

# Memorandum



DATE November 27, 2013

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

The Monday, December 2, 2013, Budget, Finance and Audit Committee agenda will include a Comprehensive Energy Conservation & Solar Performance Contracts briefing. The briefing will be presented by Zaida Basora, Assistant Director in the Public Works Department and Jesse Dillard, Senior Program Manager in the Public Works Department.

Please contact me if you need additional information.



Jill Jordan, P.E.  
Assistant City Manager

## Attachment

c: Honorable Mayor and Members of the City Council	Forest E. Turner, Assistant City Manager
A.C. Gonzalez, Interim City Manager	Joey Zapata, Assistant City Manager
Rosa A. Rios, City Secretary	Charles M. Cato, Interim Assistant City Manager
Warren M.S. Ernst, City Attorney	Theresa O'Donnell, Interim Assistant City Manager
Daniel F. Solis, Administrative Judge	Frank Libro, Public Information Officer
Craig D. Kinton, City Auditor	Elsa Cantu, Assistant to the City Manager
Ryan S. Evans, Interim First Assistant City Manager	

# Comprehensive Energy Conservation & Solar Performance Contracts



## City Hall, Public Safety and Solar Projects



City of Dallas

Budget, Finance and Audit Committee  
December 2, 2013



# Agenda

## Project

- Projects background
- Current projects overview
- Projects schedule
- Benefits to the City

# What Is An Energy Performance Contract?

## Definition

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
3. Construction - implementation and savings verification. Draw on loan funds during construction (Supplemental Agreement).
  - 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.
  2. 2005 Love Field – AMERESCO, \$5.3 M project cost, \$165 K rebate, \$658 K saved annually, loan repaid 9/2017.
  3. 2005 Convention Center / Union Station – Johnson Controls Inc., \$16 M project cost, \$455 K rebate, \$2.4 M saved annually, loan repaid 10/2016.
  4. 2007 Dallas Museum of Art – Schneider Electric; \$5.3 M project cost, \$51K rebate, \$847 K saved annually, loan repaid 10/2018.
- 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%.

# SECO Cover Story

Convention Center Performance Contract



## Clean Air Through Energy Efficiency



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

**Carole Keeton Strayhorn • Texas Comptroller**

# 2013 Performance Based Energy Service Contract

## Project names and status

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)



# Present Projects Overview

## City Hall Project

- ❑ 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

Matrix of Utility Cost Reduction Measures - Dallas City Hall Project									
Building	Power Conditioning	LED Lighting	Steam Insulating Blanket	Pipe Insulation	CO Monitoring	Continuous Commissioning®	New Building Controls	BAS Integrate / Optimize	Full Time Energy Manager
City Hall	◆	◆	◆			◆			◆
Dallas Museum of Art	◆	◆				◆			◆
Oak Cliff Municipal Center	◆					◆			◆
Courts Building	◆							◆	◆
EBS offices				◆		◆	◆		◆
Streets Administration Bldg							◆		◆
Latino Cultural Center								◆	◆
Eco Park							◆		◆
Thanksgiving Square					◆	◆			◆
Central Library	◆					◆			◆
Arcadia Park Branch Library						◆			◆
Hampton Library								◆	◆
Timberglen library							◆		◆
Keist Library							◆		◆
Skillman-S Western Library							◆		◆
Pleasant Grove Library						◆			◆
Dallas West Library				◆		◆			◆
N Oak Cliff Library				◆				◆	◆
Fretz Park Library						◆			◆
Walnut Hill Library								◆	◆
Lochwood Library						◆			◆
Audelia Library						◆			◆
Preston Royal Library						◆			◆
Renner Frankford Library						◆			◆
Park Forest Branch Library						◆			◆
Oak Lawn Library						◆			◆
Skyline Library						◆			◆
MLK Medical						◆			◆

# Project Overview - Highlights

## City Hall Project continued...

### 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 strategies
  - ❑ 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						
Facilities	Lighting Upgrades	Building Automation Systems (BAS)	Recommissioning	Power Factor Correction	Merge Electrical Accounts	PC Power Control
Jack Evans Police HQ		◆	◆			◆
North Central Police Substation	◆		◆			◆
Northwest Police Substation	◆					◆
Southeast Police Substation	◆		◆			◆
Police Academy	◆					◆
Police Academy Expansion	◆					◆
SW Police Substation	◆					◆
Auto Impound	◆					◆
Credit Union/ Fire Prevention	◆		◆			◆
Quarter Master			◆			◆
Other Buildings City Wide (PC Power)						◆
New Hampton Pump Station				◆		
Pavaho One Pump Station					◆	
Pavaho Two Pump Station					◆	

# Present Projects Overview

## Solar Project

- ❑ 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

# Project Overview - Highlights

## Solar Project continued...

- ❑ 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... December 2014
- ❑ Oncor solar Inter-connection studies complete...March 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

- ❑ December 2013: Submit SECO application for Office of Cultural Affairs project
- ❑ March 2014: Submit SECO/LoanSTAR Report on Park and Recreation Department energy savings and solar performance contract project
- ❑ Spring 2014: Launch Conservation Awareness Program (CAP)
- ❑ Spring 2014: Join Department of Energy - Better Building Program
- ❑ Fall 2014: Complete Energy Management Plan (EMP)

# Recommendation

## Authorize projects...

Authorize the following Performance Contracts with SECO LoanSTAR Agreements on 12-11-2013 Addendum

1. City Hall Performance Contract,
2. Public Safety Performance Contract, and
3. Solar Performance Contract (contingent on Professional Engineer's review)