

XX-XX: [Name of the Technology]

[Residential / Commercial & Industrial]

[Affected Fuel Type(s)]

Issued: [MM/DD/YYYY]

Prepared by: [Organization]

Version: [XX.X]

Document Revision History

[Provide information about the revision of the document as requested in the table below.]

Version #	Revision Date	Description of Revisions and Affected Sections	Edited By
[XX.X]	[MM/DD/YYYY]	Example: 1. Fixed misspelling – changed throughout 2. Updated application requirements in Section 10 3. Updated measure cost in Section 8 4. Etc.	[Author, Organization]

EO Collaborative Review and Decision

Date	Description of Collaborative Decision	Lead
[MM/DD/YYYY]	Example: Adopt measure with provisional deemed savings and conduct calibration study within one year	Designate individual or organization responsible for taking action

[General Guidelines and Tips]

- Define acronym(s) when used for the first time
- Use “*” instead of “x” for multiplication in the algorithms and sample calculations
- Define units of measurement for all equation variables
- Provide complete references including version, publication date, and other pertinent information
- Use footnotes with short citations within the whitepaper that easily tie to the References section

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1. New Measure or Update to Existing Measure

[This section highlights whether this measure is new or an update to an existing measure. Example: New Measure; Update to Existing Measure; Reapplication of an Existing Measure, etc.]

2. Purpose and Measure Background

[This section describes the purpose for the new measure or background on the measure update to add context to the reader.]

3. Measure Description

[Provide detailed technical description of the measure including how it provides energy savings, which market it serves (e.g. residential or commercial and industrial), and if there are any limitations to its applicability. For new measures without a similar entry in the existing MEMD, include details on how the technology works and include exhibits and diagrams, as necessary. Describe common applications (e.g. HVAC, Lighting etc.), building types, climates zones, etc. for measure and its advantages/disadvantages compared to baseline measure, as applicable. Provide description for how the measure can affect different application types (Early Retirement [ER], Replacement on Burn-out [ROB], New Construction [NC]), including reasons for why the measure is not recommended for certain application types. Cite all relevant studies and reports that document the development and demonstration of the technology involved in the measure, as applicable.]

[Complete the table below with applicable information about the measure on applicable building types, fuel applicable fuel types, and affected end-use loads.]

Applicable Building Type(s)	Applicable Fuel Type(s)		Affected End-Use Load(s)						
	Electricity	Natural Gas	Space Heating	Space Cooling	Water Heating	Lighting	Appliance	Process	Other
Residential	✓			✓					
Commercial									
Industrial									

Note: 1,2,3

4. Measure Specification & Savings Summary

4.1 Measure Specification

[Example from FES G8 – ECM Motors in Walk-In coolers and Freezers: “Incentives are available for ECMs replacing S-P motors or PSC motors on existing walk-in freezer and walk-in cooler evaporator fans (does not include condenser fan motors). Incentive not available for equipment in new walk-in freezers or coolers.”]

4.2 Requirements for Application

[List any rules or restrictions on customer eligibility for measure or incentive programs. Describe which markets, building types, climate zones, equipment types, etc. should be targeted and/or excluded by utility programs.]

4.3 Savings Summary

[Provide a brief description or table summarizing savings estimates.]

Example from FES G8 – ECM Motors in Walk-In coolers and Freezers:

Energy Savings	Estimated Savings by Application		
	ECM replacing S-P	ECM replacing PSC	Average of replacing S-P and PSC
Annual Electrical Energy Savings	1,757 kWh	581 kWh	1,365 kWh
Coincidental Peak Savings	0.181 kW	0.051 kW	0.137 kW

5. Baseline and Proposed Improvement Description

5.1 Baseline Measure, Practice, or Technology

[Provide summary of baseline measure, practice and justification of the technology. Clearly define the efficiency level of the baseline equipment and include any standards or ratings, as applicable. For New Construction (NC), baseline will be the base level equipment available in the market. For Early Retirement (ER) or Replacement on Burn-out (ROB), the baseline measure is the existing equipment being replaced. For behavioral programs, the baseline is the assumed behaviors that would occur in absence of the program (e.g., utility bill without energy usage feedback and benchmarking).]

5.2 Improved Measure, Practice, or Technology

[Provide summary of improved measure, practice and justification of the technology. Clearly define the efficiency level of the improved equipment and include any standards or ratings, as applicable. Provide justification on how the improved measure is better than the baseline measure and if there are any limitations to its applicability. For behavioral programs, the improved measure is the program that alters participant behaviors and energy use (e.g., utility bill with energy usage feedback and benchmarking).]

6. Methodology and Assumptions

[Provide a detailed and step-by-step explanation of the proposed energy savings estimation methodology for each fuel type, including all variables, algorithms with their definitions and list of assumptions. As applicable, provide either a single deemed value, lookup table with deemed values based on input variable(s). In case of custom inputs, provide sample calculation and label it with “For example” and place it in a text box so that it is not mistaken for deemed result. Use footnotes to indicate the source of the deemed values. Reference relevant sources (such as standard MEMD assumptions, other MEMD

whitepapers, other state TRMs, EM&V reports, field studies, etc.) used to inform the methodology and assumptions.]

Example:

$$EnergySavings(MCF) = \frac{BTUInput * Savings\%}{1,032,000}$$

$$EnergySavings(kWh) = \frac{BTUInput * Watthoursavingsfactor}{1,000}$$

Where,

- BTUInput is the capacity of the equipment
- Savings % is the deemed value for the unit energy savings percentage
- Watt hour savings factor is the deemed value for the unit electricity savings

List of Assumptions:

- Savings % is based on XYZ study
- Operating hours of XX based on XYZ study]

7. Estimated Energy Savings over Baseline

[Provide estimated energy savings for each fuel type based on the methodology described in Section 6. Add tables as necessary for measures that have multiple savings levels, application types, capacities, etc.]

Example: For operating hours equal to abc, the energy savings are as follows

BTU Input	Savings (MCF)	Savings (kWh)
X1	Y1	
X2	Y2	

8. Potential Savings Overlap

[If the measure could overlap with the savings claimed by existing measures at the customer site or other new measures, please explain how the savings should be adjusted or actions to prevent the “double counting” of savings.]

9. Load Shape (if available)

[Provide appropriate load shape that applies to the electric savings. Load shape indicates what fraction of annual energy usage and savings occurs in each time period of the year. It is not applicable in case of natural gas savings. Examples include: load shape is NA, load shape of commercial electric cooking is used.]

10. Coincidence Factor

[Provide the co-occurrence factor of the measure. The coincidence factor estimates the impact of the measure on the utility's system peak period – defined as 2 to 6 PM on non-holiday weekdays, June through September.]

11. Measure Life

[Provide estimates for measure lifetime of baseline and improved measures for NC and ROB applications. As applicable, describe remaining useful life (RUL) for early replacement applications. Example: The expected measure life is assumed to be X years.]

12. Measure Cost (if available)

[Provide estimates for measure cost of baseline and improved measures, as applicable: purchase price, labor and other installation cost, commissioning cost, training cost, etc. If necessary, describe factors that may increase installation complexity for some applications or might require significant training to operate.]

13. Any Recurring Cost

[Provide details on recurring cost over the equipment lifetime including O&M costs, service intervals, part replacement costs and intervals, inspection, recertification, etc.]

14. Relevant Codes and Standards

[List any relevant federal, state, local, or industry codes and standards that apply to the measure. Include full references including version, publication date, and other pertinent information in the footnote. For example, for ENERGY STAR™ Commercial Clothes Washers, the applicable federal standard can be cited as follows:

“Effective January 8, 2013, US DOE requires the following¹:

- Top-loading clothes washers have a MEF ≥ 1.60 and a WF ≤ 8.5
- Front-loading clothes washers have a MEF ≥ 2.00 and a WF ≤ 5.5 ”]

15. Ongoing EM&V, Research, and Calibration Planning

[List planned evaluation or recommended EM&V or research activities. If deemed savings have an expected duration, note the period of time in which they would be relevant, with any sunset, review, or calibration timelines.]

16. Sources of Information

[List relevant sources (such as standard MEMD assumptions, other MEMD whitepapers, other state TRMs,

¹ 10 CFR Parts 429 and 430 [Docket Number EERE–2008–BT–STD– 0019] RIN 1904–AB90 Energy Conservation Program: Energy Conservation Standards for Residential Clothes Washers. <http://www.regulations.gov/#!documentDetail;D=EERE-2008-BT-STD-0019-0041>

EM&V reports, field studies, etc.) that are referenced in the whitepaper to support energy savings estimation methodology, key assumptions, product characteristics, etc.]

Formatting Examples:

TRM:

[Name of the State] TRM – Version#, Vol # (Year)

Standard:

Code of the standard. Title of the standard. Section no. and title

Website:

“Title,” [Accessed on Month Day, Year], URL

Book: Published electronically

Author Name, “Chapter,” in Title, City: Publisher, Year, Accessed Month Day, Year. URL.

Journal Article in a print journal:

Author Name, “Article Title,” Journal Name edition (Year): page

Author Name, “Evaluation Title,” Utility Name, Program or Measure Name (Date): page

Journal Article in an online journal

Author Name, “Article Title,” Journal Name edition (Year): page, accessed Month Day, Year, URL: xx.xxxx/xxxxxx.

17. Attachments

[List names of the files associated with this document such as calculation spreadsheet, product literature, field research study, behavioral savings evaluation study, etc. and clearly state the file type (e.g., .xlsx, .docx, .pdf). Example: Behavioral_Savings_Evaluation_Study.pdf, XX-XX Name of technology.xls, XX-XX Name of technology_specification.docx.]