Climate Change, Health, and Equity

Linda Rudolph, MD, MPH
BayREN
June 11, 2019
Energy Efficiency Benefits

• Health benefits
  – Reduce exposure to temperature extremes, pests, moisture, CO
  – Identify/mitigate other risks (e.g. lead, radon, fall hazards, missing smoke detectors)
  – Reduce burden of asthma and other respiratory illnesses

• Reduce “energy poverty” – heat vs. eat
• Improve housing conditions
• Create economic opportunities

• Reduce greenhouse gas emissions
  – Reduce or prevent health harms of climate change
Global Climate Impacts

- Warming
- Hydrologic Variability
- Ocean Acidification
- Glacier & Snowpack Loss
- Sea Level Rise

Global Temperature Change: Decade Averages

- 2001-2012 even warmer. Every year warmer than 1990s average.
- 1990s even warmer. Every year warmer than 1980s average.
- 1980s warmest decade on record at the time.
Climate Change and Health Equity: The Climate Gap

“Social injustice is killing people on a grand scale.”

WHO Commission on the Social Determinants of Health, 2008

“...climate change is a ‘threat multiplier’...[that] will intensify the challenges of global instability, hunger, poverty and conflict.”

U.S. Secretary of Defense Chuck Hagel
Health Impacts of Climate Change

• Heat
• Air Quality
• Wildfires
• Allergens
• Drought
• Storms and Flooding
• Infectious Disease
• Nutrition and Food Security
• Mental Health
Extreme Heat & Rising Temperatures

Top 10 Cities Facing the Most Danger Days

<table>
<thead>
<tr>
<th>Rank</th>
<th>City</th>
<th>Danger Days by 2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brownsville, TX</td>
<td>167</td>
</tr>
<tr>
<td>1</td>
<td>Phoenix, AZ</td>
<td>167</td>
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<td>2</td>
<td>Miami, FL</td>
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<td>3</td>
<td>Corpus Christi, TX</td>
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<td>Tucson, AZ</td>
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<tr>
<td>7</td>
<td>Austin, TX</td>
<td>137</td>
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<tr>
<td>8</td>
<td>Las Vegas, NV</td>
<td>131</td>
</tr>
<tr>
<td>9</td>
<td>Houston, TX</td>
<td>129</td>
</tr>
<tr>
<td>10</td>
<td>New Orleans, LA</td>
<td>125</td>
</tr>
</tbody>
</table>

African Americans in Los Angeles are more than twice as likely to die in a heat wave than other residents.

By 2025, rising average temperatures will result in 2,100-4,300 excess deaths in California.
• Smoke from wildfires in Quebec traveled more than 1,000 miles downwind, causing a 30-fold increase in Baltimore’s air pollution in 2002.

• California has 7 of the top 10 most polluted cities in the country for year-round particle pollution.
Drought

Community showers, East Porterville, CA

Myanmarlife.com

European Union External Action
Almost 40% of the food grown in the U.S. is wasted.
Excessive rainfall has been a significant contributor to historical waterborne disease outbreaks. In 1993 following extreme rainfall, Cryptosporidium affected over 400,000 Milwaukee residents.
Infectious Disease


Climate Change and Mental Health

- Economic stress
- Displacement, trauma, PTSD, anxiety, depression
- At risk
  - First responders
  - Women and children
  - Low income

*Solastalgia*

1. feeling of loss at demise of Earth, mourning for Gaia's profound annul
2. lost connection to nature, an eco-psycho-logical imbalance
Health Care System at Risk

- Increased patient visits (e.g. heat, air quality)
- Extreme weather events
  - Overwhelm capacity
  - Disrupt services
  - Damage facility infrastructure
  - Evacuations
- Disruptions in critical services
  - Electricity
  - Clean drinking water
  - Food service delivery
  - Waste disposal and treatment
- Financial impacts
“Responding to climate change could be the greatest global health opportunity of the 21st century”

Nick Watts, Lancet Commission

http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60854-6/fulltext
Active Transportation

- Active transportation and transit
  - ✓ Heart disease, stroke, diabetes, obesity, depression, osteoporosis, asthma, cancers premature death
  - ✓ Social cohesion
  - ✓ Transportation costs
  - ✓ Access to essential services
Less meat, less food waste, sustainably produced food

✓ Food security, CVD, diabetes, cancer, antibiotic resistance, pesticide exposure, water contamination
Urban Greening & Green Infrastructure

- Urban greening & green infrastructure
  - Heat illness, flood risk, air pollution, physical activity, social cohesion, water capture / filtration, carbon capture, healthy foods
Low & zero-emission vehicles, fuel efficiency

- Low carbon driving
  - Asthma, CVD, premature death
  - Transportation costs
Safe, Clean, Renewable Energy & Energy Efficiency

• Clean energy & energy efficiency
  ✓ Respiratory disease, cardiovascular disease, adverse birth outcomes,
    neurodevelopment impacts
  ✓ Fuel poverty
COP24 SPECIAL REPORT
HEALTH & CLIMATE CHANGE

Fourth National Climate Assessment

Global Warming of 1.5°C
An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

Lancet Countdown: Tracking Progress on Health and Climate Change
We're already at 1.0°C warming above pre-industrial levels
How much more is up to us
Under Paris Agreement, warming projected to exceed 3°C
There’s a big difference between 1.0°C and 1.5°C
There’s a huge difference between 1.5°C and 2.0°C
The window to keep warming below 1.5°C closes in 2030
Need to cut GHGE in half by 2030 and entirely by 2040 to avoid catastrophic effects
Greater warming = greater risks to health overall
Strong public health case for limiting warming to the greatest extent possible
Stringent mitigation can prevent millions premature deaths and alleviate poverty
Key 2018 Messages

• Current changes are early warnings of overwhelming PH impacts if temperatures keep rising
• Climate exacerbates health and social inequalities
• Nature and scale of response to climate change will be determining factor in shaping the health of nations for centuries to come
• Potential huge health benefits of climate action
“Maintaining the global average temperature rise to well below 2°C necessitates wide-reaching transformations across all sectors of society, including power generation, transport, spatial infrastructure, food and agriculture, and the design of health systems. These transformations, in turn, offer levers to help tackle the root causes of the world’s greatest public health challenges.”
Climate change affects health of all Americans; health/well-being of Americans already affected

Greater health risks: children, older adults, low-income communities, some communities of color.

Adverse health consequences will worsen with more climate changes

Neither global efforts to mitigate the causes of climate change nor regional efforts to adapt to the impacts currently approach the scales needed to avoid substantial damages to the U.S. economy, environment, and human health and well-being over the coming decades.
Climate change is the greatest health challenge of the 21st century
A changing, more variable climate is now recognized as the most likely, highest-impact global risk to society as a whole and which presents a clear and present danger to health security
Delay in action increases risks to human lives and health
Massive health benefits from tackling climate change
What did the reports say?

- Climate change impacting our health now.
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• Climate change impacting our health now.
• The warmer it gets, the worse it will get.
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- Failure to take transformative action with great urgency risks catastrophic effects on human health and well-being, and possibly on survival of human civilization.
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- The warmer it gets, the worse it will get.
- Climate actions have health benefits.
- We need to adapt regardless of mitigation actions.
- Failure to take transformative action with great urgency risks catastrophic effects on human health and well-being, and possibly on survival of human civilization

**Climate change is a global health emergency.**
Highest levels CO$_2$ in at least 800,000 years

Atmospheric CO$_2$ at Mauna Loa Observatory

Scripps Institution of Oceanography
NOAA Earth System Research Laboratory

January 22: 413.86 ppm
“The findings are clear and the stakes could not be higher. We cannot delay action on climate change. We cannot sleepwalk through this health emergency any longer.”

Tedros Adhanom Ghebreysus, WHO Director General
“Because if climate change has to stop, then we must stop it. It is black and white. There are no grey areas when it comes to survival. Either we continue as a civilisation or we don’t. One way or another, we have to change... But instead of talking about this, all our politicians go on about is economic growth, energy prices and shareholder value. What value is there in a future where hundreds of millions of people suffer?....Some say I should be in school. But why should any young person be made to study for a future when no one is doing enough to save that future? What is the point of learning facts when the most important facts given by the finest scientists are ignored by our politicians?.... You say you love your children above all else, and yet you are stealing their future in front of their very eyes.”

Greta Thunberg, age 15, Sweden
Climate change is a global health emergency.
Equity must be central to climate action.
Action to reduce climate change can dramatically improve health.
Ten priority actions to move toward our vision

Healthy people in healthy places on a healthy planet.
Climate Action for Health – Health Action for Climate

• Strengthen GHGE reduction commitments; support Paris Agreement.
• Transition away from the use of coal, oil and natural gas to clean, safe, and renewable energy and energy efficiency.
• Emphasize active transportation in the transition to zero-carbon transportation systems.
• Build local, healthy, and sustainable food and agricultural systems.
• Ensure that all Californians have access to safe and affordable drinking water and a sustainable water supply.
• Invest in policies that support a just transition for workers and communities adversely impacted by the transition to a low-carbon economy.
• Engage the health sector voice in the call for climate action.
• Incorporate climate solutions into all health care and public health systems.
• Build resilient communities
• Invest in climate and health with resources to enable health sector to respond
Health Role in Climate Change, Health and Equity

- Individual actions
- Patient education
- Care plans and protocols
- Home assessments
- Data and health assessments
- Community capacity & power
- Preparedness and response

- Green hospitals
- Provider education
- Community outreach and education
- Intersectoral collaboration
- Health in All Policies
Thank you.

Linda Rudolph, MD, MPH
linda.rudolph@phi.org

“You say you love your children above all else, and yet you are stealing their future in front of their very eyes.”

Greta Thunberg
IPCC 1.5 Health Report
https://www.who.int/globalchange/181008_the_1_5_healthreport.pdf

Lancet Countdown 2018
https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32594-7/fulltext

WHO COP-24 Special Report: health and climate change
https://apps.who.int/iris/bitstream/handle/10665/276405/9789241514972-eng.pdf?sequence=1&isAllowed=y

Fourth National Climate Assessment
https://nca2018.globalchange.gov

California Fourth Assessment
http://www.climateassessment.ca.gov

www.climatehealthconnect.org
Direct Energy Efficiency Benefits for Health

• Weatherization (insulation/sealing) can reduce exposures
  – Temperature extremes
  – Allergy-triggering pests
  – Excessive moisture (mold)

• Repair/replacement old, malfunctioning appliances
  – Eliminate backdraft that introduces CO

• Identify and mitigate risks
  – Malfunctioning smoke detectors, lead paint, radon exposure, trip and fall hazards

• BUT: improvements that decrease air exchange can increase exposure to indoor pollutants, including radon and toxic emissions, or excessive moisture (IOM – Climate Change, Indoor Air and Health)
“Saving Energy, Saving Lives
The Health Impacts of Avoiding Power Plant Pollution with Energy Efficiency”
ACEEE-PSR, 2018

• Used AVERT tool (Environmental Protection Agency’s Avoided Emissions and geneRation Tool)
  – Scenario: 15% reduction in annual energy consumption across U.S.
  – Identify reduction in PM2.5, NOx, SO2 due to electricity savings from energy efficiency

• Used EPA’s CO-Benefits Risk Assessment (COBRA) health impacts screening and mapping model to assess avoided illness due to improved ambient air quality
ACEEE-PSR Results

• Reduced electricity consumption would decrease pollution by millions of tons in a single year, including
  – An 11% reduction in PM2.5 pollution (a total of more than 20,000 tons)
  – A decrease in NOx emissions of 18% and in SO2 emissions of 23% (approximately 192,000 and 267,000 tons, respectively)
  – A 14% reduction in carbon dioxide (CO2) pollution (approximately 285 million tons)

• Nationwide, reducing electricity consumption by 15% for a single year would result in
  – More than six lives saved each day
  – Up to $20 billion in avoided health harms
  – Nearly 30,000 fewer asthma episodes

• Benefits accrue more significantly to regions/cities with greater exposure to coal-fired power plants
## ALA State of the Air, 2019

<table>
<thead>
<tr>
<th>County</th>
<th>Ozone</th>
<th>Particulate Matter</th>
<th>Pediatric Asthma</th>
<th>Adult Asthma</th>
<th>Cardiovascular Disease</th>
<th>Poverty Estimate</th>
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</thead>
<tbody>
<tr>
<td>Alameda</td>
<td>F</td>
<td>F</td>
<td>21,391</td>
<td>103,924</td>
<td>80.088</td>
<td>152,087</td>
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<tr>
<td>Contra Costa</td>
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<td>F</td>
<td>16,262</td>
<td>70,569</td>
<td>59,547</td>
<td>103,883</td>
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<tr>
<td>Marin</td>
<td>A</td>
<td>D</td>
<td>16,965</td>
<td>11,437</td>
<td>16,970</td>
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<td>Napa</td>
<td>B</td>
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<td>8,916</td>
<td>5,535</td>
<td>8,041</td>
<td>9,301</td>
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<tr>
<td>S.F.</td>
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<td>32,761</td>
<td>45,753</td>
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<tr>
<td>San Mateo</td>
<td>C</td>
<td>D</td>
<td>48,602</td>
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<td>40,690</td>
<td>31,826</td>
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<tr>
<td>Santa Clara</td>
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<td>26,693</td>
<td>118,941</td>
<td>91,785</td>
<td>132,603</td>
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<tr>
<td>Solano</td>
<td>D</td>
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<td>27,514</td>
<td>16,054</td>
<td>22,833</td>
<td>43,452</td>
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<tr>
<td>Sonoma</td>
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<td>C</td>
<td>32,419</td>
<td>20,239</td>
<td>29,443</td>
<td>41,165</td>
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</table>
Housing, Energy Efficiency and Health Equity
It is our mission to transform public health practice for the purpose of eliminating health inequities using a broad spectrum of approaches that create healthy communities.
The BARHII Framework
Although death rates in California have declined, disparities persist with African Americans having higher death rates than those of other racial/ethnic groups.
Climate Change IS Exacerbates Existing Health Inequities NOW

**Climate Impacts**
- Extreme Heat
- Air Pollution
- Wildfire
- Severe Weather/Storms
- Drought
- Agricultural Disruptions

**Health Impacts**
- Death
- Cardiovascular Stress and Failure
- Disease
- Hunger; malnutrition
- Increased cost of water, food and energy
- Illnesses such as Heat Stroke, Heat Exhaustion
- Mental health disorders

**Groups Most Impacted**
- Elderly
- Children
- Farm/Outdoor Workers
- Diabetics
- Low-Income Urban Residents
- People with Respiratory Diseases
Housing and Health

Credit: Robert Wood Johnson
Public Health Roles

• Targeted Investments
  • By Neighborhood, Tenure and Housing Conditions
  • Specific, Medically Vulnerable Households

• Outreach
  • In client’s homes
  • Trusted spokespeople
  • Building power with community

• Maximizing multiple benefits and avoiding harms
Housing and Health: Habitability

The California Healthy Places Index (HPI)™

Housing Habitability

How does this tract compare?

This tract has a higher percent of households with basic kitchen facilities and plumbing than just 21.6% of other California census tracts.

What does this indicator measure?

Percent of households with basic kitchen facilities and plumbing.

In this tract, 97.96% of households have basic kitchen facilities and plumbing.

What is the connection to health?

Everyone should be able to live in a safe and habitable home. Poor quality and unstable housing quality has been linked to asthma, injury, poisoning, depression, behavioral problems and educational delays, low birth weight, communicable disease, skipped meals and medical care, and food insecurity.

Policy actions to address this indicator

Food Access
- Improve Healthy Food Access

Housing
- Preserve and Improve Existing Housing
- Stabilize Residents and Neighborhoods

Credit: Robert Wood Johnson
Code Enforcement Complaints
Health and Housing Preservation Strategy

- Community organizations expanding capacity to define needs and solutions
- Leaders, planners, developers building affordability
- Hospitals and health plans investments strategies

Healthy communities
- Better food
- Lower asthma, allergies
- Less ER visits
- Reduction of homelessness
- Higher school performance
- Higher mental health
- Less driving

Safe, stable affordable housing
Figure 21: Average Z-Scores of Heat Vulnerability Indicators by Census Tract, Showing an Equal Number of Census Tracts in Each Category.
Map 1. SFHIP energy efficiency upgrade locations (187 homes) and average ambient annual PM$_{2.5}$ concentration from all sources ($\mu$g/m$^3$).
Housing Affordability Impacts
Spending on Healthcare and Food

Low-Income Households that can comfortably afford housing are able to spend:

- More on Childcare
- 1/3rd more on Healthy Food
- 5x as much on Healthcare

See BARHII Displacement Brief
Image Credit: the Noun Project—Arthur Shlain, Adrien Coquet, UNICORN, and Aneeque Ahmed
## Displacement in the Bay Area

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>AT RISK</th>
<th>ONGOING or ADVANCED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda</td>
<td>35%</td>
<td>36%</td>
</tr>
<tr>
<td>Contra Costa</td>
<td>24%</td>
<td>18%</td>
</tr>
<tr>
<td>Marin</td>
<td>22%</td>
<td>25%</td>
</tr>
<tr>
<td>Napa</td>
<td>28%</td>
<td>28%</td>
</tr>
<tr>
<td>Sacramento</td>
<td>35%</td>
<td>23%</td>
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<tr>
<td>San Francisco</td>
<td>35%</td>
<td>47%</td>
</tr>
<tr>
<td>San Joaquin</td>
<td>36%</td>
<td>24%</td>
</tr>
<tr>
<td>San Mateo</td>
<td>27%</td>
<td>38%</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>22%</td>
<td>37%</td>
</tr>
<tr>
<td>Santa Cruz</td>
<td>33%</td>
<td>31%</td>
</tr>
<tr>
<td>Solano</td>
<td>18%</td>
<td>16%</td>
</tr>
<tr>
<td>Sonoma</td>
<td>20%</td>
<td>24%</td>
</tr>
<tr>
<td>Yolo</td>
<td>27%</td>
<td>22%</td>
</tr>
<tr>
<td><strong>Bay Area Total</strong></td>
<td><strong>29%</strong></td>
<td><strong>31%</strong></td>
</tr>
</tbody>
</table>
In 2014-2016, there were approximately as many formal evictions fillings in Contra Costa County as there are seats in the Concord Pavilion. This is likely only a small part of total evictions that took place.

Eviction is a leading cause of homelessness.

Tenants Together: https://actionnetwork.org/groups/tenants-together/files/23632/download

Image Credit: The Concord Pavilion
Tenant/Homeowner Protections
Co-Benefits: Job Training
Thank You!

Contact us for More Information:

wdominie@barhii.org
Public Health Resources: Healthy Places Index
PUBLIC HEALTH RESOURCES: CLIMATE QUICK GUIDES

www.barhii.org
BayREN Forum: Connecting Health & Energy
June 11, 2019
Low income families spend 20% of monthly income on energy costs vs. 3.5% in other households.

30M families live in unhealthy homes. Homes with environmental hazards are making their residents sick.

14.4M missed days of school each year. Asthma is the top reason students miss school.

14.2M missed days of work each year. Collateral burden of sick children is missed days of work for parents and caretakers.

$51B+ spent on asthma. $31B+ spent on slip & fall injuries. $43B+ spent on lead poisoning. Over $100B in taxpayer funding is spent each year to address the impact of these hazards.

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A Fractured Delivery System
GHHI Background

1986
Founded as Parents Against Lead

2008
In partnership with White House, CDC, Council on Foundations, and HUD expand to GHHI. Begin providing technical support to a network of jurisdictions across the country.

2014
GHHI starts work on asthma Pay for Success (PFS) with Johns Hopkins in Baltimore

2015
GHHI receives EPA National Environmental Leadership Award in Asthma Management. SIF and RWJF grants expand to PFS feasibility to 11 projects nationally with health systems, MCOs, and hospitals.

Accomplishments
- 98% reduction of lead poisoning in Maryland
- 27 pieces of legislation passed
- 25 GHHI-designated sites across the country
- Over $250 million raised
- 11 Pay for Success projects across 10 states
The GHHI Model: No Wrong Door

- Single Intake System
- Comprehensive Assessment
- Coordinated Services
- Integrated Interventions
- Cross-Trained Workers
- Shared Data

- Lead Hazard Reduction
- Asthma Trigger Control
- Fall/Injury Prevention
- Energy Efficiency
- Weatherization
- Housing Rehabilitation
GHHI Marin: a collaborative approach

Guided by Theory of Change

- Seamless access to information, incentives, and services
- More residents to utilize related programs and services
- Reduce energy/water consumption, waste generation, and greenhouse gas emissions
- Enable more residents to experience improved health and safety within their home
Serving:
• Low income residents (up to 80% AMI, HUD)
• Single family, multi family, mobile homes and floating homes
• Owners and renters

Funding:
• Leveraging partner programs and resources
• MCF grant funding
  • $5,000 per single family unit
  • $2,250 per multifamily unit
Current model:

<table>
<thead>
<tr>
<th>MULTIFAMILY</th>
<th>SINGLE FAMILY</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Comprehensive GHHI assessment</td>
<td>• Comprehensive GHHI assessment</td>
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<tr>
<td>• Comprehensive SOW</td>
<td>• Comprehensive SOW</td>
</tr>
<tr>
<td>• Pipeline project management</td>
<td>• Pipeline project management</td>
</tr>
<tr>
<td>• Partner referrals</td>
<td>• Partner referrals</td>
</tr>
</tbody>
</table>

[Logos for Marin Housing, Marin Center for Independent Living, and Marin Health & Human Services]
Lessons learned:

- Partner buy in and support
- Project management is key for appropriate timelines and service coordination
- Data sharing requires systems build out and can be slow moving
- Coordinated vs. comprehensive approach: program resources and capacity are unknown
- Residents trust in programs and willingness to share information
- Flexible funding is a must!
- Education and training is needed for all parties
Sir Francis Drake Boulevard:

- Fairfax, Marin County
- 4 Section 8 Units
- 2 senior tenants
- 2 tenants with special needs
- Home rehab, energy efficiency, safety and accessibility work needed
## Resource Conservation/Energy Efficiency (Green)
- Replace windows
- Install crawlspace and roof insulation
- Install tankless water heater
- Direct install measures: LED lighting, faucet and shower aerators

## Accessibility, Health, and Safety (Healthy)
- Pest remediation
- Security lighting
- Bathroom ventilation
- Tree work
- Deck repair
- Fencing and gate repair
- Carport repair
- Bathroom ADA
- Handrails ADA

- Increased comfort
- Removed trip and fall hazards
- Increased accessibility
- Lowered utility bills (projected)
- Saving 2,271 Therms per year (projected)
- Increased indoor air quality
Marin Villa:

Canal, Marin County

12 low income units

Home rehab, energy efficiency and safety and work needed
### Program Resources
- $600 Multifamily Energy Savings Program
- $14,400 Low Income Families and Tenants (LIFT) Program
- $13,228 Low Income Solar
- $27,000 GHHI Marin

### Green and Healthy Measures
- Electrical panel upgrades
- Structural upgrades (dry rot)
- CO monitors
- T24 compliant windows
- LED light bulbs
- Low flow faucets
- 32.26 kW solar system (49,598 kWh annual production)

- Increased comfort
- Removed fire hazard
- Increased structural safety
- Lowered utility bills
- Saving 3,386.5 kWh per year (projected)
- Increased indoor air quality
Haverhill Court:

- Novato, Marin County
- Single family home
- 2 senior residents, 1 uses a wheelchair one uses a walker, both have respiratory health needs
- Home rehab, energy efficiency, safety and accessibility work needed
### Program Resources
- Marin County LIHEAP (CCES)
- Bob Roberts Client Assistance Program (MCIL)
- GHHI Marin
- Wood Smoke Program (County of Marin CDA)*

### Green and Healthy Measures
- ADA accessible bathroom*
- Removal and replacement of wood burning fireplace*
- Weatherstripping
- LED light bulbs
- Low flow faucets
- Smoke alarm

**Increased comfort**

**Improved accessibility**

**Lowered utility bills (projected)**

**Increased indoor air quality**
Thank You

mnochisaki@mcecleanenergy.org
415.464.6657
Focus areas:

- Reduced use of natural resources
- Sustained independence within the home
- Increased safety within the home
- Decreased waste generation

Resource Conservation

Independent Living

Home Rehabilitation

- Improved health outcomes
- Increase in local workers trained in green and healthy home practices
- Reduced greenhouse gas emissions & energy costs
Linking Health & Energy Efficiency to Energy Code Compliance

Demian Hardman, Senior Energy Planner
Department of Conservation & Development
June 11, 2019
Health & Energy Efficiency

Our Vision

✓ Improved Quality of Life
✓ Improved Living Conditions
✓ Convening Local Government to Increase Access to Resources
✓ Meeting Community Needs for a Sustainable Future
✓ Education, Education, Education, Education...
Rate of Emergency Department Visits for Asthma by Census Track
Minority Populations
Air Quality Impacts on Health
A Business Case for EE and Health?

- EE Code Compliance = EE Improvements
- EE Improvements = Improved Health
- Improved Health = Reduces Health Costs
- Reduces Health Costs = Better Quality of Life
Questions?

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