



ENERGY STAR — A POWERFUL RESOURCE FOR SAVING ENERGY

ENERGY STAR® is a powerful energy efficiency platform for utilities, state agencies, and other organizations to use to help their communities save energy and protect the environment. Using ENERGY STAR tools and strategies, organizations can deliver energy savings with lower program costs and quicker implementation, increasing overall program effectiveness.

PARTNERSHIP IS KEY TO SUCCESS

ENERGY STAR is a voluntary, public-private partnership designed to reduce energy use and related greenhouse gas emissions. The program, administered by the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE), has an extensive network of partners including equipment manufacturers, retailers, home builders, energy service companies, private businesses, and public sector organizations and is well recognized by energy consumers.

Since the 1990's, EPA and DOE have worked with utilities, state energy offices, and regional nonprofit organizations to offer them ENERGY STAR tools, strategies, and materials to enhance their local energy efficiency programs. Today more than 450 utilities and other efficiency program administrators, servicing 65% of U.S. households and devoting more than \$1.5 billion annually to energy efficiency, participate in the ENERGY STAR program.

HOW ENERGY STAR WORKS

ENERGY STAR provides residential, commercial, and industrial energy consumers with many ways to identify and invest in energy efficient solutions as they look for new products, or design or improve new and existing buildings and facilities. The goal is to ensure that customers from all segments of the economy choose more energy efficient options over less efficient products and standard practice. ENERGY STAR solutions have been developed to work within existing market channels in the key sectors, based on years of experience in understanding market complexities, identifying barriers to energy efficiency, and developing strategies to overcome these barriers.

Some of the frequently identified barriers include:

- Lack of information about efficient options or which options are credible and will deliver results
- Lack of availability of efficient products or services
- Higher first-costs associated with some energy efficient products and/or capital improvements.

While EPA and DOE do not provide financial incentives to suppliers or consumers, utilities and other energy efficiency program administrators are successfully focusing their programs around the ENERGY STAR opportunities and using financial incentives to accelerate the adoption of targeted energy efficient products and services. In this way, financial incentives help spur product and service availability, reduce higher first costs during the purchase, and help reduce or eliminate the price premium for the product in the long term.

For example, ENERGY STAR qualifying major appliances such as clothes washers, refrigerators, and air conditioners are often the focus of utility rebates or other forms of incentives because they cost more to purchase initially, even though they will cost the consumer less to own and operate over their product life. When these incentives are used in conjunction with parallel efforts such as educating the consumer and training retail sales staff, equipment suppliers, and others, larger program results are achieved. EPA and DOE help efficiency program administrators effectively partner with manufacturers and retailers in the design and delivery

In 2005 alone, Americans with the help of ENERGY STAR, saved 150 billion kWh— or 4 percent of total electricity demand—and helped avoid 28,000 MW of peak power, while preventing 23 million vehicles worth of greenhouse gas emissions.

More than 8,000 organizations are ENERGY STAR partners, committed to improving and promoting energy efficiency for products, homes, and businesses. These partners include

- 1,500 manufacturers;
- 800 retailers;
- 2,500 home builders;
- 2,500 businesses;
- 30 states;
- 450 utilities/energy efficiency program sponsors; and
- Hundreds of energy service providers, raters, architects, building engineers, and financial lenders.

of programs and provide targeted messaging to help educate customers on the environmental and financial benefits of choosing ENERGY STAR. A typical household spends \$1,900 per year on energy bills—with ENERGY STAR they can save up to 30% or about \$600 per year.

In areas of the country that do not have qualified professionals to deliver whole-house and whole-building services, a key strategy for a program administrator is to help develop these networks. Consumer education, advanced professional training, and customer referrals to certified contractors can help spur both the supply and the demand needed to develop a robust marketplace for these services. Through Home Performance with ENERGY STAR, EPA and DOE work with field practitioners to develop the business-case, start-up guides, and other tools and resources for educating contractors on the business opportunities of whole-house contracting and consumers on opportunities to improve comfort and protect the environment while saving money. EPA, DOE, and the Department of Housing and Urban Development (HUD) also are working to establish a national technician certification and contractor accreditation program through the Building Performance Institute (BPI). As BPI accredits contractors nationwide, consumers and program administrators will be able to identify qualified contractors to deliver whole-house energy efficiency improvements.

In the commercial and industrial (C&I) sector, lack of knowledge about building performance is a key barrier to motivating building owners and operators to improve the energy efficiency of their buildings. To address this obstacle, program administrators have begun to use the EPA energy performance rating system to communicate with their customers using a nationally-recognized performance metric. The performance rating compares the energy use of an individual building against the national stock of similar buildings using a 1 to 100 point rating system and enables building owners and managers to measure how well building systems are integrated, operated, and maintained. Program administrators can use the EPA rating to motivate C&I customers to engage in whole-building evaluation of energy efficiency opportunities and to take advantage of related program incentives. Use of the rating builds an important link to the national ENERGY STAR platform of tools, resources, and partners. Program administrators can leverage ENERGY STAR program offerings to lower the cost of delivering energy efficiency to C&I customers, and their C&I customers can save up to 30% on energy bills through improved operations, maintenance practices, and building upgrades.

¹ Levelized cost of conserved energy (CCE)

Sources:

² EPA estimate based on data from Austin Energy

³ EPA estimates based on data from California IOUs, Efficiency Vermont, National Grid, Wisconsin Department of Administration, and United Illuminating

⁴ EPA estimates based on data from TXU

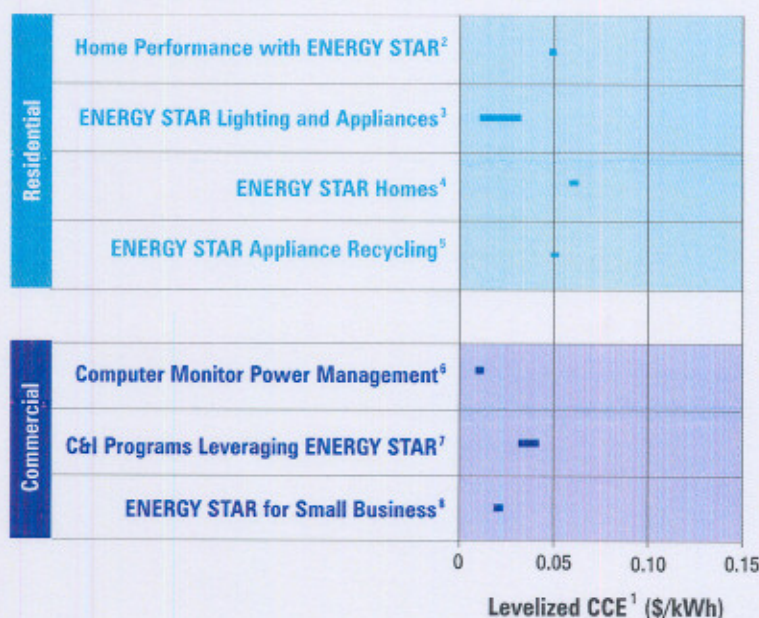
⁵ Kolwey, Neil, 2006. Refrigerator Recycling Programs. ESource EDRP-F-5 April 2006

⁶ Cadmus estimates based on data from NYSEERDA and PG&E

⁷ EPA estimates based on data from Northeast Utilities, NSTAR Electric, and Southern California Edison

⁸ EPA estimates based on data from Otter Tail Power and California Investor Owned Utilities Commercial Food Service initiatives

FIGURE 1: SAMPLE PROGRAM COST EFFECTIVENESS



COST EFFECTIVE PROGRAMS

As shown in Figure 1, energy efficiency program administrators have found their ENERGY STAR initiatives to be cost effective, with costs ranging from 0.01-0.06 kWh for many programs.¹ In many cases, energy efficiency is being delivered at a cost that is substantially less than the cost of new supply – on the order of half the cost of new supply.

OPPORTUNITIES FOR ALL CUSTOMERS

The ENERGY STAR program offers energy efficiency solutions across many customer segments and may be used by organizations at different stages of operating energy efficiency programs. As shown in Figure 2, organizations new or returning to implementing energy efficiency programs can ramp up ENERGY STAR programming in phases to achieve both near- and long-term results for all customer classes. The initial approach taken by a program administrator will depend on how quickly programs need to ramp up and on the availability of qualified service professionals (e.g., home performance contractors, architects, energy service companies, product manufacturers) who know how to plan for and deliver energy efficiency to market.

PORTFOLIO OF INVESTMENTS

EPA and DOE invest in a portfolio of energy efficiency efforts that utilities and third-party program administrators can leverage to further their local programs. These are described briefly by customer segment below:

Residential—existing homes

To improve the efficiency of existing homes, EPA and DOE work in collaboration with industry and other interested stakeholders to establish performance specifications that represent top energy performance in the marketplace. Currently, there are specifications in more than 40 product categories, as well as specifications for duct efficiency, insulation levels, and services such as Home Performance with ENERGY STAR.

**FIGURE 2: SAMPLE PROGRESSION OF ENERGY STAR PROGRAMMING BY UTILITY
OR THIRD-PARTY ENERGY EFFICIENCY PROGRAM ADMINISTRATORS**

SECTOR	PROGRAM RAMP UP		
	EARLY (6 MONTHS -2 YRS)	MIDTERM (2-3 YRS)	LONGER TERM (3 TO 7 YRS)
Residential-existing homes	ENERGY STAR lighting & appliance program	ENERGY STAR lighting & appliance program (cont)	ENERGY STAR lighting & appliance program (cont). Ramp up efficiency levels as needed
	Home Performance with ENERGY STAR pilot	Expand Home Performance with ENERGY STAR pilot	Full-scale Home Performance with ENERGY STAR program
	Pilot ENERGY STAR Recommended HVAC quality installation practices	Expand ENERGY STAR Recommended HVAC quality installation practices	ENERGY STAR Recommended HVAC quality installation practices
		Rebate for qualifying ENERGY STAR HVAC	Rebate for qualifying ENERGY STAR HVAC
Residential-new construction	ENERGY STAR Homes pilot (in areas w/out existing infrastructure)	Full-scale ENERGY STAR Homes program	Add incentives for ENERGY STAR Advanced Lighting Package
Affordable housing	Bulk purchasing of ENERGY STAR qualifying products and appliances for affordable housing	Bulk purchasing of ENERGY STAR qualifying products and appliances for affordable housing	
	Promotion of incentives for ENERGY STAR qualifying products to weatherization agencies	Promotion of incentives for ENERGY STAR qualifying products to weatherization agencies	
	Pilot Home Performance with ENERGY STAR in coordination with weatherization programs	Expand Home Performance with ENERGY STAR pilot	Full-scale Home Performance with ENERGY STAR program
	Pilot ENERGY STAR Homes for affordable housing ⁹	Expand pilot of ENERGY STAR Homes for affordable housing	Full-scale ENERGY STAR Homes for affordable housing
Small business	Education about ENERGY STAR resources for small businesses	Add pilot for on-bill financing targeting specific business types and needs	Expand to additional business types and full-scale implementation of on- bill financing
	Prescriptive rebates for relevant ENERGY STAR qualifying products	Prescriptive rebates for relevant ENERGY STAR qualifying products (cont.)	Prescriptive rebates for relevant ENERGY STAR qualifying products (cont.)
Commercial-existing buildings	Sector-based education on ENERGY STAR benchmarking and whole buildings management approach	Sector-based education on ENERGY STAR benchmarking and whole buildings management approach	
	Prescriptive rebates for relevant ENERGY STAR qualifying products	Custom rebates based on whole building assessment or portfolio of buildings	Additional incentives that reward comprehensive whole-building upgrades
		Continuous tracking of energy performance	Continuous tracking of energy performance
Commercial-new construction	Education and Training on ENERGY STAR Design Guidance and High Performance Buildings	Integrate Guidance w/utility incentives and design assistance	Continuous tracking of energy performance

⁹ For non-Department of Housing and Urban Development (HUD) low income housing, HUD already requires ENERGY STAR performance levels for new construction.

Recognized by more than 60% of the American public, the ENERGY STAR label has become the trusted national symbol for energy efficiency

Approximately one in four households knowingly purchased an ENERGY STAR qualifying product last year with more than 60% of them reporting the label as influential in their purchasing decision and more than 75% reporting they are likely to recommend ENERGY STAR to friends¹⁰

These products and services are supported through education campaigns such as the ENERGY STAR *Change a Light, Change the World* campaign and public relations activities such as home energy makeovers; information on effective program designs; opportunities for partner matchmaking and information exchange; supplier training materials; and extensive consumer tools including qualifying product lists, a store locator and special deals finder, and the Home Energy Yardstick. All education campaigns, tools, and resources are designed to be leveraged by energy efficiency program administrators.

Residential—new homes

To improve the efficiency of new homes, EPA established performance specifications, which are currently at least 15% more efficient than

homes built to the 2004 International Energy Conservation Code. EPA works with home builders and developers, lenders, home energy raters, and energy efficiency program administrators to help spur the market for energy efficient homes. Almost 10% of new homes constructed in 2005 earned the ENERGY STAR.

EPA offers turn-key solutions to program administrators, including builder marketing sales tools, advertising templates, a cooperative promotional campaign, a builder recognition program, and online tools for consumers including a locator for finding builders and developers in their state.

Affordable housing

For low income customers, making housing affordable means managing electric and gas costs. EPA and DOE have developed a bulk purchasing initiative for ENERGY STAR products and appliances for use by program administrators in affordable housing programs. In addition, energy efficient new construction such as ENERGY STAR qualified new homes is an important part of any affordable housing effort. Lastly, the existing DOE Weatherization Assistance Program coupled with Home Performance with ENERGY STAR helps address the affordable housing population that does not qualify for direct assistance.

Small business

Small commercial customers make up a significant portion of overall utility energy demand and can benefit from purchasing ENERGY STAR qualifying products, as well as building tune-ups and other efficiency upgrades. On a per-square-foot basis, small customers can achieve the same energy savings as large customers with an attractive return on investment. EPA provides a free Guide for Small Businesses to help them understand energy efficiency opportunities and prioritize projects, a calculator to help them understand their energy intensity, an award-winning Web site, an extensive network of national small business association partners, a monthly E-Update newsletter on success stories, and opportunities for public recognition. In addition, the program offers specific resources targeted to small business sectors such as grocery and convenience stores, congregations, lodging, home-based businesses, and restaurants.

Commercial—existing buildings

To improve the efficiency of existing buildings, EPA provides a strategy for superior energy management that addresses a full range of organizational needs. Sector-focused marketing materials help engage and motivate top-level managers to pursue energy efficiency by demonstrating the link between effective energy management and core business objectives. ENERGY STAR guidance on best practices for corporate energy management, such as assessing whole-building performance, help translate management commitment into action. The EPA performance rating system (discussed previously) enables building owners and managers to measure performance and strive for continuous improvement. EPA provides technical assistance to program administrators to help them integrate the performance rating system into their C&I programs and provides tools and resources to support upgrades to buildings, on-line training, partner networking activities, and extensive public recognition. Many partners, states, and national associations have united in promoting the ENERGY STAR 10% Challenge as a call to action for building owners and operators to improve the energy efficiency of their buildings.

Commercial—new buildings

To incorporate energy performance as a key criterion in new building construction, EPA provides guidelines and tools to help design professionals and building owners establish and achieve energy goals in the construction of new commercial buildings. EPA's Target Finder is a key tool for determining an annual energy target for building designs, comparing energy use from simulations with energy performance goals, monitoring energy performance as building plans progress, and evaluating the cost effectiveness of energy efficiency measures. Architecture firms can now distinguish building designs that are among the most energy efficient in the country as "Designed to Earn the ENERGY STAR." Energy efficiency program administrators can take advantage of Building Design Guidance, Target Finder, case study results, and recognition opportunities to help their customers ensure that design intent is followed through and results in top energy performing buildings.

¹⁰ EPA Office of Air and Radiation, Climate Protection Partnerships Division. *National Awareness of ENERGY STAR® for 2005: Analysis of 2005 CEE Household Survey*. U.S. EPA, 2006.

ENERGY STAR®, a program sponsored by the U.S. EPA and DOE, helps us all save money and protect our environment through energy efficient products and practices. Learn more. Visit www.energystar.gov.

