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Use of Department of Energy Infrastructure Investment and Jobs Act Grant Money

In July of 2023, the US Department of Energy announced $90 million dollars in grant money for states to implement efficient energy codes and to update the overall process of energy codes installation, maintenance, and compliance. In total, there were 27 projects selected by the Department of Energy to receive some amount of money ranging from $700,000 to $9.6 million.[1] Made possible by the implementation of this grant, the Biden Administration estimates that updated state and local building energy codes are projected to save Americans $138 billion on their utility bills and reduce CO2 emissions up to 900 million metric tons by 2040.[2] The $90 million dollars provided for this grant was funded by President Biden's Infrastructure Investment and Jobs Act (2021) and is a part of a total $225 million allocated to the Department of Energy in grants for updating energy codes, creating quality jobs, and providing training partnerships through state and local agencies.[3]

When examining the different projects awarded grant money, we found that each project can be grouped into four different categories by their main goal. Grouping them allows us to compare the projects against each other to show what each project's plan has in common and their different strategies for achieving their end-goals. Some projects with higher grant award amounts also aimed to accomplish multiple goals within their project, so they are listed multiple times within different sections. This report is organized by each of four goals the projects aim to accomplish. These four categories include:

1. Projects implementing energy codes,
2. Projects creating networks of professionals,
3. Projects providing technical assistance,
4. Projects providing education and training resources.

It is important to clarify that since the recipients of this grant were only announced in July, much of the information regarding what states are spending is not yet public knowledge. Since we could find no

[1] Energy.gov, "Meet BTO's Newest Projects to Support More Resilient and Efficient Building Codes," accessed September 27, 2023, https://www.energy.gov/eere/buildings/articles/meet-btos-newest-projects-support-more-resilient-and-efficient-building.

[2] "Impact Analysis Building Energy Codes Program," accessed September 27, 2023, https://www.energycodes.gov/impact-analysis.

[3] The White House Briefing Room, *FACT SHEET: Biden-Harris Administration Launches Initiative to Modernize Building Codes, Improve Climate Resilience, and Reduce Energy Costs*, June 1, 2022, https://www.whitehouse.gov/briefing-room/statements-releases/2022/06/01/fact-sheet-biden-harris-administration-launches-initiative-to-modernize-building-codes-improve-climate-resilience-and-reduce-energy-costs/.

public record of any state or organization spending awarded money as of yet, there is no itemized spending list that details where the money is going. To rectify this lack of information, we have done an extensive search, using governments press releases at both federal and state levels, public comments left on the grants, resources and websites from the organizations running each state's project, and various pages on the Department of Energy's website database all to inform our research. Through this research, we will present data of other projects throughout the mid-Atlantic region that compare to Vermont's to show how these states are using their money and compare Vermont's grant plan to others.

Projects Implementing and Updating Energy Codes

While the purpose of the money provided to each grant is to improve overall energy code infrastructure, two projects are going directly towards updating existing codes. The first project we examined was Karpman Consulting LLC, based in Marlborough, Connecticut which received $2.1 million dollars to improve their code enforcement and compliance. According to the company's website, they aim to do this by incorporating the ASHRAE 229P framework, a standardized set of guidelines in energy and building codes, in addition updating their current methods for assessing building compliance.[4] The company claims that by adding to and updating their current mechanisms, they can update their building energy modeling and compliance software tools, and, with increasingly accurate and updated software tools, they will produce increased modeling accuracy, improve code compliance, and establish stronger methods of enforcement.[5]

Another grant project looking to improve energy code implementation across their state is ClearlyEnergy Inc., a company based in Severna Park, Maryland. ClearlyEnergy Inc. specializes in estimating home energy costs, consumption, and greenhouse gas emissions modeling, as well as the financing and labeling of these processes.[6] According to their website, ClearlyEnergy work in connection with community real estate partners to simplify residential and commercial energy in small and rural communities. Furthermore, one of the key parts of their stated mission is to provide Marylanders with the data and information necessary to make informed energy decisions.[7] With the $2.9 million they were awarded, ClearlyEnergy aims to distribute it on a regional and local scale, with the emphasis helping small, rural and Justice40 (disadvantaged) communities.[8] ClearlyEnergy states that they will create regional cohorts as their mechanisms for distributing information and action. These cohorts, they claim, will implement buildings performance standards for their regions and will use the cohorts as a network to standardize policy models between each other, promoting consistency and cohesive standards for rural commercial and residential buildings.[9]

Projects Creating a Network of Professionals

[4] Energy.gov, "Meet BTO's Newest Projects to Support More Resilient and Efficient Building Codes," accessed September 27, 2023, https://www.energy.gov/eere/buildings/articles/meet-btos-newest-projects-support-more-resilient-and-efficient-building.

[5] Energy.Gov, "Meet BTO's Newest Projects to Support More Resilient and Efficient Building Codes."

[6] ClearlyEnergy. "ClearlyEnergy," accessed September 27, 2023, https://clearlyenergy.com/.

[7] Maryland.Gov, "Governor Moore Announces Nearly $3 Million in Federal Funding for Severna Park Company to Support Efficient Building Standards," July 27, 2023, accessed September 27, https://governor.maryland.gov/news/press/pages/governor-moore-announces-nearly-3-million-in-federal-funding-for-severna-park-company-to-support-efficient-building-standar.asp

[8] Justice40 is a program started by President Biden under Executive Order 14008, which states that disadvantaged communities should receive at least 40% of the overall benefits from certain federal investments. ClearlyEnergy makes special emphasis to include these communities in their project goals along with several other projects.

[9] Energy.gov. "Meet BTO's Newest Projects to Support More Resilient and Efficient Building Codes," accessed September 27, 2023, https://www.energy.gov/eere/buildings/articles/meet-btos-newest-projects-support-more-resilient-and-efficient-building.

Projects are also narrowing in on creating networks of professionals which seek to promote the connections and interactions of professionals with different areas of expertise in the building and energy code implementation and enforcement processes. There are at least three of these projects in Washington D.C. and one in Boston, Massachusetts.[10]

In Washington D.C. the American Council for an Energy-Efficient Economy (ACEEE) is planning to use their grant funding to create a National Energy Codes Collaborative, to establish a national network to encourage and empower states regarding capacity building and professional development.[11] The current contributors to the collaborative include four pre-established energy code implementation groups, along with four state jurisdiction groups from Colorado, Louisiana, Michigan, and New Jersey. By creating this network of professionals, the ACEEE is planning to develop guides for energy code implementation that cater to the needs of the individual states based on the expertise of professionals throughout the country. The ACEEE also plans to partner with individual jurisdictions to connect with local workforces and increase professional development opportunities, aiming to create equitable access to the benefits of the Collaborative.

Another group that received funding in Washington D.C. is the Institute for Market Transformation (IMT). With their funding, they seek to establish a "cohort of jurisdictions" in which they will work to implement a community-led process of design and implementation. By establishing the cohort, their plan is to connect groups of professionals with different fields of experience and expertise that can contribute to the improvement of codes on existing buildings through policy mechanisms specifically. IMT has already created their Community Climate Shift program, which promotes community and professional involvement in the process of policymaking in order to meet the needs of local constituents with policy that is feasible to implement and enforce.[12] This pre-existing program not only draws a connection between the professions within the field of energy and building coding and development, but furthers the connection between the issuing authority, or legislative body, and the working class people who are taking part in the implementation process.

The third Washington D.C. based group working on professional network establishment is the International Code Council (ICC). With their funding, they plan to work as a support for many of the other projects being funded by the Department of Energy's grant and help the programs to improve their individual professional networks.[13] The ICC also supported these groups of professional networks and their states prior to application submission for the grant to assist them in problem-identification and solving so that the states could establish what they needed funding for. As a whole, the ICC's stated

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[10] United States Department of Energy. Biden-Harris Administration Announces $90 Million to Support Resilient and Efficient Building Energy Codes and Save American Families Money." Energy.gov, July 12, 2023. https://www.energy.gov/articles/biden-harris-administration-announces-90-million-support-resilient-and-efficient-building.

[11] American Council for an Energy-Efficient Economy. Aceee Awarded $9.6 Million to Lead Effort to Update Building Codes." ACEEE, July 12, 2023. https://www.aceee.org/press-release/2023/07/aceee-awarded-96-million-lead-national-effort-update-building-energy-codes.

[12] Institute for Market Transformation. IMT Is Awarded $5 Million Department of Energy Grant for Community-Led Climate Action." IMT, August 17, 2023. https://www.imt.org/news/imt-is-awarded-5-million-department-of-energy-grant-for-community-led-climate-action/.

[13] Manthe, Sophie. The U.S. Department of Energy Awards Grants to Eight Projects Supported by the International Code Council ." ICC, July 14, 2023. https://www.iccsafe.org/about/periodicals-and-newsroom/the-u-s-department-of-energy-awards-grants-to-eight-projects-supported-by-the-international-code-council/.

function is to promote and provide professional development opportunities specifically within the realm of energy and building codes, and their grant funding continues to support them in their goals.[14]

Outside of Washington D.C., the Massachusetts Department of Energy Resources, in Boston, plans to use their grant to fund professional development programs. The department itself has already established partnerships with groups such as the Metropolitan Area Planning Council, NorthEast Energy Efficiency Partnerships, and New Buildings Institute to create a network of experts that can effectively and efficiently implement new energy code systems.[15] A primary intention that Massachusetts Department of Energy Resources has for the funding is to create an on-site training program for code implementation, which will expand the network of professionals within the field in New England.

Projects Providing Technical Assistance

Technical assistance is another provision that is seen in these grant funded projects, with one specific case being the ACEEE in Washington D.C. The ACEEE has noted that their plans for grant use include the creation of the National Energy Codes Collaborative, which they plan to use to create an Energy Code Implementation Fellows Program.[16] The fellowship program will be used to accrue "experienced building code practitioners" who can then be placed into positions in state and local governments to provide those jurisdictions with the expertise needed to plan for, implement, and enforce appropriate and beneficial energy and building codes.[17]

Projects Providing Education and Training Resources

Along with their work in network development and providing adequate technical assistance, ACEEE also places an emphasis on the necessity for improved education and training resources within the energy and building code field.[18] They have made it their mission to educate and provide information to the public on how to improve local policy and its approach to energy efficiency within individual communities. To preface, we are including detailed research on the following tools created by ACEEE as it is the clearest approach available on how the funding from the DOE is to be used. In 2022, ACEEE launched the Energy Equity for Homeowners initiative to research the following provided resources. Following this in July of 2023 research analyst, Roxana Ayala and research manager, Amanda Dewey formed a "toolkit" document which entails the ways the local governments can improve their policies. In the introduction to the document, Ayala and Dewey, discuss the fact that "...the burdens of climate change, high energy costs, low affordability, and housing insecurity are concentrated in particular communities, including low-

[14] Manthe, Sophie. "The U.S. Department of Energy Awards Grants to Eight Projects Supported by the International Code Council ." ICC, July 14, 2023. https://www.iccsafe.org/about/periodicals-and-newsroom/the-u-s-department-of-energy-awards-grants-to-eight-projects-supported-by-the-international-code-council/.

[15] Massachusetts Department of Energy Resources. Massachusetts Celebrates Nearly $4 Million in Federal Funds to Support Energy-Efficient Building Codes." Mass.gov, August 7, 2023. https://www.mass.gov/news/massachusetts-celebrates-nearly-4-million-in-federal-funds-to-support-energy-efficient-building-codes?_gl=1%2A1737wey%2A_ga%2AODE1MjYyMzUyLjE2OTU5MDM2OTM.%2A_ga_MCLPEGW7WM%2AMTY5NTkwNjYzOS4xLjEuMTY5NTkwNjY4Mi4wLjAuMA..

[16] American Council for an Energy-Efficient Economy. Aceee Awarded $9.6 Million to Lead Effort to Update Building Codes." ACEEE, July 12, 2023. https://www.aceee.org/press-release/2023/07/aceee-awarded-96-million-lead-national-effort-update-building-energy-codes.

[17] American Council for an Energy-Efficient Economy. "Aceee Awarded $9.6 Million to Lead Effort to Update Building Codes."

[18] *Meet BTO's newest projects to support more resilient and efficient building codes*. Energy.gov. (n.d.). https://www.energy.gov/eere/buildings/articles/meet-btos-newest-projects-support-more-resilient-and-efficient-building

income communities and communities of color. Cities need to prioritize these same communities to correct these disparities."[19] Dewey and Ayala state this to lead into specific approaches for these areas and ways the public can avoid the direct effects of climate change.

The toolkit provides four sections where cities can identify the strategies to advance energy efficiency investments on a local scale. The first section tackles the policy and program options to deploy energy efficiency to owner-occupied buildings, where the two main points are community engagement and program design. These two main points factor how cities can consider which option in the list will best help them successfully achieve energy efficiency to owner-occupied housing and reach communities that have been historically ignored. The second section, Community Engagement, discusses lessons learned by the cities in the Energy Equity for Homeowners cohort on how best to engage communities, emphasizing the need for strong local governments. The third section, Effective Collaboration, discusses how to establish strong partnerships with other organizations to maximize their reach. The fourth and final section, Funding Local Government Efforts, unpacks the specific needs of each city and how to identify the efficient ways of funding their approach. The research ultimately supports the need for local policy that pushes for the implementation of energy efficient approaches.

The Massachusetts Department of Energy Resources (MDOER) is also planning for a focus on education and supplying training resources.[20] They aim to use their recent funds to implement updating the stretch energy and specialized building codes throughout Massachusetts. The MDOER commissioner, Elizabeth Mahony, states that the purpose of the funding is to increase the generation of renewable energy and wants to accomplish this by investing in transmission systems that deliver clean energy to the residents and businesses.[21] Mahony also claims this will allow for improved accessibility to field-based training on how to aid the housing industry and expand information on best practices to equitable adoption and implementation of new codes. Accessibility to this type of training and knowledge will allow for expanded education on how to be energy efficient and be able to share this information outwards.

This widely accessible knowledge of how to be energy efficient will allow for expansion of alternate perspectives as well. Governor of Massachusetts, Maura Healey states, "This grant will give a critical boost to our efforts to make our buildings more energy efficient and lower costs for residents and businesses."[22] The development of buildings that are energy efficient allows for safer and cleaner environments for the residents. Lieutenant Governor Kim Driscoll also states that the funding will go into local communities with education and training on how to be more efficient.

In the previous year, the DOER shifted their stretch energy code and introduced a new municipal opt-in specialized stretch energy code. The Healey-Driscoll Administration predicts that the stretch energy codes will save around 500,000 tons of greenhouse gas emissions by the year 2030 with almost zero to few costs to additional construction. Adding on to that is $21 billion in lifecycle cost savings in operating

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[19] Ayala, R., and A. Dewey. 2023. *Energy Equity for Homeowners: Policy and Program Guide for Local Governments*. Washington, DC: American Council for an Energy-Efficient Economy. aceee.org/toolkit/2023/07/energy-equity-homeowners-policy-and-program-guide-local-governments.

[20] *Meet BTO's newest projects to support more resilient and efficient building codes*. Energy.gov. (n.d.). https://www.energy.gov/eere/buildings/articles/meet-btos-newest-projects-support-more-resilient-and-efficient-building

[21] *Massachusetts celebrates nearly $4 million in federal funds to support energy-efficient building codes*. Mass.gov. (n.d.). https://www.mass.gov/news/massachusetts-celebrates-nearly-4-million-in-federal-funds-to-support-energy-efficient-building-codes

[22] *Massachusetts celebrates nearly $4 million in federal funds to support energy-efficient building codes*.

costs and construction.[23] Now with updated funding and additional resources the greenhouse gas emissions savings are projected to rise to 694,000 tons per year by 2035 due to the new construction in relation to the current national model energy code.

The Pennsylvania Department of Environmental Protection (PDEP) was awarded $3 million.[24] PDEP aims to put their funds towards education and training citizens on energy efficiency. More specifically, they will put their grant income into projects that will engage youth and adults who are working and/or attending school with environmental justice areas in environmental education programs. These projects will directly educate audiences on practical solutions and how to adopt actions that help surrounding communities become more sustainable and resilient to climate change.[25]

Another topic that will be discussed within this education program is the ability to identify effective ways to reduce water pollution and to protect and improve local water quality. They will also provide residential and commercial energy code and inspection training programs. These will entail code officials and third-party agencies such as contractors, developers, builders, and design professionals to local areas. In having accessibility to experts on energy codes, energy resilience will improve as the shared knowledge will help locals incorporate energy efficiency into their approaches for home and building improvements. To achieve this vision, the PDEP office will direct time and resources to work with local citizens groups, businesses, organizations, local governments, and communities. Through innovation, education, partnerships, pollution prevention, and financial and technical assistance they believe this can be accomplished.[26]

Conclusion

Improving the nation's energy codes is a tangible step that local, state, and federal governments can all take in reducing their greenhouse gas emissions. There are multiple approaches that can be taken to improving these standards as well. From community-based action like creating networks of professionals with a wide range of energy related knowledge and training who can share their expertise. Additionally, providing educational resources and creating training programs for students will help expand the growing base of experts needed for these projects. With a pool of equipped experts and advancing software systems, energy code installation can be streamlined to maximize its efficiency, saving the average citizen money on their utilities while lowering CO2 emissions. This grant money distributed across the country will directly aid agencies trying to modernize energy infrastructure as well as increasing access and removing barriers of entry to this field.

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[23] *Massachusetts celebrates nearly $4 million in federal funds to support energy-efficient building codes*. Mass.gov. (n.d.). https://www.mass.gov/news/massachusetts-celebrates-nearly-4-million-in-federal-funds-to-support-energy-efficient-building-codes

[24] *Meet BTO's newest projects to support more resilient and efficient building codes*. Energy.gov. (n.d.). https://www.energy.gov/eere/buildings/articles/meet-btos-newest-projects-support-more-resilient-and-efficient-building

[25] *Energy Programs Office*. Department of Environmental Protection. (n.d.). https://www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/Pages/default.aspx

[26] *Energy Programs Office*. Department of Environmental Protection. (n.d.).

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