

EXECUTIVE SUMMARY

NEW ORLEANS' EFFICIENT PATH TO 2030: LEADERSHIP TO SAVE ENERGY, LOWER BILLS, AND CREATE JOBS

May 2013

The homes, buildings, and other facilities in New Orleans hold great potential for improved efficiency, which together can reduce energy demand and can save consumers money by avoiding the need for new traditional energy investments. Energy efficiency investments are proven, cost-effective methods to reduce energy expenses at both the utility and customer scale while helping to improve the local economies. Energy efficiency is the cheapest, cleanest, and least-risk solution to meet rising energy demand – while also bringing economic development, addressing the volatility of fuel prices, and hedging against uncertainty in environmental regulations.

KEY FINDINGS

Several of the key findings of our analysis include:

- A comprehensive portfolio of energy efficiency policies, such as building energy codes and customer efficiency programs, has the potential to cost-effectively meet a cumulative 8% of the city's electricity needs in 2020, increasing to 20% in 2030; and a cumulative 4.5% of natural gas needs by 2020, increasing to 14.5% by 2030.
- Energy efficiency programs are typically the lowest cost option to meet New Orleans' future electricity demand compared to supply-side alternatives. Efficiency program portfolios cost about 2–4 cents per kWh saved, compared to the avoided cost of energy in New Orleans of about 4–8 cents per kWh through 2030. Efficiency also has avoided peak demand and avoided transmission and distribution (T&D) benefits. Thus, energy efficiency rate impacts can be lower than rate impacts from building new energy supply or transmission infrastructure.
- The set of recommended efficiency policies and programs in this report can reduce energy costs in New Orleans by \$443 million over the life of the energy-savings measures, which is the total resource cost (TRC) test net cost reduction for all customers (including both program participants and nonparticipants).
- New Orleans businesses that take advantage of energy efficiency programs can lower their energy bills as a way to improve their bottom line and remain competitive in the global market place. Avoided local energy consumption also creates additional opportunities to export energy to other regions.
- Our macroeconomic assessment finds that by 2030, the portfolio of residential and commercial efficiency policies and programs would result in net annual benefits of \$169 million in economic output, including \$62 million in wages and \$41 million in business income to small business owners, 1,500 person-years of employment, and increased state and local tax revenues of \$6 million.
- There has been growing momentum toward energy efficiency in New Orleans, and the city remains a leader in Louisiana, but the existing policies in place are not capturing the full economic benefits available from the significant additional efficiency opportunities.

Regulatory and policy changes will be needed to continue to reduce the major market barriers to energy efficiency. Our report offers several program and policy options.

BACKGROUND

New Orleans is already a leader on energy efficiency in the Gulf Coast region. While Louisiana as a whole has been weak in its implementation of energy efficiency opportunities – the state ranked 43rd out of 51 states in ACEEE's 2012 *State Energy Efficiency Scorecard* (Foster et al. 2012) – New Orleans is a bright spot in the state. Strong stakeholder interest and the New Orleans City Council's direct regulation of Entergy New Orleans, Inc., has made the city a venue for introducing effective programs and providing an example to the rest of region. New Orleans has successfully introduced an integrated resource planning (IRP) process to its electric utility planning. The city is two years into running its successful Energy Smart customer efficiency programs, which are implemented by Entergy New Orleans through CLEAResult, a third-party administrator, and is planning to continue them in the next program cycle. Additionally, the city has promoted the adoption of comprehensive efficiency actions and the development of a skilled energy efficiency workforce through both the Energy Smart and the NOLA Wise programs. Finally, the city has begun to take actions in several areas to improve energy efficiency in its own operations.

The successes on energy efficiency in New Orleans still leave much opportunity for further improvement, such as those identified in this report. Significant opportunities include:

- The development of new efficiency programs for natural gas and water end uses.
- The adoption of specific energy savings targets and a strengthened utility business case to help meet them.
- Improvements to the designs of and additional funding for existing programs; new programs to serve new markets and a broader array of energy end uses.
- Expansion of comprehensive, performance based programs.
- Improved implementation of building energy codes and utility program support for code implementation.
- Expanded lead by example actions for energy savings in government operations.
- Support for energy efficiency financing programs to provide access to capital.
- The adoption of policies, such as benchmarking and disclosure requirements, to drive demand for efficiency services through improved building energy information.

METHODOLOGY

This report provides a detailed, quantitative analysis of cost-effective energy efficiency potential in New Orleans' residential and commercial buildings, focusing on end-use electricity and natural gas usage. The analysis covers the period 2011–2030, and we organized our research effort into five overall parts:

1. *Stakeholder Engagement*. Meet with and learn from energy stakeholders to understand the policy context, unique needs, and energy characteristics of the city.
2. *Reference Case*. Develop a baseline reference case scenario of citywide forecasted electricity and natural gas consumption data and prices by customer class.

3. *Cost-Effective Energy Efficiency Potential.* Estimate the cost-effective resources potential in each sector using a bottom-up assessment of individual measures within each customer class (completed at the state level).
4. *Program and Policy Potential.* Analyze a comprehensive set of programs and policies that New Orleans can adopt or expand to develop its energy efficiency potential.
5. *Macroeconomic Assessment.* Analyze the macroeconomic (jobs, gross state product, tax revenues) impacts from the program and policy scenario.

OVERVIEW OF RESULTS

The cost-effective energy savings potential in Louisiana and New Orleans is significant, around 27% for electricity and 19% for natural gas statewide by 2030, and even higher when considered for residential and commercial buildings exclusively. These numbers are an estimate of the overall energy efficiency resource available, but many market barriers and program infrastructure requirements exist that prevent all of the cost-effective resource potential savings identified from immediately being captured. Toward this end, our program and policy analysis is an estimate of the portion of the cost-effective resource potential that can be captured through energy efficiency policies and programs, given customer acceptance, i.e., program participation rates, and the time it takes to ramp up program infrastructure.

Policy and Program Potential

The policy and program analysis considers the portion of the cost-effective potential that could be achieved through the adoption of several city policy options (Table ES-1) and widespread adoption of tailored customer energy efficiency programs (Table ES-2).

Our analysis finds that this combined set of energy efficiency policies and programs for the residential and commercial buildings sectors in New Orleans alone could reach a cumulative electricity savings of 7.7% in 2020, increasing to 19.9% in 2030, and a cumulative natural gas savings of 4.5% in 2020, increasing to 14.5% in 2030 (Table ES-3 and Figures ES-1 and ES-2). In addition, the electricity efficiency gains will also reduce peak demand. Because New Orleans already has significant experience with energy efficiency programs, ramping up to these saving levels is achievable within this time period. However, our review of best-practice program deployment elsewhere in the country demonstrates that significant additional investment will be needed to develop programmatic infrastructure and expand customer education and marketing efforts.

Table ES-1. City Energy Efficiency Policy and Program Options for New Orleans

City Policies, Programs, and Initiatives	Summary of Analysis Recommendation
Integrate Energy Efficiency into Resource Planning	Fully incorporate energy efficiency into electric and natural gas integrated resource planning processes as an equally considered resource option, and select efficiency resources when they are the least-cost or lowest-risk options.
Energy Savings Targets for Utilities and Customer Efficiency Programs	Set incremental annual electricity savings targets ramping up to 1%/year by 2016 and natural gas savings targets of 0.75%/year by 2020, and expand implementation of cost-effective customer programs to achieve targets (see program options in Table ES-2 that our analysis finds can together reach these target levels).
Utility Performance Incentives and Cost Recovery	Address the utility business model to align utility financial motivations with energy efficiency.
Enforce Building Energy Codes for Residential and Commercial Buildings	Improve compliance with building energy codes. Implement utility code support programs that count as credit toward energy efficiency savings targets.
Lead by Example in Government Facilities and Operations	Benchmark energy usage in public buildings and other infrastructure, streamline ESCO options and rules, set energy savings targets, improve energy management in municipal water systems, and implement street lighting improvements.
Low-Income Weatherization	Coordinate utility program offerings with state weatherization programs.
Customer Financing Options	Provide financing options for customers such as streamlined loan programs combined with on-bill repayment.
Benchmarking and Disclosure of Building Energy Use	Take steps toward benchmarking and disclosure of all commercial and residential building energy usage.
Combined Heat & Power (CHP) and District Energy	Use regulatory mechanisms to encourage development of new CHP systems; implement customer incentives to encourage connections to high-efficiency district energy systems.

Table ES-2. Energy Efficiency Program Options by Customer Segment

Residential	Commercial
New Construction and Building Energy Code Support	New Construction and Code Support
Multifamily Buildings	Retrocommissioning and Monitoring-Based Commissioning
Home Energy Retrofits	Small Business Direct-Install
Upstream Retail Appliances and Electronics	Custom Incentives for Retrofits
Lighting	Prescriptive Equipment Rebates
Air Conditioning	Computer and Plug-Load Efficiency
Water Heating	
Low-Income Weatherization (in coordination with state and nonprofit programs)	
Information Feedback	

Table ES-3. Program and Policy Energy Savings Type and Customer Class in 2020 and 2030

Electricity End-Use Efficiency Savings	2020		2030	
	GWh	Percent of Reference Case*	GWh	Percent of Reference Case*
Residential	176	9.1%	467	23.0%
Commercial	270	8.4%	740	22.0%
Electricity Total	446	7.7%	1,207	19.9%
Natural Gas End-Use Efficiency Savings	2020		2030	
	MMCF	Percent of Reference Case*	MMCF	Percent of Reference Case*
Residential	277	6.6%	856	19.8%
Commercial	206	4.1%	733	14.0%
Natural Gas Total	483	4.5%	1,589	14.5%

*Savings are shown as a percentage of sales by each customer class in the reference case scenario. Total savings are shown as a percentage of all sales, including sales to industrial customers.

Figure ES-1. Electric Energy Efficiency Program and Policy Potential by 2030

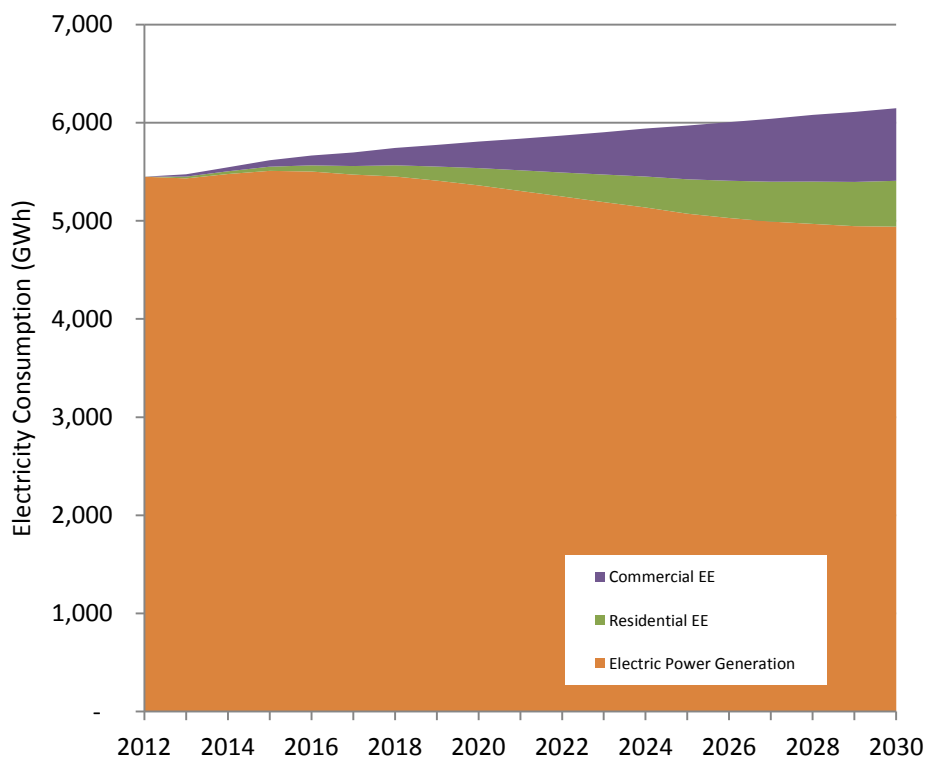
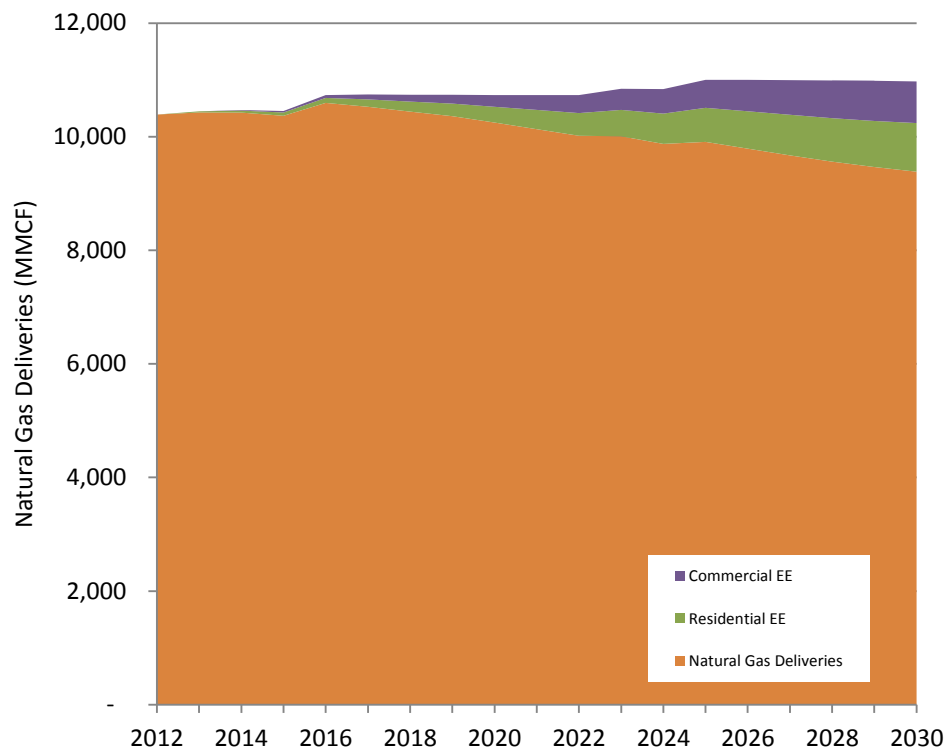


Figure ES-2. Natural Gas Energy Efficiency Program and Policy Potential by 2030



Costs and Benefits

Efficiency measures continue saving energy over the lifetime of the upgrades, which can add up to significant savings over the long term and can delay or avoid the need to build new power generation facilities. Investments in new power plants or power purchase contracts can be costly and risky long-term investments, which means that the benefits of efficiency to the utility system, and ultimately to all New Orleans ratepayers, can be significant. A recent analysis finds that energy efficiency is the least-risk resource compared to other energy resource options (see Binz et al. 2012).

Our analysis finds the set of recommended policies and programs in this report can reduce New Orleans' energy costs by \$443 million over the life of the energy-saving measures. These investments have an estimated benefit-cost ratio of 2.0 under the total resource cost (TRC) test. Another way of stating this economic benefit is that for every \$1 invested in energy efficiency, the economy benefits from \$2 in avoided energy costs. Cost-effectiveness is even better under the other benefit-cost tests we consider. These impacts would benefit all ratepayers, because utilities could delay or avoid costlier investments in energy supply and transmission and distribution.

Efficiency programs cost about 2–4 cents per kWh saved,¹ which is lower than the avoided cost of energy in Louisiana of about 4–8 cents per kWh through 2030. Efficiency also contributes

¹ While some programs and measures are more cost-effective than others, efficiency program portfolios on average across the U.S. cost in this range, based on a forthcoming ACEEE review of efficiency program costs in about twenty states, which is an update of a previous study (Friedrich et al. 2009).

avoided peak demand and avoided transmission and distribution (T&D) benefits. Thus, energy efficiency rate impacts are far lower than rate impacts from building new energy supply or transmission infrastructure. An energy efficiency program portfolio could cost a residential customer about \$0.47 per monthly bill and a commercial customer about \$5.41 per month.² Rate increases from fuel price volatility or new supply or transmission facilities can be far higher. Stakeholders should be careful not to let the short-term rate impacts of energy efficiency measures detract from the medium- and long-term benefits of energy efficiency that accrue from delaying or avoiding supply investments.

Macroeconomic Analysis

The final component of our study is a macroeconomic assessment of the impacts of the set of programs and policies, which was conducted by Evergreen Economics. This analysis finds that the portfolio of efficiency programs and policies would result in net annual benefits of \$169 million in economic output, including \$62 million in wages and \$41 million in business income to small business owners, 1,500 person-years of employment, and increased state and local tax revenues of \$6 million by the year 2030.

Conclusion

Our analysis finds that energy efficiency can play a critical role in New Orleans' energy future as a least-cost resource that benefits all customers and as an economic development tool. Our review of the policies in place in New Orleans finds that it has made significant strides to improve efficiency through policies and programs, but that there is much work to be done to realize the full benefits that efficiency investments can offer the city. The suite of program and policy options presented in this report can together help the city expand its efforts to improve energy efficiency and foster economic growth.

² This assumes an efficiency program portfolio budget equivalent to 0.5% of revenues, an average residential customer who uses 1,000 kWh per month, and an average commercial customer that uses 12,500 kWh per month.