

Energy Efficiency Advisory Group

MGA



Midwestern Governors Association

MGA Platform Energy Efficiency Goal

“Meet at least 2 percent of regional annual retail sales of natural gas and electricity through energy efficiency improvements [annually] by 2015, and continue to achieve an additional 2 percent in efficiency improvements every year thereafter”

EEAG Members

- Industry representatives
- Natural gas and electric utilities representatives
- Technical experts from non-profit and for-profit organizations
- Regulators
- Consumer and environmental advocates
- State and Provincial staff

Accomplishments to Date

- Policy options fleshed out
- Draft quantification of GHG reductions and cost to the economy (net of savings from avoided fuels use) complete
- White paper on energy efficiency potential studies prepared in draft form

EE-1: “Establish Quantifiable Goals for Energy Efficiency”

General Concepts

- States/provinces commitment to implement all cost-effective energy efficiency (EE) measures (with definition of “cost-effective”, including CO₂ value)
- Focus on demand-side efficiency savings to meet goals, with additional supply-side efficiency measures encouraged
- Regional coordination in addressing goals

EE-2: “Undertake Assessments that Quantify the Amount of Energy Efficiency that Would Cost Less on a Unit Cost Basis than New Generation”

- “White Paper” addressing EE/ conservation potential in Midwestern states is in draft form
- Longer-term goal of comprehensive EE/conservation potential assessments by utilities, energy offices, or other entities in each jurisdiction

EE Potential White Paper

Draft Conclusions

- The MGA goal of 2.0% annual electric savings is aggressive, but not unsupportable. Even with substantial conservatisms, nine out of 20 ‘non-Midwest’ studies had either an achievable or economic potential of 1.90% per year or above. Natural Gas savings may be smaller due to the range of measures available.
- MGA goals were established in a new policy, market and social context much more favorable to EE— past EE potential studies and impacts of prior programs are a guide, but shouldn’t limit goals.
- MGA goals will “stretch” state and utility programs:
 - States with strong, well-established programs are well poised to reach higher goals;
 - States restarting programs have a longer stretch, but also have large amounts of relatively low-cost and easy-to-achieve energy efficiency resources.

EE-3: “Require Retail Energy Providers to Make Energy Efficiency a Priority”

General Concepts

- Electric, gas utility resource plans should use all achievable cost-effective energy efficiency goals, targets, and strategies before reliance on new supply
- Mechanisms include IRP, EE standards for utilities, cost recovery, “opt-outs” (with monitoring and verification requirements) for large-volume customers, consistent measurement across jurisdictions
- Propane/LPG and fuel oil are included in analysis, with the understanding that a different (non-utility) mechanism will be needed to provide efficiency programs for those fuels

Quantification: EE-3 (Revised Results)

| | Option Name | GHG Reductions (MMtCO ₂ e) | | Cost-Eff (\$/tCO ₂ e) | NPV 2009- 2025 (\$million) | Cumulative Emissions Reductions (MMt CO ₂ e, 2009-2025) |
|------|---|--|-------|-------------------------------------|----------------------------------|--|
| | | 2012 | 2025 | | | |
| EE-3 | Require Retail Energy Providers to Make Energy Efficiency a Priority | 10.2 | 184.1 | -\$32 | -\$42,470 | 1338.3 |
| | Illinois | 1.8 | 36.3 | -\$30 | -\$7,763 | 259.3 |
| | Indiana | 2.3 | 30.6 | -\$28 | -\$6,317 | 227.3 |
| | Iowa | 0.3 | 9.0 | -\$35 | -\$2,156 | 62.2 |
| | Kansas | 0.9 | 12.2 | -\$30 | -\$2,695 | 90.1 |
| | Manitoba | 0.2 | 4.4 | -\$26 | -\$815 | 31.0 |
| | Michigan | 0.2 | 18.1 | -\$34 | -\$4,130 | 121.0 |
| | Minnesota | 0.3 | 11.5 | -\$34 | -\$2,684 | 78.6 |
| | Missouri | 1.7 | 22.3 | -\$27 | -\$4,431 | 164.9 |
| | Nebraska | 0.6 | 7.8 | -\$28 | -\$1,626 | 57.5 |
| | North Dakota | 0.2 | 3.3 | -\$29 | -\$699 | 24.2 |
| | Ohio | 1.4 | 16.4 | -\$45 | -\$6,268 | 138.9 |
| | South Dakota | 0.2 | 2.9 | -\$31 | -\$667 | 21.7 |
| | Wisconsin | 0.1 | 9.3 | -\$36 | -\$2,218 | 61.6 |

EE-4: “Remove Financial Disincentives and Enable Investment Recovery for Energy Efficiency Program Costs”

General Concepts

- Provide for EE program/service cost recovery; address lost revenue; provide new opportunities for utility earnings related to achieving EE goals; establish regulatory/incentive structure reflecting EE’s lower capital risks
- Remove disincentives to utility EE investments using tools such as rate design, decoupling of sales from revenues

EE-5: “Strengthen Building Codes, Appliance Standards and Requisite Training, Quality Assurance and Enforcement”

General Concepts

- Strengthen Building Energy Codes and Code Adoption—improve building energy efficiency by 30% relative to 2006 IECC standards, most recent ASHRAE Commercial Codes, and update regularly
- Provide Training related to Building Energy Code Implementation and Enforcement
- Appliance/Equipment Efficiency Improvement
- Certification programs for energy-efficient appliances, equipment, and buildings
- Upgrading Existing Buildings and “Beyond Code” Construction – including incentives and upgrades at sale

Quantification: EE-5

- Revised Results, Illinois (sample)

| Summary Results for Building Code portion of EE-5 | | | |
|---|-------------|-----------------|-----------------------|
| | 2012 | 2025 | Units |
| Total for Code Changes under Option (All Fuels) | | | |
| GHG Emission Savings | 0.27 | 1.50 | MMtCO ₂ e |
| Net Present Value (2009-2025) | | -\$195 | \$million |
| Cumulative Emissions Reductions (2009-2025) | | 13.6 | MMtCO ₂ e |
| Cost-Effectiveness | | -\$14.38 | \$/tCO ₂ e |
| Summary Results for Appliance/Equipment standards portion of EE-5 | | | |
| | 2012 | 2025 | Units |
| Total for Appliance and Equipment Standards under Option (Electricity and Gas) | | | |
| GHG Emission Savings | 0.86 | 6.18 | MMtCO ₂ e |
| Net Present Value (2009-2025) | | -\$1,644 | \$million |
| Cumulative Emissions Reductions (2009-2025) | | 55.2 | MMtCO ₂ e |
| Cost-Effectiveness | | -\$29.77 | \$/tCO ₂ e |
| Summary Results for Beyond Code portion of EE-5 | | | |
| | 2012 | 2025 | Units |
| Total for Beyond Code Building Improvements, Existing and New (All fuels) | | | |
| GHG Emission Savings | 0.18 | 10.75 | MMtCO ₂ e |
| Net Present Value (2009-2025) | | -\$496 | \$million |
| Cumulative Emissions Reductions (2009-2025) | | 62.4 | MMtCO ₂ e |
| Cost-Effectiveness | | -\$7.95 | \$/tCO ₂ e |
| Summary Total: All Elements of EE-5 | | | |
| | 2012 | 2025/all | Units |
| Total for All Elements of EE-5 (All fuels) | | | |
| GHG Emission Savings | 1.31 | 18.43 | MMtCO ₂ e |
| Net Present Value (2009-2025) | | -\$2,334 | \$million |
| Cumulative Emissions Reductions (2009-2025) | | 131.1 | MMtCO ₂ e |
| Cost-Effectiveness | | -\$17.80 | \$/tCO ₂ e |

Quantification: EE-5 (Revised Results)

| | Option Name | GHG Reductions (MMtCO ₂ e) | | Cost-Eff (\$/tCO ₂ e) | NPV 2009- 2025 (\$million) | Cumulative Emissions Reductions (MMt CO ₂ e, 2009-2025) |
|------|---|--|------|-------------------------------------|-------------------------------------|--|
| | | 2012 | 2025 | | | |
| EE-5 | Strengthen Building Codes and Appliance Standards and Requisite Training, Quality Assurance and Enforcement | 7.0 | 97.4 | -\$20 | -\$14,155 | 693.8 |
| | Illinois | 1.3 | 18.4 | -\$18 | -\$2,334 | 131.1 |
| | Indiana | 0.7 | 9.5 | -\$21 | -\$1,391 | 67.1 |
| | Iowa | 0.3 | 3.8 | -\$23 | -\$614 | 27.1 |
| | Kansas | 0.3 | 3.9 | -\$18 | -\$509 | 28.0 |
| | Manitoba | 0.0 | 0.3 | -\$127 | -\$304 | 2.4 |
| | Michigan | 0.9 | 12.6 | -\$23 | -\$2,053 | 90.2 |
| | Minnesota | 0.8 | 10.0 | -\$20 | -\$1,400 | 71.4 |
| | Missouri | 0.6 | 9.3 | -\$19 | -\$1,259 | 64.8 |
| | Nebraska | 0.2 | 2.6 | -\$21 | -\$384 | 18.4 |
| | North Dakota | 0.1 | 1.2 | -\$21 | -\$178 | 8.3 |
| | Ohio | 1.1 | 15.7 | -\$21 | -\$2,332 | 112.3 |
| | South Dakota | 0.1 | 1.2 | -\$24 | -\$200 | 8.3 |
| | Wisconsin | 0.7 | 8.8 | -\$19 | -\$1,196 | 64.3 |

EE-6: Have the Public Sector Lead by Example

General Concepts

- Applies to government-owned and non-government buildings with >20% government funded construction costs
- Make new buildings/major retrofits meet stringent energy and water performance standards (recommissioning goal, regular certification)
- Set energy and water efficiency procurement guidelines based on performance standards for equipment purchases
- Fund and demonstrate existing and new technology – pilot and education
- EE for new/existing low-income housing, with specific energy use goals and funding to support EE measures.
- Encourage energy conservation via education/outreach

Quantification: EE-6 (Draft Results)

| | Option Name | GHG Reductions (MMtCO ₂ e) | | Cost-Eff (\$/tCO ₂ e) | NPV 2009-2025 (\$million) | Cumulative Emissions Reductions (MMt CO ₂ e, 2009-2025) |
|------|--|--|------|-------------------------------------|---------------------------------|--|
| | | 2012 | 2025 | | | |
| EE-6 | Have the Public Sector Lead by Example | 8.0 | 29.5 | -\$6 | -\$1,897 | 291.9 |
| | Illinois | 1.8 | 6.5 | -\$4 | -\$263 | 64.7 |
| | Indiana | 0.8 | 2.9 | -\$9 | -\$255 | 28.7 |
| | Iowa | 0.2 | 0.9 | -\$10 | -\$87 | 8.7 |
| | Kansas | 0.3 | 1.0 | -\$6 | -\$65 | 10.4 |
| | Manitoba | 0.0 | 0.1 | -\$70 | -\$45 | 0.6 |
| | Michigan | 1.2 | 4.4 | -\$6 | -\$259 | 43.3 |
| | Minnesota | 0.5 | 1.7 | -\$7 | -\$126 | 17.3 |
| | Missouri | 0.6 | 2.1 | -\$9 | -\$187 | 20.4 |
| | Nebraska | 0.2 | 0.7 | -\$10 | -\$67 | 6.7 |
| | North Dakota | 0.1 | 0.3 | -\$10 | -\$31 | 3.2 |
| | Ohio | 1.5 | 5.5 | -\$7 | -\$356 | 54.5 |
| | South Dakota | 0.1 | 0.3 | -\$10 | -\$30 | 2.9 |
| | Wisconsin | 0.8 | 3.1 | -\$4 | -\$126 | 30.3 |

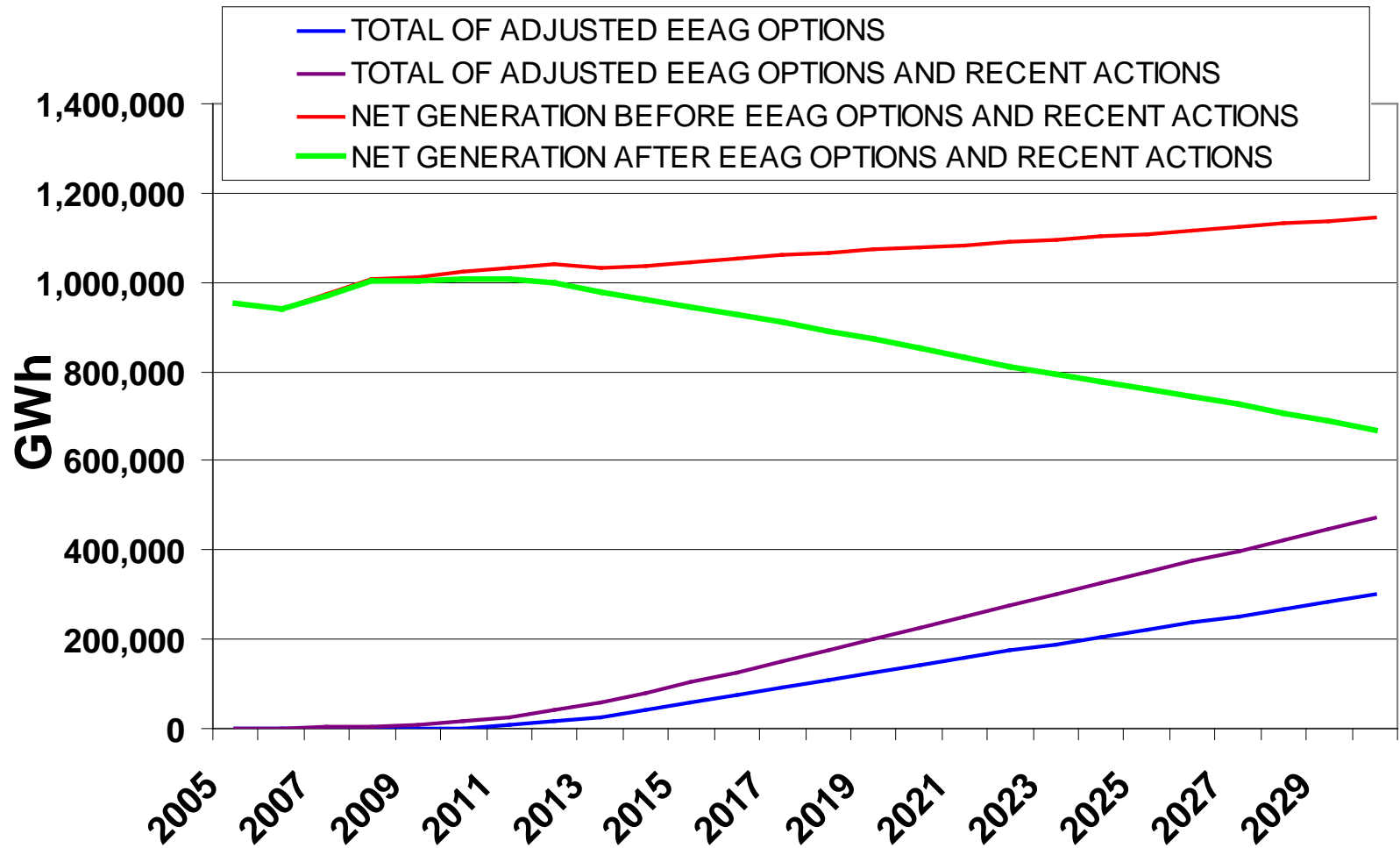
EE-7: “Accelerate Adoption of Energy Efficiency Technologies and Best Practices by Commercial, Residential, and Industrial Customers”

General Concepts

- Address EE financing tools and needs
- Expand network of organizations providing energy efficiency outreach/consumer awareness beyond utilities
- Provide public benefit funds directly to manufacturers and service providers in addition to utilities
- Create/reinforce education programs at K-12 levels on energy efficiency and the climate change mitigation relationship
- Provide public education on energy efficiency at all opportunities

Quantification: Summary Results

Impacts of EEAG Options on Electricity Generation Requirements



Quantification: Summary Results

