



**NEW ENGLAND GEOTHERMAL PROFESSIONAL ASSOCIATION**  
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[NEGPA](http://www.negpa.org)

TO: EEAC

FROM: William Stevens, Esq. - FOR NEGPA

RE: NEGPA COMMENTS ON JOINT AND STRATEGIC EVALUATION PLANS

DATE: July 14, 2021

Att. *Heating Sector Transformation in Rhode Island* (and technical documents)  
(Brattle Group (2020))

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**I. The Joint and Strategic Evaluation Plans’ Exclusion of Ground Source Heat Pumps is Inconsistent with the Climate Act, Energy Efficiency Guidelines and Ignores EEAC Recommendations.**

On April 30, 2021, the Program Administrators (“PAs”) submitted for the Energy Efficiency Advisory Council review and comment, the Massachusetts Joint Statewide Electric and Gas Three Year Energy Efficiency Plan (“Joint Plan”) along with the 2022-2024 Strategic Evaluation Plan (“Strategic Evaluation Plan”). Both plans mention air source “heat pump” measures 196 times but make no mention of the “ground source” or “geothermal” heat pump energy efficiency resources. The PA’s exclusion of Ground Source Heat Pumps in the Joint and Strategic Evaluation Plans is inconsistent with the Climate Act, the DPU Energy Efficiency Guidelines, and ignores EEAC recommendations.

**II. The Joint and Strategic Evaluation Plans Include no Numerical Benchmarks, Studies or Programs Regarding GSHPS’s Benefits to Electrification, Retrofit or New Construction Programs**

On March 26, 2021, the Governor signed into law An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy, St. 2021, c. 8 (“Climate Act”). The Climate Act explicitly requires numerical benchmarks for tracking adoption levels of GSHPS. Further, the

EEAC recommended that the PAs establish separate, higher, GSHP unit goals (Residential Existing Buildings Workshop (December 15)). The Joint and Strategic Evaluation Plans mention no numerical benchmarks or tracking adoption of GSHPs.

The EEAC Consultant team recommended the PAs to promote electrification projects that include conversions to ground-source heat pump systems (C&I Existing Building Retrofit Workshop (December 1, 2020)). In December 2020, the EEAC issued *the Massachusetts 2050 Decarbonization Roadmap* (“Roadmap Report”). The Roadmap Report concluded that GSHPs provide 300-600 % higher efficiencies and longer lifetimes than air source heat pumps and will reduce peak load. The Roadmap Report notes that the easiest time to install GSHPs is during new construction and the market for retrofits is growing.

Both Joint and Strategic Evaluation Plans make no mention of GSHPs in electrification, new construction or retrofits. Both plans do not include any studies or evaluation of avoided costs, and reduction of summer and winter peak electric demand with respect to the well-established GSHP energy efficiency resource.

Forecasting models have shown that with aggressive heating sector electrification, Massachusetts could be reaching a winter peak as early as 2035. There are numerous industry-accepted studies on the impact of GSHPs on mitigating peak load. I have attached one - a 2020 Brattle Group study: *Heating Sector Transformation in Rhode Island* (and technical documents) (Brattle Group (2020)). NEGPA has presented other studies in prior listening sessions.

### **III. Neither the Joint nor Strategic Evaluation Plan Establish the Value to Society for GHG Reductions for GSHPs as required by the Climate Act and Energy Efficiency Guidelines.**

The Climate Act requires that the PA’s include the cost of climate change on society (*i.e.*, the social cost of carbon) as part the Three-Year Energy Efficiency Plan cost-benefit analysis. Further, the Department of Public Utilities, in its updated *Energy Efficiency Guidelines*, D.P.U. 20-150-A at 7, directed the PAs to include in the plans a cost-benefit analysis the societal value of GHG emission reductions consistent with the Climate Act.

Both the Climate Act and *Energy Efficiency Guidelines*, at § 3.4.4 (Energy Efficiency Program Benefits) require the PAs to calculate avoided capacity and electric costs, and DRIPE, the demand-reduction-induced price effect in its cost benefit calculation of GSHPs. *Energy Efficiency Guidelines*, § 3.4.4 (Energy Efficiency Program Benefits). Both plans do not include any load studies or cost benefit analysis on avoided electric capacity and energy costs, and the DRIPE for ground source heat pumps. Neither plan provides ratepayers the opportunity to replace their gas or electric heat systems with non-emitting GSHPs - which would dramatically reduce production of greenhouse gas emissions and assist in reaching the goals of the Climate Act.

The current Technical Resource Manual (“TRM”) underestimates the environmental and cost benefits of GSHPs and is inconsistent with industry standards and other state TRMs. NEGPA thanks the PAs for considering NEGPA’s proposal and supports the PA’s recommendations to

amend the TRM. However, as of the date of the memorandum the TRM still remains unchanged.

#### **IV. The Joint and Strategic Evaluation Plans Do Not Include GSHP Studies or Programs for Low-and Moderate-Income Households.**

The EEAC consultant team recommended to the PAs that the long-term decarbonization goals in Massachusetts call for residential heat pumps at large scale (Income Eligible Services Workshop Brief (November 10, 2020)). NEGPA supports the recommendation to deliver targeted training for ground source heat pumps that will benefit existing EE workers across initiatives and sectors (EEAC Consultant team Workforce Development Workshop (December 15, 2020)).

GSHPs benefit low - and moderate - income families because they the lowest operating costs for heating and cooling. The average geothermal system in MA operates at \$840/year. GSHP air filtration improves indoor air quality and provides proven health benefits. GSHP's operate quietly in densely settled areas and dramatically reduce greenhouse gas emissions because they do not rely on additional electrical or fossil fuel backup such as natural gas, propane, or oil during on peak heating and cooling periods.

GSHPs are typically the same installed price as a central ASHP system, with the additional cost of the Underground Loop. The Underground Loops can last more than 50 years. However, the Plans and the TRM do not consider lifetime costs of the entire system in calculating benefits. A revised TRM, Joint, and Strategic Evaluation Plans - consistent with the Climate Act and *Energy Efficiency Guidelines* - will result in a drastic reduction in the calculation of the installation cost of GSHPs. GSHPs are a cost-effective fuel switching measure and play an important role in meeting the requirements of the Climate Act and *Energy Efficiency Guidelines*.

#### **V. CONCLUSION**

If Massachusetts wants to continue to be a climate leader, then the Joint and Strategic Evaluation Plans need to include GSHPs. Inclusion in both plans and would be instructive to other states evaluating environmentally beneficial and cost-effective energy efficiency resources like Ground Source Heat Pumps.

NEGPA thanks the EEAC for the opportunity to submit comments, and respectfully requests that the EEAC consider NEGPA's comments favorably.