Examining Retail Electricity Practices in Maryland

by

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Executive Summary

The deregulation of electricity markets allowed third-party suppliers to compete with the traditional regulated utilities in offering the supply of electricity – this role of supplier has traditionally been handled by the regulated utility that has been awarded a specific jurisdiction to provide electricity service. There are 15 states that have deregulated electricity markets, along with Washington, D.C (Finance Guru, 2020). The introduction of deregulation to electricity markets gave licensed electric service providers an opportunity to market their unbundled electric service (i.e., physical electric commodity separated from delivery services) to different customer classes. These classes include residential, commercial, and industrial consumers. Because of the variation in size profile across these different classes (i.e., industrial customers consume more electricity than residential customers), third-party electric suppliers may have different marketing tactics across these classes. Further, third-party electric suppliers may have different pricing packages based on how much electricity the consumer intends on using.

Previous research has compared electricity costs offered by third-party suppliers against the traditional utility, however, there is still ambiguity around whether certain customer classes enjoy benefits that other customer classes do not. Additionally, because of provisions embedded in contracts with third-party suppliers, consumers may be experiencing higher energy costs than they would from their traditional regulated utility.

The introduction of third-party suppliers to electricity markets has also come with claims of unethical marketing practices – some consumer advocates report that these

deceitful practices are more prevalent in low-income neighborhoods (Abell Foundation, 2018). This can be problematic when taking into consideration that electricity rates from third-party suppliers may be higher than the electricity rates offered by the traditional regulated utility. It has been documented that low-income households tend to allocate a higher proportion of their take-home income on energy expenditures than middle-income or high-income energy consumers. Further, low-income households may already be facing challenges footing their energy bills – by increasing those costs it may either lead to low-income households defaulting on their current energy expenditures and facing energy insecurity, or it may lead to these consumers defaulting on other household expenditures and facing a choice between electrifying their home or feeding their family.

This masters project examines the unfortunate circumstances imposed by higher energy pricing in deregulated markets, which are not isolated to low-income consumers. Further, these higher electricity rates circle back to the question of whether the deregulation model provides benefits to residential customers. There also may be opportunities to reform the third-party electricity market in such a way as to mitigate the opportunities for residential electricity consumers to be subjected to additional costs, and perhaps provide an opportunity for these consumers to reap benefits. Energy costs impact households in different ways, as low-income customers tend to have a higher energy cost burden in proportion to their gross household income. Of note, a study through the Green & Healthy Homes Initiative notes that residential consumers in Maryland have faced climbing electricity bills over the past several years, but in 2018 the average bill reached $133.68 which was above the national average of $117.65

(Green & Healthy Homes Initiatives, 2020). Additionally, a study from “Alliance to Save Energy” notes that 31 percent of households struggle to pay their energy bills. Further, “one in five households forgo necessities like food and medicine in order to pay energy bills, forcing difficult trade-offs that impact well-being” (Alliance to Save Energy, 2018). This inability to pay household electricity costs may serve as an unfortunate gateway to energy insecurity problems for low-income households in Maryland.

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1. Introduction & Background

This Master's Project examines retail electricity practices in Maryland since deregulation was adopted and implemented in the state. Specifically, I aim to answer whether the adoption of deregulation in the retail energy space has been beneficial

for residential consumers in Maryland. I also aim to explore reports from the Maryland Public Service Commission (Maryland PSC), as well as legal proceedings, that provide detail on whether the third-party supply marketplace is free from deceptive activity from third-party suppliers.

The project will start by defining deregulation and detailing the customer choices that arose from the adoption of deregulation. Because there are different types of customers, the project will then define the different customer types before analyzing how different customers fare post-deregulation. Next, the project will explore published reports and legal proceedings from the Maryland PSC before looking into the intersection of deceptive marketplace activity and how that can lead to energy insecurity for low-income households. The project concludes with some recommendations that I believe may be helpful to offer more benefits to residential electric consumers.

The problems identified in this project are not unique to Maryland, as other states have had similar issues, but my experiences working and living in Maryland have motivated me to specifically focus on that state. The Abell Foundation, which is a private foundation that works on a number of issues, including advocating for enhancements to the third-party supply model, has recently published a comprehensive report on findings and recommendations for third-party supply in Maryland. Their research identified issues specifically for Maryland, but they also dive into issues that exist in other states that allow third-party electric supply. Within this context, the problems found in this project most certainly exist in other states.

I. What is Deregulation?

With the adoption of deregulation in the 1990s, states began to open their electricity supply marketplace to allow third-party suppliers to now compete with the regulated utilities that historically were required to service designated territories (AARP, n.d.). The United States has experienced monumental shifts from the long-held natural monopolistic model of the electricity sector. With this entitlement to provide a service to a designated territory, the regulated utility generated electricity and delivered it to the end-user all while being guaranteed a rate of return on their investment.

In 1996, California became the first state to formally adopt legislation that called for a deregulated electricity market. This legislation required the state to open its electricity marketplace to competition starting in April 1998 (The Nation, 2001). The intent behind the legislation was to provide electricity consumers with an opportunity to shop for electricity supply; in theory, a competitive marketplace would incent suppliers to offer their most competitive rates.

This legislation created an opportunity for a competitive marketplace to exist in both the wholesale marketplace, as well as retail marketplace (PJM, n.d.). The wholesale marketplace is aimed at allowing electric suppliers and generators to offer their generation to regulated utilities who were traditionally responsible for generating and delivering electricity to their customer base. On the other hand, the retail marketplace focuses on third-party supply and giving consumers a choice of whether they would like to have the regulated utility's electricity delivered to them or a third-party supplier; it's important to note that the regulated utility will handle the transmission and distribution of the electric commodity, but consumers can now

choose whose commodity they would like delivered to them. This project focuses on the retail marketplace instead of the wholesale marketplace.

II. Customer Classes

Electricity consumers are categorized by customer class, which describes where electricity is being consumed and by whom. Residential consumers comprise single-family homes and multi-family housing; commercial consumers usually include government facilities, service-providing facilities and equipment, and other public and private organizations; and industrial consumers' facilities and equipment use electricity for processing, producing, or assembling goods, including such diverse industries as manufacturing, mining, agriculture, and construction (EPA, n.d.). The Transportation sector continues to be a growing customer class in the electricity sector, but it is still a nascent customer representing less than 2 percent of overall electricity consumption.

Residential consumers demand more than a third of the United States total production (Statista, 2021). They demand this electricity to service essential day-to-day activities in their homes and to service appliances such as air-conditioning units, refrigerators, electronics, lighting, etc.

III. Deregulation in Maryland

The state of Maryland implemented the retail deregulation model in 1999 when the Maryland General Assembly enacted the Electric Customer's Choice and Competition Act (Baltimore Fish Bowl, 2021). The deregulation model has offered mixed results for Maryland over time, as some years have yielded savings for consumers, while others have been ineffective and have cost consumers more than

what they would've paid to their regulated utility. A report from Abell suggests that from 2014 to 2021 residential consumers have overpaid for electricity by switching to a third-party supplier (Abell Foundation, 2018). Analysis provided by the Wall Street Journal (WSJ) has also painted a bleak picture for the third-party suppliers from a cost-comparison perspective, as the WSJ's analysis suggests that residential consumers may have overpaid $19.2 Billion for electricity supply between 2010 and 2019 (Wall Street Journal, 2021). These staggering figures raise the question of whether residential consumers are benefitting from deregulation.

IV. Third-Party Suppliers

The introduction of the Electric Customer's Choice and Competition Act authorized third-party suppliers to offer their supply services to all electricity customers in Maryland. There are natural barriers to entry to electricity generation because of strenuous permitting obstacles as well as high costs of entry. Since there are barriers to entry, these third-party suppliers may not necessarily generate electricity themselves – they may instead enter into power purchasing arrangements directly with generator operators and then resell the procured electricity to end-use consumers (i.e., Residential, Commercial, or Industrial consumers). Alternatively, third-party suppliers may purchase electricity through an open marketplace in which they may make a wholesale purchase (in bulk) and resell it in chunks to consumers with the goal of generating an operating profit.

Third-party suppliers have deployed a handful of techniques to attract consumers and make them aware of their services: they've engaged in door-to-door sales pitches, cold calls, mailers, setup booths inside of local brick-and-mortar shops,

advertised through larger websites (Law Publish, 2000). Also, in Maryland, there are websites dedicated to shopping for third-party suppliers; an example is the Maryland Electric Choice website, which was created by the MD PSC, which allows consumers to compare offerings from different suppliers (MD Electric Choice, n.d.).

While these tactics may seem harmless, there have been reports from residential consumers that third-party suppliers have improvised to illegally gather their billing information and erroneously enroll them into services without the consumer knowing (WSJ, 2021). Since the state of Maryland introduced regulations that allowed: 1) consolidated billing (allows the third-party supplier charges and the utility's delivery charges to be consolidated into one bill) and 2) changes to debt collections which allowed third-party suppliers to recover their costs even if consumers were not able to pay, it mitigated the risk associated with third-party supply and allowed them to encourage seeking out volume of customers rather than vetting consumers for their risk profile. And with this risk mitigation came more complaints of shoddy and harassing marketing techniques (Baltimore Fish Bowl, 2021). Evidence has suggested that third-party suppliers have historically targeted low-income consumers more than any other consumer in Maryland (Baltimore Sun, 2020).

V. Low-Income Consumers

A report from the Maryland PSC provides details as to which zip codes have been exposed to door-to-door marketing tactics from third-party electricity suppliers (MD PSC, 2020). As part of my analysis, I have cross-referenced the data from this report against census data for the state and it shows that 11 of the top 18 zip codes experiencing the most foot traffic from third-party suppliers were also among the top

50 poorest zip codes in Maryland. Meanwhile, none of the top 25 wealthiest zip codes in Maryland made the list of zip codes experiencing the most foot traffic from third-party suppliers.

This data supports consumers advocates concerns that third-party suppliers may be targeting lower-income consumers (Abell Foundation, 2018). Further, consumer advocates have made claims that third-party suppliers have used predatory marketing techniques to ruse low-income consumers (WSJ, 2021). Such tactics have led to consumers contractually signing onto plans that may not be in their best interest, and eventually their electric bills have risen.

VI. **Energy Insecurity**

Energy insecurity is commonly referred to as an inability to pay for energy expenses. The Energy Information Administration (EIA) conducted a survey and reported that roughly 31 percent of households face challenges with paying their energy expenses (EIA, n.d.). This burden would seemingly be exacerbated for low-income consumers facing growing electricity supply charges from third-party sources.

This project will delve into growing concerns around energy insecurity and assess whether the benefits of allowing third-party supply in residential markets outweigh the costs.

2. Customer Choice Options

The implementation of deregulation in Maryland allowed consumers to choose between keeping their electricity supply with their traditional utility or buying their

electricity from a Maryland PSC approved supplier. The flexibility in these purchasing arrangements was intended to bring competition into the electricity supply sector – so far the results have yielded mixed results. Specifically, larger customers have been able to attract more competitive rates because of their higher consumption, however smaller consumers, such as residential households, on average have not been able to attract rates that would lead to cost savings. The vertically integrated utility (VIU) model represents the operations of traditional utilities; whereas the third-party supply model represents the operations of the supplier that is free to market their services to end-use consumers without being subjected to the traditional ratemaking process.

2.1 Vertically Integrated Utility Model

The VIU model has been the default for servicing the electricity industry in the United States since the early 1900s. This model is a consolidated approach in which the regulated utility is responsible for each phase in the process of creating and delivering electricity to the end-user (ACEEE, n.d.). These phases include the generation of electricity, the transmission of electricity, and the distribution of electricity.

Generation is the process of creating electricity at a power plant, which may not be physically close to where it is finally consumed. Transmission is the transportation component that is needed to compensate for the distance between where the commodity is produced and where it is consumed. As such, transmission involves carrying high-voltage electricity from the power plant to local zones where it can then be transferred to a lower-voltage distribution network. And the final phase, distribution,

involves preparing the electricity commodity to enter a local network so that it can finally be delivered to consumers. Utilities are also tasked with providing customer-facing services, such as energy efficiency programs, customer service, billing, etc.

Under the VIU model, a regulated utility that has been awarded jurisdiction over a specific region is responsible for the final delivery of electricity to consumers in the region. In return, the utility is guaranteed to recover their cost of service along with a reasonable profit. The rates that the regulated utility pass on to the consumer are determined through a rate case – the rate case is typically held between the utility and a public state commission. The outcome of this rate case leads to transparent charges for consumers, as a fixed unit rate is charged over a specified period (electricity is usually priced as dollars per kilowatt-hour). Commercial and industrial consumers (i.e. larger consumers) are also charged for demand of power (which is priced and measured as dollars per kilowatt).

The transparency of rates provides comfort as it offers consumers an opportunity to control their total electric cost by shifting their usage. On the other hand, arguments have been made that the lack of competition may lead to higher prices or an opportunity for market manipulation since the regulated utility has a monopoly over the entire electricity supply (Mackinac, 1997).

While both schools of thought have merit, it would be shortsighted to limit this analysis to a broad market overview without dissecting whether some customers fare better under the VIU model than others. There are outstanding questions as to whether competition always provides consumers with an alternative option that is viable. The electric industry is known for having high costs of entry, leading to barriers for potential

competitors. This paradigm has been cited as justification for the traditional VIU model that is subject to heavy regulations and scrutiny (RAP Energy Solutions, 2011). In essence, the VIU model is synonymous to a natural monopoly because of the presence of outside regulators that dictate the utility's return on investment.

2.2 Third-Party Supply Model

In 1999 the Maryland General Assembly passed the "Electric Customer Choice and Competition Act of 1999," which allowed consumers to purchase their electricity supply (commodity only) from either the traditional VIU or from a third-party supplier (Maryland PSC, 2001). The third-party supply model gained popularity when it first became an option in Maryland, but enrollment has gone through ebbs and flows since (Baltimore Fish Bowl, 2021).

The third-party supply model only applies to the generation of electricity and not the delivery of the commodity. Because third-party suppliers are not tasked with delivering the commodity to the end-user, it allows them to solely apply their resources to either producing electricity and then selling it at an unregulated price, or purchasing electricity from another producer with the intent of selling it to a consumer. In the latter scenario, the third-party supplier aims to sell the commodity at a price that allows them to earn a profit.

While traditional utilities have designated service areas under the VIU model, third-party suppliers in turn are free to operate in any service area if they have the appropriate operating licenses. Additionally, third-party suppliers are not subject to the same ratemaking processes that traditional utilities must undergo. It is also noteworthy that the parent company of a regulated utility can establish a subsidiary that acts as a

third-party supplier, thus giving the parent company a pathway to compete in the retail supply market.

Even though third-party suppliers are not dependent on a regulated ratemaking process to determine what their designated returns will be for a specified period, they face other pressures in being able to attract new consumers and retaining previous consumers. Their business model is driven by the volume of sales that they are able to generate, and their sales are more likely to increase with more consumers. An argument can also be made that sales are not always a positive driver on their profit, which can happen if the third-party supplier ends up paying more to procure electricity than they are able to sell it for. This provides an example of how the unregulated third-party model has inherent risks which the regulated VIU model is mostly shielded from.

Although third-party suppliers are not subjected to formal ratemaking processes, they are still however governed by state's PSC – and with that, the PSC is tasked with being a watchdog for the marketing practices that third-party suppliers deploy. The PSC tracks complaints that are filed against third-party suppliers and they ultimately have the ability to revoke the operating licenses of third-party suppliers.

As with most segments of the typical third-party supplier model, the supplier may have different marketing techniques for different customer classes. As an example, door-to-door sales pitches may be a more effective practice when used in the residential space, whereas targeted customer outreach may be a more prudent technique to use on commercial customers given their typically larger usage patterns. To have a better understanding of third-party supplier operating strategies it is important to understand the different customer classes.

3. Customer Classes

There are typically three types of end-use consumers: (i) Industrial consumer, (ii) Commercial consumer, and (iii) Residential consumer (it is also worth noting that there is a growing customer class in the electric vehicle space, but this segment is outside the scope of this analysis). The three customer classes have different usage patterns, and ultimately different needs as end-use consumers. Residential consumers are known for having the lowest electricity demand, but it can be advantageous for third-party suppliers to engage with this class because there are so many residential consumers.

3.1 Industrial Consumer

Industrial consumers typically demand electricity to serve their growing business needs, such as processing, producing, or assembling goods, in industries such as manufacturing, mining, agriculture, and construction (EPA, n.d.). The industrial sector serves as a lifeline to the production of goods in the state, so they are typically regarded as being the end-use consumer class that demands the most amount of electricity.

In 2020, customers in the industrial sector consumed 5.9% of the total electricity produced and sold in Maryland; further of all end-use consumers in Maryland, 0.3% are industrial consumers (EIA, n.d.). Also in 2020, on average, the typical industrial end-use consumer demanded 377 Megawatt hours (MWh) of electricity per year – this exceeds both the typical residential and commercial consumer's demand (EIA, n.d.). Industrial consumers' large energy demand provides them with leverage to negotiate favorable purchasing prices for electricity; they can negotiate a lower unit rate by demanding a larger volume of the electricity commodity (larger industrial consumers may also have

the ability to take energy directly from the transmission system and bypass the distribution network). This is demonstrated in data provided by the EIA – in 2020 Maryland industrial consumers paid 7.6 cents/kilowatt hour (kWh) on average for electric supply from third-party suppliers (EIA, n.d.). This unit rate was more favorable than the average unit rate that industrial consumers paid for electricity from the VIU model (7.8 cents/kWh) and it was the cheapest average rate under the third-party supply model (EIA, n.d.). Public data on the negotiated terms are scarce, but it is possible that these larger consumers have engaged in long-term purchasing agreements, such as power purchasing agreements, in exchange for a competitive rate. That may be a contributing factor to help explain why commercial and industrial consumers are able to obtain more advantageous rates.

It is common for industrial consumers to engage in structured purchasing arrangements from third-party suppliers because of the leverage they hold because of their high volumetric demand (Watchwire, 2021). The purchasing arrangements can be mutually beneficial for both the consumer and supplier. For the consumer, they are able to assess the traditional utility's rates and if they notice an opportunity to pay less through a third-party supplier, they can opt to lock-in to a purchasing agreement with the supplier. For the supplier, they now have certainty of how much electricity they are going to need to procure, and with more volume they can also engage in utilizing economies of scale to negotiate a lower unit rate from an electricity producer (in theory, the producer is eliminating the need to seek out consumers, which drives down their overhead costs and allows them to offer the supplier a lower rate). Commercial consumers have a similar advantage, although not as robust as industrial consumers.

3.2 Commercial Consumer

Commercial consumers usually include government facilities, service-providing facilities and equipment, and other public and private organizations (EPA, n.d.). The demand profile of commercial consumers tends to vary depending on the operational functions of the facility that they occupy. The foot traffic at commercial locations also varies based on the operational hours and types of services provided by the end user. Data from the EIA suggests that commercial customers demand less energy than industrial consumers, but more energy than residential consumers.

Electricity consumers from the commercial sector consume 46% of the total electricity produced and sold in Maryland; of all end-use electricity consumers in Maryland, 9.7% are commercial consumers (EIA, n.d.). On average, the typical commercial end-use consumer demands 103 MWh of electricity per year – this exceeds both typical residential consumers consumption but is less than the typical industrial consumer's demand (EIA, n.d.). Although commercial consumers do not demand as much electricity as industrial consumers, their demand profile still positions them to attract favorable purchasing agreements from third-party suppliers. Data provided by the EIA supports this idea – in 2020 Maryland commercial consumers paid 9.2 cents/kWh on average for electric supply from third-party suppliers (EIA, n.d.). This unit rate was more favorable than the average unit rate that commercial consumers paid for electricity from the VIU model (11.2 cents/kWh) (EIA, n.d.). It is worth noting that commercial and industrial consumers are also subject to peak power demand charges which captures the peak instantaneous power that a consumer receives (Renewable Energy World, 2017). These peak power demand charges are not included in this

assessment of electric supply charges as they are a separate charge that is typically charged by the regulated utility.

3.3 Residential Consumer

The residential sector includes single-family homes and multi-family housing, and it accounts for more than a third of the electricity used nationwide (EPA, n.d.). The average residential consumer load in the aggregate tends to have a predictable usage pattern – this usage pattern is typically lower than both commercial and industrial consumers.

United States Average Annual Electric Consumption/Customer (kWh's)			
Year Range	Residential	Commercial	Industrial
2011-2020	10,825.19	74,116.49	1,170,479.87
2001-2010	11,009.07	74,589.39	1,384,949.34
1991-2000	10,074.73	67,207.63	1,830,238.69

Electricity consumers from the residential sector consume 48% of the total electricity produced and sold in Maryland; of all end-use electricity consumers in Maryland, 90% of them are residential consumers (EIA, n.d.). Residential consumers overwhelmingly make up most of electricity consumers in Maryland, and on average, the typical residential end-use consumer demands 11.5 MWh of electricity per year (EIA, n.d.). Although residential consumers present a tremendous volume in customer count, their low electric usage profile per customer keeps them from being a consumer class that demands a high total electric output. Commercial and Industrial consumers demand more electricity per consumer than residential consumers – because of the residential consumers low electric demand, they do not have the leverage needed to negotiate favorable purchasing prices for electricity from third-party suppliers. In 2020 Maryland residential consumers paid 14.8 cents/kWh on average for electricity from

third-party suppliers (EIA, n.d.). This unit rate was less attractive than the average unit rate that residential consumers paid for electricity from the VIU model (12.6 cents/kWh) (EIA, n.d.).

These unfavorable prices for residential consumers from third-party suppliers begins to prime the question as to why residential consumers engage in purchasing agreements with third-party suppliers. The adoption of deregulation policies does seem to have been rooted in good intentions, but the trend of third-party suppliers offering less favorable prices for residential consumers suggests that there may be a problem with the model. For the consumer, they are able to assess the traditional utility's rates and if they notice an opportunity to pay less through a third-party supplier, they can opt to lock-in to a purchasing agreement with the supplier. Because residential consumers do not consume as much electricity on average as commercial and industrial consumers, they do not have the same benefit of having economies of scale in their favor. This may be the primary reason why residential consumers do not have leverage in negotiations with third-party suppliers.

3.4 Third-Party Supply Enrollment

Although most electric consumers in Maryland have elected to maintain their service under the VIU model (83% of residential electricity consumers in Maryland have elected the VIU model), the number of consumers choosing to engage with third-party suppliers has gone through ebbs and flows over the years (Baltimore Fish Bowl, 2021). Baltimore Fish Bowl reports that 26% of households were enrolled in third-party supply in Maryland in 2013, but that figure is now 13%. By comparison, residential consumers in Washington, D.C have gone through a similar trajectory with 16% of residential

consumers being enrolled in June 2018, but that figure has diminished to 13.2% as of February 2022 (Public Service Commission District of Columbia, 2022). Although enrollment has recently dipped in the residential sector, it does not serve as an indicator as to whether consumers will have interest in the future.

On the other hand, the majority of MWh of electricity sold to commercial and industrial consumers in Maryland came from third-party suppliers – 77% of the total electricity consumed by commercial and industrial consumers in 2020 were purchased through third-party suppliers (EIA, n.d.). And since commercial and industrial consumers on average attract more favorable prices from third-party suppliers than they do from their regulated utility, these consumers are generating savings from their electricity expenditures.

MWh's Sold to Electric Consumers in MD				
Year Range	Model	Residential	Commercial	Industrial
2011-2020	VIU	218,462,604	71,898,431	5,342,796
2011-2020	3rd Party Supply	54,230,154	222,150,112	34,429,421
2001-2010	VIU	262,506,315	133,165,456	72,348,252
2001-2010	3rd Party Supply	8,462,814	117,269,200	56,645,994

Electricity sales from third-party suppliers to residential consumers in Maryland only accounted for 13% of total sales (Baltimore Fish Bowl, 2021). This outcome is not surprising given the higher prices that residential consumers garner from third-party suppliers. While this is an unfortunate outcome, and not what was intended when deregulation was implemented, there still seems to be some growth in the number of residential consumers moving to third-party suppliers. This comes off as counterintuitive given the unfavorable pricing from third-party suppliers. To get a better understanding of why this trend is happening it will require a deeper dive into the marketing tactics of third-party suppliers.

4. Reported Problems within the Third-Party Supply Marketplace

Roughly thirteen percent of electricity consumers in Maryland have elected to receive their electricity supply from a third-party supplier rather than their default VIU (EIA, n.d.). This growth in electricity supply share comes more than twenty years after deregulation was implemented in Maryland.

As of 2020, the commercial and industrial sectors are responsible for more than 80% of third-party supply total sales. This percentage share appears to be reasonable given the leverage that the commercial and industrial sectors have in attracting lucrative third-party supply purchasing agreements. On the other hand, this percentage share also serves as the impetus for the question of whether deregulation has provided similar benefits to residential consumers.

4.1 Is competition working for Residential Consumers?

The default argument for competitive markets is that third-party suppliers will compete with each other until there is a fall to the bottom in pricing, which is advantageous for the consumer. However, a report from the Abell Foundation shows that residential consumers in Maryland have consistently paid higher supply prices for third-party supply than for supply from their respective regulated utility (Abell Foundation, 2018). This report notes that residential consumers paid $255 million more for third-party supply than they would have from their respective regulated utility. These additional costs are not unique to Maryland residential consumers, unfortunately. A report from the Wall Street Journal notes that nationwide, residential consumers have $19.2 billion more to third-party suppliers than they would’ve paid to their respective regulated utility (WSJ, 2021).

These numbers help support the theory that on average, residential consumers incur higher charges under the third-party supply model. As such, the idea that competition is good for all consumers is challenged.

4.2 Reports of deceptive enrollment

To understand why the third-party model has inherent flaws, we must delve into the underlying regulations of the third-party supply market. Residential consumers have been slow to adopt the third-party supply model; data from the Maryland Public Service Commission show that only 5% of residential consumers opted for third-party supply by the end of 2009, but that number jumped to 13.5% by 2010 (Baltimore Fish Bowl, 2021). This sudden jump would usually indicate that there has been pent-up appetite from the residential sector to take advantage of the competitive third-party supply space, but information from the Baltimore Fish Bowl (a daily news publication in Baltimore) highlight the true impetus for this increase in demand – regulatory changes to the billing design of third-party supply arrangements (Baltimore Fish Bowl, 2021).

The first regulatory change was the introduction of consolidated billing. This shifted the billing framework, which initially began as one bill being delivered to the consumer from their third-party supplier for the commodity charge and another bill being delivered to the consumer from the regulated utility for transmission and distribution charges. The new design made it so that the third-party suppliers charges would show up on the regulated utility's bill under the regulated utility's letterhead. Some may speculate that this also created a gateway for third-party suppliers to remain as the supplier for consumers who may be disgruntled; for consumers who may have been enrolled

without agreeing to being enrolled, this design element allows the third-party supplier to continue to offer their services under the guise of being the regulated utility.

The second regulatory change allowed third-party suppliers to sell their debts to the regulated utility. Third-party suppliers do not have the leverage of cutting off a consumer's electricity if the consumer does not pay them – the regulated utility is tasked with that effort. However, under the original framework, the regulated utility did not have a direct vested interest in the payment status of consumers to third-party suppliers. As such, the consumer did not face a threat of having their electricity cut off if they did not pay the third-party supplier. This regulatory change now gave the third-party supplier the ability to sell their debts to the regulated utility and it gave the third-party supplier protection from consumers with credit risks. The Abell Foundation notes that new third-party suppliers "flooded" the market after this change, and it also gave third-party suppliers a new creative pathway to enroll consumers (Abell Foundation, 2018).

These changes were a boon to the third-party supply market, and it gave suppliers protection to enroll customers who they otherwise would not have enrolled. This has unfortunately also led to reports of consumers being enrolled either against their will, or without their prior knowledge. According to data from the PSC, customers who were unknowingly enrolled into third-party supply arrangements were the second most highest source of complaints (among the electricity sector) received by the PSC in FY2020 (Maryland PSC, n.d.). By enrolling new consumers, even against their will or knowledge, third-party suppliers were able to develop a new revenue stream that they otherwise would not have. But it also begs the question of who do third-party suppliers typically target under these circumstances.

4.3 Are certain neighborhoods being targeted?

While data related to the zip codes of residential consumers who are enrolled in third-party supply arrangements are scant, the Maryland PSC does publish data related to complaints against third-party suppliers. For the most recent Maryland PSC complaint report, the third most complaints related to third-party suppliers involve “Enrollment Dispute” (Maryland PSC, n.d.). Unfortunately, the report does not disclose the zip codes of where the complaints originated, but the frequency at which consumers allege that they were deceitfully enrolled into an agreement is alarming.

As previously mentioned, the PSC does however disclose quantitative data on third-party suppliers marketing and advertising practices. While this marketing data does not serve as a perfect correlation to deceitful enrollment, it does suggest that third-party suppliers have more encounters with lower-income neighborhoods, which can increase the opportunity for third-party suppliers to enroll such consumers. It may be coincidental that nine of the top fifteen zip codes experiencing the most foot traffic from third-party suppliers were also among the top 25 poorest zip codes in Maryland; but as evidenced in an investigate report through the Wall Street Journal, low-income consumers are often targets of third-party suppliers and these interactions have led to predatory complaints (WSJ, 2021).

5. Formal Customer Complaints

Consumer complaints serve as a barometer to assess whether consumers are generally satisfied with third-party suppliers’ services; it is the PSC’s responsibility to investigate the validity of the claims. The Maryland PSC publishes data pertaining to the types of claims that it receives from consumers (they do not break this out by consumer

class, unfortunately), and they also publish data pertaining to the number of times that they either ruled in the consumers favor, ruled in the suppliers favor, or did not have to make a ruling because the complaint was dissolved (Maryland PSC, n.d.). There is a drawback to the rulings data that the PSC reports however, as they do not break out how they ruled based on the type of complaint (i.e. misrepresentation, enrollment dispute, etc.). This breakout would be helpful, but to get around this flaw, one can conduct a case search through the Maryland PSC website and follow the PSC's determination as an alternative. It may be a helpful exercise for visitors to familiarize themselves with the types of complaints that come into the PSC's office as well.

5.1 Types of Complaints

The Maryland PSC is tasked with receiving complaints from consumers and investigating these complaints to ensure that there is a safe marketplace devoid of unjust and discriminatory activity. They have categorized the complaints as follows in their published reports: 1) Misrepresentation; 2) Enrollment Dispute; 3) Start/Stop service; 4) Early Termination fees; and 5) Other.

According to data provided by the Maryland PSC, enrollment dispute's were the most cited complaint between July 2019 and December 2021 (Maryland PSC, 2022). They also serve as the primary complaint that substantiates erroneous enrollment activity for consumers.

Enrollment disputes are problematic for a number of reasons, mainly that a consumer's choice has been invaded; further, it could be argued that the regulatory change that allowed third-party suppliers to consolidate bills served as a gateway to exacerbate this problem. Under consolidated billing, third-party suppliers must place

their information and charges on the regulated utility's bill to the consumer, but it is often found on a tiny portion of the bill that consumers may not notice. Because of this, consumers may not know that a third-party is supplying their electricity unless they contact the utility.

Misrepresentations have also been a heavily cited complaint in the Maryland PSC records since July 2019 (Maryland PSC, n.d.). The Abell Foundation reports that consumers that they interviewed allege that some third-party suppliers claim to be associated with the consumer's designated regulated utility, which is not true (Abell Foundation, 2018). While third-party suppliers do undergo the licensing process to sell electricity in Maryland, they are a separate entity from the regulated utility. Leading consumers to believe that the supplier is representing the regulated utility is misleading and can cause consumers to instill a level of trust into the suppliers' offerings that they may not would have otherwise (Abell Foundation, 2018).

5.2 Examples of Complaint Filings

While the consumer complaint report does broadly provide a helpful snapshot of customer complaints, the formal cases brought against third-party suppliers by PSC Staff typically provides more granularity and offers more insight into the specifics of the complaints. Cases brought against SmartEnergy Holdings and Atlantic Energy MD LLC serve as good examples.

On May 10, 2019, Maryland PSC staff filed a Complaint against SmartEnergy Holdings for "committing fraud and engaging in deceptive practices and for failing to comply with the Commission's consumer protection regulations" (Maryland PSC, 2019). The allegations brought against SmartEnergy include: 1) Maryland PSC's Consumer

Affairs Division (CAD) received a complaint from a consumer that they were erroneously enrolled – SmartEnergy agreed that the enrollment was not valid; 2) CAD received two complaints that allege “Slamming” by SmartEnergy – slamming is the practice of customers being switched to a new supplier without their consent; and 3) CAD received a complaint against SmartEnergy in which the consumer alleged that SmartEnergy “stated it was affiliated with Baltimore Gas and Electric (a regulated utility in Maryland), and when the customer called the next day to cancel, the customer claimed that SmartEnergy said that the customer didn’t have a good reason to cancel,” CAD ruled in favor of the consumer in this proceeding. CAD further notes that these complaints “constitute a deceptive practice or other prohibited act in violation of the Commission’s consumer protections.”

Days later, on May 15, 2019, Maryland PSC staff filed a similar Complaint against Atlantic Energy MD LLC (Maryland PSC, 2019). The allegations brought against Atlantic Energy include: 1) the CAD received 19 formal complaints against Atlantic Energy alleging that Atlantic Energy delayed service cancellations due to “technical difficulties” – PSC Staff ruled in favor of the consumers in each of these proceedings; 2) the CAD received eight complaints in which the consumer alleged that they were erroneously enrolled into supply services with Atlantic Energy; 3) the CAD received four complaints alleging that Atlantic Energy representatives made false or misleading statements – CAD ruled in favor of the consumer in each instance; and 4) CAD received a complaint alleging unwanted solicitation and trespassing by Atlantic Energy representatives. CAD again noted that “these complaints “constitute a deceptive practice or other prohibited act in violation of the Commission’s consumer protections” (Maryland PSC, 2019).

These two formal Complaints by PSC Staff serve as examples of problems within the third-party supply marketplace that still exist. It would be unfair to assume that these allegations happen in most interactions between suppliers and residential consumers, but it would be equally unfair to discount the times that they do happen. The presence of these complaints is a microcosm of problems that can exist in a retail marketplace that does not have appropriate protections in place to serve consumers. The lack of protections is especially harmful for lower-income consumers that face energy insecurity problems and are already struggling to satisfy their household energy costs. To that end, the Maryland PSC recently introduced legislation that prevents third-party suppliers from charging more than the standard rates by the large utilities; the caveat is that this only applies to consumers receiving state energy assistance (Baltimore Fishbowl, 2021). This is a good start to protecting consumers that are especially vulnerable to energy insecurity, but with mounting pressures on household expenditures it may not be enough.

6. Energy Insecurity

Energy insecurity is a term often used to describe households that are faced with the possibility of having their access to energy resources restricted due to an inability to pay energy expenses (Nature Energy, 2021). Data from the EIA suggests that roughly 31% of households face challenges with paying their energy expenses (EIA, n.d.). While not all these households meet the definition of being energy insecure, the proportion of households nationwide that are facing energy insecurity is growing (ACEEE, 2020). The pressures have become more potent as the cost of energy commodities have grown in recent years. Some families are faced with choosing whether to buy groceries or keep

the lights on as these energy costs grow (Alliance to Save Energy, 2018). Unfortunately, data pertaining to energy insecurity by state is scant, but most locations that have high poverty rates will most likely have a sizable portion of residents who are facing energy insecurity.

The introduction of a competitive electric marketplace was meant to combat this problem of energy insecurity, but as previously stated, residential consumers have seen an increase in energy supply costs. This cost increase has contributed to a growing energy insecurity problem, which is counterintuitive to what policymakers aimed to do when they adopted the Electric Customer's Choice and Competition Act.

It is imperative to also examine the costs under the VIU model while assessing the growing costs in the third-party supply market. Given the fact that residential consumers are paying more under the third-party model, in most circumstances, it would be in residential consumers best interest to avoid getting into arrangements with these suppliers. However, third-party suppliers are able to market their products to residential consumers without much oversight, which may provide an opportunity for third-party suppliers to sell an idea to consumers that may not be entirely true. Further, cross-referencing marketing data for third-party suppliers against zip code data by poverty levels has shown that third-party suppliers conduct most of their door-to-door marketing activities in the poorest counties in Maryland. Targeting these households to sell a product that may lead to increased energy burdens for Maryland's poorest communities may exacerbate the energy insecurity problem.

3rd Party Door-to-Door Interactions		
Zip Code	Rank in Poorest Zip Code (Maryland) out of 467	Number of Suppliers Reporting Door-to-Door Activities
21205	1	21
21206	16	21
21207	NA	20
21209	NA	19
21212	NA	19
21213	5	18
21215	20	19
21216	4	19
21217	21	19
21218	14	20
21222	22	20
21223	2	18
21224	34	21
21225	8	20
21228	NA	18
21234	NA	18
21237	NA	18
21239	NA	19
*NA = the zip code did not rank in the top 50 poorest		

Data Sources: Maryland PSC & UnitedStatesZipCodes.org

Third-party suppliers should take full credit for lowering commodity costs for the average commercial and industrial consumer, and because of this they may also tout that they provide savings to the average residential electricity consumer. Looking at the data more granularly shows however that these savings have not applied to residential consumers historically.

It is important to note that many residential consumers willingly enroll in third-party supply arrangements, but we must also recognize that some consumers have been misled. If third-party suppliers are able to grow their customer base in the residential sector by engaging in shoddy marketing practices and slamming, it may lead to continued energy insecurity problems.

6.1 Problems that arise from Energy Insecurity

Low-income Residential consumers in particular are more likely to experience electricity shut-offs; they are also more likely to end up in a cycle of late-payment fees and rising energy cost burdens because of an inability to pay their energy costs on time

(Baltimore Sun, 2020). These debt burdens may lead low-income residential consumers to minimize their electricity usage to an unsafe level – such as opting to not use electricity when their homes require it to be utilized for air conditioning (Alliance to Save Energy, 2018). This can be problematic in homes where household members require air conditioning for health reasons. Families may also opt to cut off certain appliances, such as refrigerators, which run on electricity – this may lead to increased food costs in the case of spillage. These problems may lead to mounting household costs for low-income Residential consumers, who already have a lower bandwidth for increased household costs (Inside Climate News, 2021).

Some Residential consumers already struggle with covering their electricity costs. Having those electricity costs increase because of costs from third-party suppliers would bring more burdens to Residential consumers.

7. Recommendations

On average, commercial and industrial electric consumers are better positioned to negotiate advantageous pricing arrangements with third-party suppliers. An aggregated third-party supply model for residential consumers may be a viable solution to minimize the deficiency in economies of scale and serve as a balancing factor for the difference in consumption profiles. Under this aggregated model, residential consumers would have the opportunity to aggregate their electric consumption with peers that have similar consumption patterns and then bring this bundled profile to third-party suppliers to attract better offers. Commercial and industrial consumers have an advantage that residential consumers do not – by providing this opportunity for residential consumers to

build a more attractive profile they would realize similar pricing benefits as commercial and Industrial electric consumers.

Aggregation models have worked in similar situations for consumers, such as in the power purchasing agreement (PPA) market and the solar market. Community Choice Aggregation (CCA) is a model that allows electric consumers to make declarations for purchasing electricity from a specific power generator (EPA, n.d.). CCA has been adopted in ten states, with California having the most established model to-date. It is also worth noting that Montgomery County (in Maryland) has recently approved H.B. 768 which allows the county to select a Community Choice Aggregator to help facilitate and progress the counties goal to reach 100% renewable energy by 2035 (Maryland Matters, 2021).

Traditionally, the CCA model has allowed consumers to either use CCA as an alternative to purchasing supply from the VIU model, and more recently consumers have been using this model to fund renewable projects by agreeing to purchase a specified amount of electricity from the generator in return for a specified price (EPA, 2022). These models make the generators business model feasible by providing the generator's operator with a guaranteed revenue source – in return, the consumer receives electricity at a fixed rate that provides more transparency to the consumer, and the consumer also can influence the type of power generator they are receiving electricity from. Similar to how residential consumers do not have leverage in negotiations with third-party suppliers because of their lower electricity demand, consumers in negotiations with operators of power generators do not have leverage to obtain advantageous pricing arrangements because it wouldn't be in the operator's

interest; but it becomes more attractive to operators when consumers are able to source a larger group that is interested in purchasing power because of economies of scale.

In Maryland, a CCA model could be regulated under the same purview as the current electric choice model that has been in place since 1999. If an aggregation model were to be established throughout the state of Maryland for retail supply, it would be under the premise that aggregators would be able to generate a profit through an operating fee that they are able to pass through to the consumer (similar to how third-party suppliers have fixed fees that they pass through to consumers). These aggregators would be able to advertise their services to consumers similar to third-party suppliers. Once aggregators have an established consumer base that has committed to participation, they would then procure supply on behalf of residential consumers. While there would be costs of service that aggregators would pass through to consumers which may be a deterrent for consumers to agree to participate, these costs would be offset by the savings realized from the economies of scale they are able to obtain by aggregating their demand with their neighbors and thus attracting more favorable rates from suppliers.

Maryland PSC should also consider imposing stiffer penalties for third-party suppliers that are found to have engaged in shoddy marketing and enrollment practices. Stiffer penalties will act as a deterrent to third-party suppliers who may be considering engaging in such activities. Additionally, stiffer penalties will send a signal to both consumers and suppliers that the Maryland PSC takes illegitimate marketing practices seriously. As an example, in 2014 the Maryland PSC found a third-party supplier, Starion, of engaging in shoddy marketing practices that led to over one-hundred

complaints by consumers. Most notably, Starion was found to have persistently violated consumer protection rules put in place to prevent third-party suppliers from harassing consumers through unwanted door-to-door interactions (Commonwealth of Massachusetts, 2021). In its determination, Maryland described the persistence of Starion's infractions as being "remarkable"; however the penalties imposed on Starion did not seem to match the infraction (Maryland PSC, 2019). The penalties included a $350,000 fine and a six-month revocation of their operational license in two of the four VIU territories in Maryland. While it is good that the Maryland PSC took steps to penalize Starion for its violations, it can be argued that the penalties were not harsh enough to deter Starion from continuing to make such violations. In 2018, Starion was found to have made similar violations in Massachusetts; specifically, Starion was found to have deployed shoddy marketing practices on over 100,000 Massachusetts electricity consumers (Commonwealth of Massachusetts, 2021). These violations led to Starion making a $10 million settlement with the Massachusetts Attorney General. The difference in the financial penalties between Maryland and Massachusetts depicts a stark difference in how the states handled similar violations; and further, the financial penalty imposed by Massachusetts included guarantees that electric consumers who were harmed would receive most of the penalties. It would also be beneficial for Maryland electric consumers (who were directly impacted by Starion's violations) to receive some compensation. Further, without stiffer penalties it may lead to the exacerbation of energy insecurity if third-party suppliers are able to prey on residential consumers without any real consequence for doing so.

8. Conclusion

The third-party supply model was supposed to provide financial benefits to electric consumers through a competitive bidding process. While consumers in the commercial and industrial space have realized these benefits, residential consumers on average are not realizing the same benefits. Further, residential consumers have been found to be on the receiving end of most of the marketing violations that have been reported in Maryland's third-party supply marketplace. As such, residential consumers on average are not receiving the financial benefits of third-party supply, and they are being exposed to shoddy marketing practices. Given that energy insecurity is a growing problem, and increased electric costs are a contributing factor, it may be best to make tweaks to the marketplace design so that residential consumers can also realize benefits under the third-party supply model.

This research would benefit from a further investigation into energy insecurity to see if energy insecurity has exacerbated in the country since the EIA's last survey in 2015. Data that is currently available allows researchers to infer that energy insecurity is a growing problem, but definitive evidence on an annual basis would help establish a case for low-income households that would benefit from relief on their energy bills. It would also be helpful to get an idea as to where the financial penalties that are collected from bad actors in the third-party supply field are distributed to. In Maryland it is not apparent how the fines that are levied to third-party suppliers are ultimately used, but if the households that were directly impacted by third-party suppliers were offered compensation it may go a long way for those consumers (if they are not already receiving compensation).

References

A.A.R.P (n.d.). *Energy Suppliers: Don't set it and forget it.* https://states.aarp.org/maryland/third-party-ripoffs

Abell Foundation (2018). *Maryland's Dysfunctional Residential Third-Party Energy Supply Market: An Assessment of Costs and Policies.* https://abell.org/sites/default/files/files/Third%20Party%20Energy%20Report%20final%20121718.pdf

Alliance to Save Energy (ASE) (2018). *Low-Income Households Pay A Lot For Energy. Efficiency Can Help Cut Costs.* https://www.aceee.org/topic/utility-business-models

American Council for an Energy-Efficient Economy (ACEEE) (2018). *Low-Income Households Pay A Lot For Energy. Efficiency Can Help Cut Costs.* https://www.aceee.org/press-release/2020/09/report-low-income-households-communities-color-face-high-energy-burden

ACEEE (n.d.). *Utility Business Models.* https://www.aceee.org/topic/utility-business-models

Baltimore Fishbowl (2021). *Energy supplier choice aimed to lower Marylanders' bills, but some customers are left feeling powerless.* https://baltimorefishbowl.com/stories/energy-supplier-choice-aimed-to-lower-marylanders-bills-but-some-customers-are-left-feeling-powerless/

Baltimore Fishbowl (2021). *Have questions or concerns about energy supply? Here's what you should know.* https://baltimorefishbowl.com/stories/have-questions-or-concerns-about-energy-supply-heres-what-you-should-know/

Baltimore Fishbowl (2018). *Report: Maryland's deregulated energy market 'dysfunctional,' harming low-income households.* https://baltimorefishbowl.com/stories/marylands-deregulated-energy-market-dysfunctional-harming-low-income-households-new-abell-report-says/

The Baltimore Sun (2020). *Switching utility companies means many low-income Marylanders paying more.* https://www.baltimoresun.com/opinion/op-ed/bs-ed-op-0923-third-party-energy-supplier-20200922-rnmuxg3yxzdn7eyzxxtsamn4uy-story.html

Commonwealth of Massachusetts (2021). *Starion Energy Customers Will Begin Receiving Refunds As Part of $10 Million Settlement With AG's Office.* https://www.mass.gov/news/starion-energy-customers-will-begin-receiving-refunds-as-part-of-10-million-settlement-with-ags-office

Environmental Protection Agency (EPA) (n.d.). *Community Choice Aggregation.* https://www.epa.gov/green-power-markets/community-choice-aggregation

EPA (n.d.). *Electricity Customers.* https://www.epa.gov/energy/electricity-customers

Green Matters (2020). *How Do Carbon Emissions Affect the Environment? https://www.greenmatters.com/p/how-do-carbon-emissions-affect-environment*

Energy Information Administration (EIA) (n.d.). *Electricity Explained.* https://www.eia.gov/energyexplained/electricity/prices-and-factors-affecting-prices.php

Energy Information Administration (EIA) (n.d.). *Electricity Statistics.* https://www.eia.gov/electricity/data.php

EIA (n.d.). *One in three U.S. households faced challenges in paying energy bills in 2015.* https://www.eia.gov/consumption/residential/reports/2015/energybills/

Finance Guru (2020). *Which States Have Deregulated Energy?* https://financeguru.com/news/which-states-have-deregulated-energy/

Inside Climate News (2021). *Why the Poor in Baltimore Face Such Crushing 'Energy Burdens.'* https://insideclimatenews.org/news/12022021/energy-burdens-low-income-baltimore/

Law Publish (2019). *Advertising Retail Electricity and Natural Gas.* https://www.lawpublish.com/ftc-advertising-retail-electricity-natural-gas.html

Mackinac Center for Public Policy (1997). *The General Benefits of Electricity Deregulation.* https://www.mackinac.org/1035

Maryland Matters (2021). *Tom Hucker: Allow Maryland Communities to Expand Clean Power.* https://www.marylandmatters.org/2021/02/16/tom-hucker-allow-maryland-communities-to-expand-clean-power/

MD Electric Choice (n.d.). *Shop for Your Home's Electricity.* https://www.mdelectricchoice.com/shop/?kwh=1100&utility=292

Memmott, Trevor, et al. (2021, 01). *Sociodemographic disparities in energy insecurity among low-income households before and during the COVID-19 pandemic.* https://www.nature.com/articles/s41560-020-00763-9#:~:text=Energy%20insecurity%E2%80%94conceptualized%20as%20the,United%20States%20and%20elsewhere3re

The Nation (2001). *California's Deregulation Disaster.* https://www.thenation.com/article/archive/californias-deregulation-disaster/

PJM (n.d.). *Market for Electricity.* https://learn.pjm.com/electricity-basics/market-for-electricity.aspx#:~:text=The%20purchase%20and%20sale%20of,done%20in%20the%20retail%20market.

Public Service Commission District of Columbia (2022). *Status Of Electric Retail Choice In The District Of Columbia.* https://dcpsc.org/PSCDC/media/PDFFiles/Electric/electric_sumstats_no_cons.pdf

Public Service Commission of Maryland (2001). *Electric Customer Choice and Competition Act of 1999.* https://www.psc.state.md.us/wp-content/uploads/Year2PerformanceYear3Plan.pdf

Public Service Commission of Maryland (n.d). *In the Matter of the Investigation into the Marketing Practices of Starion Energy, PA.* https://www.psc.state.md.us/search-results/?q=9324&x.x=19&x.y=12&search=all&search=case

Public Service Commission of Maryland (2021). *Report on Energy Supplier Pricing and Marketing.* https://1aw8mpqgs0c2xh37dnhue7w3-wpengine.netdna-ssl.com/wp-content/uploads/2021/12/2020_p14_PSC_Report-on-Electric-Supplier-Pricing-and-Marketing.pdf

Public Service Commission of Maryland (2019). *Response to 2019 Joint Chairmen's Report on the Fiscal 2020 State Operating Budget (HB 100) and the State Capital Budget (HB 101) and Related Recommendations.* https://www.psc.state.md.us/wp-content/uploads/2019_p11_PSC_-JCR-Response.pdf

Public Service Commission of Maryland (2022). *Supplier Report FY22 Q1.* https://www.psc.state.md.us/wp-content/uploads/Supplier-3-Report-FY22-Q1-2-final.pdf

Rap Energy Solutions (2011). *Electricity Regulation In the US: A Guide.* https://www.raponline.org/wp-content/uploads/2016/05/rap-lazar-electricityregulationintheus-guide-2011-03.pdf

Renewable Energy World (2017). *Making Sense of Demand Charges: What Are They and How Do They Work?* https://www.renewableenergyworld.com/wind-power/making-sense-of-demand-charges-what-are-they-and-how-do-they-work/#gref

Statista (n.d.). *Electricity end use in the United States from 1975 to 2021.* https://www.statista.com/statistics/201794/us-electricity-consumption-since-1975/

United States Zip Codes (n.d.). *Lowest Poverty ZIPs in Maryland.* https://www.unitedstateszipcodes.org/rankings/zips-in-md/poverty_rate/

Wall Street Journal (WSJ) (2021). *Texas Electric Bills Were $28 Billion Higher Under Deregulation.* https://www.wsj.com/articles/texas-electric-bills-were-28-billion-higher-under-deregulation-11614162780

Watchwire (2021). *Energy Procurement: Everything You Need to Know.* https://watchwire.ai/energy-procurement/