



MEMORANDUM

TO: Mayor and City Council

FROM: J. Rodney Gonzales, Director 
Development Services Department

DATE: June 21, 2017

SUBJECT: Staffing options to enhance Energy Code enforcement for residential and commercial buildings

On February 2, 2017, City Council adopted Resolution No. 20170202-041 which requested the City Manager to determine the number of dedicated plan review and inspection staff to fully enforce the Energy Code and provide staffing options to enhance Energy Code enforcement for residential and commercial buildings.

The Development Services Department (DSD) has identified four staffing options within Plan Review as well as three staffing options within Building Inspections to fulfill this request. The staffing options detailed in the attachments include associated costs for salary and benefits, computers, training, cell phones, vehicles, and annual rent calculations. Additionally, these options were provided to Austin Energy for review. Austin Energy's comment summary is provided for each option. Also attached to this memorandum are exhibits that provide the detailed history and background of the City's current process to enforce the Energy Code.

DSD recommends Plan Review Option 4 (see page 3) and Inspections Option 2 (see page 4).

You may contact me at 512-974-2313 should you have further questions.

ATTACHMENTS: Exhibit A. Plan Review and Inspections Staffing Options
Exhibit B. Background and History of Energy Code Enforcement
Exhibit C. 1998 Interdepartmental Agreement for Energy Inspections
Exhibit D. 1998 Addendum to Interdepartmental Agreement: Commercial Plan Review
Exhibit E. 2005 Memorandum
Exhibit F. Additional Energy Code Requirements
Exhibit G. Affordability Impact Statement

COPY: Elaine Hart, Interim City Manager
Bert Lumbreras, Assistant City Manager
Jacqueline Sargent, General Manager, Austin Energy

Exhibit A – Plan Review and Inspections Staffing Options

Plan Review

Option 1: Hire 14 full-time positions for both Commercial and Residential Review to ensure that plans submitted to the City of Austin are in full compliance with the provisions of the adopted International Energy Conservation Code (IECC).

Through the current cost of service and fee study analysis being conducted by DSD, an energy review fee will be incorporated into the Fiscal Year 2017/18 Budget to cover costs for this review.

14 full-time positions to be hired as follows:

- 9 Residential Building Reviewers
- 1 Residential Plan Review Supervisor
- 3 Commercial Building Reviewers
- 1 Commercial Plan Review Supervisor

\$1,681,730 annual cost comprised of the following:

- \$1,474,730 salaries and benefits
- \$165,000 annual office rent
- \$42,000 annual recurring costs

There will also be \$50,000 in associated one-time costs.

DSD does not prefer this option because a formal residential energy plan review would trigger three new additional review disciplines and associated cost of service review fees. This option will increase the cost of plan review to residential customers. DSD prefers using the current inspection process to identify non-compliance for residential structures. DSD is also concerned with adding this large number of residential plan reviewers related to the Energy Code under a high economic activity period. Any future significant decrease in development activity will result in decreased applications and revenue.

Austin Energy prefers Option 1.

Option 2: Self-Certification through a Third-Party Review Service

DSD would require that any engineer or architect privately hire a third-party review service to certify that the submitted plans have incorporated and met all Energy Code requirements. This option would not require any additional City of Austin funding.

DSD finds this to be the second preference of the four plan review options as it provides feasible compliance with the Energy Code. Additionally, self-certification through a third-party review service does not create additional fiscal impact to DSD.

Austin Energy finds concern with Option 2 as a means of review.

Option 3: DSD Contracts with a Third-Party Review Service

This option would require funding for DSD to contract with a third-party company to conduct the requisite energy reviews rather than hiring full-time, permanent staff. Costs for these services will be

passed onto the project applicant. The specific cost will not be known until a competitive procurement process is completed and a contract is secured.

DSD finds this to be one of the least desirable options as the process of selecting, awarding and managing a third-party contract is complex. Also, as previously mentioned, competitive procurement costs are unknown.

Austin Energy concurs with Option 3 as this provides City verification and quality compliance through the procurement process.

With regard to options 2 and 3, the 2015 IECC allows for the Code Official to use third-party services for enforcement of these requirements. The referenced code is as follows:

C103.3 and R103.3 Examination of documents. *The code official is authorized to utilize a registered design professional, or other approved entity not affiliated with the building design or construction, in conducting the review of the plans and specifications for compliance with the code.*

Option 4: Energy Code Plan Review, Commercial only

This option would provide staffing for energy code to be reviewed for compliance in Commercial Plan Review only. Inversely, this option would allow the review of residential energy code compliance through the inspection process.

Through the current cost of service and fee study analysis being conducted by DSD, a commercial energy review fee will be incorporated into the Fiscal Year 2017/18 Budget to cover costs for this review. There will also be \$50,000 in associated one-time costs.

4 full-time positions to be hired as follows:

- 3 Commercial Building Reviewers
- 1 Commercial Plan Review Supervisor

\$502,062 annual cost comprised of the following:

- \$442,919 salaries and benefits
- \$47,143 annual office rent
- \$12,000 annual recurring costs

DSD prefers this option as it provides a smaller staffed Energy Code review team for commercial development applications only. Currently, there are three discipline reviewers (mechanical, electrical, and plumbing) within the DSD Commercial Review. This option adds a fourth discipline review.

Austin Energy does not prefer Option 4 because the option applies to commercial development only.

Inspections

Option 1: Hire 11 full-time positions for both Commercial and Residential Inspections to ensure that buildings constructed in the City of Austin are in full compliance with the provisions of the adopted International Energy Conservation Code (IECC).

This option requires additional Inspection staff to fully enforce the adopted IECC. Currently, staff perform only two (insulation and energy final) of the needed seven inspections (insulation, footing and foundation, framing, plumbing, mechanical, electrical, and energy final). This would allow a dedicated commercial and residential team to conduct inspections related to energy code without impacting or deterring the life-safety inspections. Through the current cost of service and fee study analysis being conducted by DSD, an energy inspection fee will be incorporated into the Fiscal Year 2017/18 Budget to cover costs for this inspection.

11 full-time positions to be hired as follows:

- 5 Residential Building Inspectors
- 5 Commercial Building Inspectors
- 1 Energy Inspection Supervisor

\$1,057,182 annual cost comprised of the following:

- \$1,001,082 salaries and benefits
- \$56,100 annual recurring costs

There will also be \$385,000 in associated one-time costs, primarily comprised of vehicles.

DSD does not prefer this option. This option will increase the cost of inspections to customers. DSD is also concerned with adding this large number of inspectors related to the Energy Code under a high economic activity period. Any future significant decrease in development activity will result in decreased inspections and revenue.

Austin Energy concurs with the Inspections Option 1.

Option 2: Self Inspection through a Third-Party Inspection Service

A project applicant would hire a third-party inspection service to certify that the constructed building has been built to incorporate all Energy Code requirements.

DSD prefers this option as it is an existing practice for other City of Austin Special Inspections. Other municipalities use this as a method as an efficient way to promptly conduct Energy Code inspections. Through this option, DSD would require documentation from a third-party inspection service as a mandatory requirement for the customer to obtain Final Inspections and Certificate of Occupancy. This option would not require any additional City of Austin funding or staffing positions.

Austin Energy finds concern with Option 2 as a means of inspection.

Option 3: DSD Contracts with a Third-Party Inspection Service

This option requires funding for DSD to contract with a third-party service to perform the requisite energy inspections rather than hiring full-time, permanent staff. Costs for these services will be passed onto the project applicant. The specific cost will not be known until a competitive procurement process is completed a contract is secured.

With regard to options 2 and 3, the 2015 IECC allows for the Code Official to use third-party services for enforcement of these requirements. The referenced code is as follows:

C104.4 and R104.4 Approved inspection agencies. *The code official is authorized to accept reports of third-party inspection agencies not affiliated with the building design or construction, provided such agencies are approved as to qualifications and reliability relevant to the building components and systems they are inspecting.*

DSD finds this to be the second preference of the three inspection options as a viable means of review. DSD does find concern in the unknown costs with this option in addition to the complexity of selecting, awarding and managing a third-party contract.

Austin Energy concurs with Option 3 as this provides City verification and quality compliance through the procurement process.

Exhibit B - Background and History of Energy Code Enforcement

In 1988 the City of Austin first adopted the Energy Code as part of the 1985 Uniform Building Code implementation. The adoption of the Model Energy Code continued as a part of the Building Code adoption until the publication of the 2000 International Energy Conservation Code (IECC). The City adopted the 2000 IECC on 11/29/2001, and subsequent editions followed:

- 2006 IECC – adopted on 10/18/2007
- 2009 IECC – adopted on 4/8/2010
- 2012 IECC – adopted on 6/3/2013
- 2015 IECC – adopted on 6/23/2016

Affordability Impact Statement

Found in Exhibit H, as part of the 2015 IECC adoption, an affordability impact statement was conducted and stated that it would have an accumulative cost of up to \$350 increase in the construction of the home. Additionally, the cost would be offset by the increased energy efficiency and saving up to \$72 per year.

Interdepartmental Agreements

Interdepartmental Agreements were executed by both DSD and Austin Energy in 1998 and then revised in 2005 to incorporate enforcement of the Energy Code. Exhibits D, E, and F provide the specific terms for each agreement. The 2005 agreement outlines that Austin Energy reimburses DSD for Commercial Plan Reviews (\$45 each) and Inspections (\$35 each) and caps the annual reimbursement to a maximum of 1,289 reviews and 3,600 inspections.

The reimbursement arrangement has never been updated. As such, the reimbursement does not recover all current costs, nor does the agreement reflect current development activity.

As an example, in Fiscal Year 2015-16 the Building Inspections Division conducted 8,755 Insulation Inspections and 9,899 Energy Final inspections. Given the capped maximum of 3,600 inspections described above and the per inspection rate of \$35 each, there is a shortfall of \$526,890 absorbed by the General Fund.

Similarly, in Fiscal Year 2015-16 the Commercial Plan Review Division performed 2,153 commercial plan reviews. Given the capped maximum of 1,289 reviews described above and the per review rate of \$45 each, there is a shortfall of \$38,885 absorbed by the General Fund. As a note, commercial reviews currently cost \$75 per hour, which increase the shortfall to \$143,844 using this review rate.

Exhibit C – 1998 Interdepartmental Agreement for Energy Inspections



M E M O R A N D U M

INTERDEPARTMENTAL AGREEMENT FOR ENERGY INSPECTIONS

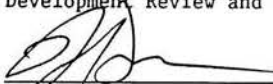
This document represents an agreement between the Development Review and Inspection Department (DRID) and the Planning and Environment Conservation Services Department (PECS) for the administration and billing of insulation inspections performed as described below.

1. DRID will perform insulation and final energy inspections on structures which are located in the corporate city limits of the City of Austin or within Municipal Utility Districts which require City of Austin building permits, provided that services to the structure are provided by Austin's Electric Utility Department.
2. DRID will respond to 95% of these inspection requests within one working day and all requests within two working days.
3. DRID will identify those inspections which meet the criteria, and will report those inspections by the 5th working day of the month beginning with inspections performed after 1/1/98. DRID will provide a report which will include date of inspection, permit number, address, builder, pass/fail. DRID will specify the details of each failed inspection and will document with an NCR copy of the inspection report.
4. DRID will bill for the initial energy rough/insulation inspection. Reinspection costs will be absorbed by the General Fund.
5. DRID will provide space in the reception area of the Permit Center for the dissemination of information regarding the City of Austin's energy conservation services and programs relevant to the building community.
6. DRID will provide a list of energy reviews by date, address, approvals, and rejections with comment notes of non-compliance with codes.
7. PECS will provide backcharges at the reinspection rate of \$35.00 within 30 days of receipt of the monthly billing statement.

8. PECSD will conduct spot field inspections to track trends in quality of inspections by inspector, type of failure, and builder in order to determine if corrective measures are required. The DRID point of contact will respond to reported deficiencies within 15 days with an action plan of PECSD training or other corrective steps. Unresolved deficiencies may result in a discontinuation of back charge payments until the problems are resolved.
9. PECSD's designated staff will accompany DRID inspectors on a quarterly basis or as deemed necessary by PECSD/DRID in order to address reported deficiencies or to provide expertise in the Model Energy Code.
10. PECSD will, on a random basis, provide quality assurance review of commercial plans released by DRID and notify the DRID point of contact if a discrepancy or trend is noted.
11. PECSD will provide code expertise for tradeoff, variables and design questions encountered in the field and office within two working days.
12. Upon approval of this agreement by the Directors of DRID and PECSD; DRID will draft emergency rules and notify affected stakeholders.
13. The directors will review the effectiveness of this program no later than 4/1/98 to determine whether the agreement requires revision and to determine the appropriate level of funding for the 1998-1999 budget.



Alice Glasco, Director
Development Review and Inspections Department



Roger Duncan, Director
Planning Environmental Conservation Services Department

Exhibit D – 1998 Addendum to Interdepartmental Agreement: Commercial Plan Review



2

To: Katherine Loayza, Development Services Manager, DRID
From: Doug Garrett, Green Building Program, PECSD
Date: August 12, 1998
Subject: Addendum to Interdepartmental Agreement: Commercial Energy Plan
Review Section

Services Covered:

Under the terms of the Interdepartmental Agreement between the PECSD and the DRID, DRID will bill PECSD for certain activities related to the enforcement of the City of Austin Commercial Energy Code. The following commercial sector services are to be considered as eligible for payment when the criteria below are met:

1. Commercial Plan Reviews for:
 - New construction
 - Finish outs
 - Additions
 - Renovations/Alterations
 - Commercial HVAC Change-Outs (if reviewed)

Payment:

1. Each plan review meeting the requirements set forth above, will be eligible for a payment of \$45 each.
2. To receive the payment the following reporting conditions must be met:
 - DRID will bill PECSD between the first and the fifth of the month following the completion of the work by the Commercial Section
 - The address, Building permit number, and a reason for the failure of the review must be given on the billing document for each job.
 - The billing report must be in writing and appear in a format agreed to by both departments.
3. The PECSD will forward the transfer request to the appropriate agency within the month the bill is received.
4. All conditions set forth in the Interdepartmental Agreement are met

Billing:

The work performed by DRID will be billed to the PECSD utilizing the following categories and definitions:

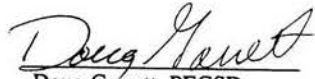
1. General

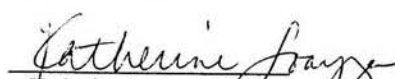
- All work billed to and paid for by the PECSD will only be for projects served by the City of Austin Electric Utility.
- Only one payment will be made for the plan review of each project as defined above.

• Plan Review

- Will include all plan review services including lighting budgets, thermal calculations, and other associated activities necessary to ensure that all aspects of the Commercial Energy Code are met.
- A job will be defined as all work proposed under a single building permit except, when the review entails several buildings grouped at one address, each requiring separate review and approval, as in the case of an apartment complex, each building and the associated energy budget will be considered to be a separate job and will be paid for as such.
- Only one payment will be made for each eligible building or project, as second and later reviews are not eligible for payment.

Acceptance of this proposal is indicated by the signatures below.


Doug Garrett, PECSD


Katherine Loayza, DRID

Sincerely,

Doug Garrett, CEM
Green Building Program
PECSD

xc: Roger Duncan, Director, PECSD
Alice Glasco, Director, DRID
Marc Richmond-Powers, PECSD
Norma Carreon, ISS

Exhibit E – 2005 Memorandum



MEMORANDUM

TO: Jaycie Pokorny, Director Long Range Planning and Budget
FROM: Connie Campa, Financial Consultant
DATE: March 1, 2005
SUBJECT: Re: Payment for WPDR Energy Inspection Services - FY2006

Under the terms of the Interdepartmental Agreement between Watershed Protection and Development Review Department and Austin Energy, the following services are considered eligible for payment:

1. Commercial Plan Reviews at \$45 each for:
 - New Construction
 - Finish Outs
 - Additions
 - Renovations/Alterations
 - Commercial HVAC Change-Outs (if reviewed)
2. Building Inspections at \$35 each for:
 - Energy Rough/insulation Inspections
 - Energy Finals

Estimate of FY2006 costs:

Cost per Review & Inspection	FY06 Projected	Projected FY 2006	FY2005 Budget
\$45 per review	1,289	\$ 58,005	\$ 58,000
\$35 per Residential & Commercial inspection	3,600	<u>\$ 126,000</u>	<u>\$ 67,000</u>
		\$184,005	\$125,000

Assumptions Used:

No change in \$35 fee for residential and commercial inspection.
Calculation of fee is based on the average cost per inspection senior of \$27 per hour including benefits, plus \$8 for equipment, supplies and overhead.
Approximately 3,600 of residential & commercial inspections performed per year or 300 per month.

The proposed increased cost to Austin Energy will cover the cost of the actual number of reviews and inspections anticipated during the coming year.

If you have questions, contact me at 974-6426.

Exhibit F – Additional Energy Code Requirements

The 2015 IECC adopted on June 23, 2016, added additional review and inspection requirements for compliance with the code. The new requirements are detailed below:

I. New requirements for Commercial Review

- i. **C103.2 Information on construction documents.** Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted where approved by the code official. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the building, systems and equipment as herein governed. Details shall include, but are not limited to, the following as applicable.
 1. Insulation materials and their R-values.
 2. Fenestration U-factors and solar heat gain coefficients (SHGCs).
 3. Area-weighted U-factor and solar heat gain coefficient (SHGC) calculations.
 4. Mechanical system design criteria.
 5. Mechanical and service water heating system and equipment types, sizes and efficiencies.
 6. Economizer description.
 7. Equipment and system controls.
 8. Fan motor horsepower (hp) and controls.
 9. Duct sealing, duct and pipe insulation and location.
 10. Lighting fixture schedule with wattage and control narrative.
 11. Location of daylight zones on floor plans.
 12. Air sealing details.
- ii. **C103.2.1 Building thermal envelope depiction.** The building's thermal envelope shall be represented on the construction drawings.

II. New requirements for Commercial Building Inspections

- i. **C104.2 Required inspections.** The code official or his or her designated agent, upon notification, shall make the inspections set forth in Sections C104.2.1 through C104.2.6.
 1. **C104.2.1 Footing and foundation inspection.** Inspections associated with footings and foundations shall verify compliance with the code as to R-value, location, thickness, depth of burial and protection of insulation as required by the code and approved plans and specifications.
 2. **C104.2.2 Framing and rough-in inspection.** Inspections at framing and rough-in shall be made before application of interior finish and shall verify compliance with the code as to types of insulation and corresponding R-values and their correct location and proper installation; fenestration properties (U-factor, SHGC and VT) and proper installation; and air leakage controls as required by the code and approved plans and specifications.
 3. **C104.2.3 Plumbing rough-in inspection.** Inspections at plumbing rough-in shall verify compliance as required by the code and approved plans and specifications as to types of insulation and corresponding R-values and protection; required controls; and required heat traps.
 4. **C104.2.4 Mechanical rough-in inspection.** Inspections at mechanical rough-in shall verify compliance as required by the code and approved plans and specifications as to installed HVAC equipment type and size; required controls, system insulation and corresponding R-value; system and damper air leakage; and required energy recovery and economizers.

5. **C104.2.5 Electrical rough-in inspection.** Inspections at electrical rough-in shall verify compliance as required by the code and approved plans and specifications as to installed lighting systems, components and controls; and installation of an electric meter for each dwelling unit.
6. **C104.2.6 Final inspection.** The building shall have a final inspection and shall not be occupied until approved. The final inspection shall include verification of the installation and proper operation of all required building controls, and documentation verifying activities associated with required building commissioning have been conducted and findings of noncompliance corrected. Buildings, or portions thereof, shall not be considered for a final inspection until the code official has received a letter of transmittal from the building owner acknowledging that the building owner has received the Preliminary Commissioning Report as required in Section C408.2.4.

III. New requirements for Residential Review

- i. **R103.2 Information on construction documents.** Construction documents shall be drawn to scale upon suitable material. Electronic media documents are permitted to be submitted where *approved by the code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the *building*, systems and equipment as herein governed. Details shall include, but are not limited to, the following as applicable:
 1. Insulation materials and their *R*-values.
 2. Fenestration *U*-factors and solar heat gain coefficients (SHGC).
 3. Area-weighted *U*-factor and solar heat gain coefficients (SHGC) calculations.
 4. Mechanical system design criteria.
 5. Mechanical and service water-heating system and equipment types, sizes and efficiencies.
 6. Equipment and system controls.
 7. Duct sealing, duct and pipe insulation and location.
 8. Air sealing details.
- ii. **R103.2.1 Building thermal envelope depiction.** The building's thermal envelope shall be represented on the construction documents.

IV. New requirements for Residential Inspections

- i. **R104.2 Required inspections.** The *code official* or his or her designated agent, upon notification, shall make the inspections set forth in Sections R104.2.1 through R104.2.5.
- ii. **R104.2.1 Footing and foundation inspection.** Inspections associated with footings and foundations shall verify compliance with the code as to *R*-value, location, thickness, depth of burial and protection of insulation as required by the code and *approved plans* and specifications.
- iii. **R104.2.2 Framing and rough-in inspection.** Inspections at framing and rough-in shall be made before application of interior finish and shall verify compliance with the code as to types of insulation and corresponding *R*-values and their correct location and proper installation; fenestration properties (*U*-factor and SHGC) and proper installation; and air leakage controls as required by the code and approved plans and specifications.
- iv. **R104.2.3 Plumbing rough-in inspection.** Inspections at plumbing rough-in shall verify compliance as required by the code and *approved plans* and specifications as to types of insulation and corresponding *R*-values and protection, and required control.
- v. **R104.2.4 Mechanical rough-in inspection.** Inspections at mechanical rough-in shall verify compliance as required by the code and *approved plans* and specifications as to

installed HVAC equipment type and size, required controls, system insulation and corresponding *R*-value, system air leakage control, programmable thermostats, dampers, whole-house ventilation, and minimum fan efficiency.

Exception: Systems serving multiple dwelling units shall be inspected in accordance with Section C104.2.4.

- vi. **R104.2.5 Final inspection.** The *building* shall have a final inspection and shall not be occupied until *approved*. The final inspection shall include verification of the installation of all required *building* systems, equipment and controls and their proper operation and the required number of high-efficacy lamps and fixtures.

Exhibit G – Affordability Impact Statement for 2015 Energy Code Adoption

 <i>AFFORDABILITY IMPACT STATEMENT</i> <i>NEIGHBORHOOD HOUSING AND COMMUNITY DEVELOPMENT</i> <i>CITY COUNCIL AGENDA: PENDING CASE NUMBER: PENDING</i>	
<i>PROPOSED CODE AMENDMENT:</i>	<i>ADOPTIONS TO THE 2015 INTERNATIONAL ENERGY CODE AS AMENDED</i>
<i>IMPACT ON REGULATORY BARRIERS TO HOUSING DEVELOPMENT</i>	☐ INCREASE ☐ DECREASE ☒ NO IMPACT
<i>LAND USE / ZONING OPPORTUNITIES FOR AFFORDABLE HOUSING DEVELOPMENT</i>	☐ INCREASE ☐ DECREASE ☒ NO IMPACT
<i>IMPACT ON COST OF DEVELOPMENT</i>	☒ INCREASE ☐ DECREASE ☐ NO IMPACT
<i>IMPACT ON PRODUCTION OF AFFORDABLE HOUSING</i>	☐ INCREASE ☐ DECREASE ☒ NO IMPACT
<i>PROPOSED CHANGES IMPACTING HOUSING AFFORDABILITY:</i>	THE PROPOSED AMENDMENTS WILL HAVE A CUMULATIVE COST OF UP TO \$350 INCREASE IN THE CONSTRUCTION OF THE HOME. THE COST WILL BE OFFSET BY THE INCREASED ENERGY EFFICIENCY AND SAVING OF TO \$72 PER YEAR. PEAK DEMAND WILL BE DECREASED BY .4KW, WHICH WILL HELP TO KEEP RATES LOWER IN THE FUTURE.
<i>ALTERNATIVE LANGUAGE TO MAXIMIZE AFFORDABLE HOUSING OPPORTUNITIES:</i>	
<i>OTHER HOUSING POLICY CONSIDERATIONS:</i>	NOT APPLICABLE.
<i>DATE PREPARED:</i>	MARCH 10, 2016
<i>DIRECTOR'S SIGNATURE:</i> 	