Carbon Emissions Progress to Date: 20% below 1990 Levels

- United States
- California
- Santa Monica
Where do Santa Monica’s greenhouse gases come from?

<table>
<thead>
<tr>
<th>SECTOR</th>
<th>SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>Annual Electricity Use</td>
</tr>
<tr>
<td></td>
<td>Annual Natural Gas Use</td>
</tr>
<tr>
<td>Commercial</td>
<td>Annual Electricity Use</td>
</tr>
<tr>
<td></td>
<td>Annual Natural Gas Use</td>
</tr>
<tr>
<td>Industrial</td>
<td>Annual Electricity Use</td>
</tr>
<tr>
<td></td>
<td>Annual Natural Gas Use</td>
</tr>
<tr>
<td>Waste</td>
<td>Landfilled Waste</td>
</tr>
<tr>
<td>Transportation</td>
<td>Vehicle Miles Traveled (modeled)</td>
</tr>
<tr>
<td></td>
<td>Regional Vehicle Mix (modeled)</td>
</tr>
<tr>
<td>Aviation</td>
<td>Aviation Fuel</td>
</tr>
</tbody>
</table>

Emissions by Source (2015)

Vehicle Transportation: 64%
Aviation: 2%
Waste: 3%
Residential: 12%
Commercial: 14%
Industrial: 5%
Emissions by Source

Vehicle Fuel - Gasoline

Building Electricity Use

Building Natural Gas Use

Vehicle Fuel - Diesel

Renewable Electricity: Community Choice Aggregation

End Use: Electrification
Supply: Biogas

Mobility: Bike, Walk, Transit, etc
Electric Vehicles
What does a Clean Energy Transition Look Like?

• Decarbonize Energy Supply
• Increase Efficiency in New Construction
• Increase Efficiency in Existing Buildings
• Decarbonize Everything Else
City Levers for Change

- **HIGH MARKET IMPACT**
  - Mandate Behaviors & Investments

- **LOW MARKET IMPACT**
  - Encourage Voluntary Action

- **TIME**
  - Send Price Signals & Provide Subsidies
  - Make Targeted Public Investments
## Electrification Playbook

<table>
<thead>
<tr>
<th>City Lever</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encourage Voluntary Action</td>
<td>Promotional campaign, general information</td>
</tr>
<tr>
<td>Make Targeted Public Investments</td>
<td>Demonstrating leadership in City facilities</td>
</tr>
</tbody>
</table>
| Send Price Signals & Provide Subsidies | **Discourage:** Fees, Taxes  
**Encourage:** Fees (waived, reduced), Incentives, Rebates, Group Buys, Upstream Discounts |
| Mandate Behaviors & Investments | **New Construction:** Reach Code  
**Existing Buildings:** Benchmarking, Energy/Carbon Reduction Requirements |
Decarbonize Energy Supply

• Municipal Operations
  • Direct Access Procurement (Renewable Portfolio Standard compliant)
  • Onsite Generation

• Community
  • Community Choice Aggregation
  • Clean Power Alliance service to start in 2019

How Community Choice Works

RENEWABLE ENERGY
Electric Generation

SAME SERVICE AS ALWAYS
Electric Delivery

YOUR COMMUNITY CHOICE
A Greener Electric Option
## Send Price Signals & Provide Subsidies

<table>
<thead>
<tr>
<th>Agency</th>
<th>Incentive</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMUD</td>
<td>$650</td>
</tr>
<tr>
<td>Alameda &amp; Contra Costa Counties</td>
<td>50-100% of installation cost</td>
</tr>
<tr>
<td>Burbank Water &amp; Power</td>
<td>$125-350 per ton of cooling</td>
</tr>
</tbody>
</table>
Make Targeted Public Investments

City Services Building

- 50,000 sq ft new administration (2020)
- Living Building Challenge Certification
  - Zero net energy
  - **No combustion of fossil fuels**
  - No imported water
  - No wastewater
  - No red list construction materials
Mandate Behaviors & Investments: New Construction

• **Current Requirements (2017)**
  • Residential – Zero Net Energy (Required Statewide by 2020)
  • Non-Residential (Res High Rise) – 10% more efficient than State Code; 2 W solar per sq ft of building footprint

• **Proposed Requirements**
  • Residential – Zero Net Carbon or All-Electric
  • Non-Residential (Res High Rise) – Zero Net Carbon or All-Electric
Mandate Behaviors & Investments: Existing Buildings

- **Current Requirements**
  - Statewide Energy Benchmarking
    - 50k or more sq ft (2018)
    - 17 residential accounts or more (2019)

- **Proposed Programs / Reqs**
  - Local Energy Benchmarking & Disclosure & Use Reduction Ordinance – 20k or more sq ft
  - Sustainable Building Retrofit Accelerator – technical assistance, financing, project delivery
  - Incentives for Fuel Switching?
Collaborating with Other Cities

USDN urban sustainability directors network

GREEN CITIES CALIFORNIA
Thank You!

garrett.wong@smgov.net