

April 5, 2023

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**Subject: Comments on SCAQMD Proposed Amended Rule 1153.1**

Dear Mr. Ka:

On behalf of Bimbo Bakeries USA, Inc (BBU), Yorke Engineering, LLC (Yorke) has prepared this letter to provide comments on the proposed amendments to South Coast Air Quality Management District (SCAQMD) Rule 1153.1: Emissions of Oxides of Nitrogen (NO<sub>x</sub>) from Commercial Food Ovens. This letter also addresses the SCAQMD questions submitted to BBU on 3/21/2023 and 3/28/2023.

We appreciate SCAQMD staff incorporating some of our feedback from the previous working group meeting. However, there are still several comments and points that we would like to provide in this letter. We are also disappointed that the food industry has been singled out for the first ever Zero Emission regulation. The baking sector provides nutritious and low-cost products to our consumers. The related NO<sub>x</sub> emissions from baking industry are a fraction of the SCAQMD overall NO<sub>x</sub> emissions when compared to other industry’s stationary sources and mobile sources.

**BBU BACKGROUND**

BBU operates two facilities in the SCAQMD with five direct-fired bakery food ovens that would be impacted by Proposed Amended Rule (PAR) 1153.1. One facility, located in Montebello (SCAQMD Facility ID 132068), is a current NO<sub>x</sub> Regional Emission Clean Air Incentives Market (RECLAIM) facility, while the other facility, located in Placentia (Facility ID 176788), is a minor source facility. A summary of these five units is provided in Tables 1 and 2.

**Table 1: BBU SCAQMD Food Oven Information and PAR 1153.1 Deadlines – Placentia**

Equipment Name	Heat Input Rating (MMBtu/hr)	Current NO <sub>x</sub> Limit (3% O <sub>2</sub> )	Burner Age	Unit Age <sup>1</sup>	Phase I Deadline (30 ppm NO <sub>x</sub> )	Phase II Deadline (0 ppm NO <sub>x</sub> ) <sup>2</sup>
Muffin Line #1	1.95	60 ppm	2017	2000	7/1/2039	7/1/2027
Muffin Line #2	1.95	60 ppm	2017	2000	7/1/2039	7/1/2027

<sup>1</sup> All ovens were estimated to be built in the year 2000 or older except Oven #5 at Montebello.

<sup>2</sup> There is an additional Phase III Compliance Deadline but it does not apply to Placentia facilities, as it only applies to bakery ovens with Heat Input Rating over 3 MMBtu/hr.

**Table 2: BBU SCAQMD Food Oven Information and PAR 1153.1 Deadlines – Montebello**

Equipment Name	Heat Input Rating (MMBtu/hr)	Current NO <sub>x</sub> Limit (3% O <sub>2</sub> )	Burner Age	Unit Age <sup>1</sup>	Phase I Deadline (30 ppm NO <sub>x</sub> )	Phase III Deadline (0 ppm NO <sub>x</sub> ) <sup>3</sup>
Oven #1 <sup>4</sup>	6.5	30 ppm	2023	2000	Compliant	7/1/2033
Oven #3	6.075	51.4 ppm	2000 <sup>5</sup>	2000	7/1/2024	7/1/2034 <sup>6</sup>
Oven #5 (Bun Roll Line)	12.32	30 ppm	2019	2019	Compliant	7/1/2044

## BBU CORPORATE BACKGROUND

BBU is a leader in the baking industry, known for its category-leading brands, innovative products, freshness and quality. Our team of 20,000 U.S. associates operates 60 manufacturing locations in the United States. Over 11,000 distribution routes deliver our leading brands such as Arnold®, Artesano®, Ball Park®, Bimbo®, Boboli®, and Brownberry®. Entenmann’s®, Little Bites®, Marinela®, Mrs Baird’s®, Oroweat®, Sara Lee®, Stroehmann®, and Thomas’®. Bimbo Bakeries USA is part of Mexico’s Grupo Bimbo, S.A.B de C.V., the world’s largest baking company with operations in 34 countries.

BBU is regarded as one of the leaders in Sustainability for the Food & Beverage Industry.

- Earned USEPA Energy Star Partner of the Year Award for the 6<sup>th</sup> Year in Row for its company wide commitment to energy management strategy and leadership.
- Earned USEPA ENERGY STAR certification for superior energy efficiency at 18 BBU facilities across the country, sustaining the record for the highest number of certifications in the baking industry.
- Won the USEPA ENERGY STAR Challenge for Industry at two bakeries, Atlanta, GA and Kent, WA. The Atlanta bakery reduced its energy intensity by 11 percent, and the Kent bakery by 18 percent, within three years. This is the Atlanta bakery’s third time meeting this goal.
- Received a 2022 USEPA Green Power Leadership Award from the U.S. Environmental Protection Agency (EPA) for outstanding clean energy initiatives and impact on the green power market.
- In 2021, BBU took a step forward in its sustainability efforts by expanding its existing solar and battery storage systems. The company signed an Environmental Services Agreement (ESA) with GreenStruxure to deploy microgrids at all 6 of its California

<sup>3</sup> The Phase II deadline will not apply to any Montebello facilities, since all three units will have burners that are less than 10 years old up to the Phase III deadline. If the Phase II deadline would apply, it would require hybrid ovens for all three units as of July 1, 2017.

<sup>4</sup> Oven #1 currently has a permit limit of 51.4 ppm NO<sub>x</sub> at 3% O<sub>2</sub> and is rated at 4.672 MMBtu/hr but is expected to complete a burner modification to be compliant with 30 ppm NO<sub>x</sub> by March 31, 2024.

<sup>5</sup> The burner of Oven #3 is assumed to have been last replaced in the year 2000 or earlier.

<sup>6</sup> The Phase III deadline for Oven #3 assumes that the burners will be modified with new low NO<sub>x</sub> burners by the Phase I compliance deadline, which is July 1, 2024.

bakeries. The microgrids, comprised of solar and battery storage systems, will be installed at the Montebello, Placentia, South San Francisco, Sacramento, Oxnard, and San Luis Obispo locations. Together with the existing 1 Megawatt (MW) solar array in Escondido, these microgrids will generate more than 7 MWs of renewable energy. Based on EPA estimates, this is equivalent to removing approximately 14,000 metric tons of CO<sub>2</sub>e and about 45 metric tons of NO<sub>x</sub> emissions from a natural gas power plant per year.

- Additionally, BBU was awarded a \$1.1 million grant by the California Energy Commission to replace oversized and outdated legacy boilers at its California bakeries with high-efficiency low NO<sub>x</sub> boilers. The boiler replacements, which are scheduled for completion in 2023, will not only reduce natural gas usage by 15%, but also significantly decrease NO<sub>x</sub> emissions.

### **BBU USA Oven Operation General Information**

BBU operates 139 food ovens in the United States. The oldest active operating oven has been in operation since 1948 (over 70 years), and the most recent oven was installed in 2021. The average current active life of the ovens is over 40 years (1991), with the median age of BBU's ovens currently being 32 years. Aside from the building structure, the oven represents that largest financial asset at a commercial bakery. These ovens cost multi-millions of US dollars. Therefore, there are comprehensive preventative maintenance programs in place at our bakeries to ensure these ovens provide baked products for decades. As provided in Tables 1 and 2, four of the five current food ovens have been operating for over 22 years. Based on the lifespan of the BBU ovens, a 30- or 40-year lifespan might be a better basis for determining the unit life for the ovens for PAR 1153.1 compliance.

### **BBU ELECTRIC OVEN CHALLENGES**

#### **Placentia Muffin Lines**

Although the units at Placentia have a lower heat input rating, they have significantly higher operating temperatures, between 550-900°F, depending on which of the three burner zones the muffins are entering on the conveyor cooking process. BBU has a proprietary protected process on the manufacturing of Thomas English Muffins. This includes the direct fired oven design, which is proprietary. Competitors cannot replicate it, which makes it unique/iconic. Most english muffin baking involves ring bake, meaning the dough piece is placed in a pocket/pan shaped in a ring. Thomas muffins are free flowing and baked directly on the steel griddle. Therefore, these ovens require higher temperatures than the other ovens in BBU's fleet and other english muffins lines. Assuming all the other barriers are overcome, such as infrastructure upgrades, utility power supply, increased safety risks, tech availability, etc., the oven's original equipment manufacturer (OEM) and BBU's baking technology personnel are extremely concerned with not being able to replicate this product via current available electric oven technology. The current electric technology would simply not be able to provide the needed British thermal units per pound (BTU/lb) of dough mass for proper baking.

## **Montebello Oven Lines**

The Montebello direct fired ovens have their own barriers to overcome. Although they operate at lower oven temperatures, typically between 400-500°F, the flexibility of the ovens to manufacture more than 40 different products at varying temperatures, ingredients, and yeast concentrations required BBU technical staff years to perfect those product recipes. Replicating those recipes on electric ovens is a difficult challenge. There is more to baking than just the baking temperature. Heat Transfer is also critical with radiant, conductive, and convection all being important. Time is also an extremely important aspect of baking. Electric ovens create different heated air currents than natural gas ovens, making it difficult and time consuming to modify those recipes for use with different technologies. The Montebello operation utilizes tunnel ovens for bread and a conveyerized oven for buns. BBU is not aware of electric versions being available today that can meet the needed BTU/lb of dough mass and heat transfer at the run rates of these ovens.

## **SCAQMD RULE 1153.1 PERMIT HISTORY**

SCAQMD Rule 1153.1 was initially adopted on September 4, 2014. Food ovens were previously required to comply with the emission limit requirements of Rule 1147 (adopted in 2011). Rule 1147 established standard emission limits for all miscellaneous combustion equipment outside of boilers, engines, and turbines. However, the NO<sub>x</sub> limits for food ovens under Rule 1147 were not feasible for food ovens, so the SCAQMD adopted Rule 1153.1 to allow in-use ovens to meet emission limits of 40 parts per million (ppm) NO<sub>x</sub> corrected to 3% oxygen (O<sub>2</sub>) for food ovens operating 500°F or less and 60 ppm NO<sub>x</sub> at 3% O<sub>2</sub> for food ovens operating over 500°F. These limits are the current operating limits for BBU ovens at the Placentia facility.

The Montebello facility was not required to meet these limits, since the Montebello facility is in the RECLAIM program. Facilities in RECLAIM are exempt from many SCAQMD NO<sub>x</sub> emission limit rules because emission reductions for these facilities are obtained through a credit trading program. The Montebello facility's air permit still has NO<sub>x</sub> emission limits for all permitted combustion equipment, but some limits may be higher than the SCAQMD rule limit that would otherwise apply to the equipment.

In October 2016, as part of the SCAQMD 2016 Air Quality Management Plan (AQMP) control measure CMB-05, and accelerated by Assembly Bill (AB) 617, SCAQMD pushed to end RECLAIM emissions trading program, with impacted facilities beginning a transition for RECLAIM facilities to meeting the same requirements as non-RECLAIM facilities. Consequently, the SCAQMD has been modifying all of its NO<sub>x</sub> emissions rules over the last 5 years and creating a few new rules to adopt the same emissions standards for all SCAQMD permitted equipment (previously only required for non-RECLAIM facilities). Many of these rules have already been updated, including the rules for boilers (Rules 1146, 1146.1, and 1146.2) and catalytic oxidizers and fryers (Rule 1147).

In July 2021, the SCAQMD held their first working group meeting for proposed amendments for Rule 1153.1. Over the next 15 months, the SCAQMD held five working group meetings and one public workshop, and they proposed draft rule language during the workshop on October 6, 2022. The draft rule language at that time proposed that the new NO<sub>x</sub> emission limit for food ovens would be 30 ppm NO<sub>x</sub> at 3% O<sub>2</sub> with up to 22 years after the start of new ovens to meet this lower emission limit.

In addition to these meetings and workshops, Yorke and BBU staff hosted two SCAQMD site visits, provided cost effectiveness data to SCAQMD staff, and had multiple meetings to discuss the state of technology for food ovens and emphasize BBU's push to be more environmentally sustainable through its entire process.

PAR 1153.1 was initially scheduled to go to the Hearing Board with these revisions in December 2022. However, sometime in November, the December PAR 1153.1 meeting was removed from the calendar without notice. On February 2, 2023, the SCAQMD held its sixth working group meeting on PAR 1153.1 and released a draft presentation a few days earlier on January 27<sup>th</sup>. In the presentation and as discussed during that working group meeting, the SCAQMD changed the previous proposed limit of 30 ppm NO<sub>x</sub> at 3% O<sub>2</sub> for bakery, cooking, drying, and smokehouse ovens and proposed a new Best Available Retrofit Control Technology (BARCT) limit of 0 ppm NO<sub>x</sub>. This limit would prohibit NO<sub>x</sub> emissions from new and existing ovens, which the SCAQMD deemed to be feasible for this equipment with electric ovens. Yorke and BBU staff shared uneasiness with this new limit during the working group meeting on February 2, 2023.

Yorke and BBU staff held a Zoom meeting on March 6, 2023, to address initial issues with the proposed BARCT requirements in PAR 1153.1 with SCAQMD staff.

The following working group meeting was held on March 8, 2023, and included a presentation by Babbco on the feasibility for implementing electric ovens, as well as several comments with regards to the feasibility for implementing electric ovens, the quick timeline to address limitations with the proposed language is presented to the hearing board on June 2<sup>nd</sup>, the infrastructure issues and unique challenges with compliance in the food manufacturing industry, and other concerns.

An updated draft staff report and revised PAR 1153.1 rule language was released on Friday, March 17<sup>th</sup>, addressing some, but not all of the items discussed in the March 8<sup>th</sup> working group meeting. We understand that if there are no changes to the schedule, the following will be the timeline for PAR 1153.1 approval:

- March 30, 2023: Public Workshop;
- April 21, 2023: Stationary Source Committee Meeting;
- May 5, 2023: Final PAR 1153.1 Staff Report and Rule Language; and
- June 2, 2023: Board Meeting for PAR 1153.1 Approval.

With all the major changes proposed since the February 2<sup>nd</sup> working group meeting, and considering there was 18 months to review revisions to the rule before the changes posed during the February 2<sup>nd</sup> working group meeting, we suggest that the SCAQMD provide an additional 3 to 6 months to collect more information and provide more impacted entities an opportunity to voice their troubles with the proposed rule language so that unforeseen and unintended consequences from PAR 1153.1 can be mitigated and minimized.

## **COMMENTS AND CONCERNS WITH PAR 1153.1**

We appreciate the efforts of the SCAQMD to incorporate comments and feedback with the revisions to PAR 1153.1. However, we still have several comments and perturbances regarding the current PAR 1153.1.

### **NO<sub>x</sub> Cost Effectiveness Analysis**

There are several potential issues with the posted NO<sub>x</sub> cost effectiveness analysis. First, it would be helpful to see the detailed analysis affected facilities could understand the basis of the costs and emission calculations that went into the analysis. We understand that capital costs were determined based on a 25-year estimated life for an oven, but we are concerned that several costing considerations may have been underestimated or not included. Some of those considerations include:

- Cost for a facility to conduct electrical upgrades to a plant;
- Required increase in power demand, especially during peak demand times;
- Increase in electricity cost for electricity provider to upgrade substations and lines, bringing power to the plant;
- Larger cables required for the additional electric load required for the electric ovens;
- Building infrastructure upgrades required to support larger electric load at the facility while managing the rolling brown outs Southern California has been facing;
- Safety considerations for the electric load; and
- NO<sub>x</sub> emissions associated with electricity production on-site or by electricity provider.

In addition, the uniqueness of the ovens operated by BBU makes it difficult to determine the availability and functionality of electric ovens replacing the ribbon burners used currently for baking products at the BBU facilities. BBU would like to be able to provide its own cost effectiveness analysis, but needs additional information from the SCAQMD to accurately conduct such an analysis in line with the cost effectiveness calculations conducted by the SCAQMD.

### **Electric Oven Availability**

BBU has had several conversations with its bakery oven vendors over the last several months, and most of their vendors agree that electric oven availability for their unique products is several years away. Even when that technology is available, it will take BBU's team a couple of years to test and determine what changes are needed to the electric ovens to replicate the quality of the products currently made by their natural gas-fired ovens. It should also be noted that there are space constraints at both Placentia and Montebello. We would anticipate either having to install multiple electric ovens or oversized ovens to be able to meet our run rate. This would pose a challenge due to the limited floor space at both facilities. The entire electric infrastructure would need to be changed with increased sizing of the components due to the electric power demands.

### **Product Quality and Employee Safety**

As mentioned during the March 8<sup>th</sup> working group meeting, the conversion from natural gas to electric ovens will require significantly higher electric loads than what is currently operated at the facility, including significant higher amperage to provide the necessary power to heat the food at

cooking temperature for both ovens. This poses significant safety concerns and would require significant safety protocols and training to avoid accidents from electrical mishaps from the high amperage equipment.

Baking is a very delicate process; there are several factors besides baking temperature, ingredients, and yeast content that go into baking high-quality food products. The airflow around the food product, the quality of the heat elements, and the different reactions that take place between gas and electric baking all impact food quality and taste. It is not simple to determine the impact of these parameters, and significant testing will likely be required to convert operation from natural gas baking to electric baking.

Electric is not as responsive as natural gas. Electric ovens will reduce the volume of product that we can produce in the same facility due to a negative impact to the volume/run rates, extended start-up times, extended changeover/cleaning, reduced product mix, and the inability to make up this lost time in our shifts (there's only 24 hours in a day).

The moisture content is very important to the baking process. Natural Gas has a high moisture content, while electric is a dry heat. This could significantly jeopardize the quality, food safety, and shelf life of the baked product.

### **Electricity Upgrades and Electric Load Availability**

We understand that SCAQMD staff has recently spoken to Southern California Edison (SCE) with regards to upgrading the electric infrastructure to support the additional power demand required for food manufacturing facilities to convert from natural gas-fired to electric-fired ovens. Just last year, during peak demand, the State of California allowed diesel generators to run to provide emergency power to the grid. As power demand increases from increased electrical devices and massive conversion of vehicle fleets from fossil to electric fuels, there will likely be more emergency events in the future, requiring the operation of heavily polluting diesel generators in the SCAQMD, which will increase criteria pollutant emissions, including NO<sub>x</sub>. With the SCAQMD now also pushing stationary sources to move to electricity usage, there is significant potential of increasing NO<sub>x</sub> emissions with an increase of emergency power generation during peak demand. As mentioned in previous meetings, the electric load required for a single large electric oven would be significantly larger than the current electricity demand for the entire facility.

It is important to continue to work toward lower criteria emissions, but relying solely on grid electricity does not equal zero emissions (since most electricity is still generated by natural gas combustion, especially during peak operating times) and makes the SCAQMD more susceptible to high criteria and toxic emissions pollution. We are aware that SCE is working toward addressing these issues. It is likely that San Diego Gas and Electric (SDG&E), which covers southern Orange County, is also addressing these issues. It is much less clear if Los Angeles Department of Water and Power (LADWP) or the smaller SCAQMD-based power entities (Anaheim, Azusa, Banning, Burbank, Colton, Corona, Glendale, Pasadena, Riverside, and Vernon) are addressing power demand issues, which will need to be addressed by all utilities for there to be enough electricity to substitute all commercial food production with electric ovens.

### **Timeline for Regulatory Review**

The SCAQMD has been working on PAR 1153.1 for almost 18 months, with an initial expectation after much discussion with stakeholders of a NO<sub>x</sub> limit of 30 ppm for most food ovens. The

SCAQMD is now giving stakeholders less than 5 months to address the radical changes that now require electric food ovens to utilize BARCT in the future. This is a massive change, and there are many factors involved in converting to all electric equipment that will take time to consider. The public has not seen the detailed NO<sub>x</sub> cost effectiveness analysis to address concerns that all the information used in this analysis is accurate. Based on missteps from rushed rulemaking in the past, we suggest that more working group meetings, consultations with stakeholders, and more feedback from all power entities be incorporated into the final rulemaking process. It is more important to get a clear, well-written, achievable PAR 1153.1 than to rush to pass changes that will need to be rewritten again in a few years for items that were not addressed during this current rulemaking cycle.

### **Emission Leakage**

With an accelerated timeline for implementing electric ovens without the proper feasibility analysis and considerations for the natural complications with food manufacturing, some facilities may consider it more cost effective to relocate their operations outside the SCAQMD instead of meeting the strict electric oven deadlines currently proposed.

## **SUGGESTED ACTIONS**

The following actions are suggested or proposed revisions for PAR 1153.1:

- Consider going back to the original plan that was discussed throughout 2022, which was NO<sub>x</sub> limits of 30 ppm. Staff could revisit the Zero NO<sub>x</sub> provision when technology warranted if the SCAQMD still wants to proceed with Zero NO<sub>x</sub> provisions;
- Hold additional stakeholder meetings, provide notification to all impacted facilities so they have an opportunity to comment on the rule, and push the Hearing Board meeting to approve the revised rule language to fourth quarter 2023;
- Include technology assessment language directly in the rule so stakeholders, inspectors, and permitting staff are all aware that technology may not be currently available and extending compliance deadlines accordingly;
- Suggest that bakery ovens operating over 500°F have the same compliance deadline as bakery ovens over 3 MMBtu/hr (July 1, 2030);<sup>7</sup>
- Increase the unit life or remove entirely the proposed rules provision for existing food ovens as they last much longer than the proposed rule, which states 22 and 25 years;
- Speak with additional electricity providers to see if they are working toward upgrading grid load and capacity to handle electricity demand from electric ovens, as well as for statewide requirements for transition from fossil fuel to electric vehicle fleets (which impacts overall electric demand from the grid); and
- Provide additional detail on all the data used for the NO<sub>x</sub> cost effectiveness analysis and give guidance so stakeholders can also conduct their own cost effectiveness analysis.

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<sup>7</sup> There was a reason why higher temperature ovens currently have a higher NO<sub>x</sub> emissions limit (60 ppm instead of 40 ppm) under Rule 1153.1, as high temperatures also complicate the baking process, just as high heat input ratings.

Mr. Sarady Ka

April 5, 2023

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## CONCLUSION

This letter summarizes the proposed impact of PAR 1153.1 on BBU's two SCAQMD facilities, comments and concerns on the current regulation, and suggested actions for rulemaking on PAR 1153.1 going forward. Should you have any questions or concerns, please contact me at (949) 248-8490.

Sincerely,



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