MA ENERGY EFFICIENCY ADVISORY COUNCIL

→ CONSULTANT TEAM

SUPPLEMENT TO 2018 AESC STUDY: MA AVOIDED COST OF COMPLIANCE WITH GWSA

August 2018

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METHODOLOGY

- **Calculated in a supplemental study commissioned by MA Department of Energy Resources (DOER) in August 2018**

- **Chapter 298 of the Acts of 2008 (MA Global Warming Solutions Act or GWSA) requires that the Commonwealth reduce greenhouse gas (GHG) emissions by 25 percent in 2020, relative to 1990 levels, and by at least 80 percent in 2050, relative to 1990 levels**

- **Based on a weighted average of anticipated costs and greenhouse gas (GHG) emission reduction potential for seven strategies: (1) onshore wind, (2) offshore wind, (3) large solar, (4) medium solar, (5) small solar, (6) clean energy imports, and (7) light-duty vehicle electrification infrastructure.**

- **All seven strategies are currently being deployed by the Commonwealth of Massachusetts (Commonwealth) in the near to medium term under already promulgated legislation and regulations, or as part of the *Massachusetts Clean Energy and Climate Plan for 2020 (CECP)* in order to comply with the GWSA**

- **AESC's counterfactual presumes that no incremental energy efficiency is installed in 2018 and all later years,**
  - Implies that the Commonwealth will not achieve the GWSA limit for 2020 and later years without implementing additional non-efficiency strategies
  - The Commonwealth does not develop two CECPs (one with and one without energy efficiency); we assume that the counter-factual AESC case of no incremental energy efficiency would rely on an expansion of the above-listed electric-related strategies already in the CECP in order to achieve compliance with the reductions required under GWSA

MAIN FINDINGS

ES-Table 1. Illustration of avoided electricity cost components, AESC 2018 versus AESC 2015 (WCMA), summer on-peak (15-year levelized 2019-2033)

	AESC 2015	AESC 2015	AESC 2018	AESC 2018, relative to AESC 2015	
	2015 cents/kWh	*2018 cents/kWh*	*2018 cents/kWh*	*2018 cents/kWh*	*% Difference*
Avoided Retail Capacity Costs	2.91	3.05	1.69	-1.33	-44%
Avoided Retail Energy Costs	6.29	6.60	4.75	-1.97	-30%
Avoided Renewable Energy Credit	0.96	1.01	0.38	-0.62	-61%
Subtotal: Capacity and Energy	**10.16**	**10.66**	**6.82**	**-3.92**	**-37%**
Incremental GWSA Compliance	**-**	**-**	**1.79**	**1.79**	**-**
T&D (PTF, but not distribution)	**-**	**-**	**2.11**	**2.11**	**-**
Value of Reliability	**-**	**-**	**0.01**	**0.01**	**-**
Capacity DRIPE	-	-	0.52	0.91	-
Energy DRIPE	1.18	1.24	1.77	0.67	54%
Subtotal: DRIPE	**1.18**	**1.24**	**2.29**	**1.58**	**128%**
Total (without Inc. GWSA compliance)	**11.34**	**11.90**	**11.22**	**-0.68**	**-1%**
Total (with Inc. GWSA compliance)	**11.34**	**11.90**	**13.01**	**1.11**	**9%**
Impact of GWSA	**-**	**-**	**16%**	**-**	**-**

- Generally lower avoided energy and capacity costs when comparing with AESC 2015; costs are higher when including inc. GWSA compliance
- Main drivers are lower costs for natural gas & RGGI; new or revised methodologies for capacity, DRIPE
- New chapters on avoided T&D (includes avoided cost for PTF, but not distribution) and value of reliability
- Can customize costing periods for different “peak” or other periods, by prices or loads; all hours (8760 hours)
- Main differences for MA are shown in red in the table above