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Reach Codes and Green Building Program

Council Study Session
Council Chambers
November 12, 2019

Study Session Agenda

- Overview of Green & Sustainability Programs
- Sunnyvale's Sustainability Activities
- Next Moves for GHG reduction
- Questions & Feedback

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Overview of Green & Sustainability Programs

California Building Codes: Baseline

- **CalGreen** (*Mandatory*)
  - Design and Construction reduced negative impact or positive environmental impact and encouraging sustainable construction practice
    1. Planning and Design
    2. Energy Efficiency
    3. Water Efficiency and Conservation
    4. Material Conservation and Resource Efficiency
    5. Environmental Quality
- **Tier 1 and Tier 2** (*Voluntary*)

Modifying State Building Code

- **Building Code* modifications**:
  - More restrictive provisions must be based on Climatic, Geographic or Topographic conditions
- **Reach Codes:**
  - Per CA Energy Commission - must also show cost effectiveness

*Building Code = Building, Fire, Electrical, Mechanical, Plumbing, Green Building & Energy Efficiency Codes

Programs Focused on Energy Source

- **ELECTRIC REACH CODE***
  - Encourages "All Electric" and requires higher efficiency for mixed fuel construction (*not a ban on natural gas*)
- **ALL ELECTRIC CODE***
  - Bans natural gas
- **OPTIONAL FEATURES***
  - Battery Storage
  - EV Chargers
  - Greater PV requirements

*Currently, all programs include ***Exemptions***

Programs Addressing More Sustainable Features

- **SUSTAINABILITY –** Meeting the needs of the present without compromising the ability of future generations to meet their own needs

- **GREEN BUILDING PROGRAM –** Reduce the overall impact of the built environment on human health and the natural environment by:
  - Efficiently using energy, water, and other resources
  - Protecting occupant health and improving employee productivity
  - Reducing waste, pollution and environmental degradation

https://en.wikipedia.org/wiki/Green_building

Broader Planning Options for Sustainability

- **ECO DISTRICTS**
  - Resident initiated (existing neighborhoods)
  - City initiated (planning area)
- **SCS** - SB 375 Sustainable Communities Strategy (and Climate Protection Program)
  - Land Use
  - Housing
  - Transportation

California Air Resources Board

- Numerous Studies on GHG reduction
- Evaluated LEED Existing Building - commercial
  - GHG
    - 50% Less (associated with water and solid waste)
    - 5% Less (from transportation)
  - Exceeds minimum code provisions for California
- GreenPoint Rated – single family homes
  - Results pending

Options w/in Reach Code - Homes

All-Electric (1)

Cost + $0

Meet Title 24 requirements

No Changes

Electric & Gas (2)

Cost + $8,500

Meet Title 24 requirements, including:

- Pre-wire for future electric heat pump
- Pre-wire for future electric appliances
- Additional Energy Efficiency
- Solar thermal or Battery Storage

"Mostly Electric" (2A)

Cost + $500

Meet Title 24 requirements, including:

- ~~Pre-wire for future electric heat pump~~
- Install Electric water and space heating (allows natural gas for cooking)
- Pre-wire for future electric range
- ~~Additional Energy Efficiency measures~~
- ~~Solar thermal or Battery Storage~~

Green Building and Reach Codes

Overlap ✶ ~37% of Categories

- Green Building (LEED and GreenPoint Rated) includes:
  - Community (including location)
  - Transportation
  - ✶ **Energy & Atmosphere**
  - ✶ Indoor Air Quality
  - ✶ Resource Conservation
  - Water Conservation
  - Sustainable Sites
  - Materials & Resources

Green Building and GHG Reduction

Overlap ✶ ~100% of Categories

- Green Building (LEED and GreenPoint Rated) includes:
  - ✶Community (including location)
  - ✶Transportation
  - ✶Energy & Atmosphere
  - ✶Indoor Air Quality
  - ✶Resource Conservation
  - ✶Water Conservation
  - ✶Sustainable Sites
  - ✶Materials & Resources

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Sunnyvale's Sustainability Activities

Sustainability Milestones

- **Green Building Program**
  - 2004 Policy and Incentives
  - 2009 Minimums for most development
  - Updated 2019 (6th update)
- **Climate Action Plan (2014)**
  - Updated 2019
- **Other Ongoing efforts**
  - Solid Waste Programs
  - Water Use reductions
  - Green Infrastructure
  - Prewiring for EV charging

2019 Climate Action Playbook

Key Strategies Related to Construction

- Promoting Clean Electricity*
- Decarbonizing Buildings *+
- Decarbonizing Transportation & Sustainable Land Use *+
- Managing Resources Sustainably+
- Empowering Our Community
- Adapting to a Changing Climate

**Next Moves*

+Green Building Program

Sunnyvale's **GREEN BUILDING** Program

- A broader form of Reach Code (*beyond energy source*) **SINCE 2009**
  - Increase energy efficiency in buildings;
  - Encourage water and resource conservation;
  - Minimize waste generated by construction projects;
  - Provide durable buildings that are efficient and economical to own and operate;
  - Promote the health and productivity of residents, workers, and visitors to the city; and
  - Recognize and conserve the energy embodied in existing buildings.

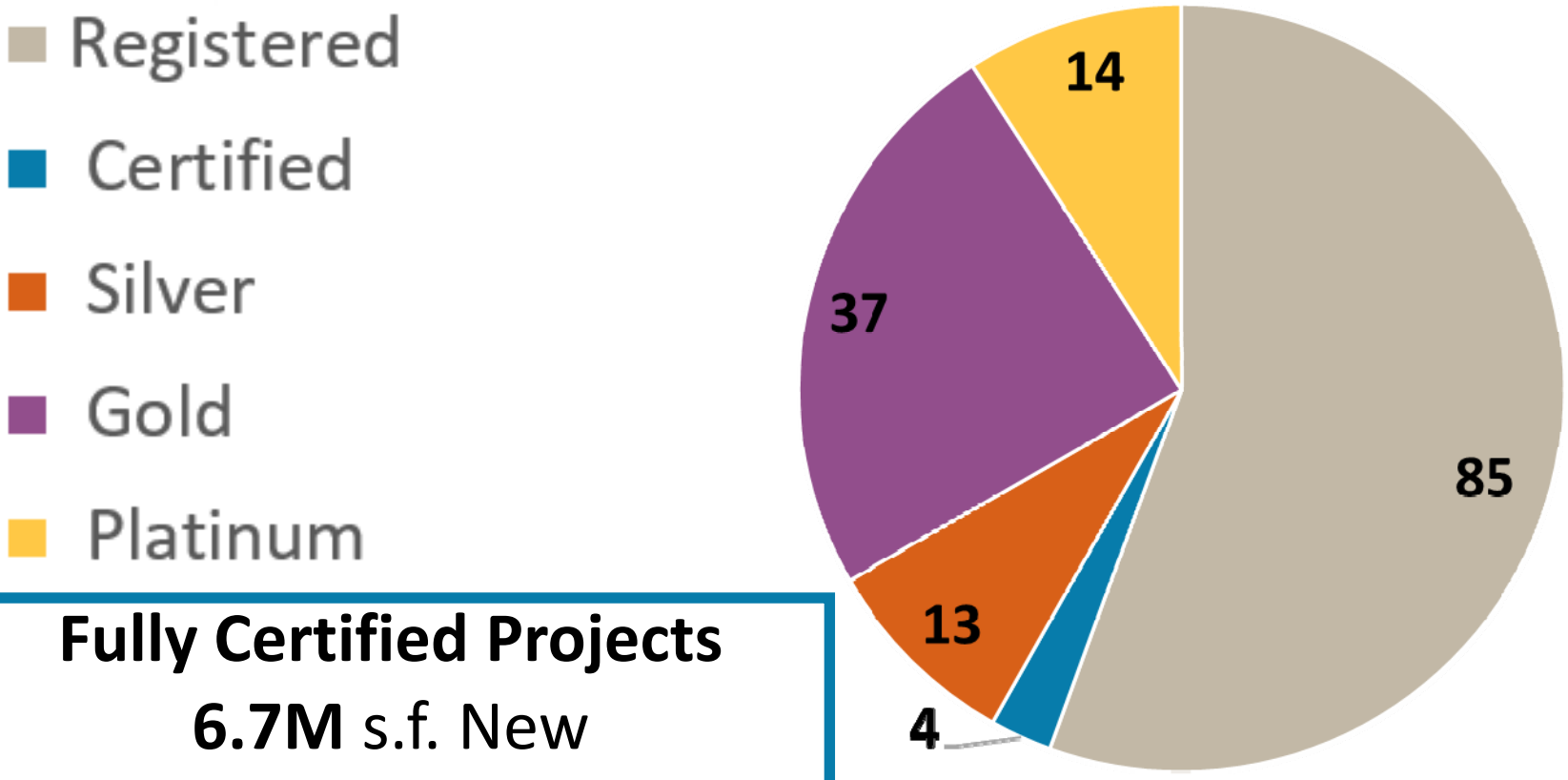
Sunnyvale Municipal Code: Chapter 19.39 GREEN BUILDING REGULATIONS

Sunnyvale Green Building Evaluation Tools

- USGBC:
  - LEED
- Build It Green:
  - GreenPoint Rated
- International Living Future Institute:
  - Zero Energy

CELEBRATE SUCCESS

154 **LEED Projects**



Fully Certified Projects

6.7M s.f. New

6.4M s.f. Existing & Interiors

CELEBRATE SUCCESS

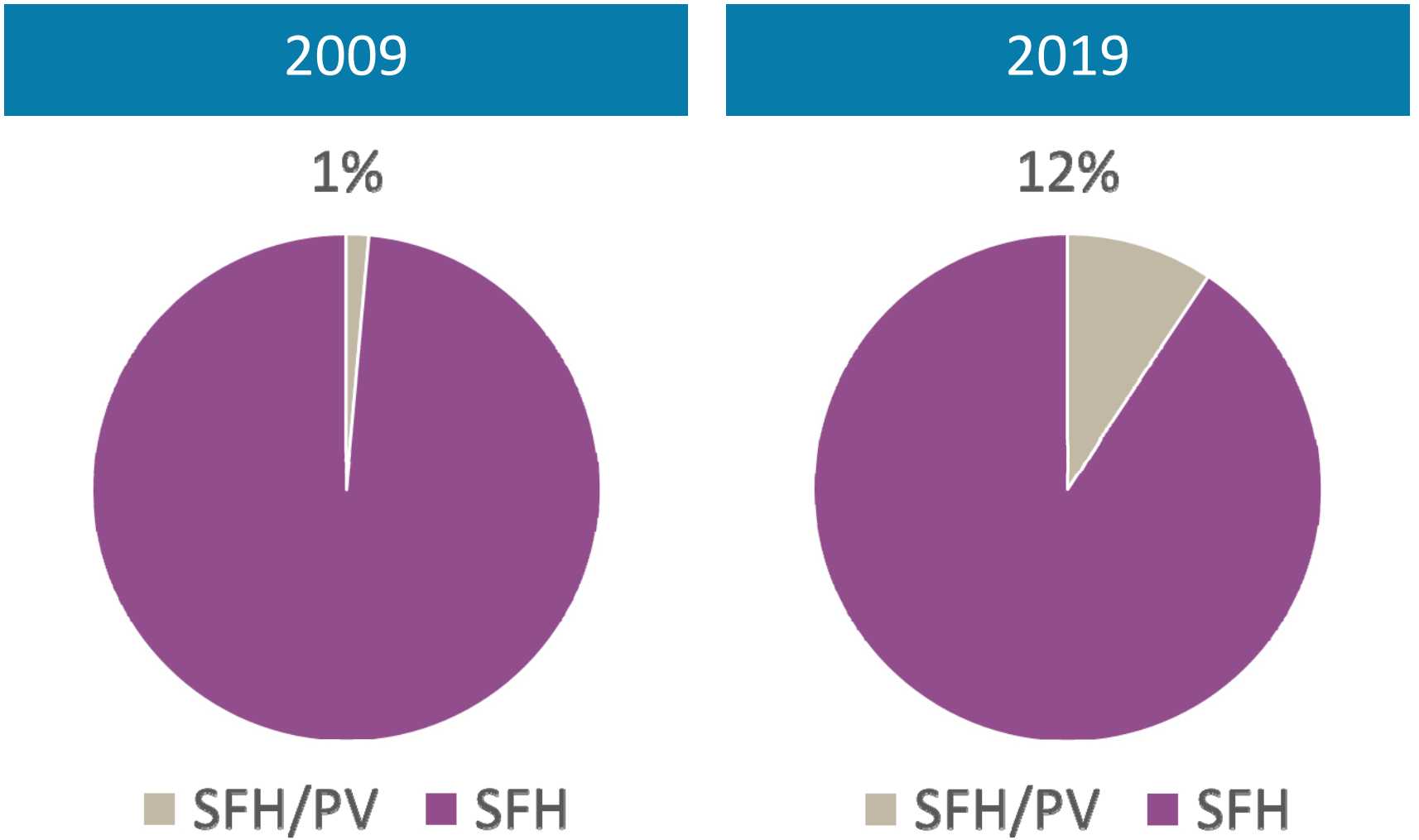
GreenPoint Rated Since 2009

- 1140 MF New Units
- 786 Existing MF Units
- 144 Affordable Units
- 154 High Score -Edwina Benner
- 3,000+ units Design Intent (w/o formal certification)

EV Support

- 130 EV Charger ***Permits*** (1/2 residential)
  - 300+ charging stations
- Pre-wired / conduit installed infrastructure

CELEBRATE SUCCESS
Photo-Voltaic Panels on Single Family Homes



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Next Moves for GHG Reduction

Silicon Valley Clean Energy

Providing Support for Reach Code Adoption

- Cost Effectiveness Studies
- Model Reach Codes
- Model Staff Report
- Outreach Programs
- $10,000 Grant for Consulting Fees

SILICON VALLEY CLEAN ENERGY

SVCE Cost Effectiveness Models

Completed (New Construction)

- Single-Family
- 2-story Multi-family
- 1-story Medium Retail
- 3-story Medium Office
- 4-story hotel (78 rms)

Not Completed

- Remodels
- 3^{+}-story multi-family
- Larger Office Building
- Larger Hotel
- Restaurants/Large Commercial Kitchens

SILICON VALLEY CLEAN ENERGY

Considerations for Programs to reduce GHG

Potential Threshold Categories

- New Construction vs Alterations/Additions
- Land Use
- Size
- Over/Under selected Heights
- Location
- Cost (e.g. if less than X% of project)
- Considerations (e.g. research laboratories, manufacturing process, commercial kitchens)

Other options Identified by SVCE

- Pre-wiring
  - At gas appliance locations
  - Pre-wire for future electric appliances
  - Upgrade electric panel
- Higher Energy Efficiency
  - Install better insulation & more energy efficient windows,
- Alternative **Energy Resources**
  - Solar thermal, battery storage, EV Chargers, etc.

Community Support

- The time is now
- Every little bit counts
- Architects are ready
- Enact strong building standards
- EV charging/infrastructure needed
- Sunnyvale has always been a leader

Community Concerns

- Power Outages (and back-up options)
- Sufficient Capacity/Integrity in Electric Grid
- Cost (especially for emergency repairs)
- Technological advances forthcoming
- Business need for various power sources
- Too many government mandates
- Contractors/Designers/Suppliers are not ready

Next Steps

- Continue Green Building Program and Incentives until independent Reach Codes adopted
- Increase education on fuel switching readiness
- Complete Cost Effectiveness Studies
- Draft Sunnyvale's Reach Code
- Draft Updated Green Building Code

Next Steps, *continued*

- Community Outreach
  - Residents – Businesses – Developers – Architects – Contractors
- Revise Drafts: Reach Code & Green Building Program
- Public Meetings/Hearings
  - Sustainability Commission
  - Planning Commission
  - City Council

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Questions & Feedback