



Healthy Connecticut 2020 State Health Improvement Plan

Chronic Disease ACTION Team Meeting AGENDA & NOTES		
Date: Friday, March 2, 2018		
Time: 1:00 p.m. to 3:00 p.m.		
Location: Conference Call		
Attendees: Mehul Dalal, Liz Beaudin, Charles Brown, Teresa Dotson, Gina Smith, Lynn Faria, Pat Checko, Sandy Gill, Chantelle Archer		
Agenda Items	Discussion	ACTION Items and person responsible
2018 Chronic Disease Action Agenda	<p><i>Brief updates from subcommittees</i></p> <p>OBESITY</p> <ul style="list-style-type: none"> • The first meeting of the subcommittee was recently held with the addition of new members from the Connecticut Food Bank, Food Share, and The American Heart Association. They include Monica Jensen, Shari Grant, Alecia Andrews, Lisa Neff, Linda Hutchings, and Lauren Kowtko. The group will meet monthly and will continue to promote the healthy food donation list. The list has been sent to SHIP coalition members and local health departments. Lynn is keeping a spreadsheet to track distribution of the list, and in one year the subcommittee will look to see where the list has been distributed throughout the state. • The subcommittee also plans to develop a toolkit for communities that want to start a food policy council. • The subcommittee will promote drinking water and physical activity. One resource the group is looking into includes AmericaWalks – www.americawalks.org, a national organization devoted exclusively to making America a great place to walk by providing a voice for walking and walkability through various efforts including through federal government affairs, strategy support etc. Another resource is the <i>Water First for Your Thirst</i> campaign. Some health departments across the country including the Ohio Health Department have implemented the campaign which encourages more consumption of water and less consumption of sugar sweetened beverages. 	

<https://www.odh.ohio.gov/health/healthylife/createcomm/Healthy%20Eating/Water%20First%20for%20Thirst.aspx>

- Stop Light Program: The concept of Stop Light is that food items are sorted and displayed in a food pantry according to the healthiness of the food. "Red items" are displayed out of direct eye contact and may include foods that are higher in fat, sugar, sodium, and carbohydrates. "Green items" are at appropriate eye level and may be considered as healthier items. "Yellow items" are a bit out of eye level and may be on the border of healthy. Gina is working on this program with Katie Martin who is the vice president and chief strategy office at Foodshare. She, along with colleagues from the University of St. Joseph developed the Stop Light. The program has been piloted in four Food Share pantries. Next steps include evaluation. The program may be evaluated in Bridgeport.

ORAL HEALTH – Mary was unable to attend the meeting to provide an update.

- [H.B. 5163](#): This proposed bill would involve the addition of senior centers as a public health setting for dental hygienists, so they can administer preventive care to older adults and refer them to a dentist.
- [H.B. 5213](#): In this proposed bill school districts to request oral health assessments for students entering the school and in 6th/7th grade and 9th/10th grade in an effort to impact oral health as part of overall health, self-esteem and academic achievement for our state's school children. Also combined HB5298 to allow dental assistants to provide fluoride varnish treatment to prevent dental decay.

ASTHMA

- This item will be pushed back to the second quarter. Will look into getting asthma on the agenda of the board of the American Academy of Pediatrics. The Academy's topics of interest include asthma, lead, and immunizations.
- The Connecticut Green Bank Initiative is wrapping up phase 1. The initiative is a collaboration between health, housing, and safety, and the use of public funds to address these issues. The initiative is working with state agencies on funding streams that address each sector that would be engaged in improvements. State agencies that are involved include the Department of Public Health, the Department of Housing, the Department of Children and Families, and the Department of Social Services.
- Last week there was a Green and Healthy Homes webinar. DPH will send out slides along with links to Connecticut Green Bank Initiative and the Green and Healthy Homes Initiative.
- [H.B. 5163](#): Section 7 of this proposed bill would involve the establishment of a pilot program for the early identification and treatment of pediatric asthma. The program would identify, screen, and refer children with asthma for treatment.
- SIM is planning on doing a pilot project where health care organizations develop contracts to offer home-based asthma services. This is moving forward at full speed and there is a request for

	<p>community-based organizations and health care facilities to participate. The first phase is limited to select areas including Middletown, New Haven, and Bridgeport.</p> <p>TOBACCO</p> <ul style="list-style-type: none"> • Last year money was wiped out from the Tobacco Trust Fund. • H.B. 5095: The proposed bill would increase the cigarette tax by \$1. Half would go to the cessation program and the other half would go to the general fund. There was a public hearing on March 2nd. • H.B. 5293: This proposed bill would require the same direct, face-to-face sale of electronic nicotine delivery systems and vapor products as is required for the sale of cigarettes and smokeless tobacco products. • S.B. 164: The proposed bill would raise the legal age to purchase tobacco to twenty-one. It's the same as last year's bill except for the exemption for individuals turning 18 before October 18, 2018. There is also no military waiver. • H.B. 5289: The proposed bill would implement the recommendations of DPH to expand the Clean Indoor Air Act and prohibitions on smoking in the workplace. 	
<p>2018 SHIP Policy Agenda</p>	<ul style="list-style-type: none"> • <i>Overview proposed policies</i> • <i>Tobacco</i> <ul style="list-style-type: none"> ○ <i>Action items for advocacy – What can action team members do?</i> ○ <i>How do you make people care about this issue?</i> <p><i>Framing education opportunities for different sectors</i></p> <ul style="list-style-type: none"> • The seatbelt bill was heard by the public health committee hearing on March 5th at 11am. An email was sent to the entire coalition with information about the hearing. 	
<p>Review of Chronic Disease Section of final report</p>	<ul style="list-style-type: none"> • <i>Data snapshot</i> <i>Are current strategies making an impact, or do we need to do something different?</i> • Members reviewed the status of all the chronic disease indicators which were provided in tables. A green circle meant the original SHIP and updated target was reached. A yellow circle meant the indicator's most recent data point is moving in a positive direction relative to the current 2020 target. A red circle meant the indicator's most recent data point is moving in a negative direction relative to the current 2020 target, and a white circle meant the baseline was not established, or the data was not available. <ul style="list-style-type: none"> ○ Asthma: Mehul advocated for the update of the asthma measure. The indicator is more white than green because the coding has changed, which means the numbers are not comparable. 	

	<p>Will use 2016 as a baseline and will keep the new target as 2020. At the next meeting the team can recommend targets.</p> <ul style="list-style-type: none"> ○ <u>Tobacco</u>: Pat suggested using an alternative measure that looks more at risk groups. Grades 6-8 are no longer being surveyed; will look into combining grades 9 and 10 and grades 11 and 12. Mehul will talk to Barbara Walsh, DPH's Tobacco Program Manager, and at the next meeting the team can recommend new indicators. Possibly adding the tobacco objective back into the agenda was also mentioned. 	
Action items for the next three months	<ul style="list-style-type: none"> • <i>What will happen in the next three months? (Define at least 2-3 specific actions that will be completed by the next action team meeting.)</i> <ol style="list-style-type: none"> 1. Tobacco: <ol style="list-style-type: none"> a. Update data b. Produce fact sheets on tobacco for members meeting with stakeholders. c. Contact Pat/MATCH if interested in testifying. 2. Asthma: Update data 3. Obesity: Reach out to Food Share and Food Bank regarding the tool kit and the food list <p>If members have any additional thoughts they can send them to HCT2020@ct.gov.</p> 	
Next Steps	<ul style="list-style-type: none"> • <i>Next Meeting Date/Time: May 1, 2018, 9:30-11:00 am, GoToWebinar Meeting</i> 	



**Green & Healthy
Homes Initiative®**



Achieving Health and Social Equity through Housing: Understanding the Impact of Non Energy Benefits in the United States

February 22, 2018



About today's webinar

- Presentation during first 60 minutes of webinar
- GHHI staff will respond to audience questions for the following 30 minutes
- Attendees can submit questions in the chat box or Q&A box on the Go To Webinar panel
- If any questions are unanswered during the webinar, GHHI will respond by email
- Slides will be shared with the Registration List
- Questions or technical issues? Email clee@ghhi.org



Achieving Health and Social Equity through Housing:

Understanding the Impact of Non Energy Benefits in the United States



- Released February 7, 2018
- Paper is now available for [download](#)
- Sign up for the GHHI [mailing list](#) to get follow-up publications and other updates



What we will cover today

1 Non Energy Benefits (NEBs)

2 Linking Housing, NEBs and Social Determinants of Health

3 Impact on Housing Affordability

4 Impact of Housing Quality

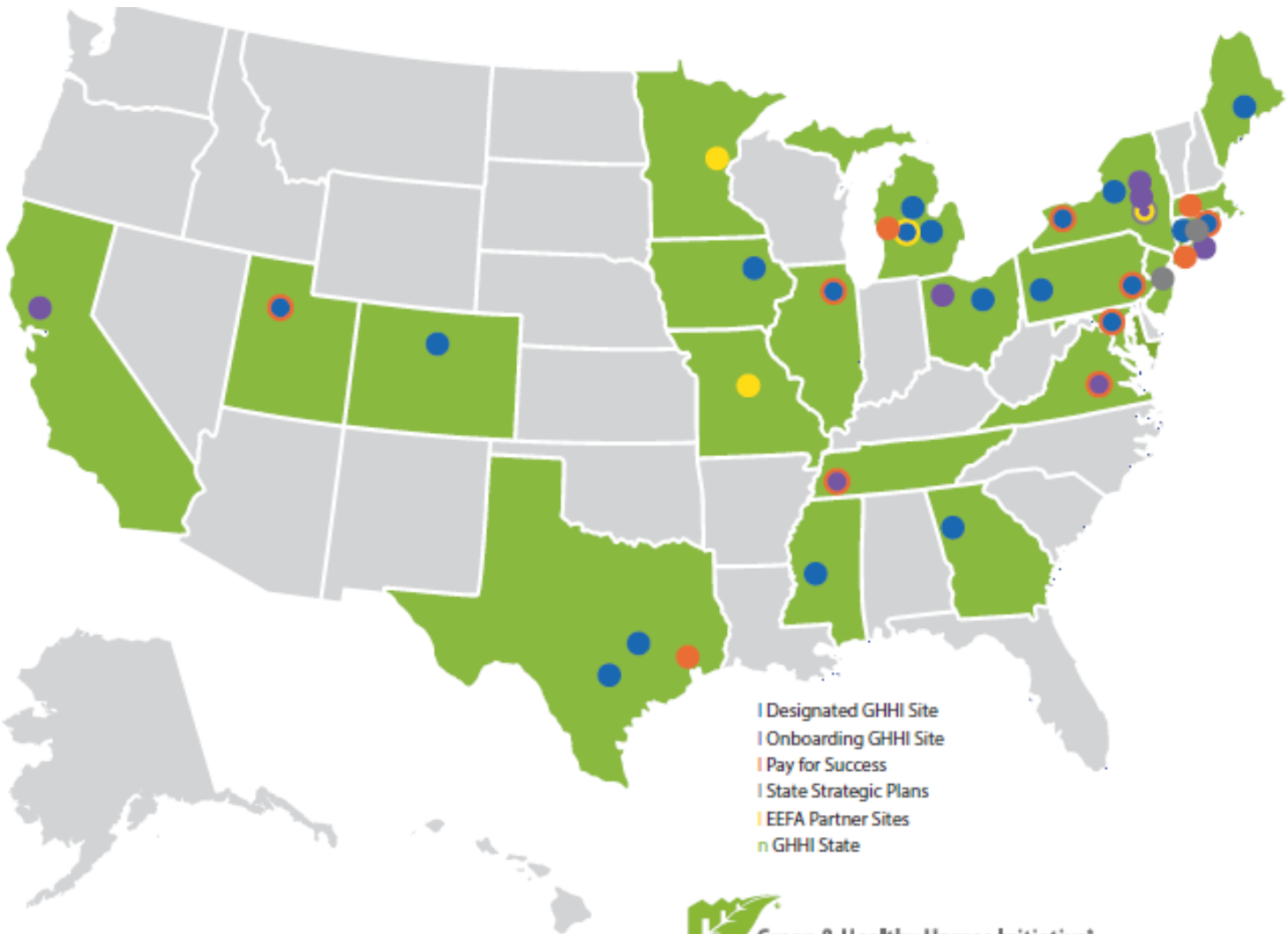
5 Indirect Impacts of Energy Efficiency in Affordable Housing

6 Benefits for Owners, Communities and Nation

7 NEBs Evaluation Practices

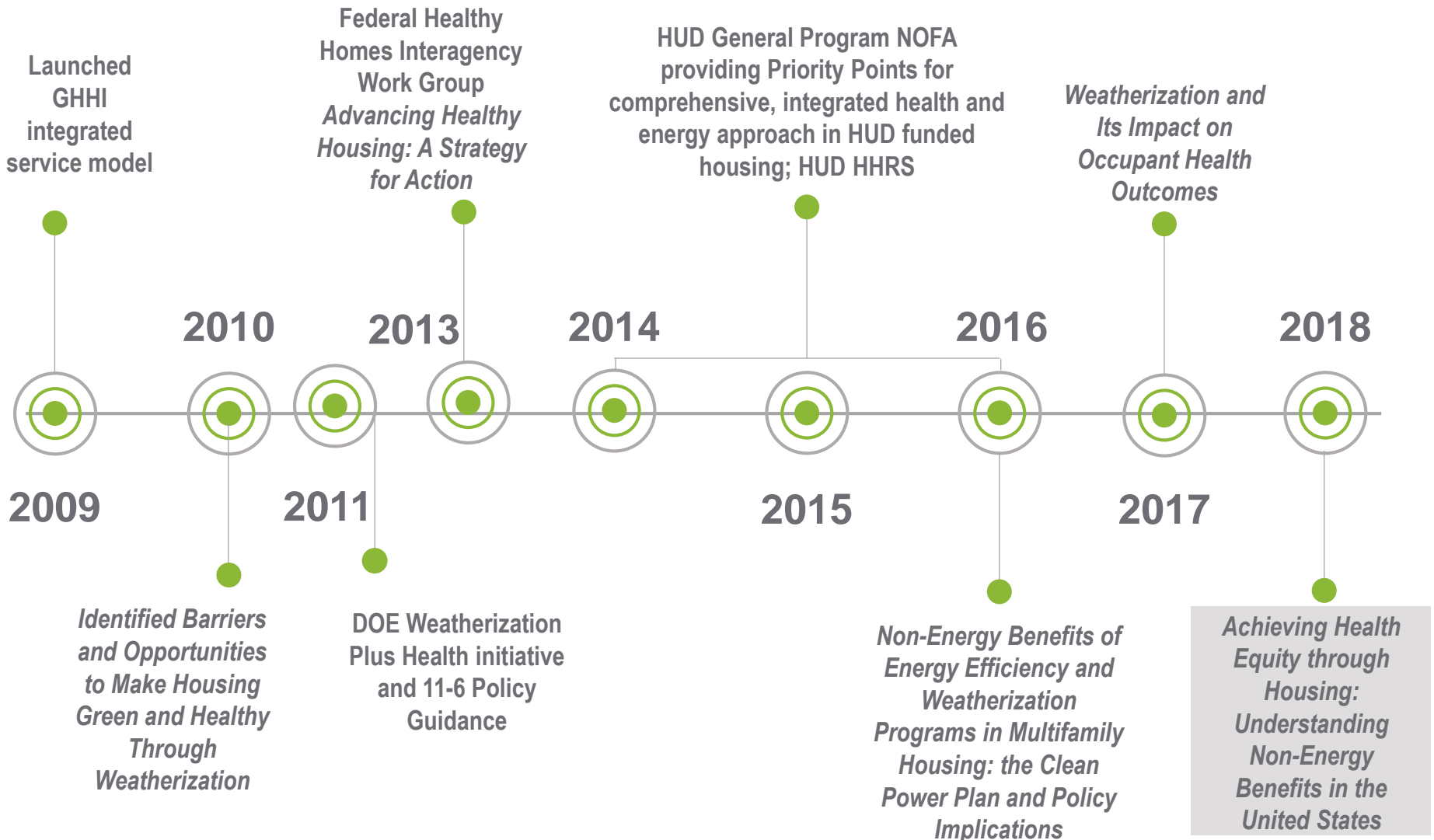
8 Policy Recommendations

Building a National Movement





GHHI's Research into Health Equity & Non-Energy Benefits





- Comprehensive analysis of peer-reviewed studies from 2000 to 2016
- Evidence base for how residential energy efficiency investments in weatherization of low-income households impact:
 - Affordability of housing
 - Reduction of energy cost burdens
 - Greater social equity related to environmental, economic, and health benefits for the occupant, owner, local community, region, and nation



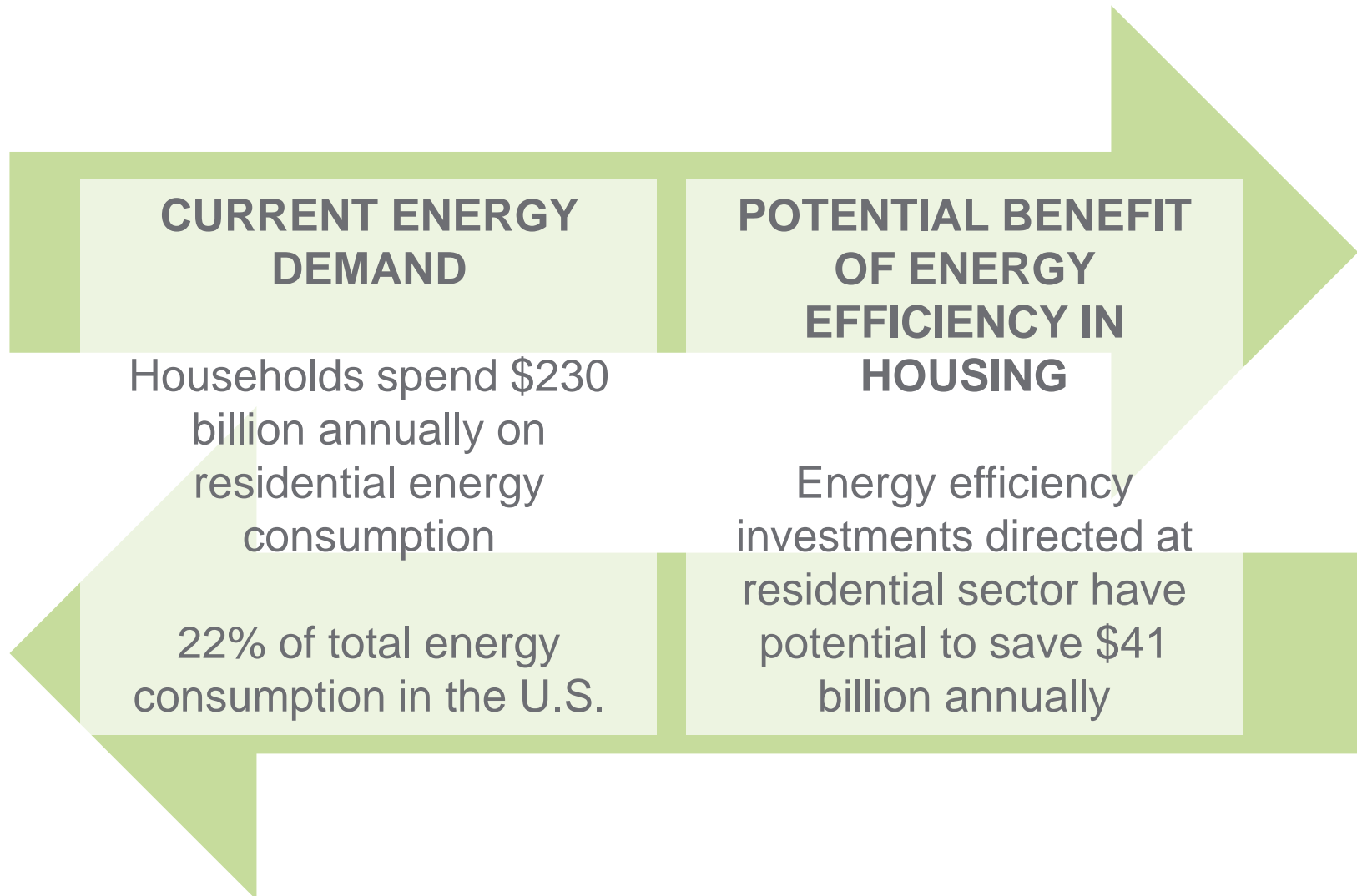
Purpose

Identify how weatherization and healthy homes interventions can:

- Confer **non-energy benefits** at the individual and community level
- Address **social determinants of health** and **reduce health inequities**
- Drive cost savings by improving economic, health and environmental outcomes
- Increase integration of programs and services, benefiting families, service providers and government agencies

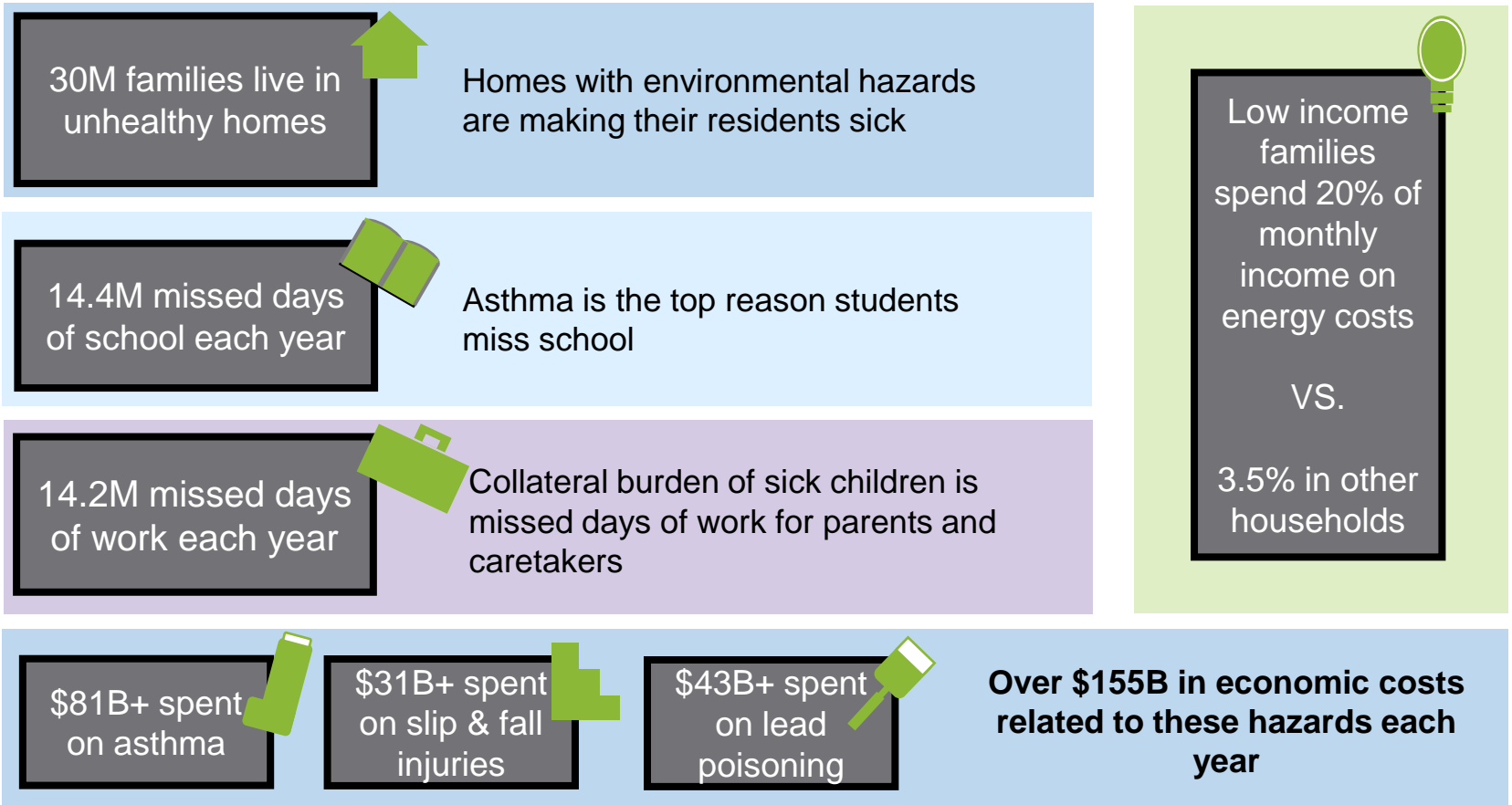


National Impact of Energy Efficiency





The Burden of Unhealthy and Energy Inefficient Homes





Non-Energy Benefits

International Energy Agency defines non-energy benefits as...
"the wider socio-economic outcomes that can arise from energy efficiency improvement, aside from energy savings."

Non-Energy Benefits are also
known as:

- ✓ Multiple Benefits
- ✓ Co-benefits
- ✓ Non-energy impacts
- ✓ Net Benefits

Social Determinants of Health



SOCIAL DETERMINANTS OF HEALTH

The social determinants of health are the conditions in which we are born, we grow and age, and in which we live and work. The factors below impact on our health and wellbeing.



Childhood experiences



Housing



Education



Social support



Family income



Employment



Our communities



Access to health services

Source: NHS Health Scotland



Social Determinants of Health

Five Key Factors Underlying SDOH:

1. Economic Stability

- **Poverty**
- **Employment**
- **Food Security**
- **Housing Stability**

2. Education

- High School Graduation
- Enrollment in Higher Education
- **Language and Literacy**
- **Early Childhood Education/ Development**

3. Neighborhood and Built Environment

- Access to Healthy Foods
- **Quality of Housing**
- **Crime and Violence**
- **Environmental Conditions**

4. Health and Health Care

- Access to Health Care
- Access to Primary Care
- **Health Literacy**

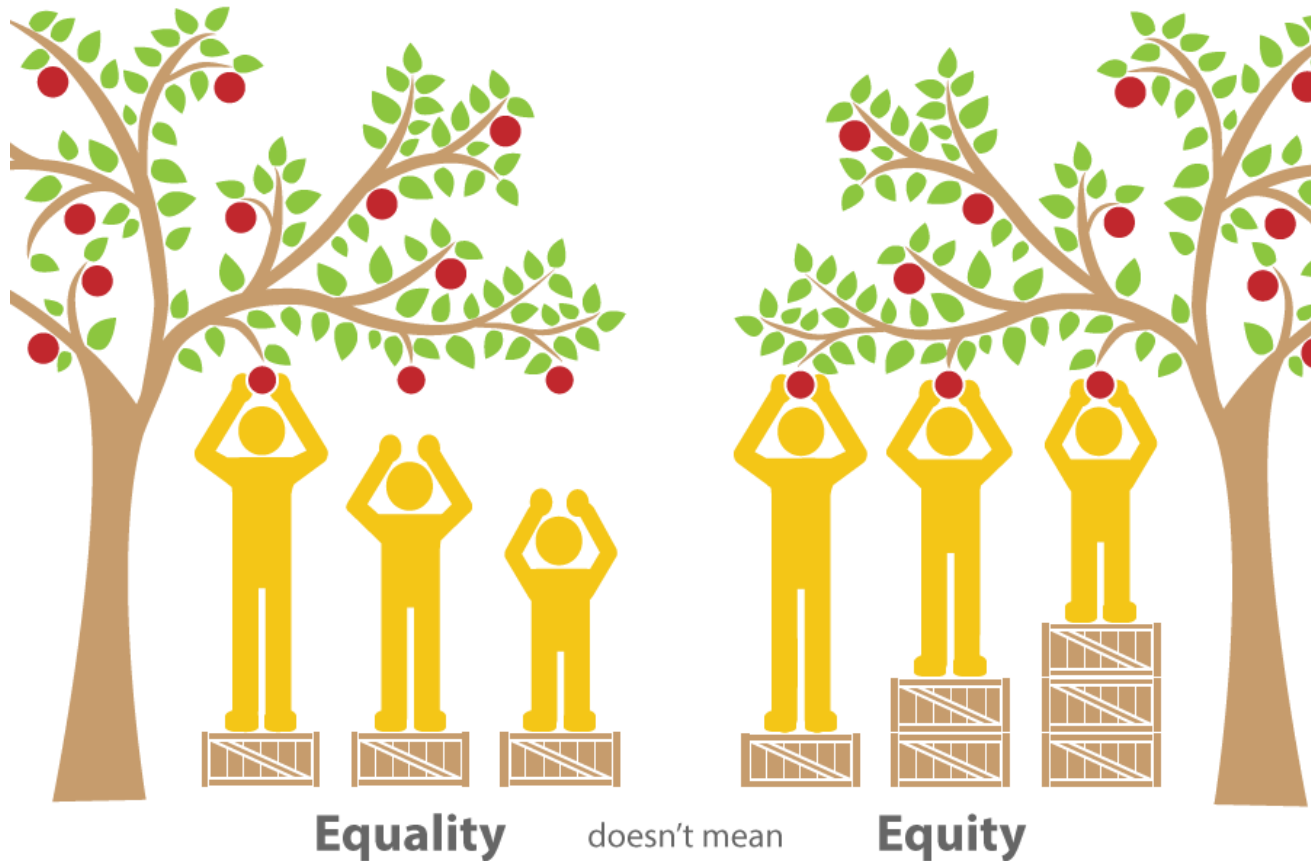
5. Social and Community Context

- Social Cohesion
- Civic Participation
- Discrimination
- Incarceration





What are health inequities?



“Health inequities are systematic differences in opportunities by which groups can achieve optimal health, leading to unfair and avoidable differences in health outcomes.”



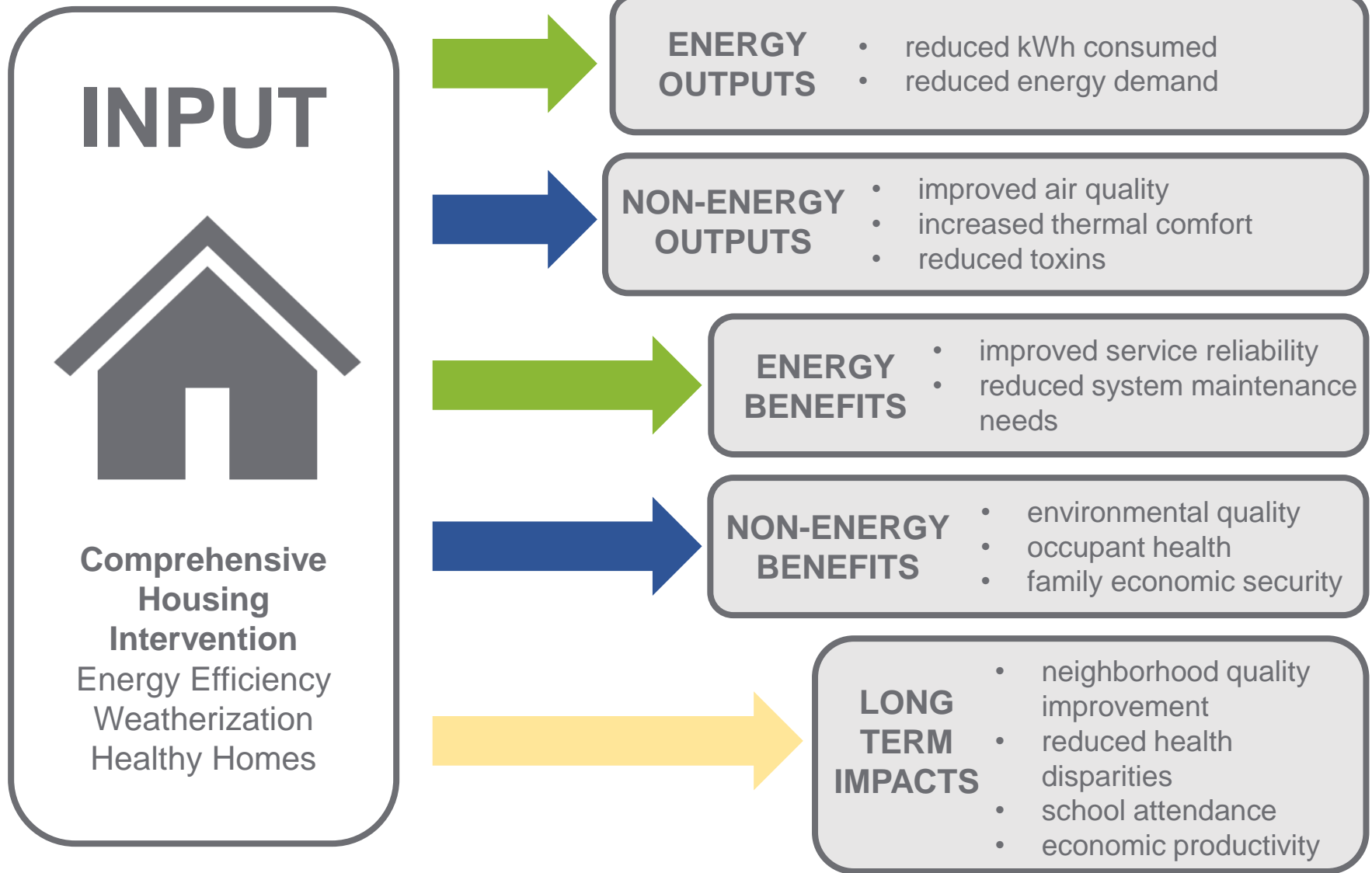
Pathway Linking NEBs and SDOH



Investments in energy efficiency in low-income housing can improve housing affordability, home environmental health, and increase access to healthier choices for families.



Pathway in Practice





Organization of Findings

Findings on Individual Level Non-Energy Benefits

- Housing Affordability
- Poor Quality Housing (hazards, health effects, and remediation methods)
- Indirect Impacts on Occupants
- Impact on Owners

Non- Energy Benefits at Community and National Levels

- Community Level Non-Energy Benefits
- Sectoral Level Non-Energy Benefits (energy providers)
- National Level Non-Energy Benefits

Conclusion

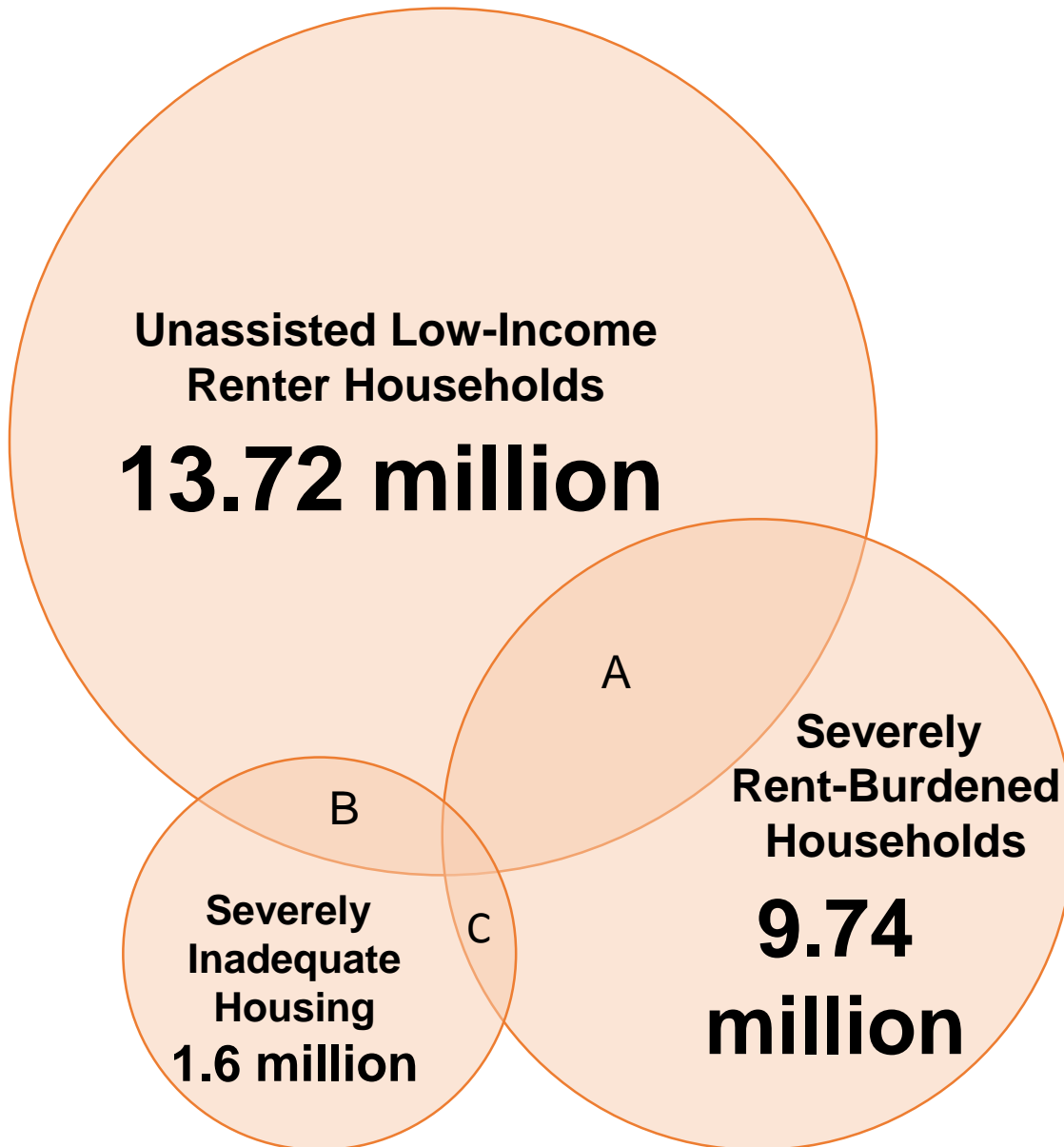
- Energy Efficiency Evaluation Practices
- Opportunities for Capturing NEBs
- Policy Recommendations
 - Program administration
 - Financing strategies



Impact of Housing Affordability



Worst Case Housing Needs



7.72 million households

A) Unassisted LI renter + severely rent-burdened
7.23 million

B) Unassisted LI renter + severely inadequate
0.22 million

C) Unassisted LI renter + severely inadequate + severely rent-burdened
0.27 million

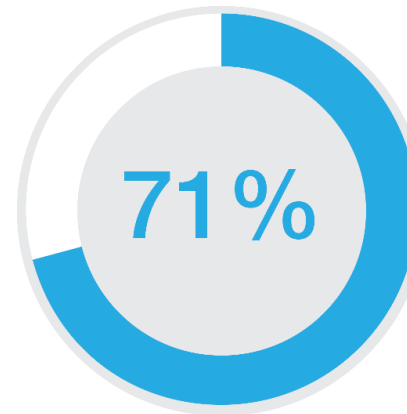


Affordable Housing Shortage



only 35 affordable units for every 100
extremely low income households

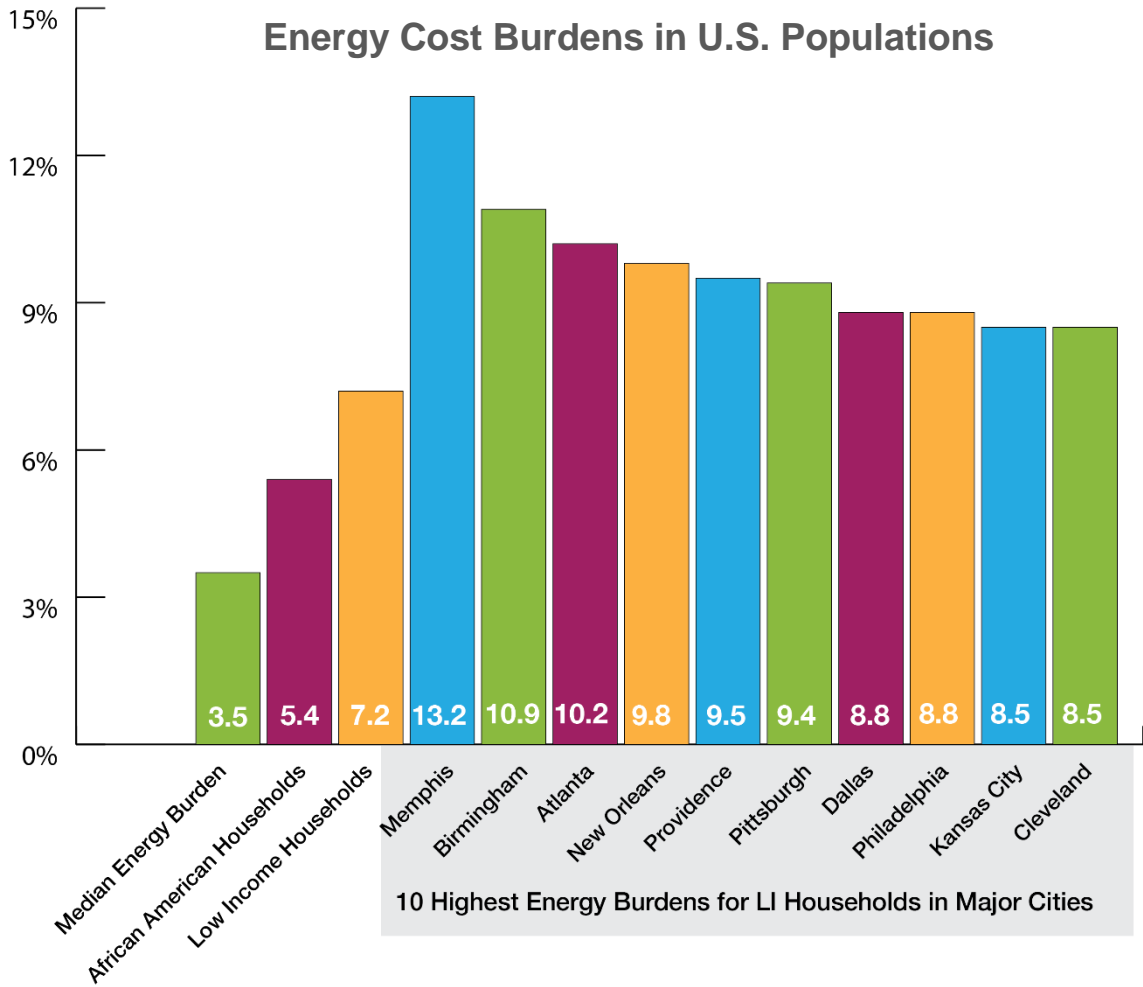
Poor quality housing with hazardous conditions is increasingly common for low and moderate income households due to the limited availability of affordable housing stock.



extremely low income households spend more than 50% of income on rent + utilities

Source: Andrew Aurand, Dan Emmanuel, Diane Yentel, and Ellen Errico. "The Gap: A Shortage of Affordable Homes." National Low Income Housing Coalition (March 2017). <http://nlihc.org/research/gap-report>

Inefficient & Unaffordable Housing



Deferred maintenance is one of the primary causes of unhealthy housing.

Coupled with energy cost burdens from poorly weatherized conditions, which exasperate budgets and health conditions, families become destabilized.

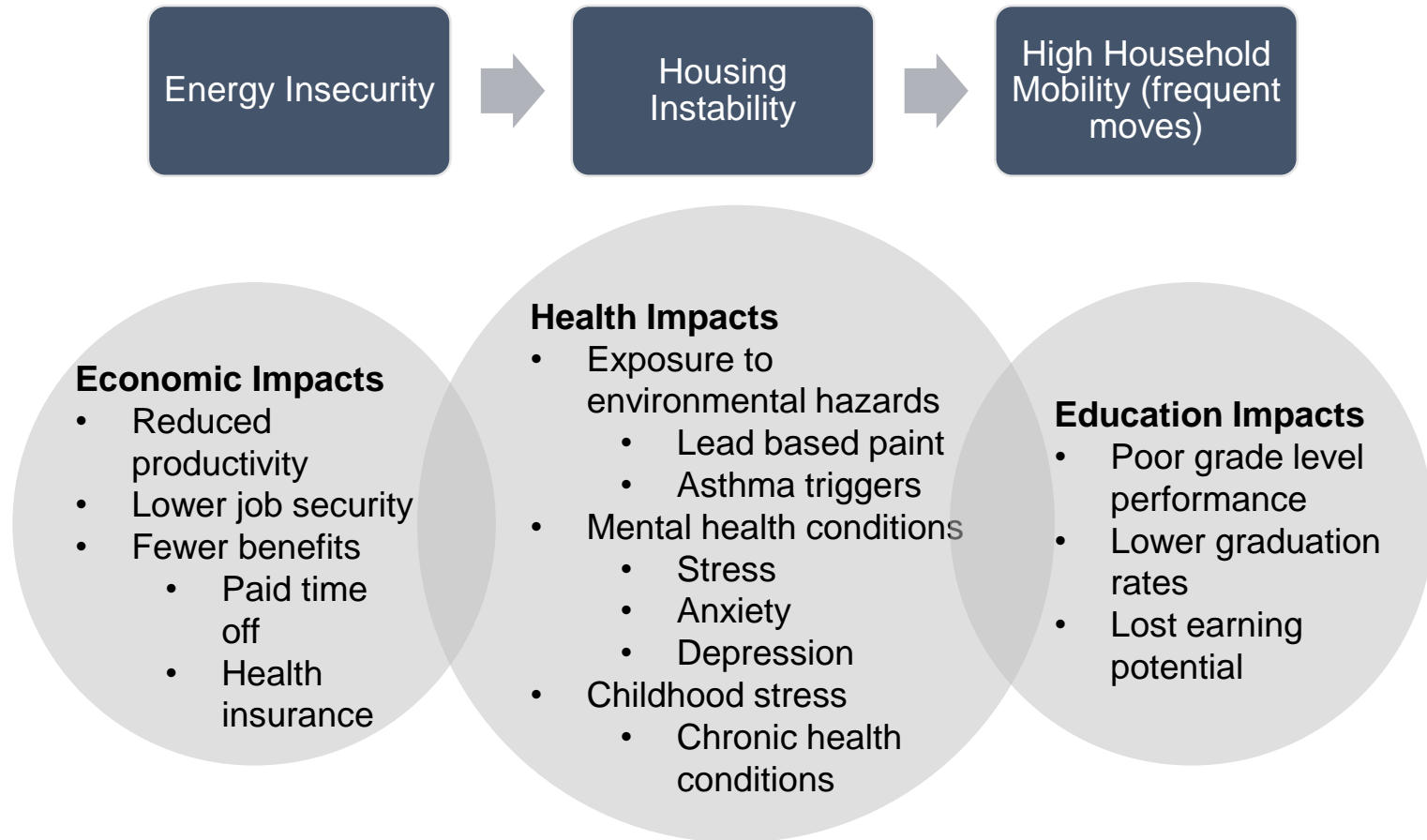
2.2 million

households experienced utility interruption in 2013

Sources: Ariel Dreobl and Lauren Ross. Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities. American Council for an Energy-Efficient Economy (April 2016) ; 2013 American Housing Survey.



Impacts of Energy Insecurity



Non-Energy Benefits in Affordable Housing



Occupant

- Health- improve IAQ; improve environmental quality
- Financial Stability- Reduce energy costs; reduce risk of eviction; reduce reliance on energy assistance program; increased food security from reduced housing costs

Owner

- Operation maintenance savings
- Preserve affordability
- Increase Home Value
- Decreased vacancy – Preserve affordability; reduce risk of eviction

Utility

- Decreased Costs

Society

- Environmental Air Quality – reduce GHG & Criteria Air Pollutants
- Economic – reduce energy costs; increase job creation and market development



Impact of Poor Quality Housing



Environmental Health Hazards in Housing

INDOOR AIR QUALITY

- Combustion Gases & Ventilation
- Volatile Organic Compounds
- Radon
- Environmental Tobacco Smoke

COMFORT & SAFETY

- Thermal Comfort
- Home Safety: Unintentional Injury and Fall Prevention
- Fire Safety

INDOOR ENVIRONMENTAL ASTHMA TRIGGERS AND ALLERGENS

- Biological and Unsanitary Conditions
- Pest Management

LEAD-BASED PAINT/LEAD-SAFE WEATHERIZATION PRACTICES

Home Intervention

Output

Outcome

Healthy People
2020 Indicator

Social Determinants
of Health



Combustion Gases and Ventilation

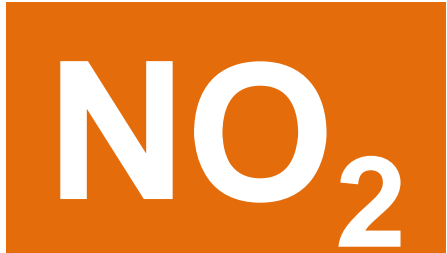
COMMON COMBUSTION GASES RELEASED FROM APPLIANCES



CARBON MONOXIDE



PARTICULATE MATTER



NITROGEN DIOXIDE

OTHER COMMON COMBUSTION GASES IN HOMES



POLYCYCLICAL
AROMATIC
HYDROCARBONS



SULFUR
DIOXIDE



NITROGEN
OXIDES



GROUND
LEVEL
OZONE

National Ambient Air Quality Standards (NAAQS)



Pollutant	US Average Range	US Typical Peak	Most Recent NAAQS for Criteria Pollutants (Averaging Time)
O ₃ Ozone	0-125 ppb	2000 ppb	75 ppb (8h)
NO ₂	0.5-50 ppb	200 ppb	100 ppb (1h) 53 ppb (Annual mean)
NO	0-100 ppb	200 ppb	
SO ₂	0.1-50 ppb	150 ppb	75 ppb (1h) 6/22/2010 140 ppb (Annual mean)
CO	0.1-5 ppm	20ppm	35 ppm (1h) 9 ppm (8h)
PM ₁₀	10-100 µg/m ³	300 µg/m ³	150 µg/m ³ (24h)
PM _{2.5} ☉	5-50µg/m ³ Mean=(13.4±5.6) µg/m ³	100 µg/m ³	12 µg/m ³ (Annual mean) primary 15 µg/m ³ (Annual mean) secondary 35 µg/m ³ (24h)
PM _{2.5} ☉ Lead	0.5-5 ng/m ³	150 ng/m ³	12 µg/m ³ (Rolling 3 month average)
PAH	2-50 ng/m ³	200 ng/m ³	NA



Combustion Gases and Ventilation

Home Intervention

Weatherization

Source Control:

Removal of all unvented combustion space heaters

Repair/replace unvented heat pumps, vented gas heating, or enclosed wood burners

Ventilation:

Increases the volume of indoor to outdoor air exchanged

Healthy Homes

Install CO Monitors in homes with Combustion appliances

Output

Better Indoor Air Quality

Reduced concentration of poly-cyclical aromatic hydrocarbons (PAH), hydrocarbons, aldehydes, carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen oxides (NO_x), and particulate matter (PM) in the home

Outcome

Lower Incidence of

CVD related Emergency Room visits

Adverse respiratory symptoms

COPD

CO poisoning hospitalization and death

Healthy People 2020 Indicator

EH-22.7

Increase States that monitor diseases or conditions that can be caused by acute exposure to CO poisoning

HDS-2

Reduce coronary heart disease deaths

RD-1-13

Respiratory Diseases

Social Determinants of Health

Neighborhood & Built Environment

Quality of Housing

Environmental Conditions

Economic Stability

Poverty

Employment



Volatile Organic Compounds

HAZARDS

FORMALDEHYDE

VINYL CYCLOHEXANE

BUTOXY ETHANOL

ACETALDEHYDE

BENZENE

HEXANAL

TOLUENE

PENTANAL

BUTYL ETHER

NAPHTHALENE

ISOPENTANE

STYRENE

ISOPROPANOL

PHENOL

SOURCES IN HOUSING

PLYWOOD

FIBERBOARD

PARTICLEBOARD

ADHESIVES

SEALANTS

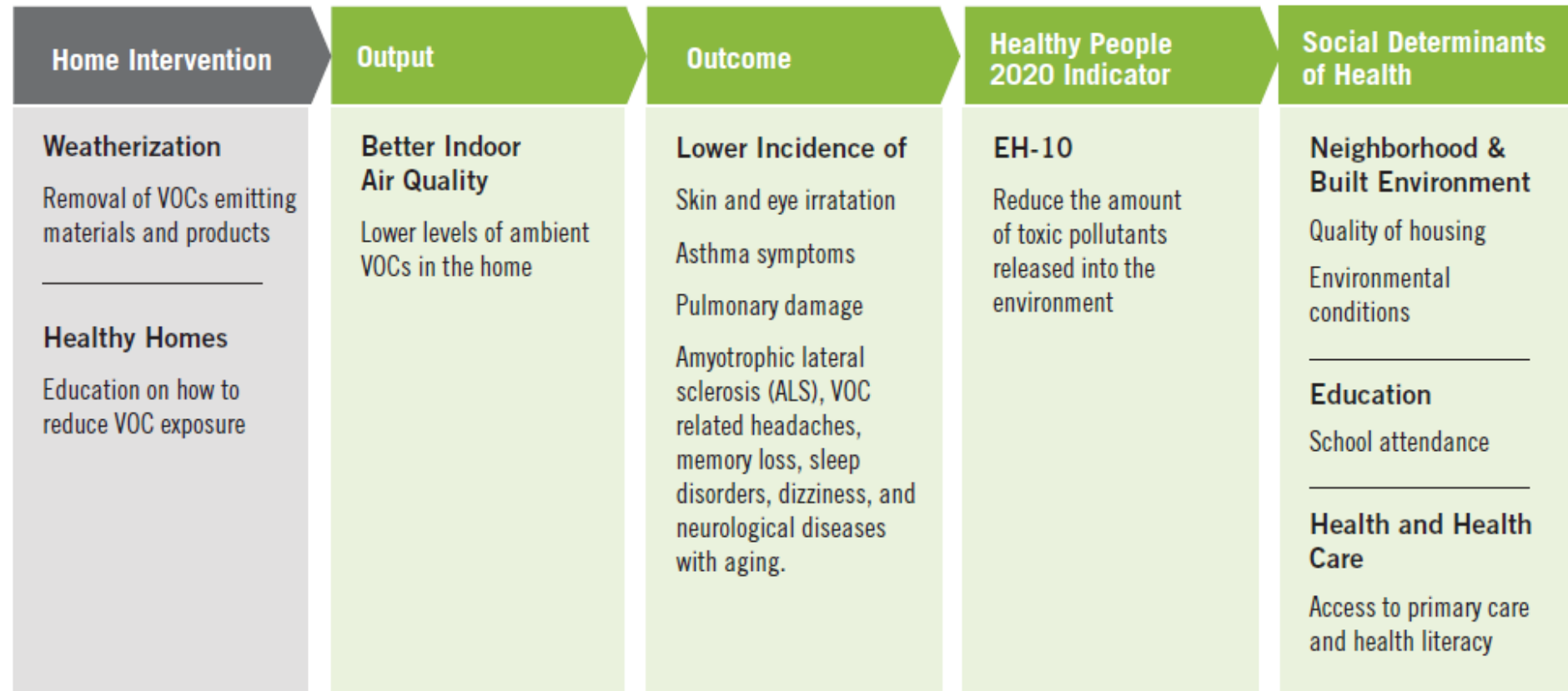
CARPET

CLEANING CHEMICALS

PAINTS



Volatile Organic Compounds



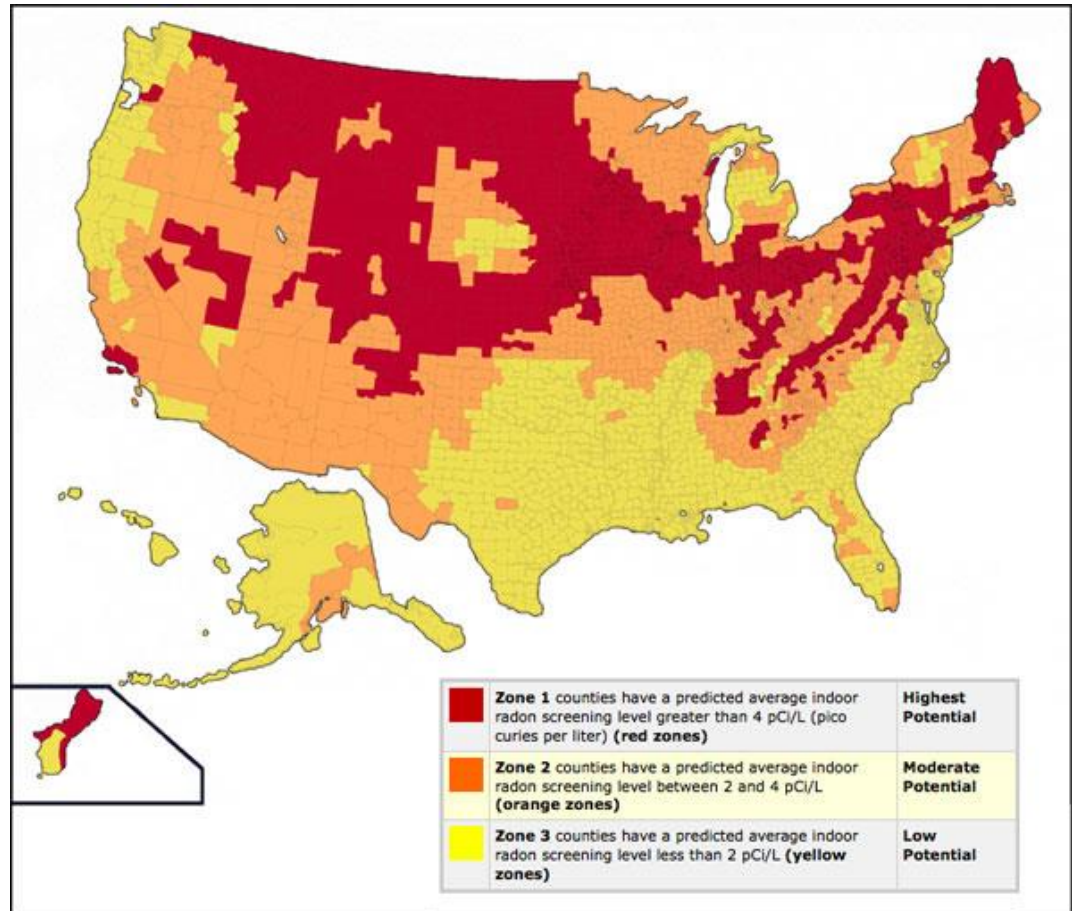


Radon

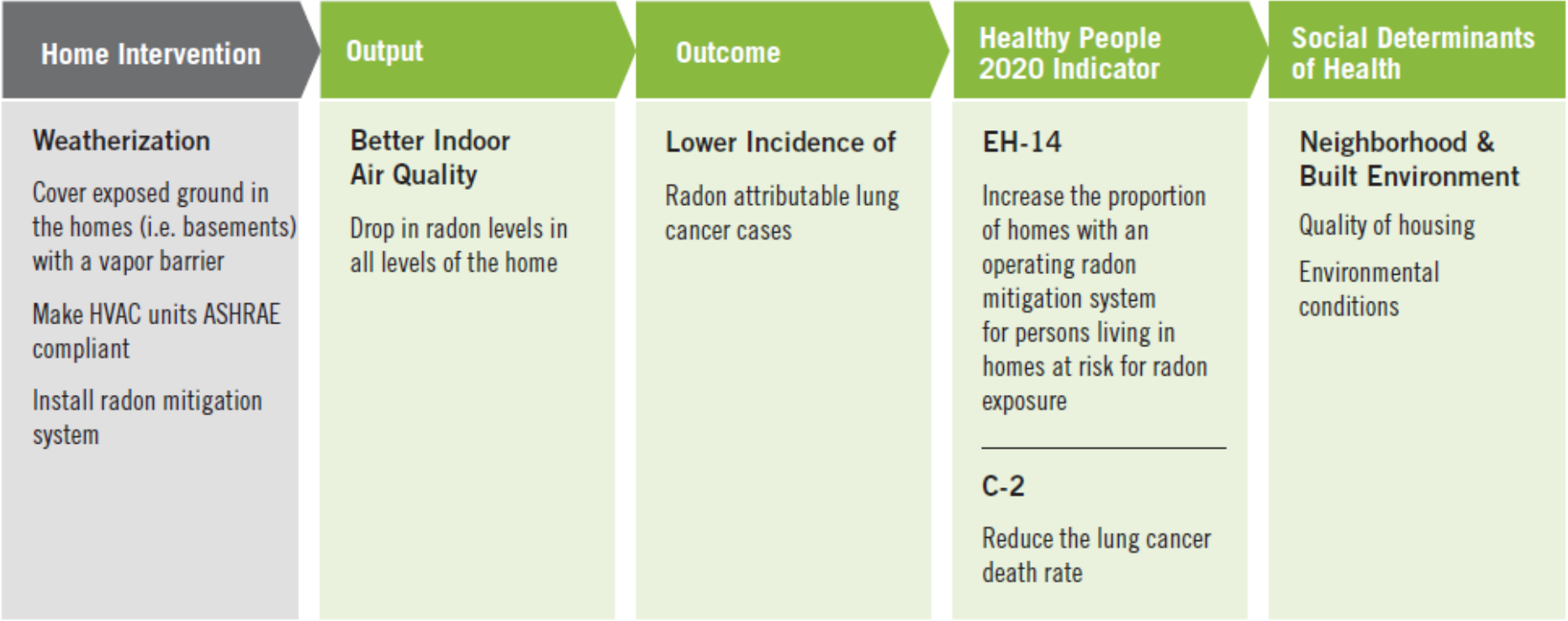
Rn

- naturally occurring radioactive gas
- emanates from ground through porous rock or from construction and excavation
- associated with cancer and respiratory disorders
- risk varies among regions

EPA Radon Risk Zones in the United States

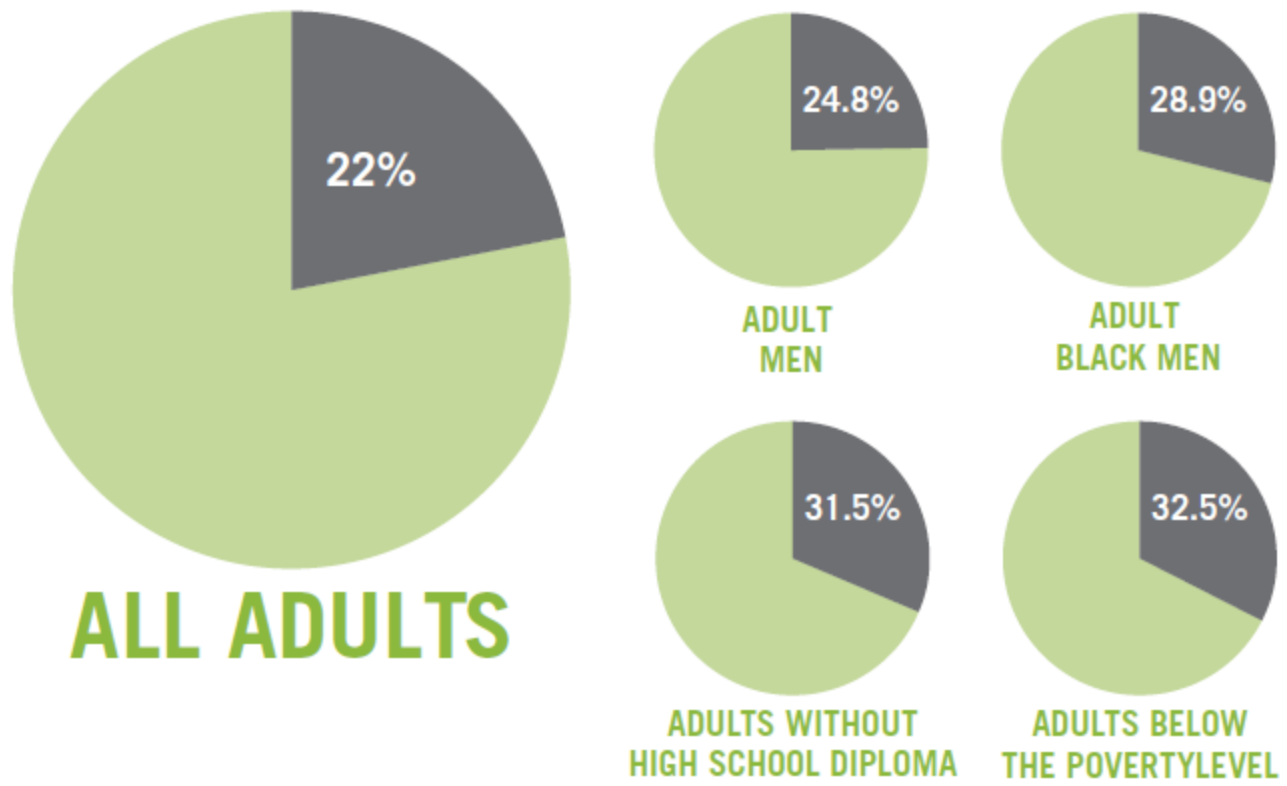


Radon





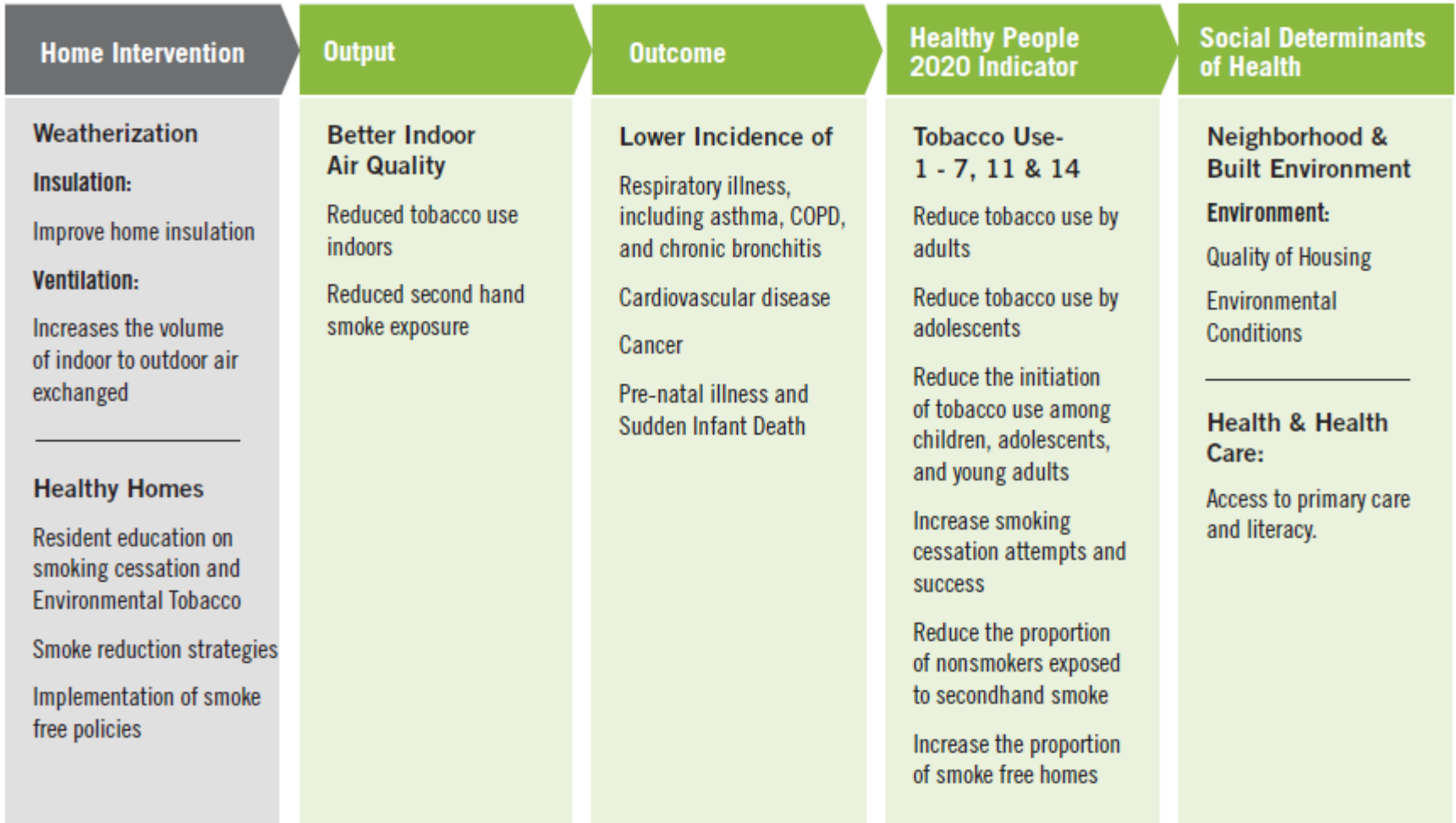
PREVALENCE OF SMOKING AMONG U.S. ADULTS



Source: U.S. Department of Health and Human Services. The Health Consequences of Smoking—50 Years of Progress. A Report of the Surgeon General, Atlanta GA. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office of Smoking and Health, 2014.



Environmental Tobacco Smoke





HEALTH EFFECTS

- May cause illness or trigger allergic reactions, rhinitis, and asthma
- Exposure to molds and other during early childhood uniquely harmful, can lead to asthma development

BACTERIA

MOLDS

VIRUSES

ANIMAL DANDER

SEWAGE

HOME-BASED TRIGGERS CAUSE
40%
OF ASTHMATIC EPISODES



Biological & Unsanitary Housing Conditions

Home Intervention	Output	Outcome	Healthy People 2020 Indicator	Social Determinants of Health
<p>Weatherization</p> <p>Remove moldy objects from home</p> <p>Repair moisture intrusion points</p> <p>Repair/Improve home HVAC systems</p> <p>Improve home insulation</p> <p>Exterior repairs to downspouts, gutters, and grading to reduce water infiltration</p> <hr/> <p>Healthy Homes</p> <p>Distribute allergen impermeable bedding</p> <p>Education on cleaning and washing protocols for furnishing and floors</p> <p>Use of dehumidifiers</p> <p>Removal of carpets</p> <p>Roof repair or replacement</p>	<p>Reduced Environmental Toxins</p> <p>Reduce the number of dust mites</p> <p>Lower levels of surface and ambient mold</p> <p>Lower levels of surface and ambient bacteria</p>	<p>Lower Incidence of:</p> <p>Asthma symptom days</p> <p>Asthma-related school and work absences</p> <p>Allergic reactions</p> <p>Asthma genesis</p> <p>Upper and lower respiratory illness</p> <p>Hospital admissions and emergency department visits</p>	<p>RD-1-6</p> <p>Respiratory diseases</p> <hr/> <p>EH-19</p> <p>Reduce the number of occupied housing units that have moderate or severe physical problems</p>	<p>Neighborhood & Built Environment</p> <p>Quality of housing</p> <p>Environmental conditions</p> <hr/> <p>Education</p> <p>Early childhood education and development</p> <p>School attendance</p> <hr/> <p>Health and Health Care</p> <p>Access to primary care and health literacy</p>



Pest Management

HEALTH EFFECTS

- May cause illness or trigger allergic reactions, rhinitis, and asthma, especially among children in high poverty areas
- Pest excrements particularly harmful to inhale
- Rodent-borne diseases easily transferred to humans through handling, bites, scratches, or fleas
- High asthma hospitalization rates observed in children with cockroach allergies

DUST MITES

MICE

RATS

COCKROACHES





Pest Management

Home Intervention	Output	Outcome	Healthy People 2020 Indicator	Social Determinants of Health
<p>Weatherization Sealing moisture intrusion points</p> <hr/> <p>Healthy Homes Integrated Pest Management Distribute allergen impermeable bedding Education on Cleaning and washing protocols for furnishing and floors</p>	<p>Reduced Environmental Toxins Lower numbers of Pest: Cockroach, rodents, and dust mites.</p>	<p>Lower Incidence of: Asthma symptom days Asthma related school and work absences Allergic reactions Asthma genesis Rodent related infections Hospital Admissions</p>	<p>EH-19 RD-1 RD-1.1 RD-2 RD-2.1 RD-2.2 RD-3 RD-3.1 RD-3.2 RD-4 RD-5.1 RD-5.2 RD-6</p>	<p>Neighborhood & Built Environment Quality of housing Environmental conditions</p> <hr/> <p>Education Early childhood education and development School attendance</p> <hr/> <p>Health and Health Care Access to primary care and health literacy</p>



Thermal Comfort

EXTREME HEAT

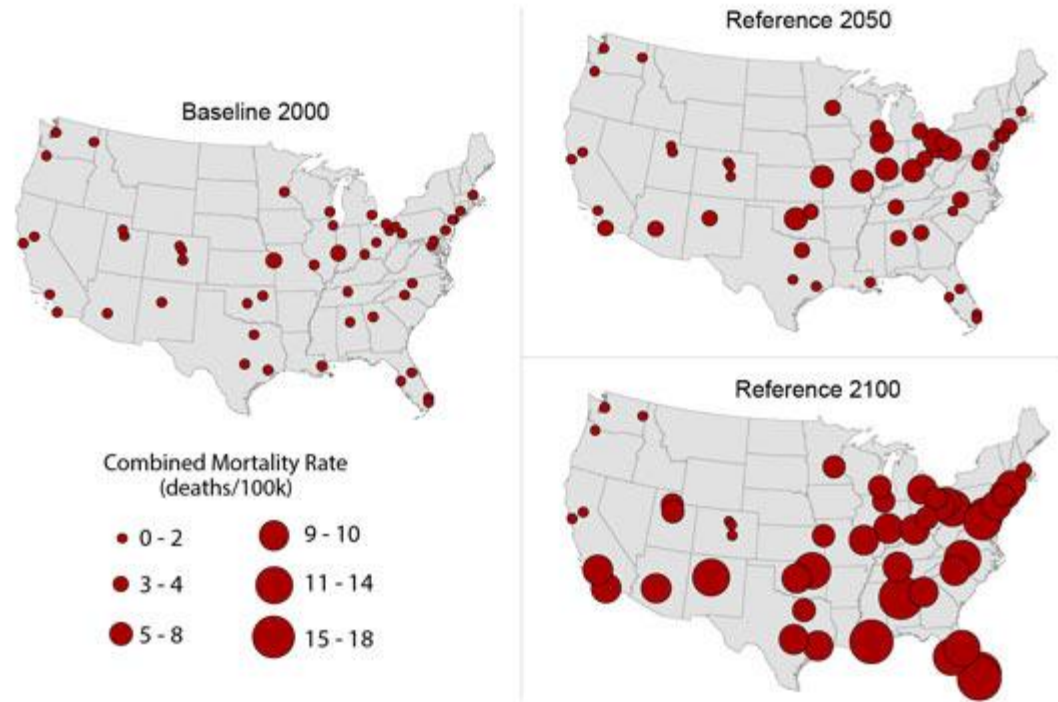
EXTREME COLD

HEALTH EFFECTS

- Known to cause thermal stress, related to increased mortality rates
- Elderly and individuals in poor health known to be more vulnerable
- Extreme heat and high humidity can exacerbate cardiovascular disease, diabetes, respiratory problems, hypertension

Projected Extreme Temperature Mortality in Select Cities Due to Unmitigated Climate Change

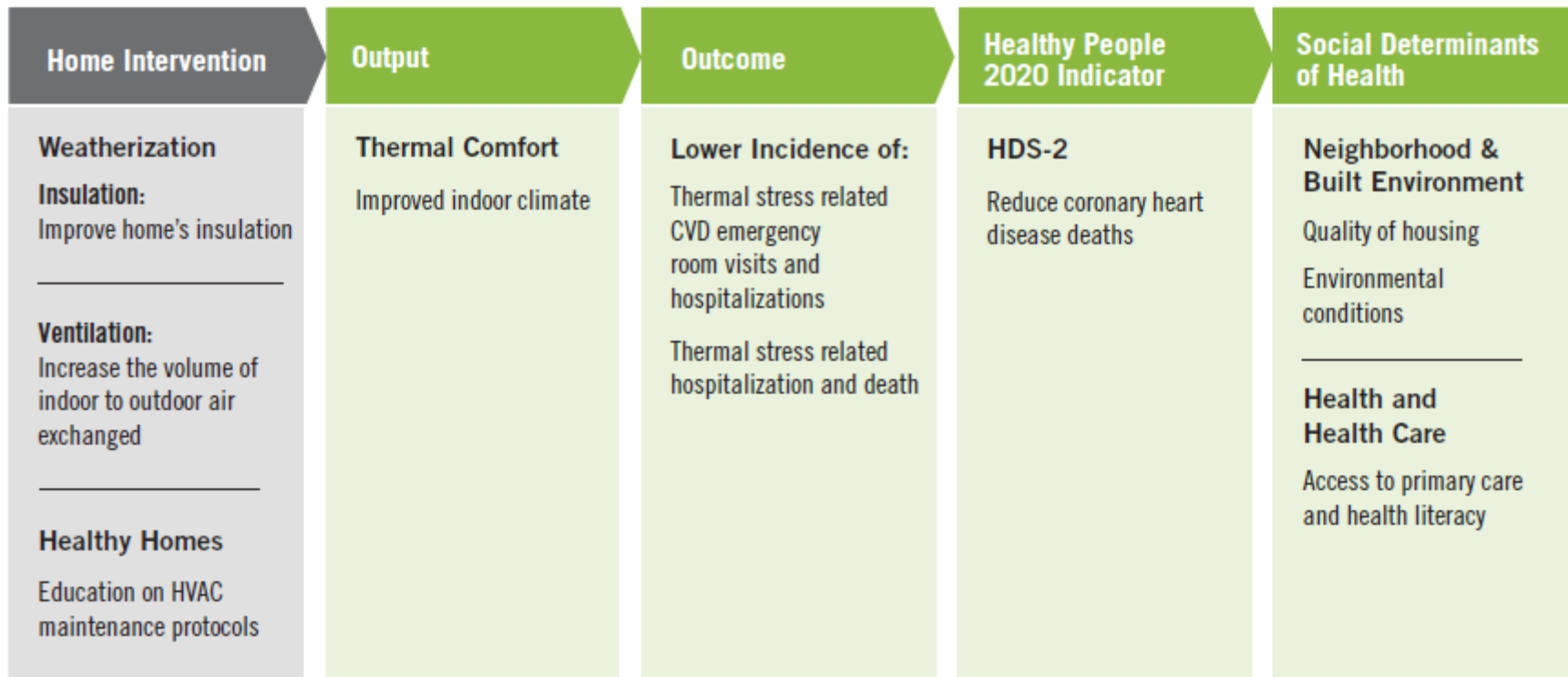
Estimated net mortality rate from extremely hot and cold days (number of deaths per 100,000 residents) under the Reference scenario for 49 cities in 2050 and 2100. Red circles indicate cities included in the analysis; cities without circles should not be interpreted as having no extreme temperature impact.



For more information, visit EPA's "Climate Change in the United States: Benefits of Global Action" at www.epa.gov/cira.



Thermal Comfort

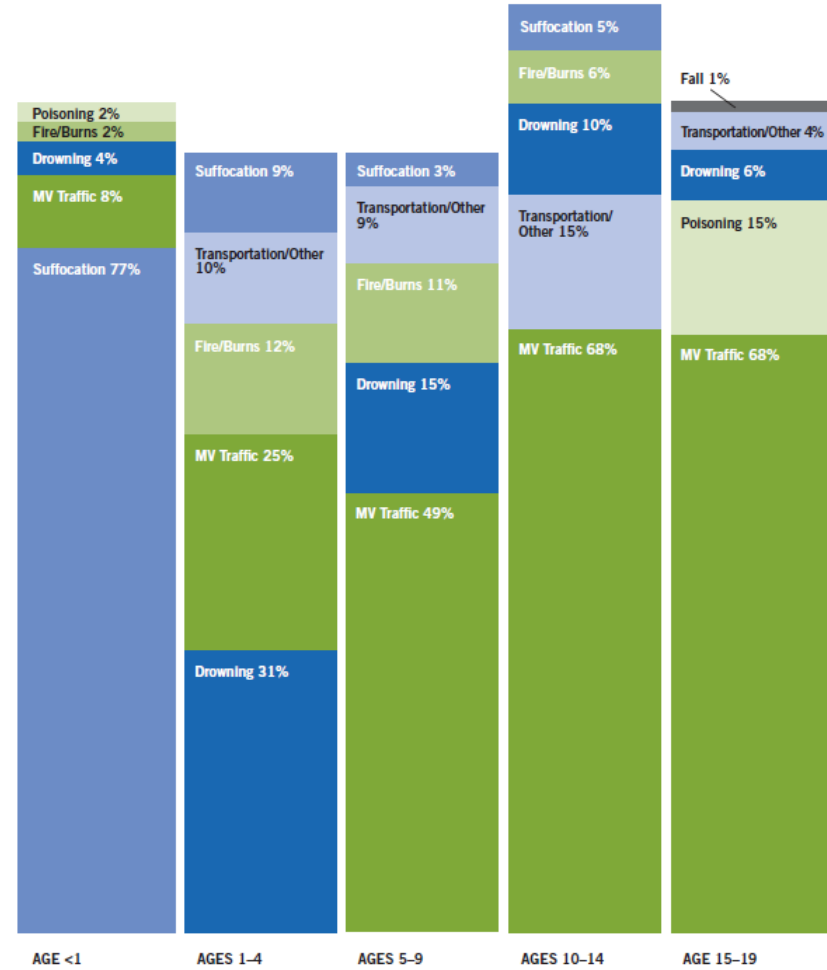




Unintentional Injury Prevention

YOUNG CHILDREN

FIVE LEADING CAUSES OF UNINTENTIONAL INJURY RELATED CHILD DEATHS, BY AGE GROUP, UNITED STATES, 2009



Annual average of 30,000+ unintentional injury deaths occurring in the home environment

Falls are the leading cause of home injury deaths



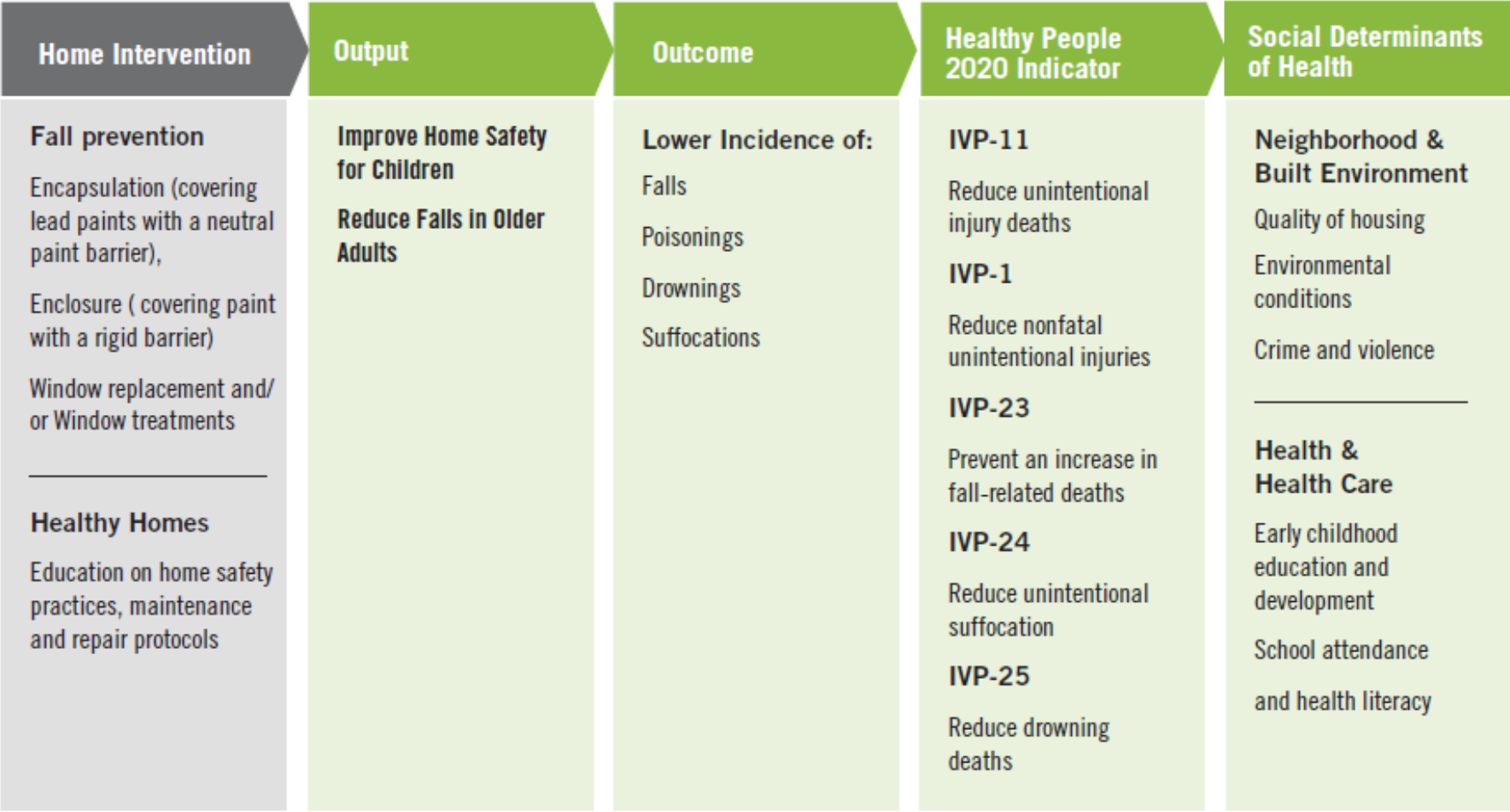
OLDER ADULTS

Intrinsic Risk Factors	Extrinsic Risk Factors
Advanced age	Lack of stair handrails
Previous falls	Poor stair design
Muscle weakness	Lack of bathroom grab bars
Gait & balance problems	Dim lighting or glare
Poor vision	Obstacles & tripping hazards
Postural hypotension	Slippery or uneven surfaces
Chronic conditions including arthritis, diabetes, stroke, Parkinson's, incontinence, dementia	Psychoactive medications
Fear of falling	Improper use of assistive device

Source: Centers for Disease Control. Risk Factors for Falls. https://www.cdc.gov/steady/pdf/risk_factors_for_falls-a.pdf



Unintentional Injury Prevention





Residential Home Fire Statistics: 2010 - 2016

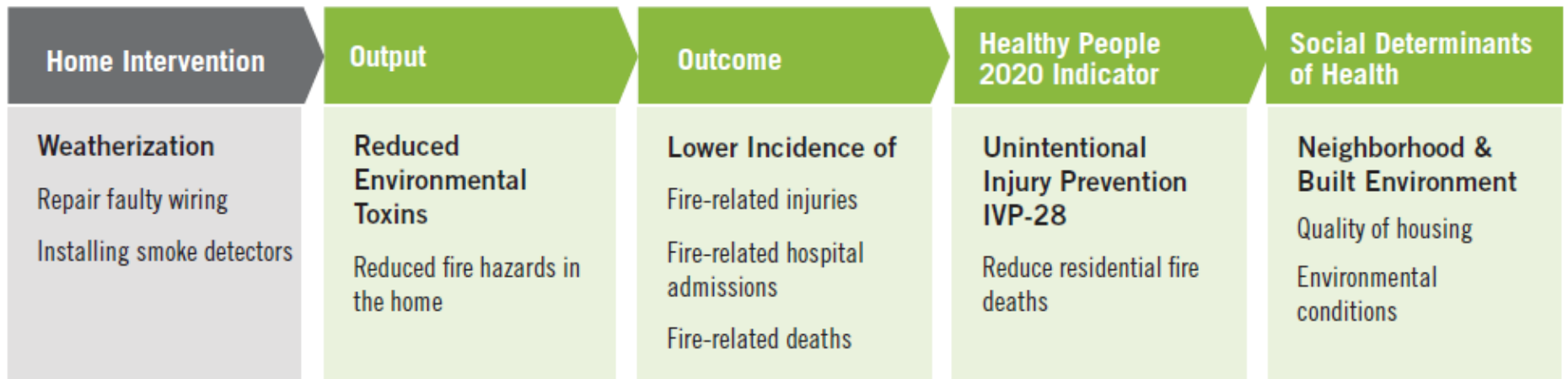
Year	Fires	Civilian Deaths	Civilian Injuries	Property Damage (2016 \$) in Billions
2010	369,500	2,640	13,350	\$7,626
2011	370,000	2,520	13,910	\$7,378
2012	365,000	2,380	12,875	\$7,329
2013	369,500	2,755	12,200	\$6,987
2014	367,500	2,745	11,825	\$6,908
2015	365,500	2,650	11,075	\$7,043
2016	352,000	2,735	10,750	\$5,654

Common Causes of House Fires

- Faulty electrical wiring
- Old and defective appliances
- Overloaded circuits
- Malfunctioning heating systems (i.e. furnaces, chimneys, electrical distribution, etc.)
- Lighting equipment



Fire Safety



Lead-Based Paint



Although the CDC defines an elevated blood level as $\geq 5\mu\text{g}/\text{dL}$, there is no safe blood lead level for children

lead poisoned children are



more likely to become involved in the juvenile justice system



more likely to drop out of school

24 MILLION

ESTIMATED NUMBER OF HOUSING UNITS WITH SIGNIFICANT LEAD-BASED PAINT HAZARDS

Lead-Based Paint/Lead Safe Weatherization Practices



Home Intervention	Output	Outcome	Healthy People 2020 Indicator	Social Determinants of Health
<p>Lead Abatement</p> <p>Encapsulation (covering lead paints with a neutral paint barrier),</p> <p>Enclosure (covering paint with a rigid barrier)</p> <p>Window replacement and/or window treatments</p> <hr/> <p>Healthy Homes</p> <p>Education on lead safety practices maintenance and repair protocols</p>	<p>Reduced Environmental Toxins</p> <p>Lower levels of lead dust and/or chips found in the home</p>	<p>Lower Incidence of:</p> <p>Childhood lead poisoning</p>	<p>EH-8</p> <p>Reduce the blood lead levels in children</p> <hr/> <p>EH-17</p> <p>Increase the proportion of persons living in pre-1978 housing that has been tested for the presence of lead-based paint or related hazards</p> <hr/> <p>EH-18</p> <p>Reduce the number of U.S. homes that are found to have lead-based paint</p> <hr/> <p>EH-20.3</p> <p>Reduce exposure to lead in the population</p>	<p>Neighborhood & Built Environment</p> <p>Quality of housing</p> <p>Environmental conditions</p> <p>Crime and violence</p> <hr/> <p>Education:</p> <p>Early childhood education and development</p> <p>School attendance</p>



Indirect Impacts on Occupants, Owners and Communities



Indirect Impacts on Residents

Residential Stability	Mental Health	Performance and Productivity
<ul style="list-style-type: none">▪ Tenant satisfaction with affordability and quality reduces frequency of moves▪ Energy affordability and environmental health quality improve perception of housing value▪ Fewer moves improve economic security and mobility	<ul style="list-style-type: none">▪ Substandard housing and economic burdens impact mental health (stress, anxiety, depression)▪ Stress can impact asthma maintenance, early childhood development▪ Increased affordability of utilities can reduce tradeoffs for food and healthcare purchases	<ul style="list-style-type: none">▪ Residential stability has positive relationship with school attendance and performance▪ Academic performance improved through lead hazard control (higher graduation rates)▪ Academic performance improved through asthma control (higher attendance and grade level reading)

Owner Benefits



Direct Tenant Benefits

- Improved Occupant Health
- Reduced Energy Use
- Reduced Tradeoffs in Tenant Budgeting
- Lower Healthcare Costs
- Increased Tenant Affordability
- Increased Economic Security

Mutual Benefits

- Increased Tenant Satisfaction
- Lower Tenant Turnover/Increased Housing Stability
- Fewer Evictions

Direct Owner Benefits

- Decreased Housing Code Violations
- Lower Maintenance Costs
- Improved Reputation Among Renters
- Fewer Late Payments
- Reduced Property Fines & Liens
- Increased Resources for Operations and Maintenance
- Increased Property Value
- Decreased Vacancy Rate



Sectoral Benefits

RATEPAYERS

- Direct cost savings
- Reduction of demand stabilizes cost rates for all end users

DEVELOPERS

- Presumed cost of retrofits far exceed actual costs
- Larger return on investment compared to non-green projects
- Occupancy premiums measured in retrofitted buildings

ENERGY PROVIDERS

- Efficiency can reduce cost to provide energy reliably to customers
- Reduces capital improvement needs and maintenance costs
- Low-income investments can reduce customer service demand (account delinquency, shutoffs)



Occupancy premiums for green buildings range from 4.2% to 17.9%

Case Study: Park Terrace Apartments Rockford, Illinois



Pre-Intervention

- High-rise building constructed in 1984
- 183 Units
- Rockford Housing Authority developed plan in 2013 with goal to reduce energy use by 20% portfolio-wide
- Energy Performance Contract with Johnson Controls for 9 properties



Cost of Intervention: \$1,033,290 (\$5,646 per unit)

Outcomes

Weatherization Interventions

- High efficiency condensing boiler
- ENERGY STAR appliances
- Efficient faucets
- Air sealing
- Resident Education (Efficient Living Program)

Healthy Homes Interventions

- Heat recovery ventilation system (moisture control)
- Smoke free policy
- Smoking cessation support for tenants
- Healthy homes resident education

- 21.36% savings in electric usage
- 34.39% savings in natural gas usage
- \$39,539 annual reduction in utility costs
- Reduced O&M costs



Case Study: Annunciation Inn New Orleans, Louisiana

Pre-Intervention

- 6 story building constructed in 1982
- 106 Units
- Occupied by people ages 62+
- Comprehensively rehabbed in 2008 post Hurricane Katrina
- Green Coast Enterprises contracted for energy audit & green retrofit in 2014



Cost of Intervention: \$74,200 (\$700 per unit)

Weatherization Interventions

- Packaged Thermal Air Conditioning (PTAC) heat pumps
- HVAC service and replacement schedule
- Upgraded interior and exterior lighting

Healthy Homes Interventions

- Noise machines for control of car traffic noise (residents were running water to cancel out ambient noise)
- Identified unreported maintenance needs (leak repairs)

Outcomes

- 13% decrease in water usage
- 13% decrease in power usage
- \$10,535 annual reduction in utility costs
- Reduced O&M costs
- Improved thermal comfort



Community & National Benefits

Neighborhood

- Higher economic security related to lower rates of heat or eat tradeoffs
- Greater economic security increases healthy options (i.e. retention of grocery stores)

Community Resilience

- An area's ability to thrive rather than survive
- Reduced stress, increased ability to recover from emergencies & disasters
- Ability to be disaster ready and prepare for climate change

Macro Economic Growth

- Green job creation
- Increased investments in housing market
- Increased property values

In 2008, WAP created:

- **8,560 fulltime jobs**
- **\$476 million in annual incomes**
- **\$1.22 billion of economic output**



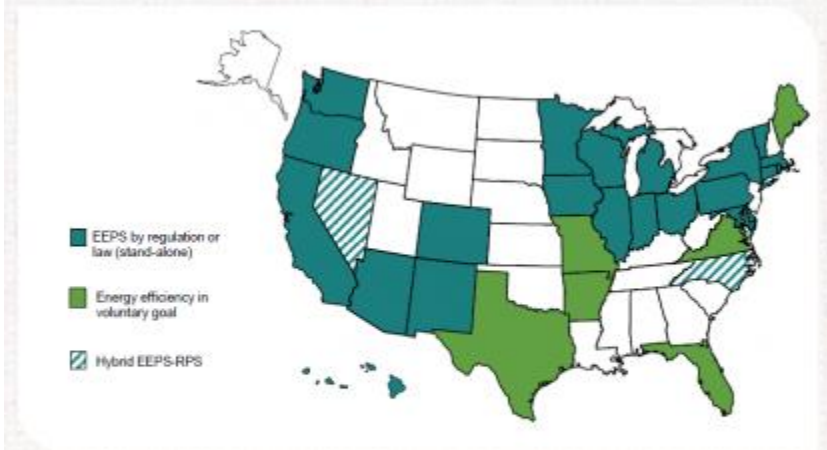
Conclusions



Evaluation Practices for NEBs

- Energy Efficiency Resource Standards (EERS) are policies requiring electricity and/or natural gas utilities to achieve specified levels of customer energy savings
- Currently adopted in 26 states
- Public Utility/Service Commissions assign compliance to utility providers or energy departments

States with EERS and Energy Savings Goals



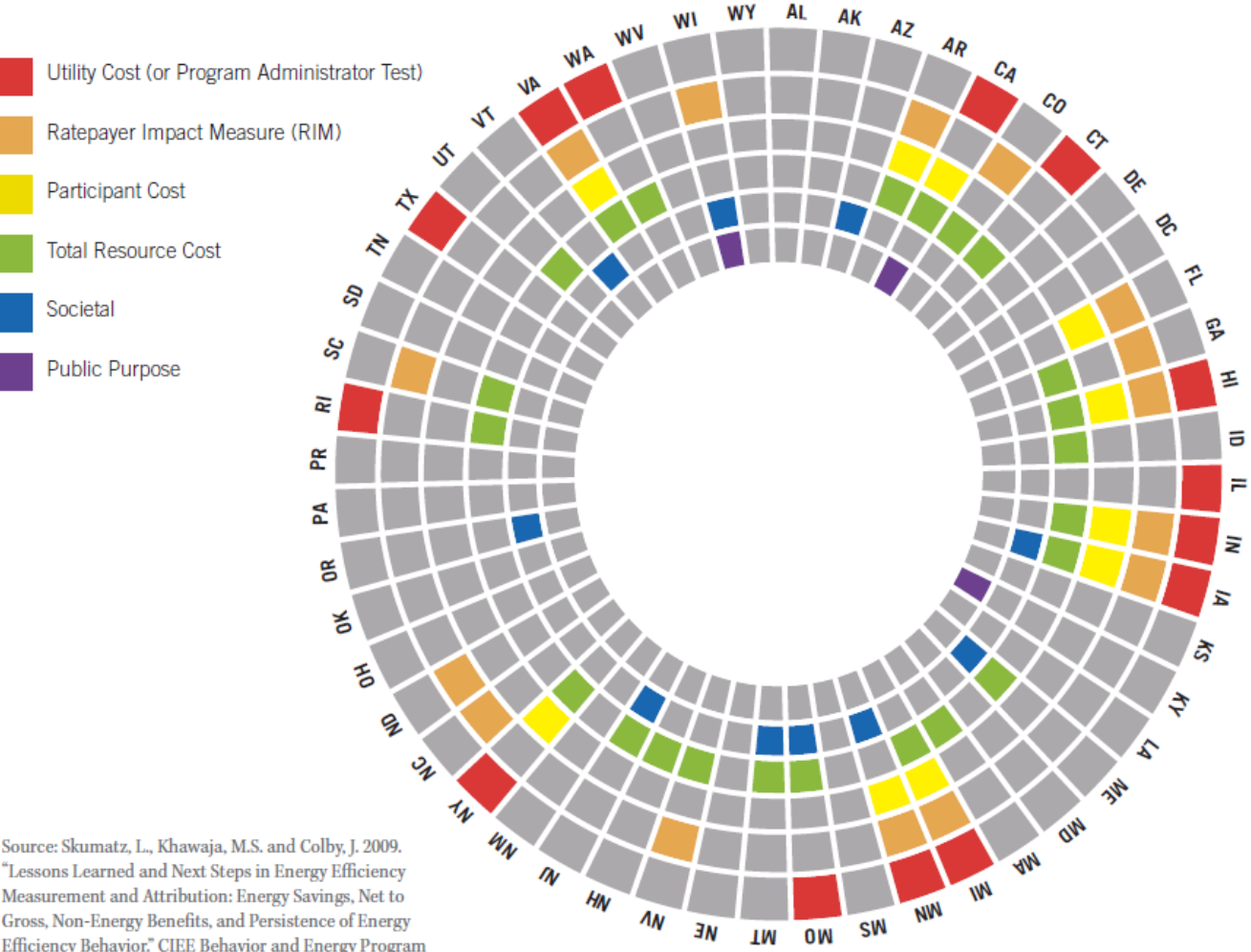
Source: U.S. Federal Energy Regulatory Commission; Derived from the American Council for an Energy-Efficiency Economy (ACEEE) and the Database of State Incentives for Renewables and Efficiency (DSIRE)

States develop Evaluation, Measurement & Verification (EM&V) procedures for Efficiency Programs designed to measure energy reduction targets and other benefits of efficiency programs



Capturing NEBs in Evaluation

SUMMARY OF BENEFIT-COST TESTS BY STATE



Most states have existing opportunities to measure NEBs of state energy efficiency programs by applying societal and public purpose cost-benefit tests

Integrating Services: Auditor Cross-Training



BPI Healthy Homes Evaluator Micro-credential

- Developed by the Building Performance Institute, Green & Healthy Homes Initiative (GHHI) and other key partners
- Cross training energy auditors on home-based environmental health hazard assessment, scope writing and intervention best practice protocols
- Supports integration nationally of Healthy Homes interventions with weatherization/energy efficiency intervention
- Find a [BPI testing center](#) in your area



Policy Recommendations



Expand Allowable Weatherization Activities in WAP Programs

Bring WAP from DOE to HUD

Target Efficiency Investments in Low-Income Multifamily Households

Include Affordable Housing in State Energy Plans

Include NEB Evaluation in State Energy Efficiency Resource Standards

Expand Coordination of State Efficiency, Housing, Health and Economic Development Plans



Incorporate Health Care Financing to Achieve Health Equity Based Multi-Sector Funding

Partner with Mortgage Guarantors such as Fannie Mae and Freddie Mac

Incorporate Social Impact Financing as a Funding Source & Incentivize Private Sector with Tax Credits

Encourage Utilities to Invest in Efficiency and Weatherization Programs



Energy Efficiency Financing

Traditional Energy Efficiency Financing

- Leases
 - Capital Lease
 - Operating Lease
 - Tax-exempt Lease
- Loans
 - Commercial Loans
 - Below Market Loans

Specialized Energy Efficiency Financing

- On Bill
 - On Bill Financing (OBF)
 - On Bill Repayment (OBR)
- Property Assessment Clean Energy (PACE)
 - Commercial PACE
 - Residential PACE
- Savings-Based Arrangements
 - Energy Performance Contract
 - Energy Services Agreement

Coordination of State Plans:

Connecticut's Partnership in Housing, Health and Energy Sectors



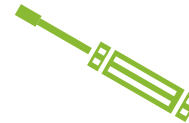
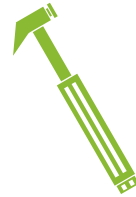
Connecticut Green & Healthy Homes

Purpose

- Research and evaluate the efficacy of statewide, comprehensive energy, health and housing interventions that can:
 - Increase the current capacity for these services in CT,
 - Reduce energy use, asthma, injury and lead exposure risks, and
 - Result in long term public sector cost savings.
- Research and evaluate the possibility of supporting energy, health and housing services through sustainable public and private sources of funding.

Incorporating Healthcare Finance:

Developing an Innovative Healthy Homes Funding Toolbox



1) Medicaid Coverage and Rule Change

2) Waivers (MI, MD, OR)

3) Hospital Community Benefits (Chicago)

4) Administra. Claims

5) Value-based Payments

6) Value-added services

7) Pay for Success

Thank You



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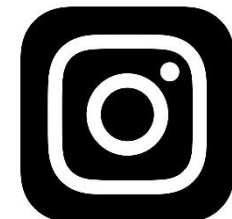
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Questions