



17/06/2021

ADVANCING A CLIMATE-NEUTRAL RECOVERY

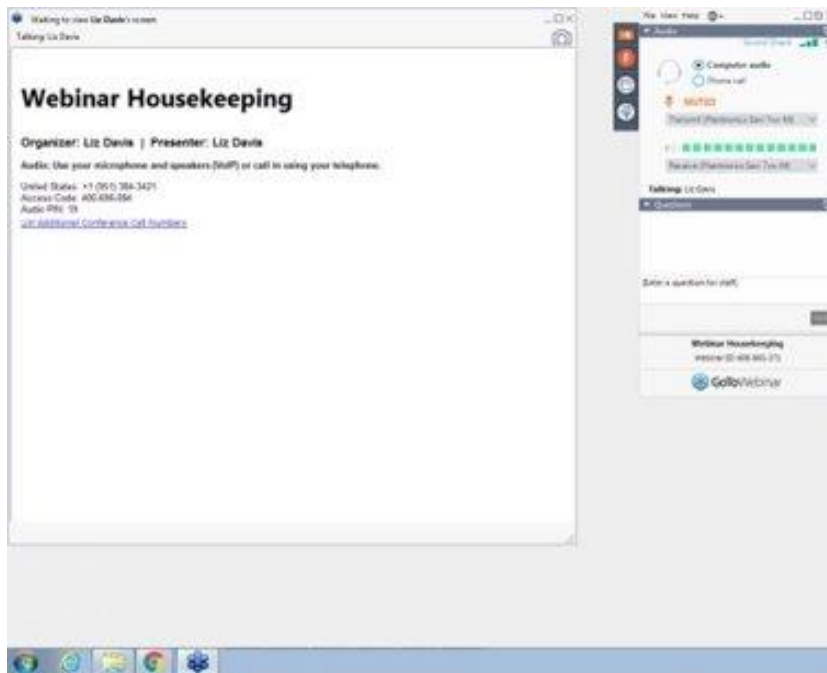
US-EU exchange on energy efficiency in
buildings and housing

Conversations with the European Commission
Directorate General for Energy,
The US Department of Energy,
The US Department of Housing and
Urban Development



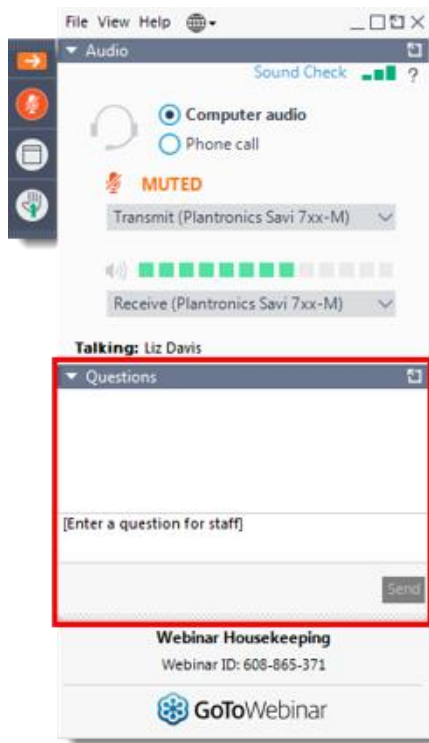


Housekeeping





Housekeeping



Your Participation

Join audio:

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- Choose "Telephone" and dial using the information provided
- Please continue to submit your text questions and comments using the Questions panel
- The slides are available for download now as a handout

Questions/Comments:

- Submit questions and comments via the Questions panel
- Please continue to submit your text questions and comments using the Questions Panel

Note: Today's presentation is being recorded and will be provided within 48 hours, along with the slide deck.





AGENDA

Welcome remarks: **Michael Curtis**, Deputy EU Ambassador to the US, Delegation of the European Union to the United States

Keynote speeches:

- **Joshua Volz**, Director of the Office of European and Eurasian Affairs, Office of International Affairs at the US Department of Energy
- **Paula Pinho**, Director “Just Transition, Consumers, Energy Efficiency and Innovation” Directorate-General for Energy, European Commission

Panel discussion: The role of buildings in the recovery

- **Dr. Regina Gray**, Director, Affordable Housing Research & Technology, Policy Development & Research, Department of Housing and Urban Development: “Energy Efficiency in the Housing Sector”
- **Stefan Moser**, Head of Unit “Buildings and Products” & **Gaspard Demur**, Team Leader for National Renovation Strategies and Recovery, Directorate-General for Energy, European Commission : “The EU Renovation Wave and Next Generation EU: financing mechanisms to drive building renovation in the EU”
- **Amy Royden-Bloom**, Acting Director, DOE Weatherization and Intergovernmental Programs Office: “Supporting a Just Transition to a Clean Energy Economy for Subnational Entities through Federal Programs”
- **Discussion**

Closing remarks: **Cynthia Campbell**, Director for International and Philanthropic Innovation, Department of Housing and Urban Development





WELCOME REMARKS



Michael Curtis

Deputy EU Ambassador to the
US, Delegation of the European
Union to the United States





KEYNOTE SPEECHES



Joshua Volz

Director of the Office of European and Eurasian Affairs, Office of International Affairs at the US Department of Energy





KEYNOTE SPEECHES



Paula Pinho

Director “Just Transition, Consumers, Energy Efficiency and Innovation”
Directorate-General for Energy,
European Commission





KEYNOTE SPEECH

Q&A



Advancing a climate-neutral recovery





PANEL DISCUSSION

The role of buildings in the recovery



Dr. Regina Gray

Director, Affordable Housing Research & Technology, Policy Development & Research, Department of Housing and Urban Development



Stefan Moser

Head of Unit "Buildings and Products", Directorate-General for Energy, European Commission



Gaspard Demur

Team Leader for National Renovation Strategies and Recovery, DG Energy, European Commission



Amy Royden-Bloom

Acting Director, DOE Weatherization and Intergovernmental Programs Office





PANEL DISCUSSION

Energy Efficiency in the Housing Sector

Dr. Regina Gray

Director, Affordable Housing Research &
Technology, Policy Development & Research,
Department of Housing and Urban
Development



Advancing a climate-neutral recovery



Office of Policy Development and Research (PD&R)

Investing in a Climate-Neutral Recovery: *Energy Efficiency in the U.S. Housing Sector*

Dr. Regina C. Gray

Director

Affordable Housing Research and Technology Division

SPIPA

June 2021



American Jobs Plan & the U.S. Department of Housing and Urban Development

The **American Jobs Plan** is a proposal to spend \$2 trillion on infrastructure over eight years.

Some goals of interest are:

- ❖ Eliminating exclusionary zoning and harmful land use policies and practices.
- ❖ Building and rehabilitating more than 500,000 homes for low- and middle-income homebuyers.
- ❖ Addressing longstanding public housing capital needs.
- ❖ Produce, preserve, and retrofit more than a million affordable, resilient, accessible, energy efficient and electrified housing units.



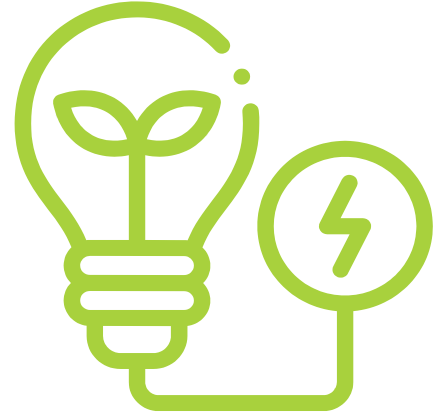
HUD Energy Efficiency Framework

Office of Economic Development (OED)

Coordinates and supports energy-reducing strategies and green building goals and initiatives for HUD. OED works with HUD program offices and other federal agencies to lower HUD's annual estimated \$ 6.4 billion in utility expenditures for public and multifamily assisted housing.

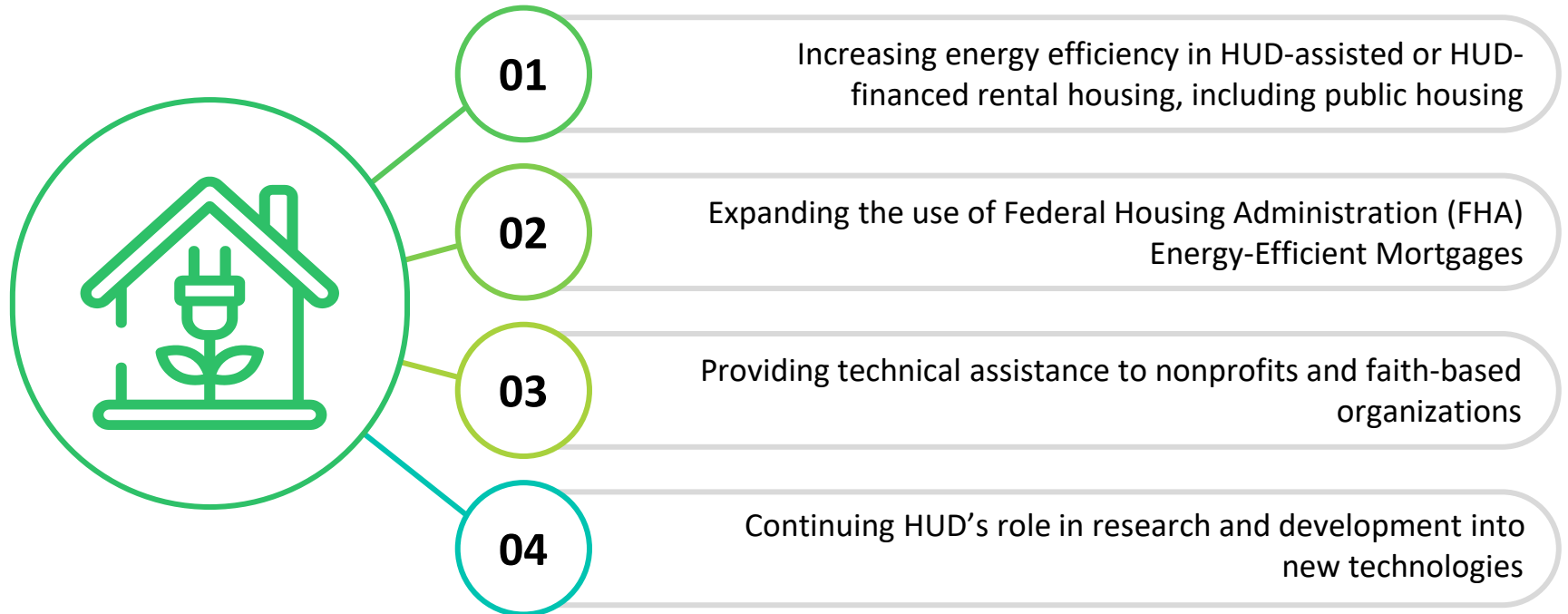
OED Activities

- Renew300
- Multifamily Better Buildings Challenges
- Agency Priority Goal 4 - Energy Efficient, Healthy Homes
- Utility Benchmarking and Data Access and Support



HUD Energy Efficiency Framework

HUD's energy action plan aims to lower utility costs and boost energy efficiency within existing regulations and program requirements, and is committed to supporting energy efficiency in four key areas:



The Energy Action Plan contained 21 actions aimed at promoting energy efficiency in public and assisted housing, financed through competitive and formula grant programs.

HUD Programs that Support Energy Efficiency



Public and Indian Housing (PIH)

Energy Performance Contracting, HOPE VI/ Choice Neighborhoods, Public Housing Capital Fund, Public Housing Environment and Conservation Clearinghouse, Physical Needs Assessment and Energy Audits, Rental Assistance Demonstration, Energy Performance Contracts, and Office of Native American Programs



Office of Housing- Multifamily Programs

Capital Needs Assessment, Energy Innovation Fund, Fannie Mae-FHA Green Refinance Plus, Mark-to-Market, Office of Affordable Housing Preservation, and Green Retrofit Program



Office of Community Planning and Development (CPD)

HUD-DOE Weatherization Partnership and Office of Economic Development High Performance Building and Energy Efficiency Program



Office of Housing- Single Family Programs

203 (k) Rehabilitation Program, Energy Efficient Mortgages, Single Family PACE, and DOE's Home Energy Score

Energy Efficiency Reports

List reporting requirements related to energy efficiency

2016

2016 report to Congress

Moving to the Next Level:
Progress Report and Energy
Update

2012

2012 Report to Congress

Affordable Green: Renewing
the Federal Commitment

2008

2008 Report to Congress

Implementing HUD's Energy
Strategy

2006

2006 Report to Congress

Promoting Energy Efficiency
at HUD in a Time to Change

Energy Conservation Measures



What are common motivations?

- Make capital energy improvements while preserving limited budget dollars.
- Reduce utility expenses
- Reduce, repair, and maintenance costs caused by inadequate, ageing, or obsolete equipment.
- Modernize building operations
- Provide technical and operations training for building operating personnel.
- Improve indoor air quality (IAQ)
- Create incentives for ESCOs to develop highly efficient projects by linking their compensation to project savings.

Energy Conservation Measures



What do Energy Conservation Measures (ECM) typically target?

- Appliances
- Water (toilets and other low flow fixtures)
- Lighting
- Domestic hot water and related controls
- Heating, ventilation (and cooling) systems and related controls
- Windows
- Fuel Switching
- CHP (Combined Heat & Power, or cogeneration)

Energy Performance Contracting (EPC)

Process Overview

PHA submits Request for Proposal (RFP)

PHA submits contract package energy audit including energy audit

Package review by HUD field office or Energy Center, or Contractor

Complete Review

Technical Review

Panel Review

Authorized by Field PH Director

Quick Look

- ~315 EPCs since 1980s
- \$1.5b in energy efficiency investments
- 250,000 public housing units
- All HUD regions, all PHA sizes

Fiscal Year	EPC
2011	19
2012	20
2013	26
2014	7
2015	21
2016	12
2017	14
2018	10

Looking Forward

Additional Collaboration

More collaboration with US EPA, US DOE, & US DOT

- Energy Efficiency and Indoor Environmental Quality
- Climate Resilience
- Noise Pollution Reduction

International Best Practices

- Factory-built construction
- Climate friendly refrigerants



Thank You

Dr. Regina C. Gray

Director

Affordable Housing Research and Technology Division

Office of Policy Development and Research

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PANEL DISCUSSION

The EU Renovation Wave and Next Generation EU: financing mechanisms to drive building renovation in the EU

Stefan Moser

Head of Unit “Buildings and Products”,
Directorate-General for Energy,
European Commission

Gaspard Demur

Team Leader for National Renovation
Strategies and Recovery, Directorate-General
for Energy, European Commission





Renovation Wave

The European
Green Deal

**Advancing transatlantic
recovery with building
renovation and clean energy
solutions**

#EUGreenDeal

17 June 2021



”

I want the NextGeneration EU to kick start a European renovation wave and make our Union a leader in the circular economy.

*President von der Leyen
State of the Union speech,
2020*

#EUGreenDeal



COVID-19

Buildings: in the centre for our lives

For millions of Europeans, the home has been the focal point of daily life: an office for those teleworking, a classroom for children and pupils, a hub for online shopping or entertainment



- Investing in buildings can **inject a much-needed stimulus** into the construction sector and the macro-economy
- The Renovation Wave can **trigger a large-scale transformation** of our cities and built environment

Building Renovation for Climate Neutrality and Recovery



The building sector is one of the **largest energy consumers** in Europe, responsible for more than one third of the EU's energy-related emissions.



Effective actions are crucial to make Europe climate-neutral as:

- Only 1% of buildings undergo energy efficient renovation every year
- Roughly 75% of the building stock is energy inefficient
- Almost 85-95% of today's buildings will still be in use in 2050



Therefore, by 2030:

- 35 million buildings could be renovated and
- Additional green jobs created in the construction sector



The Renovation wave

Greening our buildings faster, Creating jobs, Improving lives

On 14 October 2020, the European Commission presented its Renovation Wave Strategy. The Commission aims to at least:

- **double renovation rates** in the next ten years
- make sure renovations lead to **higher energy and resource efficiency**

This will enhance the quality of life for people living in and using the buildings, reduce Europe's greenhouse gas emissions, foster digitalisation and improve the reuse and recycling of materials

Making Europe's Buildings Remarkably Different



Decarbonisation of heating and cooling



Tackling energy poverty and worst-performing buildings



Renovation of public buildings and social infrastructure such as schools, hospitals and administrative buildings



A set of policy measures, funding tools and technical assistance instruments to break down of existing barriers throughout the renovation chain – from the conception of a project to its funding and completion

Fast and Accessible Renovation for Better Buildings



Stronger regulations, standards and information on the energy performance of buildings, for example:

- A phased introduction of mandatory minimum energy performance standards for existing buildings
- Updated rules for Energy Performance Certificates
- Possible extension of building renovation requirements for the public sector



Accessible and well-targeted funding, for example:

- 'Simplified rules for combining different funding streams
- Multiple incentives for private financing
- 'Renovate' and 'Power Up' Flagships in the Recovery and Resilience Facility under NextGenerationEU



EU budget and Recovery and Resilience Facility

- Next Generation EU and the MFF account for a total of 1.8 trillion of euro. 30% of this sum, equal to **550 billion, will have to be spent on climate mainstreaming actions**
- The **Recovery and Resilience Facility**, will channel 37% of its total EUR 672 billion worth of loans and grants to climate-related investment. In other words, EUR 249 billion will be available for climate-related investment
- Vast majority of the National Recovery and Resilience Plans contain a **strong “renovate component”**
- In depth dialogue with EU Member States, notably on **climate tagging**:
 - > 100% climate tagging **if measures increase energy efficiency by at least 30%**

Sustainable Products, Services and Assistance



Increasing capacity to prepare and implement renovation projects:

- from technical assistance to national and local authorities through training and skills development for workers in **new green jobs**



Expanding the market for **sustainable construction products and services**, for example:

- integration of new sustainable materials and nature-based solutions
- revised legislation on marketing of construction products
- material reuse and recycling platforms, and recovery targets

Districts approaches uniting people and communities



Developing **neighborhood-based approaches** for local communities to integrate renewable and digital solutions and create zero-energy districts, where consumers become prosumers selling energy to the grid



The strategy also includes an **Affordable Housing Initiative** for 100 districts



New European Bauhaus – Matching Style with Sustainability

“The New Bauhaus is about bringing the European Green Deal closer to people's minds and homes. And making tangible the comfort and attractiveness of sustainable living” – President von der Leyen



What?

an interdisciplinary project
a forum for discussion
a space for art and culture
an experimentation lab
an accelerator
a hub for global networks and experts
a contact point for citizens interested in the topic



Who?

Architects
Artists
Students
Scientists
Engineers
designers and others who wish to contribute



When?

First wave: 2021 onwards - For example five Bauhaus projects, all focused on sustainability, art and culture

Second wave 2023 - Bauhaus projects and network in and outside Europe:

- Platform and creative spaces
- Bauhaus knowledge hub
 - identifying technologies and materials
 - using big data and artificial intelligence
 - engaging with stakeholders and citizens

Thank you

Stefan Moser: Head of Unit ENER B.3: Buildings and Products

Gaspard Demur: Team Leader : Long-Term Renovation Strategies and Recovery



PANEL DISCUSSION

Supporting a Just Transition to a Clean Energy Economy for Subnational Entities through Federal Programs

Amy Royden-Bloom Gray

Acting Director, Department of Energy
Weatherization and Intergovernmental
Programs Office



Advancing a climate-neutral recovery



Supporting a Just Transition to a Clean Energy Economy for Subnational Entities through Federal Programs

Weatherization and Intergovernmental Programs Office (WIP)

Amy Royden-Bloom, Acting Director

June 17, 2021



Weatherization & Intergovernmental Programs Office (WIP)



We enable **STRATEGIC INVESTMENTS** in energy efficiency and renewable energy technologies through the use of **INNOVATIVE PRACTICES** across the United States and a wide range of stakeholders, in **PARTNERSHIP** with state and local organizations and community-based nonprofits.

RESULTS:



Saving taxpayer dollars



Making full use of domestic energy



Cutting energy waste



Improving energy independence and security



Furthering the development of energy infrastructure

WIP Pillars

Weatherization Assistance Program (WAP)

- Established under Title IV of the Energy Conservation and Production Act of 1976.
- Helps eligible low-income households reduce the comparatively large percentage of available income that they spend on energy.
- Funds distributed through formula allocation and delivered via community action networks with State and Federal oversight.

State Energy Program (SEP)

- Established under the Energy Policy and Conservation Act of 1975.
- Provides support for core programs in state energy offices to advance their energy priorities and support innovative policies and programs.
- Funds allocated to State Energy Offices via formula and competitive mechanisms.

Intergovernmental Technical Assistance

- WAP and SEP Teams provide technical assistance, implement programmatic initiatives, and develop and disseminate best practices with Grantees.
- The Partnerships and Technical Assistance Team delivers targeted initiatives to broad networks of state-local partners and disseminates tools and resources.
- WIP conceives and leads interagency partnerships with other Federal agencies.

About the Weatherization Assistance Program

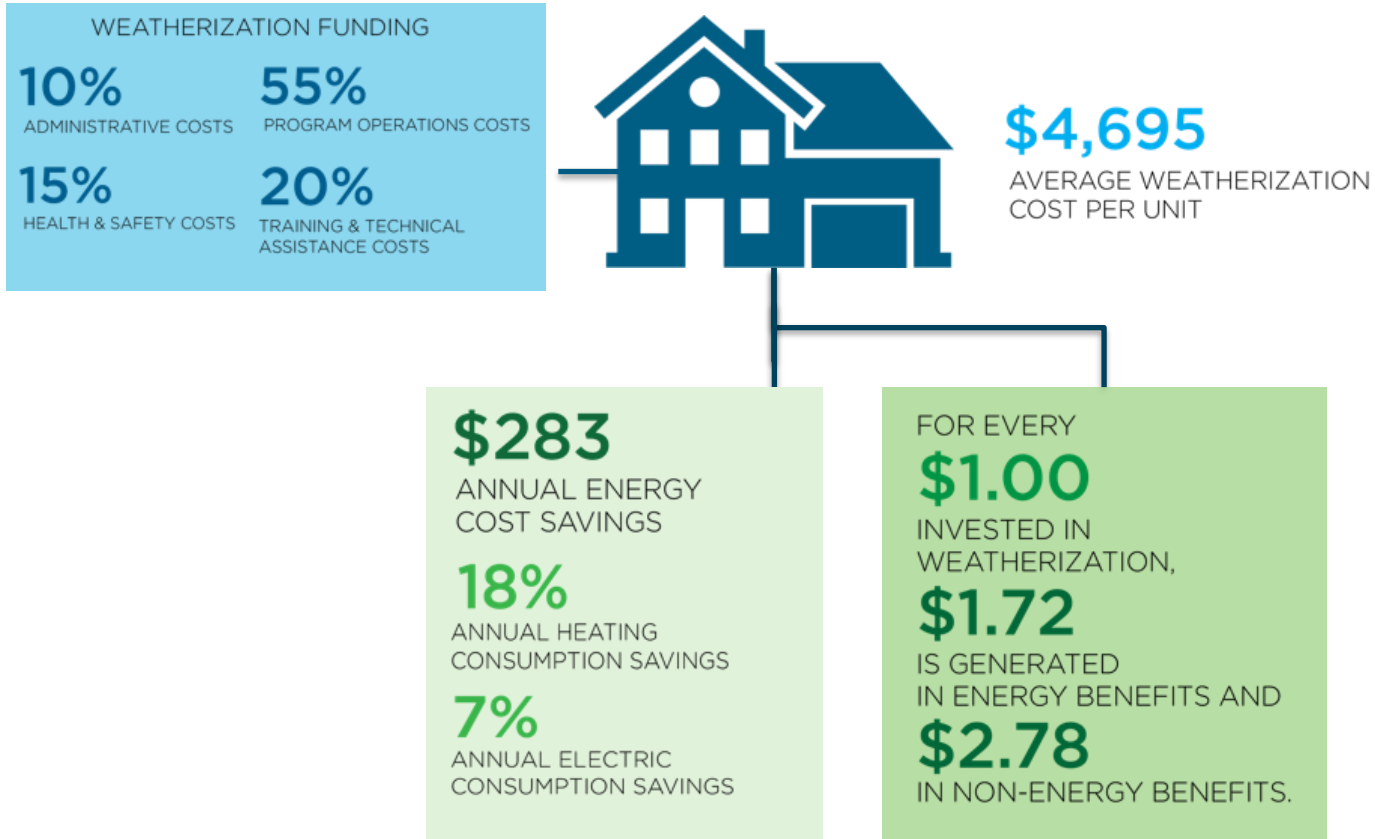


The U.S. Department of Energy's (DOE) Weatherization Assistance Program (WAP) is the nation's largest whole-house energy efficiency program with a unique mission.

WAP reduces energy costs for low-income households by increasing the energy efficiency of their homes, while ensuring their health and safety.

- **35,000** homes weatherized annually with Congressional appropriated funds (*average over the last 10 years*).
- Supports the workforce with over **8,500** direct and indirect jobs.
- Over **7 million** households have received weatherization services.

Overall WAP Performance



Source: Retrospective Evaluation of the US Department of Energy's Weatherization Assistance Program, September 2014, [ORNL/TM-2014/338](#)

WAP's Direct Impacts on Families



WAP addresses disproportionate **energy burden** experienced with low-income households, typically spending **13.9%** of their total income on energy costs compared to **3.0%** for other households.



WAP saves **\$283** in average energy savings per weatherized household. Savings can be higher if electric baseload measures (e.g., lighting, refrigerators) are upgraded.



WAP **boosts self-sufficiency of households**. Total health and household-related benefits for each unit is **\$14,148**.



WAP saves **\$583** in pay per year due to fewer missed days of work.



WAP saves an average of **\$514** in out-of-pocket medical expenses.

Sources: Update for Fiscal Year 2020, [ORNL/TM-2020/1566](#); National Evaluations: [Summary of Results Fact Sheet, August 2015](#) and [Health and Household-Related Benefits Attributable to the Weatherization Assistance Program \(ORNL/TM-2014/345\)](#)

WAP's Impact on Climate Change



The aggregate value of total avoided emissions from WAP is over **\$250M**, with an average value per housing unit of **\$2,932**.



WAP is estimated to reduce sulfur dioxide emissions by **3,275 short tons** at a lifetime value of **\$139.2M**.



Weatherization decreases the demand for electricity generation with projected lifetime savings for a unit at **23,281 kWh** and avoided lifetime emissions of **14.41 metric tons**.

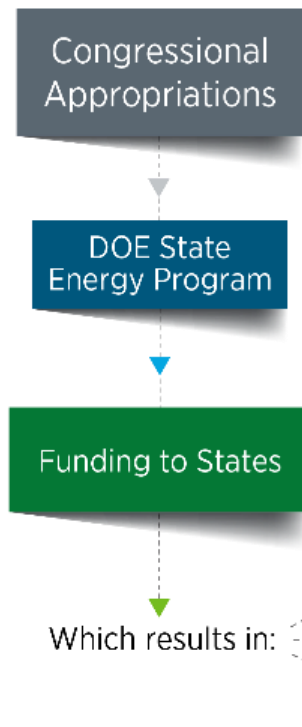


Implementation of WAP was estimated to reduce **2.2 million metric tons** of carbon dioxide (CO₂) emissions at a lifetime value of **\$85.3M**.

Source: Environmental Emissions Nonenergy Benefits: Working Paper ([ORNL/TM-2015/126](#))

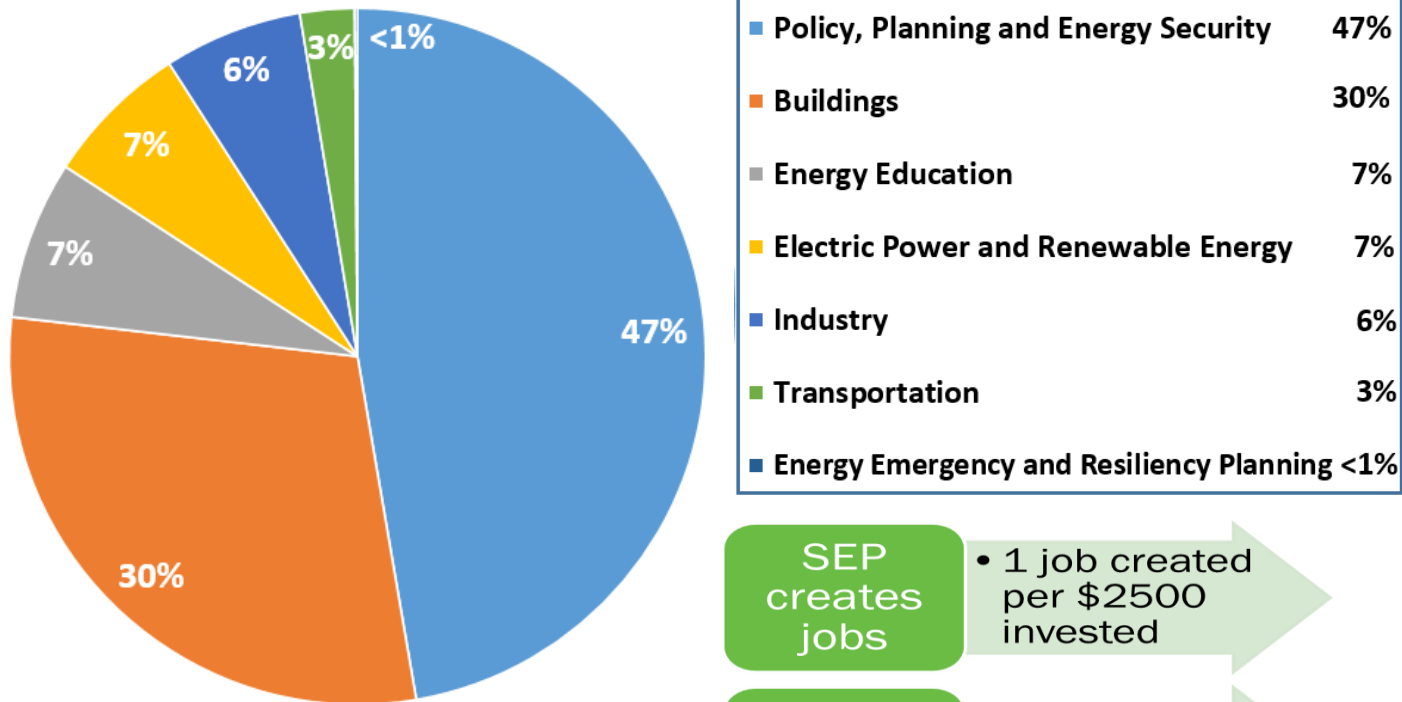
About the State Energy Program

SEP has provided approximately \$300M to 56 State Energy Offices (SEOs) since 2016 via Formula Grants and Competitive Awards.



ENERGY RESILIENCY **LOW-COST FINANCING PROGRAMS**
 DISTRIBUTED GENERATION COMBINED HEAT AND POWER
COMMERCIAL IMPROVED HOME ENERGY EFFICIENCY
AUDITS & RETROFITS **STATE ENERGY PLANNING**
PERFORMANCE CONTRACTING **BETTER MOTORS** **ENERGY**
WEATHERIZATION **BENCHMARKING** **SMALL HYDRO ENERGY** **EMERGENCY**
 WATER SAVINGS FINANCING PROGRAMS **ENERGY RELIABILITY** **PLANNING**
INDUSTRIAL REVITALIZATION **INNOVATIVE ENERGY**
 LOCAL LED LIGHTING **STATE** TECHNOLOGY DEMONSTRATIONS
GOVERNMENT PARTNERSHIPS **RETROFITS** **FACILITY** **ENERGY EDUCATION**
SOLAR AND WIND POWER **RETROFITS** **TELECOMMUTING**

Formula Spending by Activity Category in 2018 & 2019



* Chart is based on data reported by States in the Performance & Accountability for Grants in Energy (PAGE) System

SEP creates jobs • 1 job created per \$2500 invested

SEP is cost effective • \$4.50 saved per \$1 invested

From the [2015 Oak Ridge National Lab SEP National Evaluation](#)

SEP Supports Energy Efficiency in Buildings

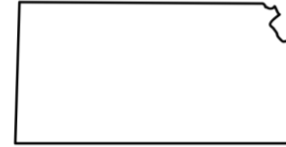
Success Stories



Alaska competitively awards grants to rural Alaskan communities for energy- and cost-saving projects in buildings and facilities.



Georgia provides state employees with the tools to help them reduce energy waste in their facilities, which can lead to energy-cost savings.



Kansas provides energy audits to rural food markets and grocery stores to help mitigate operating cost burdens.

Collaborative Efforts

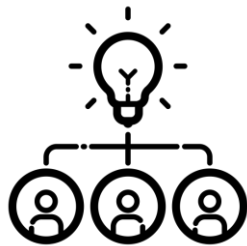
Public Sector Field Technology Validation

In collaboration with the Building Technologies Office, Federal Energy Management Program, and Advanced Manufacturing Office, WIP partners with state and local governments to install and validate energy efficiency technologies in buildings and provide accompanying technical assistance.

Proving Ground Funding Opportunity

Two states and four local governments selected to install promising building technologies and systems in commercial and multifamily buildings.

Key SEP Technical Assistance Initiatives



Technology Action Groups (TAG)

- New pilot initiative developed with NASEO aimed at **amplifying the impact of SEP formula funding** through partnerships and cooperation based on common goals.
- Two TAG topics with 15 participating states – Onsite energy systems at critical facilities and Main Street revitalization.
- **Key expected outcomes:** individual state progress within the topic area, resources for participating states to catalyze further action, and toolkits and case studies for use by all states.



Workforce Development

- SEP-led effort to **help states improve workforce development activities** by identifying existing workforce development activities in states, creating avenues for states to collaborate, and developing an initiative for states to tackle specific workforce development barriers.
- **Outcomes to date:**
 - Research identifying best practices, gaps, and barriers in existing state activities and providing insights into the current energy job landscape.
 - DOE-hosted webinars for states to share information and best practices and report progress.

About WIP's Intergovernmental Technical Assistance



Working in partnership with states, local governments, K-12 school districts, and stakeholders to:



Convene **PEER EXCHANGES** to showcase replicable models



Create **TOOLS AND SOLUTIONS** that address pervasive barriers



Provide **TECHNICAL DATA AND INFORMATION** from leading experts



Goal:
Maximize energy and cost savings

WIP's Voluntary Public-Sector Partnerships

230+ Partnerships*

60+



State Governments

Financing Investments

Energy Savings
Performance Contracting
Accelerator

\$2.1 Billion

Commercial Property
Assessed Clean Energy
Working Group

\$70 Million

140+



Local Governments

Buildings Savings

Better Buildings Challenge

\$1 Billion

109 Trillion Btus

1.5 Billion
Gallons of Water

25+



K-12 School Districts

Infrastructure Savings

Sustainable Wastewater
Infrastructure of the Future
(SWIFt) Accelerator

131 Million kWh

Outdoor Lighting
Accelerator

\$48 Million per year

Cumulative unless noted otherwise.

** Public-sector partners since 2011 that signed a formal partnership agreement and worked or are working toward a voluntary goal. Inc. 1 Federal Partner.*

Advancing Energy Efficiency in Public Buildings



- A **voluntary leadership initiative** to make American commercial and **public buildings**, industrial plants, data centers, and multifamily housing at least 20% more energy efficient over 10 years.
- Partners work with DOE's **network of technical and industry experts** to develop innovative cost-effective energy solutions and get recognized for their leadership and innovation.
- WIP's **75+ state, local government, and K-12 school district partners** have committed to a portfolio-wide energy savings target of 20% within 10 years.



DOLLARS
SAVED

\$1 BILLION



ENERGY
SAVED

**109 TRILLION
BTUS**



WATER
SAVED

**1.5 BILLION
GALLONS**



CO2E
SAVED

**7.1 MILLION
METRIC
TONNES**

Cumulative public-sector partner achievement since 2011.

Stakeholder Outreach and Resources

Stay Connected

State and Local Spotlight

- Monthly newsletter with more than 33,000 subscribers.

State and Local Inbox

- 70 email inquiries answered in 2020.

State and Local Solution Center

- Online, public-sector focused portal with over 110,000 visits and 15,000 downloads in FY20.

Better Buildings Solution Center

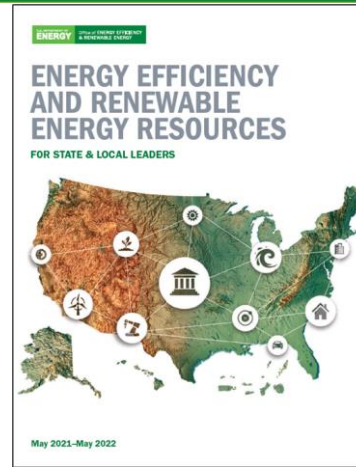
- Online, building-specific portal with over 3,000 proven energy, water, and waste efficiency solutions.

Subscribe:

<http://energy.gov/eere/slsc>

Contact Us:

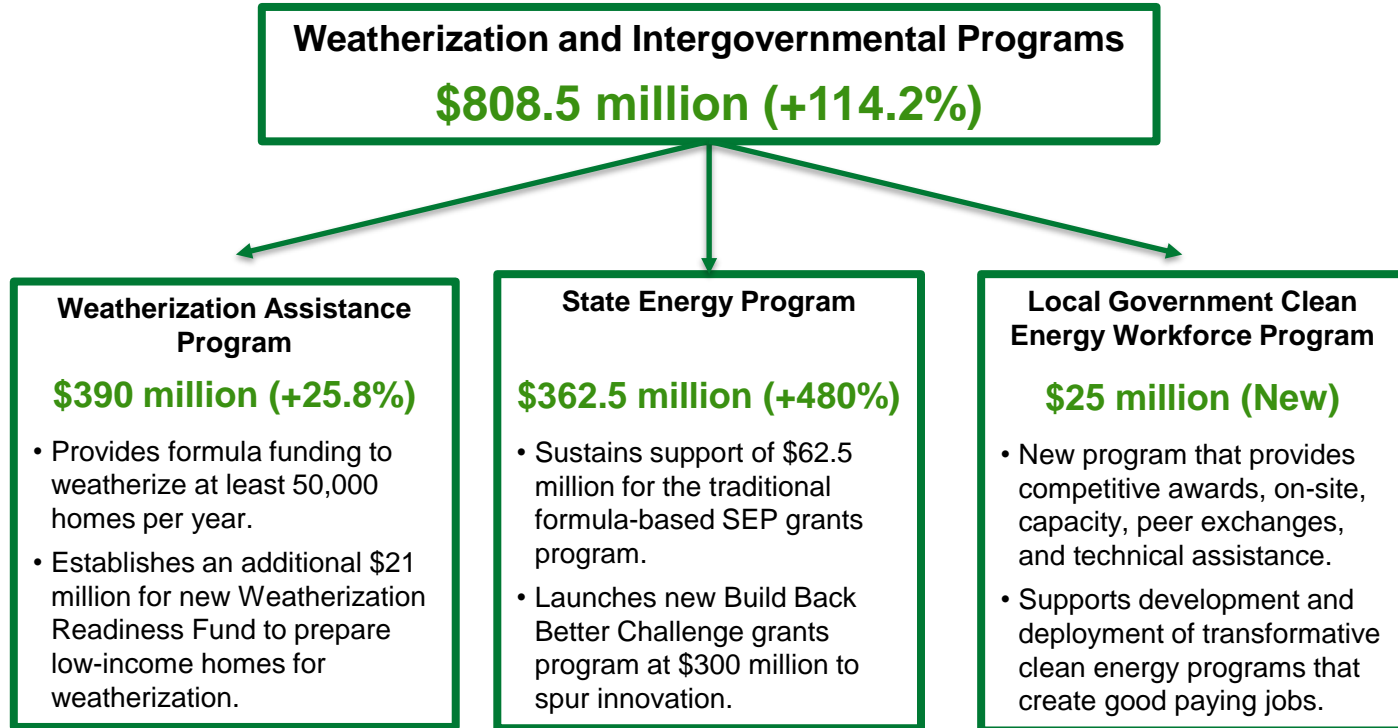
stateandlocal@ee.doe.gov



<https://www.energy.gov/sites/default/files/2021-05/WIP-state-local-resource-guide-2021.pdf>



President Biden's FY22 Budget Request





CLOSING REMARKS



Cynthia Campbell

Director for International and
Philanthropic Innovation,
Department of Housing and Urban
Development



Advancing a climate-neutral recovery





CONCLUSIONS & NEXT STEPS

Oliver Rapf, Executive Director, BPIE



Advancing a climate-neutral recovery





Stay tuned for our upcoming webinar: *Achieving energy- efficient and affordable housing* - September 2021

www.bpie.eu

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 Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety
of the Federal Republic of Germany

This event has been organised with the financial support of the European Union's Partnership Instrument and the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU) in the context of the International Climate Initiative (ICI). The opinions expressed are the sole responsibility of the speakers and do not necessarily reflect the views of the funders.

