

# LANL Energy Programs Overview

Presentation to New Mexico State Legislature  
Radioactive and Hazardous Materials Committee  
July 19, 2012

John Sarrao

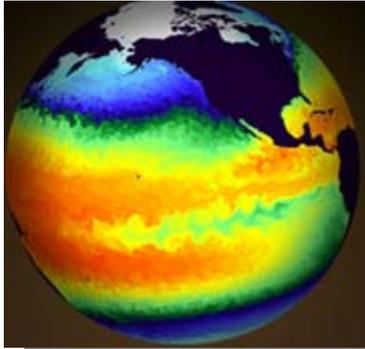
Los Alamos National Laboratory

Energy Overview

Basic Research from Office of Science

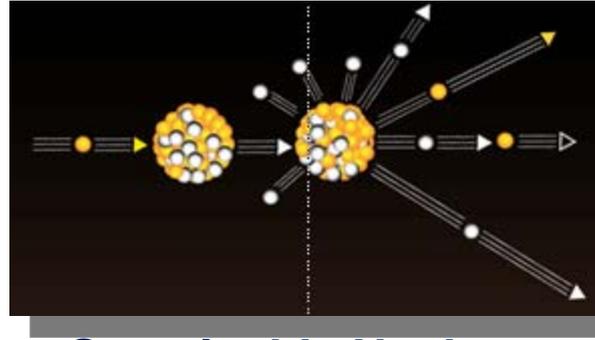
Local Impacts

# LANL's Energy Strategy has three Energy Security Pillars



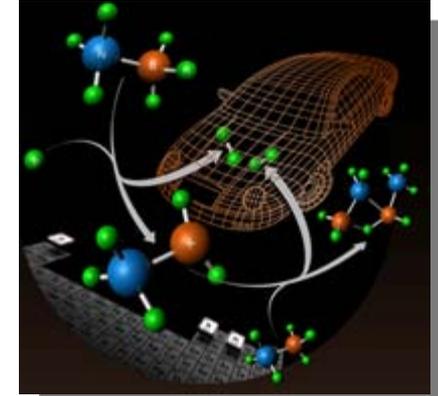
## Impacts of Energy Demand Growth

- Coupled predictive models for climate, infrastructure impact analysis
- Prediction of abrupt change at multiple scales (regional to global)
- Global security and policy implications



## Sustainable Nuclear Energy

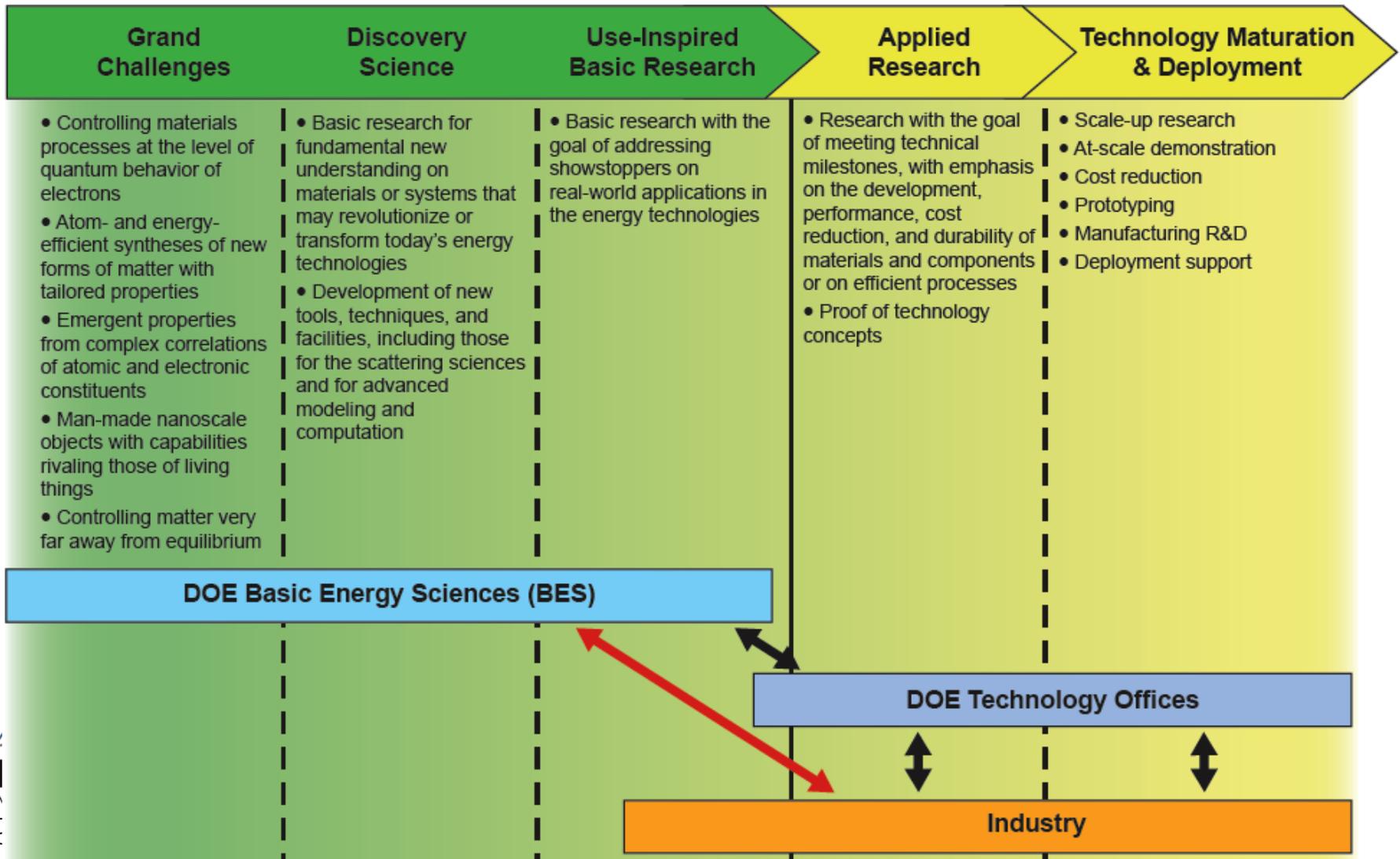
- Efficient extraction of energy content from fuel
- Nonproliferation & safeguards
- Effective waste management



## Concepts and Materials for Clean Energy

- Energy storage, generation, and transmission
- Revolutionary alternatives to petroleum
- Clean fossil energy

# LANL (and DOE) view energy research as a continuum



# Integration and synergy from basic science to applied research are key to our success and impact

## Fundamental Materials Science

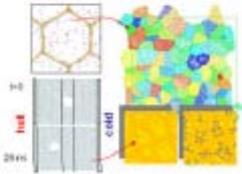


Center for  
Defect Physics  
(ORNL)

EFRCs BES



(w/MIT)



Center for  
Materials Science  
of Nuclear Fuels  
(INL)



ASCR(LANL, LLNL, et al.)

## Advanced Computing

## Reactor Simulations



NE (ORNL, INL, LANL,  
MIT, et al.)

We partner with many organizations in doing this work

# LANL's national user facilities contribute to energy programs and are a resource for regional & international scientists



Joint w/ SNL

Nano-materials synthesis and characterization



Joint w/ FSU, UF

Research with high magnetic fields



Neutron scattering

100s of scientists come to Northern New Mexico each year

# The NM Consortium Biology Laboratory is a successful collaboration

- Los Alamos County location, funded by County and Los Alamos National Bank
- UNM, NMSU, NM Tech partnering with LANL
  - Groundbreaking on May 18
- Facility for biofuels research by Scientist 6 Richard Sayre
  - Additional research and collaborations



# LANL is applying expertise to Small Modular Reactors (SMRs)

*Approach: Apply LANL R&D strengths to promote the future development of a new small modular reactor industry in the U.S., supporting the U.S. DOE program through aggressive partnering with industry and other National Labs.*

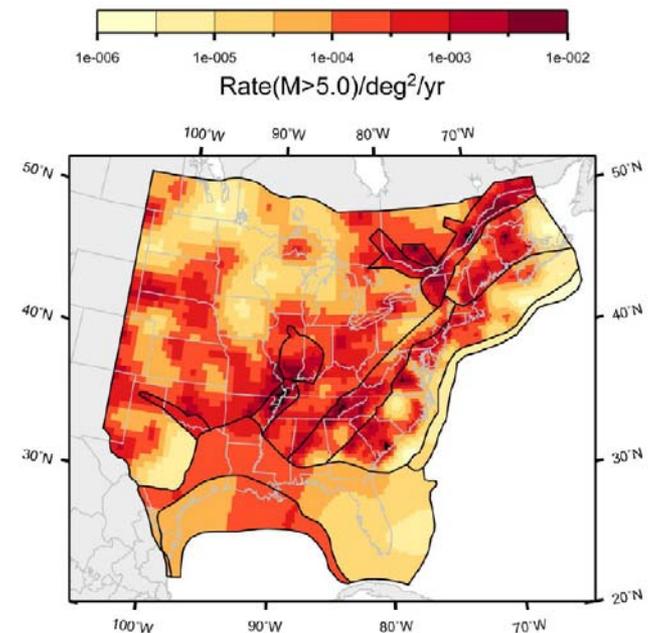
## Current Projects

- R&D on lead-bismuth eutectic (LBE) coolants for SMR applications
- Development of site screening and suitability tools for SMRs

## Industry and National Laboratory Engagement

- Westinghouse
- TerraPower
- Gen4 Energy
- Oak Ridge National Laboratory

**Seismic Hazard: Central and Eastern U.S.**



Screening tool facilitates the evaluation of surface and subsurface siting factors related to geology, natural hazards, hydrology and other physical features

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