

Resources Available To Save Energy Now LEADER Companies

**Presented by
Dr. Anthony Wright, ORNL**



Two Integrator Contractors Provide Key LEADER Support

ORNL – Team Lead

- 4 Assigned Technical Account Managers
(Nasr Alkadi – Daryl Cox – Tom Wenning – Rutgers)
- 1 Assigned Technology Deployment Account Manager (Sachin Nimbalkar)
- Team Members:
 - BCS Inc.
 - Georgia Tech
 - Rutgers
 - FCS Consulting

Energy
Experts

PPC – Team Lead

- 7 Assigned Technical Account Managers
(Paul Scheafer – Paul Lamar – Vestal Tutterow – Tim Kolp – Dimitri Shanin – Gary O'Brien – Daniel Waller)
- Team Members:
 - Lawrence Berkley National Lab
 - Alliance to Save Energy
 - Resource Dynamics Corp.
 - SENTECH, Inc.
 - Grant Thornton LLP
 - Select Energy Services, LLP

ORNL Team Member Key Capabilities

| | |
|-------------------------------------|--|
| Energy Expert with ORNL TAM Support | <ul style="list-style-type: none">• Improved Assessments• Technical Assistance• Focus on Implementation |
| Georgia Tech | <ul style="list-style-type: none">• Energy Management and ISO 50001 Support• Link Energy Management principles into all program activities |
| BCS | <ul style="list-style-type: none">• Outreach and Communications• Emphasis on creating new partners and improving program results |
| FCS | <ul style="list-style-type: none">• Training support to LEADER plants through webinars• Promote improved implementation in plants• Train Energy Experts and plant personnel on how to improve implementation |
| Rutgers | <ul style="list-style-type: none">• Non <i>Save Energy Now</i> LEADER services |

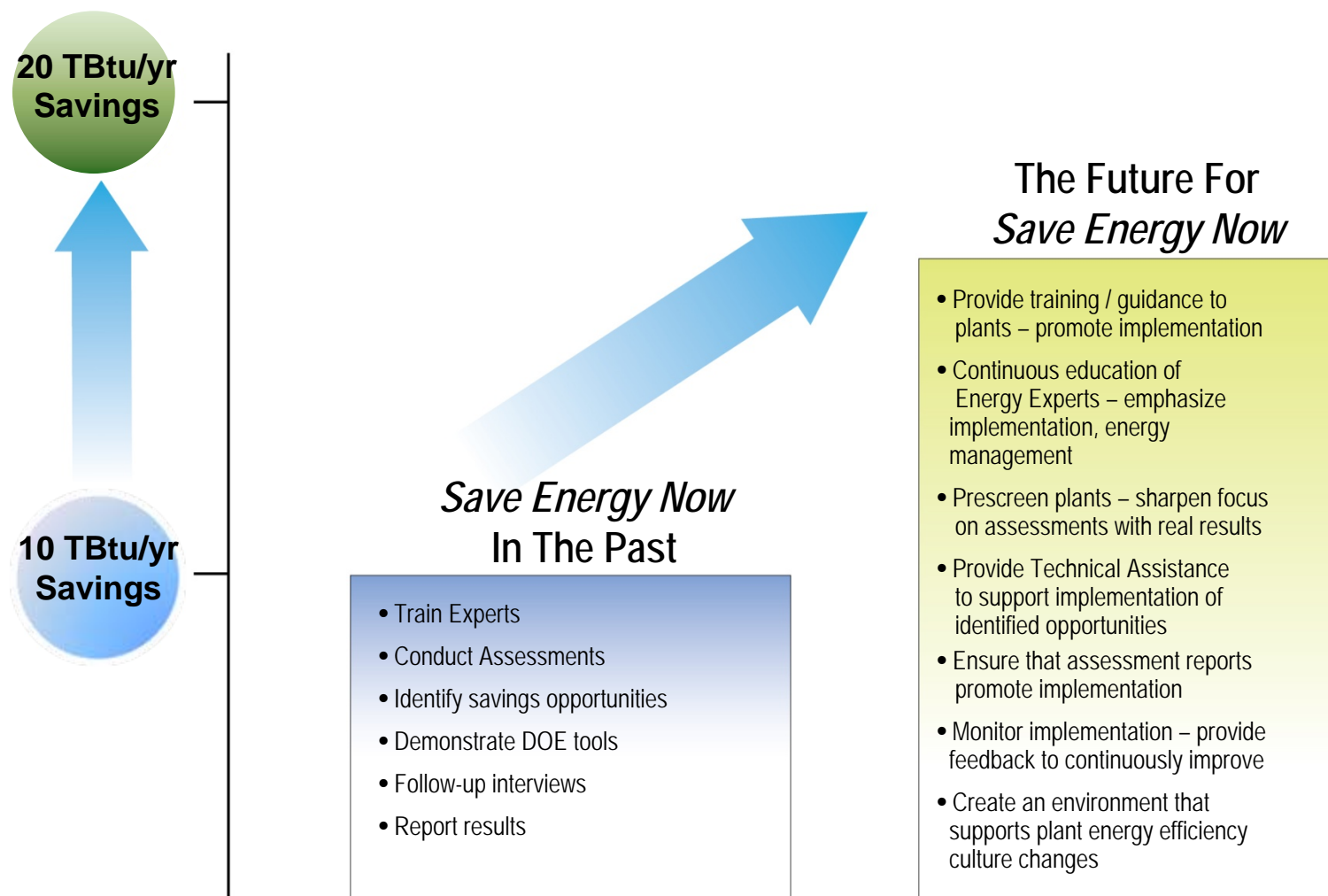
PPC Team Member Key Capabilities

| | |
|------------------------------------|--|
| Energy Expert with PPC TAM Support | <ul style="list-style-type: none"> • Improved Assessments • Technical Assistance • Focus on Implementation |
| Lawrence Berkley National Lab | <ul style="list-style-type: none"> • Strategic vision on program integration with emerging ITP initiatives (e.g., Superior Energy Performance, Energy Management Planning) • Support for an overall partnerships/ALLY strategy for <i>Save Energy Now</i>, focusing on industrial providers & manufacturers of energy efficient equipment and services |
| Alliance to Save Energy | <ul style="list-style-type: none"> • Supply chain expertise • Marketing to potential LEADER Companies • Super ALLY recruitment |
| Resource Dynamics Corp. | <ul style="list-style-type: none"> • TAM services • Superior Energy Performance development and pilot program implementation |
| SENTECH, Inc. | <ul style="list-style-type: none"> • TAM services • Superior Energy Performance development and pilot program implementation • Combined Heat & Power feasibility and implementation |
| Grant Thornton LLP. | <ul style="list-style-type: none"> • Financial feasibility and project financing expertise • Energy incentives and tax credit expertise (Advanced Energy Manufacturing Tax Credit: 48c) |
| Select Energy Services, LLP | <ul style="list-style-type: none"> • TAM services • Energy assessment expertise |

Technical Account Managers (TAMs): Key Support Link to LEADER Companies

- Assist LEADER Companies to develop:
 - Roadmaps for achieving LEADER goals
 - Energy intensity baselines
 - Energy Management plans
- Work with LEADER Companies to identify:
 - Assessment, technical assistance, training resource support
 - Potential technology deployment, CHP opportunities
 - Other financial and support resources to assist LEADER Companies

A Key Goal – At Least Double Implementation Of Identified Energy Savings Opportunities



Technical Assistance (TA) – An Enhanced Approach To Help LEADER Companies Meet Goals

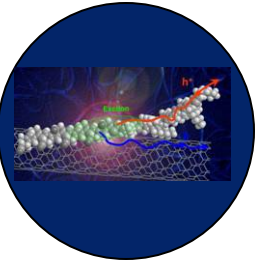
- An opportunity for LEADER Companies to achieve enhanced implementation rates.
- Provides more resources and time to focus on specific project(s).
- May include a variety of technical, financial, operational, and information assistance.
- Decisions based on benefit/cost for opportunities, and indication that implementation will occur as a result.

ORNL Industrial Technologies Program:

Providing integrated solutions to accelerate innovation to industrial deployment

Focus Areas

Integrated Approach



Scientific Research



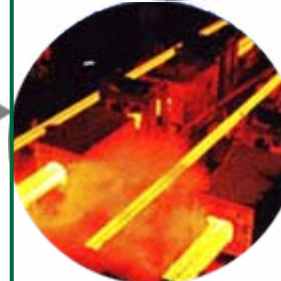
Industry Needs



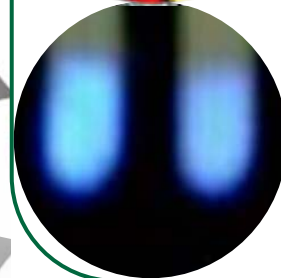
Industry and University Partnerships



Save Energy
Now Delivery & Implementation



Energy Intensive
Materials & Processes



Nano-
Manufacturing
R&D

25/10

Decreasing Industrial Energy and Carbon Intensity
Increasing U.S. Industrial Competitiveness

Working With Others Is A Key Part Of What We Do

Partners

Strategic advantages

- Access to world-class technology
- Innovative solutions to complex problems
- Accomplish more R&D with less capital
- Confidentiality

*You
contact
us*



*We
contact
you*

Tools for working together

- User facilities
- Work for Others program
- CRADAs
- License/options
- Technical assistance
- Business start-ups

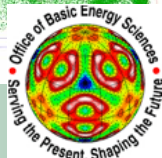
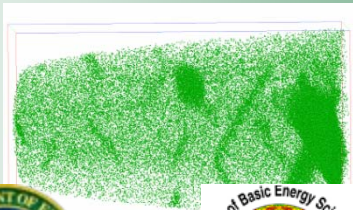
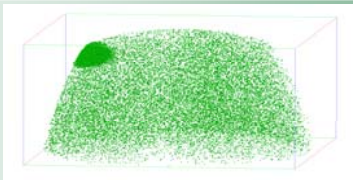
ORNL access

Rapid Infrared Heating Technology : From Lab Discovery to Commercialization

Basic Science

(NSF & DOE OS)

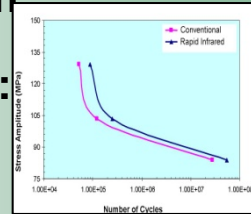
Atom probe results showing finer distribution of nano-size Al_2CuMg precipitates in Infrared heated forgings:



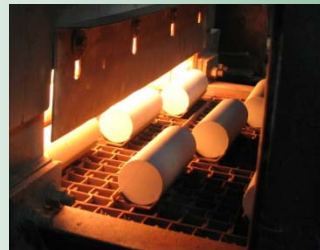
Applied R&D

(EERE Industrial Technologies and DOE Fossil Energy)

Finer precipitate distribution improves fatigue life:



Preheating of Aluminum Billets



U.S. Department of Energy
Energy Efficiency
and Renewable Energy

THE U.S. DEPARTMENT OF ENERGY'S OFFICE OF
FOSSIL ENERGY
TAPPING THE FULL POTENTIAL OF AMERICA'S TRADITIONAL ENERGY RESOURCES

Manufacturing & Commercialization

✓ Full-scale production based infrared furnace operating at Queen City Forging Company.



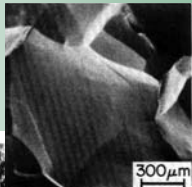
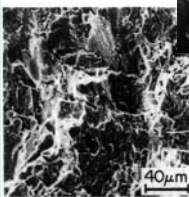
✓ Machined impellers for diesel turbochargers @ >250,000 parts/yr.



Nickel Aluminides: From Lab Discovery to Commercialization

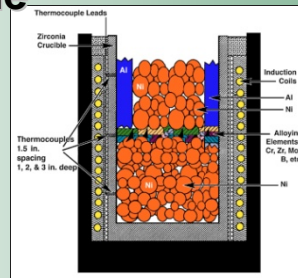
Basic Science (OS, FE)

**Ductile
 Ni_3Al**

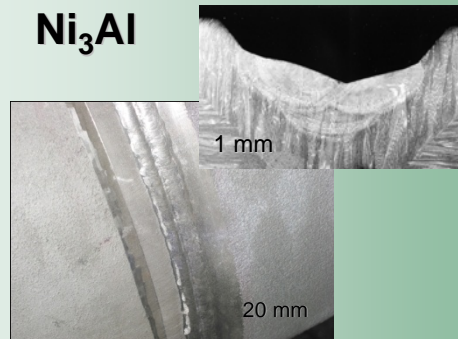


Applied R&D (EERE Industrial Technologies Program)

**Castable
 Ni_3Al**



**Joinable
 Ni_3Al**



Manufacturing & Commercialization

- ✓ Licensed to Duraloy for fabrication and use of Ni_3Al in Industry for rolls in rehear furnaces.



- ✓ Enables 35% increase in furnace energy efficiency.
- ✓ New Ni_3Al melting, casting, and welding materials/processes.





The Southeast Energy Efficiency Alliance Industrial Coalition

- First of it's kind collaborative forum to exchange best practices, foster education drive improvement implementations
- Industries, utilities, state energy offices, industrial assessment centers & national labs



SEEA Industrial Coalition - Value

- Quarterly stakeholder meetings deliver value to manufacturers
 - Leveraging existing successes & experiences in the region to drive implementation
 - Learning from peers through real time discussion
- Information between quarterly meetings
 - Technology & resource focused webinar sessions
 - Streamlined information

SEEA Industrial Coalition - Results

- Core stakeholder group has grown to roughly 50 organizations (manufacturing, utilities, energy offices, etc...).
- Manufacturers seeing the value in this collaborative effort ...and referring new manufacturers to the coalition.
- Rick Marsh – rick@seealliance.org