August 1, 2025

Theresa Smith
Hearing Officer
Department of Natural Resources and Environmental Control
Office of the Secretary
89 Kings Highway
Dover, DE 19901

Re: Public Comment on Proposed 2101 Regulations for State Energy Conservation Code (DOCKET # 2025-R-CCE-0008)

Submitted via email: DNRECHearingComments@delaware.gov

Dear Ms. Smith,

On behalf of Northeast Energy Efficiency Partnerships[1] (NEEP), we are pleased to submit comments to the Department of Natural Resources and Environmental Control of the State of Delaware (DNREC) on the proposed 2101 Regulations for State Energy Conservation Code (DOCKET # 2025-R-CCE-0008). NEEP is an independent, nonpartisan, non-profit organization that advances energy efficiency in the Northeast and Mid-Atlantic to improve energy affordability, reduce greenhouse gas emissions, lower air pollution, and promote economic development. NEEP submits the following comments in support of aspects of the code and recommendations to further enhance energy affordability and to provide stabilizing resources to the regional electric grid in alignment with state policies. Accelerating peak load estimates over the next decade in the Mid-Atlantic support the urgency of prioritizing these goals in this code adoption cycle.

NEEP commends proposed amendments to the State Energy Conservation Code that support Delaware's zero net energy capable requirement for all new residential building construction by December 31, 2025. 16 Del. C. 76 , § 7602 states that "a net zero energy capable home must be energy efficient enough that if the home or building owner chooses to add on-site generation, net zero energy consumption could be achieved." The draft building code as published in July 2025, with strengthening provisions, will deliver important energy, economic, reliability, and health benefits to the state's residents and businesses while contributing to the state's climate goals.

[1] These comments are offered by NEEP staff and do not necessarily represent the view of the NEEP Board of Directors, sponsors, or partners. NEEP is a 501 (c)(3) non-profit organization.

The proposed energy code is an important step in improving building performance, lowering energy costs, and supporting long-term resilience. Moreover, the strengthening amendments aimed at improving energy efficiency, which have been proposed across all model code compliance paths, and the introduction of Passive House and Zero Net Energy Homes compliance paths, offer necessary flexibility to the construction industry to meet the state mandate. The amendments and compliance paths also provide guidance to innovative builders who want to provide their customers with the maximum benefits of energy efficiency. NEEP also commends DNREC for engaging stakeholders informally in the code development process in 2024 and 2025 and incorporating stakeholder feedback into the proposed code.

NEEP proposes adoption of the following net zero capable appendices from the 2024 International Energy Conservation Code (IECC) into the State Energy Conservation Code. Adoption of these appendices will provide grid stability, protect Delaware consumers from unnecessary retrofit costs, reduce household energy burden, minimize the cost to comply, and align State Energy Office policies with state climate law and related state policies.

1. Appendix RB: Solar-Ready Provisions for Detached One- and Two-Family Dwellings and Townhomes
2. Appendix RD: Electric Energy Storage Provisions
3. Appendix RJ: Demand Responsive Controls
4. Appendix RK: Electric-ready Residential Building Provisions

Inclusion of these appendices prepares Delaware homes for adoption of technologies that are necessary to mitigate growing electrical grid strain at a minimal cost to consumers and empowers residents to save on energy bills. On June 23, 2025, PJM reported the highest peak demand in over a decade, 6,000 MW higher than the forecasted 2025 summer peak.[2] Furthermore, PJM's long-term forecasts for peak demand in 2035 have increased from the 2024 forecast by 17 percent within the last year.[3] Requiring new residential construction to include minimal infrastructure to support on-site renewable energy production, energy storage, demand response in electric water heaters and other efficient electric appliances will allow residents to more affordably integrate these technologies, provide resilience to homes and relief to the grid, and empower residents with better control over household energy costs.

We elaborate on the rationale behind each of these appendices below.

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[2] https://insidelines.pjm.com/june-24-update-maximum-generation-alert-extended-to-june-25/#:~:text=PJM%20served%20a%20preliminary%20hourly,which%20was%20set%20in%202006.

[3] https://insidelines.pjm.com/2025-long-term-load-forecast-report-predicts-significant-increase-in-electricity-demand/

1. Appendices RB and RD. Appendix RB reduces costs of solar PV installation on residential buildings post occupancy by requiring indication of a solar ready zone in construction documents. Appendix RB does not explicitly require solar installation or wiring. Appendix RD reduces the cost of residential energy storage systems (ESS) installation by requiring dedicated space and raceways during construction. Residential solar PV and energy storage systems are distributed energy resources that provide benefits to homeowners as backup power during utility outages, improve energy affordability through on-site generation and energy arbitrage, and provide much needed capacity to the grid.[4] Demand response for mitigating peak demand is becoming increasingly important in the Mid-Atlantic region. PJM declared a Pre-Emergency Load Management Reduction Action during the heat wave on June 23 - 25 for its Mid-Atlantic region, calling on contracted demand response programs to provide additional resources for the power grid.[5]

2. Appendix RJ reduces future costs of conversion of electric water heaters to accommodate demand response by requiring demand response capabilities for electric storage water heaters with rated storage of 40-120 gallons and a nameplate input rating <= 12 kW. In its 2023 report, *Demand Flexibility in Water Heaters*, American Council for an Energy-Efficient Economy (ACEEE) reported that "[demand response] capabilities are relatively cheap to install in the factory but expensive to have a contractor come out and retrofit on an existing water heater... All heat pump water heaters and increasingly electric resistance water heaters already include the necessary computer chip and electronic controls."[6] Like ESS, demand response-enabled water heaters can provide load shedding during peak events like those experienced in June 2025 in the Mid-Atlantic.

A 2025 report from the National Association of Home Builders (NAHB) on the cost of construction for Appendices RB, RJ and RK suggests minimal impacts relative to the total cost of construction. Table 1 shows the estimated costs of compliance with Appendices RB, RJ and RK based on a two-story, 2,400 square foot single family home.[7]

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[4] https://docs.nrel.gov/docs/fy24osti/84660.pdf

[5] https://insidelines.pjm.com/june-24-update-maximum-generation-alert-extended-to-june-25/#:~:text=PJM%20served%20a%20preliminary%20hourly,which%20was%20set%20in%202006.

[6] https://www.aceee.org/sites/default/files/pdfs/demand_flexibility_of_water_heaters_-_encrypt.pdf

[7] https://www.nahb.org/-/media/NAHB/advocacy/docs/top-priorities/codes/code-adoption/2024-iecc-cost-analysis-hirl.pdf?rev=1c0950edb89e4e6195e99facb0a376f9&hash=2AB3239971E23F1EC5813048B05B188C

Table 1. Estimated cost to comply with 2024 IECC Appendices for a two-story, 2,400 square foot single family home.[8]

Appendix	Description	Total cost to builder ($)	Total cost to builder adjusted for Delaware (x1.051)[9]
RB	Solar-Ready Provisions	105	110
RJ	Demand Responsive Water Heating	129	136
RK	Electric-Ready Water Heater	222	233
RK	Electric-Ready Dryer	273	287
RK	Electric-Ready Range	328	345

If installing an electric water heater, complying with all three appendices would cost the builder $878, and if installing a fossil fuel fired water heater, complying with Appendix RB and RK could cost the builder $975. Therefore, for a 2,400 square foot home, at $162/square foot, the 2024 national average reported by the NAHB, the costs of compliance with the appendices would increase the total cost of construction by 0.22-0.25 percent.[10] These costs would be more than offset by lower energy bills through participation in demand response programs, resilience benefits, and avoided costs to retrofit buildings.

Adopting Appendices RB, RD, RJ and RK aligns with the state climate action plan, the state climate law, the state energy plan and the State Energy Office's mandate to promote zero net energy new construction. Delaware's 2021 Climate Action Plan identifies key strategies to meet Delaware's commitment to reduce greenhouse gas emissions, including increasing the number of on-site renewable energy systems in residential and commercial buildings.[11] Appendix RB supports this strategy. In 2023, Delaware adopted the Climate Change Solution Act, establishing the State Energy Office and tasking it with developing a comprehensive State Energy Plan that encourages and promotes the conservation of

[8] https://www.nahb.org/-/media/NAHB/advocacy/docs/top-priorities/codes/code-adoption/2024-iecc-cost-analysis-hirl.pdf?rev=1c0950edb89e4e6195e99facb0a376f9&hash=2AB3239971E23F1EC5813048B05B188C

[9] The study included a cost adjustment factor by location. The cost adjustment factor for Dover, Delaware was 1.051.

[10] https://www.nahb.org/-/media/NAHB/news-and-economics/docs/housing-economics-plus/special-studies/2025/special-study-cost-of-constructing-a-home-2024-january-2025.pdf?rev=00a42a1ce63b4a22a4dba9bda8af954b

[11] https://documents.dnrec.delaware.gov/energy/Documents/Climate/Plan/Delaware-Climate-Action-Plan-2021.pdf

energy, the use of alternate energy technologies by residential and commercial consumers, and other energy efficiency and conservation goals, methods, standards, programs and policies, especially those directed toward improving end-use efficiency among the state's energy consumers.[12] The 2024-2028 Delaware State Energy Plan includes the following strategies that are supported by the adoption of Appendix RB, RD, RJ, and RK:

1. Establish statewide goals for distributed solar generation and promote solar generation at all scales;
2. Capitalize on co-location benefits of solar with battery storage, energy efficiency, etc., at all scales. Include establishing a regulatory framework that is conducive to co-location;
3. Support net-zero building energy codes in new construction;
4. Promote energy storage projects at different scales "to extend the penetration of RE resources and increase grid stability"; and
5. Modify rate design to encourage customer-controlled energy management, including TOU rates.[13]

Finally, 16 Del. C. 76 , § 7602 specifies that "the Delaware Energy Office, or its successor, in consultation with the Green Building Council of the Home Builders Association of Delaware, shall establish programs to promote the construction of zero net energy homes. A 'zero net energy home' or 'zero net energy building' is defined as a residence or commercial building that, through the use of energy efficient construction, lighting, appliances and on-site renewable energy generation, results in zero net energy consumption from the utility provider." Adoption of Appendix RB, RD, RJ, and RK all support the Delaware Energy Office's mandate to promote the construction of zero net energy homes as defined in the legislation by enabling future conversion of new homes to zero net energy.

NEEP applauds DNREC for its proposed State Energy Conservation Code that will provide enhanced energy efficiency through comprehensive strengthening amendments to the 2024 IECC/ASHRAE 90.1 2022. Developing these amendments through extensive stakeholder feedback shows broad support for Delaware's net zero capable mandate. Adoption of 2024 IECC net zero capable residential code appendices will enable enhanced energy savings for Delaware residents at a minimal cost, while providing improved grid reliability and customer resilience, and aligning with Delaware state policies.

Sincerely,

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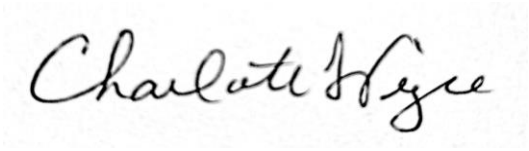
[12] : https://legis.delaware.gov/BillDetail?LegislationId=130272

[13] https://documents.dnrec.delaware.gov/energy/2024-DE-Energy-Plan.pdf



Charlotte Weigel, Manager, Codes and Standards

Northeast Energy Efficiency Partnerships (NEEP)