Memorandum

DATE January 3, 2014

TO Members of the Budget, Finance & Audit Committee: Jerry R. Allen (Chair), Jennifer Staubach Gates (Vice Chair), Tennell Atkins, Sheffie Kadane, Philip T. Kingston

SUBJECT Comprehensive Energy Conservation & Solar Performance Contracts


Please contact me if you need additional information.

Jill A. Jordan, P.E.
Assistant City Manager

Attachment

c: Honorable Mayor and Members of the City Council
   A.C. Gonzalez, Interim City Manager
   Rosa A. Rios, City Secretary
   Warren M.S. Ernst, City Attorney
   Daniel F. Solis, Administrative Judge
   Craig D. Kinton, City Auditor
   Ryan S. Evans, Interim First Assistant City Manager

   Forest E. Turner, Assistant City Manager
   Joey Zapata, Assistant City Manager
   Charles M. Cato, Interim Assistant City Manager
   Theresa O’Donnell, Interim Assistant City Manager
   Jeanne Chipperfield, Chief Financial Officer
   Frank Librio, Public Information Officer
   Elsa Cantu, Assistant to the City Manager

"Dallas-Together, we do it better!"
Projects background
Current projects overview
Projects schedule
Benefits to the City
An Energy Performance Contract (EPC) is a turnkey service, design, construction and financing contract, to deliver cost effective, comprehensive energy efficiency, renewable energy and operation improvements. Projects are financed by state or private party loans which are repaid thru energy savings in the associated utility bills. EPC’s are reviewed to ensure that the project savings are sufficient to finance the full project cost.

- Texas statute created in 1997, in Section 302 of the Texas Government Code, allows up to 15 year terms, however State Energy Conservation Office (SECO) limits terms to 10 years.

- Requires an independent third party, Professional Engineer’s review of savings.

- A typical EPC project is delivered by an Energy Services Company (ESCO).
How to implement an Energy Performance Contract?

Three main steps to implement an Energy Performance Contract:

1. Preliminary Audit - to determine if a project is feasible, then define scope and negotiate the Detailed Audit cost.

2. Detailed Audit - designed to develop an investment grade savings report to solicit and select construction financing (base contract).
   - Mandatory independent engineer’s review

   - Measurement & verification of savings
   - Loan repayment begins when savings are realized.
Past Energy Performance Contracts

City Implemented EPC’s

1. 2003 City Hall - TAC, 7 buildings, $9.5 M project cost, $526 K rebate, $1.5 M saved annually, loan repaid 11/2014.


- Total cost of above four projects: $36 M
- Total realized savings to date with rebates: $42.7 M
- Since 2005, City has realized a 13% reduction in kWh. During the same time period, new accounts increased consumption by 5%.
Clean Air
Through Energy Efficiency

2006 Texas SB5 Report from the
State Energy Conservation Office (SECO)

Carole Keeton Strayhorn • Texas Comptroller
There are five projects in progress consisting of the following:

1. City Hall and 27 facilities - Detailed Audit completed
2. Public Safety related accounts - Detailed Audit completed
3. Solar Projects - Detailed Audit in engineer’s review
4. Park and Recreation - Detailed Audit in progress (coming 2014)
5. Office of Cultural Affairs - Application in progress (coming 2014)
Evaluated 71 buildings and narrowed the project scope to include 28 buildings exhibiting excessive energy usage plus a Conservation Awareness Program citywide

- 9 types of cost reduction measures
- Project construction cost: $4,706,995
- Rebate/Incentive: $150,000 estimated
- Guaranteed annual savings: $798,027
- Simple payback: 5.9 years
- Financing: 2.5% SECO LoanSTAR
- Construction period estimated savings $323,778
# Project Overview

## City Hall Project Matrix

<table>
<thead>
<tr>
<th>Building</th>
<th>Power Conditioning</th>
<th>LED Lighting</th>
<th>Steam Insulating Blanket</th>
<th>Pipe Insulation</th>
<th>CO Monintoring</th>
<th>Continuous Commissioning®</th>
<th>New Building Controls</th>
<th>BAS Integrate / Optimize</th>
<th>Full Time Energy Manager</th>
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Full Time Energy Management

- This project funds one full time City employee that will implement long term behavioral based energy management in all facilities in this project plus others citywide.

- Tasks Include:
  - Analyze energy usage to define unexpected changes or trends
  - Troubleshoot high energy usage buildings
  - Assist developing centralized automated tracking of natural gas and water usage costs per building
  - Document energy saving efforts, progress and develop savings projects
  - Regularly survey buildings to determine if HVAC, lighting and/or plug load controls are being bypassed
  - Educate staff regularly concerning energy conservation/Continuous Commissioning® best practices
  - Monitor control systems for continued usage of optimization strategizes
  - Organize inter-Department energy competitions between similar buildings
  - Help optimize and verify the preventative maintenance is being completed with a focus on energy conservation
Present Projects Overview

Public Safety Project

- Evaluated 25 buildings and narrowed the project scope to include 13 buildings exhibiting excessive energy usage and a city-wide power management program.
- 6 types of utility cost reduction measures
- Project construction cost: $2,147,152
- Rebate/Incentive: None anticipated
- Guaranteed annual savings: $254,782
- Simple payback: 8.3 years
- Financing: SECO LoanSTAR
- Construction period guaranteed savings $22,942
## Present Projects Overview

### Public Safety Project Matrix

#### Matrix of Utility Cost Reduction Measures - Public Safety Performance Contract Project

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Lighting Upgrades</th>
<th>Building Automation Systems (BAS)</th>
<th>Recommissioning</th>
<th>Power Factor Correction</th>
<th>Merge Electrical Accounts</th>
<th>PC Power Control</th>
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Evaluated 4 buildings and narrowed the project scope to include 3 buildings that could payback on energy usage.

Two utility cost reduction measures: Solar Photo-voltaic (PV) co-generation with power factor correction.

Project cost: $4,603,024 ($2,741,374 net cost)

Rebate/Incentive: $1,861,650

Annual savings: $278,214

Simple payback: 9.9 years

Financing: 2.5% SECO LoanSTAR

Construction savings forecast of $84,078
1,689 kW Photovoltaic (solar to electric) Array
- 1,145 kW Convention Center
- 272 kW City Hall
- 272 kW Jack Evans Police Headquarters

Rooftop Location

Annual Energy Production: 2,528,835 kWh (Modeled)

Project Life: 30 years

Offset 1,103 tons of carbon dioxide emissions per year

Offset the amount of energy needed to power 2,107 average American homes

Contingent on Professional Engineers review
Benefits to City

Combined City Hall, Public Safety and Solar Performance Contract Projects

- Annual savings of $1,331,023

- Additional project savings after costs will generate an estimated $2.7 M contribution to the general fund over 10 years
  - Over $2.0 M in rebates from Oncor

- Solar green energy production is 1,689 kW

- Full time City employee funded through project savings for long term behavioral energy management and staff trainer
Project Schedule

Combined City Hall, Public Safety and Solar Performance Contract Projects

- Oncor 2014 rebates submitted …December 2, 2013
- Solar Professional Engineer’s review complete… January 2014
- Oncor solar Inter-connection studies complete…April 2014
- Begin construction…March 2014
- End construction…January 2015
  - Training & commissioning during 10 month construction period
- Measurement & Verification of savings… January 2015-2025
  - During construction and throughout 10 year project duration
- Start loan repayment with realized savings…April 2015
Future City Initiatives

- March 2014: Submit SECO/LoanSTAR Report on Park and Recreation Department energy savings and solar performance contract project

- Spring 2014: SECO response on award for Office of Cultural Affairs Project

- Spring 2014: Launch Conservation Awareness Program (CAP)

- Spring 2014: Join Department of Energy - Better Building Program

- Fall 2014: Complete Energy Management Plan (EMP)
Questions