



BestPractices Steam Steering Committee

STEAM TECHNICAL SUBCOMMITTEE STATUS

Tony Wright, ORNL
Glenn Hahn, Spirax Sarco

Presented to the
BestPractices Steam Steering
Committee Meeting
May 20, 2008



COMMITTEE PARTNERS

- ❑ American Boiler Manufacturers
- ❑ Alliance to Save Energy
- ❑ Applied Engineering Services
- ❑ Armstrong
- ❑ Army Construction Eng. Research Laboratory
- ❑ Anovotek
- ❑ Brayman Insulation Consulting
- ❑ Cleaver-Brooks
- ❑ Clough, Harbour & Assoc., LLP
- ❑ Conservation Solutions
- ❑ Construction Eng. Research Lab
- ❑ Hudson Technologies
- ❑ Council of Industrial Boiler Owners
- ❑ Dupont
- ❑ Enbridge Consumers Gas, Canada
- ❑ Enercheck Systems, Inc.
- ❑ E3M
- ❑ Energy, Environment and Resources Center (Univ. TN)
- ❑ Gateway Technical College
- ❑ Iowa Energy Center
- ❑ Johns Mansfield Corp.
- ❑ Knauf Fiberglass
- ❑ Kumana and Associates



U.S. Department of Energy

Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

COMMITTEE PARTNERS (2)

- ❑ Lawrence Berkeley Natl. Lab.
- ❑ National Assn. Power Engineers
- ❑ National Board of Boiler and Pressure Vessel Inspectors
- ❑ National Insulation Association
- ❑ NYSERDA
- ❑ Oak Ridge National Lab
- ❑ Plant Support and Evaluations
- ❑ Nalco Chemical
- ❑ RF Macdonald Company
- ❑ Rohm & Haas
- ❑ Spirax Sarco
- ❑ Swagelok
- ❑ TA Engineering
- ❑ Texas Engineering Experiment Station
- ❑ TurboCare, Inc.
- ❑ Trigen Philadelphia
- ❑ Vericor Power Systems
- ❑ Veritech
- ❑ Washington State Univ.
- ❑ WEJ Energy Management Specialists
- ❑ Yarway Corp



U.S. Department of Energy

Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

BestPractices Steam Technical Subcommittee: Key Objectives

- ❑ Support SAVE ENERGY NOW initiative
- ❑ Identify / document steam system efficiency benchmarks, BestPractices used in steam system marketplace
- ❑ Provide independent technical information, review, and development of tools and products



U.S. Department of Energy

Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

Metric Version Of Steam System Assessment Tool Now Available

- ❑ SSAT Version 3
- ❑ Can be used for steam system improvement opportunity analyses using English or Metric units



Steam Process Heating Modeling

- ❑ Identify areas where steam process heating energy savings models can be developed
- ❑ Develop models that can ultimately be included in SSAT, PHAST
- ❑ Arvind Thekdi, E3M – moving forward with developing short list of potential modeling areas



Additional Discussion Topics...

- ❑ New steam tips, technical briefs?
- ❑ Status of developing steam system measurement guide?
- ❑ Other potential technical support documents?
- ❑ Training questions ... ?



U.S. Department of Energy

Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

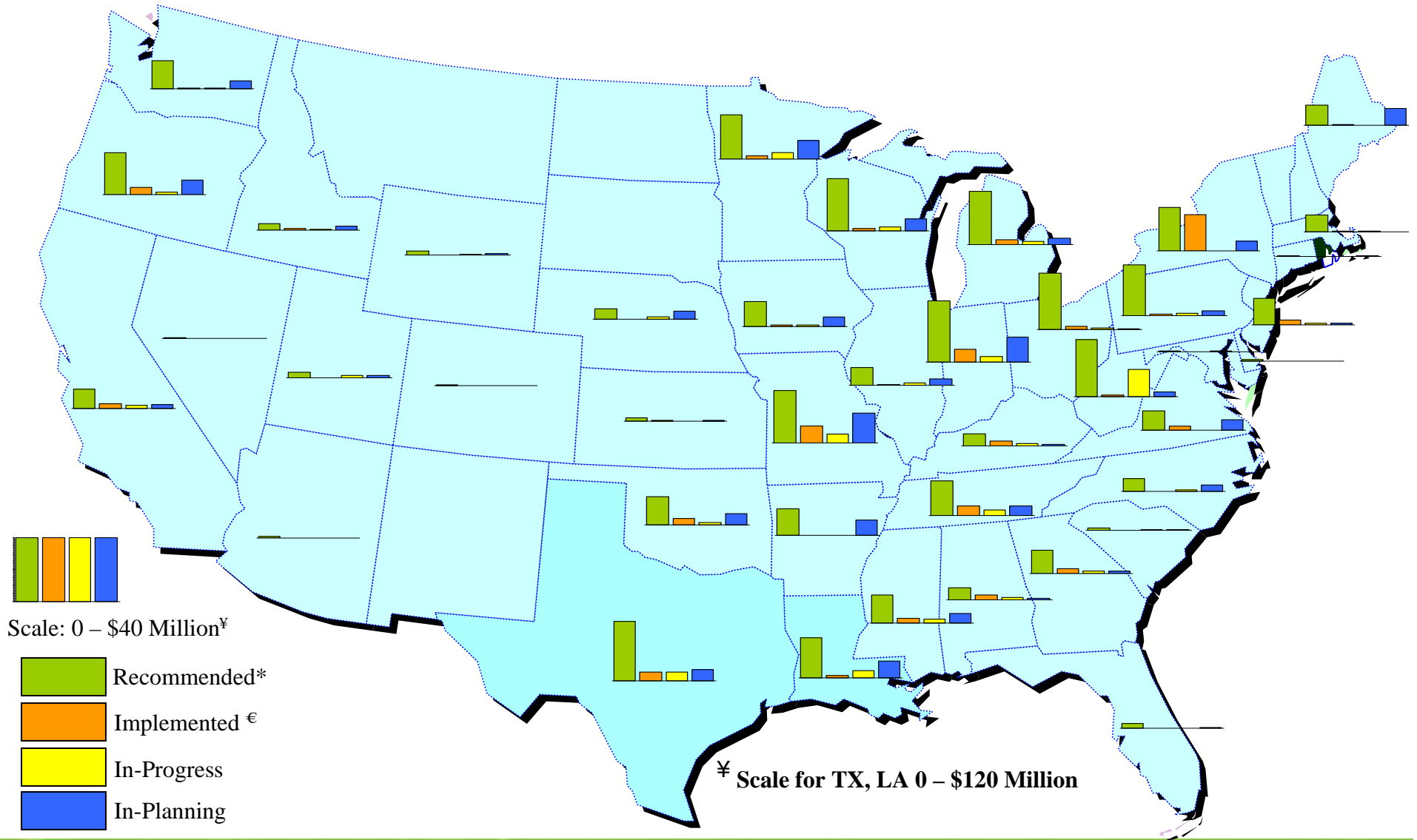
Some Interesting Steam Save Energy Now Assessment Data....



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

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

IMPLEMENTATION PROGRESS ACROSS THE U.S.



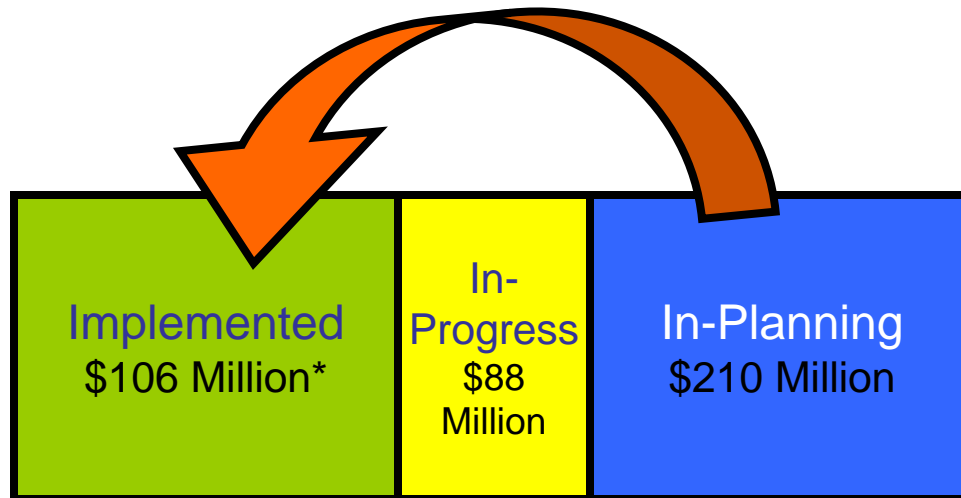
U.S. Department of Energy
Energy Efficiency and Renewable Energy
 Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

* Recommendation savings from 425 assessments

€ Implementation savings from 286 assessments

CHALLENGES TO SEN ASSESSMENT IMPLEMENTATION

How to increase SEN implementation rate?

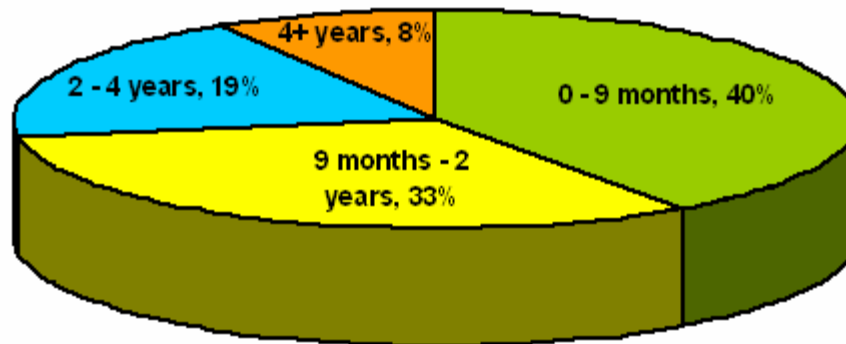


* Implementation savings from 286 assessments



PAYBACK – IS IT A MAJOR IMPEDIMENT?

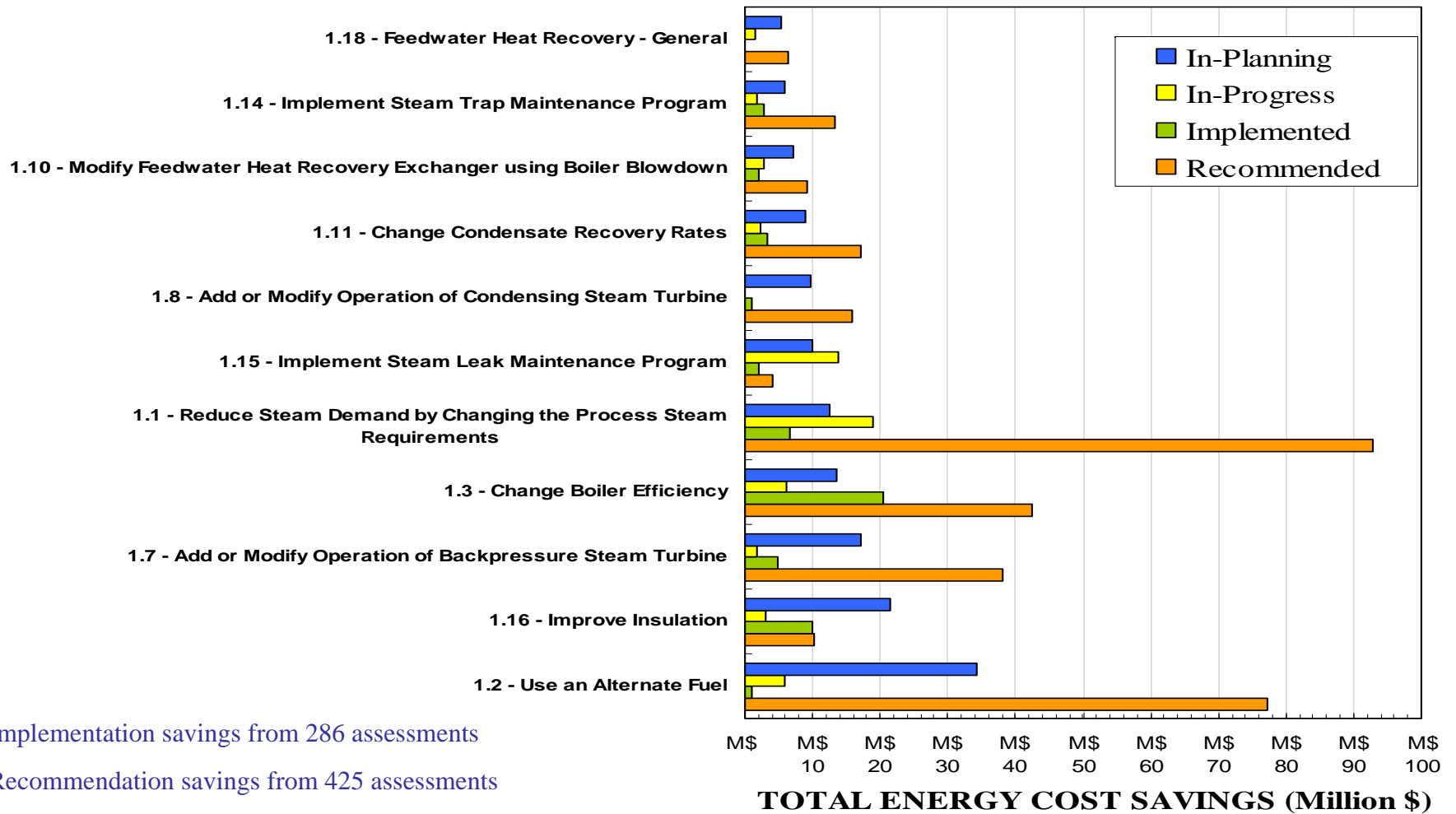
- ❑ Over 73% of recommended actions had paybacks of less than 2 years.
- ❑ 40% of recommended actions had paybacks of less than 9 months.
- ❑ Only 8% recommendations had paybacks > 4 years



Top 10 Steam Opportunities – “In Planning...”

Energy Cost Savings - Implementation Status (Steam Assessments)

RECOMMENDATIONS



* Implementation savings from 286 assessments

* Recommendation savings from 425 assessments

TOTAL ENERGY COST SAVINGS (Million \$)



“THE MAJOR” BARRIERS TO IMPLEMENTATION

- ❑ Further examination finds an unattractive return on investment,
- ❑ A change in the company policy emphasizing energy reduction,
- ❑ Process related limitations, concern regarding operational changes,
- ❑ Limitations of the current available technology or design,
- ❑ Red flags by the employees or political reasons,



“THE MAJOR” BARRIERS TO IMPLEMENTATION (cont.)

- ❑ Limited in-house engineering availability,
- ❑ Company merger and new policies,
- ❑ Budget priorities and budget cycle,
- ❑ Operational downtime and impact on the production, scheduling issues.

