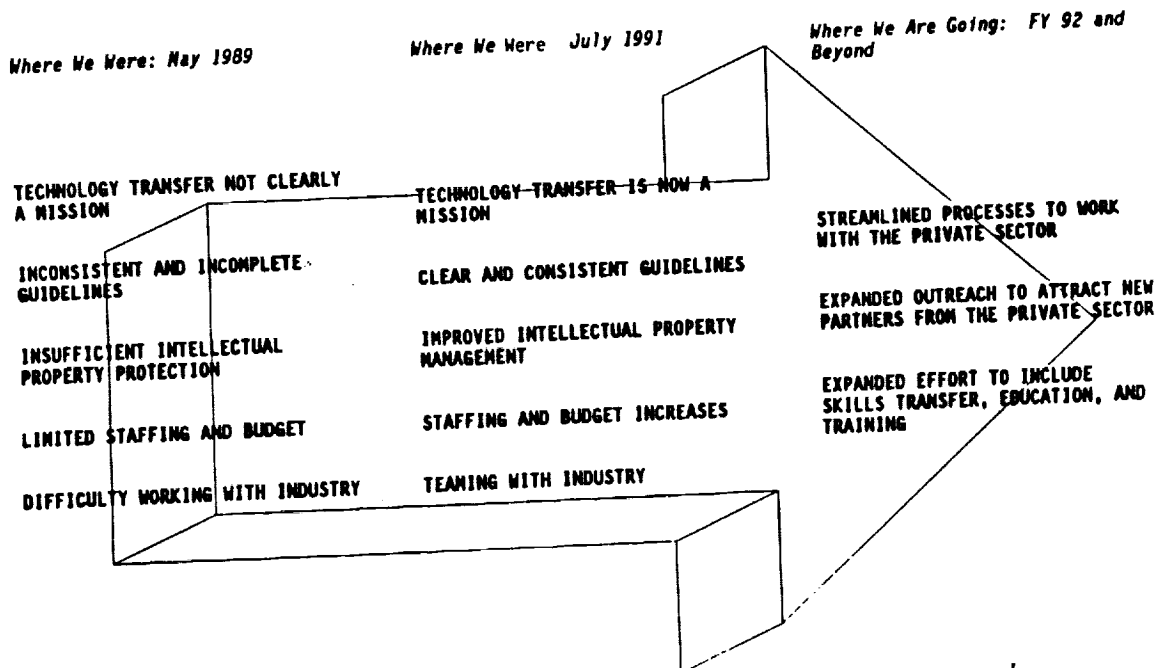
The NES Development Process



Phase I: Information Gathering

- Public Hearing Record
 - 15 Public Hearings (379 Witnesses)
 - Special Conference on Science Education
 - Technology Transfer Round Table
- Written Public Input
 - Over 1000 Written Submissions (12,000 Pages)
 - 20 Federal and State Government Plans
 - 27 Public Plans
- DOE Sector Profiles (13)
 - 6 Supply Sectors
 - 4 End Use Sectors
 - 3 Cross-Cutting Sectors
- Laboratory White Papers (5)
 - Energy Efficiency: How Far Can We Go?
 - The Potential for Renewable Energy
 - Energy and Climate Change
 - The Technology Transfer Process
 - Energy Technology for Developing Countries
- Over 400 Additional Sources

SETTING THE COURSE TECHNOLOGY TRANSFER



Executive Commitment

Secretary Watkins:

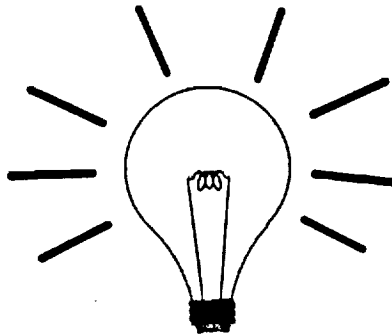
"Over the course of the National Energy Strategy process, I have become convinced that effectively and efficiently transferring the results of Federal research and development to the private sector is one of the keys to success for achieving our energy, environment, and economic goals."

*Report to Congress
on NCTTA Implementation
May 29, 1990*

"Because U.S. competitiveness in international markets is seriously challenged, I feel that it is important to move as quickly as possible to expand and enhance DOE's cooperative work with industry."

*Secretary of Energy
Notice on Technology Transfer
January 23, 1991*

Philosophy of Operations: The DOE Vision



A DOE and Industry Partnership

for the Future to

Enhance U.S. Competitiveness

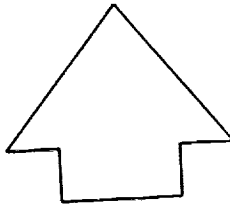
Philosophy of Operations: Objective

Enhance US competitiveness by increasing the transfer of Federally funded technologies and knowledge to the private sector for commercial application.

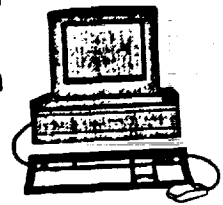
Goal 1:

Increase U.S.-based industry participation in DOE's programs.

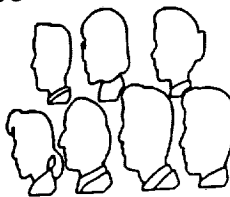
Increase collaboration
and
cost-sharing



Promote intellectual
property protection



Ensure fairness
of
opportunity

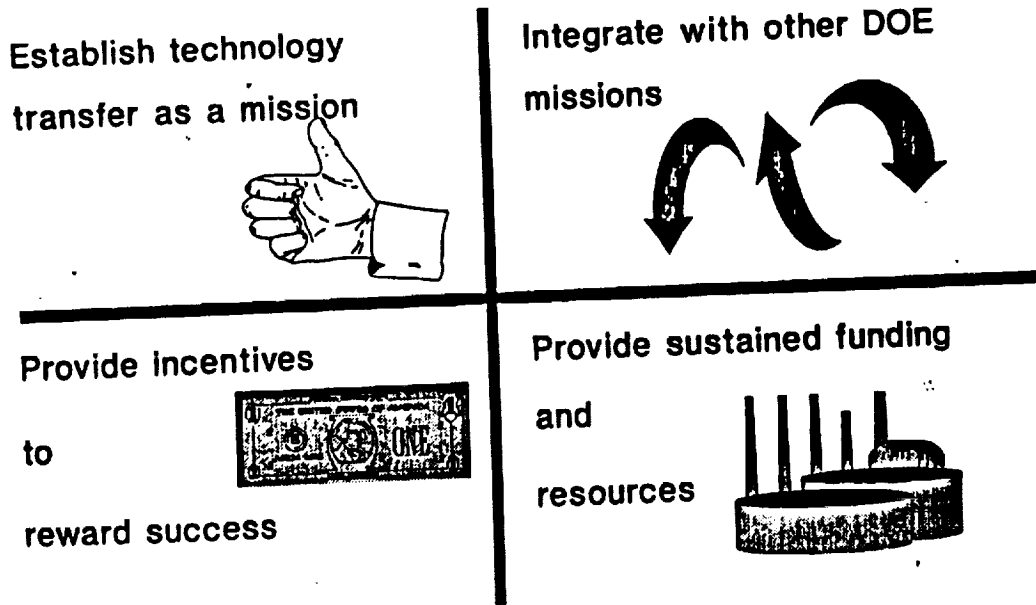


Seek to maximize
U.S.
economic benefits



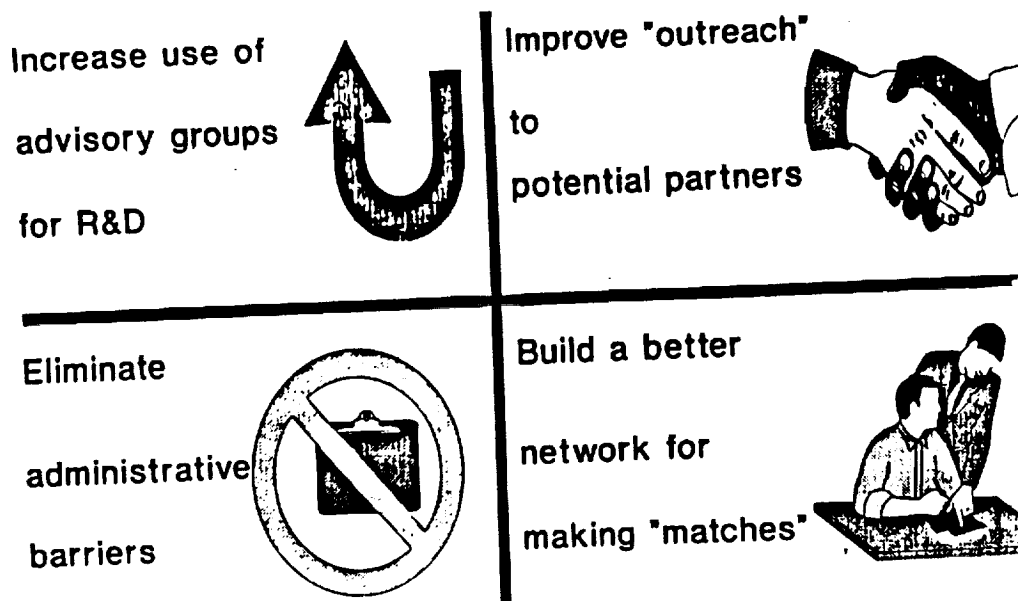
Goal 2:

Increase the level of DOE and contractor activity in technology transfer.



Goal 3:

Accelerate the process of transferring technology and knowledge



Philosophy of Operations Roles and Responsibilities

- DOE Secretarial and Staff Offices
 - To establish broad policies and guidelines
 - To delegate implementation to line organizations
 - To establish standards of success
 - To provide required financial and human resources
 - To coordinate policies with other agencies/Congress and ensure conformance with policies and legislation
- Program Offices
 - To evaluate each program's technology transfer role
 - To develop supporting strategies and plans
 - To request the required resources to implement
 - To conduct targeted outreach initiatives
 - To evaluate progress and effectiveness of programs and ensure conformance to missions and legislation

Philosophy of Operations Roles and Responsibilities

- Field Offices
 - To support directions and policies of HQ/Programs
 - To assist in formulating policies and procedures
 - To negotiate contracts with M&O contractors
 - To review and approve lab/industry agreements
 - To appraise and report on technology transfer efforts
- Laboratory Director or Equivalent
 - To transfer technology using CRADAs, other means
 - To provide input on DOE policies and procedures
 - To comply with agreed upon policies and procedures
 - To define lab procedures to implement the mission
 - To evaluate and report on progress
 - To demonstrate fiscal and mission responsibility

DOE Management Philosophy: A Partnership Approach

There are two keys to success:

Improve the Speed:

- More decentralization
- More flexibility
- Simpler procedures



Improve Predictability:

- Maintain DOE oversight
- More consistency
- Clearer policies

Achieving the appropriate balance requires
a partnership approach between DOE, its facilities,
and the private sector.

DOE ACCOMPLISHMENTS

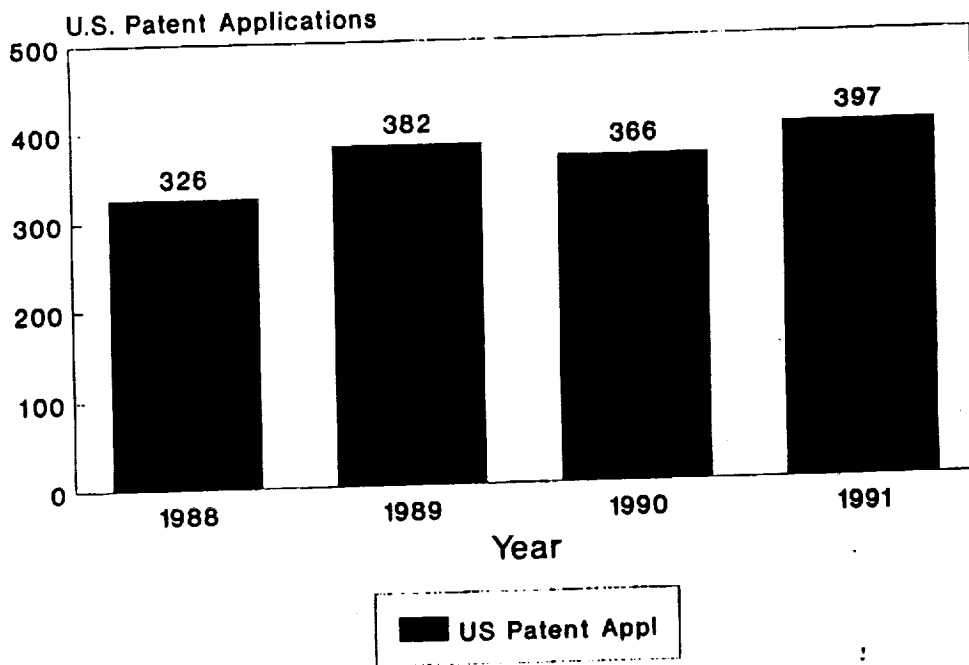
- SEN-30-91 "Setting the Course for Technology Transfer at the Department of Energy" (January, 23, 1991)
- Orientation Seminar January 24, 1991
- 25 Labs "On Board" with contract clause
- CRADA Tracking System established
- Contract clause developed for production facilities
- SEN-33-91: STA/Director of Technology Utilization
- CRADA process workshop updated tools and guidelines
- Letter of Agreement with the Department of Commerce

- The Department of Energy signed a Memorandum of Understanding with the National Center for Manufacturing Sciences
- A model CRADA tailored to the needs of the computer Industry was developed through discussion with the Computer Systems Policy Project which consists of 12 computer manufacturers
- The President announced a cooperative agreement with the Advanced Battery Consortia
- A significant DOE laboratory presence at the NASA's Technology 2001
- A significant DOE laboratory presence at GM's Garage show
- DOE, DOC, DOT and NASA Initiate the National Technology Initiative (NTI) with President Bush's support
- The President attended the signing of a CRADA in Oak Ridge, TN.

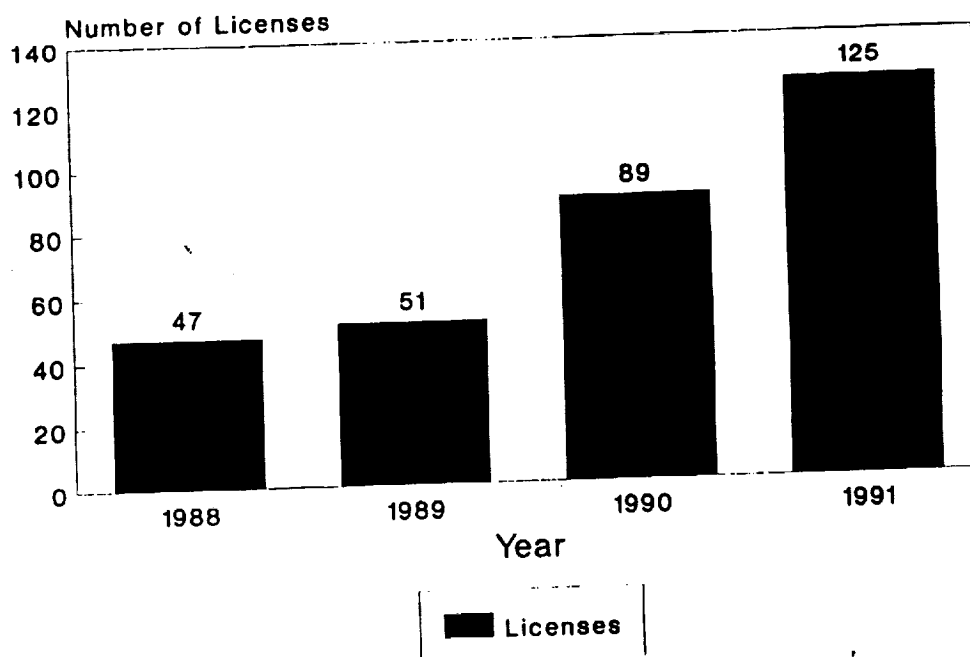
IMPLEMENTING MECHANISMS

- **Management and Operating (M&O) Contracts**
- **Policies and Procedures**
- **Training, Handbook, and Other Tools**
- **Regulations (only when necessary)**

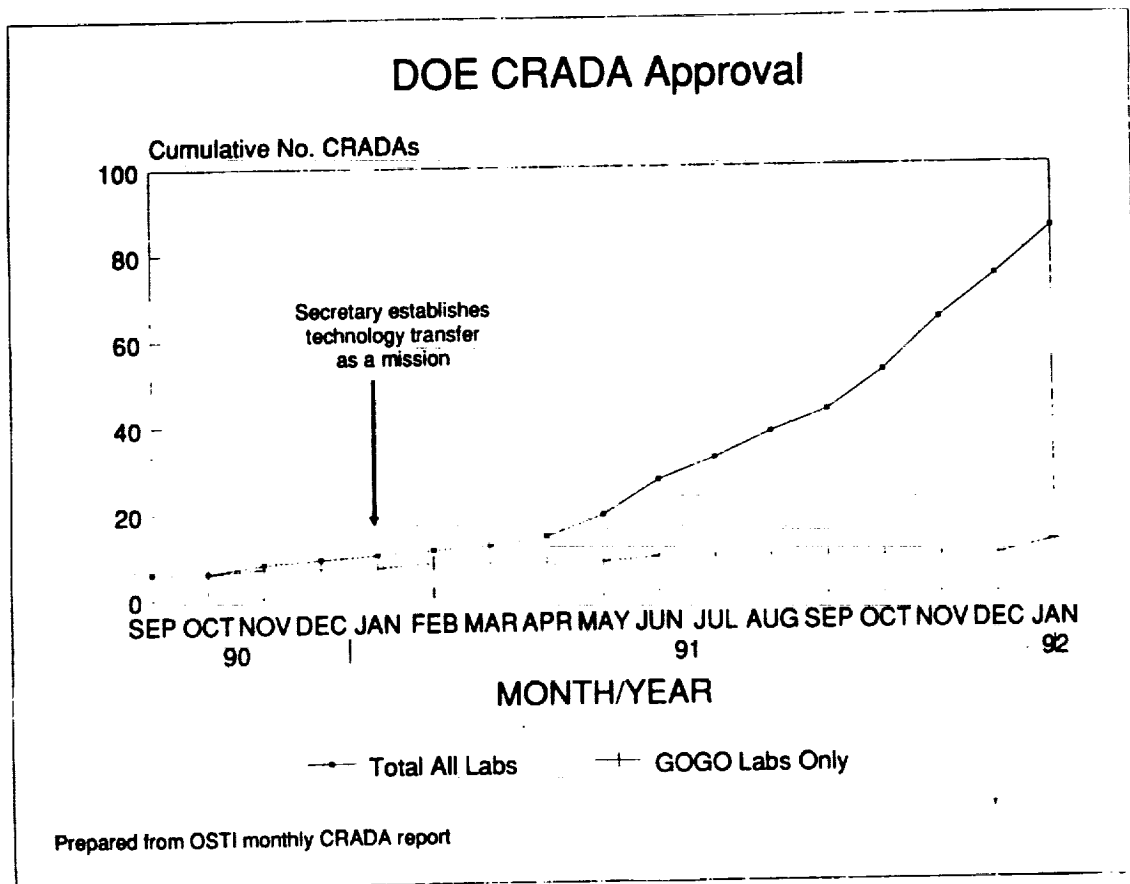
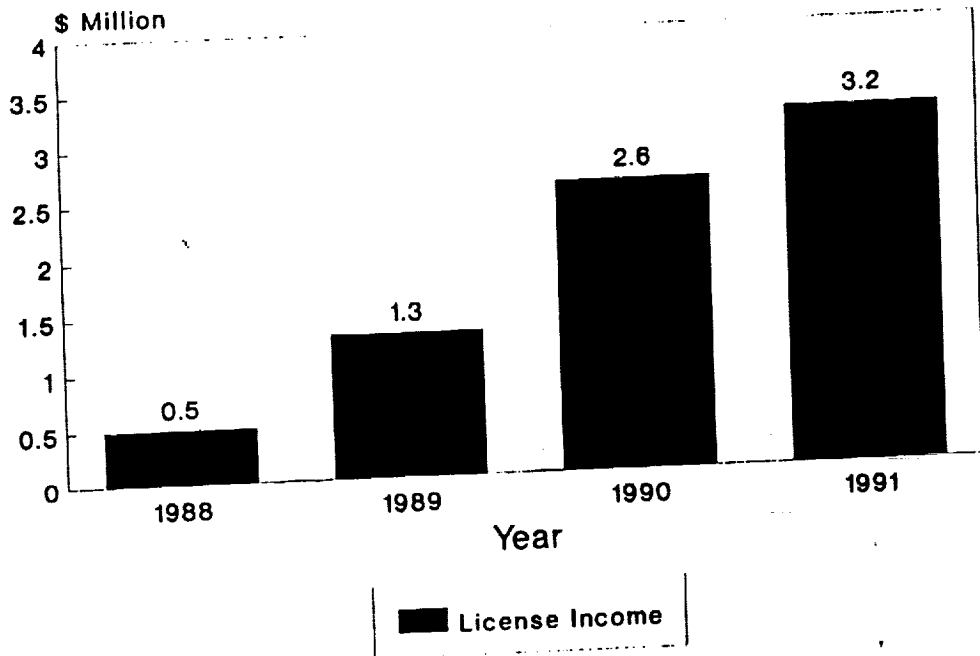
U.S. Patent Applications



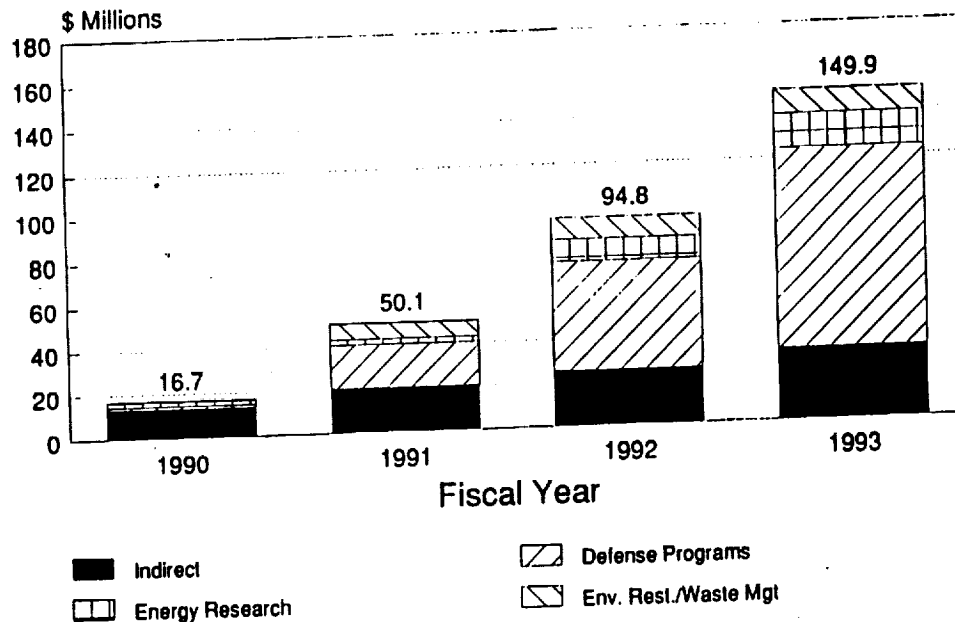
Licenses Awarded



License Income



DOE Technology Transfer Budget



PLANS AND PROBLEMS

- MAJOR UNRESOLVED DOE ISSUES
- NATIONAL TECHNOLOGY INITIATIVE
- INTERAGENCY ISSUES

**Current Focus:
Get the Management System in Place**

- Complete Negotiations of Contract Clauses
- Issue Revised Model CRADA and Guidelines
- Adjust Technology Transfer Resources
- Issue Updated Handbook to DOE Community
- Develop Outreach Plan
- Improve HQ/Field/Lab Communications

Major Policy Issues

- Intellectual Property Protection
- Conflict of Interest
- Fairness of Opportunity
- Foreign Participation

International Technology Transfer

- Not a Separate DOE focus
- Often a Program Office Focus
- Not Usually Mechanism Dependent
- Not Discouraged/Often Encouraged
- Not Unusual/Becoming an Integral Part of Some Efforts

Foreign Participation: Achieving a Proper Balance

Promoting Foreign Participation

- Advancing basic science
 - High energy physics
 - Human genome research
- Accessing foreign markets
- Accessing foreign capital
- Accessing foreign technology
- Encouraging competition

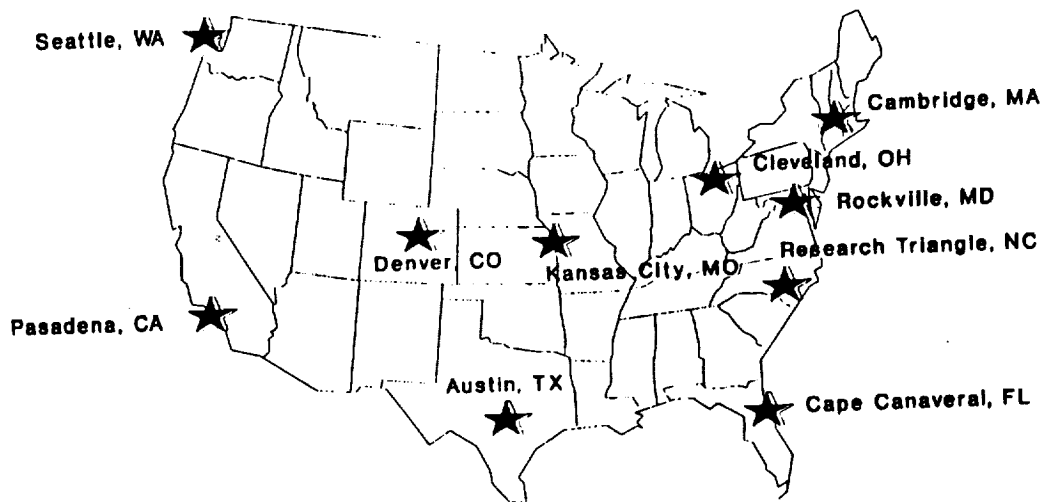
Promoting Domestic Participation

- Advancing U.S. industry
 - Developing new products
 - Developing new processes
- Creating new jobs
- Increasing tax revenues
- Promoting national security
- Improving the trade balance

NATIONAL TECHNOLOGY INITIATIVE

- The NTI will include a series of regional meetings designed to stimulate U.S. economic competitiveness by informing industry of opportunities they may not know exist, followed by agency specifics
- President Bush said, "Look to the longterm, and we've got work to do...steps we can take right now to guarantee progress and prosperity into the next American Century. We get there by investing in the technologies of tomorrow, with federal support of R&D at record levels.
- Senior policy makers from various federal agencies as well as experts from business and academia will provide participants with practical suggestions on making better use of our Nation's technological strengths
- This new initiative will identify ways in which government-industry-university cooperation can help the private sector commercialize technology and become more competitive in global markets
- These meetings will give laboratory personnel an opportunity meet with industry and share an unprecedented dialogue
- There are currently plans for at least 10 of these dialouge meetings through mid-July

Proposed Locations for the National Technology Initiative



EXECUTIVE BRANCH TECHNOLOGY TRANSFER

- **President's Council on Competitiveness: Working Group on Commercialization of Government Technology**
- **Federal Coordinating Council on Science, Engineering, and Technology (FCCSET): Working Group on Federal Laboratory Technology Transfer**
 - Conflict of Interest
 - Freedom of Information Act
 - Intellectual Property
- **International:**
 - General Agreements on Tariffs and Trade
 - Other Trade Agreements
 - NSA
 - NAFTA

So now what?

Building for the Future

- In the last year, there has been a significant increase in intra-departmental communication and interaction.
- DOE and its laboratories have worked together to look beyond their differences and begin to find workable solutions to common problems.
- We have established a foundation of increased interaction and communication with industry, States, universities, other agencies, and Congress.
- The changes are fragile and will need to be nurtured over the coming months and years.
- We need to work together to develop and sustain an environment of teamwork, open communication and trust among all participants in the process.

Only in this way, can we learn from our combined experiences and continue to improve technology transfer in response to changing national circumstances.

The Technology Transfer Challenge:

Closing the "Gap" of the 80's...

