



Staff “Surge Call” - August 8, 2022: AMI Data Access

With Advanced Metering Infrastructure (AMI), utility customers can access a host of enhanced services and benefits that leverage the power of data access—beyond traditional bill savings and energy conservation—such as innovative customer-tailored services, better integration of distributed energy resources, and increased grid resiliency and reliability, while advancing state policy goals. Despite the adoption of AMI in many states, there is no single, one-size-fits-all solution for enabling customer and third-party access to AMI data, thus amplifying concerns that expensive AMI technologies will be underutilized. During this surge call, commission staff will share their experiences and perspectives on customer data access priorities, existing and new challenges to providing access to data, emerging technologies and use cases for customer data, and key principles that regulators should consider when developing data access policies.

Maryland

Starting premise is that in Maryland, AMI data has proven to be beneficial, so this discussion is about how to maximize those benefits and not about the value of AMI in general.

Maryland Commission Staff are currently working to develop a construct for Green Button Connect My Data to enable broader sharing of customer energy data. Third-party energy suppliers already have access to certain customer data; this would add non-regulated third-party Service Providers (will refer to these as “ESCOs”). Work began in 2017 as part of PSC grid modernization effort – docketed under Public Conference (PC) 44. PSC stood up a Competitive Markets and Customer Choice work group (CMCC). The Work Group developed proposed, draft regulations to enable Maryland utilities with AMI meters (mostly electric utilities) to begin implementing a platform for sharing AMI data. The regulations centered on the creation of a new category of third-party ESCOs in the State, defined as “energy consultants.” In 2018 the PSC initiated a rulemaking (RM62) to consider the Work Group’s proposed regulations. Ultimately, they declined to adopt them, because they determined that the PSC did NOT have jurisdiction over non-regulated, third-party ESCOs. Instead, the PSC directed the Work Group to continue discussing how data access could be achieved, absent legislative action giving the PSC jurisdiction.

The Work Group leaders began developing a general framework based on three principal relationships for a data sharing model and specific rules that would apply to each relationship. Those relationships are: 1) utility-customer, 2) customer-ESCO; and 3) utility-ESCO. In developing a new straw proposal, the Work Group considered a data access proposal presented to North Carolina Utilities Commission, based on similarities between the issues presented in North Carolina and Maryland. Not surprisingly, Work Group members raised a number of concerns, including but not limited to the following:

- PSC’s lack of direct jurisdiction over non-regulated third-party ESCOs
- The potential that where utilities provide essential services to customers and collect (and maintain) customer data for that purpose, utilities would be called upon to enforce third party compliance with rules about the customer-ESCO relationship (i.e., outside their customer relationship)
- Ratepayers subsidizing the businesses of information vendors (ESCOs)
- Potential difference in the level of data granularity the new third-party entities would have access to being greater than what is currently available to third-party energy suppliers
- Uncertainty in defining what types of data would or should be deemed “shareable”
- Benefits/disadvantages of a centralized platform to warehouse customer data for all utilities versus separate utility-by-utility interfaces

- Ensuring customer data privacy and other customer protections, as well as responsibility for enforcement against third-party “bad actors” (e.g., Commission, utilities, or Office of Attorney General)

Work on this was paused due to COVID pandemic and other work on retail electric choice but has now resumed. The path forward is to have topic-by-topic concept-level discussions in an effort to build consensus around the regulatory framework or construct elements before drafting regulatory language. Maryland also hopes that there may be some synergies with parallel work occurring at the DC Public Service Commission, because DC and Maryland are both served by Exelon family of utilities. There are 11 topics of discussion on the agenda. Will provide detail on some, just enumerate others. The guiding principle for all of the discussions is that the customer owns their data and has the right to share this information with whomever they choose, including third-party service providers.

1. Scope of Applicability – addresses to whom the regulation would apply, and also considers whether the new regulatory construct should take the form of regulations or utility tariffs. Note that the tariff model appears to resolve the original issue of PSC jurisdiction over “non-regulated” third-party ESCOs. Further question on tariff model is whether the tariff (and the terms/conditions contained therein) should apply only to non-regulated ESCOs or to any third-party seeking access to this new service (e.g., retail suppliers offering new products).
2. Scope of PSC Jurisdiction - DC PSC also considered the issue of jurisdiction over (non-retail supply) third-party service providers in the context of data access. DC PSC stated it cannot assert direct jurisdiction over an unregulated third party, but that they can regulate relationship between the utility and the third-party in a utility tariff and require certain standards of conduct.
3. Revocation and Termination of Access – Enumerating the conditions under which an ESCO’s access to customer data can be terminated (in addition to customer choosing to revoke access). Discussion regarding the tradeoff between utility desire to take immediate action (e.g., to prevent harm to the system) and interest in due-process and need for PSC review of any unilateral utility action.
4. Dispute Resolution
5. Defining Customer Data and what can/should be “Shareable”
6. Customer Authorization and Authentication
7. Customer Data Platform and Access
8. Safeguarding Customer Data/Data Privacy
9. Aggregation of Customer Data
10. Framing the customer meter data tariff – informed by all of the previous; tariff would set the rules for third-party access to utilities’ data interface/platform
11. Utility Protections and Cost Recovery

In conclusion, Maryland sees three key challenges going forward. First, the utilities, retail energy suppliers, and third-party ESCOs each have specific interests and differing priorities and objectives in obtaining and using customer data; their interests are not aligned. Second, unless there is a “one-stop shop” for all users (e.g, both third-parties and retail suppliers) to get all of the data, there is a concern that the data sharing framework would create an uneven playing field where one party (the non-regulated ESCOs) will be able to access more data than licensed suppliers. Third, cost sharing and cost recovery will be significant issues.

Colorado

Colorado recently concluded a litigated proceeding ([21A-0279E](#)) addressing Public Service Company of Colorado’s deployment of distributed intelligence (“DI”) (aka “grid edge computing”) capabilities of their advanced meters currently being installed. The proceeding resulted in a [settlement](#). The proceeding was necessary due to advancements in meter technology between the time when the utility was approved to deploy AMI and when they purchased and received the equipment. Neither the AMI approval nor previous Colorado customer data privacy rules promulgated seven or eight years ago contemplated some of the capabilities of the new meters. Chief among these is high-frequency measurement (sometimes hundreds of readings per second) and on-meter processing of these measurements to produce useful analysis and insights. This capability raises different privacy concerns than the two types of data considered in the previous rulemaking: 15-minute interval data available to customers (and third parties they authorize) online, and 1-second data available to customers on their home area networks. The ability of the meter (or more accurately, software or “apps” installed in the meter) to disaggregate consumption into various behind-the-meter loads could, for example, provide data on hobbies, medical conditions, religious observances, and potentially illegal activity. And while the utility may not be interested in such information now, other parties likely are and would be willing to pay for that data, leading to concern that the utility will feel pressure or incentive to monetize these data. Among other issues, there was not consensus on whether or not the high-frequency load measurements should be considered “customer data,” as the raw data itself, unlike the analysis and insights derived therefrom, are ephemeral (i.e., not stored anywhere), and there is disagreement about whether or not it is technically possible to transmit those data for storage or use by some other location or device. The latter is the subject of an on-going study that was specified in the settlement agreement. The utility is very reluctant to allow third-parties to install software or apps on the meter to access the data, as this is a major cybersecurity concern. There are also practical concerns regarding the available “space” on the meter for apps; the utility wants the ability to run grid-facing apps themselves. On the other hand, there is broad recognition that the data produced by ratepayer-funded meters should not be solely available to the utility; customers who have paid for this infrastructure should have some say in how the data are used. Key takeaways from the proceeding include:

- A need for clear distinction between customer-facing and grid-facing applications that run on the meter. Parties to this case agreed that the utility needs explicit commission approval for any customer-facing apps and is subject to extensive annual reporting regarding the DI capabilities the utilities have deployed or plan to deploy.
- With the new DI capabilities and high-frequency measurements, the distinction between the data and the insights and analysis derived from those data is critical.
- Implementing principles regarding non-discriminatory access to data and informed customer consent, rather than case-specific guidance, in an effort to “future-proof” the rules.
- Important of having potential competitors to the utilities who want access to the data be part of the discussion. Commission staff often don’t have the technical expertise on this topic, so having parties with both an interest and knowledge to contribute was critical.

Q&A and Discussion

Question: Given how quickly technology changes, and how slow the regulatory process can be, how quickly can you make changes to policies, rules, tariffs, etc to accommodate those?

Answers: First, there’s a big difference between a rules/regulatory approach and tariff-based approach. What’s difficult is building a group consensus. Consensus is slow. Maryland could proceed with a staff recommendation for regulations to the commission (noting that previously commission declined to adopt it) and have the commission issue a ruling, but that would take a lot more time than if

the commission ordered the utility to make changes to tariffs. Colorado agrees that changes to commission rules is a very long process. In their settlement, they wanted to err on the side of protecting customers and third-parties, but also build in flexibility to evaluate new things on a case-by-case basis, rather than blanket approval or denial. Utilities have several recurring filings (e.g., DSP 2 years, DSM 3 years, TE 3 years), so proposals re: DI capabilities can come forward as part of those (as applicable).

Question: Can aggregation of meter data by voting ward or customer class provide anonymous but useful demand data?

Answer: They could be done, but Maryland hasn’t attempted anything like that yet. Regardless of what one tries, the anonymization is key. In the straw proposal, data aggregation wasn’t a contentious issue. It will be revisited down the road.

Question: What resources can Colorado provide describing how Colorado is handling the data privacy docket. <add reference here>.

Answer: Existing commission rules, look at the filings that were made during that proceeding. But, it’s not clear how useful the details of Colorado’s experience will be to other states. Probably more helpful is to include technical experts in the discussion early on.

Question: How are you dealing with utilities who installed AMI back in the ARRA days? What are challenges with retrofitting or having a mix of old and new meters from customer to customer or utility to utility.

Answers: In Colorado, only one smaller IOU used ARRA funds for AMI, but they haven’t been in place very long, and they haven’t proposed any upgrades. One of the larger IOUs did not apply for ARRA funds but filed for new AMI meters more recently (but still before some of the new capabilities, as previously described). In Maryland, some of their utilities did get ARRA funding, and other utilities have rolled out AMI since then. No filings related to retrofits that they are aware of. But then, it could be part of a rate case at some point.

Question: How might third-party energy service providers compensate for access to customer data?

Answer: The idea behind Green Button was to make it easy to access data, but there was no requirement for each utility to implement this in the same way. Maryland received a proposal from a third party to provide a platform for centralized access to customer data. All utilities would provide their data to the platform, which makes it available to the third-party data users and avoids the need to deal with multiple different utility systems. In this model, the cost of the platform would be born by data users, not ratepayers. But this discussion has not advanced further. There definitely is not much appetite for costs to be borne solely by utility ratepayers.

Question: Any challenges or disagreements on setting data aggregation and anonymization standards?

Answer: Colorado’s rules use the 15/15 standard (i.e., any aggregated data must include at least 15 customers, and within that, no single customer can represent more than 15 percent of the data). Presenter did not know when or how this was adopted, but it seems to work pretty well. In Maryland, the straw proposal considered what others have adopted (e.g., 15/15 standard). They considered some zip code level requirements, but they aren’t going to be getting to this topic for several months.

Question: Does the utility store the sub-second data (and the info from processing) from the new meters?

Answer: As far as he understands, Colorado utility are NOT storing the sub-second data (up to thousands of measurements per second), nor are they being transmitted stored anywhere. They are used on the meter by the app to perform analysis.

Question: One concern we’re seeing in our state is that utilities will have access to data via AMI meters that will allow them to market services to their customers (such as microgrids, EV charging) that might also be provided by the private sector. So, in short, that the data will give the monopoly a competitive advantage in a non-monopoly space. Has this concern come up in your state?

Answer: Yes, this concern has come up in Colorado. I think this is a general concern with regulated monopolies offering behind-the-meter services that compete with unregulated market actors. Not only do utilities have the meter data, they also have the customers' payment history, they know their geographic location, they know if they've expressed interest in optional utility programs in the past, etc. This information generally isn't available to a third-party competitor who's interested in offering a similar service. The utility has the added advantage of an existing relationship with the customer. This is a particular concern as it relates to the highly granular data collected by DI-capable meters. The utility's competitive advantage would increase even more if they're able to identify individual loads behind a meter. For example, they could identify all the ratepayers with EVs and offer an EV-specific service or program to them. Or if both the utility and unregulated entities are competing to offer some kind of energy management service, but only the utility has access to the granular DI data, it would be very difficult for third parties to compete with the utility. In Maryland, the Commission expressed a desire to see broader AMI-derived benefits for ratepayers through new services and products. This includes space for retail suppliers to use the Connect My Data platform to potentially offer new products. On the utility side, this specific concern has not yet come up in our discussions this year. A few of our utilities have previously said they are not in the business of information collection and analysis, which suggests little appetite for rules that would interfere with or make it more difficult for utilities to perform their core electric service functions for customers. However, the potential is certainly there for utilities, given the data asymmetry pointed out by Colorado. EVs are a good example. Our Exelon utilities are offering managed charging programs as part of their EV pilots. These are Commission-approved, limited enrollment programs, so it hasn't raised an issue. This could change as we get closer to a glidepath for enabling broader data sharing.

Question: Is any of the Maryland material you’ve been discussing located on a website or a working group docket we can look at?

Answer: I mentioned the previous Competitive Markets and Customer Choice (CMCC) Work Group rulemaking petition (2018), which can be found in the PSC Rulemaking RM62 docket:

<https://www.psc.state.md.us/search-results/?q=rm62&x.x=10&x.y=16&search=all&search=rulemaking>

The straw proposal I mentioned was a working document I circulated to the Work Group for review and comment. Any future Work Group reports on data access will be filed in the Commission's Public Conference (PC) 44 docket (but note that PC44 is the Commission's general grid modernization docket and is not limited to the CMCC Work Group.

<https://www.psc.state.md.us/search-results/?q=pc44&x.x=24&x.y=10&search=all&search=rulemaking>

This call was made possible by the U.S. Department of Energy under cooperative agreement DE-OE0000925. Please address questions to Jeffrey Loiter, Technical Director, at jloiter@naruc.org.