

## SCS ENGINEERS

### ENERGY EFFICIENCY PROJECT RESOURCES

We have assembled some additional resources to help you with your energy efficiency projects. If you need specific assistance, or you would like to conduct an energy audit, please feel free to contact us. We can help!

#### Utility Rates for Electricity and Natural Gas

The following websites contain the electric rates and natural gas rates for Wisconsin's utility companies.

- Madison Gas and Electric (MGE) electric rates:  
[http://www.mge.com/business/rates/elec\\_bizrates.htm](http://www.mge.com/business/rates/elec_bizrates.htm)
- Madison Gas and Electric (MGE) natural gas rates:  
[http://www.mge.com/business/rates/gas\\_bizrates/](http://www.mge.com/business/rates/gas_bizrates/)
- Wisconsin Public Service (WPS) electric and natural gas rates:  
<http://www.wisconsinpublicservice.com/business/rates.aspx>
- Alliant Energy electric and natural gas rates:  
<https://www.alliantenergy.com/AboutAlliantEnergy/CompanyInformation/Tariffs/index.htm>
  - Select Wisconsin Power & Light – Electric Service or
  - Wisconsin Power & Light – Natural Gas Service
- We Energies electric and natural gas rates:  
[http://www.we-energies.com/business/wisconsin\\_service\\_rates/index.htm](http://www.we-energies.com/business/wisconsin_service_rates/index.htm)

#### Best Practices Tip Sheets

The United States Department of Energy (DOE) – Energy Efficiency and Renewable Energy (EERE) – Industrial Technologies Program (ITP) website offers numerous Best Practices references. The technical publications include detailed sourcebooks, fact sheets, and two-page tip sheets for commercial and industrial energy systems.

[http://www1.eere.energy.gov/manufacturing/tech\\_deployment/technical\\_publications.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/technical_publications.html)

The two-page tip sheets give engineers, technicians, equipment operators, and other interested parties quick and to-the-point technical advice on common manufacturing processes:

- Plant-Wide  
[http://www1.eere.energy.gov/manufacturing/tech\\_deployment/plantwide.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/plantwide.html)
- Steam  
[http://www1.eere.energy.gov/manufacturing/tech\\_deployment/steam.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/steam.html)
- Process Heating  
[http://www1.eere.energy.gov/manufacturing/tech\\_deployment/process\\_heat.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/process_heat.html)
- Heat and Power  
[http://www1.eere.energy.gov/manufacturing/distributedenergy/info\\_resources.html](http://www1.eere.energy.gov/manufacturing/distributedenergy/info_resources.html)



- Compressed Air  
[http://www1.eere.energy.gov/manufacturing/tech\\_deployment/compressed\\_air.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/compressed_air.html)
- Motor  
[http://www1.eere.energy.gov/manufacturing/tech\\_deployment/motors.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/motors.html)
- Pump  
[http://www1.eere.energy.gov/manufacturing/tech\\_deployment/pumps.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/pumps.html)
- Fan [http://www1.eere.energy.gov/manufacturing/tech\\_deployment/fans.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/fans.html)
- Data Centers  
<http://www1.eere.energy.gov/manufacturing/datacenters/about.html>

These systems can account for a large part of the energy used in manufacturing processes. System improvements and new technologies can help save energy and money.

### **Case Studies**

The United States DOE website provides a series of case studies that describe the steps that specific industries have taken to increase their energy savings. These case studies describe demonstrated energy improvement projects, process improvement processes, and/or assessments at the plant level. Many examine the bottom line benefits that successful application of energy efficient practices and technologies can yield.

[http://www1.eere.energy.gov/manufacturing/tech\\_deployment/case\\_studies.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/case_studies.html)

Current case studies are available on the website. On the website, one list is sorted by the type of industry. The second is sorted by the industrial system, such as compressed air, process heating, etc.

In 2009, Walmart asked 100,000 Tier 1 global suppliers to voluntarily divulge key data about their environmental and social practices. The retail giant has since initiated a series of supplier sustainability assistance tools, including consumer product lifecycle analysis. A list of the fifteen Supplier Sustainability Assessment questions is included. For more information see <http://walmartstores.com/Sustainability/9691.aspx?p=232>

### **U.S. Department of Energy Software Tools**

For some of the following links, you will need to provide a company name and address in order to download the free software.

- [The Plant Energy Profiler](#) is an online software tool that helps quickly diagnose how energy is being used in the plant and the largest opportunities to save energy and money. This tool is your first step in identifying areas for potential savings. Access this website at <https://save-energy-now.org/em/tools/Pages/ePEP.aspx>.
- [Process Heating Assessment and Survey Tool \(PHAST\)](#) introduces methods to improve thermal efficiency of heating equipment. This tool helps users survey process heating equipment that consumes fuel, steam, or electricity and identifies the most energy-intensive equipment. Use the tool to compare performance of equipment

- under various operating conditions and test 'what-if' scenarios. Access this website at [http://www1.eere.energy.gov/manufacturing/tech\\_deployment/software\\_phast.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/software_phast.html).
- [AIRMaster+](http://www1.eere.energy.gov/manufacturing/tech_deployment/software_airmaster.html) provides comprehensive information on assessing compressed air systems, including modeling, existing and future system upgrades, and evaluating savings and effectiveness of energy efficiency measures. Access this website at [http://www1.eere.energy.gov/manufacturing/tech\\_deployment/software\\_airmaster.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/software_airmaster.html).
  - [AIRMaster+ LogTool](http://www1.eere.energy.gov/manufacturing/tech_deployment/softwaretoolregistration.asp?product=14) is a companion tool to AIRMaster+ that helps users determine the operating dynamics of a compressor system. Use the LogTool first to gather critical data in preparation for AIRMaster+. Then you can input that data into AIRMaster+ to model existing and future compressed air system upgrades. Access this website at [http://www1.eere.energy.gov/manufacturing/tech\\_deployment/softwaretoolregistration.asp?product=14](http://www1.eere.energy.gov/manufacturing/tech_deployment/softwaretoolregistration.asp?product=14).
  - [DOE Compressed Air Challenge](http://www.compressedairchallenge.org/) - Access this website at <http://www.compressedairchallenge.org/>.
  - [Combined Heat and Power Application Tool \(CHP\)](http://www1.eere.energy.gov/manufacturing/tech_deployment/software_chp.html) helps users evaluate the feasibility of using gas turbines to generate power and the turbine exhaust gases to supply heat to industrial heating systems. It allows analysis of three typical systems types: fluid heating, exhaust-gas heat recovery, and duct burner systems. Use the tool to estimate energy savings, system costs, and payback period, and to perform "what-if" analysis for various utility costs. Access this website at [http://www1.eere.energy.gov/manufacturing/tech\\_deployment/software\\_chp.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/software_chp.html).
  - [Steam System Tool Suite](#). If you consider potential steam system improvements in your plant, the results could be worthwhile. Steam System improvements can save 10% to 20% in fuel costs in many facilities. DOE offers a suite of tools for evaluating and identifying steam system improvements including:
    - 1) [Steam System Scoping Tool](#) is designed to help the steam system energy manager and operations personnel to perform initial self-assessments of their steam systems. This tool will profile and grade steam system operations and management and help you evaluate your steam system operations against best practices.
    - 2) [Steam System Assessment Tool \(SSAT\)](#) allows steam analysts to develop approximate models of real steam systems. Using these models, you can apply SSAT to quantify the magnitude - energy, cost, and emissions-savings of key potential steam improvement opportunities. SSAT contains the key features of typical steam systems.
    - 3) [3E Plus®](#) calculates the most economical thickness of industrial insulation for user input operation conditions. You can make calculations using the built-in thermal performance relationships of generic insulation materials or supply conductivity data for other materials.

Access the software registration page for downloading these free tools on the right side of this page

[http://www1.eere.energy.gov/manufacturing/tech\\_deployment/software\\_ssat.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/software_ssat.html).

- [MotorMaster+](#). An energy-efficient motor selection and management tool, MotorMaster+ software includes a catalog of over 20,000 AC motors. This tool features motor inventory management tools, maintenance log tracking, efficiency analysis, savings evaluation, energy accounting, and environmental reporting capabilities. See [Fact Sheet](#) (pdf) for more information. Access this website at [http://www1.eere.energy.gov/manufacturing/tech\\_deployment/software\\_motormaster.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/software_motormaster.html).
- [MotorMaster+ International 1.1.4](#). MotorMaster+ International includes many of the capabilities and features of MotorMaster+; however, now you can evaluate repair/replacement options on a broader range of motors, including those tested under the Institute of Electrical and Electronic Engineers (IEEE) standard, and those tested using international Electrical Commission (IEC) methodology. Access this website at [http://www1.eere.energy.gov/manufacturing/tech\\_deployment/software\\_motormaster\\_intl.html](http://www1.eere.energy.gov/manufacturing/tech_deployment/software_motormaster_intl.html).
- [Improving Process Heating System Performance: A Sourcebook for Industry, Second Edition](#) (pdf) provides information on activities, resources, applications, standards, and guidelines for increasing industrial energy efficiency. Access this website at [http://www1.eere.energy.gov/manufacturing/tech\\_deployment/pdfs/process\\_heating\\_sourcebook2.pdf](http://www1.eere.energy.gov/manufacturing/tech_deployment/pdfs/process_heating_sourcebook2.pdf).

## Energy Efficiency and Savings Tools

The U.S. Department of Energy's (DOE) Industrial Technologies Program has developed ePEP Scorecards to help members increase their energy efficiency and decrease costs. Discover your plant's Energy Savings Potential by taking one or all of the following scorecard tests:

- Combined Heat and Power  
[https://save-energy-now.org/EM/tools/Pages/epep\\_chpscorecard.aspx](https://save-energy-now.org/EM/tools/Pages/epep_chpscorecard.aspx)
- Compressed Air  
[https://save-energy-now.org/EM/tools/Pages/epep\\_cascorecard.aspx](https://save-energy-now.org/EM/tools/Pages/epep_cascorecard.aspx)
- Process Cooling and Refrigeration  
[https://save-energy-now.org/EM/tools/Pages/epep\\_pcscorecard.aspx](https://save-energy-now.org/EM/tools/Pages/epep_pcscorecard.aspx)
- Process Heating  
[https://save-energy-now.org/EM/tools/Pages/epep\\_phscorecard.aspx](https://save-energy-now.org/EM/tools/Pages/epep_phscorecard.aspx)
- Pumps  
[https://save-energy-now.org/EM/tools/Pages/epep\\_pumpsscorecard.aspx](https://save-energy-now.org/EM/tools/Pages/epep_pumpsscorecard.aspx)
- Steam Generation Equipment  
[https://save-energy-now.org/EM/tools/Pages/epep\\_steamscorecard.aspx](https://save-energy-now.org/EM/tools/Pages/epep_steamscorecard.aspx)