M E M O R A N D U M

To: Mayor and Council

From: Energy Efficiency Upgrades Task Force

Date: September 17, 2008

Subject: Final Report to City Council

I. Executive Summary

A. Recommendations of the Energy Efficiency Upgrades Task Force

The Task Force was comprised of 27 individuals representing a broad spectrum of stakeholders, including real estate and lending professionals, energy contractors and consumer and affordable-housing advocates. The Task Force met between the months of February and September 2008. At the final meeting on September 10, 2008 the Task Force voted on the various provisions of the report as follows:

1. The Task Force voted unanimously (23-0) in favor of all of the Final Report except the three "mandatory back stop" paragraphs identified below (the three excluded paragraphs appear in bold italics in this report).
2. The Three Mandatory Back Stop Paragraphs:
   A. The Task Force voted 19 against and 4 in favor of mandatory back stop for single family homes (Paragraph III.A.6).
   B. The Task Force voted 17 against and 6 in favor of mandatory back stop for multifamily properties (Paragraph III.B.7).
   C. The Task Force voted 19 against and 4 in favor of mandatory back stop for commercial properties (Paragraph III.C.7).

Therefore, the Task Force unanimously recommends that City Council adopt and implement the entirety of this Final Report with the exception of the three mandatory back stop paragraphs identified above.

The Task Force recommendations can be summarized as follows:

1. Within the two years of the effective date of an Energy Efficiency Upgrades (EEU) ordinance, all commercial and multifamily* buildings shall conduct an energy audit, the results of which shall be shared with Austin Energy, current tenants, prospective purchasers and residential tenants.

2. For single family residences, an energy audit shall be conducted prior to the sale of a home and disclosed to the purchaser of the home at the time the seller makes other disclosures mandated by Texas law.

3. Protocols and program requirements for a voluntary EEU program for each of the three major property sectors (single family, multifamily and commercial) shall be established. Program participation targets shall also be established for each property sector. Beginning two years after adoption of an EEU ordinance, and annually thereafter, the City Manager shall report to the City Council with an evaluation of the program, including progress on achieving the participation targets. Those targets are:

A. Single Family. The percentage of owner occupied homes sold each year that would perform the specified upgrades would grow from 25% in the first year following the passage of the ordinance to 85% in the fourth year following passage of the ordinance.

B. Multi Family. 80% of the oldest multifamily units (built before 1970) would perform the specified upgrades within two years following the passage of the ordinance, 80% of the next oldest multifamily units (built between 1970 – 1979) would perform the specified upgrades within four years following the passage of the ordinance, and 80% of the next oldest multi family units (built between 1980 – 1999) would perform the specified upgrades within six years following the passage of the ordinance.

C. Commercial. 80% of the square footage of commercial properties in Austin would be in buildings that would receive upgrades to achieve the greater of (a) a score of 50 or (b) an increase of 20 points from the building's initial score (a 20% improvement in energy efficiency) up to a score of 75. Scores for commercial buildings are EPA Energy Star Building Portfolio Manager scores, or in instances where a building use or type does not have a Portfolio Manager baseline, another scoring system approved by the City of Austin.

4. The Task Force was split on the issue of whether mandatory upgrade requirements should be adopted to become effective in the event voluntary targets are not met. Mandatory measures that would come into effect if voluntary targets are not met are referred to as "mandatory back stop measures" in this report.

A. While this report does not attempt to summarize all opinions on the Task Force, many of the individuals on the Task Force opposed to mandatory measures expressed a strong philosophical

* For multifamily properties, the audit deadline would depend on whether City Council adopts an ordinance with requirements for mandatory upgrades if voluntary participation targets aren't being met. If Council decides upgrades should be strictly voluntary, the Task Force recommends requiring energy audits of all multifamily properties within two years of the effective date of an EEU ordinance. If Council decides upgrades should become mandatory if voluntary targets aren't being achieved, then audit deadlines would be staggered as outlined below.

preference in favor of giving the private market a chance to respond to the information that will be gathered through the audits before mandates are implemented. They felt that increasing energy prices would likely provide sufficient incentives for property owners to make investments in energy efficiency upgrades recommended by the energy audits. Some individuals also believed that if mandatory requirements were ever to be adopted, they would be best tailored after the information from the energy audits and initial participation rates are available. Some members of the Task Force opposed mandatory requirements under any circumstances.

B. While this report does not attempt to summarize all opinions on the Task Force, many of the individuals on the Task Force in favor of mandatory back stop measures felt very strongly that the voluntary targets would have little or no practical effect if there was no foreseeable risk that mandatory measures would be implemented. They also felt that the costs associated with not moving quickly to save energy and reduce carbon emissions were too high and that the city did not have the luxury of waiting several years before implementing measures that could be relied upon to bring efficiency upgrades and reductions in energy demand. This latter sentiment was expressed particularly strongly in relation to leased residential properties, where landlords have less of a financial incentive to implement efficiency upgrades because the tenants will reap the savings from reduced bills.

B. Summary of Costs and Benefits of Recommendations of the Energy Efficiency Upgrades Task Force

Austin Energy staff estimates that if all of the eligible properties receive energy efficiency upgrades between the years 2009 and 2020 then the following would be true in the year 2020:

1. The average energy efficiency of the existing stock of homes in the City of Austin would be improved by a range of between 12% to 15%.

2. The average energy efficiency of the existing stock of multi family dwelling units in the City of Austin would be improved by a range of approximately 10% to 16%.

3. The average energy efficiency of the existing stock of commercial properties in the City of Austin would be improved by at least 20% with the least energy efficient buildings improving to at least the national median level of energy efficiency.

4. The total cost to property owners to perform all of the energy efficiency upgrades within all three sectors would be equal to approximately $124 million and the total savings from reduced energy bills during the next ten years would be equal to $555 million. On average, the upgrades would pay for themselves within 2.25 years through reduced energy bills.

5. An owner of a single family home would spend approximately $1,066 on his or her home and receive annual savings of approximately $242 at current rates from reduced energy bills. Over ten years, the total savings from reduced energy bills would pay back the initial investment in upgrades and put $1355 in the pocket of the home owner.

These costs and benefits are summarized in table 1.

Table 1

Impact by Building Sector

	Single Family	Multifamily	Commercial
% improvement in sector energy efficiency	12%-15%	10%-16%	20%+
Total Cost of Upgrades	$70,746,075	$40,636,700	$83,600,000
Cost of Rebates	$21,638,000	$23,836,700	$33,155,000
Cost to Property Owners[1]	$49,108,075	$16,800,000	$50,450,000
Annual Energy Savings[2]	$11,149,530	$5,843,909	$38,593,874
Simple Payback in Years	4.4	2.9	1.3
10 Year Net Cumulative Energy Savings[2]	$62,387,225 ($111,495,300 -49,108,075)	$41,639,090 ($58,439,090 -19,800,000)	$335,488,740 ($385,938,740 -50,450,000)

1. Cost to property owners is after rebate cost
2. Energy savings are based on current utility rates and are thus conservative

6. Austin Energy's total customer demand would have been reduced by 225 megawatts, meaning that the utility company's need to construct capacity to produce that many megawatts had been avoided or deferred. Austin Energy would have spent approximately $70 million in rebates to achieve those reductions, or $313,000 per megawatt. For purposes of comparison, in 2006 the United States Energy Information Administration estimated that the cheapest capital costs for construction of a new power plant would be equal to $706,000 per megawatt (which does not include the cost of financing or operating the plant). Austin Energy estimates that if it had accepted the invitation to participate in the expansion of the South Texas Nuclear project, the cost per megawatt (not including financing or operating costs) would have been equal to at least $4,000,000 per megawatt.

7. Austin Energy would have reduced CO2 emissions by 365,291 metric tons per year. Based on the total cost of the upgrades, the community's cost (the cost to Austin Energy for rebates plus the cost to property owners) per reduced metric ton after ten years would be equal to $53. The cost to purchase carbon offsets today in the United States, where there currently is no mandated carbon cap and trade program, would be equal to $31 per metric ton. The cost to purchase carbon offsets today in the European Union, where there currently is a mandated carbon cap and trade program, would be equal to $42 per metric ton. Austin Energy has estimated that the cost to reduce C02 emissions by reducing coal generation and replacing it with natural gas generation would be at least $340 per metric ton and perhaps significantly higher.

8. Total Costs and benefits to property owners and Austin Energy are shown in Table 2 below.

Table 2

Total Costs and Benefits to Property Owners and AE

Cost to Property Owners $116 million *cost for upgrades*	**Benefits to Property Owners** $556 million *utility bill saving at current rates*
Cost to Utility Rate Payers $78 million *rebates for program participants*	**Benefits to Utility Rate Payers** $158 million *avoided power plant capital costs* **and** **$15 Million** *value of carbon credits*
Total **$194 million**	**Total** **$729 million**
	and 3.65 million metric tons CO2, 2,302.7 metric tons of Sulfur Dioxide, and 2,546.2 metric tons of Nitrous Oxides reduced

II. Background Information

A. Authorization

On December 13, 2007, the City Council passed resolution No. 20071213-064 directing the City Manager to create a Task Force to identify and recommend City Code revisions to implement cost effective energy efficiency retrofits and upgrades of Austin homes and buildings.

B. Members of Task Force

A Task Force representing local realtors, trade associations, real estate inspectors, the Austin Mortgage Bankers Assoc. and other lenders and brokers, home performance contractors, affordable housing advocates, energy efficiency advocates, the Austin Board of Realtors, Austin Apartment Association, the Austin Tenant's Council, the City Resource Management Commission, and the Electric Utility Commission was created and began meeting in January of 2007. The members of the Task Force are listed on Exhibit 1.

C. Task Force Charter and Objectives

The Task Force initially developed a charter laying out five objectives. Those objectives are:

1. To increase the energy efficiency and reduce energy consumption of existing homes and

buildings to the maximum extent that is cost effective given current and future financial and technological constraints in order to reduce the City of Austin Carbon Footprint.

2. To promote housing affordability by reducing utility costs in existing homes and buildings.

3. To reduce peak and off peak demand for electrical energy in existing homes and buildings in order to avoid or minimize the need for Austin Energy to build new power plants.

4. To create a process that encourages the private marketplace to implement energy saving upgrades in existing homes and buildings.

5. To minimize disruption to existing real estate industry processes.

D. Task Force Deliverables

The Task Force agreed on a list of deliverables, which is set forth in the Charter. The list of deliverables included recommendations on a form of audit or protocol for each of the residential, multi-family and commercial sectors, a recommendation on the timing of such audit or protocol, the types of buildings to be included or excluded from the proposed ordinance and the energy savings goals to be achieved by the upgrades.

E. Review of Other Energy Efficiency Upgrade Ordinances

Before it began deliberations, the Task Force examined other energy efficiency upgrade ordinances currently in effect in other jurisdictions for guidance. The Task Force reviewed the recently enacted statute passed in the state of Nevada, which will go into effect in 2009 and require an energy audit when a property is sold for all residential homes in the state. The cities of San Francisco and Berkeley require audits and upgrades at sale. Boulder, San Antonio and a number of other cities, counties, and states are considering similar measures.

The Task Force also examined energy efficiency retrofit statutes in other jurisdictions that apply only to multi-family units. The state of Wisconsin requires an energy audit for multi-family properties when they are sold. The statute requires performing all upgrades that are shown by the audit whose cost will be earned back in energy savings within five or fewer years. Wisconsin has convened a Task Force that is considering amending the statute to require performance of upgrades whose cost will be earned back in energy savings within ten or fewer years (i.e. a “ten year pay back”). The city of Burlington Vermont also requires an audit and upgrades multi-family units when they are sold, but requires performing all improvements with a seven year pay back.

F. Review of Zero Energy Homes Task Force Charter and Recommendations

The Task Force reviewed the Charter that had been prepared by Austin’s Zero Energy Capable Homes Task Force. The Task Force learned that in 2007 the City Council passed amendments to the building

code that will require by 2015 that each new home built in the City of Austin to be "zero energy capable" – meaning new homes will be built so that each house consumes no more energy in a one year than could be produced by moderately sized solar array or other renewable system currently available. Each year, the number of new homes built adds approximately 2.5% of the housing stock in the Austin Energy service area. The Task Force learned that the recommendations of the Zero Energy Task Force are estimated to result in savings of 82.2 Megawatts of needed capacity by 2018, and 347,475 Mwh per year of reduced energy use, at an estimated cost of $76,382,000 to implements the measures recommended by the ZECH Task Force. Those costs would bring $14,592,000 in annual savings from reduced energy bills to 64,000 residences plus result in a reduction of CO2 emissions of 221,597 metric tons over the first ten years.

III. Recommendations for Specific Property Sectors

The Task Force met as a group for 3 months discussing the general charter and overall objectives, as well as single family residential homes. Then the Task Force broke into three smaller groups focused on single family homes, multi-family properties and commercial properties. The proposals of each of the sub groups are available from Austin Energy. Below are the recommendations of the entire Task Force with respect to each property type.

A. Single Family Homes

1. Definitions

The Task Force defined single family homes to include both rental and owner occupied homes. The term includes duplexes and tri-plexes.

2. Background Information Regarding Single Family Homes

The Task Force assembled data regarding the existing single family housing stock in Austin from Austin Energy staff, the City demographer and other sources, including the following information:

- There are approximately 173,364 single family homes in the Austin Energy service area.
- Single family homes account for approximately 31% of the total demand of all Austin Energy customers.
- In 2007, which set a record for the number of homes sold in Central Texas, approximately 10,000 single family homes in the City of Austin were sold. About 6,000 of these homes were less than 10 years old or had had energy efficiency upgrades performed in the past few years. The remaining 4,000 homes were homes that would likely need energy efficiency upgrades. This represents 2.3% of the City of Austin housing stock that could be upgraded in a similar year. The typical or average year would see fewer homes sold.

- The date of construction of the single family housing stock in Austin and their relative energy intensity or energy use per square foot is as shown in table 3 below.

Table 3
Single Family Housing Energy Intensity

Decade	kWh sq.ft.	Units Built	Relative Energy Cost
			1800 sq. ft. home
1950s	8.867	30,926	$1,596
1960s	8.492	16,728	$1,529
1970s	9.147	24,489	$1,646
1980s	8.810	25,800	$1,586
1990s	7.517	21,177	$1,353
2000s	7.421	10,912	$1,336

3. Energy Audits and Disclosure

The Task Force recommends that the City of Austin require that a Seller of a non-exempt home disclose to a prospective buyer the results of an energy audit of the home at the same time that the Seller makes other disclosures required under Texas law. The audit would be prepared by an individual or company authorized by Austin Energy. The Seller would have the choice of selecting as its auditor a disinterested third party who may not make repairs (and who therefore has no financial incentive to over-report needed repairs) or a home energy contractor (who may agree to apply the cost of the audit to the cost of performing repairs). The audit would include visual inspections as well as the testing of the mechanical or air conditioning system air leakage using methods and standards approved by the City of Austin Energy Code (duct blaster test, blower door subtraction test, etc.). The audit must be conducted by a person certified by the Building Performance Institute, ResNet or other accrediting agency approved by Austin Energy as a Building Performance Analyst or equivalent. The Task Force recommends that Austin Energy develop a form of audit for single family homes that meets the criteria specified above and costs no more than between $200 - $300 for a typical single family home.

The Task Force had initially considered and approved a prescriptive checklist of required efficiency upgrades in lieu of an audit. The advantage seen by the Task Force of such a list was that an individual homeowner could self assess and avoid the cost of an audit. However, the Austin Board of Realtors made a proposal to the Task Force urging that an audit be required before a property is sold with full disclosure to the Purchaser. That presentation is attached as Exhibit 2. On the basis of that proposal, the Task Force decided to adopt the recommendation of the Austin Board of Realtors and recommend that a third party audit be performed before a home is sold and the results of the audit disclosed to the purchaser.

The Austin Board of Realtors (ABoR) has volunteered to work with the City of Austin in creating standard forms of energy audit disclosures to be attached to the state wide disclosure forms for use in the City of Austin. The Task Force recommends that Austin Energy staff work with ABoR in developing those forms if this recommendation is implemented.

4. Voluntary Targets

The Task Force recommends that the City of Austin not mandate whether the Buyer or the Seller is required to perform any upgrades, but leave the parties to negotiate who will perform any upgrades.

The Task Force recommends that the City of Austin implement measures to determine what percentage of homes sold in the City of Austin receive Cost Effective Upgrades (as defined below) before or within one year after being sold. A procedure for measuring such compliance is described in Exhibit 3. The Task Force believes that voluntary compliance can be efficiently and adequately measured by (1) requiring, as a condition to preserving a license to perform repairs, that licensed contractors enter information on repairs performed directly on line to a data base managed by Austin Energy and (2) requiring reporting as a condition to receiving energy rebates and therefore creating a strong financial incentive for purchasers who perform the repairs after their purchase of the home to report their compliance within one year.

In relation to Single Family Homes, Cost Effective Upgrades is defined as upgrades whose cost (after deducting any applicable rebates) is the lesser of (1) the total savings that would be realized by the owner of the home from reduced energy bills within 7 years after the upgrades are performed or (2) one percent of the sales price of the home. The cost of the energy audit is not considered in calculating Cost Effective Upgrades. Cost Effective Upgrades includes the installation of an Austin Energy Power Partner Thermostat in homes with HVAC systems that are compatible with these thermostats. Power Partner allows Austin Energy to cycle off the home's air conditioner for ten minutes at a time during peak hours (the installation of the thermostat is free).

The Task Force recommends that the City of Austin establish the following goals for the percentage of non-exempt homes receiving Cost Effective Upgrades before or within one year after being sold:

Year 1: 25% of non-exempt homes receive Cost Effective Upgrades within one year of closing
Year 2: 45% of non-exempt homes receive Cost Effective Upgrades within one year of closing
Year 3: 65% of non-exempt homes receive Cost Effective Upgrades within one year of closing
Year 4 and thereafter: 85% of non-exempt homes receive Cost Effective Upgrades within one year of closing

5. Evaluation After Two Years

The Task Force recommends that Austin Energy report on participation and the City Council assess after two years the recommendations of this Task Force based on the information generated by the energy audits and the rate of participation in voluntary targets.

6. Mandatory Back Stop for Single Family Homes

The Task Force voted 4 in favor and 19 against recommending the following paragraph: If the Voluntary Participation Targets are not met in any two consecutive years, then all homes sold in the

City of Austin that are located within the Austin Energy service area be required to perform Cost Effective Upgrades within one year of closing. A home receiving Cost Effective Upgrades would not be required to perform any other upgrades in relation to future sales of the homes for the longer of: (i) as long as the homeowner paying for the upgrades owns the home or (ii) ten (10) years. Failure to perform the upgrades on a non-exempt home within one (1) year after the closing would be a Class C misdemeanor.

7. Exemptions

The Task Force recommends that the following single family homes be exempt from the requirements of this initiative.

A. Homes built within the 10 years prior to the date of the sales contract.

B. All homes having participated in the Austin Energy Home Performance with Energy Star Program (or equivalent) within the previous 10 years that performed three (3) or more Home Performance with Energy Star energy efficiency measures or that received a Home Performance with Energy Star rebate of $500 or more.

C. Homes that have participated in, within the past ten year, or whose purchaser is qualified and have signed a letter agreeing to participate in the Austin Energy Free Weatherization Program following the closing. For this exemption the home must be below the threshold value (currently $150,000 excluding land value) and the buyer must meet income guidelines of 80% of Median Family Income.

D. Transfers (i) due to: court order, probate proceedings, or foreclosure, (ii) as a result of a default, (iii) to a spouse or close relatives, or (iv) that are testamentary transfers (but not sales by an independent executor of an estate).

E. Manufactured housing built on a permanent chassis and designed to be used as a dwelling without a permanent foundation.

F. Historic structures or structures contributing to local or national historic districts shall be exempt from any requirement to perform upgrades or alterations to character defining features (but shall not be exempt from the audit requirements).

G. Homes that, due to circumstances beyond the control of the Seller and Purchaser, should not be required to have upgrades performed based on a finding of the Department Director.

8. Financing.

Harper Ray and Gary “Bernie” Bernfeld, representing lenders and mortgage bankers on the Task Force, reported that the FNMA (Fannie Mae), the Veterans Administration and FHA (Federal Housing Administration) support a form of mortgage that allows for an escrow of monies to be used in performing upgrades after the closing. These mortgage products allow a purchaser to finance the costs of the upgrades if the loan qualifications are otherwise met. Laurie Roberts, of the University Federal Credit Union, reported that her institution would be willing to implement a financing program allowing

"signature loans" for energy efficiency upgrades up to $4,000, with simplified application processes that she expected would take 3 – 5 days. The loan would not encumber the home or constitute a lien. She indicated that the interest rate would be pegged to the prime rate, plus one or more percentage points as determined by the bank and the loan would be amortized over ten years. The homeowner would be able to compare the projected savings from utility bills to the cost of the loan to determine whether or not the loan made sense for that individual homeowner.

The Task Force recommends that Austin Energy promote energy efficiency based mortgage and loan products in the Austin area so they become more routine and that Austin Energy refer homeowners seeking loans to the University Federal Credit Union or any other lending institution that wishes to provide special loans for energy efficiency upgrades.

B. Multi-Family Properties

1. Definitions

The Task Force defined multi-family property to include all multi-family properties larger than tri-plexes (fourplexes and larger).

2. Background Information Regarding Multi-Family Homes

The Task Force assembled data regarding the existing multi-family housing stock in Austin from Austin Energy staff, the City demographer and other sources, including the following information:

- There are approximately 130,000 multi-family dwelling units in the Austin Energy service area.
- Multi–Family residential units account for approximately 11% of the total demand of all Austin Energy customers.
- The date of construction of the multi-family housing stock in Austin and their relative energy use intensity is as shown in Table 4 below.

Table 4
Multifamily Housing

Date of Construction	Number of Properties	Estimated Number of Units
Before 1970	539	37,100 +
1970 - 1979	434	20,000+
1980 - 2000	353	25,000+
After 2000	96	8,400

3. Energy Audits for Multi-Family Properties

The Task Force's recommendations regarding energy audits for multi-family homes is dependent upon whether or not a mandatory back stop is imposed on multi-family units.

Energy Audit Deadlines if there is No Mandatory Back Stop. If no mandatory back stop is imposed on multi-family properties, then the Task Force recommends that all multi-family properties undergo an energy audit within twenty four (24) months from the date of the ordinance, and that the results of the audit be shared with Austin Energy and made available to tenants and prospective tenants. Audits must be performed by inspectors registered with the City of Austin as a Certified Energy Auditor. Requirements for registration will include certification by ResNet or the Building Performance Institute as a Building Performance Analyst or equivalent.

Energy Audit Deadlines if there is a Mandatory Back Stop. If mandatory back stop requirements are imposed on multi-family properties, then the Task Force recommends that the requirement to undergo an audit be phased in over time, based on the year the multi-family property was originally built as follows:

Year Built	Deadline to have Energy Audit
Before 1970	2 years after effective date of the ordinance
1970 – 1979	4 years after effective date of the ordinance
1980 – 2000	6 years after effective date of the ordinance
After 2000	8 years after effective date of the ordinance

4. Voluntary Participation and Enhanced Rebates

The Task Force recommends that the City of Austin establish the following goals for the time period within which 80% of the total multi-family units be included in properties that have received Cost Effective Upgrades (as defined below):

Year Built	Deadline to have 80% Participation	Enhanced Rebate
Before 1970	2 years after effective date	150%
1970 – 1979	4 years after effective date	125%
1980 – 2000	6 years after effective date	NA
After 2000	8 years after effective date	NA

The Task Force recommends during the voluntary participation periods specified above that Austin Energy offer to owners of multi-family properties enhanced rebates for energy efficiency upgrades having a pay back of more than three years. The enhanced rebates would be discontinued for properties built before 1970 after two years and for properties built between 1970 – 1979 after four years. The Task Force believes that offering the enhanced rebates would serve a substantial interest by accelerating adoption of efficiency upgrades in older, least efficient properties.

In relation to Multi-family Homes, Cost Effective Upgrades is defined as upgrades whose cost (before deducting any applicable rebates) is equal to or less than the total savings that would be realized by all

tenants in the properties (assuming 100% occupancy) from reduced energy bills within 7 years after the upgrades are performed. Cost Effective Upgrades would not be interpreted to require the replacement of HVAC Equipment. The cost of the energy audit is not considered in calculating Cost Effective Upgrades.

5. Evaluation After Two Years

The Task Force recommends that Austin Energy report on participation and the City Council assess after two years the recommendations of this Task Force based on the information generated by the energy audits and the rate of participation in voluntary targets.

6. Special Rules for High Energy Use Properties

The Task Force recommends that Austin Energy collect and analyze per square foot energy use data (energy intensity) for all multi - family properties. The Task Force recommends that, to the extent permitted by law (and without disclosing any personally identifiable information of individuals), the energy intensity of all multi-family properties be made public and available on line. The Task Force also recommends that a rating system be established to disclose this information in a meaningful way to all prospective tenants.

The Task Force recommends that Austin Energy send a notice to the owner of each property that is identified as having an average energy intensity that is greater than 150% of the average energy intensity in the City of Austin. The Task Force recommends that the recipient of such a High Energy Use Notice be required to do the following within the designated time periods:

Walk Through of Property with Austin Energy Staff	30 Days
Energy Audit	90 Days
Upgrades to bring property to 110% or less of city average per square foot energy intensity level (or execution of binding contract to perform same within 90 days)	18 months

If the walk through or energy audit determine that the higher energy use is due primarily to circumstances other than the need for energy efficiency upgrades, no further steps will be required as a result of the High Energy Use Notice.

7. Mandatory Back Stop for Multi-family Homes

The Task Force voted 6 in favor and 17 against recommending the following paragraph: If the multi-family Voluntary Participation Targets are not met, then all properties originally constructed within the designated time frames be required to perform Cost Effective Upgrades within one year after the expiration of the applicable voluntary participation period. Failure to perform the upgrades on a non-exempt property within the specified deadlines would be a Class C misdemeanor. If each set

of multi-family properties failed to meet its respective voluntary participation goal by the applicable deadline, then the deadline for performing the Cost Effective Upgrades would be as follows:

Year Built	***Deadline to Perform Cost Effective Upgrades***
Before 1970	***3 years after effective date of ordinance***
1970 – 1979	***5 years after effective date of ordinance***
1980 – 2000	***7 years after effective date of ordinance***
After 2000	***9 years after effective date of ordinance***

The Task Force recommends that special rules be established for determining Cost Effective Upgrades for Low Income Housing Tax Credit Property, which take into consideration the adjustment in rental/utility ratios from the upgrades as a mechanism to repay the owner for the cost of the upgrades.

8. Exemptions

The Task Force recommends that the following types of multi-family properties be exempt from the requirements of this initiative.

A. Properties that have had duct remediation work done through an Austin Energy rebate program within the past ten years.

B. Properties built after September 1, 2008 and less than ten years old.

C. Properties that, due to circumstances beyond the control of the owner, should not be required to have upgrades performed based on a finding of the Department Director. This appeal process would only apply if mandatory upgrades were required.

D. Historic structures or structures contributing to local or national historic districts shall be exempt from any requirement to perform upgrades or alterations to character defining features (but shall not be exempt from the audit requirements).

E. Properties that have replaced the HVAC equipment in all units through an AE Rebate Program within the past ten years or properties that have installed AE Program compliant HVAC equipment in all units since June, 2006.

C. Commercial Properties

1. Definitions

The Task Force defined commercial buildings as non-residential and non-industrial buildings occupied for the purpose of conducting business activities. High rise multifamily buildings which are considered commercial buildings in building codes are not included in this classification.

2. Background Information Regarding Commercial Properties

The Task Force assembled data regarding commercial properties in Austin from Austin Energy staff, the City demographer and other sources, including the following information:

- There are approximately 40,000 commercial customers in the Austin Energy Service Area.
- Commercial properties account for approximately 38% of the total energy use and 42% of generation capacity of all Austin Energy customers.
- There are approximately 194 million square feet of commercial properties in the Austin Energy service area. Out of that total, approximately 135 million can be rated under the EPA's energy performance rating system "Portfolio Manager" or an equivalent, approved rating system
- The national mean for commercial properties rated under Portfolio Manager is a score of 50. The Austin mean is unknown, but expected to be higher because Austin's building codes have historically required more energy efficient construction and Austin Energy has provided energy efficiency incentives for many years. A score of 75 qualifies a building for an Energy Star label. A Professional Engineer must verify a score of 75 for the Energy Star label.
- State of California is requiring all commercial properties to be rated beginning in 2010 and is currently developing energy benchmarks for most of the remaining types of buildings.

3. Energy Audit for Commercial Properties

The Task Force recommends that all commercial properties to be rated using Energy Star Buildings Portfolio Manager where applicable or another audit or rating system approved by Austin Energy if Portfolio Manager is not available for that building use. All projects must disclose their original rating with audit report to Austin Energy and any prospective buyers.

The Task Force recommends that Austin Energy calculate the average score for Austin commercial properties using the methodology used by Energy Star's Portfolio Manager- recalibrated to establish the Austin baseline.

4. Voluntary Participation Goals

The Task Force recommends that the City Council establish the following goals for voluntary participation by owners of commercial properties, measured from the end of the two year audit period if there is no mandatory backstop in place.

A. Within five years after the completion of the 2-year audit period, 80% of the square footage of commercial properties in Austin will be in buildings that have achieved the greater of (a) a score of 50 (national median) on their Energy Star Portfolio Manager rating (or equivalent for other approved rating system) or (b) a 20% improvement in their initial energy efficiency rating up to a score of 75 (or equivalent for other approved rating system).

B. Within three years after the completion of the 2-year audit period, one half of the goal would be reached as follows:

- 40% of the square footage of commercial properties in Austin will be in buildings that have achieved the greater of (a) a score of 50 (national median) on their Energy Star Portfolio Manager rating (or equivalent for other approved rating system) or (b) a 20% improvement in their initial energy efficiency rating up to a score of 75 (or equivalent for other approved rating system); or

- 80% of the square footage of commercial properties in Austin will be in buildings that have either (a) improved their initial score by one half of the difference between their original score and a score of 50 (national median) under Energy Star Portfolio Manager rating (or equivalent for other approved rating system) or (b) a 10% improvement in their initial energy efficiency rating up to a score of 75 (or equivalent for other approved rating systems).

The voluntary participation goals should be re-evaluated with relevant stakeholders if they are used as a means to implement mandatory back stops.

5. Evaluation After Two Years

The Task Force recommends that Austin Energy report on compliance and the City Council re-assess after two years the recommendations of this Task Force based on the information generated by the energy audits and the rate of participation in voluntary targets.

6. Exclusions

The following commercial properties would be excluded when calculating participation in the voluntary targets:

- Historic structures or structures contributing to local or national historic districts shall be exempt from any requirement to perform upgrades or alterations to character defining features bu shall not be exempt from the audit requirement.

- Buildings with an Energy Star score of 75 or the equivalent rating for another approved rating system or that have received a specified level of Austin Energy rebates within the prior ten years.

- Data centers or other high energy use buildings that can not be adequately evaluated using currently available audit tools.

- Properties that, due to circumstances beyond the control of the owner, should not be required to have further upgrades performed, based on a finding of the Department Director. This appeal process would only apply if mandatory upgrades were required.

7. Mandatory Back Stop for Commercial Properties

The Task Force voted 4 in favor and 17 against recommending the following paragraph: If the commercial property Voluntary Participation Targets are not met, then the goals would cease to be voluntary and would be mandatory with respect to all commercial properties.

IV. Cost and Benefit Analysis of Proposed Recommendations

1. Background Information

- Austin Energy's total capacity to generate electricity is equal to approximately 2,700 megawatts, which is generated from roughly one third nuclear, one third coal and one third natural gas sources. Wind and other renewables provide about 9% percent of Austin Energy's total capacity.
- Austin Energy predicts that in 2020 demand from Austin Energy customers will outstrip Austin Energy's capacity by 238 megawatts.
- In 2006, the Energy Information Administration (EIA) listed the capital costs likely associated with constructing new energy capacity. The cost to construct the least expensive type of plant, a combined cycle gas turbine power plant, was estimated at $706,000 per megawatt. In other words, the cost to construct 238 megawatts would be approximately $168 million. For purposes of comparison, the listed cost for a new nuclear plant was estimated by the EIA at $2,475,000 per megawatt or $590 million for 238 megawatts. (Note: these costs are by necessity rough measurements and are provided with the understanding that power plants cannot be special ordered for precisely 238 megawatts; the cost figures are intended to provide the reader with an order of magnitude appreciation of projected costs).
- At the time of this report, the price of natural gas is about five times the price it was in 2002 and double its cost one year ago. Natural gas prices are expected to be volatile in the future.
- The summer rate for residential electricity customers of Austin Energy is 11 cents per kilowatt hour. On July 17, 2008 the Wall Street Journal reported that typical rates in Texas from private electric companies ranges from 13 to 27 cents per kilowatt hour.
- The cost today to purchase C02 credits in the European Union is equal to $42. Austin Energy estimates that its cost to reduce its C02 emissions by 750,000 tons though 2014 by reducing generation of electricity from coal and replacing it with natural gas would be equal to $253 Million (or $340 per metric ton). See Table 5 below.

2. Cost Benefit Analysis of Single Home Upgrades

Analysis Based on Reduced Capacity Needs of Austin Energy. Austin Energy estimates that if each non exempt home in the City of Austin Energy service area received Cost Effective Upgrades at point of sale between the years 2009 - 2019, then total power plant capacity demand would be reduced by approximately 62 megawatts. The cost to AE to perform the upgrades would equal $21,638,000 or

$349,000 per megawatt of reduced capacity. If one assumes that the cost to build 62 additional megawatts would otherwise be equal to $706,000 per megawatt, then the total savings in avoided capacity construction costs to Austin Energy (and its ratepayers) would be $22,134,000. These calculations do not include debt costs associated with new construction or any operating or fuel costs associated with that capacity.

Analysis Based on Reduced Energy Bills of Austin Energy Customers. Austin Energy estimates that if each non exempt home in the Austin Energy service area received Cost Effective Upgrades at point of sale between the years 2009 - 2019, then total energy consumed by residents of those homes would be reduced by 81,561,000 kilowatt hours per year. At today's summer electricity rates, those customers would have saved $8,971,710 per year. The portion of the cost to perform the upgrades not covered by rebates, and thus borne by the homeowners, would equal $49,108,075.

Analysis Based on Reduced CO2/S02/NOx Emissions. Austin Energy estimates that if each non exempt home in the Austin Energy service area received Cost Effective Upgrades at point of sale between the years 2009 - 2019, then the total C02 Emissions would be reduced by 52,759 metric tons per year. The cost to achieve those C02 emissions would be $21,638,000. The comparable cost to achieve those reductions by purchasing offsets on the markets operating in the European Union would be $2,216,000 per year. The comparable cost to achieve those reductions by reducing generation by coal and replacing it with natural gas would be an estimated $17,938,000. In addition these upgrades will reduce power plant emissions of Sulfur Dioxide by 66,517 pounds per year and Nitrous Oxide emissions by 73,550 pounds per year.

3. Cost Benefit Analysis of Multifamily Upgrades

Analysis Based on Reduced Capacity Needs of Austin Energy. Austin Energy estimates that if each non exempt multifamily building in the City of Austin Energy service area received Cost Effective Upgrades as recommended by the Task Force between the years 2009 - 2019, then total power plant capacity demand would be reduced by approximately 68 megawatts. The cost to AE to perform the upgrades would equal $23,836,700 or $349,000 per megawatt of reduced capacity. If one assumes that the cost to build 68 additional megawatts would otherwise be equal to $706,000 per megawatt, then the total savings in avoided capacity construction costs to Austin Energy (and its ratepayers) would be $24,307,300. These calculations do not include debt costs associated with new construction or any operating or fuel costs associated with that capacity.

Analysis Based on Reduced Energy Bills of Austin Energy Customers. Austin Energy estimates that if each non exempt multifamily building in the Austin Energy service area received Cost Effective Upgrades as recommended by the Task Force, between the years 2009 - 2019, then total energy consumed by residents of those homes would be reduced by 55,272,000 kilowatt hours per year. At today's electricity rates, those customers would have saved $5,843,909 per year. The portion of the cost to perform the upgrades not covered by rebates, and thus borne by the property owners, would equal $16,800,000.

Analysis Based on Reduced CO2/S02/NOx Emissions. Austin Energy estimates that if each non exempt multifamily building in the Austin Energy service area received Cost Effective Upgrades at as

recommended by the Task Force, between the years 2009 - 2019, then the total C02 Emissions would be reduced by 35,754 metric tons per year. The cost to achieve those C02 emissions would be $23,836,700. The comparable cost to achieve those reductions by purchasing offsets on the markets operating in the European Union would be $1,501,668 per year. The comparable cost to achieve those reductions by reducing generation by coal and replacing it with natural gas would be an estimated $12,156,360. In addition these upgrades will reduce power plant emissions of Sulfur Dioxide by 45,077 pounds per year and Nitrous Oxide emissions by 49,843 pounds per year.

4. Cost Benefit Analysis of Commercial Building Upgrades

Analysis Based on Reduced Capacity Needs of Austin Energy. Austin Energy estimates that if each non exempt commercial building in the City of Austin Energy service area received Cost Effective Upgrades as recommended by the Task Force between the years 2009 - 2019, then total power plant capacity demand would be reduced by approximately 95 megawatts. The cost to AE to perform the upgrades would equal $33,155,000 or $349,000 per megawatt of reduced capacity. If one assumes that the cost to build 95 additional megawatts would otherwise be equal to $706,000 per megawatt, then the total savings in avoided capacity construction costs to Austin Energy (and its ratepayers) would be $67,070,000. These calculations do not include debt costs associated with new construction or any operating or fuel costs associated with that capacity.

Analysis Based on Reduced Energy Bills of Austin Energy Customers. Austin Energy estimates that if each non exempt commercial building in the Austin Energy service area received Cost Effective Upgrades as recommended by the Task Force, between the years 2009 - 2019, then total energy consumed by occupants of those buildings would be reduced by 427,870,000 kilowatt hours per year. At today's electricity rates, those customers would have saved $38,593,874 per year. The portion of the cost to perform the upgrades not covered by rebates, and thus borne by the building owners, would equal $58,530,000.

Analysis Based on Reduced CO2/S02/NOx Emissions. Austin Energy estimates that if each non exempt commercial building in the Austin Energy service area received Cost Effective Upgrades as recommended, between the years 2009 - 2019, then the total C02 Emissions would be reduced by 276,778 metric tons per year. The cost to achieve those C02 emissions would be $33,155,000. The comparable cost to achieve those reductions by purchasing offsets on the markets operating in the European Union would be $11,624,676 per year. The comparable cost to achieve those reductions by reducing generation by coal and replacing it with natural gas would be an estimated $94,104,520. In addition these upgrades will reduce power plant emissions of Sulfur Dioxide by 348,951 pounds per year and Nitrous Oxide emissions by 385,844 pounds per year.

Table 5 below summarizes the various cost and benefit analyses discussed in this section.

Table 5

Energy Efficiency Retrofits Task Force
Summary of Cost-Benefit Analysis
Ten Year Horizon

	Single Family	Multifamily	Commercial[1]	Total
Existing demand (MW) (AE system 2007)	460	163	608	1,483
Existing demand (% of total AE demand)	31%	11%	41%	83%
Reduction in capacity demand due to EEU program (MW)	62	68	95	225
Estimated capital cost to build 225 MW natural gas plant	$43,772,000	$48,008,000	$67,070,000	$158,850,000
Value of avoided power plant construction attributable to EEU program: *$160 million*				
Estimated cost of rebates to AE ($349/kW) [2, 3]	$21,638,000	$23,836,700	$33,155,000	$78,629,700
Estimated cost of upgrades to property owners	$49,108,075	$16,800,000	$50,450,000	$116,358,075
Total cost of upgrades (property owner cost + rebate cost)	$70,746,075	$40,636,700	$83,600,000	$194,982,775
Community cost (cost to property owners + AE cost for rebates) attributable to EEU Program: *$195 million*				
Estimated reduction in electricity consumption due to upgrades (kWh)	81,561,000	55,272,000	427,870,000	564,703,000
Total savings in energy bills over ten years[5]	$111,495,300	$58,439,090	$385,938,740	$555,873,130
Value of energy savings to EEU program participants: *$556 million*				
Utility bill savings less EEU participant cost for upgrades[5]	$62,387,225	$41,639,090	$327,481,740	$431,445,055
Net savings to EEU program participants: *$431 million*				
Average payback period (cost of upgrades to property owners / annual savings)[4]	4.40	2.87	1.52	2.24
Average payback period for EEU participants: *2.25 years*				
Annual CO2 emissions reductions based on estimated kWh Reductions (metric tons)	52,759	35,754	276,778	365,291
Value of CO2 Credits @ $35 (Leiberman Warner)	$1,846,565	$1,251,390	$9,687,230	$12,785,185
Value of CO2 Credits @$42 (Current EU trade value)	$2,215,878	$1,501,668	$11,624,676	$15,342,222
Potential CO2 emission credits savings: ~$120-150 million				

NOTES:

1. Commercial loads exclude industrial and certain commercial sectors.
2. Rebates do not reflect Texas Gas contributions to their customers that may increase monies by 50% to 100%
3. Rebates do not reflect Austin Energy administrative costs
4. Over ten years the benefit to single family homeowners will be $62,388,225 in reduced energy bills. Homeowners annual utility bill savings $11,149,630 x 10 years =$111,496,300, less total cost to homeowners $49,108,075 = $62,388,225. It is estimated that an owner of a single family home would spend $ 1066 for energy efficiency upgrades and receive annual savings in reduced energy savings of $ 242. After ten years, it is estimated that the owner's savings through reduced energy bills would exceed the initial investment by $1355.
5. Utility bill savings are based on current AE and Texas Gas Service rates and are therefore very conservative

Proposed Resolutions for Energy Efficiency Upgrades Task Force
September 10, 2008

RESOLVED, that the following Paragraph of the Final Report to City Council, dated September 3, 2008 as modified by the discussions of the Task Force on September 10, 2008 be approved:

Paragraph III.A.6 (Mandatory Back Stop for Single Family Homes).

Votes in Favor: 4 Votes Against: 19

RESOLVED, that the following Paragraph of the Final Report to City Council, dated September 3, 2008 as modified by the discussions of the Task Force on September 10, 2008 be approved:

Paragraph III.B.7 (Mandatory Back Stop for Multi Family Homes).

Votes in Favor: 6 Votes Against: 17

RESOLVED, that the following Paragraph of the Final Report to City Council, dated September 3, 2008 as modified by the discussions of the Task Force on September 10, 2008 be approved:

Paragraph III.C.7 (Mandatory Back Stop for Commercial Properties).

Votes in Favor: 4 Votes Against: 19

RESOLVED, that the Final Report to City Council, dated September 3, 2008 as modified by the discussions of the Task Force on September 10, 2008 be approved EXCEPT Paragraph III.A.6 (Mandatory Back Stop for Single Family Homes), Paragraph III.B.7 (Mandatory Back Stop for Multi Family Homes) and III.C.7 (Mandatory Back Stop for Commercial Properties).

Votes in Favor: 23 Votes Against: 0

City of Austin
Energy Efficiency Retrofits Task Force

Appointee	Representing
Amato, Richard	COA Resource Management Commission
Bernfield, Gary "Bernie"	Mortgage Bankers Assn., President Austin Mortgage Banker's Assn.
Biedrzycki, Carol	Consumer Protection Advocates, Texas Ratepayers Organized to Save Energy
Burley, Dianna	Res. and Com. Building Inspectors, Pres. CenTex Chapter of TX Association of Real Estate Inspectors
D'Andrea, Al	Air Conditioning Contractors Association
Doxsey, Nathan	Specialty/Green Realtors
English, Robert	Central Texas Association of Mortgage Brokers
Fitzpatrick, Tom	Enviro/Energy Advocates
Gatto, Michael	Housing Affordability Providers/Advocates Austin Community Design/Development Center
Howard, Jeff	Real Estate Council of Austin
Kelley, John	Large commercial property owners
Lamb, Joy	Austin Apartment Association, Large property owners
Porter, Charles	Austin Board of Realtors-immediate past chairman,
Raper, John	Austin Apartment Association, Independent Rental Owners Committee
Ray, Harper	Lender/ Mortgage Brokers
Roberts, Laurie	Lenders - AE partners, credit unions, banks, etc. University Federal C.U.
Schmandt, Phillip	COA Electric Utility Commission
Schraad, Jacqui	Heritage Society, Executive Director
Stark, Kathy	Austin Tenants' Council, Executive Director
Strand, Chris	Air Conditioning Contractors Association
Sutton, John	Building Owners and Managers Association
Teinert, John	Specialty/Green Realtors (Austin Fine Properties)
Tonjes, Ray	Greater Austin Home Builders Association
Vought, Bill	County Clerk (property records), Head of Recording Division
Ward, Bob	Real Estate Appraisers
Wendland, John	International Facility Management Association
Woodbury, Richard	American Institute of Architects
Zarsky, Kathy	U.S. Green Building Council (Balcones Chapter)