

UNIVERSITY OF MINNESOTA

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March 1, 2023

Senator Jennifer A. McEwen,
Chair of the Committee on Labor

Re: SF 1368 – Energy code adoption modification for new commercial buildings

Dear Chair McEwen and Members,

I served as the technical expert to the report released in December 2020: Improving Building Energy Efficiency in Commercial and Multi-family Residential Construction from the Minnesota Department of Labor and Industry and the Minnesota Department of Commerce. The recommendations were the result of stakeholder workgroup activities and discussions from across the building sector.

In the report, The departments recommended the current statewide commercial energy code be advanced and accelerated such that it achieves net zero by 2036. A net-zero building is a building with greatly reduced energy needs. In such a building, efficiency gains have been made so that the balance of energy needs can be supplied with renewable energy technologies.

The 8% improvement each code cycle would align future code improvements with the performance levels targeted by the Sustainable Buildings 2030 (SB2030) program used for state construction. This recommendation emerged from the stakeholders familiarity with the SB2030 program, performance targets and the design/technology required to achieve high-performance buildings in the commercial sector. Enhancing the building sectors ability to design and construct high-performance buildings is a benefit of the SB2030 program in addition to the savings of over \$16.7 million in operating costs for every year and \$83.5 million to date for the projects CSBR tracks. In an education session at the Science Museum in October, one of our design teams presented a cost of 1% to 3% for projects using SB2030 for energy efficiency and solar to achieve a Zero Energy Performance Index (zEPI) target of 20. This is consistent with similar costs reported from similar programs in Massachusetts, Pennsylvania and British Columbia.

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The House version of the bill targets a 15 on the zEPI scale with the language that the Minnesota Commercial Energy Code will target an 80% improvement over ASHRAE 90.1-2004. This is at the limit of cost effective energy efficiency. I have included four slides at the end of this letter that show:

1. The zEPI scale that is used to compare different energy code versions
2. The progress of the current energy code and future code strategies on the zEPI scale
3. The performance of the current version of SF1368 based upon the December 2020 recommendations.
4. The performance of the current version of HF772 that targets an 80% improvement from ASHRAE 90.1-2004.

I look forward to supporting the legislature and the Department of Labor and Industry as the trajectory of the future of the commercial energy code is developed.

Sincerely,



Richard Graves, FAIA
Director and Associate Professor
Center for Sustainable Building Research
University of Minnesota

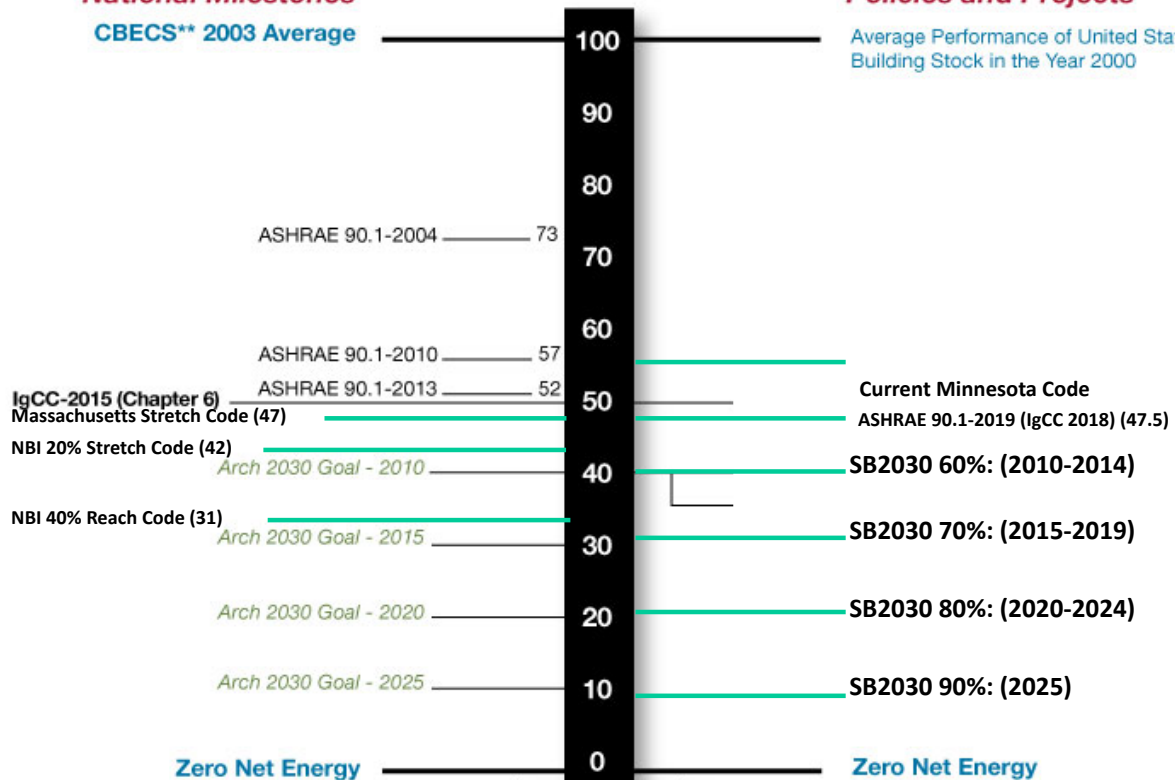
zEPI* Scale to ZNE

National Milestones

CBECS** 2003 Average

Policies and Projects

Average Performance of United States's Building Stock in the Year 2000

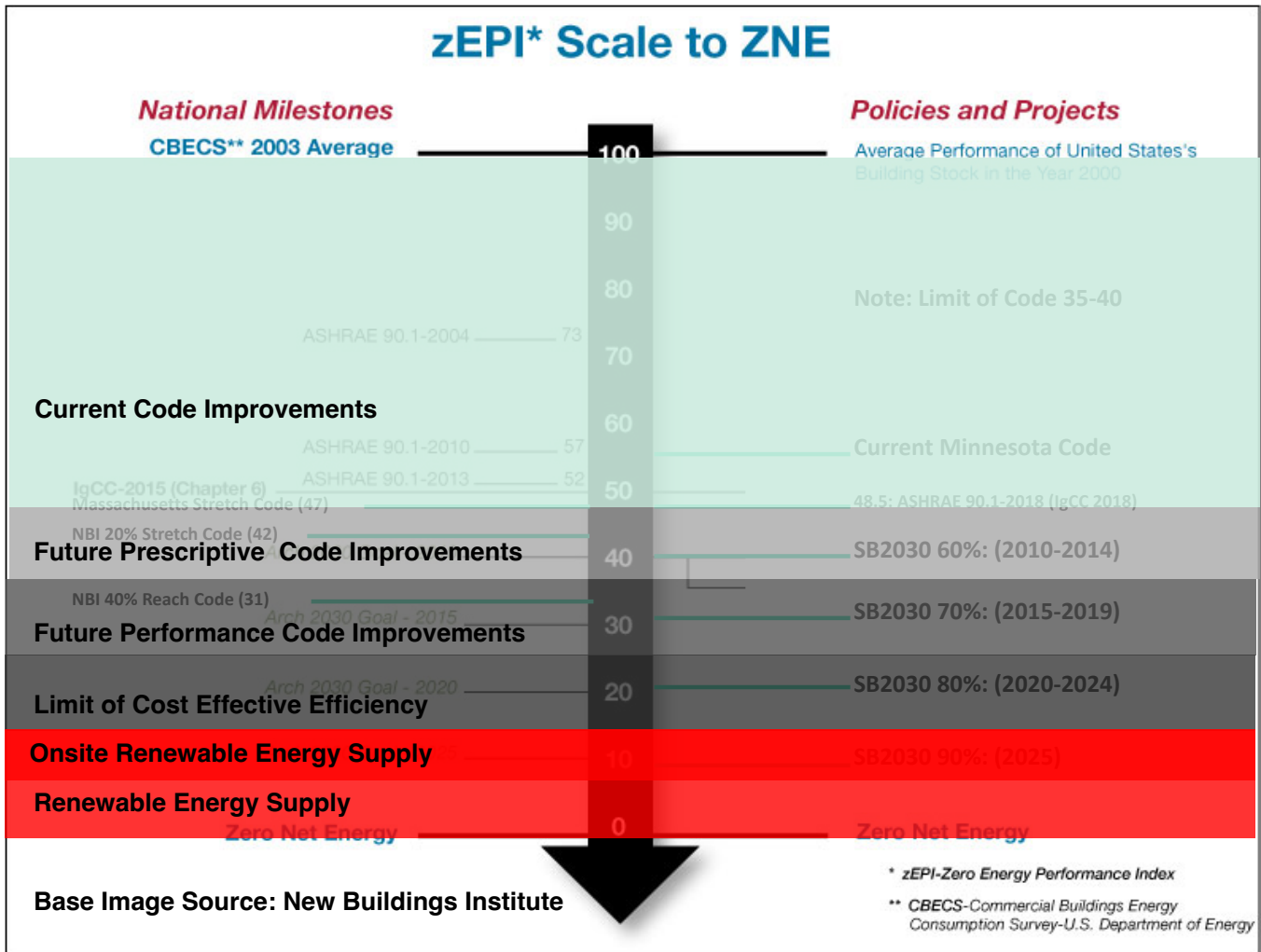


Base Image Source: New Buildings Institute

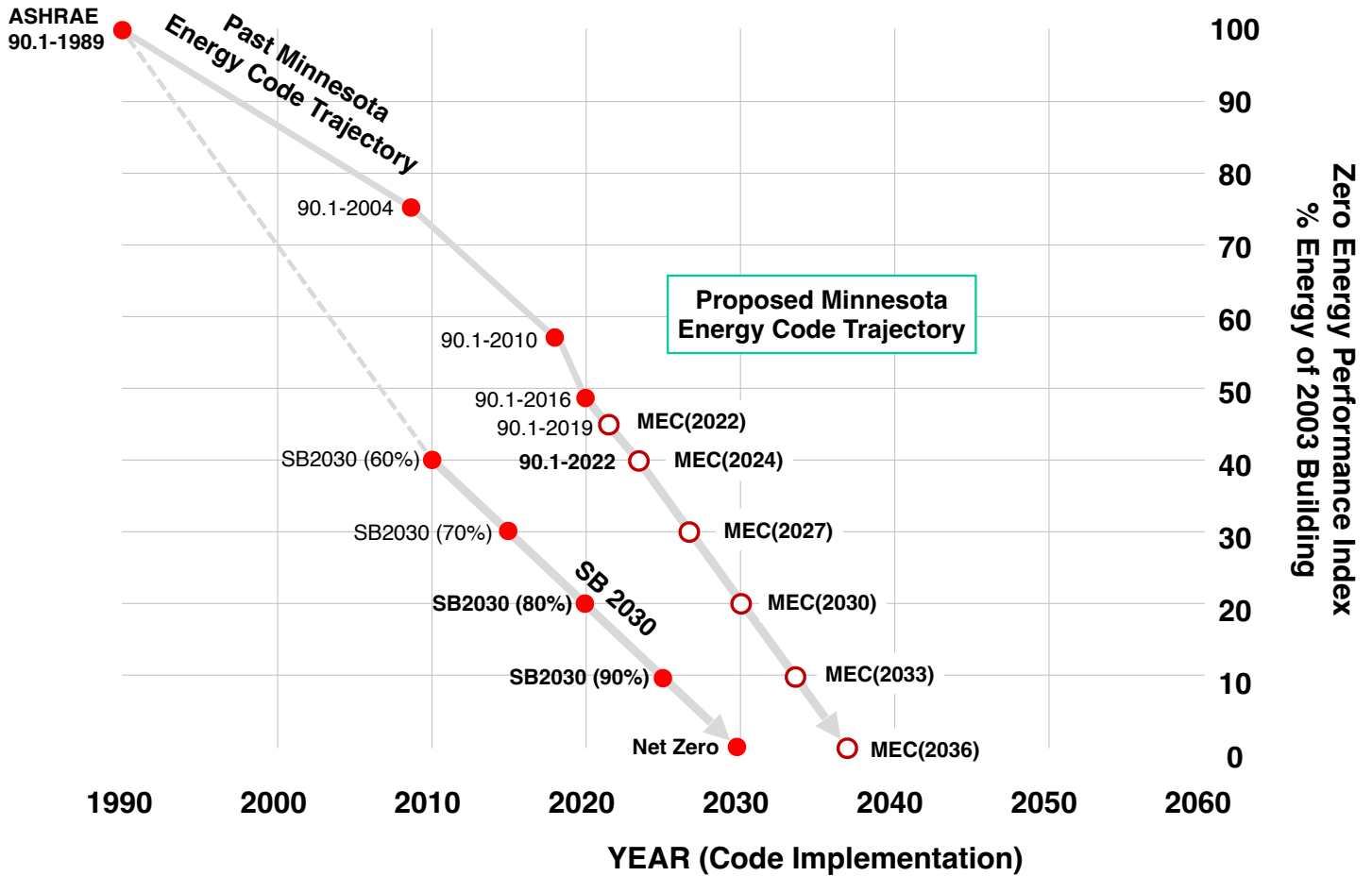
* zEPI-Zero Energy Performance Index

** CBECS-Commercial Buildings Energy Consumption Survey-U.S. Department of Energy

zEPI* Scale to ZNE



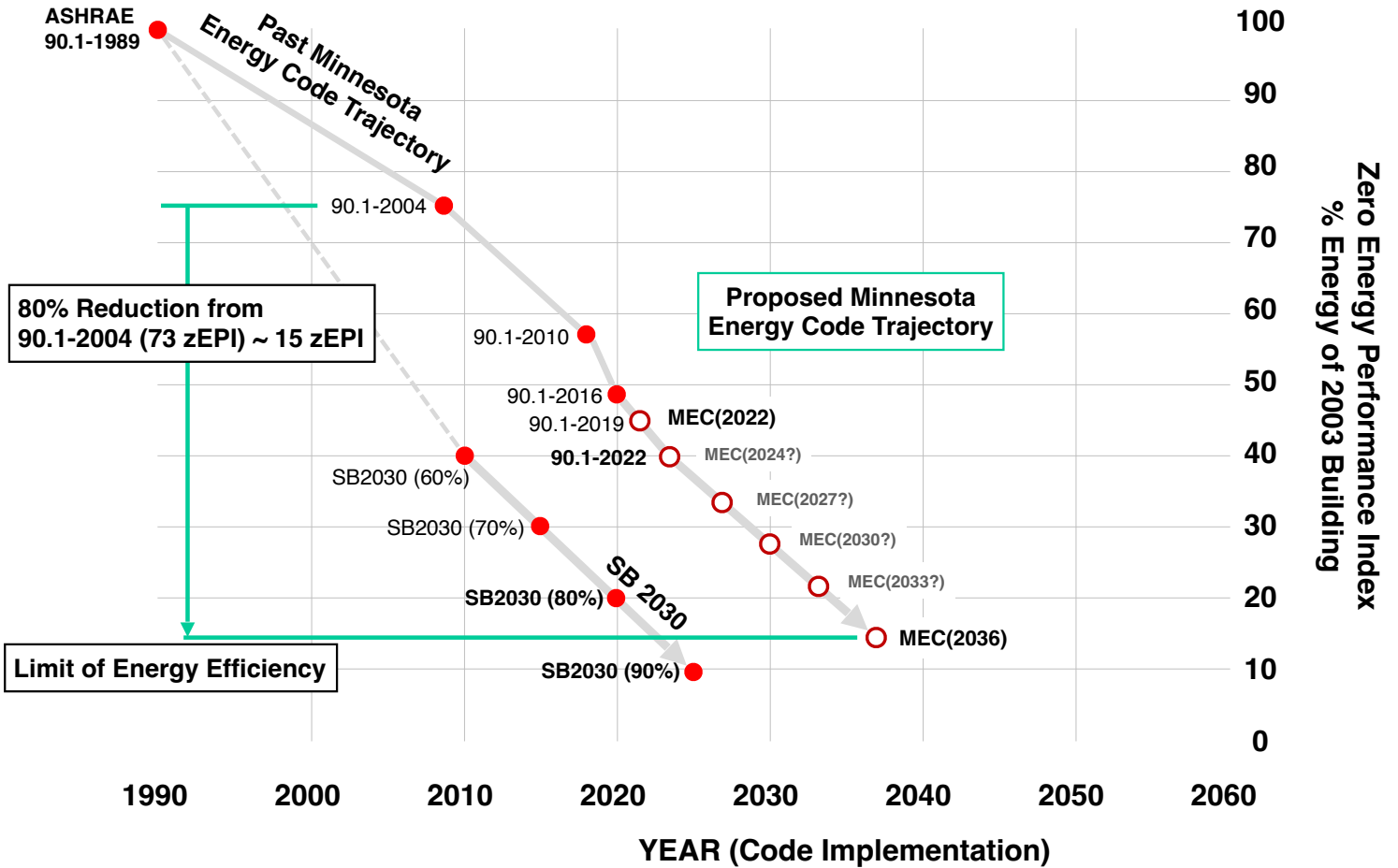
SF1368-2023 Minnesota Energy Code Trajectory



Based upon zEPI: Zero Performance Index for Energy Codes from the New Buildings Institute



HF772-2023 Minnesota Energy Code Trajectory



Based upon zEPI: Zero Performance Index for Energy Codes from the New Buildings Institute