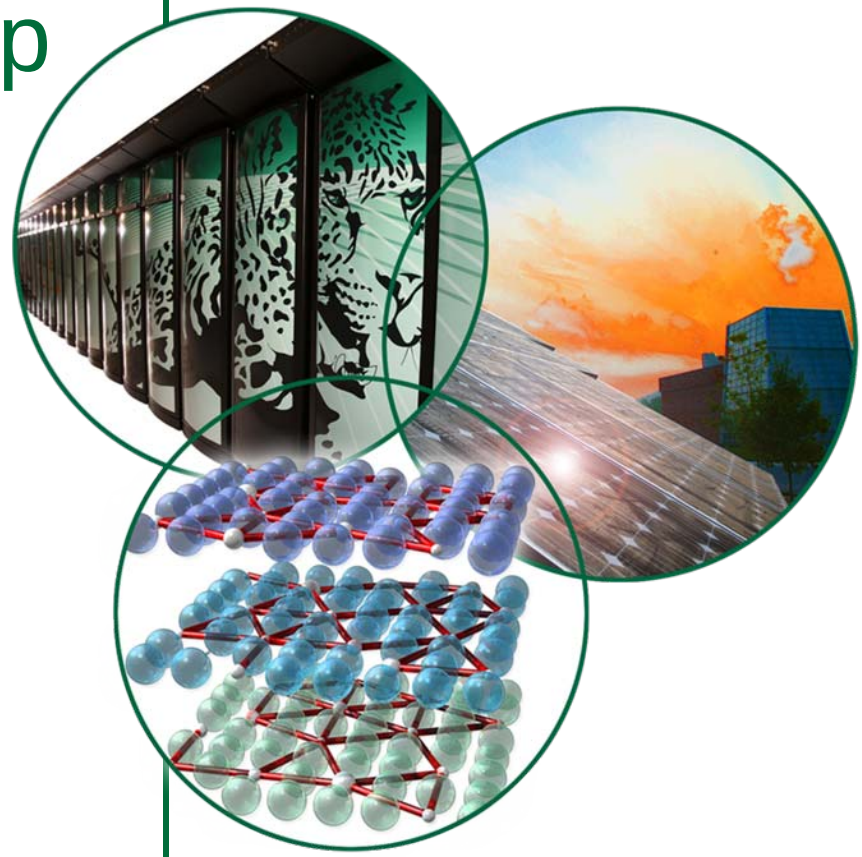
Minority Entrepreneurialship and Other Considerations in Energy



Presented by: Will Minter

Director, Asset Management and Small Business Programs Division

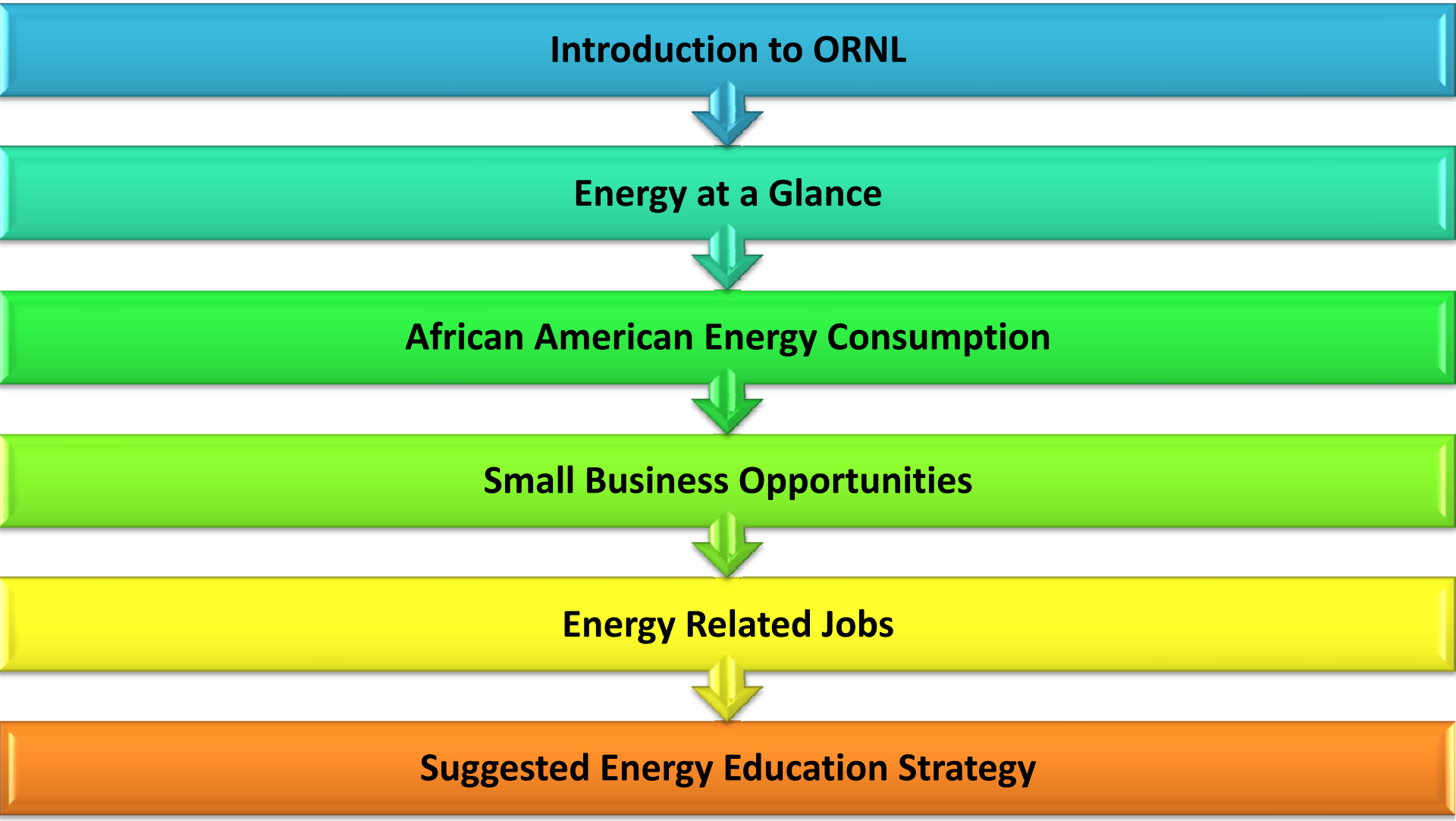
U.S. DEPARTMENT OF ENERGY

March 19, 2009

OAK RIDGE NATIONAL LABORATORY

MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

Overview

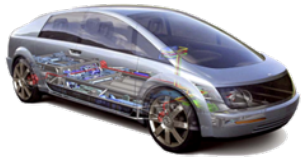


Today, ORNL is DOE's largest science and energy laboratory

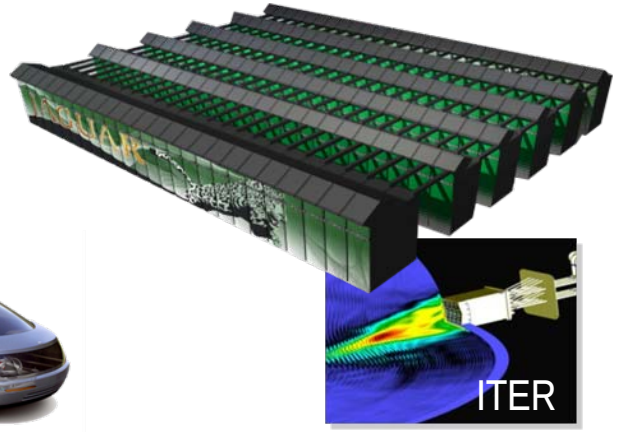
- **$1.3B budget**
- **4,300 employees**
- **3,900 research guests annually**
- **$350 million invested in modernization**
- **World's most powerful open scientific computing facility**
- **Nation's largest concentration of open source materials research**
- **Nation's most diverse energy portfolio**
- **Operating the world's most intense pulsed neutron source**
- **Managing the billion-dollar U.S. ITER project**

Delivering science and technology:
We lead major R&D programs for DOE and other customers

Energy technologies



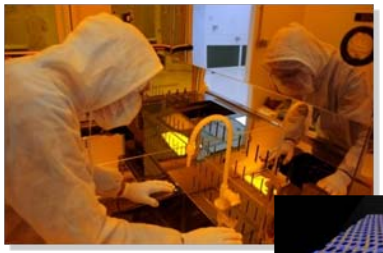
Ultrascale computing

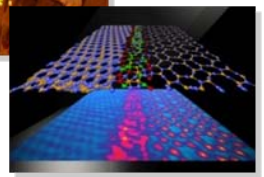


Bioenergy

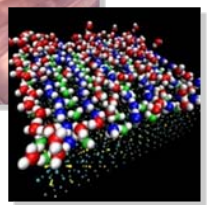
Climate

Materials at the nanoscale





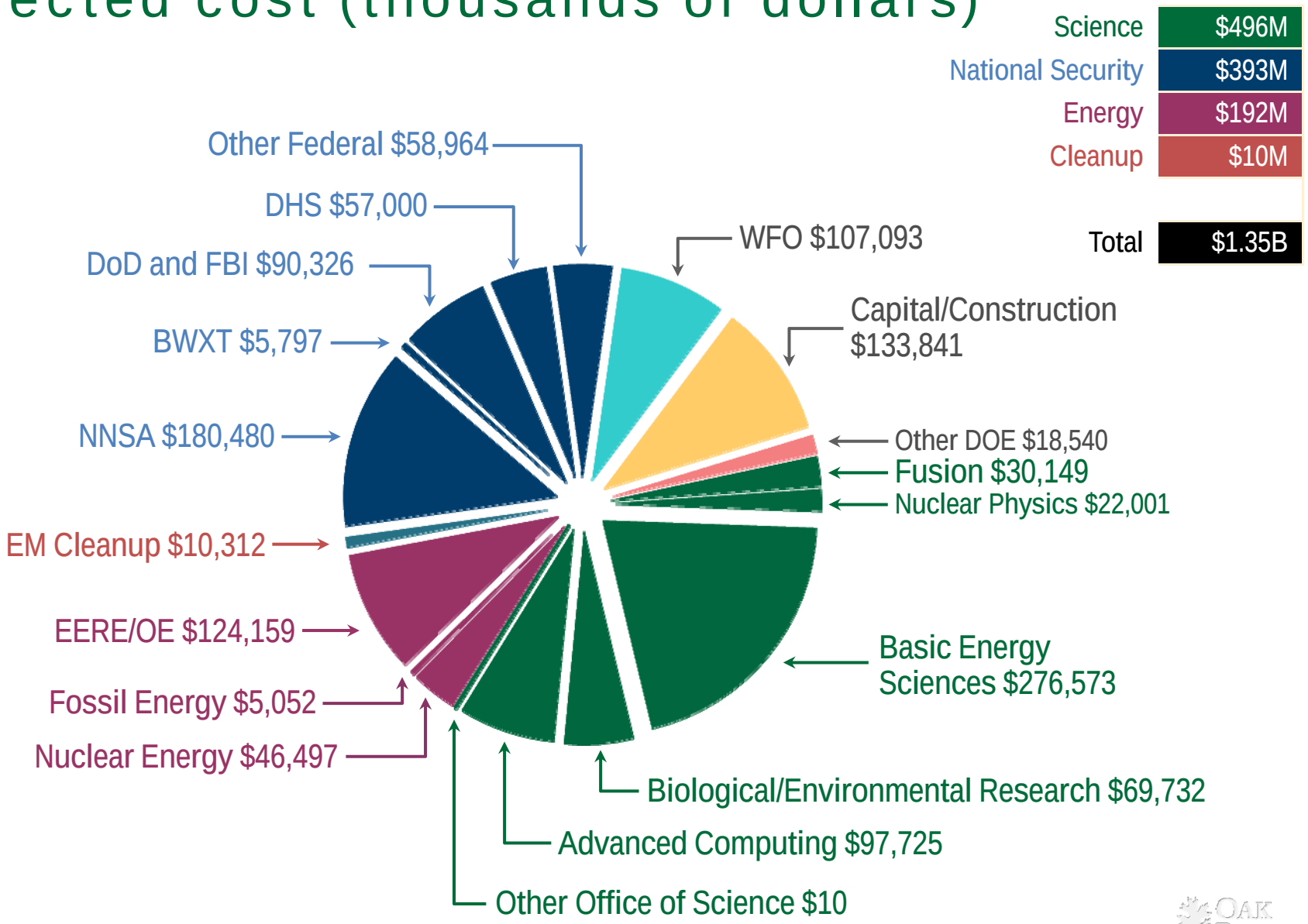
Neutron sciences



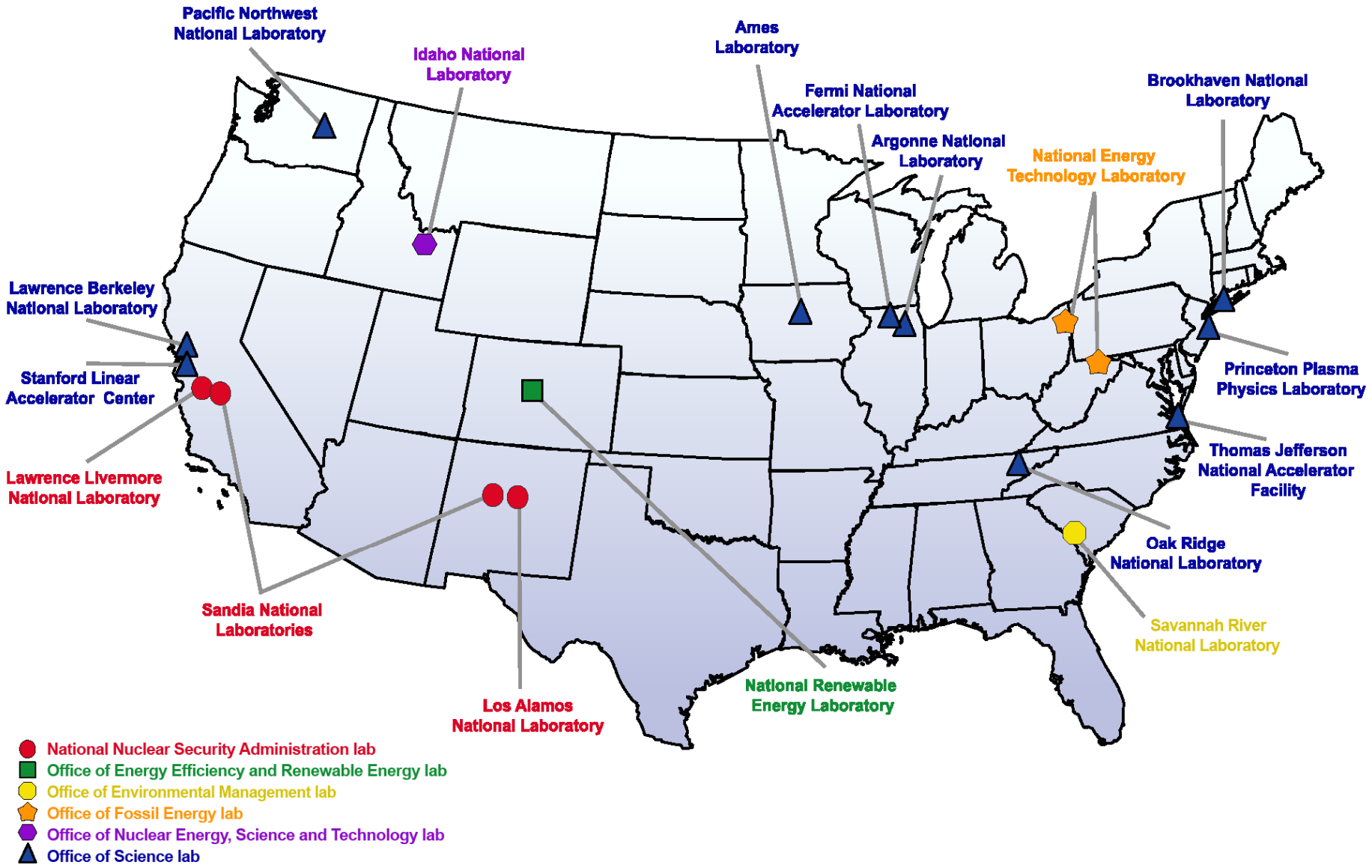
Nuclear energy

National security

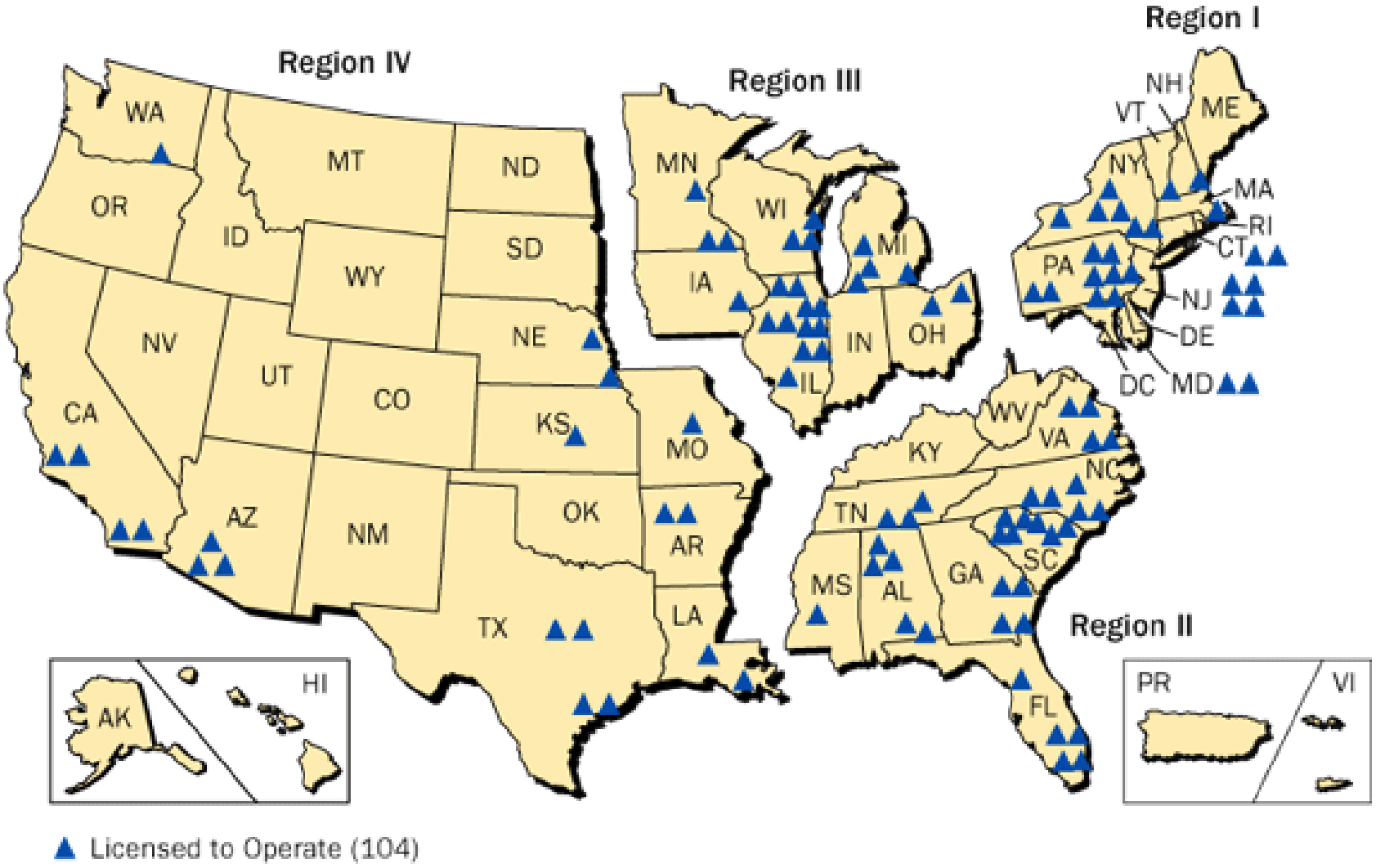
ORNL funding in FY09
Projected cost (thousands of dollars)



Department of Energy National Laboratories



Map of the United States Showing Locations of Operating Nuclear Power Reactors



ENERGY SOURCES

- Coal
- Natural Gas

- **Oil**

- **Oil Sands**

ENERGY SOURCES cont.

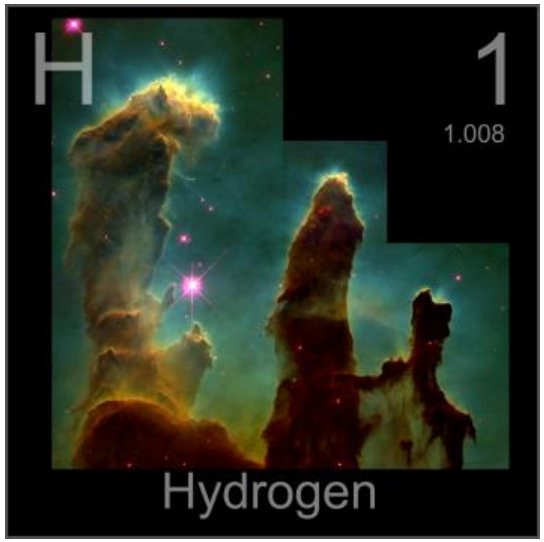
- Bio Fuels
- Gas to Liquids

- Solar

- **Geothermal**

ENERGY SOURCES cont.

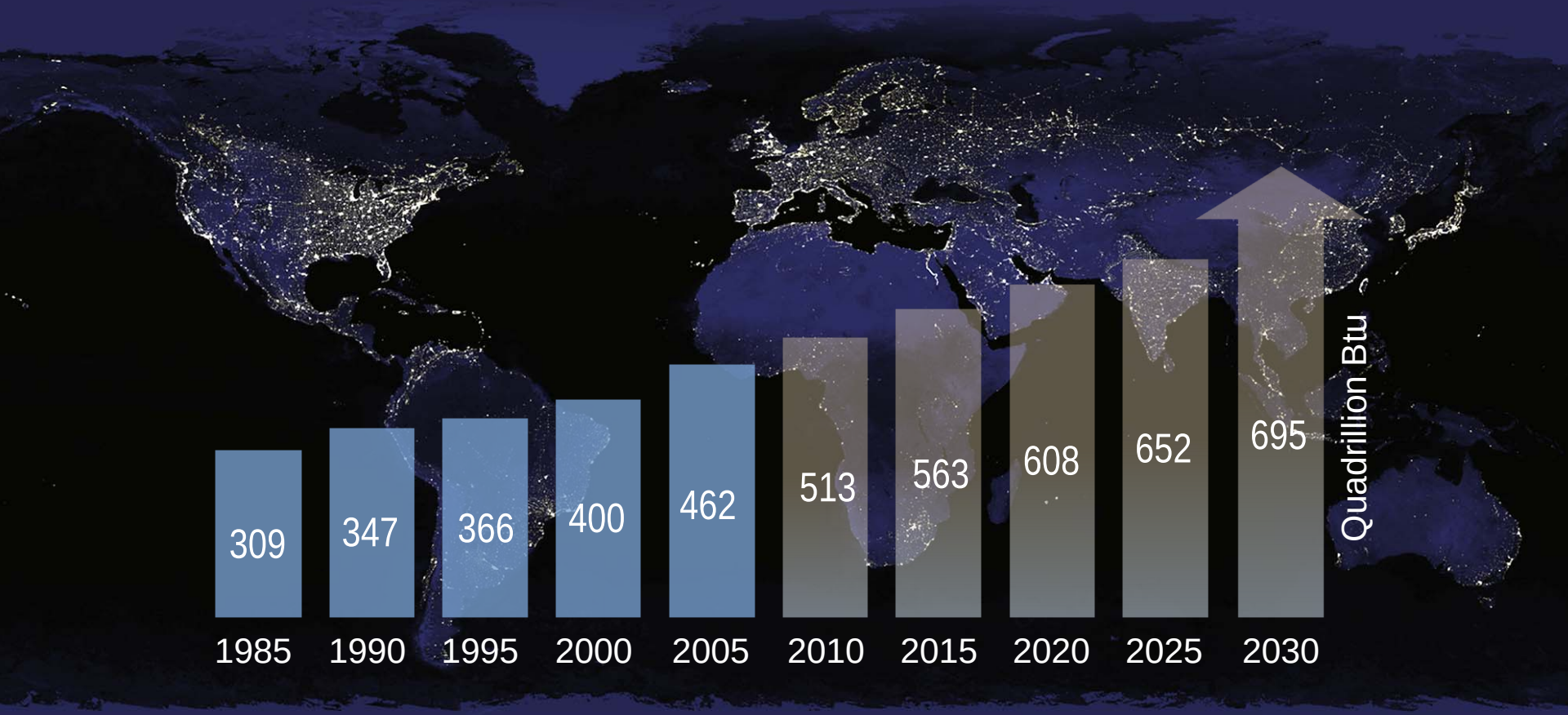
- Hydrogen



- Fuel Cells

- **Efficiency and Conservation**

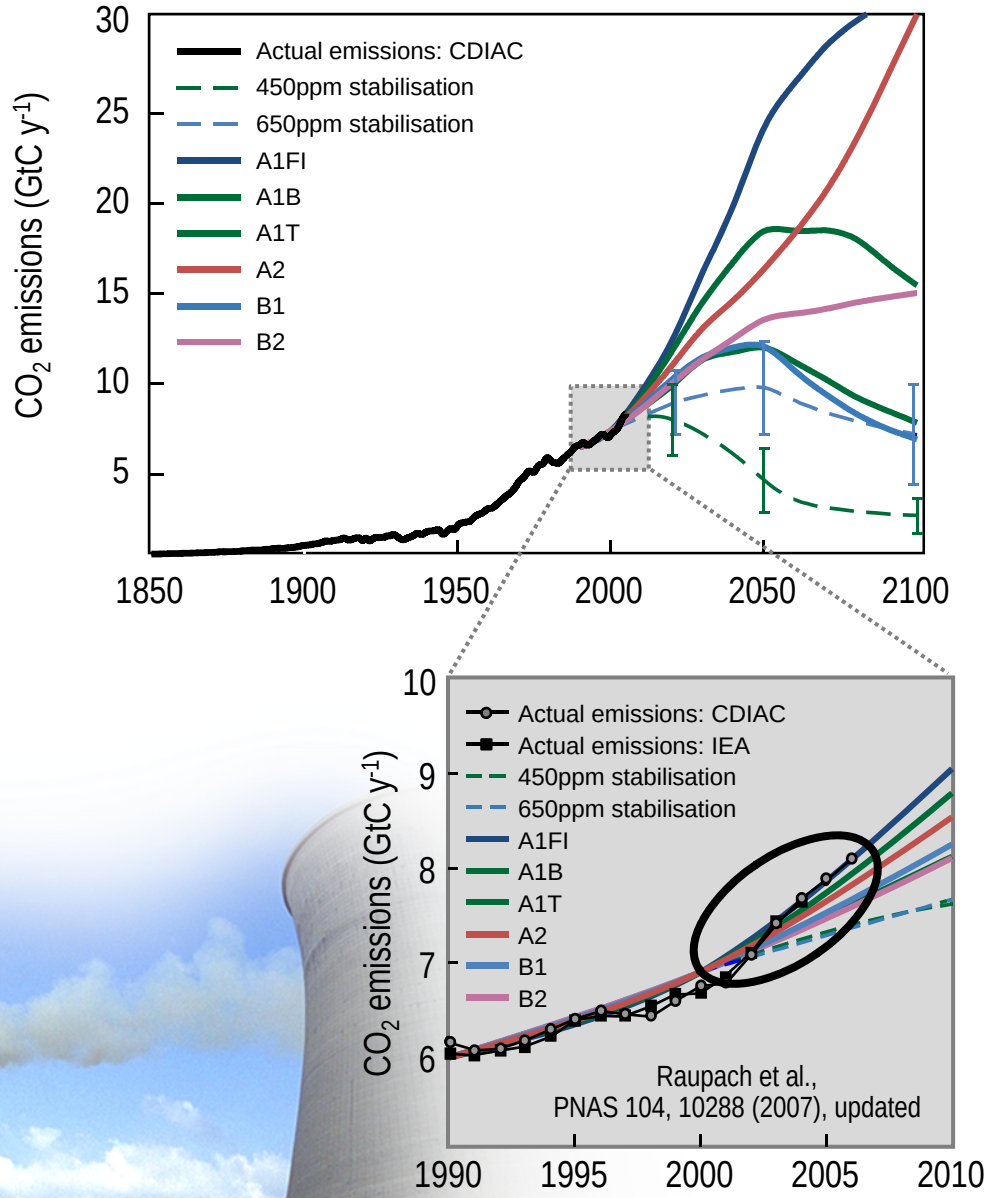
World energy consumption is projected to increase by 50% from 2005 to 2030



Source: International Energy Outlook 2008, DOE/EIA-0484(2008),
Energy Information Administration, June 2008

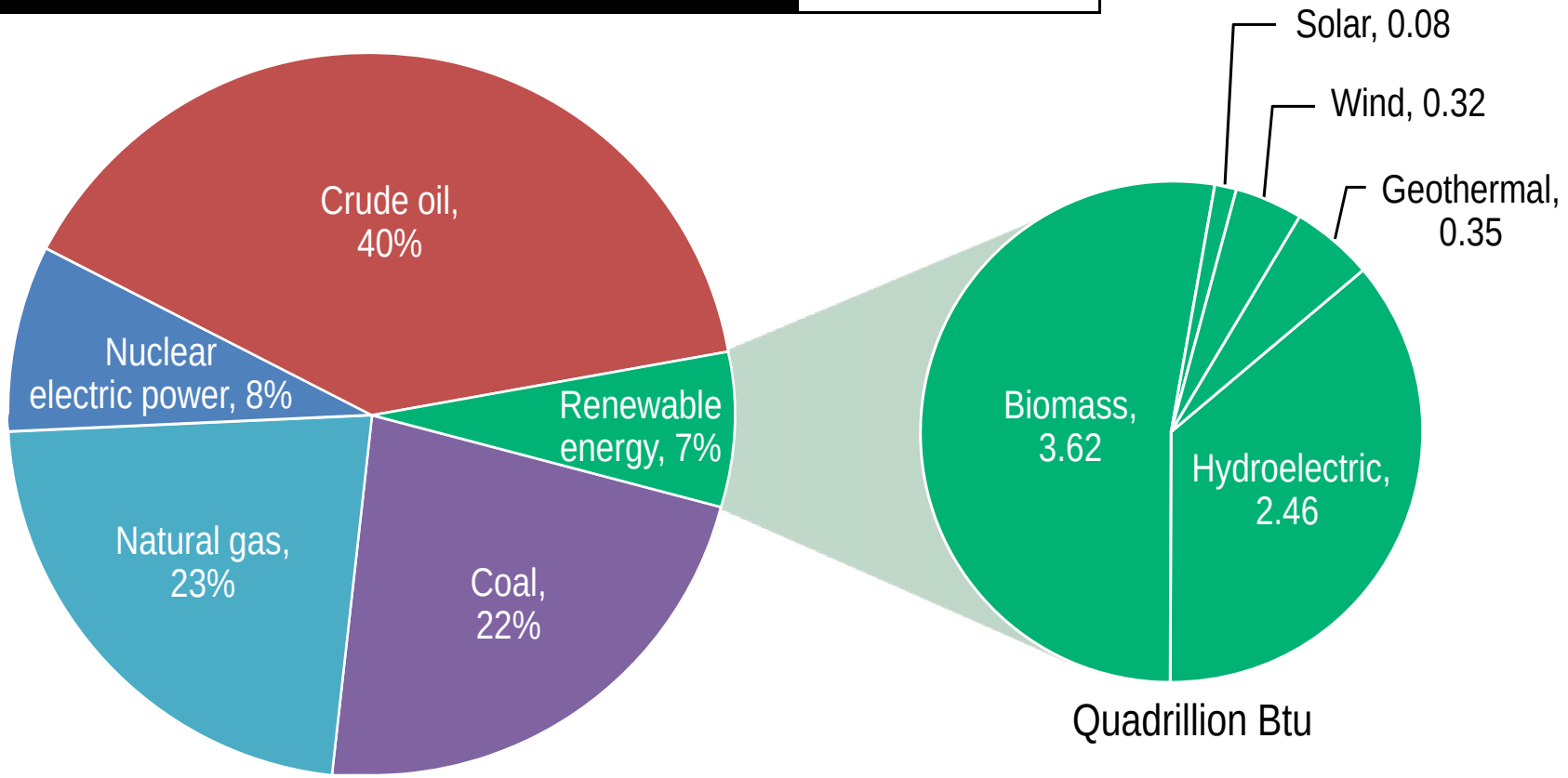
Human activity is affecting global climate

- Atmospheric CO_2 concentrations are increasing rapidly
  - 1990–1999: +1.5 ppm per year
  - 2000–2007: +2.0 ppm per year
  - 2007: +2.2 ppm per year
- Three processes are contributing to this increase:
  - Growth in world economy
  - Increase in carbon intensity
  - Decline in efficiency of CO_2 sinks on land and in oceans
- Climate forcing is both stronger than expected and sooner than expected

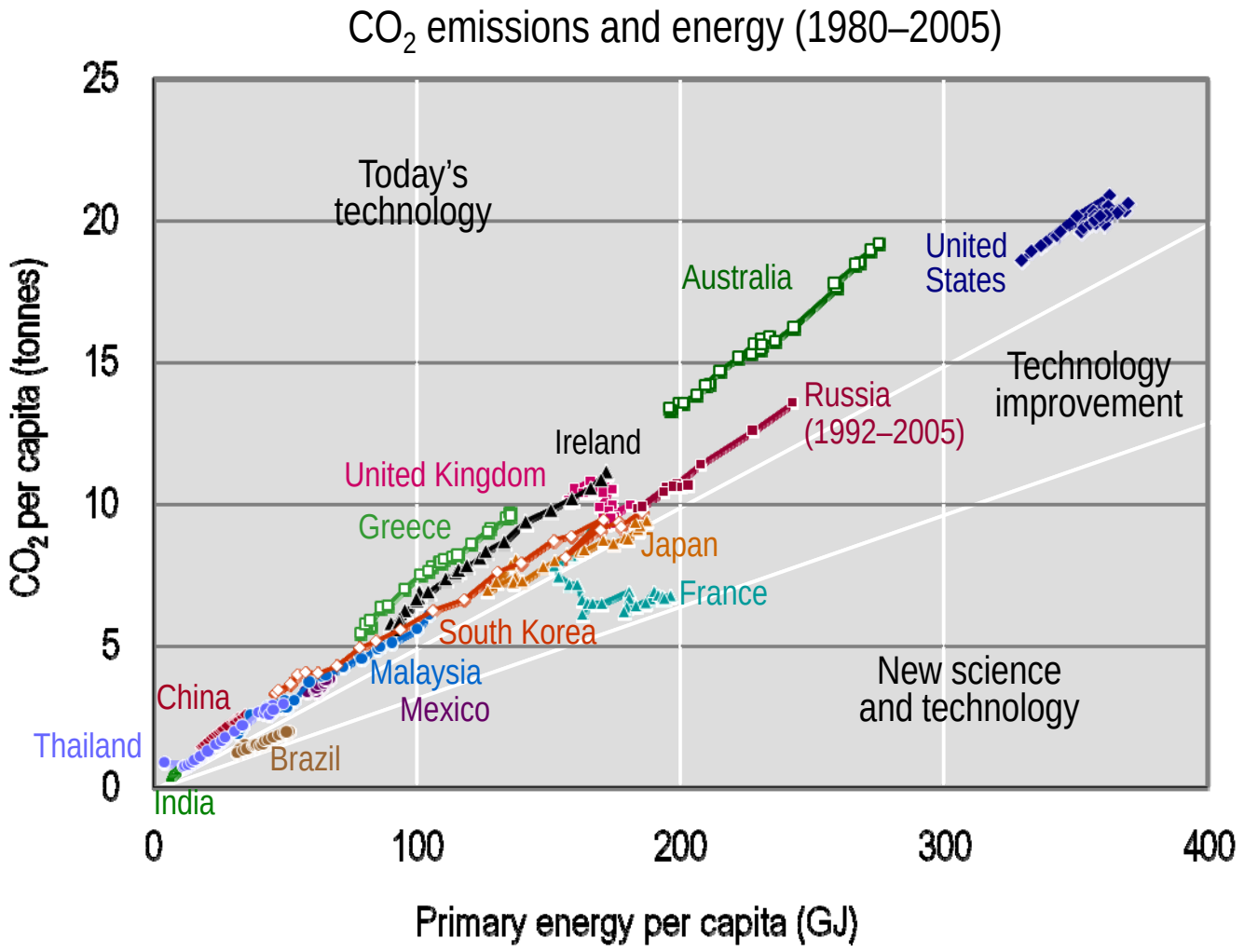


Fossil fuels are still the source of most of the nation's energy

Total U.S. energy consumption, 2007	~102 quads
Nonfossil sources	~15 quads



We can break the connection between energy use and CO_2 emissions



We will need a broad portfolio of energy technologies

- Nuclear power
- Wind
- Solar
- Biofuels
- Electric drive vehicles
- Advanced liquid fuels from fossil resources

- Carbon capture and storage
- Major improvements in energy efficiency for:
  - Transportation
  - Buildings
  - Industry
  - Electricity generation and transmission

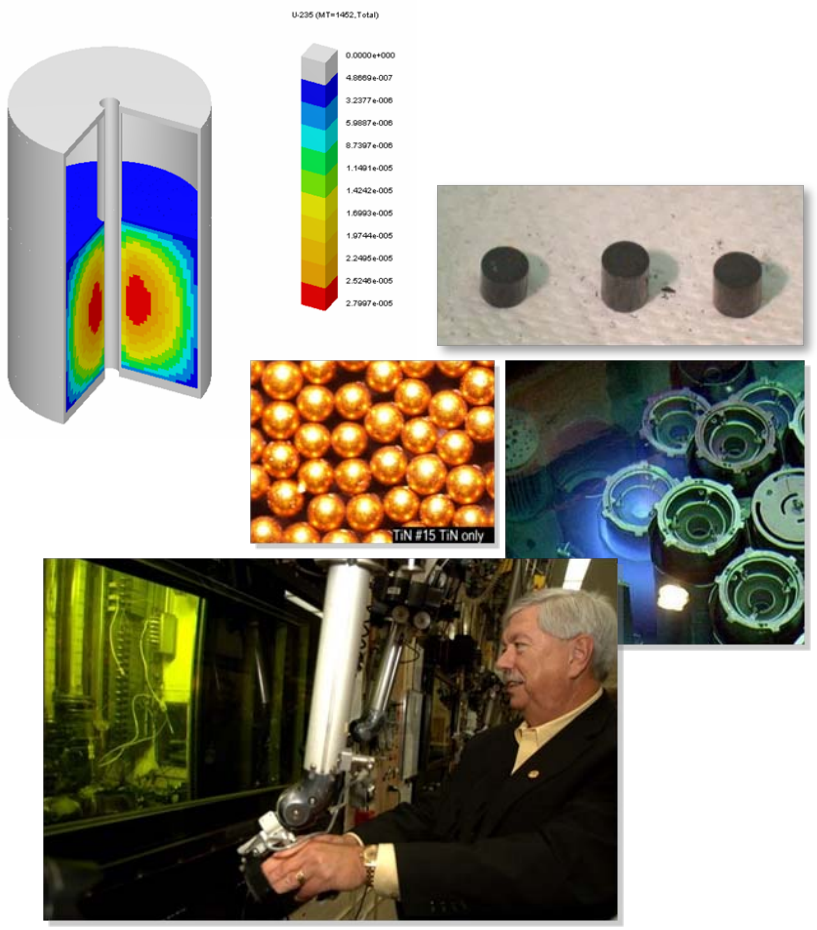
Major advances in basic science and supporting technology are needed to ensure success

Breaking the biological barriers to cellulosic ethanol

- BioEnergy Science Center
  - $135M in DOE funding, plus partner contributions
  - Anchored by UT-ORNL Joint Institute for Biological Sciences
- Tennessee Biofuels Initiative
  - $72M in state funding, plus partner contributions
  - Includes research, facilities and equipment, pilot-scale demonstration, and agricultural price supports
- Total investment: Close to a quarter of a billion dollars

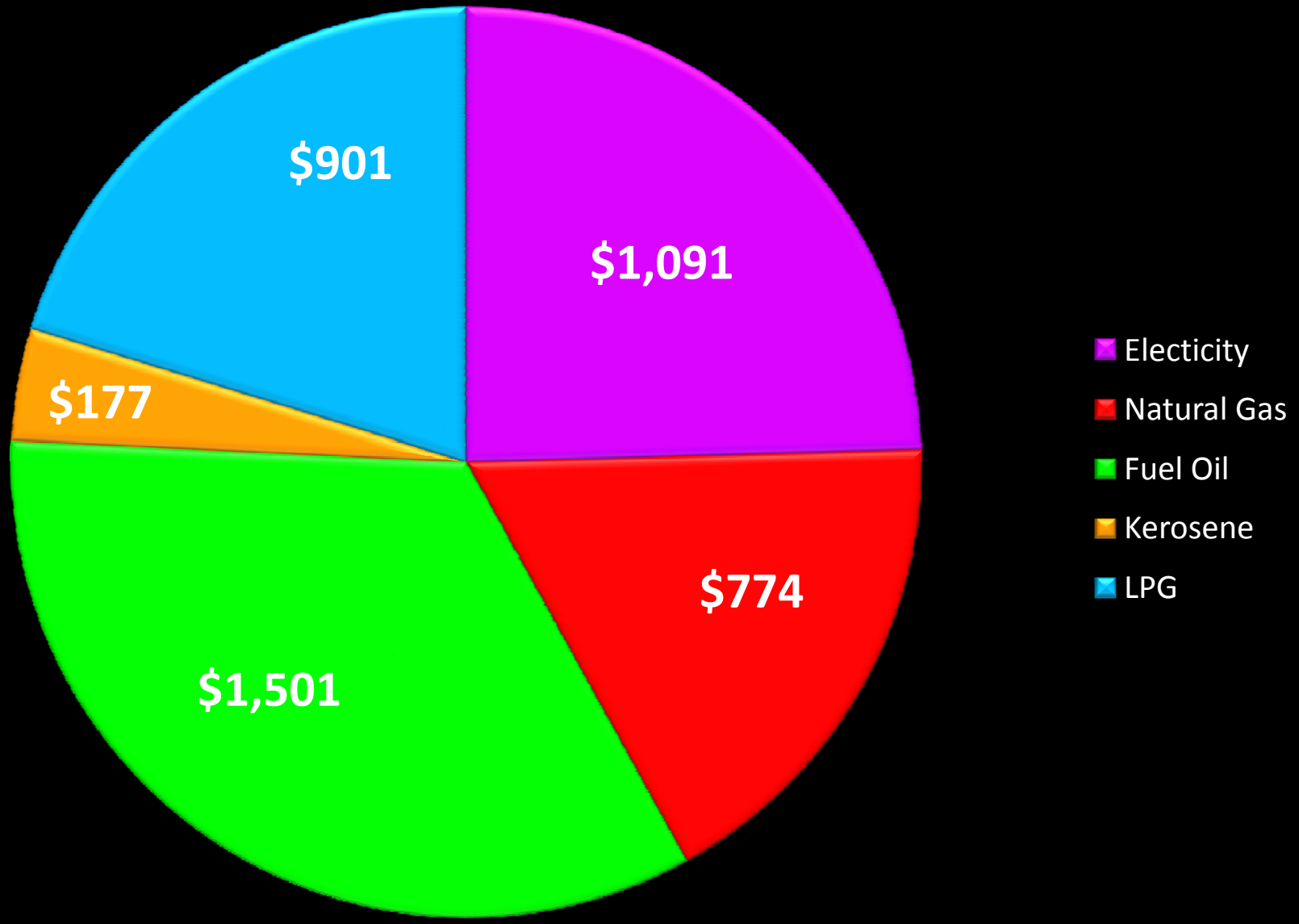
Our distinctive capabilities are supporting the nuclear renaissance

- We are building on a rich history of contributions in nuclear energy
  - Fuel fabrication and reprocessing
  - Structural materials development
  - Spent fuel examination and testing
  - Nuclear data measurements
  - Medical isotope development
  - Computational tools
- We are engaged in evolving national and international programs
  - Generation IV nuclear reactors
  - Advanced Fuel Cycle Initiative

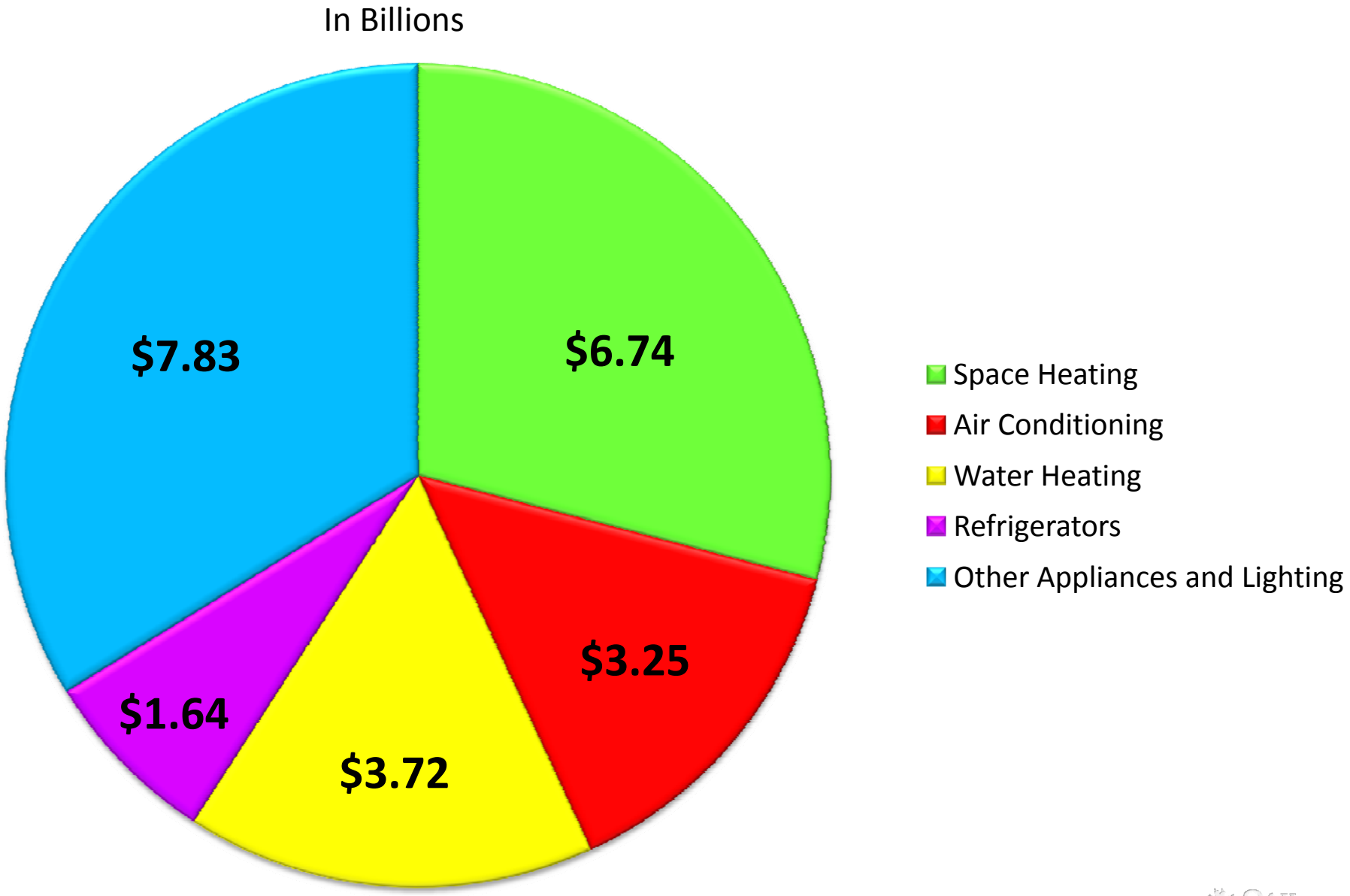


African American Total Expenditures by Fuels Used, 2005

In Millions



African American Total Expenditures by Energy End Uses, 2005



Oak Ridge National Laboratory:

Meeting the challenges of the 21st century

www.ornl.gov

TYPES OF SUBCONTRACTING OPPORTUNITIES

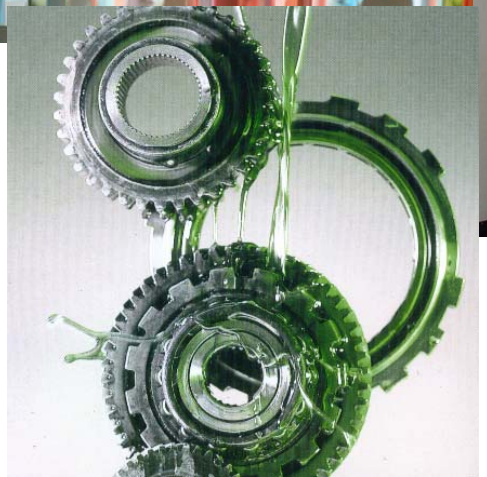
- Products

- Services

- Research & Development

PRODUCTS

- Additives
- Aviation
- Chemicals
- Fuels
- Lubricants



PRODUCTS cont.

- Marine
- Security
- Insulation
- Agriculture
- Software

SERVICES

- Construction
- Engineering
- Energy Policy
- Marketing
- Environmental

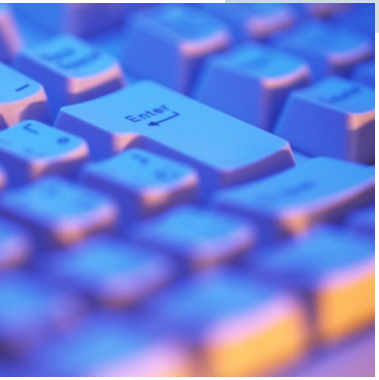
OAK RIDGE National Laboratory

SERVICES cont.

- Health & Safety
- Human Rights
- Business Ethics
- Community

RESEARCH AND DEVELOPMENT

New Technology



Small Business Innovation Research Grants

SUBCONTRACTING DOLLARS AT A GLANCE

Department of Energy in 2007	$5,000,000,000
DOE Managing Contractors in 2007	$7,500,000,000
Chevron Corporation in 2007	$3,000,000,000
Exxon Mobile – Minority and Women owned businesses in 2006	$590,000,000
BP U.S. in Products and Services from Minority and Woman Owned Small Businesses since 2000	$2,500,000,000

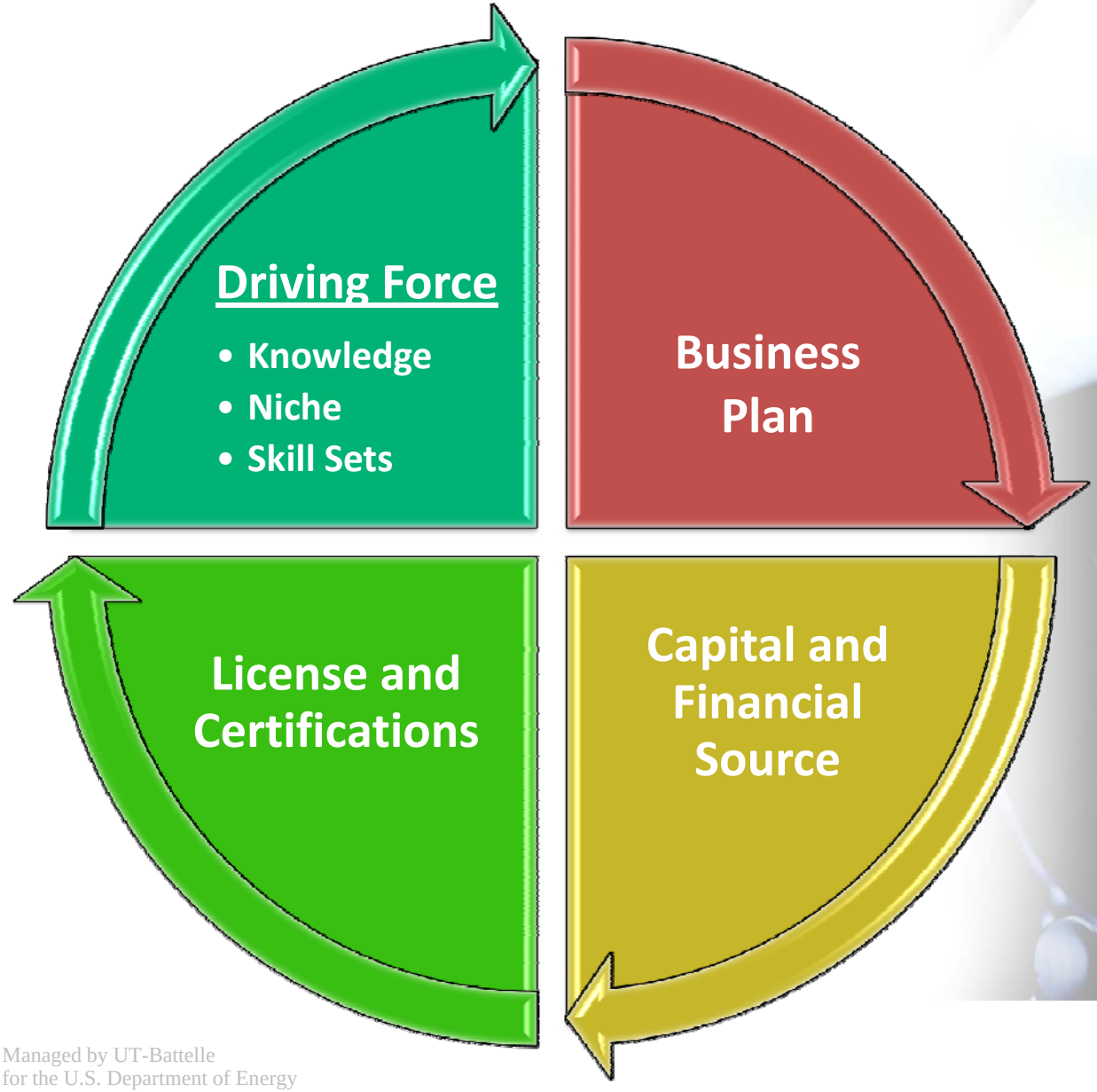
% Subcontract Dollars Placed with SB Firms - FY 2009 *(BSC Metric)*

FY 2009 YTD	Historical Data:		FY 00*	FY 01	FY 02	FY 03	FY 04	FY 05	FY 06	FY 07	FY 08	FY 09
SB Base	SB=Small Business	% (Percentage)	54.57	48.41	49.22	54.10	62.70	50.79	57.84	58.47	62.94	
$145.2M	SDB=Small Disadvantaged Business		9.77	7.55	6.42	6.24	9.23	7.09	10.54	9.26	11.13	
Educ Base	WOB=Small Woman-Owned Business		8.51	7.45	12.21	8.80	10.31	7.86	11.35	12.33	14.62	
$24.3M	HUBZone=Historically Underutilized Business Zones		0.05	0.24	0.37	1.97	4.42	3.21	7.35	6.74	6.96	
Total Proc	Vet-Owned=Veteran-Owned Small Business		N/R	0.32	0.82	1.19	3.00	1.49	4.07	3.52	6.12	
$321.3M	SD-Vet=Service-Disabled Veteran-Owned Small Business		N/R	0.037	-0.001	0.028	0.140	0.115	1.652	1.023	2.540	

Base for SB, SDB, WOB & HUBZone %s Excludes Foreign, GOVT, INTG, IGT & Affiliates and Includes P-Cards. 2SELA/SE Combined.xls

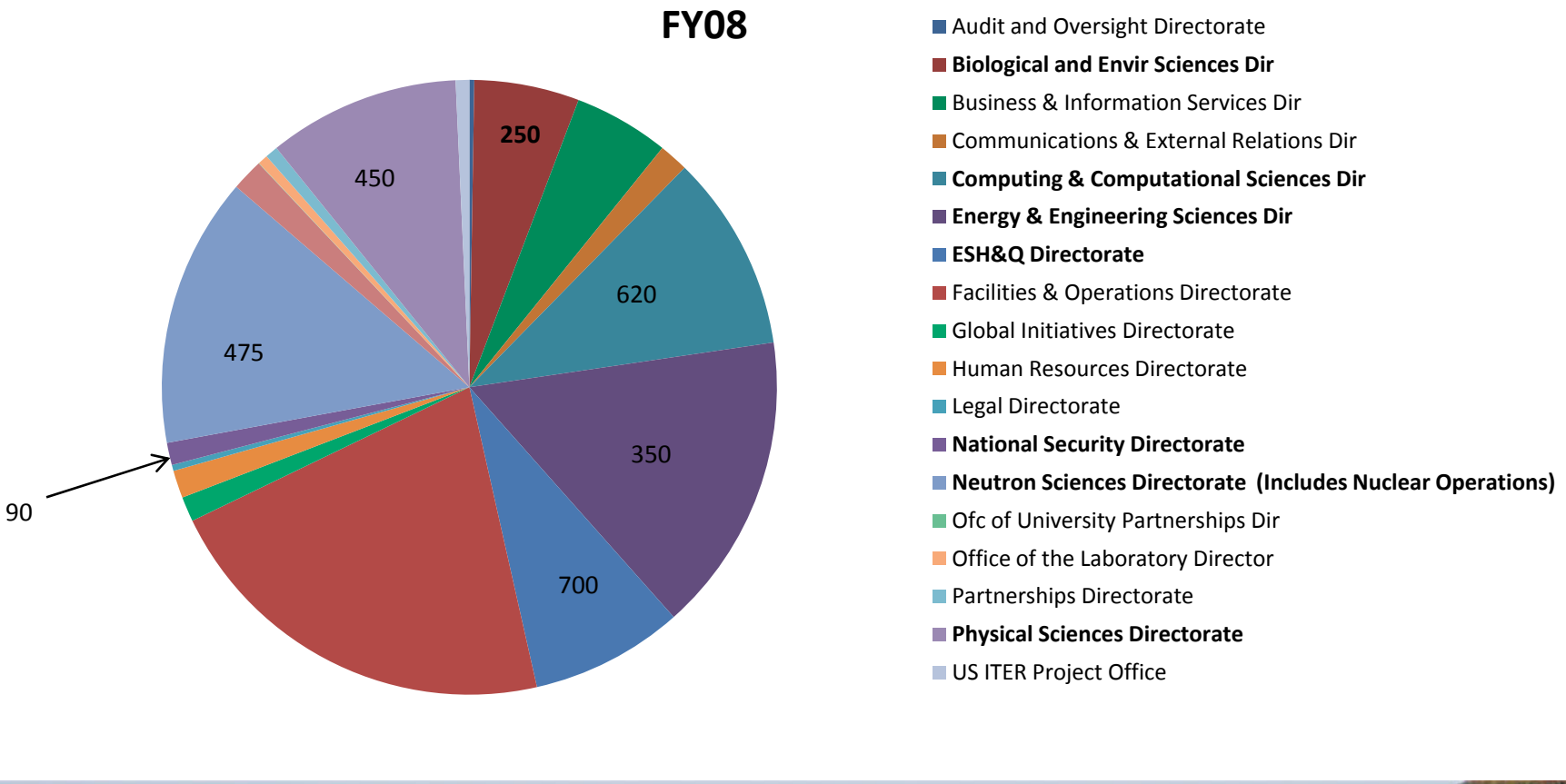
Data Source: 2096 & Proc Stats 2. * UT-Battelle contract started April 1, 2000. 6 months of data only. Base revised in FY05 & FY07. 3/3/2009 Page 11

BUSINESS START-UP

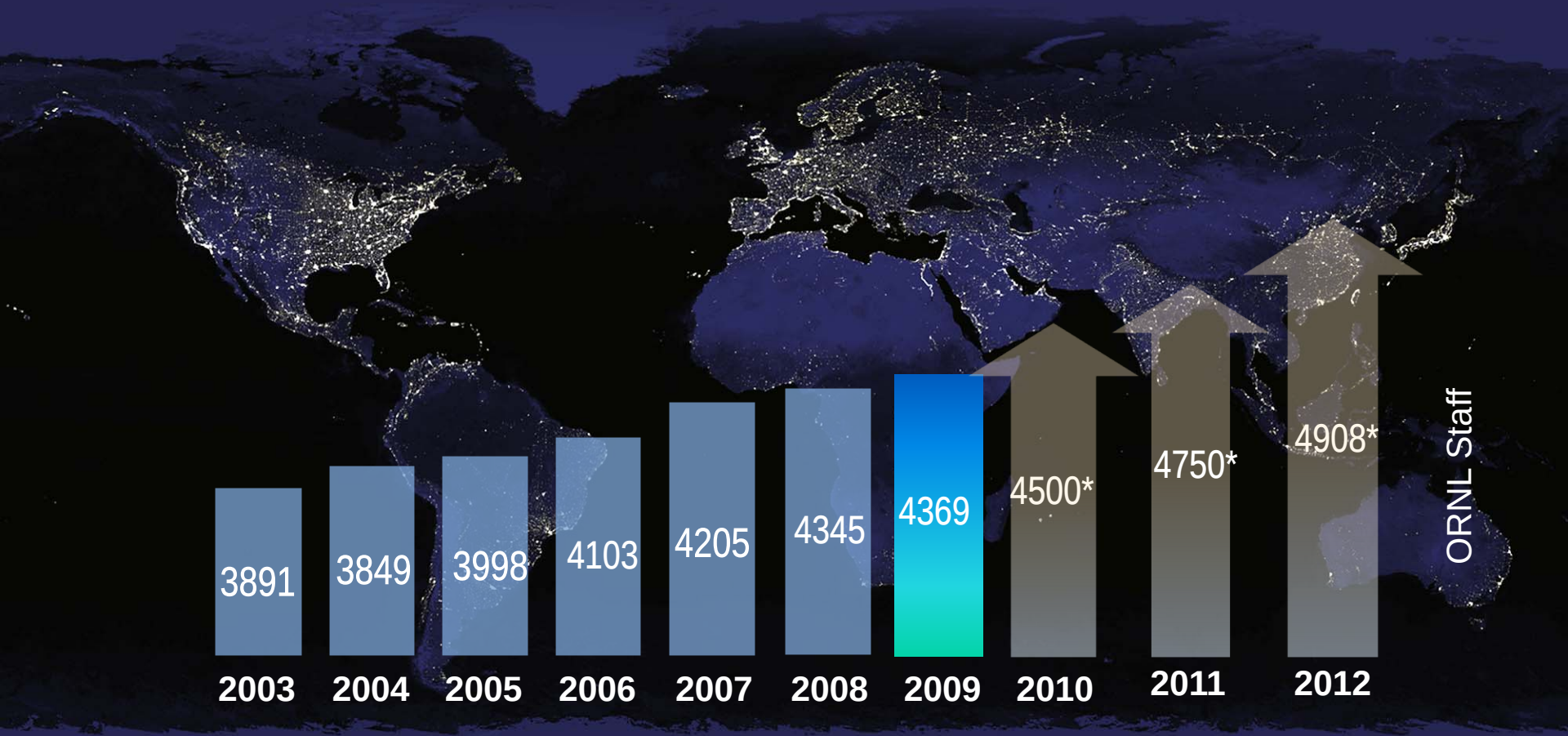


US SBA –Certified Small Business Categories

*Of the Current Staff of 4369, **2935** or **67%** possess a degree in Science, Chemistry, Engineering or Computer Science*



As ORNL's role in solving world problems increases, the requirement for employees with degrees in Engineering, Science, IT and Energy disciplines will increase…



* Estimate

Source: International Energy Outlook 2008, DOE/EIA-0484(2008), Energy Information Administration, June 2008

Helping to develop the next generation of scientists and engineers

- Providing educational and research experiences for students and faculty at all levels
- Investing in facilities and teachers for area schools
  - Renovation of Oak Ridge High School
  - Science laboratories for area middle schools and high schools
  - Incentive pay for qualified math and science teachers
- Participating in regional workforce development efforts

INNOVATION VALLEY INC.

Suggested Energy Education Strategies

The Internet is an Excellent Source

Intern in at Least Two Energy Organizations (Government and Private)

DOE Energy Information Administration

Attend Public Meetings on Energy and Environmental Issues

Make Field Trips to an Energy Facility

Suggested Energy Education Strategies cont.

- **Find a Mentor in the Energy Field**
- **Visit the U.S. Small Business Administration Website, www.sba.gov**
- **Select a Small Business Plan Model**
- **Establish a Relationship with a Bank**
- **Small Business Administration – Financial Assistance http://www.sba.gov/services/financialassistance/index.html**

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Minority Education Website
http://www.ornl.gov/mei/

*Contractor