

Today's Waste, Tomorrow's Energy

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Rethinking the role of FOG

When one thinks of sustainability throughout the restaurant business, common themes that come to mind are energy-efficient light bulbs, the use of local produce, recycling plastic and cans, or composting leftover food waste. Yet, there is one topic that is rarely considered: grease.

Of course "yellow grease," or used fryer oil, can be recycled into biofuel. Even less common, however, are the fats, oils and grease (FOG), or "brown grease," collected from grease traps and interceptors. Restaurant operators perceive FOG as a complex annoyance that they are forced to deal with by their local government. From a municipality's perspective, FOG is analogous to cholesterol in your veins: It clogs sewers, which can lead to odors and backups in the restaurant and elsewhere in the sewer system. Proper management of FOG waste leads to more sustainable infrastructure and a more sustainable city overall.

But what many don't know is that FOG is an extremely energy-rich substance. Rather than considering FOG to be a waste and a nuisance, it is time to start thinking about FOG as a recoverable, extractable resource that can be used for energy production. This is done most commonly through anaerobic digestion, a process where bacteria breaks down material in the absence of oxygen and converts it into biogas and compostable material. The biogas can then be used to generate electricity or compressed and used to fuel vehicles.

The two main limitations to using FOG for renewable energy generation are collection and quality control. An innovative program pioneered in Tempe, Ariz., addresses these two limitations while also benefitting the local restaurants and the city.

The Tempe Grease Cooperative Model

The industry-standard model for FOG collection is regulation and enforcement. As an alternative, Tempe implemented a cooperative, compliance assistance model in 2014 that uses partnerships and advocacy to manage restaurant compliance and collection of FOG.

The Tempe Grease Cooperative (TGC) is modeled after retailers' cooperatives, where groups of independent retailers leverage their collective purchasing power through a central buying organization, allowing them to obtain buying discounts. As the administrative arm of the TGC, the City of Tempe acts as this buying agent and passes all savings directly to members without making a profit. Furthermore, since the city is traditionally the regulator of the restaurants, this model allows the city to guarantee quality service through a contract that meets all of the regulation and compliance requirements.

Beyond infrastructure sustainability, the TGC works toward an overall livable, sustainable city through community engagement, business partnerships and member advocacy.

The Future of City Sustainability

After 31 months of implementation, the TGC has 172 voluntary members, from small local restaurants to nationally recognized chains, hotels and entertainment facilities. Through the contracts that form the Tempe Grease Cooperative, the City of Tempe has complete ownership of the FOG waste. Across the country, grease traps and interceptors on average retain about 75 percent water, and the remaining 25 percent is composed of FOG and solids. With the assumption that 10 percent of the total waste is usable for energy production, it is estimated that TGC members have provided the city with more than 2,500 tons of usable waste per year.

This not only means that all of this waste was successfully diverted from sewer infrastructure; it also means that the city has 2,500 tons of a potential energy source. Currently, the FOG waste is taken to a processing facility for dewatering; the extracted water is sent to a wastewater treatment plant, and the remaining solids are land filled. The city is working toward a system for the near future where the TGC can require vendors to take all the waste to a local anaerobic digester for gas production, capture and reuse. Since the city monitors who is being serviced, when and how much FOG waste is collected, Tempe has oversight on the quality control aspect of FOG waste collection, which will simplify disposition in anaerobic digesters.

In a short amount of time, the TGC has found the way to efficiently keep FOG out of the sewer infrastructure while providing a business model that is beneficial to local restaurants. In the future, the TGC is looking to pave the way for using FOG for biogas production at the local level.

The TGC model provides a platform for initiating a renewable energy generation program. Whether or not your city is currently co-digesting FOG waste, the TGC model creates a seamless path, with city oversight on each step in the process.

Most importantly, the TGC is an opportunity to support sustainable business practices at the restaurant level, in a cost-effective manner. At its core, the TGC is founded on the principles of sustainability in both urban infrastructure management and renewable energy goals.

Sustainable Sewers

The TGC presents a unique example in which restaurants have played a pivotal role in stewardship and sustainability of city sewer infrastructure. Traditional models of regulation and compliance struggle to effectively keep FOG out of the sewer system, let alone provide an opportunity to local businesses to be a part of city sustainability plans.

Restaurant members of this program are directly benefitting their own plumbing infrastructure by using TGC resources to pump at the correct frequency, maintain device health and keep sewer lines clear of FOG. Even beyond their own business' sewer lines, their participation helps the city infrastructure as a whole to be more sustainable, thanks to less troublesome waste getting into the sewers. This creates potential to expand the lifespan of city infrastructure, while requiring fewer resources to maintain and replace damaged infrastructure. This is largely due to the care and diligence of restaurant facility managers who properly manage their grease traps and interceptors on their own, or through utilization of the TGC as a compliance assistance tool. The TGC member restaurants and the city work together in this opportunity to promote a healthier, cleaner city with reduced odors, high standards of public health and safety, and reduced sewer backups.

Beyond the TGC

As restaurant facility managers or owners, you hold a lot of power in the fight against FOG waste for more sustainable cities. An important place to start is to carefully select vendors and ensure they are performing a diligent, proper service each and every time. Reach out to your local government for compliance assistance, and begin opening the door for partnership and advocacy on behalf of your business.

The success of the TGC is proving that procured compliance through the use of cooperatives may be the solution to overcome complex challenges where compliance is dependent on the service of transaction. With praise from local stakeholders, state and national officials, the TGC model has shown that bringing together sustainability, waste management and local business can be the solution. Tomorrow's energy begins with your restaurant's waste today.

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