COMMUNITY PARTNERSHIP
BE Educational Campaign
January 26, 2023
Craig Tranby, Jose Gonzalez
Efficiency Solutions
Kemberle Taylor, FUSE, Efficiency Solutions

Putting Customers First

www.ladwp.com
“Making sure frontline communities have easy access to information and resources related to building decarbonization is critical for ensuring that this transition is inclusive.”

Climate Emergency Management Office (CEMO) 2022 Report on Equitable Building Decarbonization
Why Building Electrification (BE), why now, and why should we care?
Global Warming leads to Climate Change

but

**Rapid** Global Warming can lead to frequent catastrophic weather events that *can* threaten human existence.
Earth’s average surface temperature rate of increase has nearly doubled in the last 50 years.
The average surface temperatures could rise between 2°C and 6°C by the end of the 21st century. Model simulations by the Intergovernmental Panel on Climate Change estimate that Earth will warm between two and six degrees Celsius over the next century, depending on how fast carbon dioxide emissions grow. Scenarios that assume that people will burn more and more fossil fuel provide the estimates in the top end of the temperature range, while scenarios that assume that greenhouse gas emissions will grow slowly give lower temperature predictions. The orange line provides an estimate of global temperatures if greenhouse gases stayed at year 2000 levels. (©2007 IPCC WG1 AR-4.)

In the past 2 million years it has taken the Earth 5,000 years to warm 5 degrees.

NASA.com
Global primary energy consumption by source

Primary energy is calculated based on the 'substitution method' which takes account of the inefficiencies in fossil fuel production by converting non-fossil energy into the energy inputs required if they had the same conversion losses as fossil fuels.

Source: Our World in Data based on Vaclav Smil (2017) and BP Statistical Review of World Energy

OurWorldInData.org/energy • CC BY
LA’s Green New Deal and LA100 Study - Energy

• Reduce building energy use per sq. ft. for all building types to 44% by 2050
  — Use EE to deliver 15% of projected electricity needs by 2020 (met) and 30% by 2030.

• LADWP has adopted a goal to be 100% carbon-free by 2035.
  — Provide energy mix that is 80% renewable and 97% carbon free by 2030.
L.A. Greenhouse Gas Emissions by Sector

Even with today’s best strategies and technologies, there are likely to be residual emissions in 2050, approximately 8.5% of our emissions today from sources such as air and sea travel and industrial energy use. New technologies will be needed, as well as carbon negative projects, such as urban forests, to potentially offset carbon emissions. As with the 2015 Sustainable City pLAn, L.A. will continue to review its progress and course-correct in the years to come.

https://www.plan.lamayor.org/background/Background%20-%20pLAn_files/chart-bg-emissions_0.jpg
California’s Methane Gas Leaks (2.4%-4.3%) and Additional Construction Costs ($47,000+ per House)

- Furnace: $1,000-$3,000 (Navigant, 2018)
- DHW: $0 (Navigant, 2018)
- Dryer: $100+ (Navigant, 2018)
- Stove: $120+ (Appendix B)
- 0.3% - 0.9% leak (LBNL, 2018)
- 0.31% leak residential meter (CEC, 2017)
- $16,567 Meter + Lateral (PG&E, 2016)
- 0.68% leak Distribution (CEC, 2017)
- 1.0-2.9% Extraction leak (Wentworth, 2018)
- $7 million per well (EIA, 2016)
- $85.4 million/mile Very high-pressure transmission (CPUC, 2018)
- 0.07% leak transmission (CEC, 2017)
- 0.02% leak, not including Aliso Canyon (CEC, 2017)
- $3.2 million/mile high pressure transmission (PG&E, 2016)

If = linear foot
Costs are the marginal cost ($) of gas over all-electric
* see analysis in Appendix B
**Domestic hot water – heat pump water heater equal in cost to on demand gas water heating
***Aliso Canyon leaked 4.62 Billion cubic feet and alone cost $1.014 billion shared by 5.6 million meters - $181/meter (Reuters, Aug 6, 2018)
Households that use natural gas for cooking (2020)

Percentage of households that use natural gas for cooking

California 70%
New Jersey 69%

Data source: U.S. Energy Information Administration, Residential Energy Consumption Survey

https://www.treehugger.com/no-gas-stove-ban-fix-to-reduce-air-pollution-7094431
1880 – 2022

www.NASA.gov
# World Rocked by Weather Disasters in 2022

## Billion-Dollar Weather Disasters, Jan.-Sep. 2022

<table>
<thead>
<tr>
<th>Rank</th>
<th>Disaster</th>
<th>Location</th>
<th>Dates</th>
<th>Damage</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hurricane Ian</td>
<td>U.S. (FL, SC, NC), Cuba</td>
<td>Sep. 27-Oct. 1</td>
<td>$&gt;20 billion</td>
<td>137</td>
</tr>
<tr>
<td>2</td>
<td>Drought</td>
<td>Europe (W, S, Central)</td>
<td>Yearlong</td>
<td>$20 billion</td>
<td>N/A</td>
</tr>
<tr>
<td>3</td>
<td>Flooding</td>
<td>China</td>
<td>Jun. 1-Sep. 30</td>
<td>$12 billion</td>
<td>239</td>
</tr>
<tr>
<td>4</td>
<td>Drought</td>
<td>China</td>
<td>Yearlong</td>
<td>$8.4 billion</td>
<td>N/A</td>
</tr>
<tr>
<td>5</td>
<td>Flooding</td>
<td>Eastern Australia</td>
<td>Feb. 23–Mar. 31</td>
<td>$7.5 billion</td>
<td>22</td>
</tr>
<tr>
<td>6</td>
<td>Flooding</td>
<td>Pakistan</td>
<td>Monsoon season</td>
<td>$5.6 billion</td>
<td>1693</td>
</tr>
<tr>
<td>7</td>
<td>Windstorm Eunice</td>
<td>Europe, Western &amp; Central</td>
<td>Feb. 18–19</td>
<td>$4.3 billion</td>
<td>17</td>
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<tr>
<td>8</td>
<td>Drought</td>
<td>U.S.</td>
<td>Yearlong</td>
<td>$4.0 billion</td>
<td>N/A</td>
</tr>
<tr>
<td>9</td>
<td>Drought</td>
<td>Brazil</td>
<td>Yearlong</td>
<td>$4.0 billion</td>
<td>N/A</td>
</tr>
<tr>
<td>10</td>
<td>Hurricane Fiona</td>
<td>Caribbean, Canada</td>
<td>Sep. 18–25</td>
<td>$3.1 billion</td>
<td>31</td>
</tr>
<tr>
<td>11</td>
<td>Flooding</td>
<td>South Africa</td>
<td>Apr. 8–15</td>
<td>$3.0 billion</td>
<td>455</td>
</tr>
<tr>
<td>12</td>
<td>Severe Weather</td>
<td>U.S. Plains, Midwest</td>
<td>May 11–12</td>
<td>$2.6 billion</td>
<td>5</td>
</tr>
<tr>
<td>13</td>
<td>Severe Weather</td>
<td>Europe, Western &amp; Central</td>
<td>Jun. 19–24</td>
<td>$2.3 billion</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>Severe Weather</td>
<td>U.S. Plains, Midwest</td>
<td>Apr. 10–14</td>
<td>$2.2 billion</td>
<td>1</td>
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<tr>
<td>15</td>
<td>Severe Weather</td>
<td>U.S. South, Midwest, NE</td>
<td>Jun. 11–17</td>
<td>$2.0 billion</td>
<td>3</td>
</tr>
<tr>
<td>16</td>
<td>Drought</td>
<td>Somalia, Ethiopia, Kenya</td>
<td>Yearlong</td>
<td>$2.0 billion</td>
<td>N/A</td>
</tr>
<tr>
<td>17</td>
<td>Flooding</td>
<td>India</td>
<td>Monsoon season</td>
<td>$1.8 billion</td>
<td>1883</td>
</tr>
<tr>
<td>18</td>
<td>Severe Weather</td>
<td>U.S. Plains, South, Midwest</td>
<td>May 19–22</td>
<td>$1.8 billion</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>Severe Weather</td>
<td>U.S. Plains, Midwest</td>
<td>May 9–10</td>
<td>$1.8 billion</td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td>Severe Weather</td>
<td>Europe, Western &amp; Central</td>
<td>Jun. 2–6</td>
<td>$1.6 billion</td>
<td>0</td>
</tr>
<tr>
<td>21</td>
<td>Severe Weather</td>
<td>Canada</td>
<td>May 21</td>
<td>$1.4 billion</td>
<td>12</td>
</tr>
<tr>
<td>22</td>
<td>Severe Weather</td>
<td>U.S. Midwest, Mid-Atlantic</td>
<td>Jun. 4–8</td>
<td>$1.4 billion</td>
<td>0</td>
</tr>
<tr>
<td>23</td>
<td>Severe Weather</td>
<td>U.S. Plains, South</td>
<td>Mar. 29–Apr. 1</td>
<td>$1.2 billion</td>
<td>2</td>
</tr>
<tr>
<td>24</td>
<td>Severe Weather</td>
<td>U.S. Plains, South</td>
<td>Apr. 4–7</td>
<td>$1.2 billion</td>
<td>3</td>
</tr>
<tr>
<td>25</td>
<td>Severe Weather</td>
<td>Europe, Western &amp; Central</td>
<td>Jun. 26–29</td>
<td>$1.2 billion</td>
<td>2</td>
</tr>
<tr>
<td>26</td>
<td>Typhoon Nanmadol</td>
<td>Japan</td>
<td>Sep. 18–21</td>
<td>$1.2 billion</td>
<td>4</td>
</tr>
<tr>
<td>27</td>
<td>Severe Weather</td>
<td>U.S. Mid-Atlantic, Midwest</td>
<td>Jul. 21–25</td>
<td>$1.2 billion</td>
<td>0</td>
</tr>
<tr>
<td>28</td>
<td>Flooding</td>
<td>U.S. (MO, KY)</td>
<td>Jul. 25–28</td>
<td>$1.2 billion</td>
<td>28</td>
</tr>
<tr>
<td>29</td>
<td>Severe Weather</td>
<td>U.S. Plains, Midwest</td>
<td>May 1–3</td>
<td>$1.1 billion</td>
<td>0</td>
</tr>
</tbody>
</table>

Background Image: Flooding in New South Wales, Australia, February 2022. Image credit: NSW Police Force

Children age 10 or younger in 2020 will experience:

4x extreme events in 2100 under 1.5°C global warming

Or

5x extreme events in 2100 under 3°C global warming

NASA.gov
2022 Tied for Fifth Warmest Year on Record

Earth in 2022 was about 1.11°C (2°F) warmer than the late 19th century average.

The number of people suffering from hunger will range from 8 million to up to 80 million people in 2050.
WILDFIRE CALIFORNIA

WILDFIRE One of the 2018 California wildfires. © Ben Jiang /TNC Photo Contest 2019
The latest in a series of atmospheric rivers drenching the state was accompanied by hazardous winds and left thousands of people without power.

U.S. 2022 Billion-Dollar Weather and Climate Disasters

This map denotes the approximate location for each of the 18 separate billion-dollar weather and climate disasters that impacted the United States in 2022.

National Oceanic and Atmospheric Administration (NOAA)
This is Why We Care....
Tips and Strategies to Remove Fossil Fuels & Electrify your Home
Air Heating and Cooling

• Electric
  ❑ Heat Pump Installation* – Heat Pumps reduce electricity use for heating by approximately 50% compared to electric resistance heating such as furnaces and baseboard heaters¹.
    1. [https://www.energy.gov/energysaver/heat-pump-systems](https://www.energy.gov/energysaver/heat-pump-systems)
      * $100/Ton for qualified central heat pumps through LADWP’s Consumer Rebate Program, $3,000 maximum rebate available through AcOpt

• Gas
  ❑ Furnace Cleaning – Cleaning dust and debris from a furnace helps air flow freely and prevents a potential fire hazard.

• Both
  ❑ Door Sweep Installation – Installing a door sweep helps prevent heat loss in the home during winter.
  ❑ Tree Planting – Planting the right tree in the right place with City Plants trees can help keep a home cool.
  ❑ Using Window Coverings (Blinds, Curtains, Shutters, etc.) – Opening them on sunny winter days allows the sun to heat the home, and closing them in the summer reduces heat gain.
  ❑ Open Windows and Run Fans at Key Times – Bring the cool air in during summer mornings & evenings.
  ❑ Window Replacement/Retrofit – Installing Energy Star certified windows*, storm windows, or energy-saving window film to keep a home cool.

* $2 per sq. ft. rebate for qualified windows through LADWP’s Consumer Rebate Program.
Cooking

• **Electric**
  - Warming Food with Toaster Ovens or Microwave—The average toaster oven can use up to half the energy of the average electric oven over the same cooking time¹.
    1. [https://www.energy.gov/articles/how-be-energy-efficient-your-kitchen-thanksgiving](https://www.energy.gov/articles/how-be-energy-efficient-your-kitchen-thanksgiving)
  - Switching to Induction Cooking Tops—Induction Cooking Tops is about 5-10% more efficient than conventional electric resistance units and about 3 times more efficient than gas².
    2. [https://www.energystar.gov/about/2021_residential_induction_cooking_tops](https://www.energystar.gov/about/2021_residential_induction_cooking_tops)

• **Gas**
  - Controlling Flame Levels—Ensuring the flame doesn’t come around the pan avoids excess energy usage.
  - Using a Range Hood/Opening a Window—Turning on a range hood or opening a window while cooking helps save energy by expelling heat and removes potentially harmful fumes/contaminants.
  - Air Filters and Air Monitors - They can help you control your indoor air quality.

• **Both**
  - Keeping Oven Door Closed—Peeking in to check on a dish can reduce the oven’s temperature by as much as 25 degrees¹.
    1. [https://www.energy.gov/articles/how-be-energy-efficient-your-kitchen-thanksgiving](https://www.energy.gov/articles/how-be-energy-efficient-your-kitchen-thanksgiving)
  - Putting a Lid on It—Lids help make water boil and food cook faster.
Laundry

• **Electric**
  - **Installing a High-Efficiency Washer** – Energy Star certified washer save water and energy.
    - LADWP offers up to a $500 rebate for purchasing a qualified washer
  - **Switching to a Energy Star Dryers or Heat Pump Dryer** – Energy Star certified clothes dryers use about 20% less energy than standard models. Heat Pump Dryers can reduce energy use by at least 28% compared to standard electric dryers¹.

• **Gas**
  - **Inspecting Gas Dryer** – An annual dryer inspection for a gas leak helps avoid energy loss and potentially dangerous exposure to carbon monoxide*.

• **Both**
  - **Washing Full Loads** – Washers use about the same amount of energy regardless of load size, so filling up washers saves energy.
  - **Line-Drying Clothes** – Air drying clothes uses no energy and helps preserve your clothes.
  - **Using Dryer Balls** – Dryer balls help separate clothes, which results in reduced drying times
  - **Clean the lint filter** – it improves air circulation and increases the efficiency of the dryer.
Water Heating

• **Electric**
  - **Switching to a Heat Pump Water Heater** – Heat pump water heaters can be two to three times more energy efficient than conventional electric resistance water heaters.
    1. [https://www.energy.gov/energysaver/heat-pump-water-heaters](https://www.energy.gov/energysaver/heat-pump-water-heaters)

• **Gas**
  - **Inspecting Gas Water Heater** – An annual water heater inspection for a gas leak helps avoid potential energy loss and potentially dangerous exposure to carbon monoxide*.

• **Both**
  - **Washing Loads with Cold Water** – Water heating consumes about 90% of the energy it takes to operate a clothes washer.
  - **Taking Shorter and Cooler Showers** – Shorter cooler showers reduce the amount energy that is needed to heat the water.
  - **Installing Low-Flow Aerators and Showerheads** – Easy to install, save water and energy, and are **FREE** for LADWP customers.
  - **Check for Leaks** – A leak of one drip per second wastes 1,661 gallons of water¹
    1. [https://www.energy.gov/energysaver/reduce-hot-water-use-energy-savings](https://www.energy.gov/energysaver/reduce-hot-water-use-energy-savings)
Efficiency Programs Offset Costs

- LADWP programs that promote energy efficiency and water conservation not only saves customers money, but are critical to creating a sustainable city.
- Choosing Energy Star certified
- Environmental Benefits
  - Reduction in GHG to combat global warming
  - Reduction air pollutants to improve air quality
  - Increase in resilience/energy security
  - Increase in public health
Energy Efficiency Programs

Residential

• **City Plants** – Free trees to shade your building and reduce AC energy use.

• **AC Optimization** – Offers complimentary HVAC diagnostic and maintenance services for residential and commercial electric customers.

• **Home Energy Improvement Program** – Improves water and energy performance in eligible customers’ homes, at no cost.

• **Efficient Product Marketplace** – A convenient, one-stop online marketplace with popular energy-efficient brands, pricing and rebate information on eligible products, and quick rebate turnaround.

• **Consumer Rebate Program** – Offers rebates for energy-saving products, including cool roofs, HVAC, windows, and whole house fans.

• **Power Savers** – Provides incentives to enrolled customers for allowing LADWP to remotely make brief, limited adjustments to their smart thermostats during periods of peak energy demand as a way to reduce stress on the power grid.

Programs & Rebates: [www.ladwp.com/energyefficiency](http://www.ladwp.com/energyefficiency)
Plant trees to the **WEST** and **EAST** for maximum energy savings.

Plant trees 10-20 feet away from the house for max savings.
Financial Assistance Programs

**Cool LA** - is an initiative designed to help LADWP customers especially older adults, and low-income families to stay cool by providing Cool rebates up to $225 on the purchase of select air conditioners (limit of two units) through the LADWP Marketplace. Income qualified customers can get rebates on these types of units: wall AC; window AC; Portable AC; and evaporative coolers.

**EZ-SAVE Program** (formerly the Low Income Discount Program) - provides a bill discount on electricity, water, and sewer services to income-qualified customers. If you need additional bill payment assistance after enrolling in EZ-SAVE, call us at 1-800-DIAL-DWP to sign-up for Extended Payment Arrangements.

### Household Income Requirements

*Effective July 1, 2022*

<table>
<thead>
<tr>
<th>Members in Household</th>
<th>Maximum Annual Gross Income*</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>$36,620</td>
</tr>
<tr>
<td>2</td>
<td>$36,620</td>
</tr>
<tr>
<td>3</td>
<td>$46,060</td>
</tr>
<tr>
<td>4</td>
<td>$55,500</td>
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<tr>
<td>5</td>
<td>$64,940</td>
</tr>
<tr>
<td>6</td>
<td>$74,380</td>
</tr>
<tr>
<td>7</td>
<td>$83,820</td>
</tr>
<tr>
<td>8</td>
<td>$93,260</td>
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</tbody>
</table>

Each additional member: Add $9,440 to income

**Senior Citizen/Disability Lifeline Rate**

The Lifeline Rate Program is a City of LA Office of Finance program that offers senior and disabled citizens an exemption on their electric and other utility bills. This rate is available under provisions of the Los Angeles Municipal Code or the Revenue and Taxation Code of the State of California.

To learn more about this program and to apply, visit the [City of Los Angeles, Office of Finance website](#). To speak with a program administrator, please use the following contact information.

**Office of Finance Phone Number**

(213) 978-3050

Teletype device (TDD) (213) 978-1532
Financial Assistance Programs

Life Support Equipment Discount - Do you or a full-time member of your household regularly require the use of an essential life-support device? If so, the LADWP is pleased to offer a discount to customers who qualify. Eligible devices include, but are not limited to, motorized wheelchairs, respirators (all types), dialysis machines, suction machines, apnea monitors, iron lungs, electronic nerve stimulators, and others.

Physician Certified Allowance Discount - Discounts on electric bills are available to customers who provide verification by a state-licensed physician that a full-time member of the household is a paraplegic, hemiplegic, quadriplegic, multiple sclerosis patient, neuromuscular patient, or scleroderma patient being treated for a life-threatening illness. An allowance is also available if a member of the household has a compromised immune system and has a state-licensed physician’s certification that an additional heating and/or cooling allowance is medically necessary.

Low Income Energy Assistance Program (LIHEAP) - LIHEAP can offer income eligible households a benefit of up to $3,000 to help you:
- Pay your heating or cooling bills.
- In an emergency or energy crisis, such as a utility disconnection.
In addition to help with paying your energy bill, LIHEAP can also provide in-home weatherization services for:
- Improved energy efficiency,
- Potential bill savings, and
- A more comfortable, safe home.
Financial Assistance Programs

Extended Payment Arrangements - Effective November, 2021, Extended Payment Arrangements are now available.
• 48 months for discount program customers
• 36 months for non-discount program customers
• No down-payment required
To set up payment arrangements, call us directly at 1-800-DIAL-DWP (1-800-342-5397)
Hearing impaired with a Teletype device (TDD) call 1-800-HEAR-DWP (1-800-432-7397)

Level Pay - With the Level Pay bill program, customers can evenly spread out the cost of electricity over several months to help reduce the impact of seasonal higher electric bills like the summer months when the use of air conditioning can lead to higher bills. Level Pay smooths-out the seasonal highs and lows of your utility bill across set monthly payments, so you’ll know exactly how much you need to pay each month. Paying the same amount every month levels out seasonal high bill fluctuations and helps you budget better for your utility bill, no matter the time of year.

Eligibility
• Available to all residential and multi-residential customers with qualifying services (i.e. water, electric, refuse and sewer)
• Account can be in good standing or have past due balance.
How Does a Heat Pump Water Heater Work

https://www.energystar.gov/products/water_heaters/high_efficiency_electric_storage_water_heaters/how_it_works

Energy Star
https://www.energy.gov/energysaver/air-source-heat-pumps
Dept. of Energy
Bosch Induction 36” Range

Samsung Induction Range w/ Air fry

Plug in Heat Induction Cook Top
Thank you!