

# Energy Reliability and Security



## *EPSCoR 2005 Meeting*

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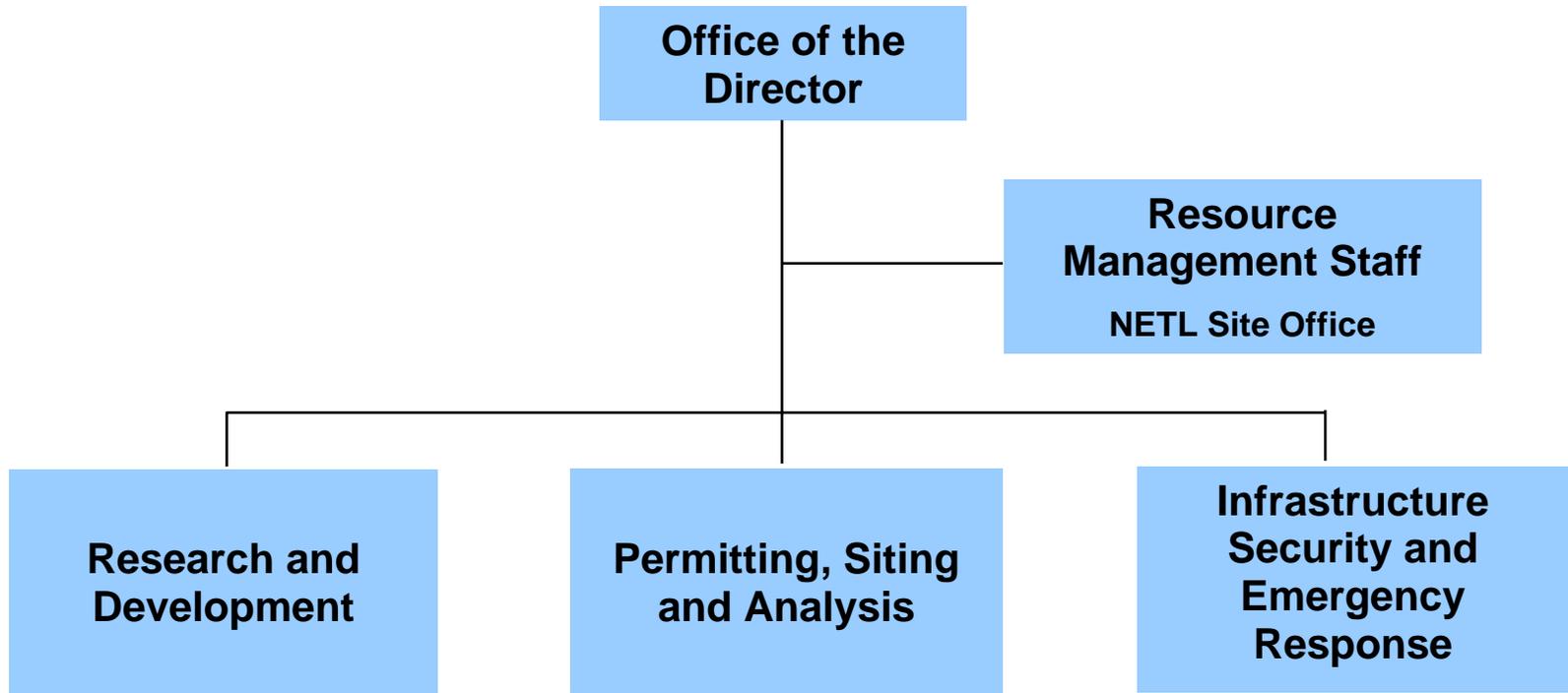
**National Energy Technology Laboratory**



**Office of Fossil Energy**



# Office of Electricity Delivery and Energy Reliability



# Research and Development

- Superconductivity
- Transmission Reliability
- Electric Distribution
- Energy Storage
- “Gridworks”
- “Gridwise”



Superconducting wire

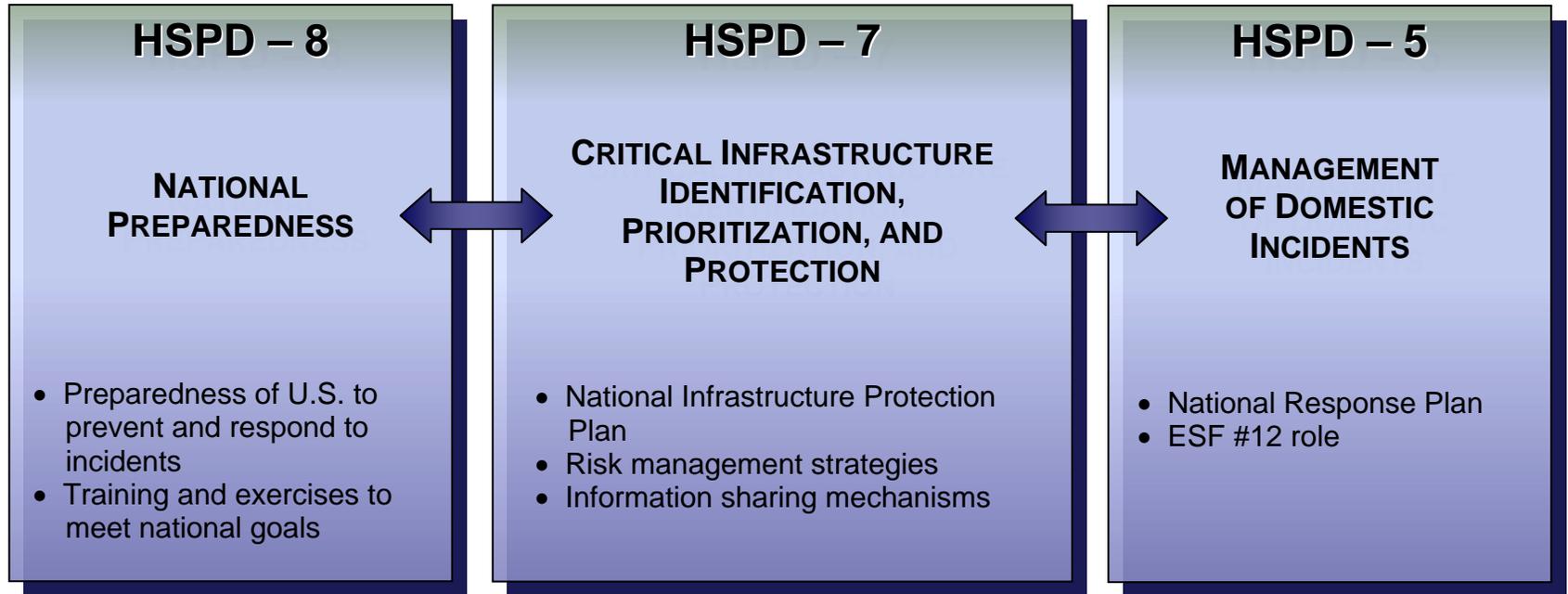


Grid-friendly appliance chip

Wind turbines



# Energy Infrastructure Security Mandates



# Energy Infrastructure Security and Emergency Response

- **State/Local Government Collaboration**
  - Energy Emergency Assurance Coordinators
- **Critical Infrastructure Protection**
  - NIPP with DHS
  - Security analysis and information coordination
- **Modeling and Analysis**
  - Application of modeling, simulation and visualization tools to examine the energy infrastructure
- **Emergency Operations**



# Technology Development Opportunities

- **High-temperature superconductors**
  - Manufacturing processes
  - Devices
- **Electric storage technologies**
- **Solid-state transformers and switches**
- **Next generation control systems to optimize power delivery, asset utilization and load requirements**
- **Tools for understanding the behavior of the energy infrastructure with respect to impacts, trends and technology**

