### Modulating Commercial Gas Clothes Dryer

###### Description

This measure relates to the installation of a two-stage modulating gas valve retrofit kit on a standard commercial non-modulating gas dryer. Commercial gas clothes dryers found in coin-operated laundromats or on-premise laundromats (hospitals, hotels, health clubs, etc.) traditionally have a single firing rate which is sized properly for highest heat required in initial drying stages but is oversized for later drying stages requiring lesser heat. This causes the burner to cycle on/off frequently, resulting in less efficient drying and wasted gas. Replacing the single stage gas valve with a two-stage gas valve allows the firing rate to adjust to the changing heat demand, thereby reducing overall gas consumption.

This measure was developed to be applicable to the following program types: RF.

If applied to other program types, the measure savings should be verified.

###### Definition of Efficient Equipment

A 30 to 250 pound capacity commercial gas dryer retrofitted with a two-stage modulating gas valve kit.

###### Definition of Baseline Equipment

A 30 to 250 pound capacity commercial gas dryer with no modulating capabilities.

###### Deemed Lifetime of Efficient Equipment

###### The deemed measure life for the retrofit kit is 14 years, assumed to be equal to that of a commercial gas dryer[[1]](#footnote-1).

###### Deemed Measure Cost

###### The full retrofit cost is assumed to be $700, including the material cost for the basic modulating gas valve retrofit kit ($600) and the associated of labor for installation ($100)[[2]](#footnote-2).

###### Loadshape

N/A

###### Coincidence Factor

N/A

**Algorithm**

###### Calculation of Savings

###### Electric Energy Savings

N/A

###### Summer Coincident Peak Demand Savings

N/A

###### Natural Gas Energy Savings

*Note: Accurately estimating dryer energy consumption is complicated and challenging due to a variety of factors that influence cycle times and characteristics and ultimately drying energy requirements. Clothing loads can vary by weight, volume, fiber composition, physical structure, and initial water content, meaning that for any given cycle drying energy requirements can differ. Additionally, dryer settings selected by the user as well as interactions with the site’s HVAC systems are known to influence dryer performance. Accordingly, until additional data is available to better predict annual drying energy requirements (and the savings achieved by installing modulating burners), savings are limited to a purely deemed value. As better information becomes available, this characterization can be modified to allow for a more site-specific estimation of savings.*

ΔTherms = 300[[3]](#footnote-3)

###### Water Impact Descriptions and Calculation

N/A

###### Deemed O&M Cost Adjustment Calculation

N/A

###### Measure Code: CI-MSC-MODD-V01-160601

1. Zhang, Yanda, and Julianna Wei. *Commerical Clothes Dryers, CASE Initiative for PY2013: Title 20 Standards Development.* California Public Utilities Commission, 2013. [↑](#footnote-ref-1)
2. Engineering judgement, based on observed costs during Nicor Gas pilot study. "Nicor Gas Emerging Technology Program, 1036: Commercial Dryer Modulation Retrofit Public Project Report." 2014. [↑](#footnote-ref-2)
3. Average savings demonstrated by a Nicor Gas pilot study. Gas Technology Institute. "Nicor Gas Emerging Technology Program, 1036: Commercial Dryer Modulation Retrofit Public Project Report." 2014. [↑](#footnote-ref-3)