



# LED Lighting Program - 2010

## Program Summary

*Take A Load Off, Texas® is provided by Oncor Electric Delivery LLC as part of the company's commitment to reduce energy consumption and demand. Ecos implements the LED Lighting Program as an independent contractor. For more information, visit [www.takealoadofftexas.com](http://www.takealoadofftexas.com).*



# About Oncor

- Oncor is an electric distribution and transmission business providing electricity to 3 million residential, commercial, and industrial electric delivery points.
- Oncor provides 31 energy efficiency programs that incorporate all market sectors.
  - Oncor's statutory energy efficiency programs are regulated by the Public Utility Commission of Texas
  - Oncor committed an additional \$100 million for energy efficiency programs over five years
    - Funds are not recoverable in rates
    - Implemented under same guidelines as statutory programs



# Program Overview

- The Oncor LED Lighting Program offers incentives for Oncor customers to upgrade parking lots, garages, and government-owned (non-educational) indoor facilities with energy-efficient LED lighting and controls.
- Incentives are based on verified on-peak demand and annual energy savings resulting from the installation of LED measures and lighting controls.
- Ecos has been contracted by Oncor to implement the LED Lighting Program as an independent contractor.
- Funding for Take A Load Off, Texas is provided by Oncor as part of the company's commitment to reduce energy consumption and demand.



# Program Objectives

- Provide incentives for customers to upgrade parking lots, garages, and other facilities with LED lighting and controls
- Increase awareness of LED lighting technology
- Introduce LED lighting technology into the marketplace
- Develop an infrastructure of trained LED installation and maintenance service providers



# Benefits of LEDs



# Benefits of LEDs

- **Energy savings:** LEDs can produce more light per watt than conventional high-intensity discharge lamps (metal halide and high-pressure sodium) and may therefore require less energy to produce the same amount of light.
- **Operational savings:** LEDs can have long life spans (50,000+ hours), which reduce the frequency of costly maintenance and replacement service.
- **Light quality:** LEDs produce a clean, bright light, which can improve safety and visual comfort while enhancing property values.
- **Environmental:** LEDs contain no mercury or lead.
- **Durability:** LEDs are very tolerant of temperature variations, vibrations, and on/off cycles, and can be tightly sealed to prevent interior accumulation of dirt, insects, and moisture.



# LED Light Quality



*Installation of LED parking lot lights (left) compared with HPS lights (right) shows the difference in color appearance and distribution.*

(Used by permission of BetaLED)



# LED vs. High-Pressure Sodium

U.S. Department of Energy Case Study:

**“Demonstration Assessment of LED Area Lights for a Commercial Garage”** (November 2008)

## CONCLUSIONS:

- LEDs provided 25% higher minimum light level, whiter light, and more uniform light distribution.
- End users reported improved visibility and a preference for the LED lighting.

Table 1.1: LEDs vs. High-Pressure Sodium (HPS) Lamps						
Fixture Type	Wattage	Lifespan Hrs	Energy Use (24 hrs/day)		Annual Operating Cost (Maintenance + Electricity)	LED Payback Period
			Yrs	Annual	@ \$0.11/kWh	@ \$0.11/kWh
HPS	191 W	24,000	2.7	1,674 kWh	\$195	n/a
LED	78 W	50,000	5.7	683 kWh	\$75	<b>3.9 yrs</b>



# Parking Garage

A parking garage in Irving, Texas did a one-for-one replacement of 53 Metal Halides to LEDs.

Savings: 7 kW  
and 57,998 kWh  
2009 Incentive:  
\$13,700

Before: 175 W Metal Halide



After: 78 W LED





# Parking Garage

Condominium complex installed linear LED fixtures to replace 175 W Metal Halides. They *doubled* the number of fixtures and moved the LED fixtures over the aisles for better visibility.

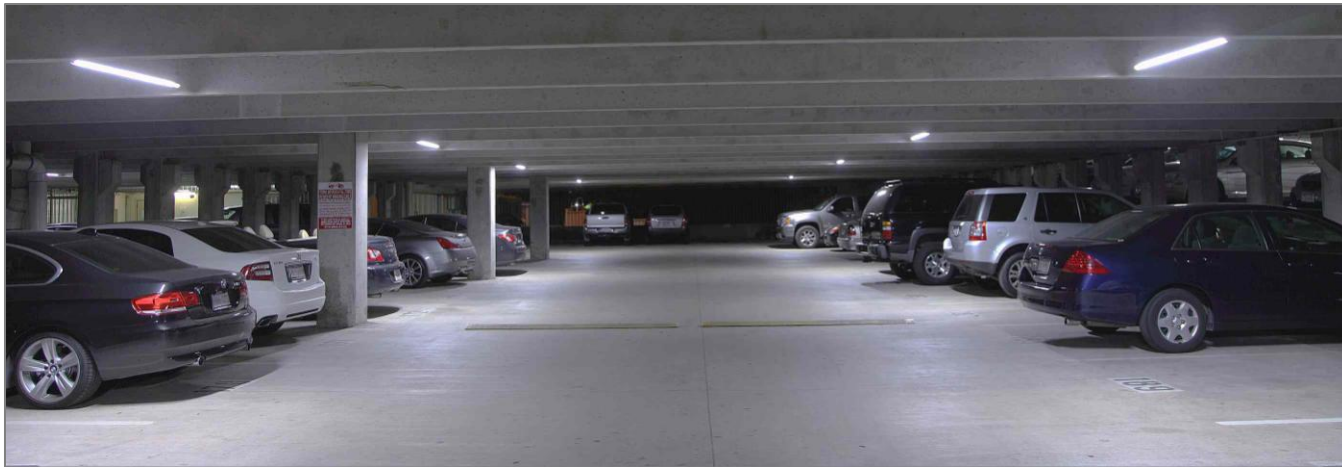
Savings:

18.1 kW

142,732 kWh

2009 Incentive:

\$33,071





# Payback Example

## EXAMPLE CASE - Parking Garage:

- 7,884 annual operating hours (avg. 21.6 hours/day)
- \$0.10/kWh electricity rate

### PRE-INSTALLATION:

- 209-watt metal halide fixtures
- \$70 re-lamp cost per fixture every 10,000 hours
- Annual operating cost x 100 fixtures = \$21,996

### POST-INSTALLATION:

- 79-watt LED fixtures
- \$650 installed cost per fixture (lifetime: 50,000 hours)
- Annual operating cost x 100 fixtures = \$6,228

TOTAL PROJECT COST:	\$61,000
PROGRAM INCENTIVE:	<b>\$18,429</b> (30% of total project cost)
CUSTOMER PAYBACK PERIOD:	<b>2.7 years</b>



# Program Policies & Eligibility Requirements



# Customer Eligibility

Commercial, governmental, not-for-profit, and other facilities receiving service from Oncor are eligible to participate.

For transmission accounts, the facility must receive a point-of-delivery transmission level of 68 kV or less.





# Project Eligibility

- Eligible applications include parking garages, parking lots, outdoor walkways, facility exteriors, or outdoor lighting for landscaping, and indoor lighting for non-educational government-owned facilities.
- Participants must not be participating in another Oncon energy efficiency program for the same energy-saving measures.
- New construction and retrofit projects are eligible.
- Street and traffic-signal lighting are not eligible.
- The Project must meet all applicable local, state, and federal regulations and permit requirements.



# Measure Eligibility

- ENERGY STAR<sup>®</sup> has issued criteria for LED lighting efficiency, performance, and testing.
  - The LED Lighting Program evaluates and approves proposed LED lighting measures against these criteria on a project-by-project basis in a market-neutral, non-discriminatory manner.



## Criteria for evaluating measures include\*:

- Applicable ENERGY STAR® Program Requirements for Solid-State Lighting (SSL) Luminaires and Integral LED Lamps in effect at the time of Project Approval.
- LM-79 (efficacy) and LM-80 (lifetime) testing
- In-Situ Temperature Measurement Test
- All applicable Underwriters Laboratory (UL) safety specifications

\* *see Program Manual for complete criteria*



# Qualified Service Providers

Two categories of Qualified Service Providers with different authorized roles and eligibility requirements:

- **INSTALLATION Service Providers** (contractors)
  - exclusively may perform installations
  - may also perform any other Project-related services.
  - *Projects must use an approved Installation Service Provider.*
  
- **CONSULTATION Service Providers** (consultants, distributors, manufacturers, etc.)
  - may provide services other than installation, such as recommending lighting/control measures, designing the installation, etc.
  - *Customers may choose to engage an approved Consultation Service Provider at their own discretion.*



# Service Provider Qualification

- **To be approved for participation in the Program, all Service Providers must:**
  - meet applicable Service Provider eligibility requirements,
  - submit a Service Provider Application,
  - sign the Service Provider Agreement, and
  - receive Program training.
- A Customer's preferred Service Provider may submit a Service Provider Application for approval and training to participate in the Program.
- Customers using an in-house lighting installation team may designate a representative from their team to sign the Service Provider Agreement, receive training, and be approved to participate in the Program.



# Installation Service Providers

## Eligibility requirements for Installation Service Providers include:

- Hold an Electrical Contractor business license
- Be or employ a licensed Master Electrician
- Show proof of financial responsibility
- Follow U.S. Department of Labor's Occupational Safety & Health Administration (OSHA) electrical standards
- Provide proof of required insurance:
  - Commercial General Liability (at least \$1m)
  - Workers' Compensation
  - Employer's, Automobile and Excess Umbrella Liability
  - *See Program Manual for specific eligibility requirements*



# Consultation Service Providers

## Eligibility requirements for Consultation **Service Providers:**

- Show proof of financial responsibility (e.g., annual reports, 10-K's, financial statements, Certificate of Good Standing)
- Provide proof of General Liability insurance coverage of at least \$500,000.



# Service Provider Agreement

## Benefits for Approved Service Providers:

- Listed on the Take A Load Off, Texas Web site
- Authorized to use proprietary, protected Project tools and materials, including:
  - Savings Calculators, Payback Estimator, Project Application
- Gain valuable experience and reputation in the growing market for LED lighting services

**NOTE:** *Any energy savings resulting from work performed by an unapproved Service Provider will not be eligible for Program incentives, as per the Customer's Project Agreement.*



# Project Application Deadline

- The submission deadline for complete 2010 Project Applications is **November 15, 2010**.
- *A Project Application is not complete until it includes all required forms and supplementary materials.*
- *Project Applications received after the deadline may not be reviewed for the 2010 Program year.*



# Project Incentive Structure



- Oncor provides incentives to customers based on a project's estimated on-peak\* demand and annual energy savings resulting from the installation of LED measures.
- Incentive rates for 2010:
  - **\$235/kW** for on-peak\* demand savings
  - **\$0.15/kWh** for annual energy savings

*\* The on-peak demand period is defined as the hours from 1 p.m. to 7 p.m., Monday through Friday, June through September, excluding federal holidays.*



# Equations for Savings

- Estimated On-Peak Demand Savings (kW):  
$$\frac{\text{Baseline On-Peak Demand (kW)}}{\text{On-Peak Demand (kW) After Installation}}$$
- Estimated Annual Energy Savings (kWh):  
$$\frac{\text{Baseline Energy Use (kWh)}}{\text{Energy Use (kWh) After Installation}}$$
- Stipulated Annual Operating Hours and Peak Coincidence Factors are used as part of the deemed savings method.
  - Customers and/or Service Providers may also choose to log run time hours and submit them for verification



# Equations for Incentives

**INCENTIVE PAYMENT**

**=**

**Estimated On-Peak kW Savings  
(\$235/kW)**

**+**

**Estimated Annual kWh Savings  
(\$0.15/kWh)**



# Incentive Limitations

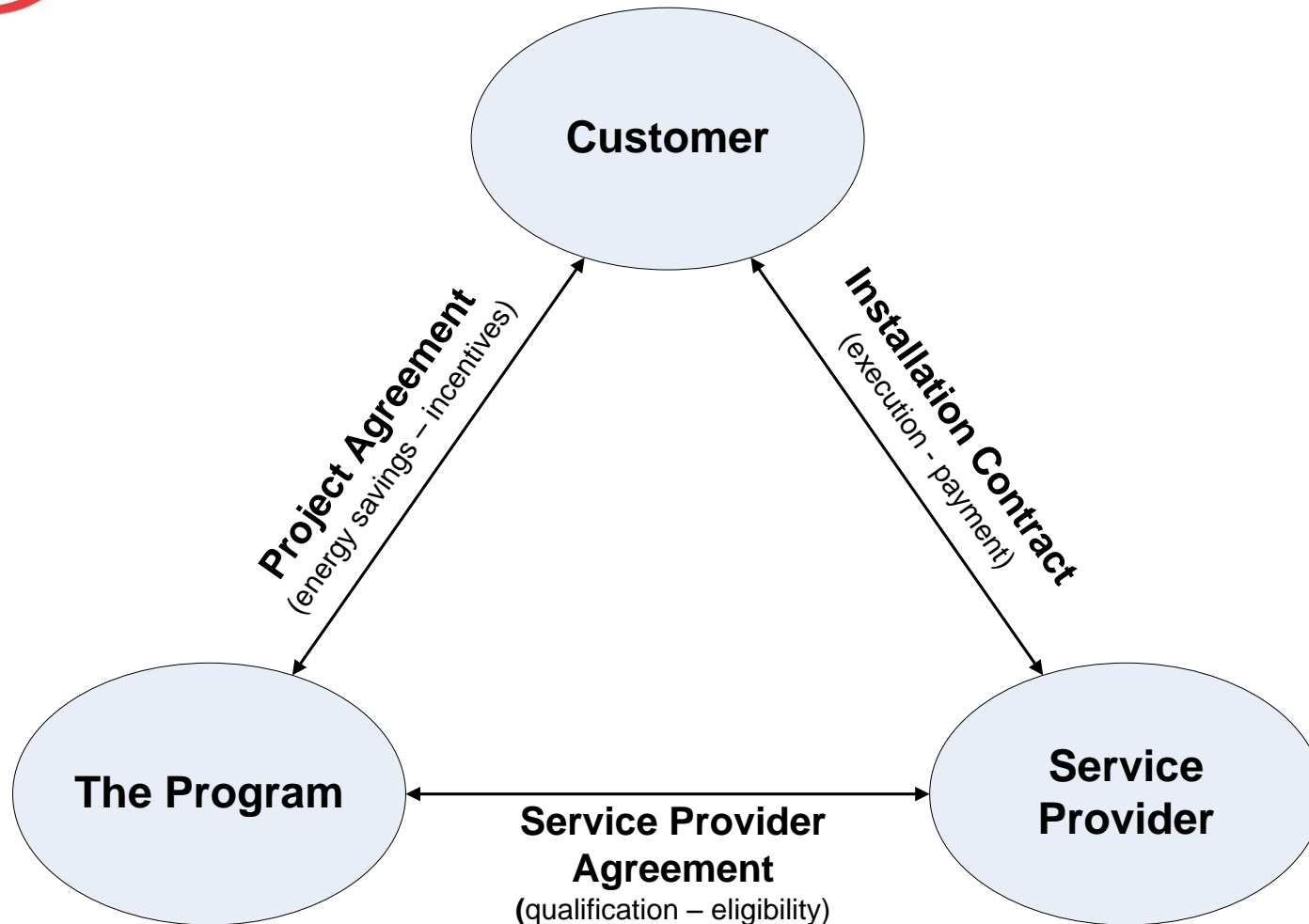
- **Minimum Project Size**: Must produce at least 50,000 kWh annual energy savings or 5 kW peak-demand reduction.
- **Customer Annual Incentive Cap**: Incentives available for any single Customer's project/s are limited to 30% of the Program year's initial annual incentive budget.
- **Project Incentive Cap**: Incentives will be limited to 80% of the final installed cost of the LED lighting Project.
- **Project Payback Limitation**: For Projects that would result in less than a one-year Customer payback period for Customers, incentives will be adjusted to limit payback to at least one year.



# Project Roles and Process

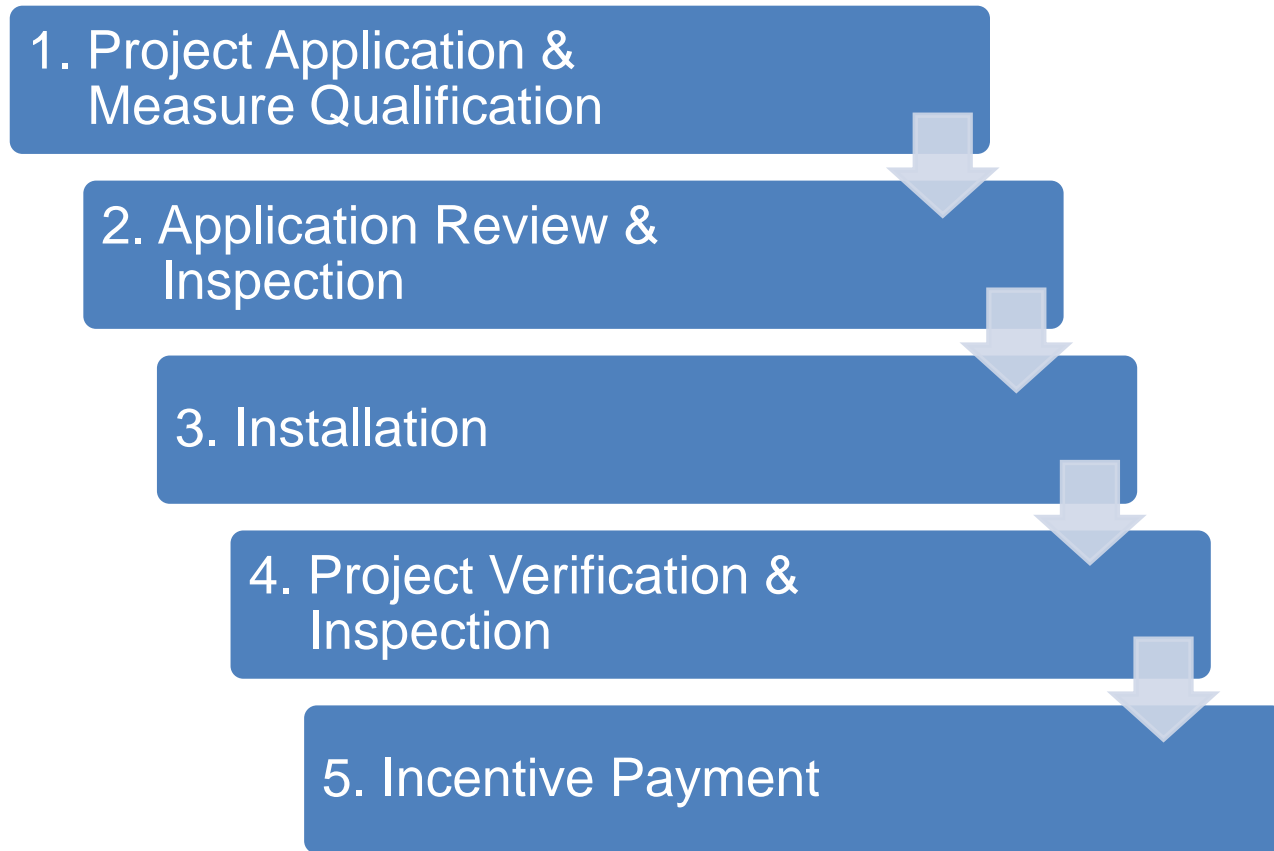


# Project Structure





# Project Phases



*See Program Manual for detailed information about the Project process*



# Step 1: Project Application

- Verify Project eligibility
  - Program Implementer conducts initial on-site visit of customer's project site AND
  - Service Provider and/or customer provides the Program Implementer with the installation site's ESI ID for verification
- Service Provider submits test reports (including LM-79 and LM-80) and other measure data to Program Implementer



# Step 1: Project Application

- Service Provider conducts Field Audit of the site:
  - Inventory and photograph existing lighting to be upgraded
  - Create LED Installation Recommendation and price quote (constitutes Contractor's estimate and bid)
  - Calculate Project savings and incentives
  - Timeline (start date, milestones, completion date)



# Step 1: Project Application

- Service Provider prepares Project Application
  - Describes site, measures to be installed, estimated on-peak demand and annual savings, and estimated incentive payments
- Customer signs Project Agreement
- Completed Project Application is submitted to the Program Implementer



## Step 2: Application Review

- Program Implementer evaluates LED product data against eligibility requirements to qualify the proposed LED fixture
- Program Implementer conducts Pre-installation Inspection to:
  - Verify baseline conditions documented in Project Application and savings calculations
  - Verify feasibility of installing proposed measures
  - Ensure installation of new measures has not already begun



## Step 2: Application Review

- Upon approval of the Project Application, Program Implementer signs the Project Agreement
  - This serves as the contract and incentive agreement between the Program and Customer
- Program Implementer sends notification to proceed with installation



## Step 3: LED Installation

- Customer and Service Provider enter into legal contract, including payment terms, for LED installation (the Program is not a party to this contract).
- Service Provider performs installation of LED measures according to timeline
- Service Provider keeps Program Implementer updated on installation progress, issues, etc.
- Program Implementer monitors installation and schedule
- Upon completion, Service Provider submits Installation Notice



## Step 4: Post-installation Inspection

- Program Implementer conducts Post-installation Inspection to verify that installed LED measures:
  - Match the Project Application
  - Are installed properly and functioning at optimal levels



## Step 5: Incentive Payment

- After Project passes the Post-Installation Inspection, the incentive payment is processed
- Incentive check delivered to customer in 4 to 6 weeks



## [www.takealloadoftexas.com](http://www.takealloadoftexas.com)

The Program Web site will serve as the source for all updated program information, including:

- Program Manual
- Program Summary
- Program Presentation
- List of Qualified Service Providers
- Service Provider Application



# Contact Information

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