

The Fan System Assessment Tool (FSAT)

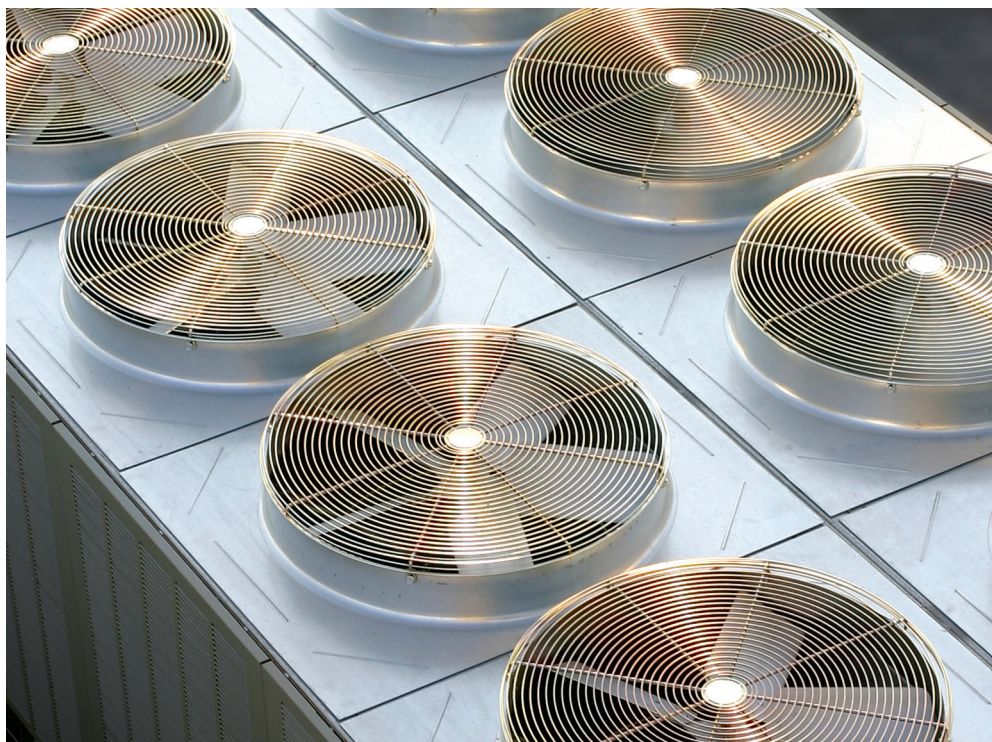
The U.S. Department of Energy's (DOE's) Industrial Technologies Program (ITP) offers a collection of software tools to help you identify and analyze energy system savings opportunities within your plant or facility. As part of ITP's Tool Suite, the Fan System Assessment Tool (FSAT) enables you to evaluate the energy efficiency opportunities of your fan system using an unbiased approach. This, in turn, could lead to further private sector detailed engineering analyses and design specifications with the goal of implementing identified energy-saving opportunities.

Benefits of FSAT

- Determine system efficiency
- Identify degraded fans
- Collect data for trending system operation
- Examine the energy and economic impacts of varying operating scenarios
- Quantify potential cost and energy savings.

Resources

To download FSAT, other free software tools, or to learn more about DOE Qualified Specialists and training opportunities, visit www.eere.energy.gov/industry/bestpractices.



Improve Fan System Performance with FSAT

Experience has shown that greater energy savings can be achieved through system optimization rather than component optimization. FSAT helps users quantify energy consumption and energy-savings opportunities in industrial fan systems.

By reducing the engineering time associated with analyzing fan systems, it becomes easier to understand the economic and energy significance of changes in both system equipment and operating practices.

FSAT does not tell users how to achieve identified savings, but is a simple and effective tool that helps users understand how well their fan systems are operating, determine the economic benefit of system modifications, and determine which options are economically viable (when multiple opportunities exist for system modification).

System Effects

According to the Air Movement and Control Association International, Inc., there is often a difference in performance between a tested fan configuration and an installed fan configuration. These differences are known as system effects. FSAT helps users quantify the difference between rated performance and installed performance due to factors, such as:

- High duct velocity
- Discharge dampers locked in position
- Obstructed inlets
- Incorrectly sized fans
- Poor duct geometry
- Degraded impellers.

Figure 1: FSAT image showing the tool's main data input screen.

Tool Description

FSAT is simple, quick to use, and only requires basic information about fans and the motors that drive them. With FSAT, users can calculate the amount of energy used by a fan system, determine system efficiency, and quantify the savings potential of an upgraded system. The tool also provides a prescreening filter to identify fan systems that are likely to offer optimization opportunities based on the system's control, production and maintenance, and effect.

FSAT estimates the work done by the fan system and compares that to the system's estimated energy input. Using typical performance characteristics for fans and motors, indications of potential savings (in energy and dollars) are developed.

FSAT will be a part of the upcoming Energy Management Toolkit, which will act as the primary delivery mechanism for additional tool access from the Energy Management Portal.

Support and Training

ITP offers a 1-day workshop that highlights the benefits of fan system optimization and examines fan system performance characteristics and practical issues concerning measurement data. The session covers FSAT software functionality, data collection, and how to interpret assessment results. DOE has developed a Fan System Specialist Qualification as an additional level of training for industry professionals who are interested in becoming proficient in using FSAT. In addition, ITP offers an introductory 2-hour Webcast on how to use FSAT to identify energy-savings opportunities. Visit ITP's online Training Calendar for a list of upcoming sessions: www.eere.energy.gov/industry/bestpractices/events_calendar.asp.

FSAT was jointly developed by AMCA and the Oak Ridge National Laboratory.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, DOE's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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For more information, please contact:

Industrial Technologies Program (ITP)
www.eere.energy.gov/industry

EERE Information Center
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