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May 12, 2021

Ms. Tanja Crk

U.S. Environmental Protection Agency (EPA)

1200 Pennsylvania Avenue, NW

Washington, DC 20004

Submitted via email: CFS@energystar.gov

Subject: ENERGY STAR Commercial Ovens Version 3.0

Dear Ms. Crk:

ITW-Food Equipment Group, LLC representing the brands of Vulcan, Wolf and Hobart (hereinafter "ITW FEG") is a division of Illinois Tool Works Inc. ("ITW"), a global manufacturer of a variety of value-added commercial and industrial-use products, components, and systems. ITW FEG manufacturing facilities are located in Baltimore, Maryland; Charlotte, North Carolina; and Troy, Ohio. ITW FEG has been a premier name in the foodservice industry for more than 70 years, recognized as providing a diverse selection of best-in-class, top quality, and energy efficient commercial cooking equipment. Over the years, we have proactively worked to implement environmentally sustainable options that promote responsible resource usage, energy savings and overall good stewardship practices while meeting the needs of the diverse commercial cooking equipment market.

ITW greatly appreciates the opportunity to comment on the proposed change to the Full-Size Electric Convection Oven Efficiency Standard (ENERGY STAR Commercial Ovens Version 3.0). Overall, we would suggest that The U.S. Environmental Protection Agency (hereinafter "EPA") either separate the "full-size" oven category into two or more tiers, update the definition of the "full-size" category, or consider the production capacity requirement when determining Energy Star status.

In addition, the Energy Star idle rate test is a good measure of the quality of an oven's insulation, construction, and sealing. The test, importantly, also measures real-life usage, as ovens often operate for hours between meal periods without being used to prepare food; however, it is only useful when comparing ovens of similar size and production capacity.

Currently the Full-Size Electric Oven category contains a diverse array of products. On one end you have low production capacity, light duty ovens, and at the other end you have high production capacity heavy duty ovens. The light duty ovens tend to have very low idles rates due to their small size and input rates. Currently the units below the proposed 1.2kW idle rate have an average production capacity of 67lbs/h. The ovens between 1.20 and 1.40kW have an average production capacity 50% higher at 103lbs/h. ASTM F1496 explains that the Production Capacity test "provides information that allows an operator to select an oven that matches food output requirements." These high and low production capacity units serve different markets and do not normally compete directly. Given these differences it is not useful to compare the idle rates between these two classes. ITW FEG would like to propose 3 options to correct this issue.

1. **Tier System**

Currently the Full-Size Electric Oven category includes any oven that can accommodate an 18inx26in sheet pan. However, this includes ovens from 4.6kW to over 12kW input rates, and production capacities from 47lbs/h to 189lbs/h. The ovens with low input rates result in lower idle rates but at the expense of production capacity and recovery time. An oven with a 4.6kW input rate simply cannot recover temperature as quickly as a 12kW oven when loaded with heavy, often frozen product. Therefore, the 12kW oven will be able to cook food at twice the rate as the 4.6kW oven. ITW FEG proposes a tier system based on the oven's production capacity. Ovens with a production capacity over 90lbs/h would have a higher idle rate requirement. This would allow ovens in the same marketplace to compete on a level field for efficiency.

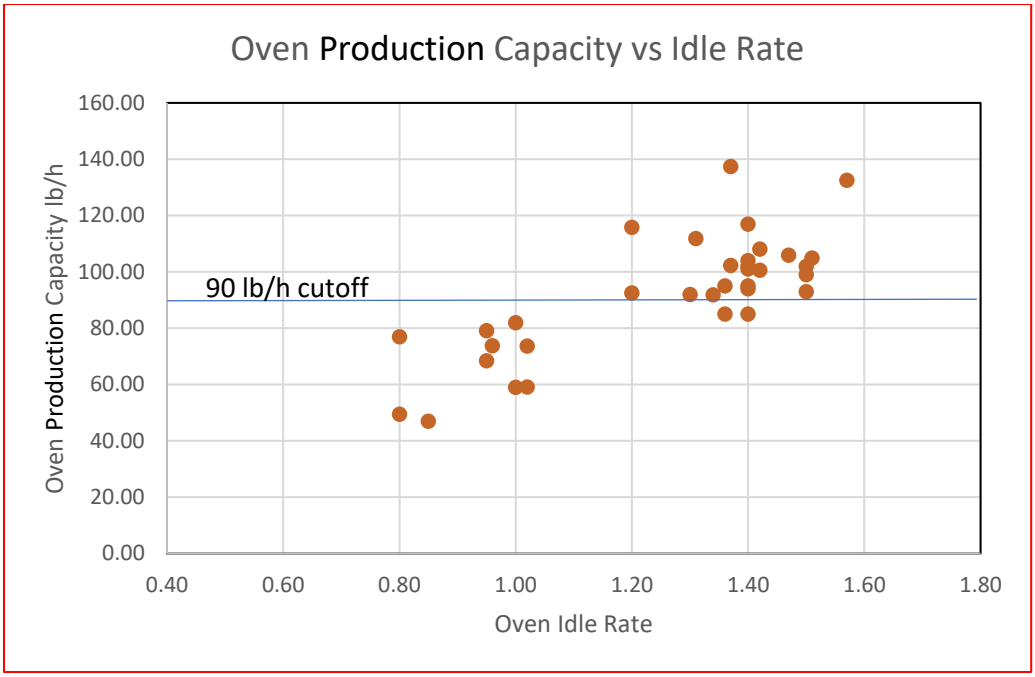

Chart 1 shows that there are two separate groups of full-size ovens. Setting the cutoff at 90lbs/h would allow the EPA to challenge both groups with appropriately set standards. Setting the lower tier idle rate to .90kW would include just 3 of the 12 low production capacity units. Setting the upper tier idle rate to 1.35kW would include just 5 of the 25 high production capacity units.

2. Redefine the Full-Size Category

Currently the Electric Oven category is split between half-size and full-size based on the size of pan it accommodates. However, this ignores the input rate and production capacity of the ovens. An oven that can accommodate a full-size sheet pan but with an input rate of 4kW and a production capacity of 45lbs/h is closer to a half-size oven than a standard full-size oven with an input rate of 12kW and production capacity of 120lbs/h. As an example, one of the standard half-size ovens on the Energy Star list, has a production capacity of 60lbs/h which is higher than many of the full-size ovens below the proposed 1.2kW idle rate. Yet that half-size oven must meet an idle rate of just 1.00kW to achieve Energy Star certification.

ITW FEG recommends a production capacity minimum of 90lbs/h to be considered a full-size oven. The ovens meeting that threshold have an average idle energy rate of 1.43kW with 20% being below 1.35kW and 80% being above. The ovens below the 90lbs/h idle energy rate threshold would be considered half-size ovens and subject to those Energy Star standards.

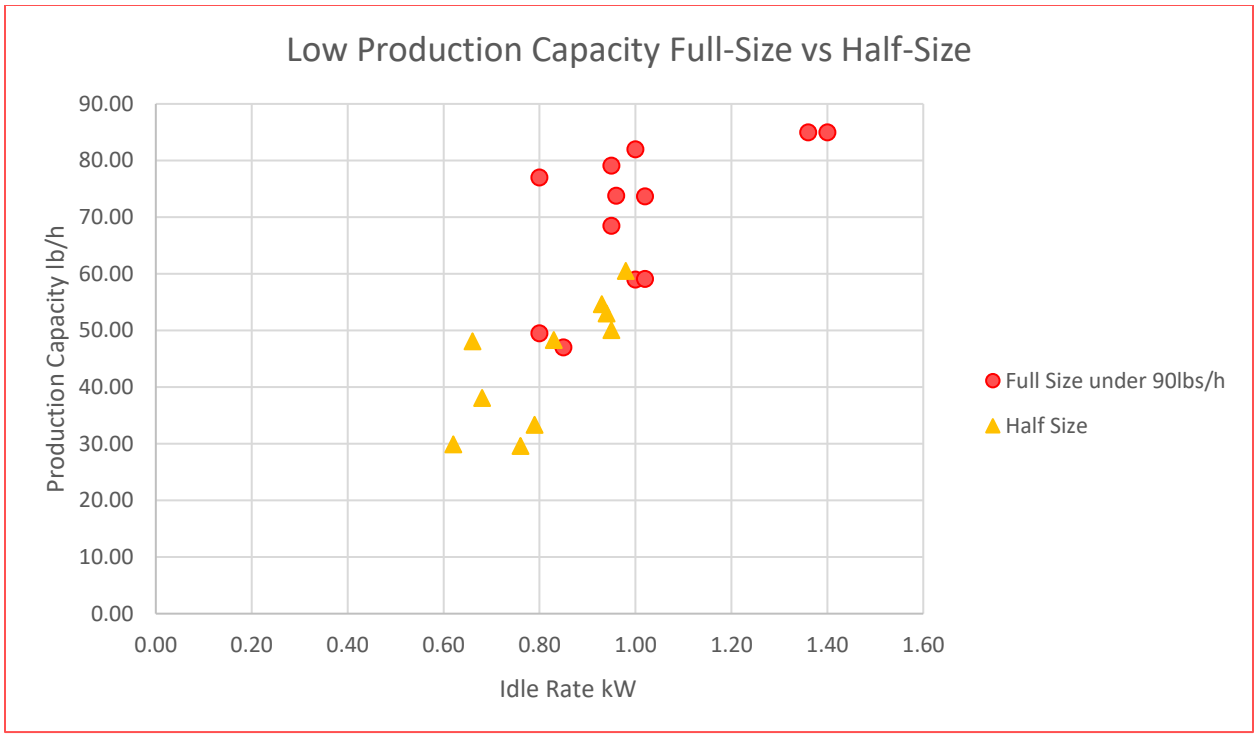

Chart 2 shows the overlap between the low production capacity full-size ovens and the half-size ovens. The data available includes only the Energy Star certified half-size ovens. The overlap would likely increase if all half size ovens were included in the data.

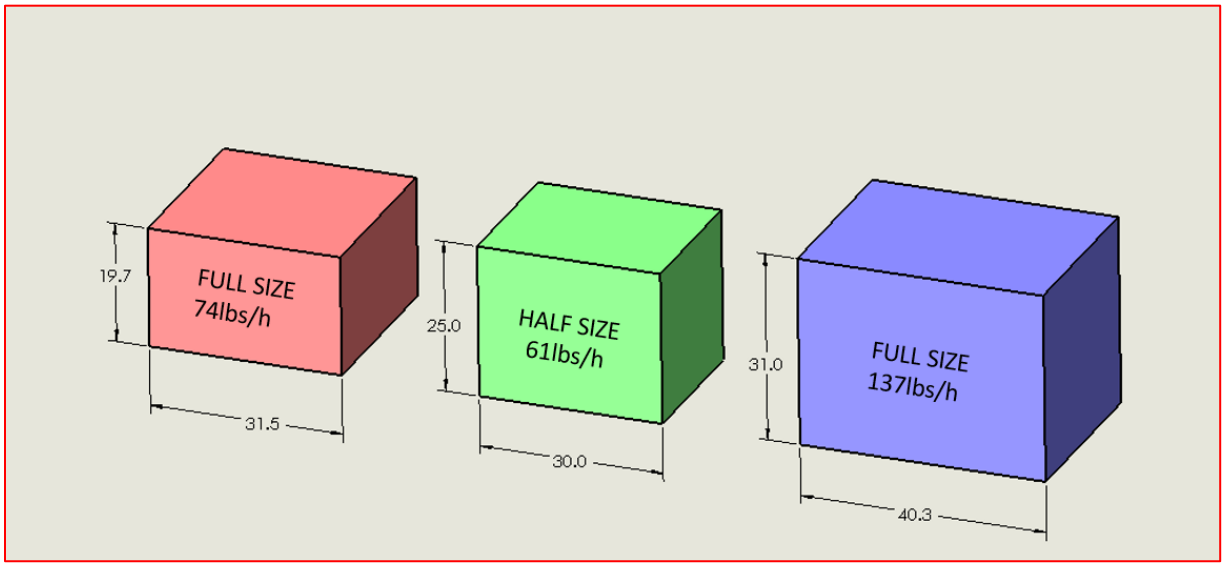

Figure 1 shows the sizes of three representative samples of a low production capacity full-size oven, standard half-size oven, and high production capacity full-size oven. Dimensionally you can see that the low production capacity full-size oven is more similar to a half-size oven than the high production capacity full-size oven.

3. Change the Idle Energy Rate Equation

The current idle energy rate test is run with an empty oven. This is a good measure of the quality of insulation, construction and sealing of the oven. However, the idle energy rate is also affected by factors such as the input rate and size of the oven. Two ovens with similar insulation and construction but with different sizes and input rates will have very different idle energy rates.

The ovens currently below the 1.20kW idle energy rate are almost exclusively much smaller than a standard full-size oven. As an example, one of the low production capacity full-size ovens is less than 20in. tall with an input rate of 6.9kW. It achieves a 0.80kW idle energy rate but because of its small size and low power it only has a production capacity of 49.51lb/h. This is a lower production capacity than many half-size ovens. A standard full-size high production capacity oven as an example has a 1.53kW idle rate but also achieves more than double the output with a production capacity of 104.91lb/h. A customer would need to run two of the low production capacity ovens to produce the same amount of prepared food product as a single high production capacity oven. This would mean a combined idle energy rate of 1.60kW for the two low production capacity ovens versus just 1.53kW for the single high production capacity oven. Yet the current idle energy rate equation projects the low production capacity oven as far more efficient. ITW FEG recommends the following change to the idle energy rate calculation:

$$Adjusted\ Idle\ energy\ rate = \frac{100}{Capacity} * (E * 60)/t$$

Using this equation, the low production capacity full-size oven would have an adjusted idle energy rate of 1.62kW. The high production capacity full-size oven would have an adjusted idle energy rate of 1.45kW. This still captures the intent of the idle energy rate measurement but also more closely reflects the actual energy needed to produce a set amount of food.

Conclusion

ITW FEG once again appreciates the opportunity to provide our stakeholder commentary to help the EPA Energy Star program enhance its regulatory processes. As an annual recipient of the Energy Star Partner of the Year for Sustained Excellence Award for more than a decade, we have welcomed the opportunities to participate in these proceedings and will continue to offer our support and expertise wherever possible.

Respectfully submitted,

Nick Stone

Lead Mechanical Engineer

ITW Food Equipment Group