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MA Energy Efficiency Advisory Council
100 Cambridge St., 2nd Floor
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Hello Ladies and Gentlemen,

My name is Scott Greenbaum, Professional Engineer, Certified Energy Manager, and Certified Building Commissioning Professional and small consulting business owner. I am the principal of Greene Energy Consultants, LLC. I specialize in the existing building C & I energy reduction HVAC consulting, installation, and commissioning. I work on a wide range of building types including:

- Office buildings from 5,000 to 2,000,000 square feet
- K-12 public schools
- Colleges and Universities
- Municipal buildings
- Research laboratories
- Multifamily
- Etc.

Over the last four (4) years the non-lighting support from the utilities have evaporated. Almost everything we typically recommend is not supported by the program. The few items supported; the value added of utility incentives in general exceeds the cost of applying for them. This has resulted in reduced scope of energy/greenhouse gas reductions in my projects and guiding my clients away from the programs. The only time I complete the application is to meet the requirements of MGL 25 A for a utility preferred contractor in the municipal market. The dominate work for these building types are controls upgrades or existing building retro-commissioning. Most of these building have obsolete pneumatic controls, ancient DDC controls not supported by the manufactures with limited ability to perform modern algorithms, or old EMS which are functionally obsolete with not trend logging setup. We have been limited in the work that qualifies for incentives due to the following principal:

- Not able to support any work that does not exceed "Code" (IECC-2015) therefore: it is free ridership (these owners will have to fix their EMS to comply with "Code" at some point)

I have reviewed the International Energy Conservation Code (IECC-2015) and have listed a few excerpts that does not support this principal:

Chapter 5 (CE) Existing Building C501.2 "Existing buildings. Except as specified in this chapter, this code shall not be used to require the removal, alteration, or abandonment of, nor prevent the continued use and maintenance of, and existing building or building system lawfully in existence at the time of adoption of this code." (Page C-95)

Section C504 Repairs C504.1 General. "Buildings and Structures, and parts thereof, shall be repaired in compliance with Section C501.3 and this section. Work on nondamaged components that is necessary

for required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for alternations in this chapter. Routine maintenance required by Section C501.3 ordinary repairs exempt from permit and abatement of wear due to normal service conditions shall not be subject to the requirements for *repairs* in this section.” (C-96) (Section C503.1 Maintenance)

“Effective Use Of The International Energy Conservation Code The International Energy Conservation Code (IECC) is a model code that regulates minimum energy conservation requirements for new buildings. The IECC addresses energy conservation requirements for all aspects of energy uses in both commercial and residential construction, including heating and ventilation, lighting, water heating, and power usage for appliances and building systems. The IECC is a design document.” (IECC-2015 page vii).

Based on the above excerpts the owner of an existing building is not required by Code to do anything beyond maintain the existing building controls system regardless if it is a simple single setting thermostat, electric mechanical, pneumatic, or old DDC/EMS. Therefore, anything that enhances the ability of the building controls should be incentivized from existing conditions to the final conditions. This would not be free ridership.

I would like to explore Free Ridership in the utility programs because it exists throughout the programs except existing building HVAC upgrades. Most homeowners know that if the boiler or cooling system need to be replaced call Mass Saves and get a free home audit and the cost for replacement will be subsidized by 50 to 75%. I have participated in the Upstream HVAC incentive program for the replacement of RTUs. Each time the client had the intent to install a high efficiency RTU greater that Code, Free Ridership? Prescriptive Natural Gas for condensing boilers. Again, the only clients receiving the incentive are pre-disposed to purchase condensing boilers. The incentive is so small I cannot convince other clients to upgrade from cast iron boilers due to economics. For all the clients I have worked for and public-school construction projects LEEDS certification are a requirement for new construction/major rehabilitation projects. Incentives are just a bonus for a client pre-disposed to build a high efficiency project that exceeds codes.

Below is the result of an HVAC EMS project completed by one of my clients. The project does not qualify for incentive under the existing rules. The electric savings are 831,187 kWh/year (21.7%) and 91,432 therms/year (54.2%) non-weather adjusted. These projects are very difficult to sell without incentives and utility support. Incentive - “something that incites or has a tendency to incite to determination or action” Merriam Webster Dictionary. I am changing my business model around and taking my services to utility service territories that do provide support and doing more retro-commissioning.

Start Date	End Date	kWh	kW Demand	BTU/SQFT	Start Date	End Date	kWh	kW Demand	BTU/SQFT
27-Dec-16	26-Jan-17	302,610	622	6,279	27-Dec-17	25-Jan-18	206,325	495	4,281
26-Jan-17	24-Feb-17	316,365	708	6,564	25-Jan-18	26-Feb-18	226,957	516	4,709
24-Feb-17	24-Mar-17	295,732	763	6,136	26-Feb-18	27-Mar-18	199,447	485	4,138
24-Mar-17	26-Apr-17	364,507	873	7,563	27-Mar-18	27-Apr-18	220,080	512	4,566
26-Apr-17	24-May-17	330,120	922	6,850	27-Apr-18	25-May-18	240,712	739	4,995
24-May-17	26-Jun-17	398,895	973	8,277	25-May-18	26-Jun-18	295,732	743	6,136
26-Jun-17	26-Jul-17	412,650	977	8,562	26-Jun-18	26-Jul-18	318,365	777	6,606
26-Jul-17	25-Aug-17	336,997	796	6,992	26-Jul-18	27-Aug-18	336,997	743	6,992
25-Aug-17	26-Sep-17	323,242	808	6,707	27-Aug-18	26-Sep-18	288,855	784	5,994
26-Sep-17	25-Oct-17	276,100	784	5,729	26-Sep-18	25-Oct-18	226,957	695	4,709
25-Oct-17	27-Nov-17	254,467	643	5,280	25-Oct-18	27-Nov-18	220,080	488	4,566
27-Nov-17	27-Dec-17	213,202	505	4,424	27-Nov-18	27-Dec-18	213,202	554	4,424
2017 Total		3,824,887	9,374	79,363	2018 Total		2,993,709	7,531	62,117

Start Date	End Date	Therms	BTU/SQFT	Start Date	End Date	Therms	BTU/SQFT
30-Nov-2016	31-Dec-16	16,033	9,747	30-Nov-17	31-Dec-17	11,146	6,776
31-Dec-16	31-Jan-17	21,103	12,830	31-Dec-17	31-Jan-18	11,066	6,728
31-Jan-17	28-Feb-17	21,327	12,966	31-Jan-18	28-Feb-18	7,563	4,598
28-Feb-17	31-Mar-17	22,923	13,936	28-Feb-18	31-Mar-18	8,388	5,099
31-Mar-17	30-Apr-17	19,347	11,762	31-Mar-18	30-Apr-18	6,579	4,000
30-Apr-17	31-May-17	19,426	11,810	30-Apr-18	31-May-18	4,589	2,790
31-May-17	30-Jun-17	15,647	9,513	31-May-18	30-Jun-18	3,509	2,133
30-Jun-17	31-Jul-17	12,078	7,343	30-Jun-18	31-Jul-18	2,983	1,814
31-Jul-17	31-Aug-17	4,096	2,490	31-Jul-18	31-Aug-18	3,498	2,127
31-Aug-17	30-Sep-17	3,951	2,402	31-Aug-18	30-Sep-18	4,249	2,583
30-Sep-17	31-Oct-17	5,475	3,329	30-Sep-18	31-Oct-18	6,053	3,680
31-Oct-17	30-Nov-17	7,181	4,366	31-Oct-18	30-Nov-18	7,532	4,579
2017 Total		168,587	102,492	2018 Total		77,155	46,906

If you want to see results like this the policies need to be changed to reflect the “Code” and incentivize owners to make positive changes. If not the Commonwealth of Massachusetts has no possibility of meeting its greenhouse gas goals. The C & I non-Lighting savings is the single largest energy consumption not being addressed and outstrips all other building related energy usage.

Sincerely

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