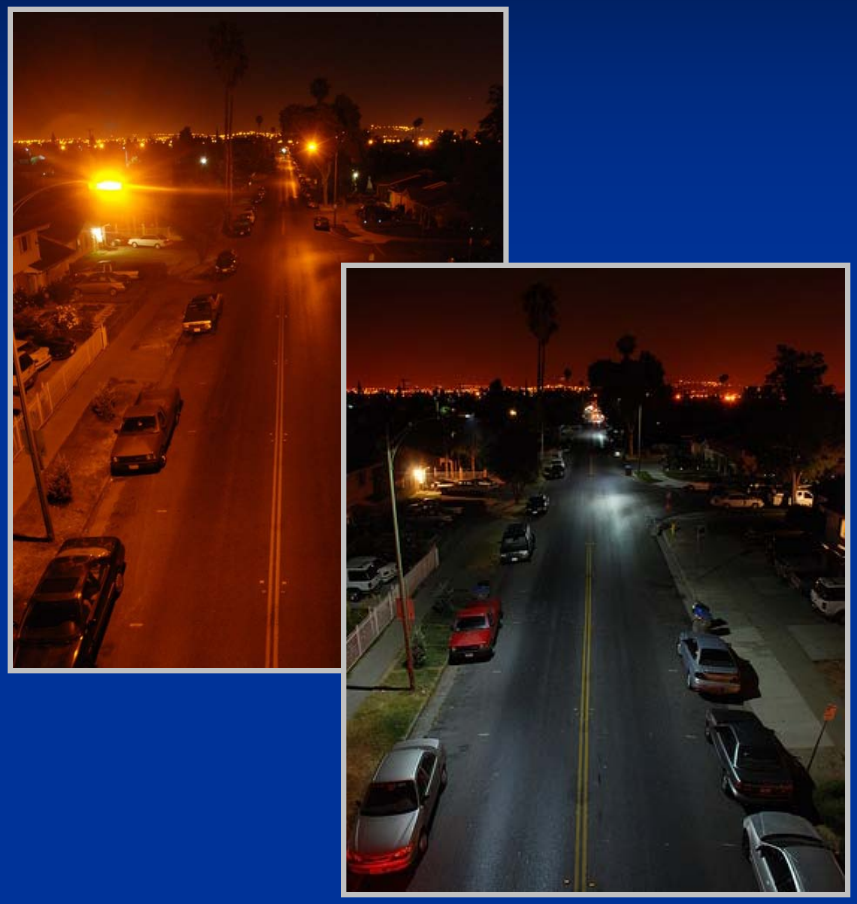
San José: LED Street Lighting and Controls



Municipal Solid-State STREET LIGHTING CONSORTIUM

DOE Solid-State Lighting Market Introduction Workshop
July 20, 2010

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Presentation Topics

- Background
- Streetlight Program Strategy
- Conversion Efforts
- Challenges
- Participation in DOE Municipal Consortium
- Next Steps

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City of San José

- Population
  - *1 million +*
  - *10th largest city in US*
  - *3rd largest city in California*
- Capital of Silicon Valley
- Large High Tech Employers
- Large Streetlight Inventory

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Streetlight Program Progress

- 1980: Installs LPS & HPS
- 2008: Revises Streetlight Policy
- 2008: SJ demo “smart” LED lamps
- 2009: SJ trailblazer on “smart” streetlights
  - Pilot project converting lower wattage
  - Pilot project converting higher wattage
- 2010: Streetlight Demonstration Project
- 2010: SJ continues to influence LED lighting industry and controls

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Driving Factors

- Reduce O&M costs
  - 13,000 lights replaced/repaired per year
  - 3 year cumulative general fund deficit > $100 m
  - Spending $4 m/year on energy
  - 900 streetlights shut off in 2008
- Improve quality of lighting
- Directional lights
- Advance San José Green Vision
- Protect night sky for Lick Observatory

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Strategy

- General
  - Technology
  - Dimming
  - White light factor
  - Metering
- Conversion Plan
  - Get most bang for the buck
  - Citywide exposure to white light
- Challenges
  - Observatory concerns
  - Funding
  - Regulations – meters and tariff

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LED

- LED streetlights
  - Energy efficient
  - Long lasting
  - Directional
  - Uniformity
  - No hazardous waste

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LED

- Challenges
  - Standards still evolving
  - Long ROI
  - Varying qualities
  - Warranty (luminaire/controls)
  - Longevity (driver/LED chip)
  - Pricing

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Network Control System

- Communication and control system
  - Programmable and remotely controlled
  - Powerline/Wireless communication system
  - Web based access
  - GPS positioning
  - Monitoring and reporting application
- Challenge
  - Finding system with minimal on-going fees
  - Maximize use of existing communication infrastructure

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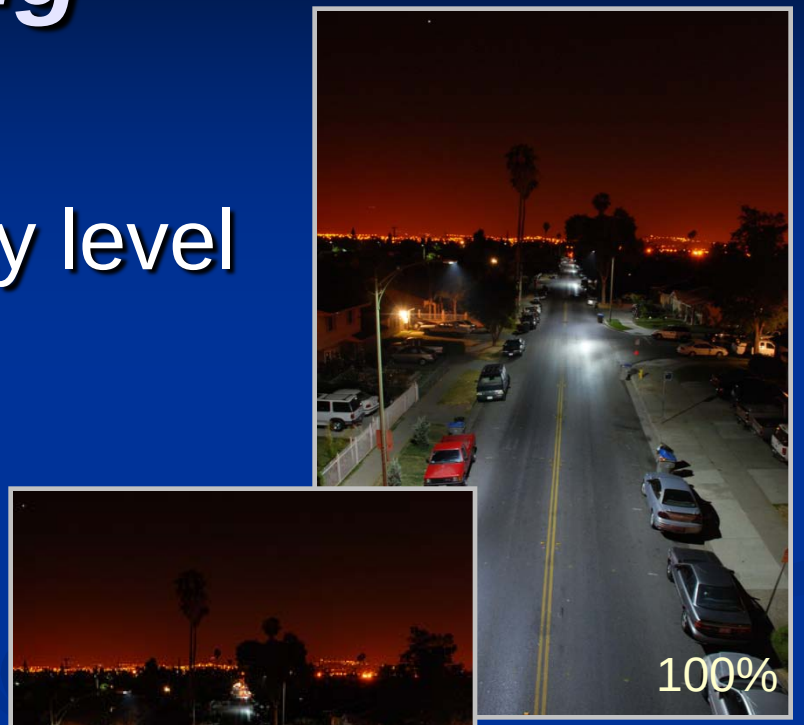
Dimming

- Network control
- Lighting based on activity level
- Benefits
  - Reduce energy use
  - Reduce glare
  - Minimize light pollution



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Metering

- Benefits
  - Credit for actual energy consumed

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Metering

- Current Challenges
  - Acceptable level of accuracy
    - Currently streetlights un-metered: no data
    - High accuracy standard for residential and commercial
    - Cost prohibitive for streetlights to meet this standard
  - Need to find the “sweet spot”

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Metering

- Future Challenges
  - Regulatory and Administrative
    - Tariff change to reflect individualized meter
    - Security
    - Meter ownership
    - Level of reports/data

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Municipal Consortium

- Participation
  - Advance LED lighting and network controls
  - Remote Monitoring and Controls Workgroup
- Information Repository
  - Forum to share information
    - Tested and tried “best practices”
    - Develop consistency in standards

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What's Next?

- Community meetings to share outcome of Streetlight Demonstration – Summer 2010
- Streetlighting Master Plan – Fall 2010
  - Adaptive Lighting Design Guide
- Work with PG&E and CPUC to allow local agencies to allow streetlight metering
- Implement funded projects
- Continue to seek grant funding
- Explore various financing options

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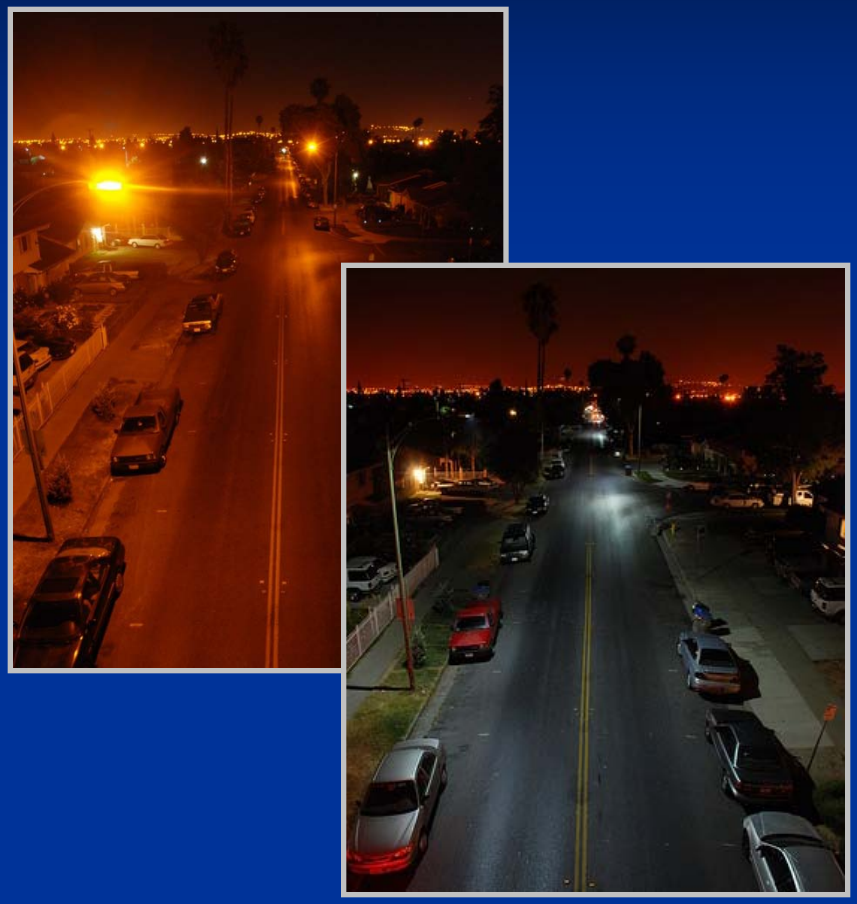

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