American Council for an Energy-Efficient Economy
WASHINGTON, DC

Role of Energy Efficiency and Onsite Renewables in Meeting Energy and Environmental Needs in the Dallas/Fort Worth and Houston/Galveston Metro Areas[1]

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INTRODUCTION

The state of Texas is rapidly growing, with the population rising at an annual rate of 1.8% and the economy expanding at an annual rate of 3.8% from 2000 to 2006. About half of the state's population and a similar share of electricity consumption and peak demand are concentrated in the state's two largest metropolitan regions, the greater Houston and Dallas-Fort Worth (DFW) areas. These regions are also among the fastest-growing in the state. Unfortunately, these regions also face significant environmental challenges, in part because of the concentration of economic activity and population. If the growth in these regions continues, new resources will be needed to meet the surging demand for electricity without worsening their environmental challenges.

An American Council for an Energy-Efficient Economy (ACEEE) report shows that energy efficiency, onsite renewable energy, and expanded demand response can meet much of Texas's new needs for electricity over the next 15 years. The statewide report proposes a suite of policy recommendations to realize this potential. In this follow-on analysis, we explore how these policies can contribute to meeting the energy needs of these two important metro regions.

POLICY IMPACTS

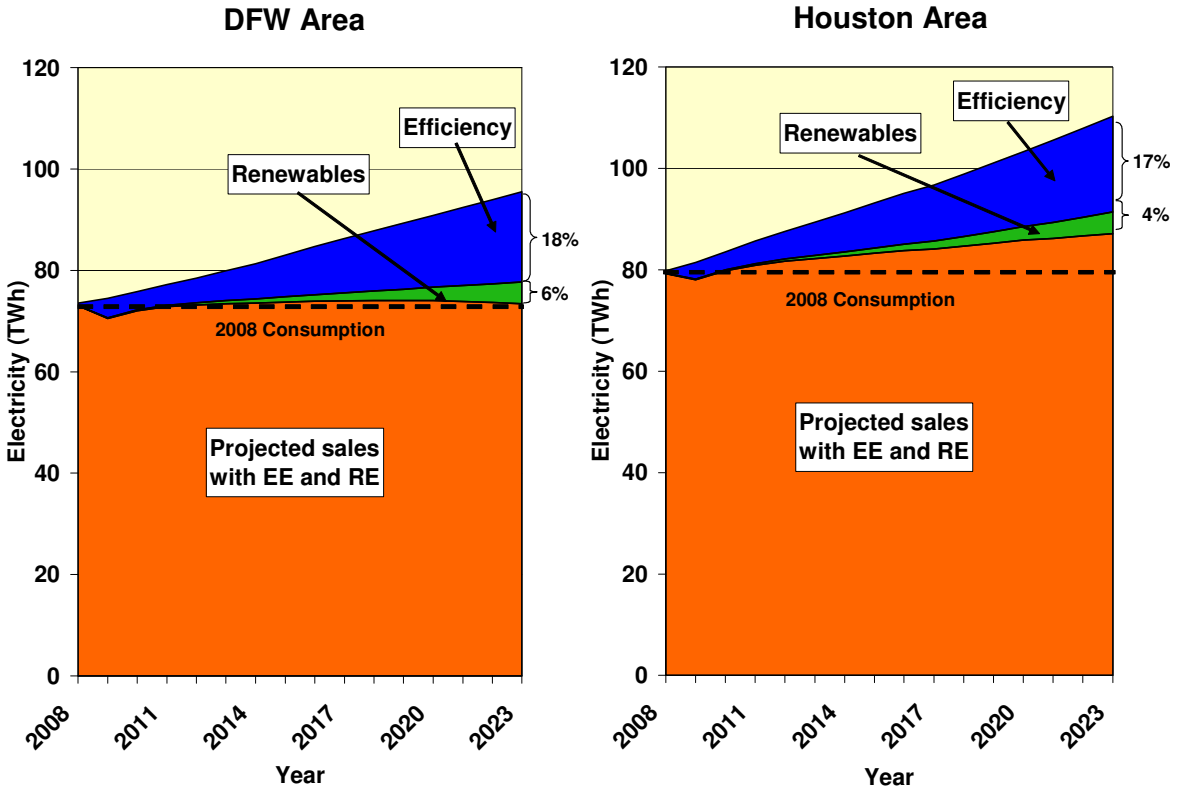
This analysis estimates local energy savings, emissions reductions, and economic impacts from both local and statewide investment in energy efficiency and renewable energy. We assess the impacts of the nine policies below, which were outlined in the statewide energy policy and economic potential analysis, by apportioning the results from the statewide analysis to the Houston and Dallas-Fort Worth metro areas using regional electricity use and demographic data. The nine policies are:

1. Expanded Utility-Sector Energy Efficiency Improvement Program
2. New State-Level Appliance and Equipment Standards
3. More Stringent Building Energy Codes
4. Advanced Energy-Efficient Building Program
5. Energy-Efficient State and Municipal Buildings Program
6. Short-Term Public Education and Rate Incentives
7. Increased Demand Response Programs
8. Combined Heat and Power (CHP) Capacity Target
9. Onsite Renewable Energy Incentives

[1] This analysis was prepared by R. Neal Elliott and Maggie Eldridge of ACEEE, based on a statewide report *Potential for Energy Efficiency and Renewable Energy to Meet Texas's Growing Energy Demands*, which is available for free download at http://aceee.org/pubs/e073.htm. The results will be reported in a forthcoming ACEEE report. Please visit http://aceee.org for more details.

The suite of policies analyzed for this study has the ability to meet 101% of the load growth in the DFW Metro Area and 76% in the Houston Metro Area over the next 15 years, reducing forecasted electricity use by over 24% in 2023 (see Figure 1).

Figure 1. Effect of Policies on Electricity Consumption in Metro Regions



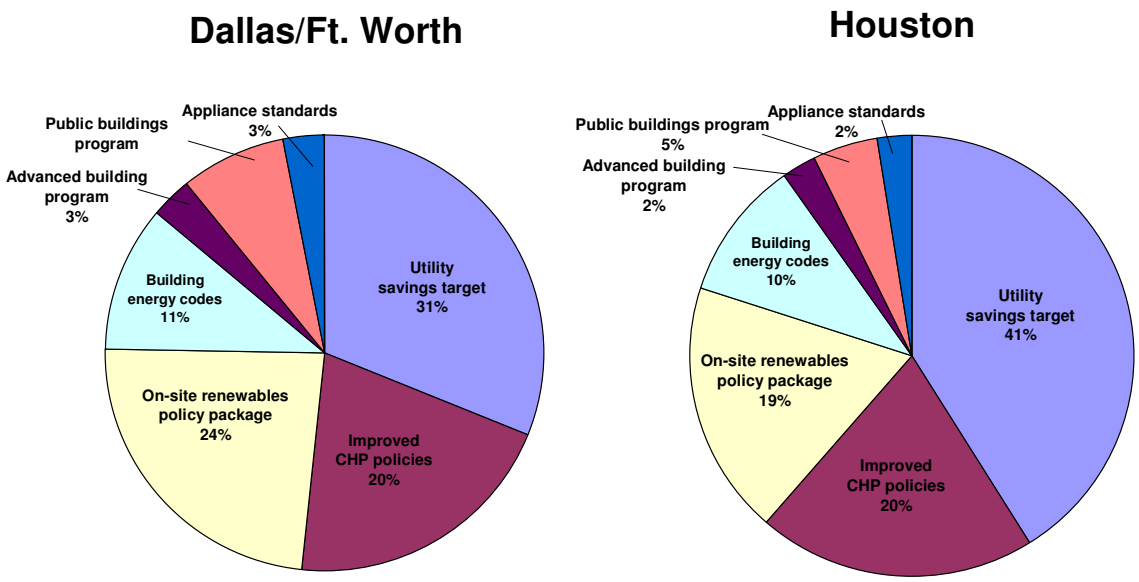
The energy efficiency and onsite renewable policies also reduce peak demand by 23% for DFW and 20% for Houston. Peak demand can be further reduced through the deployment of expanded demand response programs, which provide an additional 14% demand reduction in DFW and 11% in Houston. Combined, these policies would reduce peak demand in DFW by 38% and in Houston by 31%.

As can be seen in Figure 2, the major electricity savings come from major five bundles of policies:

1. Utility savings targets
2. Expanded CHP
3. Onsite renewable energy
4. Efficient buildings—energy codes, advanced buildings, and public buildings
5. Appliance savings

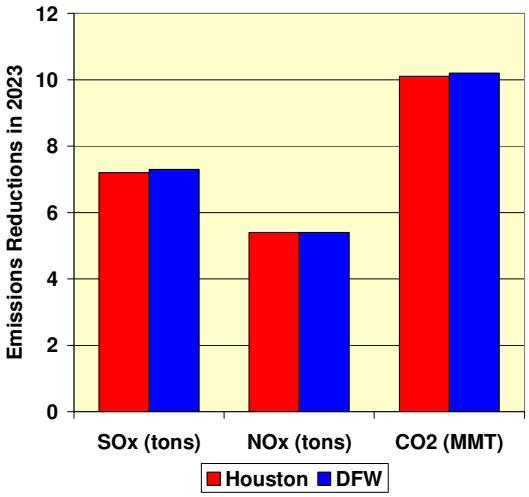
While all of these policies areas can be implemented at the state level, two-thirds of the energy savings (all but the utility savings targets and the appliance standards, which are the purview of state regulators) can be enabled at the local level, and in some cases can be even more effectively driven by local governments.

Figure 2. Distribution of Policy Savings in Metro Regions



Because the majority of pollutant emissions in the Houston metro area comes from mobile sources, energy efficiency and onsite renewable energy resources by themselves will not solve the region's pollution challenges. These clean energy resources can, however, help meet the growing demand for electricity in the region without worsening its environmental problems. We estimate that this suite of policies would reduce emissions in the region as indicated in Figure 3. These emissions reductions are based on statewide emissions rates, and thus may underestimate the savings that would result in the region because we don't capture the higher emissions rates from peaking units in the region.

Figure 3. Emissions Reductions from Policies



The policies analyzed in this report would significantly reduce customer expenditures for electricity. Over the next 15 years, customers in the Houston Metro Area would save almost $21 billion, while consumers in the DFW Metro Area would save almost $22 billion.

The investments required to realize these savings would stimulate the local economy and create new jobs. Our analysis suggests that full implementation of these policies over the 15-year study period would result in the creation of approximately 11,700 net new jobs in the DFW area and 11,100 net new jobs in the Houston area in 2023.

SUMMARY AND CONCLUSIONS

Expanded energy efficiency, demand response, and onsite renewable energy resources represent the best opportunity for the greater Houston and Dallas/Fort Worth metro areas to meet surging electricity demand without further compromising the region's environmental quality. Greater reliance on these clean energy resources would support the robust economic health of these two

regions, which account for half the population and economic output of the state, thus sustaining Texas's long-term economic prosperity.

While the suite of policies proposed in this report can be enacted at the state level, and local governments should encourage Austin to move aggressively on these provisions, more than half of the savings suggested in this analysis could be realized through local government action. In particular, policies to encourage expanded use of CHP and onsite renewable energy and to improve efficiency in buildings represent key opportunities for local action. Aggressive local policies could in fact achieve even greater savings than is suggested in this analysis.

ACEEE's analysis leads us to conclude that expanded investment in energy efficiency, demand response, and onsite renewable energy resources should be the foundation of policies to sustain the economic engines of the Dallas/Fort Worth and Houston metro areas.
