






Making Utility Efficiency Funds Work for You

December 2, 2014
3:00-4:00 PM EST

Overview and Agenda

- Welcome and Overview
- Whole Foods Market
- General Motors
- City of Houston
- Additional Resources
- Question & Answer Session

Today's Presenters

Name		Organization
Mike Guldenstern		e2s for Whole Foods Market
Gary Londo		General Motors
Alex Heim		City of Houston

Mike Guldenstern

e2s for Whole Foods Market

Streamlined Utility Incentives



Presentation Outline

- Don't settle for “prescriptive” incentives, seek a custom, volume program
- Case Study with NStar in Boston Market - MOU
- Property holders that benefit from this model
- Barriers against rapid implementation
- Utility internal stresses that drive success

Presenter: Mike Guldenstern

Director – e²s energy efficiency services, llc on behalf of Whole Foods Market

WFM Global Program Lead: Kathy Loftus

Wholes Foods Market Global Leader – Sustainable Facilities

WFM North Atlantic Regional Program Lead: Robert Donnelly

North Atlantic Senior Executive Construction Coordinator

Prescriptive vs. Custom Incentives



- Many property owners have exhausted prescriptive incentive opportunities
- Most Utilities offer a custom incentive program
 - Can be leveraged to allow deployment of current market efficiency technologies
- Often the existing custom path is a bit like...

Prescriptive vs. Custom Incentives

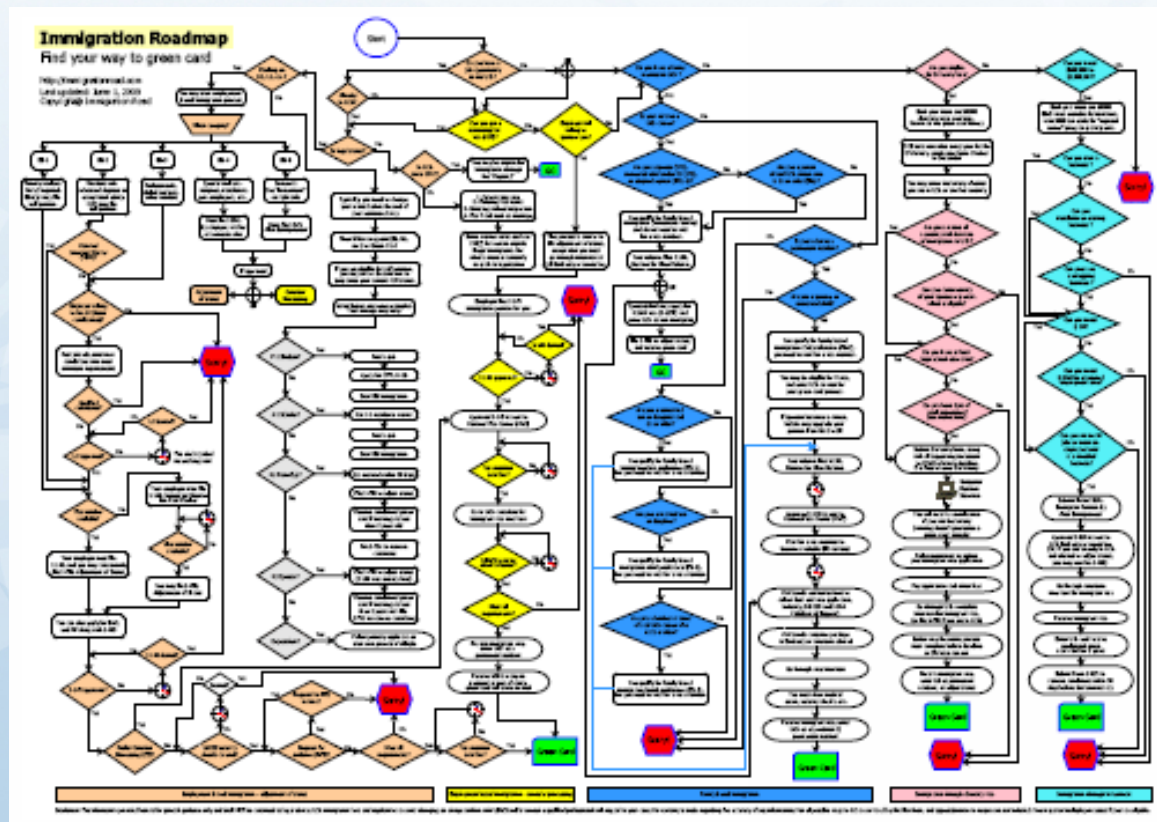
A mountain of paperwork, analysis, and time



Prescriptive vs. Custom Incentives

Or – “We’ll have our outsourced engineers talk with your engineers, and then we’ll talk about when we’ll talk next

Path to project review and approval ~ 2 years



Case Study - NStar Boston MOU



- Memorandum of Understanding
- Supports the speed of Commercial business
- Cut out all red tape – “off the reservation”
- Collaborative spirit of energy conservation
- Propose projects/technologies with clear engineering backup for review by utility team
 - Often agreed rapidly with some back/forth
 - Occasional analysis / M&V required
- Approved project classes created easy repeat path

Who Can Benefit?

Property owner/operators with:

- Volume quantity of buildings within single unique utility service territory
- Volume quantity of similar buildings/systems
- Helps replicate measures swiftly across buildings

Barriers Against Rapid Implementation



- Utilities often don't / won't share information
- “Island” effect for project/savings penetration
- Fresh negotiation with new utility
- No accepted national archive for allowable references
- Individual State P.U.C.'s demand audit trail
 - Creates heavy, individual M&V and analysis burdens
- Some Utilities annually under funded for incentives and require mandatory sub-metering (ex: Texas)

Bright spots:

- Energy Star label programs, and DLC for LED's
- Trusted third party could function as a project repository shared with utilities nationally

Utility Stresses that Drive Success



- Many Utilities struggle to spend their collected “Societal Benefit Fund” (incentive funding pool)
- Many are under intense scrutiny to relieve current and future grid pressure
- Older plants closing, none coming online
- Utility directors incentivized for funding payout performance – they want to deploy the funding
- Utilities want to be in the “good news” business
- Let’s help them help themselves transform the market

Gary Londo

General Motors

UTILITY BASED INCENTIVE PROGRAMS FOR ENERGY REDUCTION

2014 U.S. Department of Energy Better Buildings Better Plants

Gary J. Londo
Energy Leader/Senior Energy Engineer
Global Engineering

November 23, 2014



GENERAL MOTORS

AGENDA

GM ENERGY MANAGEMENT

GM PROJECT PLANNING

TARGETING INCENTIVES

140 GLOBAL
MARKETS

DESIGNING & ENGINEERING
100 VEHICLES
AROUND THE WORLD

GENERAL MOTORS



OVERVIEW OF GM MANUFACTURING

Design, build and sell the world's best vehicles

Build 9 million vehicles per year= \$1 billion in energy

Enough electricity to power 1 million homes

Carbon equivalent of 172 million trees for 10 years

Enough water to fill 166 billion glasses



GENERAL MOTORS

GM ENERGY MANAGEMENT

Sites: 166

Countries: 30

Regional teams: 4

Site utility managers: 120



\$7M/person





**WE STRIVE TO REDUCE
EMISSIONS & PETROLEUM
DEPENDENCE BY BEING
MORE ENERGY EFFICIENT**



**Reduce
Use**



**Renewable
Energy**



**Reduce
Emissions**

ENERGY USE REDUCTION AT GLOBAL FACILITIES

28%

FROM 2005 – 2010

3.34 M

METRIC TONS
GREENHOUSE GAS
EMISSIONS AVOIDED

7%

FROM 2010 – 2012



EMISSIONS REDUCTION AT GLOBAL FACILITIES



GENERAL MOTORS

28%

FROM 2005 – 2010

5.3%

FROM 2010 – 2012

60%

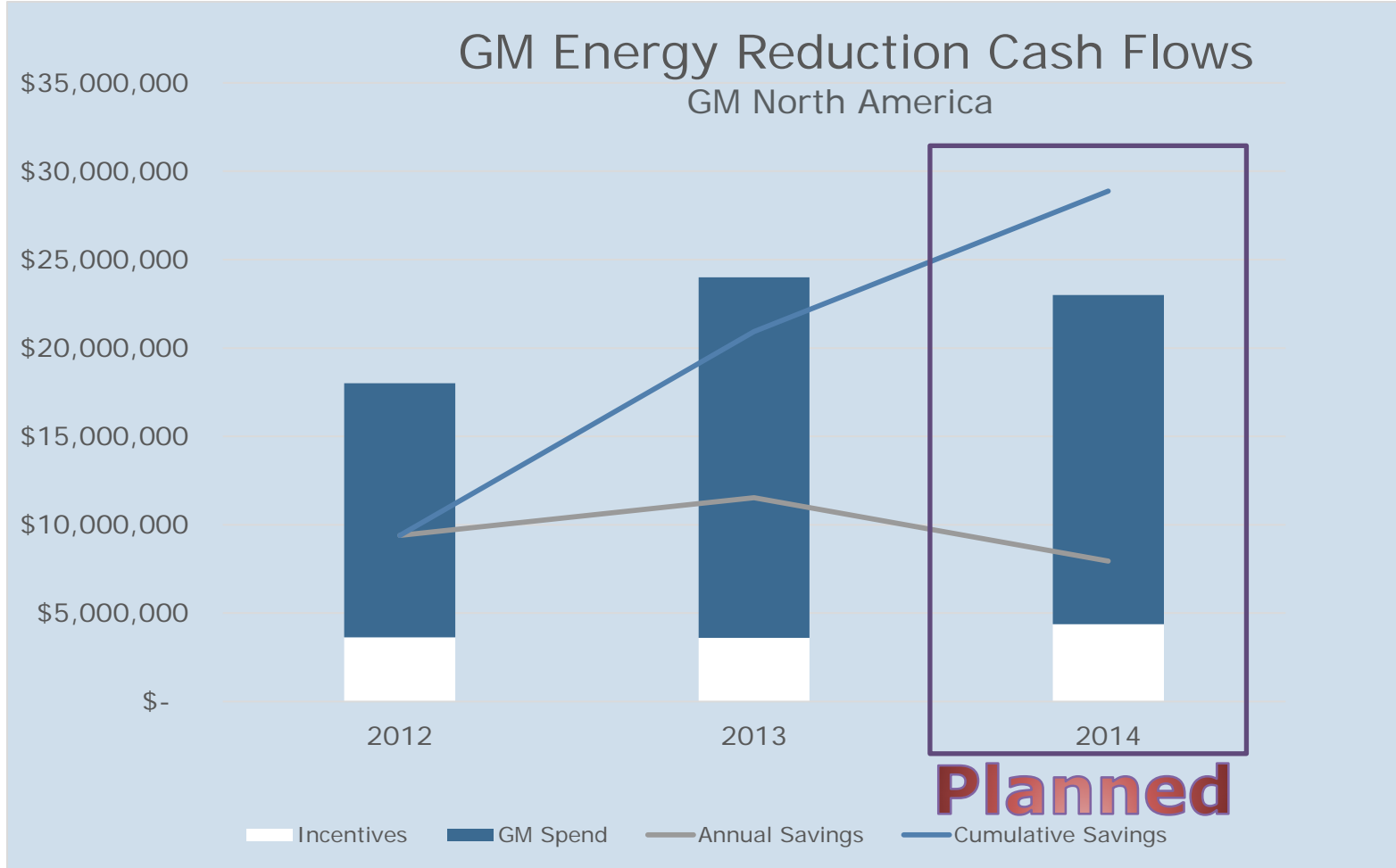
SINCE 1990

GM ENERGY PROJECTS

- GM commits **funding and resources** continuously to reduce energy, water and carbon emissions.
- We **work with stakeholders** to reduce energy and related costs
- Common desire to **save the most amount of energy** at the least amount of cost and as quick as possible
- Budgeting and scheduling of work are the some of the **greatest obstacles** to industrial energy reduction.
- Committed to working with energy reduction stakeholders/partners to continuously **reduce consumption responsibly**

GM ENERGY PROJECT INVESTMENT HISTORY

ENERGY PERFORMANCE CONTRACTS AND DIRECT FUNDED PROJECTS

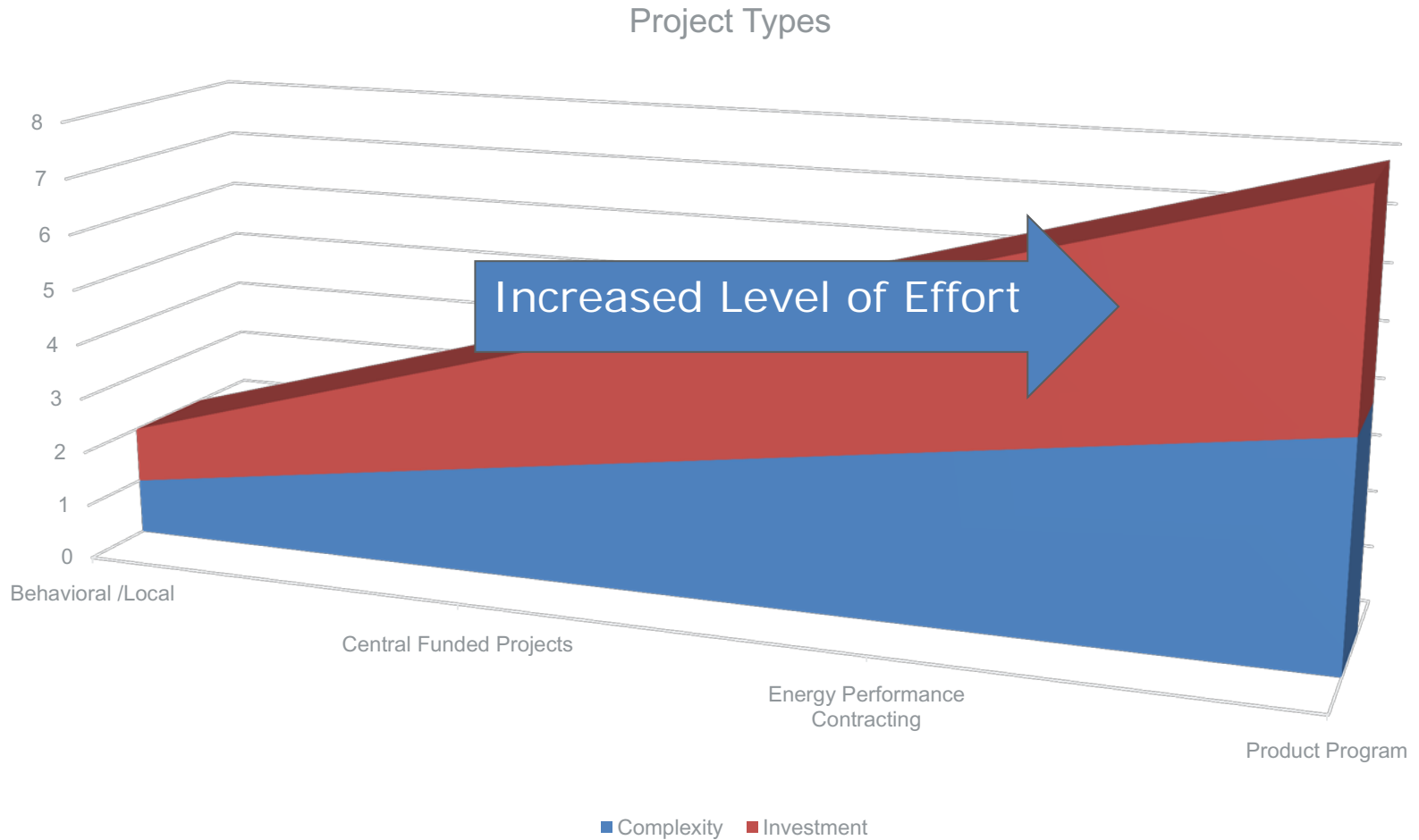


GM ENERGY/WATER PROJECT TYPES

Projects are classified by **investment and involvement** required to execute

- Direct centrally-managed energy and water reduction projects (2 year or less payback)
- Energy performance contracting (2-5 year payback)
- Direct product program changes (which are product driven but reduce energy)
- Locally-managed reduction projects/behavior changes (low cost projects with quick payback)

PROJECT TYPES



GM ENERGY/WATER PROJECTS OVERVIEW

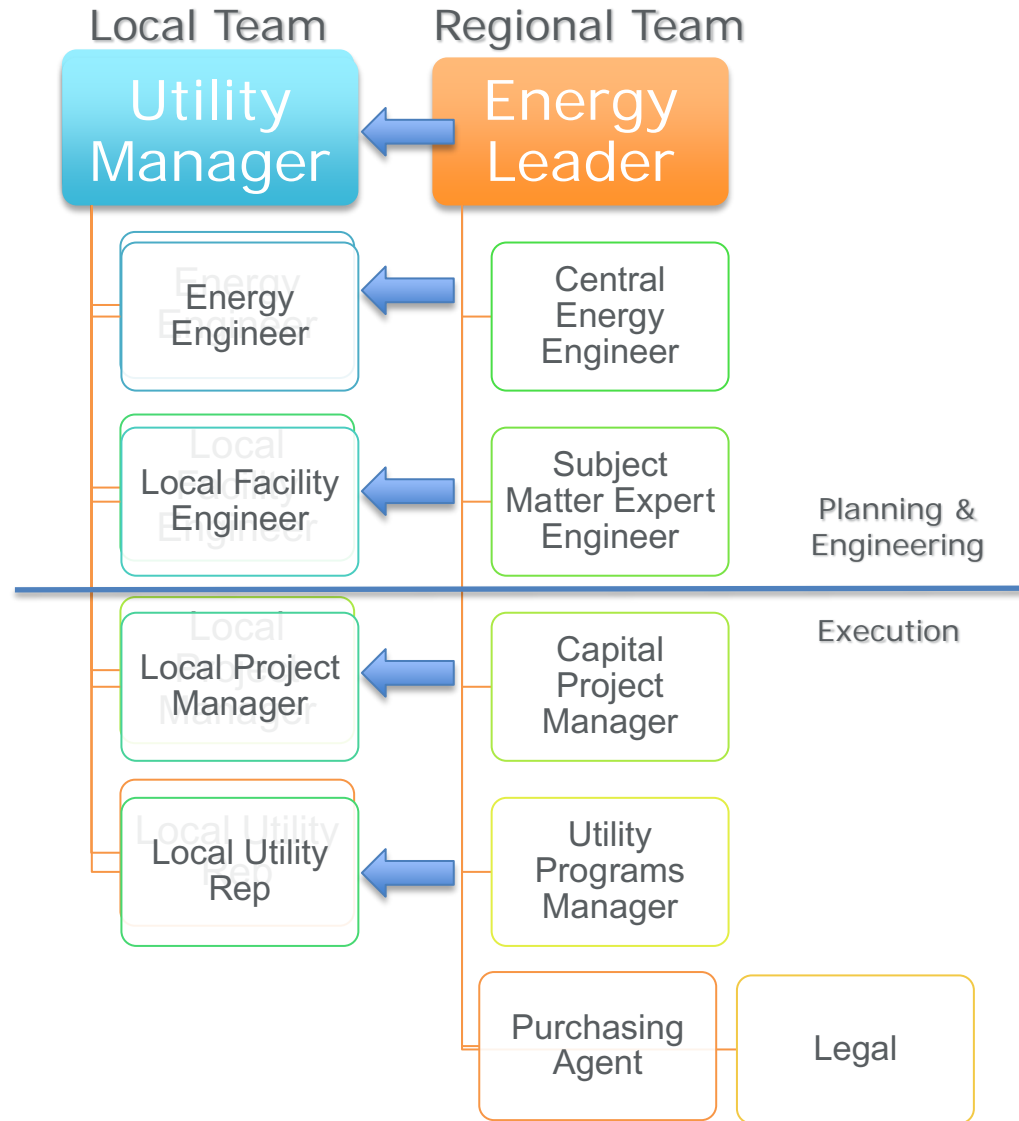
Functional Project Team Structure

(FUNCTIONAL RELATIONSHIPS)

Smaller Projects with High Investment and Complexity

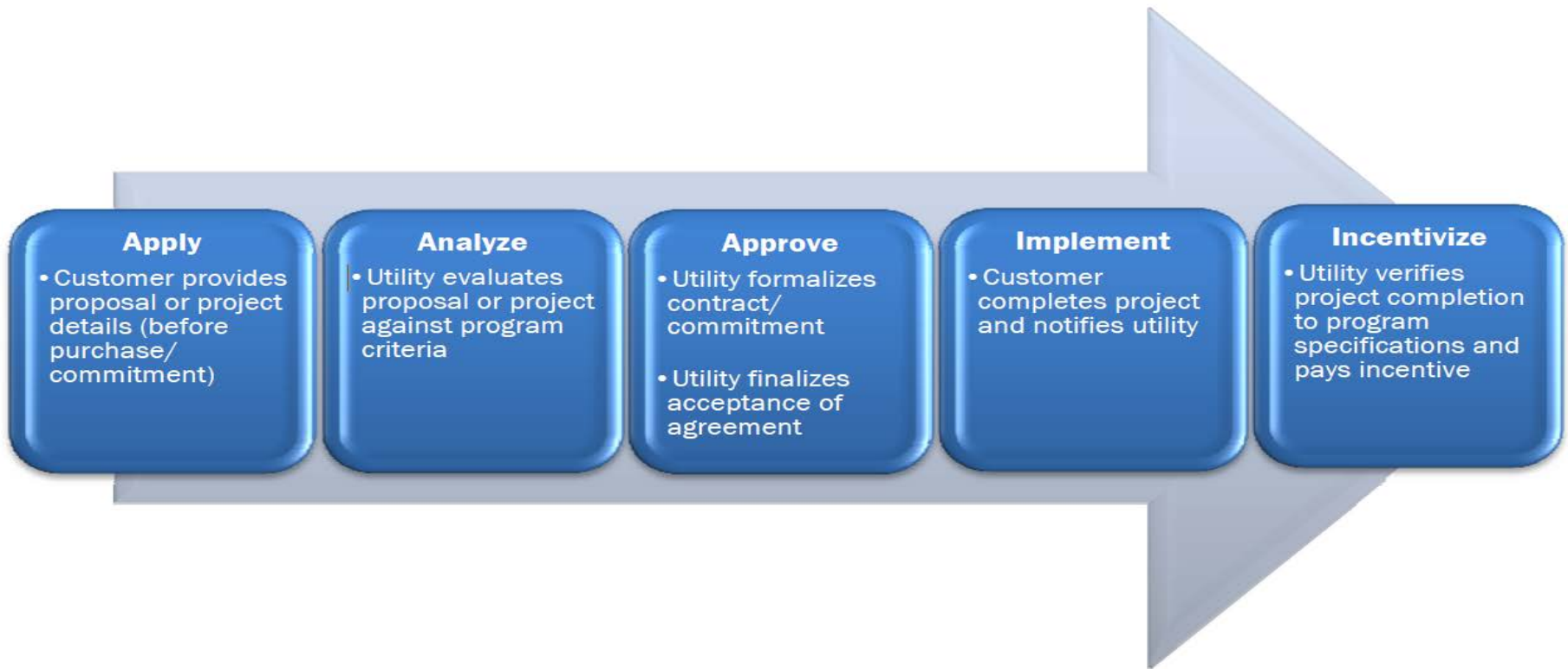
Project Team Advantages

- Coordination with program owners
- Projects are planned to maximize incentive/investment
- Technical assistance is greatly increased
- Utilities and GM are able to plan long-term



GM ENERGY/WATER PROJECTS OVERVIEW

STEPS REQUIRED TO USE UTILITY INCENTIVES



GM PROJECT APPROVAL

GM prioritizes energy and water reduction projects based on:

- Strategic goals
- Financial considerations
 - Simple payback (cost savings)
 - Complex Payback (cost-incentives/savings)
- Risk and timing
 - Possible change in incentive
 - Meeting commitment dates
 - Annual incentive caps

UTILITY BASED INCENTIVE PROGRAM

Advantages:

- Direct source of supplemental funding for energy projects
 - Offset capital investment in business planning
- Business planners have shorter “paybacks”
 - Longer paybacks limit investment and energy saved

Opting Out:

- Attractive depending on the economics
- Always reduce the amount of energy projects performed if concerned with ROI
- Economics generally NOT accounted for in ROI calculations

GM ENERGY/WATER PROJECTS OVERVIEW

Noted differences in incentives across utility sector

- ✦ Program annual caps
- ✦ Facility caps
 - Experience in large projects
 - Third party M&V
- ✦ Pay for engineering on large projects
- ✦ Difficulty with commitments between fiscal calendar years
- ✦ Short implementation windows
 - Flexibility, willingness to implement meaningful energy projects within program rules
 - Program rules change year-to-year

OPPORTUNITIES FOR IMPROVEMENT

Implementation windows for projects present risk for customers

Utilities that require a project to be executed within 90 days of incentive approval insert risk into the financial and planning part of project approvals. Most utilities offer extensions, however when a project is complex and lengthy getting continuous extensions puts companies at risk of losing incentives half way through execution.

Engineering on large projects is costly and risky

Engineering often times is required to execute large energy and water reduction projects. Sometimes the engineering reveals projects are technically or economically impractical. This represents risk and slows down project evaluation. A good example of an engineering based assistance program is NYSERDA's Flextech program which is very aggressive with conceptual engineering of large projects.

Fiscal year funding is problematic for customers

Projects are planned continually at many customers, although spending is managed year to year prioritization and scheduling occurs continuously. Utilities that will not approve projects in the last quarter of the year delay execution of first quarter projects

Annual maximum awards by company and by facilities

This has the ability to make large aggressive energy projects financially impractical. Large aggressive projects at one location is the best use of utility rebate dollars, company investment dollars and resources to achieve the highest possible savings in the shortest amount of time.

Increased accommodation for large projects

NEW TRENDS

Construction incentives

- These are a good idea and are difficult to use
- Construction is very complex and anything that makes it more complex is a challenge to integrate into the planning process

Water based incentives

- GM is striving to reduce water consumption as are many other industrial customers
- No known water savings incentives in any area where GM operates
- GM is working with the DOE on water consumption reduction pilot program similar to the DOE Better Plants Better Buildings program

SUMMARY

- When ROI and business case based, utility incentives **increase the number and complexity of projects** performed
- Maximizing utility incentives **requires coordination** and a great degree of planning
- Opting out of incentive programs **rarely makes sense** financially and reduces the energy one can save
- Business **planners require certainty** when approving projects that the economics will not change
 - If incentive outlook is unclear the project will not use incentives in business case and some will not be completed
- Utility-based energy efficiency incentive programs **need to work for all project types and sizes**

Alex Heim

City of Houston



City of Houston LED Streetlight Conversion

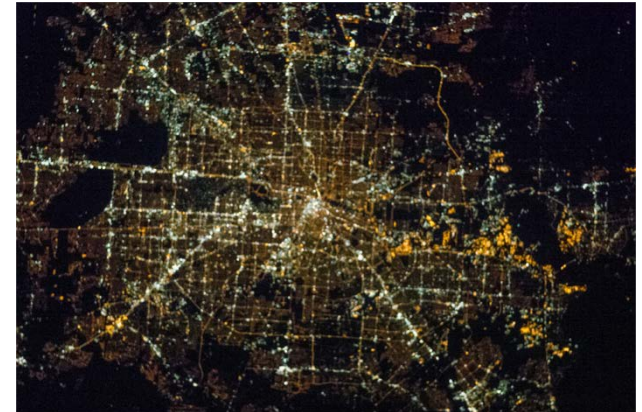
Alex Heim

Department of Administration & Regulatory Affairs



Background

- The conversation about LED streetlights began in May 2008.
- The administration of former Mayor Bill White was looking to achieve 3 main objectives:
 1. To transform Houston from the “Energy Capital of the World” to the “Energy Efficiency Capital of the World”
 2. To reduce the City’s electricity expenditures
 3. To reduce light pollution in Houston





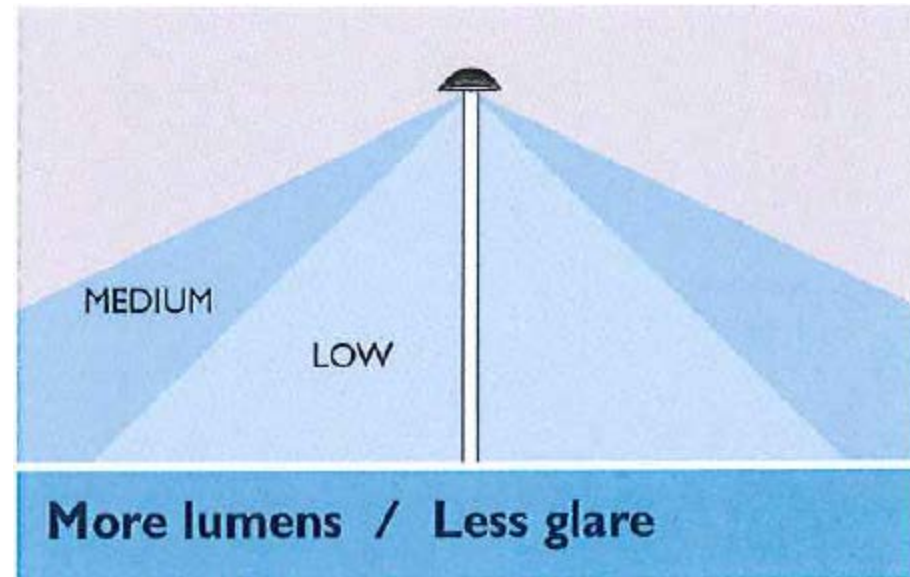
Project Challenges

- Demonstrate that LED technology is mature and feasible
- Demonstrate that such a project is cost-effective for an investor-owned utility
- Develop a reasonable per-unit cost
- Maintain project momentum despite external disruptions



Initial Discussions with CenterPoint

- The Clinton Climate Initiative discussed the idea with the City, and both then approached CenterPoint Energy, the local energy utility.
- Converting the City's streetlights to LEDs was not initially feasible.
 - CenterPoint felt that the technology was not yet mature
 - Other cities that had successfully switched to LED streetlights had done so through a municipally-owned utility.
- The City and CenterPoint agreed to continue researching the proposal as the technology matured and best practices could be identified.





Improvements in Technology

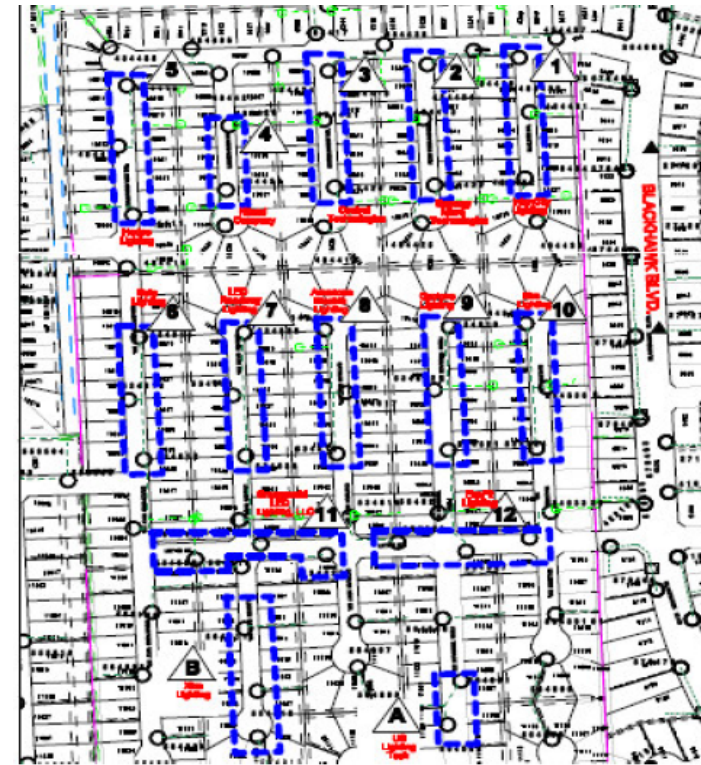
- The field experience from the City of Los Angeles as well as the advances in LED technology significantly redefined the existing cost models.
- The life of LED lamps was significantly extended.
 - The warranty for an LED lamp was now between 10 and 12 years.
 - Comparatively, the lifespan of an older lamp was only between 2 and 3 years.

LED MANUFACTURER LM80 REPORT	85°C	112°C	700mA	70000
ROADSTAR VALUES (these values represent the 90W49LED results)	65°C	82°C	570mA	+ 70000



The First Pilot Program

- With the success of the LA model, the City and CenterPoint agreed to a pilot program that began on 9/29/2009.
 - The pilot program was conducted in a residential area at the City's insistence.
- However, some of the LED lamps did not hold up well during the field test.
- Attitudinal surveys, on the other hand, gave the City a better understanding of the public's preferences.





Change in Administration

- After the pilot program had been concluded, several changes delayed a discussion about the cost and scope of a potential citywide deployment.
- Mayor Parker took office in January 2010.
- Due to the financial climate, CenterPoint did not believe citywide deployment was feasible at that time.



A Limited Deployment

- Discussions began again in 2011.
- The Clinton Climate Initiative approached the Central Houston Tax Increment Reinvestment Zone (TIRZ) with a proposal.
 - The City would continue to pay its tariff rate on streetlights, and the TIRZ would pay any incremental difference.
 - This project was successful, but was limited in scope to the Central Business District.





The Second Pilot Program

- CenterPoint and the City agreed to a second residential pilot program in late 2011 before pursuing a citywide conversion.
- This pilot program was much more successful than the first:
 - CenterPoint prequalified vendors on the supply side.
 - CenterPoint engaged with engineering staff from Los Angeles as well as with Clinton Climate Initiative technical staff to implement best practices.
- Although the project was successful, citywide deployment was delayed due to unrelated litigation.



Final Negotiations

- In 2013, the City and CenterPoint began the dialogue for citywide deployment.
- In May 2014, Mayor Parker formally announced that a deal had been reached.





Citywide Deployment

- CenterPoint received approval from the Texas Public Utility Commission for the new LED streetlight tariff in November 2014
- 165,000 streetlights will be replaced between 2015 and 2019.
- The streetlight conversion is estimated to reduce the City's municipal greenhouse gas emissions by 5% and reduce the City's streetlight energy usage by at least 50%.
- This reduction in energy usage is projected to save the City over \$1.2 million per month. This represents a projected savings in excess of \$28 million over the life of the project.

Additional Resources

For More Information

- Whole Foods Market
 - [Customized Utility Incentives Implementation Model](#)
 - City of Houston
 - [Financial Analysis Models for LED Street Lighting Programs](#)

Q & A

Join Us for the Next Better Buildings Webinar

Water World: Success Stories and Tools for Water Use Reduction in Your Building Portfolio

Date: Tuesday, January 6

Time: 3:00 – 4:00 PM EST

Presenters: National Church Residences, Cummins, Environmental Defense Fund

Register [here](#).

Additional Questions? Feel Free to Contact Us

betterbuildingswebinars@ee.doe.gov

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