



Building Energy Analysis & Policy



ICF has expertise in residential and commercial building energy modeling, tool development, cost effectiveness, optimization, demand side management, and emissions trading.

Selected Clients

U.S. Environmental Protection Agency

Actus Lend Lease

NAIMA

Owens Corning

Knauf Insulation

Northeast Utilities

NSTAR

Centerpoint

Entergy

TXU Electric Delivery

New Zealand Ministry for the Environment

Accurately assessing building energy consumption and savings potential is challenging because buildings are complex systems defined by the way in which they are designed, constructed, and operated. Yet doing so creates a foundation for making sound policy decisions. Building energy analysis can quantify the cost and savings potential of technologies and practices in the residential, commercial, and industrial sectors, helping to prioritize investment decisions.

Building energy analysis can help answer the following:

- What level of efficiency should be promoted to maximize the impacts of voluntary programs?
- What is the short-term and long-term potential for energy and demand savings within a defined market (e.g. residential, commercial, or industrial sector within a service territory, state, or country)?
- What combination of upgrades can most cost-effectively meet a predetermined savings target?
- How can the impacts of occupant behavior on consumption be quantified and managed?

Our Approach

ICF International helps its clients make informed decisions that transform the building industry into a more energy efficient, profitable, and environmentally friendly place. ICF combines its expertise in energy policy, building science, and industry knowledge with its unique analytical capabilities to help clients successfully develop policies and programs.

Key to these capabilities is Beacon™, the Building Energy Analysis Console, ICF's proprietary energy simulation and analysis tool. Developed over the past 15 years, Beacon is capable of modeling a wide range of residential and commercial building types to determine the impact of occupant behavior, building characteristics, or external influences such as weather conditions and utility costs. For any given building, Beacon can estimate consumption and demand for every hour within a year. In addition, Beacon is optimized for policy level analysis, able to efficiently handle parametric runs. For example, ICF completed an analysis that included the evaluation of more than 1.5 million housing configurations generated over a two-week period. This capability provides unparalleled resolution to make informed programmatic and policy decisions.

Our Services

ICF's experts understand the challenges of accurately assessing building energy consumption and designing effective energy policy. We support energy-efficiency initiatives with a broad range of services and expertise, including:

- Demand, energy, & emissions market potential studies
- Voluntary market transformation program design
- Emission trading and verification protocols
- Desktop and Web-based energy tool development
- Energy code assessments
- Litigation support
- LEED and sustainable consulting
- Building technologies assessments

Passion. Expertise. Results.

Featured Solutions

ENERGY STAR Partnership in Residential, Commercial, and Industrial Markets for U.S. Environmental Protection Agency

Since the early 1990s, ICF has provided technical policy support to the ENERGY STAR program (and its predecessor, Green Lights™). ENERGY STAR's mission is to help businesses and individuals protect the environment through superior energy efficiency.

Demand Side Management Baseline and Market Potential Studies

ICF developed estimates of technical, economic, and achievable potential for energy efficiency for Arizona, Georgia, Delaware and Wisconsin. ICF combined large scale parametric analysis with local market research to predict potential energy and demand savings. In addition, ICF utilized its Energy Efficiency Potential Model, a sophisticated measure-based tool that projects the technical, economic, and achievable potential of a wide range of efficiency upgrades under several market intervention scenarios. Baseline and advanced technology measures were analyzed to determine the potential energy and demand savings associated with energy efficiency measures in both commercial and residential spaces.

Building Energy Solutions Calculator

For Owens Corning, a leading manufacturer of insulation and home construction products, ICF developed the Building Energy Solutions Calculator (BESC), a tool to help builders design and construct more energy-efficient homes. The 2005 Energy Policy Act offers builders the opportunity to earn a tax credit of up to \$2,000 per home for constructing more energy-efficient homes. The BESC makes it easier to take full advantage of this important legislation. Sophisticated yet simple to use, this desktop software enhances the ability of builders to:

- Find out how to meet the criteria for earning tax credits of \$2,000
- Build energy-efficient homes cost-effectively to achieve the tax credit
- Estimate potential economic benefits to homebuyers

LEED Analysis for the Blue Ridge Center for Environmental Stewardship.

ICF performed the energy component of a Leadership in Energy and Environmental Design (LEED) analysis for the Blue Ridge Center for Environmental Stewardship. Efforts involved modeling the building in DOE-2 to compare the energy efficiency of the building design to the American Society of Heating, Refrigerating and Air-Conditioning Engineers Standard 90.1. Some of the unique characteristics of the building include: geothermal heat pumps, photovoltaics, energy recovery ventilation, day lighting, structural insulated panels, and a passive solar design.

Predictive Energy and Demand Savings Tool

ICF has developed Predictive Savings Tools for use with the ENERGY STAR Homes and Air Conditioner Distributor Market Transformation Programs in Texas and New England. These tools allow the user to estimate peak demand and annual energy savings of homes submitted to the program using limited information such as the size of the home and the Home Energy Rating System score. These tools have been successfully audited by the Public Utility Commissions in Houston and Dallas, Tex.

Technical Analysis, Measurement, Verification, and Development of Fannie Mae's MVP Emissions Trading Initiative.

ICF completed the development of the Fannie Mae's MVP Emissions Trading Initiative, an innovative partnership with U.S. energy companies that bundles regulated and non-regulated emissions reductions associated with residential energy efficiency programs. ICF coordinated the measurement and verification process for two emission trades, for two separate utilities. ICF assisted Fannie Mae to create leading edge (trademarked) interactive software and manuals that allow partners to estimate emissions, choose and record among several measurement options, and prepare emissions forecasts and actual emissions for reporting to Fannie Mae. ICF developed emissions standardization and pooling procedures to create a uniform product for sale in the U.S. and international emissions trading market.

About ICF International

ICF International (Nasdaq: ICFI) partners with government and commercial clients to deliver consulting services and technology solutions in the energy, climate change, environment, transportation, social programs, health, defense, and emergency management markets. The firm combines passion for its work with industry expertise and innovative analytics to produce compelling results throughout the entire program life cycle, from analysis and design through implementation and improvement. Since 1969, ICF has been serving government at all levels, major corporations, and multilateral institutions. More than 2,500 employees serve these clients worldwide. ICF's Web site is <http://www.icfi.com>.

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