



July 1, 2013

TECHNICAL REVIEW

Analysis of Steve Nadel's, ACEEE Testimony, June 25, 2013, Senate Energy and Natural Resources Committee, Subcommittee on Energy

Re: S. 1020 "All of the Above Energy Conservation Act" vs. Section 433 of EISA 2007.

The following is a technical review and analysis of [testimony](#) regarding S. 1020 vs. Section 433 of EISA 2007 by Steve Nadel, ACEEE, on June 25, 2013. As the following review indicates, we find Mr. Nadel's testimony to be flawed due to several faulty assumptions with no basis in fact, specifically building energy code cycle incremental energy reduction assumptions. We also find that the federal building energy savings of S. 1020 will be far *less* than Section 433, *with the federal government lagging the private sector in setting building energy and greenhouse gas emissions performance standards.*

There are two major parts to S. 1020. The amendment would repeal Section 433 of EISA 2007 and replace it with:

1. Extending and increasing the energy performance requirements for federal buildings (Sec. 431), from 30% by 2015 to 45% by 2020 (from a 2003 base).
2. Setting standards for new buildings and alterations that meet performance levels that are 30% better than the most recent ASHRAE 90.1 energy code for commercial buildings, and the IECC for residential buildings.

Assertion: In Mr. Nadel's energy savings calculations of S. 1020 vs. Section 433, he assumes that Section 431's energy reduction standard would not be increased after 2015 if S. 1020 is not passed.

Analysis: With climate change becoming increasingly and dramatically evident, and public support building for greenhouse gas emissions standards, there is a good chance Section 431 would:

1. be extended well beyond 2015, and
2. the annual percentage reduction would be increased beyond 3% per year.

Assertion:

S. 1020 “could save approximately 0.03 quads more than Section 433 would have in both 2020 and 2030, with an estimated total cumulative additional savings of about 0.4 quads over the 2014-2030 period”.

Analysis:

In 2015, Section 433 will require a 65% fossil fuel reduction in all new federal buildings and major renovations (base 2003).

In 2015, S. 1020 would require a 30% energy consumption level below ASHRAE 90.1 2013 for commercial buildings, which would be a 57.5% reduction (base 2003), or 7.5% *less* than that required by Sec. 433.

In 2015, S. 1020 would require a 30% energy consumption level below IECC 2012 for residential buildings, which would be a 60% reduction (base 2003), or 5% *less* than Section 433.

Section 433 has *specific* fossil fuel building energy reduction standards to 2030 – 65% in 2015, 80% in 2020, 90% in 2025, and 100% in 2030 – while S. 1020 ties reduction targets to the most recent ASHRAE 90.1 or IECC energy code. We believe the reduction targets set by S. 1020 in future years would be *substantially* less than the specific targets set in Section 433, for the following reasons:

1. There are two paths to building energy code compliance, a prescriptive path, and a performance path that meets or exceeds a reference building energy performance target based on prescriptive requirements. Both ASHRAE 90.1 and the IECC code compliance standards are nearing the limit of prescriptive whole building energy reductions; so future incremental code cycle energy reduction targets will be very small.
2. According to the Alliance to Save Energy, the next IECC code update in 2015 might be *less* stringent than the IECC 2012 code by as much as 18% to 29% if the recommendations recently passed by the IECC Residential Energy Committee are adopted.
3. The most recent [study](#) conducted on ASHRAE 90.1 2013 titled “90.1 2013 Progress Indicator Report” by Pacific Northwest National Laboratory indicates that the whole building energy savings of the ASHRAE 90.1 2013 code will be only *one-tenth of one percent* better than ASHRAE 90.1 2010 code.

We certainly do not agree with Mr. Nadel's statement that the energy savings he calculated for S. 1020 would exceed that of Section 433. To generate a specific energy savings, Mr. Nadel is assuming he knows the actual (or approximate) energy reduction target that will be enacted by ASHRAE and the IECC every three years for their building energy codes. Mr. Nadel cannot possibly know this because ASHRAE and the IECC do not know the reductions they can, or will, actually establish, much less achieve. As we have illustrated, code reductions are somewhat political, subject to many variables, and we believe the incremental reduction targets set will be *substantially* smaller in future years. We should also note, that actual measured energy savings are considerably less than the energy saving targets projected in building codes.

It is our professional opinion that the energy reductions in S. 1020 will be *significantly* less than the reductions called for in Section 433 due to anticipated smaller incremental energy reductions adopted in future code revision cycles, as well as for other reasons stated above. Thus, repealing Section 433 will lead to higher taxpayer costs for operating federal buildings.

Conclusion:

Seventy percent (70%) of the top 20 U.S. architecture firms, and over 50% of all architecture firms surveyed, have adopted the 2030 Challenge targets, which are almost identical to the targets in Section 433 (Design Intelligence Survey). Over 250 architecture firms have signed on to the AIA 2030 Commitment, pledging to meet the 2030 Challenge targets. The most recent EIA AEO (2013) projected building sector (building operations) energy consumption in 2030 has dropped by 15.6 QBtu from the EIA AEO 2030 projection made in 2005, due to building efficiency gains and a sluggish economy.

We believe S. 1020 would not only produce less energy savings than Section 433, but repealing Section 433 would put the federal government behind the private sector in addressing building energy consumption and climate change, or as the GOP has stated, the federal government would be "leading from behind".

We would also like to note, that the American Institute of Architects, and the firms that *actually* design federal buildings and major renovations, and must implement the energy reduction standards, support the higher energy saving standards of Section 433.

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