



## LODI CITY COUNCIL

Carnegie Forum  
305 West Pine Street, Lodi

## "SHIRTSLEEVE" SESSION

Date: September 29, 2015

Time: 7:00 a.m.

For information regarding this Agenda please contact:

**Jennifer M. Ferraiolo**

**City Clerk**

**Telephone: (209) 333-6702**

### Informal Informational Meeting

**A. Roll Call by City Clerk**

**B. Topic(s)**

B-1 Changing Electric Utility Business Model (EU)

**C. Comments by Public on Non-Agenda Items**

**D. Adjournment**

Pursuant to Section 54954.2(a) of the Government Code of the State of California, this agenda was posted at least 72 hours in advance of the scheduled meeting at a public place freely accessible to the public 24 hours a day.

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Jennifer M. Ferraiolo  
City Clerk

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# CITY OF LODI COUNCIL COMMUNICATION

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**AGENDA TITLE:** Changing Electric Utility Business Model  
**MEETING DATE:** September 29, 2015  
**PREPARED BY:** Electric Utility Director

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**RECOMMENDED ACTION:** Receive report on the changing electric utility business model.

**BACKGROUND INFORMATION:** The business models of electric utilities are changing. Under the traditional model, utilities were the sole providers of electricity to meet a customer's power requirements. Customers now have the option to install generation on their premise, typically solar. In addition, on-site energy storage technology is becoming available to the general public.

With the traditional model, all costs associated with providing electricity to customers are recovered through various rate structures based on the manner in which residential and non-residential customers use energy. The revenues recovered through a utility's rates are then used to pay for the generation, transmission, distribution system, and other operational and regulatory expenses incurred.

From an operational standpoint, distribution systems were designed to meet standard customer requirements under the traditional electric utility business model. With the advent of customer-owned generation, however, distribution systems are now being taxed with customer solar generation as well.

As such, it has become necessary for utilities to evaluate the impact of these changes so that the utility recovers necessary costs and ensures one group of customers is not benefitting at the expense of another.

EES Consulting and staff will present a report to Council on the changing electric utility business model and discuss possible options for addressing these challenges.

**FISCAL IMPACT:** Not applicable.

**FUNDING AVAILABLE:** Not applicable.

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Elizabeth A. Kirkley  
Electric Utility Director

**PREPARED BY:** Melissa Price-Cadek, Rates & Resources Manager

EK/MPC/lst

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**APPROVED:** \_\_\_\_\_  
Stephen Schwabauer, City Manager



# Lodi Electric Utility

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## Changing Electric Utility Business Model

September 29 , 2015

A registered professional engineering corporation with offices in the  
Seattle and Portland metropolitan areas

Telephone (425) 889-2700 Facsimile (425) 889-2725

[www.eesconsulting.com](http://www.eesconsulting.com)

**EES** Consulting

# Agenda

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- Traditional Electric Utility (EU) Business Model
- NEW EU Business Model
  - Distributed Generation
    - Lodi Solar Installations
- Impact on Utilities
  - Revenue Erosion Cycle
  - Fixed Costs and Revenues
- Utility Solution
  - POU's and IOU's
- Options and Solutions for Lodi
- Summary/Conclusions
- Next Steps
- Questions

# Traditional EU Business Model

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- Utility provides power to meet customer's total need
  - Power supply
  - Delivery of power
  - Customer service
- Utility is sole provider
- Customers differ by usage, but otherwise fairly similar
- Distribution system designed to meet standard customer requirements

# NEW EU Business Model

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- Distributed Generation
  - Solar
    - Costs decreasing
    - Economic incentives available
    - Generous net metering policies / minimal fixed charges
    - Environmental benefits
  - Battery Storage
    - Way of the future – not there yet
      - Tesla home battery
    - Still costly for average homeowner

# Lodi Solar Installations

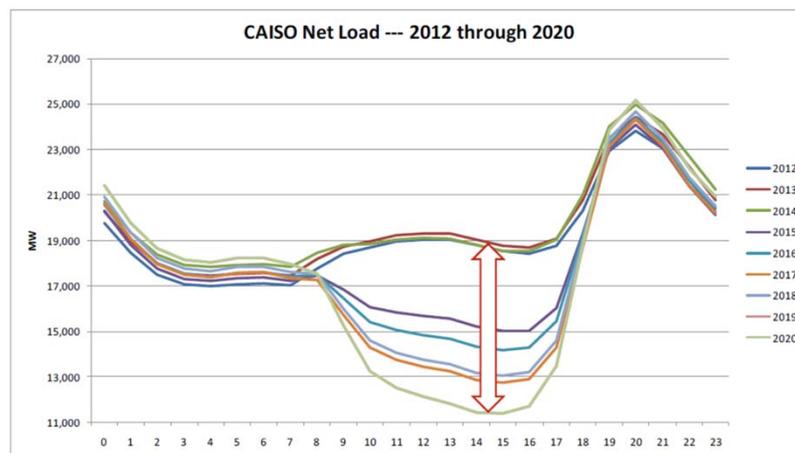
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- Systems installed: 426
  - ▣ 388 residential
  - ▣ 38 commercial
- Installed capacity: 3.5 MW
- Approximately 5,250,000 kWh/year
  - ▣ 1.2% of load
  - ▣ Net loss of ~\$600,000
    - 0.92% of sales revenue

# Impact on Utilities

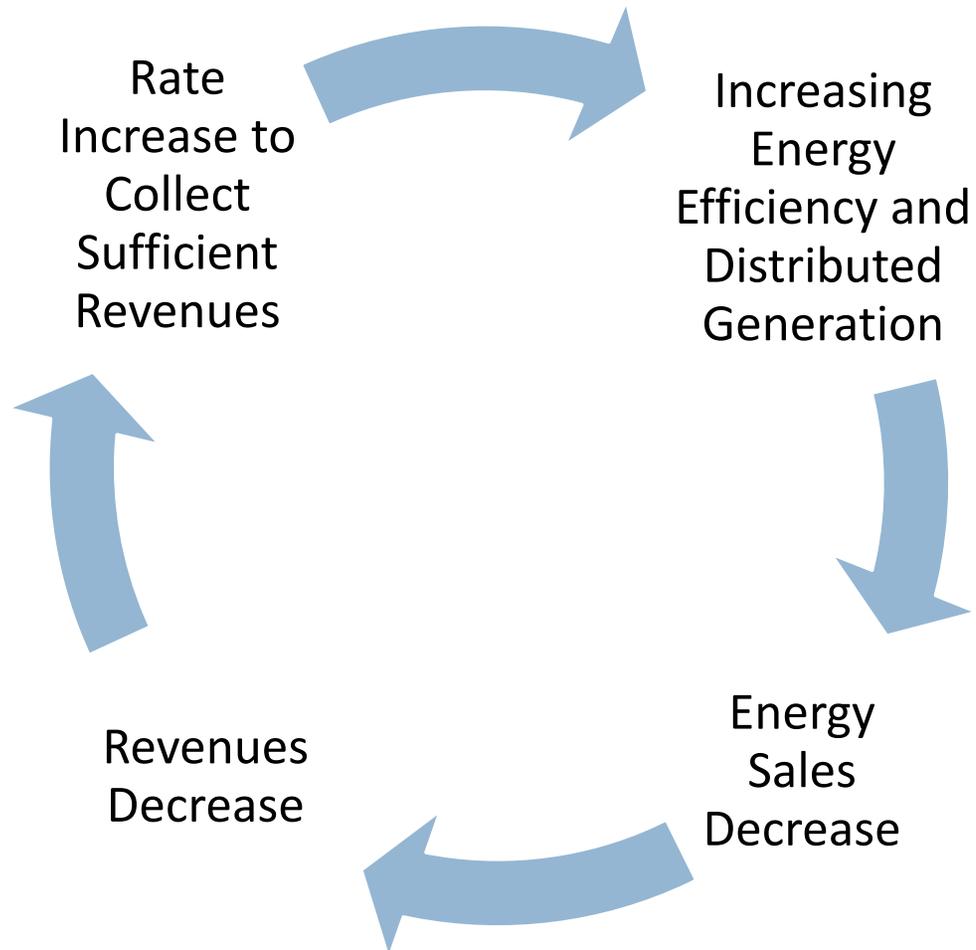
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- Solar customers need grid when sun isn't shining
  - ▣ Steep ramping needs
  - ▣ Over-generation risk
- Net generators compensated at rate higher than cost of power
  - ▣ Fixed costs fall on non-solar customers
- Potential inequity across income levels
  - ▣ Cost of maintaining grid assigned to those who can't afford

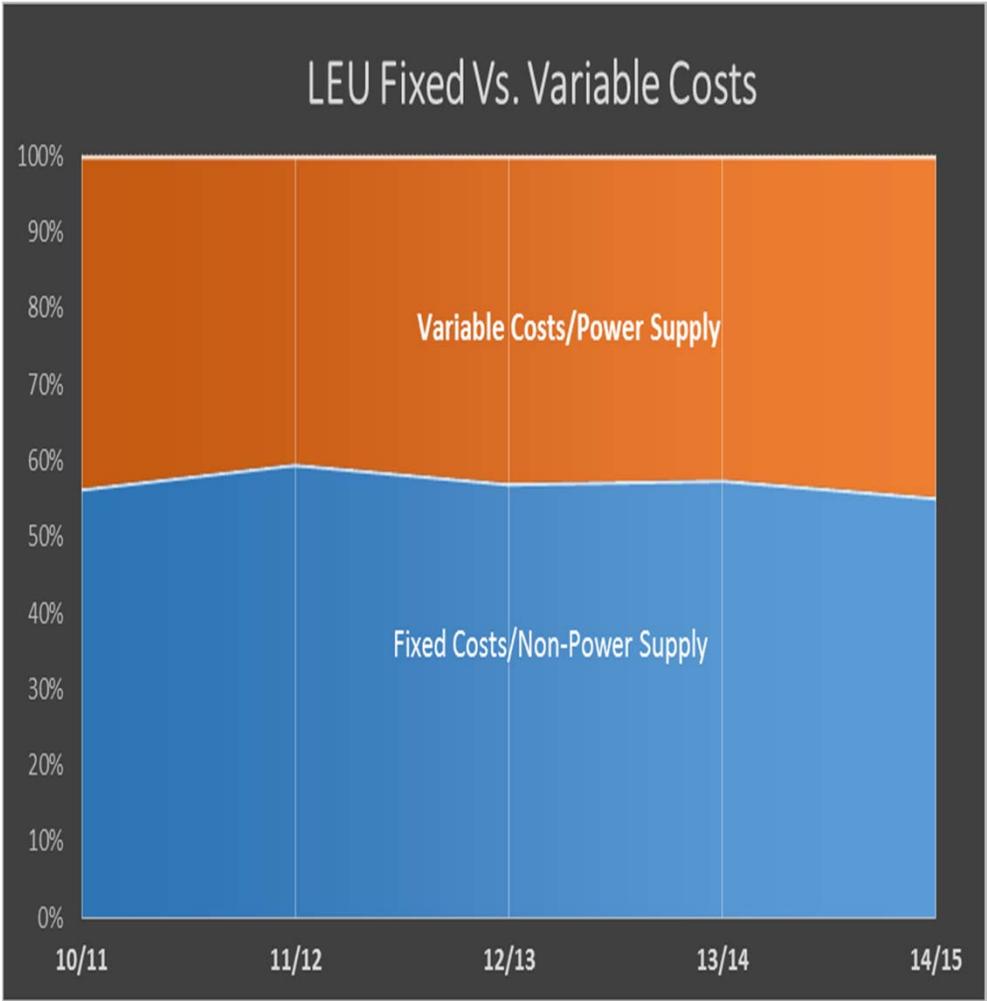
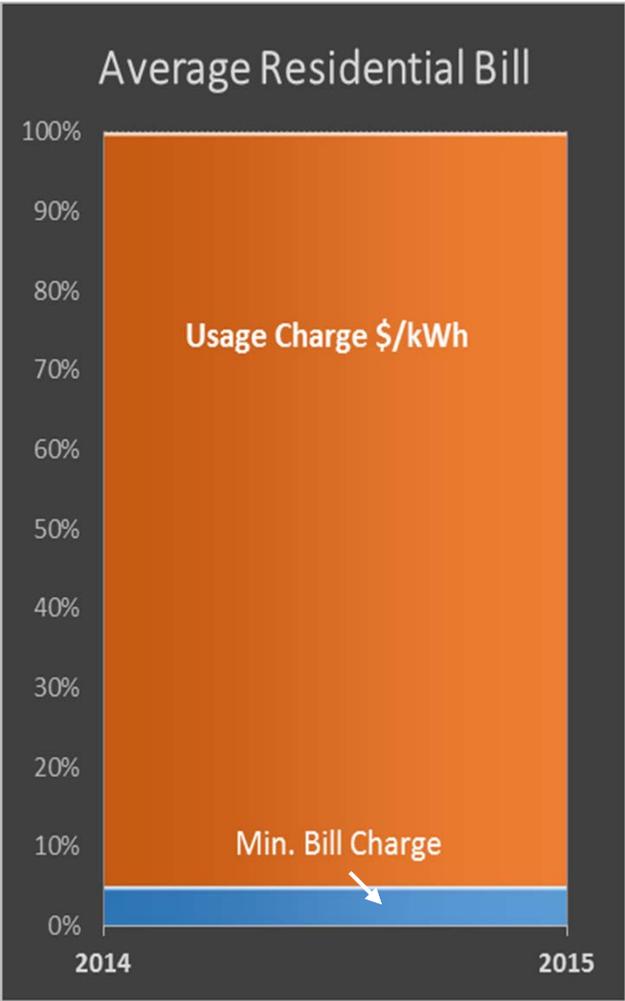


# Revenue Erosion Cycle

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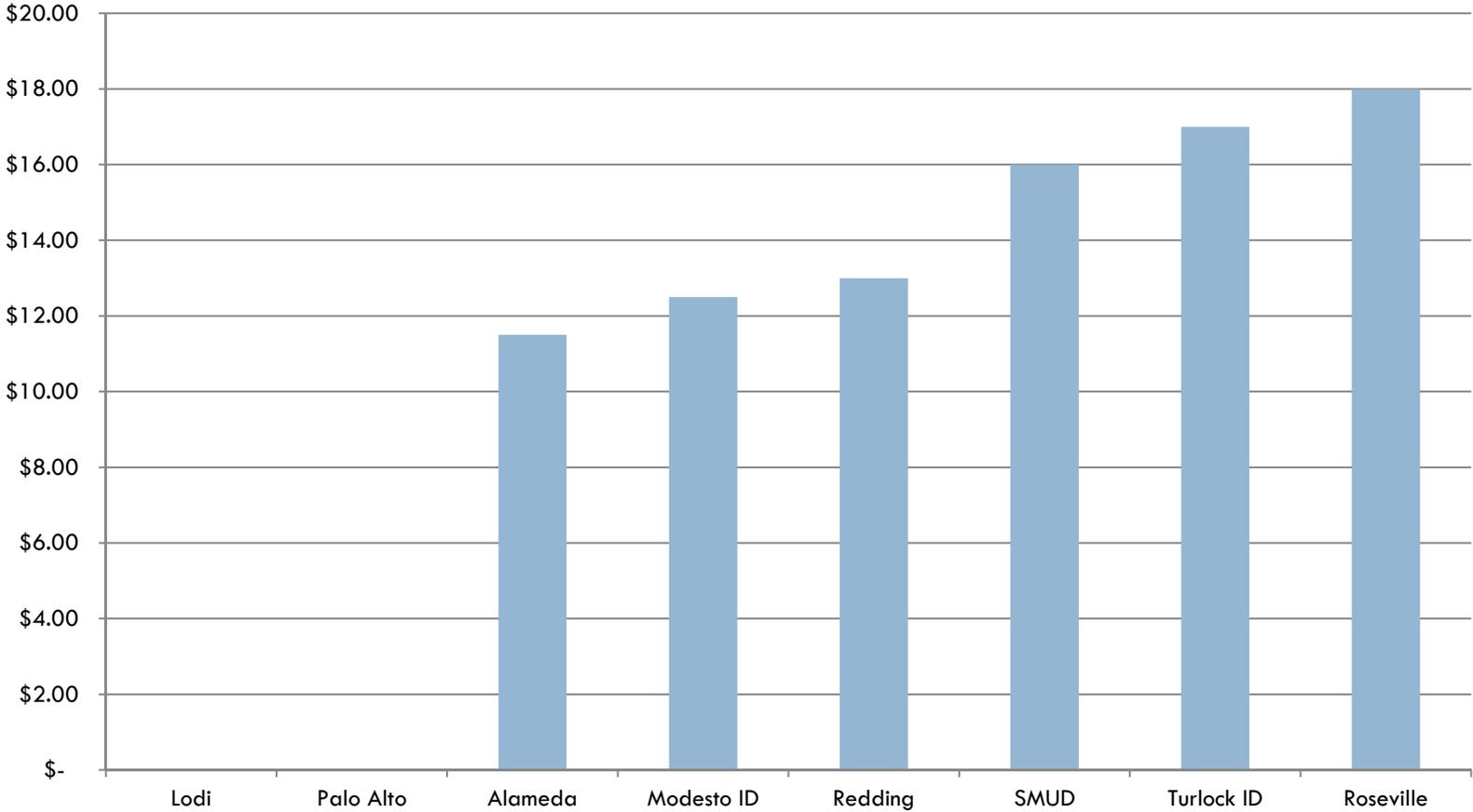


# Fixed Costs and Revenues



# Utility Solution – Publicly Owned Utilities (POUs)

POU Monthly Fixed Charge (\$/Month)



Note: Lodi has a minimum bill of \$5.25

## Utility Solution – Investor Owned Utilities (IOUs)

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- Approved Glidepath for Tier Consolidation
- Change from 4 tiers to 2 tiers by 2017
  - ▣ Pricing differential of 25%
  - ▣ Transition to 3 tiers by 2016
- Surcharge for high users
- \$10 minimum bill
- New net metering program by 2017
  - ▣ Compensation based on value of solar
- Time-of-use rates by 2019

# Options & Solutions for Lodi

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## □ Status Quo

- Pro:
  - No changes for customers
- Con:
  - Inequities between users

## □ Minimum Bill

- Pro:
  - Ensure some collection of fixed costs from solar customers
- Con:
  - Unless set high, recovers minimal amount of revenue

# Options & Solutions for Lodi (cont.)

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- Fixed Monthly Charge
  - ▣ Pro:
    - Ensures collection of fixed costs from solar customers
    - Could reduce energy charges in tiers
  - ▣ Con:
    - Could discourage solar installations
    - May increase costs to low users

# Options & Solutions for Lodi (cont.)

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- Decoupling
  - ▣ Pro:
    - Ensures collection of all costs
  - ▣ Con:
    - Does not ensure collection of fixed costs from net-metering customers
    - Counterintuitive for those striving to conserve
- Demand Charges
  - ▣ Pro:
    - Provides accurate price signal to customers
    - Based on cost-causation
  - ▣ Con:
    - Can impact customers significantly depending on load factor
    - Current meters don't register demand
    - Challenges with fixed network/billing system

# Other Rate Issues

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- Time-of-Use (TOU) Rates
  - Pro:
    - Provides accurate price signal to customers
    - Provides energy efficiency incentive
  - Con:
    - Does not ensure collection of system costs from net-metering customers
    - Must be very targeted or customers will not shift energy use
    - Metering infrastructure not equipped to handle
      - Would require custom programming
- Tier Reduction
  - Pro:
    - Better aligns costs and charges
    - Ensures collection of some fixed costs from solar customers
    - Simplifies rate structure
  - Con:
    - Does not collect sufficient fixed costs from solar customers
    - May increase costs to low users

# Summary/Conclusions

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- Changes in average use will materialize slowly
  - ▣ Takes time to fund and implement energy efficiency measures and distributed generation
- Utilities need to review rate setting principles if average usage decreases over time
- Increasing only the variable rate components is a popular approach to increasing revenues
  - ▣ Utilities need greater increases in fixed rate components in order to stay on top of changing consumption characteristics
  - ▣ Increasing basic charges may be unpopular with customers, but it is a valuable risk mitigation strategy
- Moody's (November 2014) – “action by utilities...to refine utility cost recovery models to stay ahead of a potential industry transformation involving widespread adoption of DG lessens the threat of disruption.”

## Next Steps

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- EES to conduct review based on Council preferred option(s)
- Impacts to various customers to be brought back to Council
- Council to consider rate structure changes

# Questions?



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**EES** Consulting

**Anne Falcon, Senior Associate**  
**EES Consulting**