



U.S. DEPARTMENT OF  
**ENERGY**

## Energy Parks Initiative

**“Leveraging Assets To Increase Taxpayers’ Return On Investment”**

**James Antizzo**  
**Environmental Management**

**Environmental Management Advisory Board Public Meeting**  
**March 31, 2010**



**EM** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

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# EM Mission

***“Complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development, production, and Government-sponsored nuclear energy research.”***



- Largest environmental cleanup effort in the world, originally involving two million acres at 108 sites in 35 states
- Safely performing work
- Operating in the world’s most complex regulatory environment
- Supporting other continuing DOE missions and stakeholder partnerships



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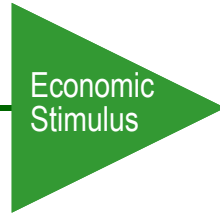
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# Footprint Reduction & Energy Parks

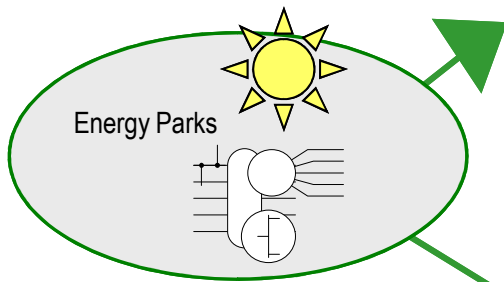


## Recovery Act



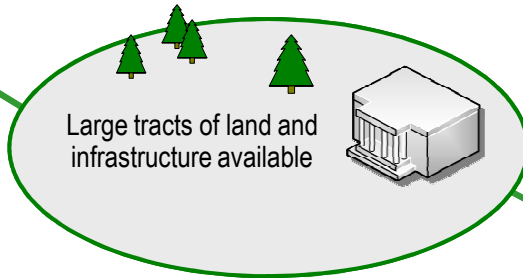
## Office of Environmental Management (EM)

**EM Footprint Reduction, small site completions, and other investment opportunities**



### Clean, Diverse Energy Sources

- Energy security
- Establish long-term site mission
- Sustainable jobs




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# Hanford Site Footprint Reduction

## Achieve >50% by 2011 and 80-90% by 2015

### •2010

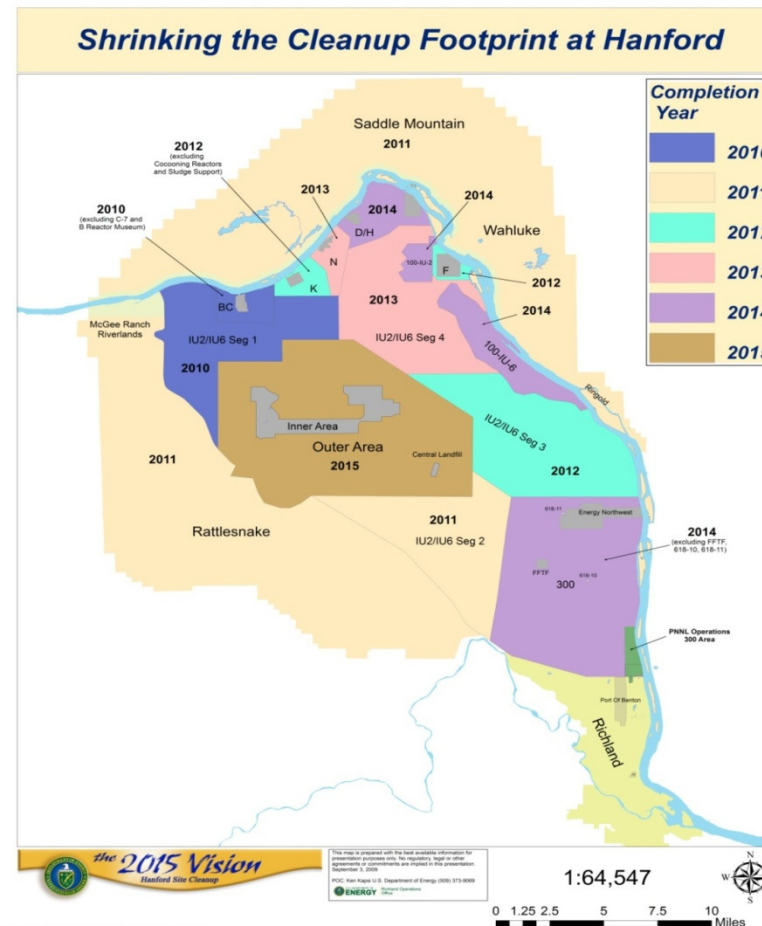
- **Excluding C-7 waste site and B Reactor Museum**
- All B & C Area Interim ROD Remedial Actions Complete
- Completion of 9 sites in IU2/IU6 (Segment 1 Area) (ARRA funded)
- Goal of Footprint reduction of ~33 Square Miles

### 2011

- Disposition 11 Excess facilities in the Rattlesnake Area ((ARRA funded)
- Complete processing of Interim ROD Remedial Actions IU2/IU6 (Segment 2 Area)
- Cleanup of non-contaminated debris at Rattlesnake/Arid Lands Ecology Reserve
- Final closeout for waste sites in the Saddle Mountain and Wahluke Areas (ARRA funded)
- Footprint reduction of ~247 Square Miles

### •2012

- **Excluding Cocooning Reactors and sludge support**
- All K Area Interim ROD Remedial Actions Complete (except K West)
- Remediation completion of 39 waste sites (ARRA funded)
- Interim ROD Remedial Actions at F Area complete
- Remediation completion of 12 waste sites at F Area
- All Interim ROD Remedial Actions IU2/IU6 (Segment 3) complete including orphan sites (ARRA funded)
- Footprint reduction of ~44 Square Miles



### 2013

- Interim Safe Storage of N Reactor Complete
- All N Area Final ROD Remedial Actions Complete
- Completion of ~100 waste sites at 100N
- Complete D4 on ~25 facilities at 100N
- All N Area Groundwater Remedies Implemented
- Complete Interim ROD Remedial Actions for IU2/IU6 (Segment 4) including orphan sites
- Footprint reduction of ~35 Square Miles

### •2014

- **Excluding FFFTF, 618-10, 618-11 burial grounds**
- Complete all D & H Area Final ROD Remedial Actions
- Implement all D & H Area Groundwater Remedies including pump and treat (ARRA funded)
- Complete 300 Area Final ROD Remedial Actions
- Complete remediation of 36 waste sites in the 300 Area
- Complete D4 of 54 facilities in the 300 Area
- Complete remediation of the 618-7 Burial Ground
- Complete all 100-IU2 & IU6 Area Final ROD Remedial Actions
- Complete remediation of 68 waste sites at 100-IU2 and 100-IU6
- Complete all 100-IU2 & 100-IU6 Area Final ROD GW Remedial Actions
- Footprint reduction of ~78 Square Miles

### 2015

- All 200 West Carbon Tetrachloride, Uranium and Technetium 99 Groundwater Remedies including P&T completed (ARRA funded)
- Remediate 24 waste sites in the 200 and 600 areas (ARRA funded)
- D4 of 18 structures (ARRA funded)
- Complete design of Non-Radioactive Dangerous Waste Landfill (NRDWL) and Solid Waste Landfill (SWL) remedies
- Footprint reduction of ~70 sq miles



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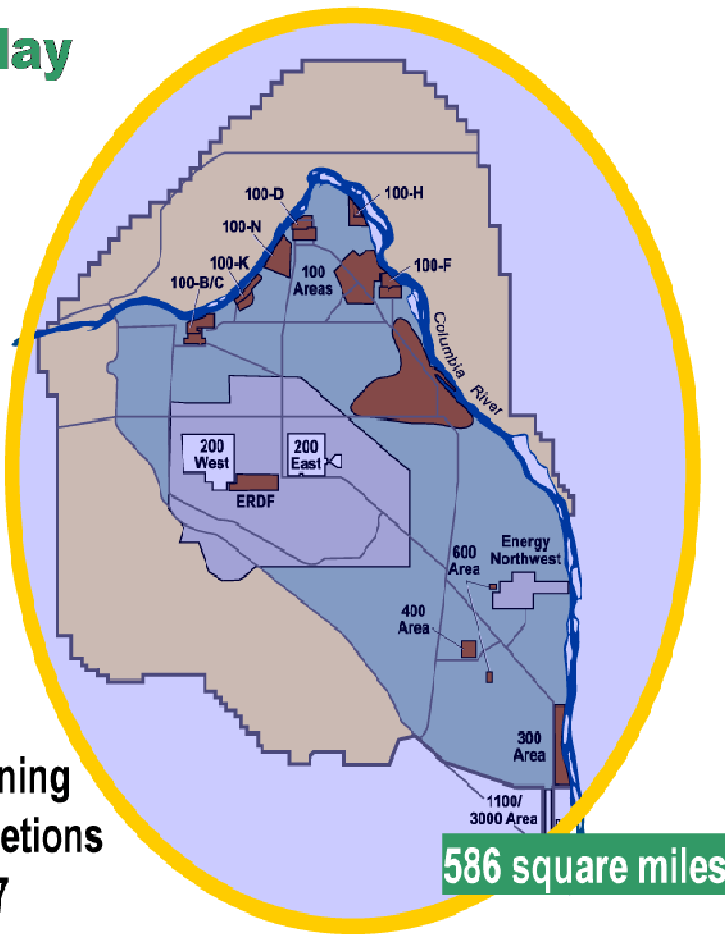
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# Hanford Footprint Reduction Proposal

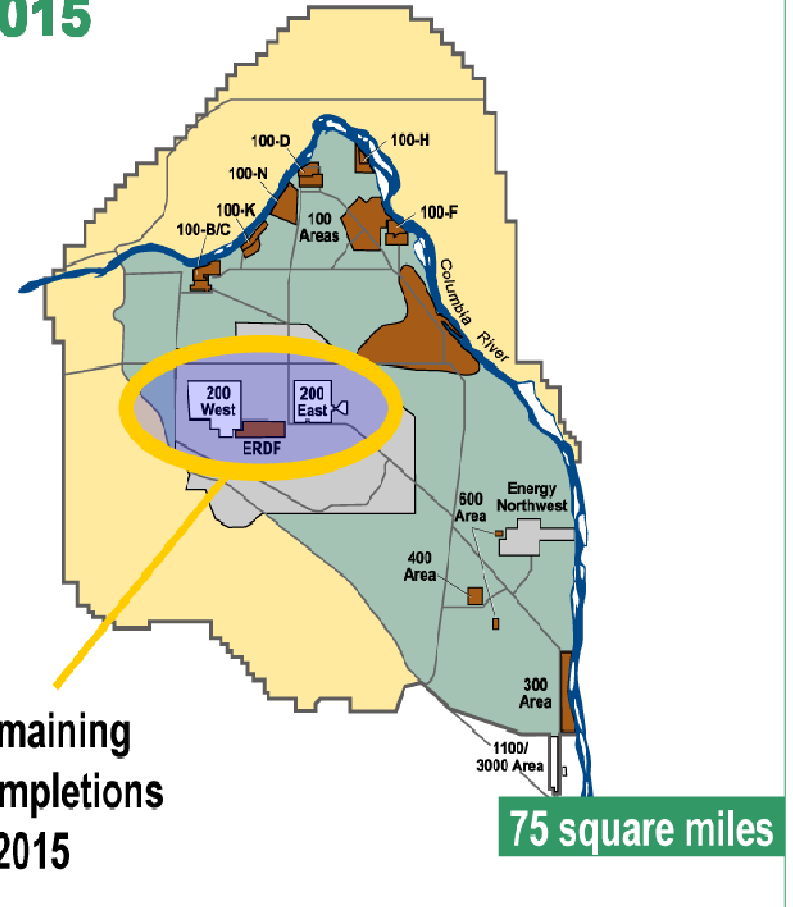
**Today**



Remaining Completions in 2007

586 square miles

**2015**



Remaining Completions in 2015

75 square miles

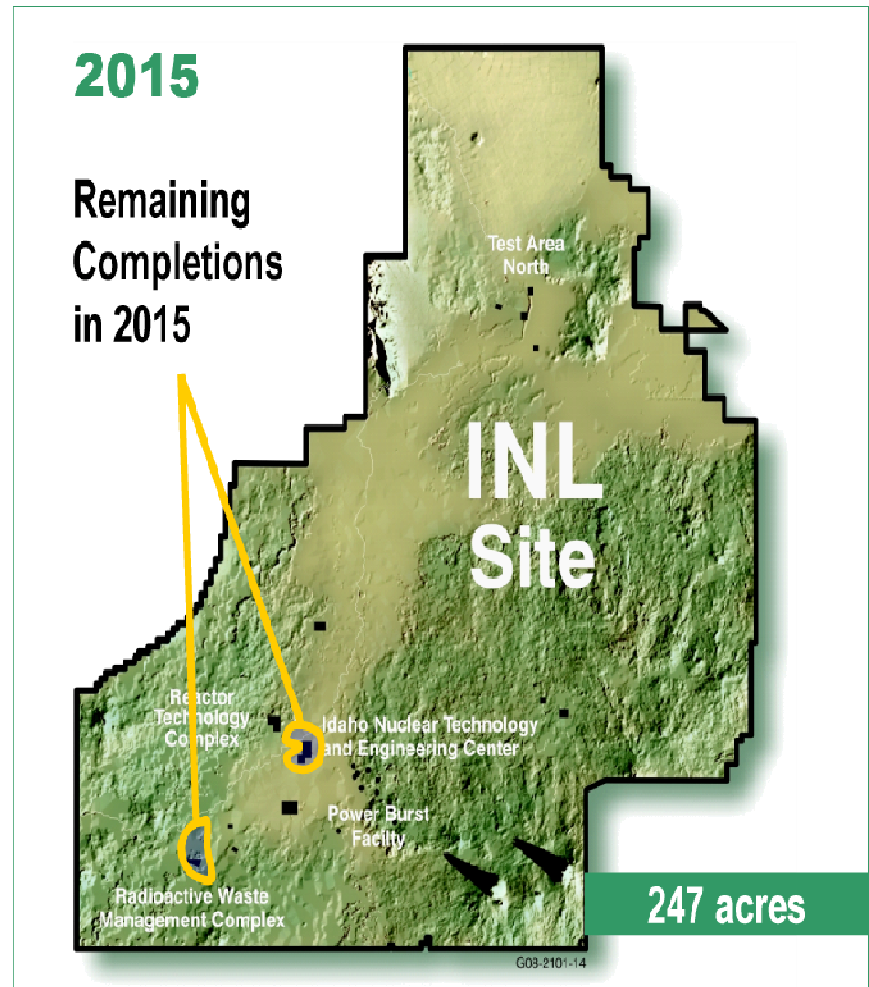
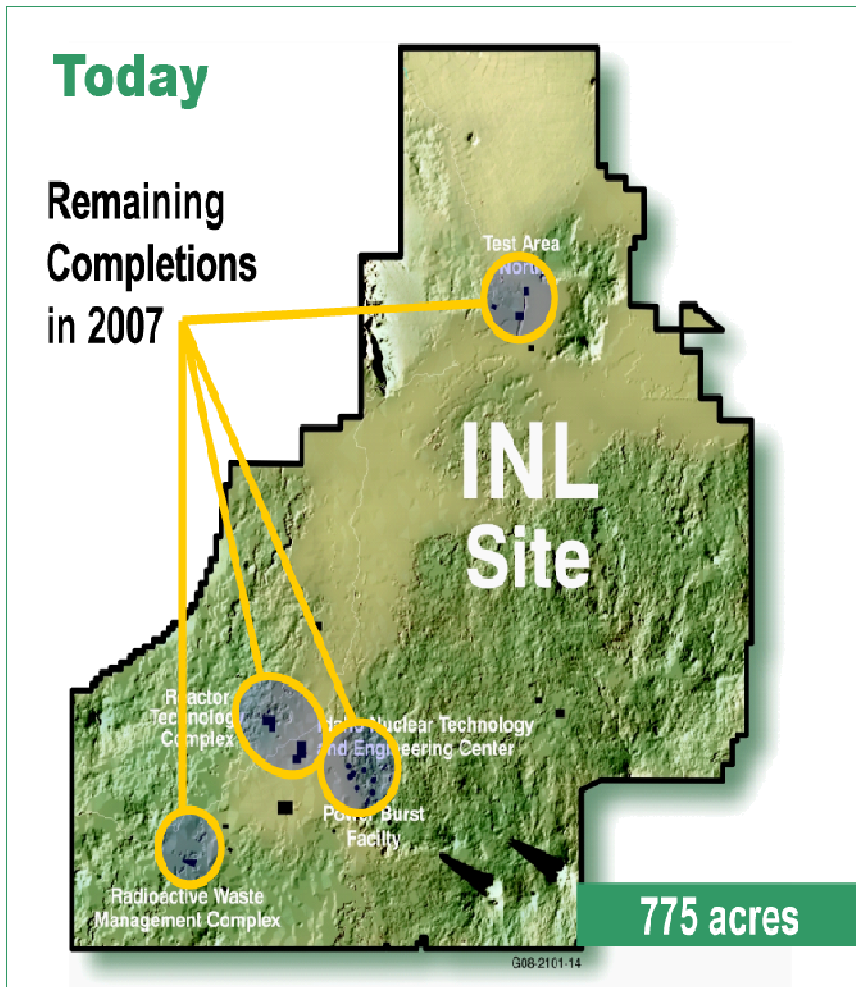


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# Idaho Footprint Reduction Proposal



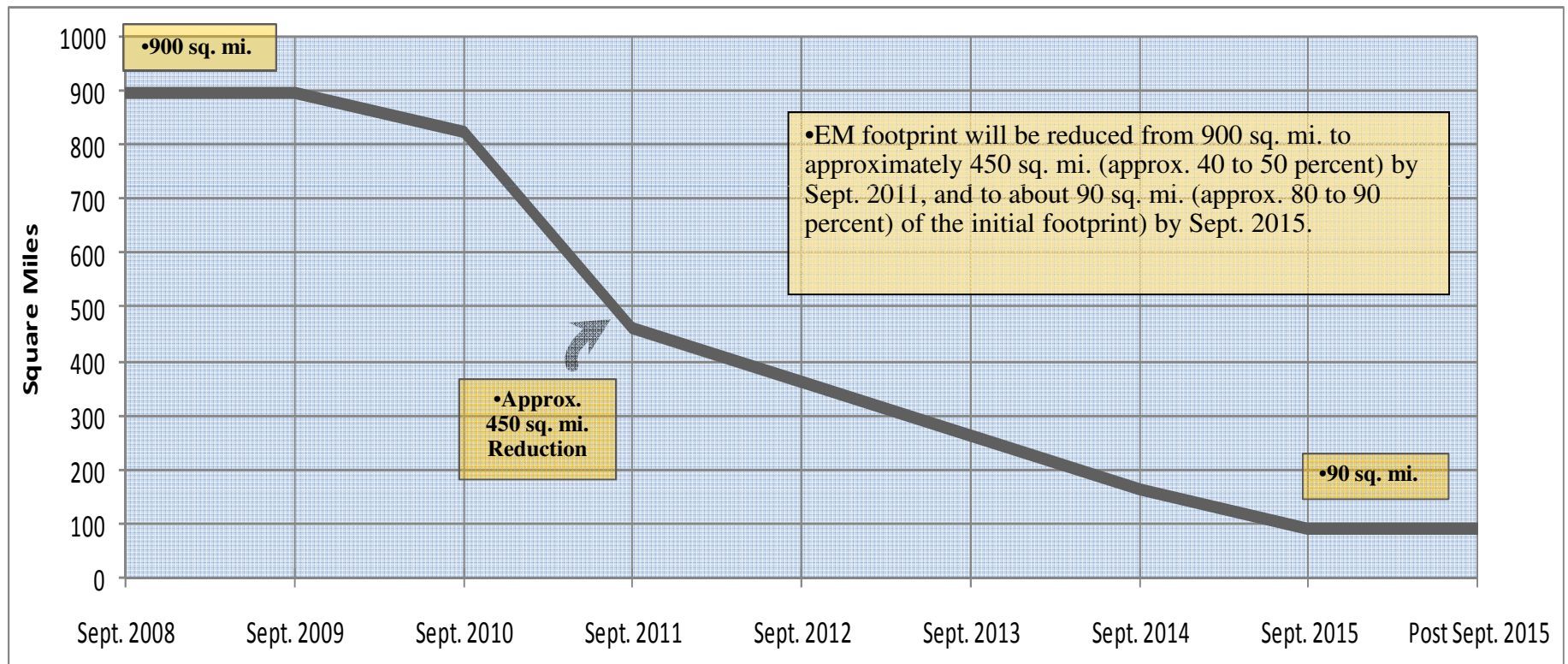
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# Footprint Reduction

- *Footprint Reduction* means that the active DOE EM mission is complete within a particular area in terms of decontamination and decommissioning, waste disposition, ground water remediation, soil removal, etc.



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# *Energy, Environment & the Economy*

- Investing in the Clean Energy Jobs of the Future
  - Creating new Jobs in the Clean Energy Economy
  - Investing in the Next Generation of Energy Technologies
- Securing our Energy Future
  - Breaking Dependence on Oil
  - Producing More Energy at Home
  - Promoting Energy Efficiency
- Closing the Carbon Loophole and Cracking Down on Polluters
  - Closing the Carbon Loophole
  - Protecting American Consumers
  - Promoting U.S. Competitiveness
- American Recovery & Reinvestment Act
  - More than \$60 billion in clean energy investments to jump-start our economy and build the clean energy jobs of tomorrow.



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# *Energy Parks Initiative – Technologies*

- Wide range of energy technologies:
  - Generation (e.g., solar, wind, biomass, geothermal, nuclear, clean fossil, hydrogen generation)
  - Distribution (e.g., smart grid)
  - Storage
  - Efficient utilization
  - Manufacturing (e.g., solar panels, wind turbines, other energy components)
- Multiple development phases:
  - Commercial using existing technologies
  - Research, Development and Demonstration (RD&D) of advanced technologies to facilitate deployment and replication across the Nation.



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# Examples of Interest

- Mid-Columbia Energy Initiative – working to secure 20 sq. mi. of the Hanford Site by 2013 and 60 sq. mi. by 2015
- Pantex Renewable Energy Project
- Tennessee Valley Energy Enterprise
- Mound Advanced Technology Center – Energy Center Initiative
- Southern Ohio Clean Energy Parks Alliance Initiative
- U.S. Energy Freedom Center – SRS
- Nevada Solar Project
- Numerous Letters / Resolutions of Support



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# Workshops and Meetings

## **Oak Ridge Workshop**

“Corridor Partnerships in Action“ - March 12, 2009 in Oak Ridge, TN

## **Energy Communities Alliance Meeting**

“Energy Parks Peer Exchange: The DOE EM Footprint Reduction Plan and Energy Parks Initiative“ – April 23-24, 2009 in Las Vegas, NV

## **Mound Workshop**

“Energy Roundtable and Exhibition” – June 26, 2009 in Miamisburg, OH

## **Savannah River Site Workshop**

“Energy Parks Initiative Workshop” August 18, 2009 in Aiken, SC

## **Second Savannah River Workshop**

Proposed April 15, 2010 in Augusta, GA

## **Energy Communities Alliance Workshop**

“Nuclear Workforce Development Peer Exchange” April 21-23, Augusta, GA

## **Energy Communities Alliance EPI Meeting**

Proposed for June 10, 2010 in Las Vegas, NV



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# *EPA – NREL “Re-Powering America’s Land”*

- Joint initiative of U.S. Environmental Protection Agency (EPA) and DOE National Renewable Energy Lab (NREL).
- Multi-pronged approach to site cleanup and development of renewable energy facilities on potentially contaminated land and mine sites.
- EPA estimates approximately 490,000 sites and 15 million acres of potentially contaminated property across the U.S., including Superfund, Resource Conservation and Recovery Act (RCRA), Brownfields and abandoned mine sites.
- Initiative is working to identify sites with potential for wind, solar, biomass, geothermal and landfill gas development potential and develop appropriate projects.



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# *EPI Issues - Examples*

- How to ensure that processes are transparent and equitable?
- How to ensure input from the public & other interested parties?
- How to address procurement issues?
- How to address requests for DOE funding and other assets?
- How should DOE deal with potential competitive issues versus supporting sole source proposals?
- What assets and financial incentives is DOE authorized and willing to provide to potential participants? Under what conditions?
- What should be the NEPA strategy?
- How best to encourage private sector participation?
- How best to encourage innovation?
- 



# EPI - Scope

- Multiple DOE programs and sites
- Multiple external parties
  - Local & regional communities
  - States
  - Private sector (technology & financial)
  - Labor
  - Other Federal agencies
  - Other stakeholders
- Wide range of technologies and stages of development
- Complex, wide-ranging issues
- Short-term and long-term challenges and benefits
- Numerous ongoing related activities



# Tasks

- Establish DOE Task Force
- Outreach to external parties
- Develop effective working relationships
- Develop national policy, vision & strategy
- Assess assets, availability and requirements
- Achieve near-term successes as soon as possible
- Develop site visions and options
- Develop business plans (Implementation and Acquisition)
- Execute
- Feedback and continuous improvement





# EMAB EPI Recommendations

- EMAB recommendations (October 20, 2009 letter):
  - Interdepartmental Task Force
  - DOE policy
  - Standard-wide processes for soliciting, accepting, and evaluating EPI proposals and projects
  - Independent support for business model evaluation, technical and programmatic deployment risk analyses, determining economies of scale related to site transition and/or impacts on economic redevelopment
  - Consider use of royalty payback to taxpayers
  - Identify assets/resources that may be made available and restrictions or institutional controls that may be associated with their use.



# *Energy, Environment & the Economy*

"So we have a choice to make. We can remain one of the world's leading importers of foreign oil, or we can make the investments that would allow us to become the world's leading exporter of renewable energy. We can let climate change continue to go unchecked, or we can help stop it. We can let the jobs of tomorrow be created abroad, or we can create those jobs right here in America and lay the foundation for lasting prosperity."

- President Obama, March 19, 2009



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# BACK-UP SLIDES

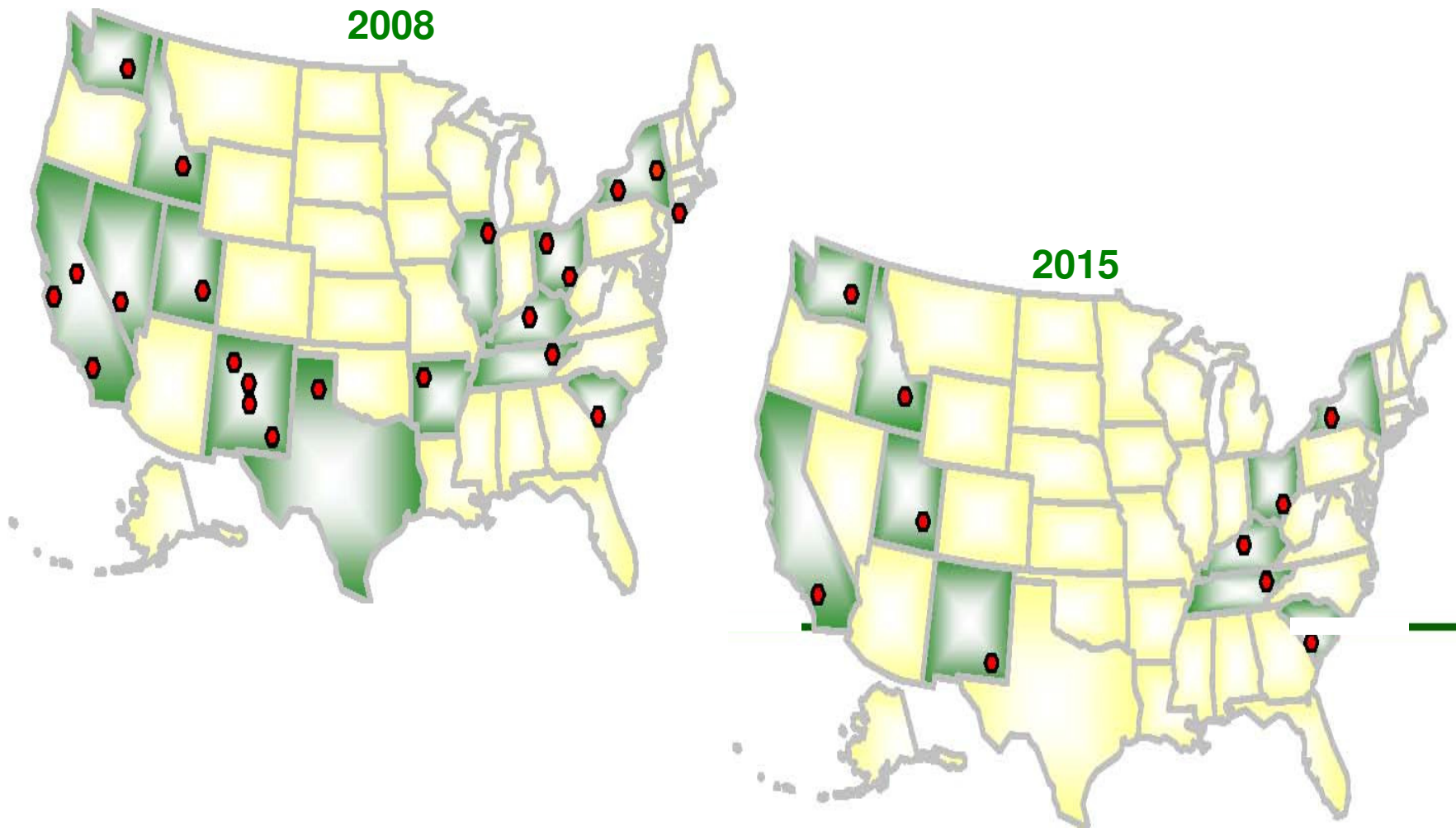


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# Sites with Active EM Programs



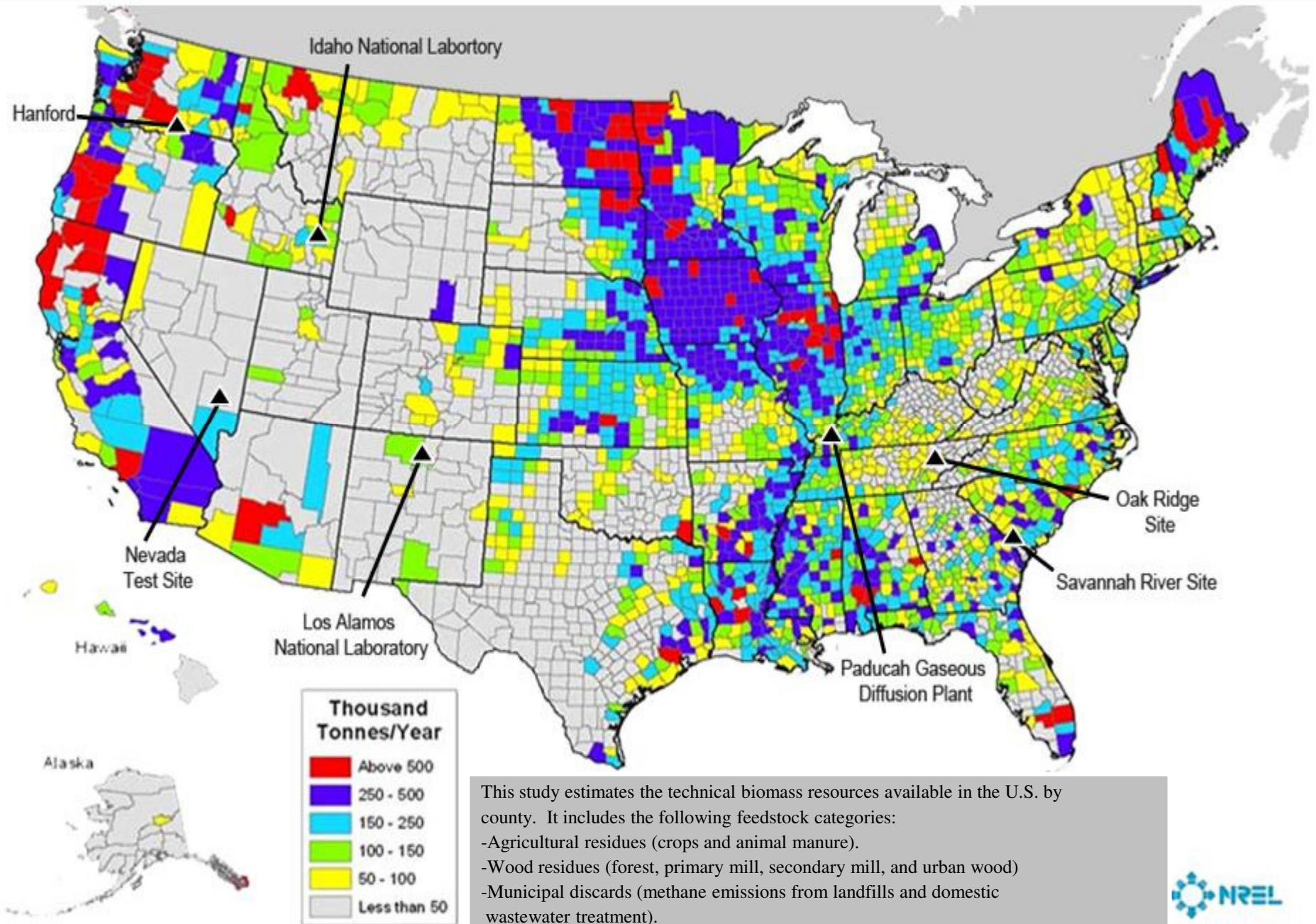
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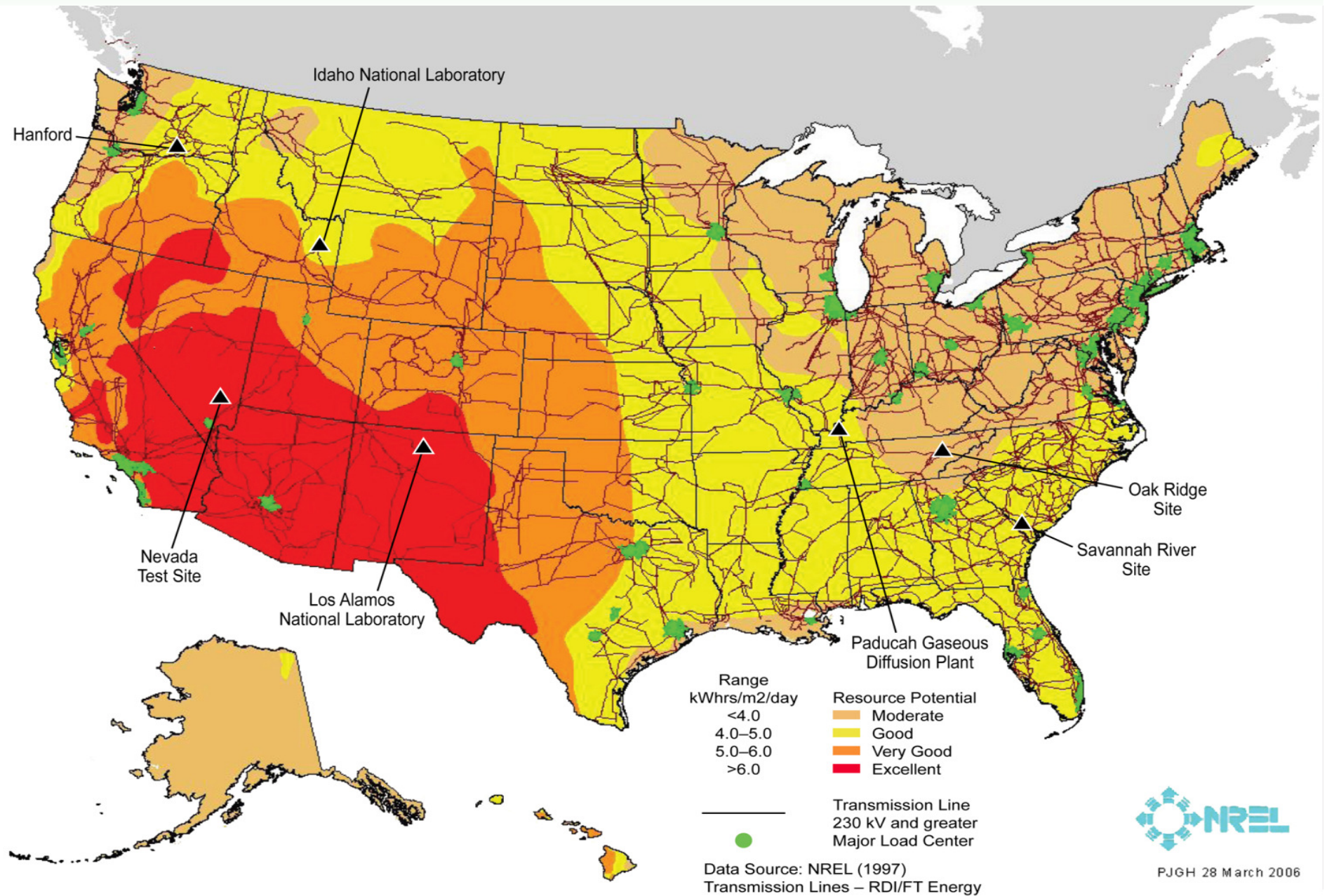


# Biomass Resources



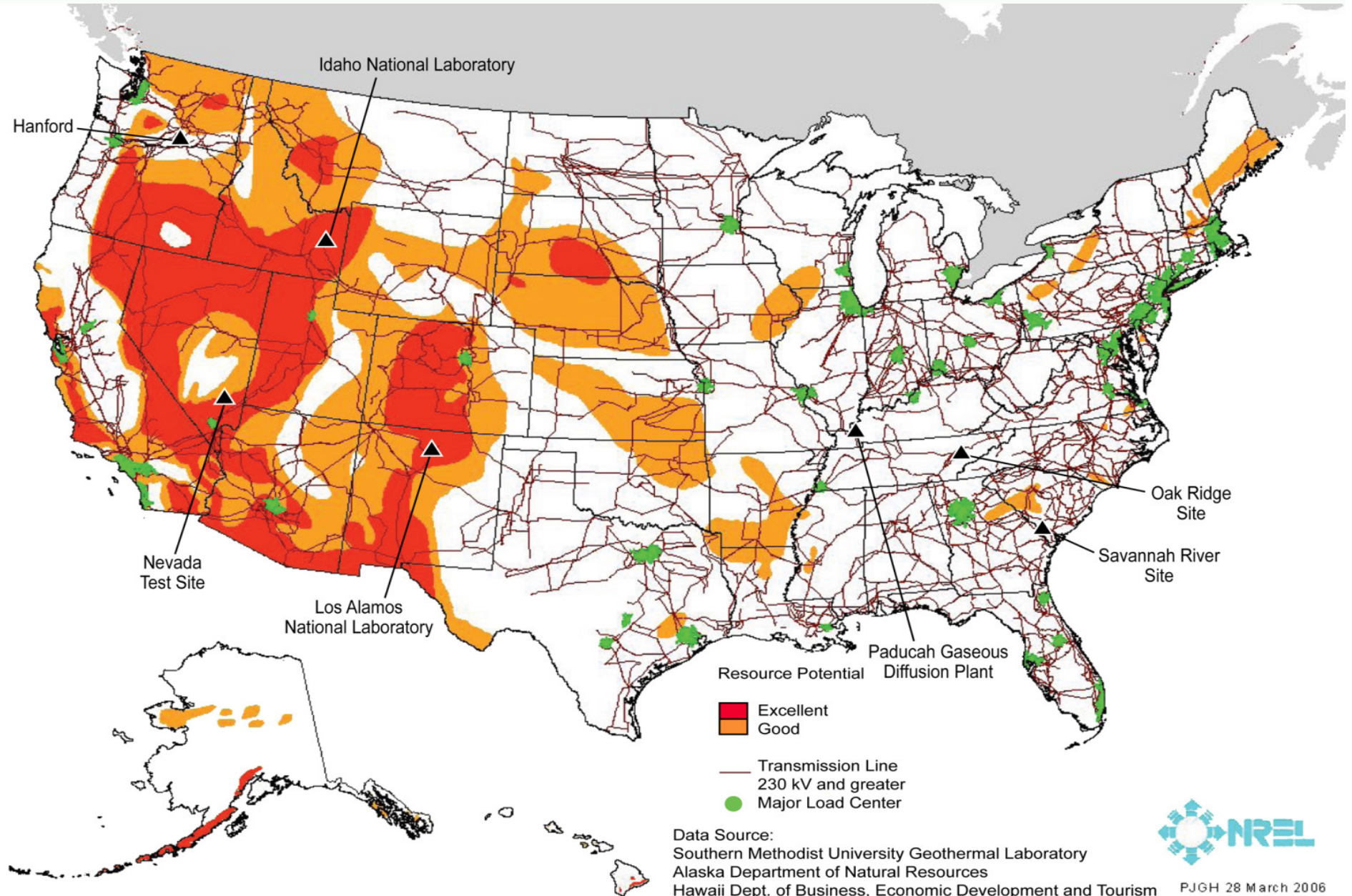


# Solar Resources





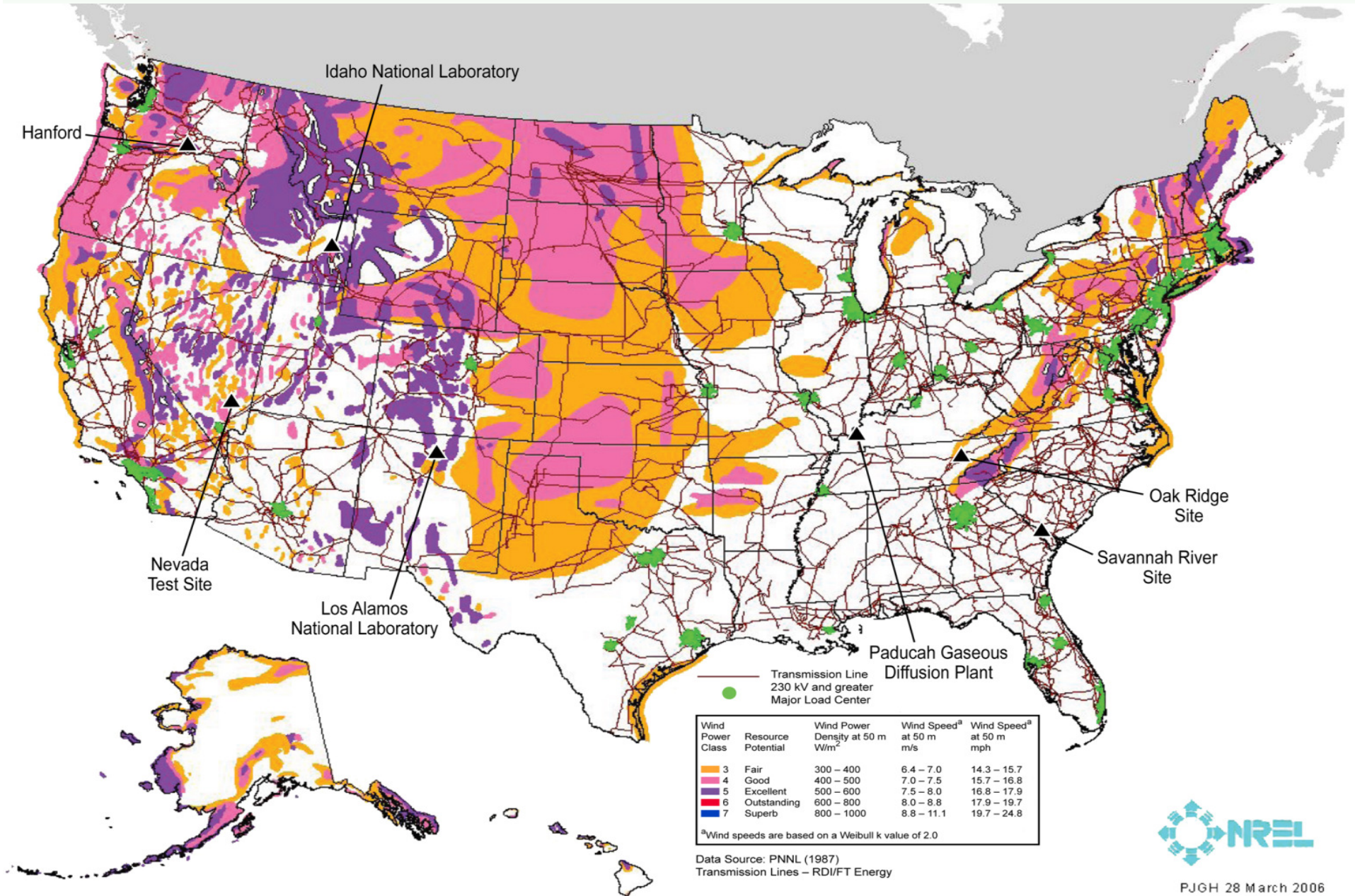
# Geothermal Resources



PJGH 28 March 2006

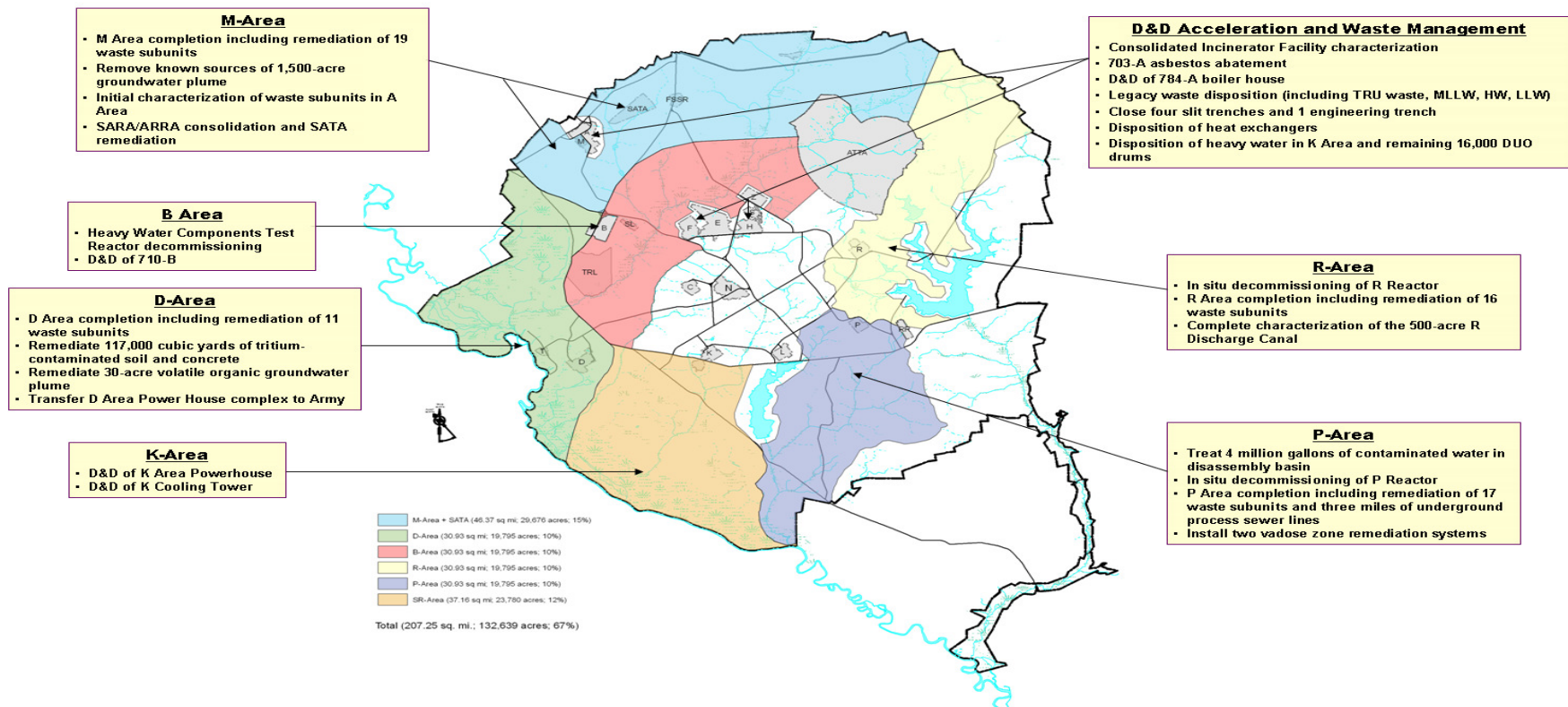


# Wind Resources



# Savannah River Site Footprint Reduction Achieve >50% by 2011 and 80-90% by 2015

## SRS Foot Print Reduction Strategy Achieve Greater Than 50% Footprint Reduction by 2011





# Oak Ridge Footprint Reduction Proposal

## Oak Ridge National Laboratory Central Campus

**Today**



**177 IFDP Facilities**

**2015**



**One IFDP Facility**



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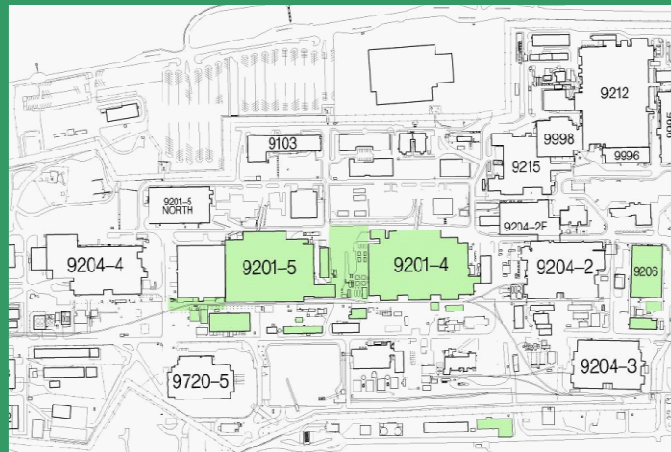
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# Oak Ridge Footprint Reduction Proposal (Continued)

## Y-12 National Security Complex

**Today**



510K sf demolished (Alpha 4)

**2015**



672K sf additional demolished (Alpha 5 & 9206)



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# Oak Ridge Footprint Reduction Proposal (Continued)

## East Tennessee Technology Park

**Circa 2000**



**Baseline Completion in 2017**

**2015**



**Accelerated Completion in 2015**



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# SRS BIOMASS PLANT

- The new Biomass Cogeneration Facility has a design capacity of 240,000 pounds per hour (PPH) of steam and 20 megawatts (MW) of electric power which will replace the existing D-Area coal-fired cogeneration plant.
- The primary fuel source for all of the new boilers will be clean biomass and bio-derived fuels (BDF). The clean biomass consists of various types of forest residues, and the BDF consists primarily of scrapped vehicle tires.
- Key environmental benefits of the project include:
  - Over 2,000,000 MBtu/yr of thermal renewable energy production and a minimum generation of 77,000 mWh (264,444 MBtu) of green power.
  - Annual Energy Savings of approximately 500,000 MBtu/yr
  - No-cost Renewable Energy Credits (RECs)
  - Decrease of water intake from Savannah River by 1,412,000 kgal/yr supporting water conservation efforts in the regional drought situation.
  - Reduction of 400 tons/yr of Particulate matter (PM) emissions
  - Reduction of 3,500 tons/yr of Sulfur Dioxide (SO<sub>2</sub>) emissions
  - Reduction of 100,000 tons/yr of Carbon Dioxide (CO<sub>2</sub>) emissions
  - Support of the South Carolina Biomass Council Goals



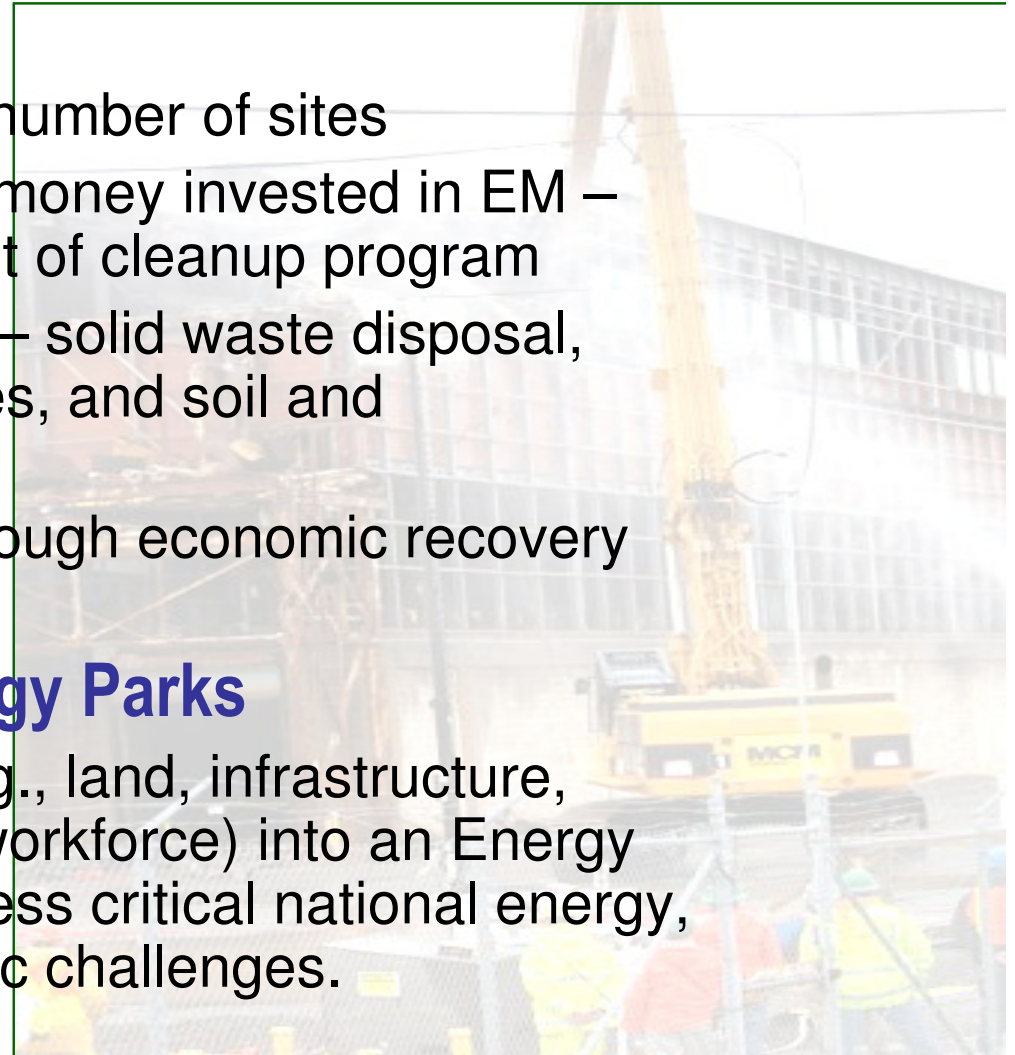
# Vision - Footprint Reduction & Energy Parks

## Footprint Reduction

- Reduce the active area and number of sites
- Provide maximum return on money invested in EM – reduces overall life-cycle cost of cleanup program
- Focus on proven successes – solid waste disposal, D&D of contaminated facilities, and soil and groundwater remediation
- Create thousands of jobs through economic recovery investment

## Reutilization of Assets/Energy Parks

- Transform EM resources (e.g., land, infrastructure, technologies, highly-skilled workforce) into an Energy Parks Initiative (EPI) to address critical national energy, climate change and economic challenges.



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