PCCA PA Construction Codes Academy

Leveraging Local Incentives to Drive Building Efficiency and Community Resilience



pennsylvania





Communities across Pennsylvania are adopting policies to encourage energy efficient, sustainable, and ultimately, more resilient building and land use practices. As discussed in the previous two videos in this series, energy efficient buildings allow occupants to shelter in place longer during power outages and improve residents' and communities' ability to cope when disaster strikes.

Building energy code adoption and enforcement are key policy tools to improve building energy efficiency. The good news for energy efficiency is that, in 2018, Pennsylvania updated to a more modern energy code; the bad news is that national model energy code development has stagnated in recent years and the Commonwealth is not likely to adopt another updated energy code until at least four years following the publication of the next national model energy code. Therefore, it could be up to local municipalities to *continue* the drive toward resilient, low-carbon emission buildings that can maintain livable conditions throughout power outages and other emergencies.

"...to promote the conservation of energy through the use of planning practices and to promote the effective utilization of renewable energy sources..."

THE PENNSYLVANIA MUNICIPALITIES PLANNING CODE, ACT OF 1968, P.L.805, NO. 247, 23RD EDITION, JANUARY 2017

Policy tools for local municipalities

Pennsylvania law places restrictions on a local municipality's ability to adopt amendments to the statewide building code including the energy code. Even so, communities in Pennsylvania and elsewhere are using various incentives to encourage energy efficiency and green building without relying on amendments to the building code. Municipalities may use other policies to encourage more efficient housing and commercial buildings through incentives like "green" zoning ordinances, permit fee reductions, and stretch energy codes.

Density bonuses

Density bonuses involve giving developers a financial incentive to build energy efficient and green buildings. Using this tool, a municipality allows developers to build more housing units, or taller buildings, on a given lot than the normal zoning regulations allow. The municipality gives these potentially lucrative perks in exchange for meeting specified energy efficiency or green building standards. For example, Tredyffrin Township in Chester County provides density bonuses in its Town Center District in the form of increased lot area per dwelling unit, building footprints, and building heights for residential and mixed-use projects that achieve LEED Silver certification. Other municipalities with green zoning ordinances include the Borough of West Chester, Honey Brook Township, Pittsburgh, and Philadelphia.

Low-cost Financing

C-PACE

The Pennsylvania Commercial Property Assessed Clean Energy Program, or C-PACE, is an innovative financing program launched in 2018 that provides business property owners access to low-interest, long-term loans for energy efficiency, renewable energy and water conservation projects that are repaid as property tax to benefit the community. This low-cost

Setting a Standard -Residential

Density bonuses are a great way to encourage more energy efficient and resilient residential construction and there are several well-established standards for setting efficiency thresholds.

The Home Energy Rating System or HERS is the foundation of the Energy Rating Index Compliance Alternative in the energy code, many above-code certifications, and most utility rebate programs for new homes. Under this system, a HERS Index score is issued to a home based on a variety of third-party verified features. The lower the HERS Index score, the less energy a home is predicted to use, with a home built to 2006 standards receiving a score of 100, and a home that produces as much energy (with solar panels, for example) as it uses, receiving a score of zero. In Pennsylvania, a new, codecompliant home would receive a score of around 61 or 62, so setting a density bonus eligibility requirement with a lower HERS Index score will result in better-than-code energy efficiency. One common target is a HERS 55, but lower is better for achieving truly sustainable and resilient housing.

Several certifications building off of the Home Energy Rating System, including ENERGY STAR for Homes, the U.S. Department of Energy's Zero Energy Ready Homes (ZERH), and Passive House Institute U.S. (PHIUS). ENERGY STAR certification requires a target HERS Index score and a variety of rigorous checks to ensure all systems are functioning properly. DOE's ZERH requires ENERGY STAR certification with additional requirements that facilitate future installation of solar panels. PHIUS requires ENERGY STAR and ZERH certification, plus super-insulated and airtight building enclosures to achieve a very low energy-use-per-square-foot threshold. financing makes it easier for projects to be cash flow-positive, meaning monthly payments are lower than the amount saved on energy bills. And, because the loan is tied to the property, owners are not saddled with the burden of having to pay off the balance of the loan if they sell the property. To make this funding available in local communities, counties or municipalities with community or economic development departments, must opt in by passing a local resolution and establishing guidelines for C-PACE. To learn more about how to participate in C-PACE, visit: <u>https://www.thesef.org/get-</u> <u>financing/c-pace/</u>.

Green Energy Loan Fund (GELF)

Another source of energy efficiency financing is The Pennsylvania Green Energy Loan Fund ("GELF"), which provides low-cost financing to building owners and energy service companies for energy efficiency improvements to Pennsylvania buildings. GELF is managed by Reinvestment Fund and is supported by the Pennsylvania Department of Environmental Protection and the U.S. Department of Energy. To be eligible, projects must result in a 25 percent reduction in energy consumption. For more information visit: <u>www.reinvestment.com/pennsylvania-green-energy-loan-fund/</u>.

Permit fee reductions

Another form of local incentives to encourage sustainable building

practices is permit fee reductions. Building permit fees are typically based on the cost of construction and are used to support the plan review and inspection activities of the local building department. Some municipalities provide fee waivers or reductions for buildings designed to be energy efficient or that include other green building features. Doylestown Borough in Bucks County offers a one percent permit fee reduction for each green point achieved under its Green Points Building Incentives Program with a maximum fee reduction of 50 percent. Builders achieve green points in the categories of material reuse and recycling, compact land use and water conservation, framing, energy code measures, plumbing and hot water, lighting and appliances, solar, and innovation.

Setting a Standard -Commercial

Increasing the allowable height and building footprint area per lot size are two ways to encourage more energy efficient and resilient commercial buildings and, like residential, there some existing standards that help in setting a threshold to receive these incentives.

The most commonly referenced standard for commercial buildings is Leadership in Energy and Environmental Design (LEED), which has a variety of certifications for commercial buildings including Building Design and Construction, Interior Design and Construction, and Operations and Maintenance. Buildings can also receive Designed to Earn the ENERGY STAR recognition and then go on to achieve certification through building commissioning and ongoing energy benchmarking. Other options include requiring a certain percentage better than the energy code compliance option known as ASHRAE 90.1 Energy Standard for Buildings Except Low-Rise Residential Buildings - Appendix G: Performance Rating Method, or a certain Zero Energy Performance Index (zEPI) score. Currently, buildings built to code would receive roughly a zEPI 54, while the Architecture 2030 Challenge has a zEPI target of 10 for buildings built in 2020, or 44 percent more efficient than code.



ENERGY EFFICIENT House

Stretch codes

ENERGY STARTM and LEED certification are commonly cited above-code standards, but another tool states and municipalities *outside* Pennsylvania are using to increase the energy efficiency of new buildings is Stretch Energy Codes. Stretch Codes are energy codes that require a higher level of efficiency than the standard "base" code. New York and Massachusetts have created stretch codes communities may adopt voluntarily as their local energy code. While Pennsylvania law currently restricts local municipalities' ability to adopt more stringent building codes, communities could use incentives to encourage builders to follow a more efficient stretch energy code.

Picking up the torch

Where national energy code development processes and state adoption policies fail to support local municipalities' carbon reduction and other sustainability goals, communities can use creative strategies to drive energy efficient, sustainable, and resilient construction. Considering reduced permit fees, density bonuses, and other zoning allowances is a great starting point for municipalities looking to encourage construction to ENERGY STAR, LEED, stretch energy codes, or other energy efficient and green building standards.

Written by

Mike Turns Director of Energy Codes and New Homes Programs Performance Systems Development (PSD) <u>mturns@psdconsulting.com</u>

Resources

Resilience & Sustainability Planning

NIST Resilience Planning Guide nist.gov/topics/community-resilience/planning-guide

Sustainable Pennsylvania Communities

Building Code Training

Pennsylvania Construction Codes Academy paconstructioncodesacademy.org

Pennsylvania Housing Research Center phrc.psu.edu

Energy Efficiency Rebates

Duquesne Light duquesnelight.com/energy-money-savings/watt-choices

FirstEnergy's Pennsylvania Utilities energysavepa.com

PPL Electric Utilities pplelectric.com/ways-to-save

PECO peco.com/WaystoSave

PGW pgwenergysense.com

UGI ugi.com

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