BEFORE THE BOARD OF PUBLIC UTILITIES
OF THE STATE OF NEW JERSEY

IN THE MATTER OF NEW JERSEY'S DISTRIBUTED ENERGY RESOURCE PARTICIPATION IN REGIONAL WHOLESALE ELECTRICITY MARKETS	Docket No. EO24020116

POST-TECHNICAL CONFERENCE COMMENTS OF THE DER TASK FORCE

The DER Task Force (DERTF)[1] sincerely thanks the New Jersey Board of Public Utilities (BPU) for the January 17th Technical Conference. DERTF found the technical conference to be a productive use of time because the BPU convened a range of stakeholders: PJM, New Jersey utilities, the ratepayer advocate, and technology companies with deep subject matter expertise. DERTF's primary point in these comments is that the BPU and New Jersey utilities should look at DER integration through the lens of grid modernization, with Order 2222 implementation as a secondary use case. In all instances, DERTF recommends trying an 80-20 approach: there may be "lighter lift" things that can be done now to obtain 80% of the needed results with 20% of the effort. DERTF applies this principle throughout these comments, highlighting the existing software solutions and resources that can support DER integration generally and 2222 specifically. DERTF makes recommendations for further process, and concludes with some points about cost allocation.

[1] The DER Task Force (DERTF, pronounced "der-tiff") is an independently operating community of DER practitioners. DERTF is open to all, and operates via a podcast, a Substack, a +2,000 member-strong Slack workspace, in-person meet ups, and our annual conference, DERvos. In our policy work, DERTF independently advocates for DERs' role in the energy transition. The DER Task Force is not funded by individual member companies—instead, we openly share expertise and perspective from across the DER industry to help craft DER policy that benefits all ratepayers and the grid. DERTF filed detailed comments in response to Pennsylvania's Advanced Notice of Proposed Rulemaking regarding 2222 implementation. *See* Comments of the DER Task Force, *Distributed Energy Resources Participation in Wholesale Markets*, L-2023-3044115 (Pa. P.U.C. May 20, 2024).

I. Focus on DER Integration, Not 2222 Implementation.

Implementing 2222 should be a sub-task of a broader grid modernization effort to prepare for a high DER grid. DERs are coming: Americans have been installing 1 GW of smart thermostats a month and investing $10 billion a month in DERs,[2] while recent estimates have Americans installing 217 GW through 2028, or over 4 GW of DER a month.[3] Much of this growth is independent of policy: customers want EVs, smart thermostats, and energy efficiency for their own comfort. They install backup power (generators or storage) for reliability. Given this growth and New Jersey's energy goals,[4] the state is preparing for a high DER grid–not only for 2222. In particular, the "heavier lift" issues are broader than 2222, such as:

- The situational awareness EDCs must have to reliably manage a high DER grid, both for DERs operating within an aggregation as well as stochastically;
- The need for bi-directional communication infrastructure, enhanced grid visibility and analytics, all issues identified in the Integrated Distribution and DER Planning Launch Notice;[5]
- Prioritization of distribution system upgrades and non-wires alternatives to balance reliability, affordability, and equitable access to electrification and local clean generation;
- Appropriate cybersecurity and customer data privacy protection standards.

To look at DER integration holistically, DERTF recommends that this docket be aligned with the Grid Modernization[6] and AMI dockets.[7] Critically, EDCs and the BPU should consider

[2] The Energy Transition Show, *Virtual Power Plants*, at 17:30 (May 3, 2023).
[3] *See* Brian Martucci, *US To Add 217 GW of Distributed Energy Resource Capacity Through 2028, Wood Mackenzie Projects*, Utility Dive (July 3, 2024) (assuming 200 GW over 48 month).
[4] E.g., New Jersey Energy Master Plan.
[5] *See* Integrated Distribution and DER Planning Launch Notice, New Jersey Grid Modernization Forum (June 5, 2024), available at https://publicaccess.bpu.state.nj.us/CaseSummary.aspx?case_id=2112788.
[6] BPU Docket #QO24030199.
[7] BPU Docket #EX24090717.

PJM's 2222 framework when assessing the proposed implementation plans within these dockets. As outlined in the Technical Conference, there are many ways in which these investments can be configured to ensure that they ease the burden of 2222 implementation, reduce existing inefficiencies related to market integration, and improve the overall outcomes for all customers in New Jersey.

When doing the DER integration work, stakeholders should appreciate that the primary value stream for many *distributed* energy resources remains on the *distribution* system (both to their site hosts and in better utilization of the distribution grid), even in a 2222 world. There is a common myth that wholesale markets offer more revenue than retail programs, such that 2222 will make retail programs obsolete. Yet retail programs are usually more generous: for example, Massachusetts' ConnectedSolutions pays $275/kW-yr,[8] while the last ISO-NE auction cleared at $3.58 kW-month, *i.e.*, $42.96 kW-yr.[9] Wholesale market participation has its own hurdles and restrictions, like prohibiting multi-nodal aggregation for injecting resources.[10] Retail programs, like managed EV charging, will be critical for maintaining distribution system costs.[11] As a result, retail programs have remained paramount for DERs even in markets with aggregation models.[12] Retail programs can complement wholesale market participation where dual

[8] *See* https://www.masssave.com/residential/rebates-and-incentives/battery-storage-and-evs/batteries.
[9] https://www.eia.gov/dashboard/newengland/commentary/20240228.
[10] Ethan Howland, PJM plan for distributed energy aggregations would block virtual power plants: Tesla, Utility Dive (Sept. 25, 2023).
[11] *See e.g. The Electric Vehicle Tipping Point*, AES (finding that grid-optimized managed EV charging programs pay for themselves at only 5% system-wide EV adoption, and that the largest driver of savings (70%) stems from deferral of service transformer and feeder upgrades, unlocking $1,275 in capital flexibility annually for each new EV).
[12] CAISO Transmittal Letter at 3, *Tariff Amendment to Comply with Order No. 2222*, FERC Docket No. ER21-2455 (July 19, 2021) available at https://elibrary.ferc.gov/eLibrary/filedownload?fileid=020E0C20-66E2-5005-8110-C31FAFC91712 ("In 2020, the CAISO surveyed market participants and distributed resource developers on the DERA model and Order No. 2222. Nearly every participant listed net energy metering incentives and resource adequacy ineligibility as the foremost challenges to participating under the DERA model. Few respondents pointed to any obstacle with the CAISO tariff or its market rules. To the contrary, respondents noted that it is easier and more cost-efficient to participate in the wholesale markets as standalone resources or demand response resources.").

participation is allowed, but are generally not a substitute. In the end, retail programs will still be important in a 2222-world.

II. Improving DER Integration and Situational Awareness

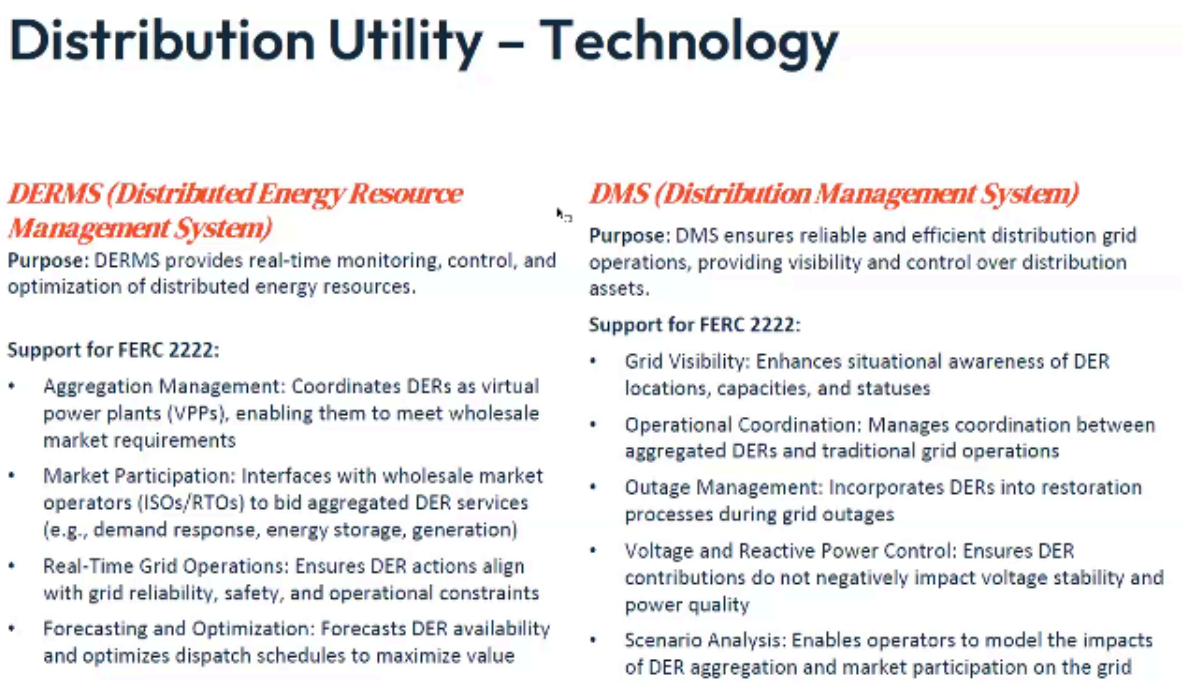
As stated by Josh Keeling of UtilityAPI during Panel Two, DER integration isn't "simple" but "it's not science fiction." Tools exist to address many of these issues—even though modernizing systems and business processes isn't easy. Improving DER integration and situational awareness could be guided by auditing current utility capabilities, identifying potential "80% solutions" to institute in the short term, and then creating clear three- and five-year end goals.

As one potential 80% solution, DERTF proposes[13] that utilities could use AMI data plus GIS connectivity models to assess historical loading and compare with thermal ratings for mid-line utility equipment (e.g., every service transformer and feeder). Even with imperfect data, utility planners and operators can quickly gain value from seeing where equipment may be overloading today and where DER growth is likely to impact the distribution grid in the near-term. The EDC can further feed this data into cloud-based forecasting tools to generate day-ahead load forecasts for every meter[14] and every piece of upline utility equipment. These actions alone would provide EDCs much more operational awareness of distribution grid conditions and constraints. In addition, by integrating AMI and GIS data into a standard data model, the utilities would take a crucial step towards providing the data foundation necessary for key FERC 2222 implementation activities (such as EDC sign off on dispatch). Further immediate grid modernization benefits from this investment include establishing the data foundation for flexible interconnections (particularly for large DERs) and enabling rapid modelling of the

[13] DERTF offers this as context and a beginning point for discussion, since we do not have deep operational expertise on each New Jersey EDC.
[14] This forecasting can typically use cohorting by customer class to keep compute demand reasonable.

distribution grid impacts of new loads, generation, and DERs. The cloud compute for this 80% solution only costs cents per meter per year, making this type of pseudo real-time visibility affordable, particularly compared to what is typically spent to collect AMI data only for billing workflows.

Over the long term, New Jersey utilities should enhance their distribution system management functionalities to prepare for a high DER future. PSEG's James Hubertus made this point during Panel Two, sharing that California utilities imparted the lesson learned to develop advanced DMS and DERMS capabilities. DERTF agrees with PSEG's slide listing target functionalities for FERC 2222 support and contends that these should be capabilities of a 21st century EDC.

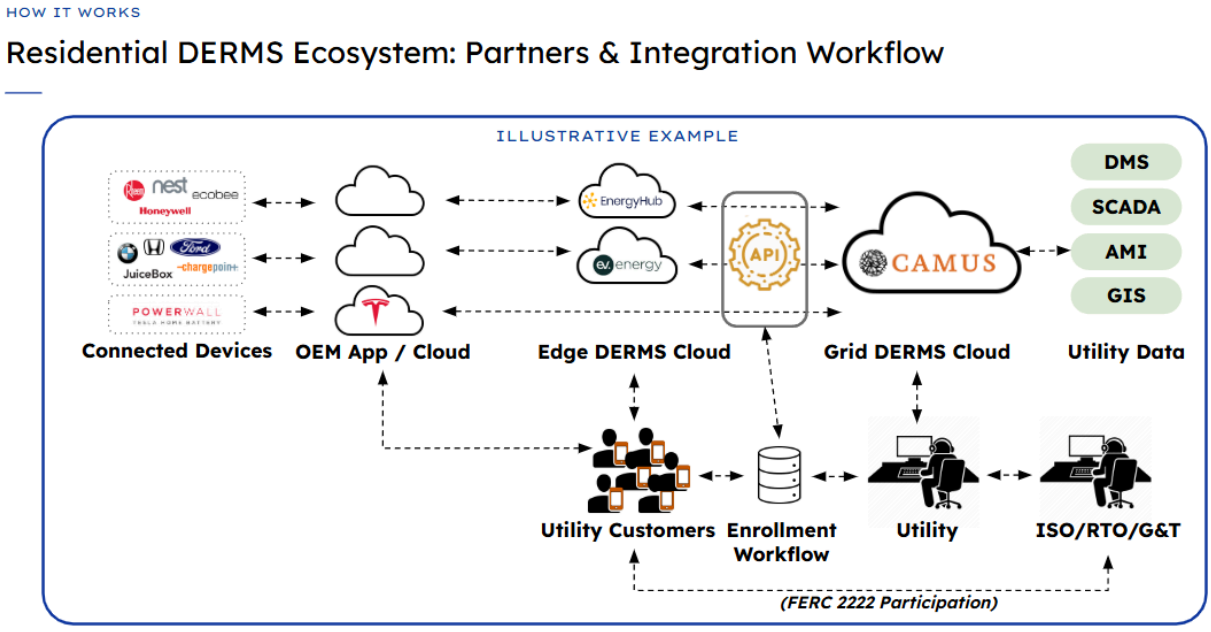


Many of these capabilities are not only necessary for implementing 2222, but also for effective day-to-day management of a high DER grid. EDCs should prioritize investments in the

data foundation, planning analyses, and operational capabilities that serve near-term needs for the distribution system while preparing for 2222.

Among the capabilities listed in PSEG's slide, prioritized capabilities could include grid visibility, operational coordination, scenario analysis, and real-time grid operations. Specific capabilities in these areas that would address near-term distribution grid needs include the following. Grid visibility can be extended below the substation by using AMI data and GIS models to monitor and forecast mid-line loading and power flows. Operational coordination and real-time grid operations can be enhanced by tools that enable flexible interconnections, translating distribution grid constraints into dynamic operating limits for DERs. Scenario analysis, which is often manual today and based on out-of-date grid models, could be improved by incorporating tools that automate routine analyses and leverage real-world data in conjunction with traditional grid models. Each of these capabilities could enable EDCs to progress towards the capabilities required for 2222 implementation while addressing near-term needs.

By unifying utility data into a standard data model (also referred to as a data fabric or an operational data management system), utilities would also lay the groundwork for a DER orchestration approach that supports both direct control of resources via edge DERMS systems and indirect, price-based signaling of resources through third-party DER aggregators. The orchestration approach would also enable "grid-aware" dispatch of resources, enabling DERMS or aggregators to take into account essential distribution grid constraints when dispatching individual devices. These are essential capabilities under 2222, while also addressing near-term needs as more DERs participate in retail programs. The following slide prepared by Camus Energy illustrates a basic DER ecosystem for residential DERs that includes both control approaches and data sharing between entities.



Finally, DERTF posits that while building towards a high DER future, New Jersey can start thinking about whether it's in the public interest for EDCs to progress towards becoming distribution system operators (DSOs), in some fashion.

III. 2222-Specific Workstreams

While 2222 implementation can seem overwhelming, it's helpful to remember that demand response has participated in PJM for over 20 years and that significant work has already been done about further integrating DERs in wholesale markets. We can begin by using these resources to define the workstreams, and then incorporate existing literature each step of the way. From DERTF's perspective, the single most helpful resource is the joint report by GridLab and Advanced Energy United:[15] *FERC Order 2222 Implementation: Preparing the Distribution System for DER Participation in Wholesale Markets*.[16] This report was the product of significant,

[15] At the time this report was issued, Advanced Energy United was Advanced Energy Economy.
[16] GridLab, Advanced Energy Economy, *FERC Order 2222 Implementation: Preparing the Distribution System for DER Participation in Wholesale Markets* (Jan. 2022), available at https://gridlab.org/portfolio-item/aee-gridlab-ferc-order-2222-campaign-final-report/ (GridLAB 2222 report).

multi-perspective stakeholder work. It identified major categories for state/EDC implementation: (1) Interconnection and Aggregation Review; (2) Communications, Controls, and Coordination; (3) Dual Participation; (4) Investment Recovery and Cost Causation.[17] DERTF incorporated this report throughout our Pennsylvania comments.[18] This report is a helpful scoping document, echoing recommendations that were raised at the Technical Conference, like defining hard and soft overrides, and clarifying rules for when dual participation is prohibited. DER Enrollment, Aggregation Review, Dual Participation, and DERA Settlement are topics that are acutely specific to 2222 implementation, versus broader DER integration. DERTF makes the following recommendations on these topics.

Consistent with the GridLAB that report's recommendation for "low friction" access to relevant meter and controls data,[19] DERTF proposes that implementing 2222 should begin with a review of how New Jersey utilities handle demand response registrations and data exchange now, comparing the status quo to the desired end state, and developing an 80% solution.[20]An initial 80% solution could be to standardize data formats across New Jersey EDCs to align with PJM's DR Hub, as an interim step while implementing data access platforms that also meet the needs of New Jersey's AMI dockets. Standardizing data and establishing data access platforms will be also be a foundational step towards broader solutions, including a PJM-wide DER registry.[21]

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[17] GridLAB 2222 Report at 21.
[18] Comments of the DER Task Force, Distributed Energy Resources Participation in Wholesale Markets, L-2023-3044115 (Pa. P.U.C. May 20, 2024).
[19] GridLAB 2222 Report at 9.
[20] As discussed on Panel Two, the status quo often involves manual processes, like emails exchanging Letters of Authorization (LOAs). Manual processes are expensive, not scalable, and not secure (potentially raising consumer privacy connerns).
[21] DERTF supports a central DER registry across all PJM that can be accessed by EDCs, PJM, aggregators, and DER owners, like that developed by Collaborative Utility Solutions. DERTF does not think this is essential for Day One implementation, but long term implementation should be further explored. DERTF is happy to convene CUS and state Commission staff to meet with PJM technical experts to discuss this issue further, possibly leveraging the expertise of an independent third-party software expert.

DER Enrollment

Before a DERA can submit an aggregation to be reviewed, customer sites that host DERs must sign up for the given offering. This may involve enrolling customers with existing or new DERs. In either case, the Aggregator must screen customers to ensure that they are eligible to participate in a DERA by reviewing ineligibility grounds like dual participation or distribution grid constraints. Additionally, the Aggregator must ensure that it has sufficient capacity at each pNode to meet the aggregation minimum size.

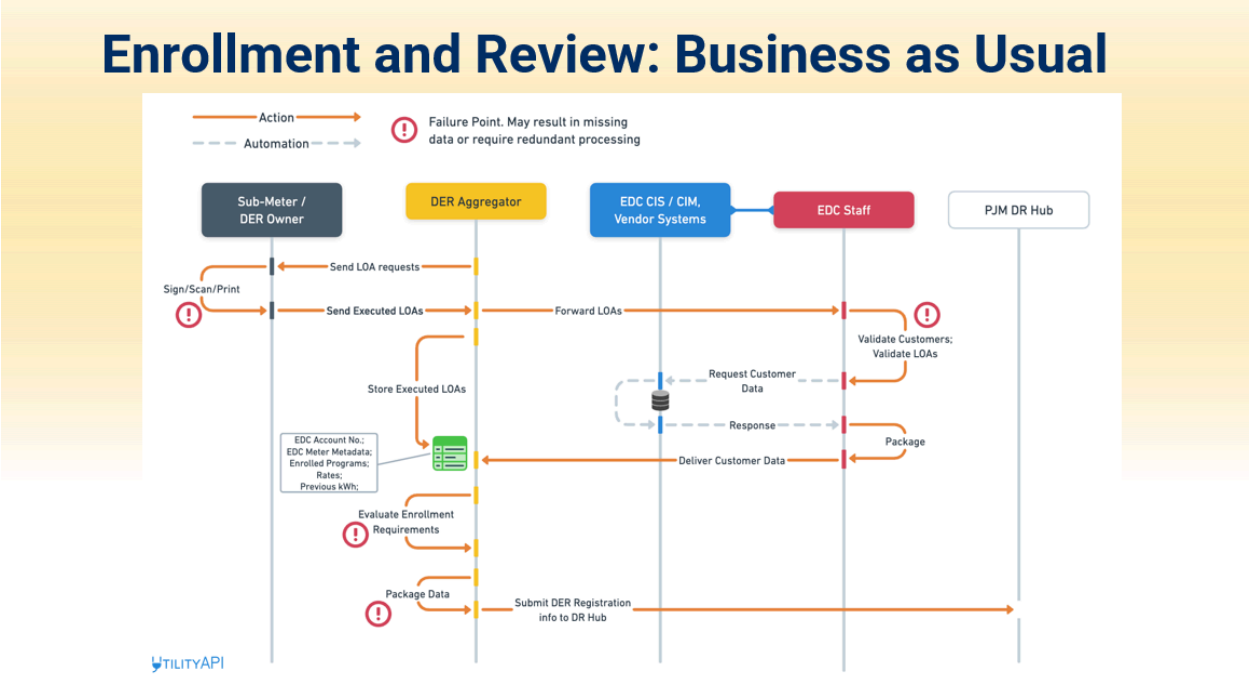
Today, when developers, contractors, solution providers, and aggregators seek to assess a given customer site, they pull customer utility data using whatever method might be available to them, whether that's using a third party service, having the customer download and send bills, or in some cases even logging into the account on the customer's behalf. However, even where customers provide full access to their account (which also comes with all sorts of concerns around customer privacy), that third party does not have access to the above criteria required to screen out likely ineligible customers (that is, those that are dual participating, etc), since this is not typically readily available to the customer themselves.

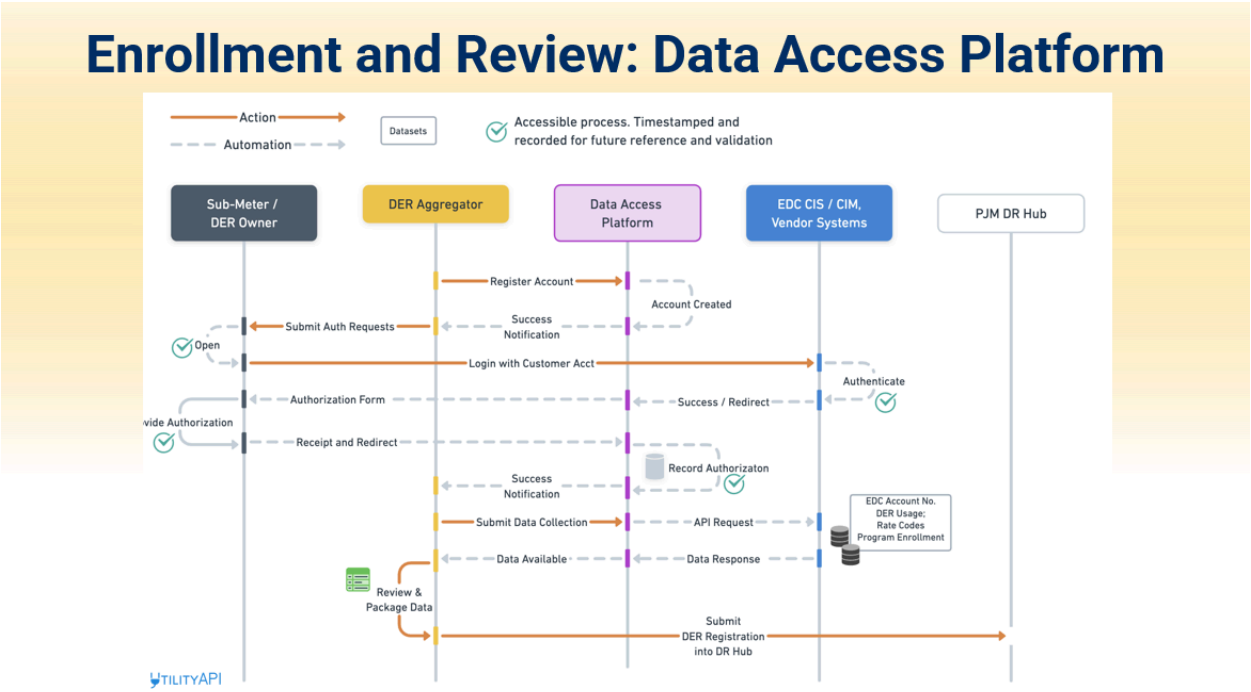
Consistent with the AMI rulemaking, over the longer term, EDCs should have secure data access platforms to grant authorized, auditable access to customer and AMI data in a machine readable format. Such a platform could be built according to Green Button Connect or Linux Foundation - Energy specifications. This platform should include all necessary variables to allow an aggregator to filter out ineligible resources early, before even submitting an aggregation registration application. Such variables could include pnode, premid, peak load contribution, information on constraints, and eligibility flags for dual participation.

EDCs deploying data access platforms presents a unique opportunity. Screening criteria are readily available within utility systems and there are no technical constraints that limit the ability of a Green Button Connect. The BPU should ensure that EDCs include relevant screening criteria as this creates benefits across all parties:

- **Customers**: reduces confusion and avoids inaccurate or misleading bids from developers.
- **EDCs**: reduces operational burden of manually processing excessive or poorly constructed applications.
- **Aggregators**: reduces customer acquisition and operational costs to develop projects.

An illustrative example of how these efficiencies could be realized was provided in the example from UtilityAPI at the Technical Conference, comparing the current approach to using a data access platform.





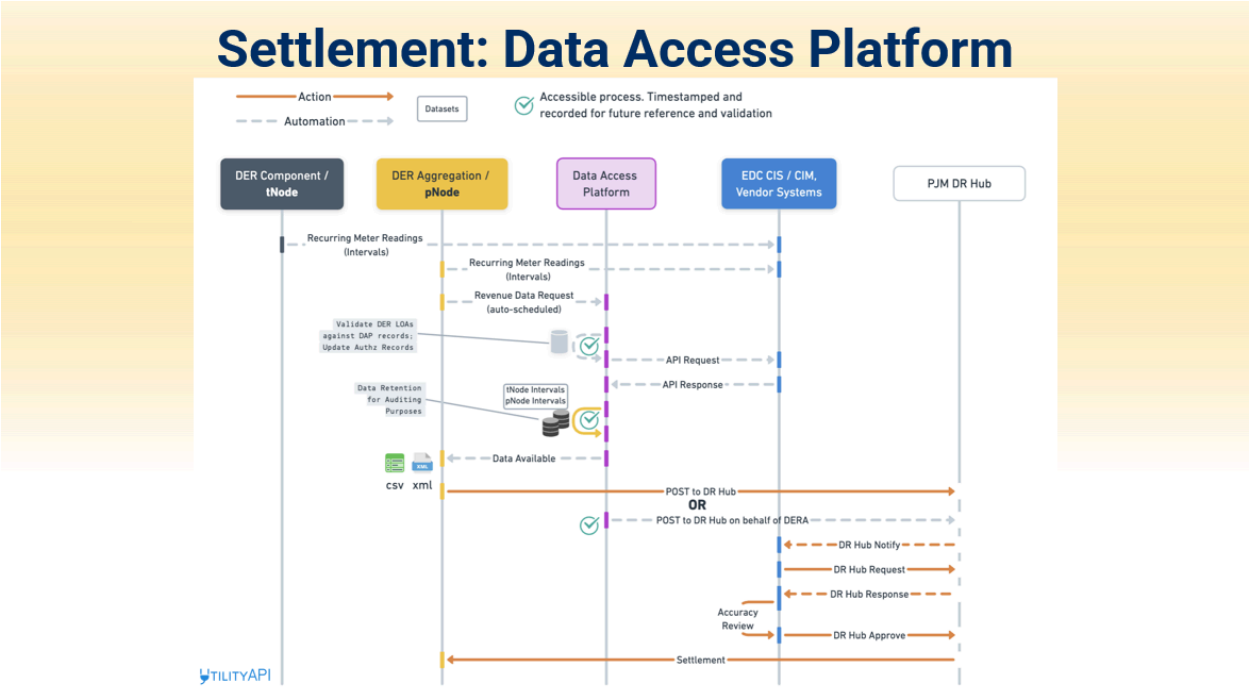
A platform configured to meet the requirements of 2222 would serve most of New Jersey's data integration needs. AMI data should be provided through this platform on an ongoing basis for settlement purposes, with concurrent feed to PJM's DR Hub.[22] A data platform that meets these specifications would dramatically reduce the number of aggregation applications, improve their success rate, reduce the labor required for data requests and transfers, and minimize the number of disputes arising in settlement.

Settlement

When looking at the settlement process, the Board should require EDCs to provide batch AMI data feeds for registered DER sites via their Green Button Connect platforms through an automated process to both the relevant DERA and PJM concurrently. This process should include two data feeds: one for raw AMI data available as soon as feasibly available (typically <24 hours) and one for settlement quality data that has been processed by the EDCs' meter data

[22] This likely means providing raw (pre-VEE (Validating, Editing, and Exceptions)) and processed (post-VEE) feeds.

management system (typically available within 72 hours). Automating these data flows—while ensuring raw data is available within 24 hours—would create a single source of truth that reduces settlement disputes and enhances market confidence. This process (and a comparison to current practice) from UtilityAPI's presentation is presented below.



Scalable Data Access

While it would not be "easy," an adequate data platform can be built using off-the-shelf tools and totally reasonable integration work, as is evident from the fact that EDCs already have these data platforms in many states today. Ideally this would be a single platform across multiple PJM states, or at least across New Jersey. New Jersey could draw on the work of Illinois's Data Access Working Group, which recently filed a memorandum of understanding detailing the process for implementing a data platform.[23]

[23]Memorandum of Understanding and Attachment A, ComEd Multi-Year Integrated Grid Plan, Docket No. 2022-0486 (Ill. Comm. Comm'n. Dec. 23, 2024), available at https://icc.illinois.gov/docket/P2022-0486/documents/359481.

If developed by each EDC, then we would encourage the BPU to ensure that platforms are deployed consistently with respect to configuration, authorization methods, standards, terms and conditions, integration methods, and data requirements. These changes will significantly reduce administrative burdens, accelerate market participation, and lower costs for all stakeholders, while ensuring the smooth implementation of Order 2222.

Cybersecurity and Privacy

EDCs should appropriately size their cybersecurity requirements to the relevant context. Additionally, the DERTF believes that given a modern data access platform, cybersecurity risk is relatively low for the EDCs and their customers. For instance, we are not aware of any known cybersecurity breach in states like California or New York, where data access platforms have supported market aggregation and retail programs for many years. That said, we recommend that EDC data access platform providers have the following requirements:

- AICPA SOC II and Green Button Alliance certified;
- Utilize OAuth 2.0 and OpenID through RESTful APIs;
- Complies with U.S. DOE's Data Guard Energy Data Privacy program requirements;
- All data encrypted at rest and in transit;
- Customer data only stored and accessed within the United States (no overseas access)

Additionally, we suggest that EDCs provide a transparent and consistent set of terms and conditions for aggregators registering to EDC data access platforms. Similarly, customer consent should be governed by a common set of terms and conditions and utilize modern digital methods for authentication, with options for Single Sign On and/or One-Time Passcodes (through cell/e-mail).

Near Term Recommendations

In cases where there is cause for concern due to a known or perceived risk, the EDCs should have the ability to manage access to customer data through their administrative rights, but should be required to provide documentation of cause to the Board in said cases.

On Panel One, CADRE urged the Board to mandate improvements in four areas:

1. Automated qualification and registration processes that provide aggregators access to essential data (e.g., pNode, transmission zone, dual participation status) through Green Button Connect;
2. Digital Letter of Authorization validation systems via Green Button Connect to replace paper-based authorizations;
3. Consistent and timely settlement data access, ensuring revenue-quality interval data is available within PJM's 24-hour settlement window;
4. Requiring utilities to provide both raw and settlement quality AMI data to ensure that there is a balance between timeliness (raw data) and accuracy (settlement quality data) while meeting PJM settlement requirements.

These specific measures can be implemented in market-ready Green Button Connect platforms. We believe that Green Button Connect should be viewed as a foundational technology platform for enabling FERC 2222 implementation.

IV. Process Recommendations

DERTF recommends that the New Jersey BPU begin by scoping out the remaining workstreams for DER integration and 2222 implementation, developing crawl-walk-run stages or 80% solutions where applicable. Useful resources are the GridLAB 2222 report and

Pennsylvania's ANOPR and responsive comments.[24] Once these workstreams are developed, it will be easier to incorporate the relevant stakeholders and the extensive existing resources for each topic,[25] as well as to align this docket with the Grid Modernization[26] and AMI dockets.[27] New Jersey could develop statewide or multi-state solutions wherever possible, such as for an aggregator code of conduct or a data platform. Scale will save ratepayers money.

Having a dedicated, neutral facilitator to run this process would be hugely beneficial. DERTF recommends incorporating Ted Ko of the Energy Policy Design Institute,[28] who worked with Maryland stakeholders to achieve critical milestones for its Energy Storage Program.[29] A neutral facilitator can address foundational issues (like defining relevant terms) and facilitate outcomes-based discussion.

The BPU should continue to incorporate a range of stakeholders, as it did at the January 17th Technical Conference. This inclusive process can promote productive agreement about where the challenges exist.[30] Technology companies can be leveraged as subject matter experts, offering multi-jurisdictional insights.

V. Cost Allocation

Cost allocation is a massive issue that hinges on the answer to predicate questions, including whether New Jersey is implementing 2222 or preparing for a high DER future. If it's the latter, for example, perhaps upgrade costs should be allocated across the rate base while an

[24] *See* Pennsylvania PUC docket L-2023-3044115.
[25] For example, a Consumer Protection workstream would review the DOE guidance for a DER Aggregator Code of Conduct.
[26] BPU Docket #QO24030199.
[27] BPU Docket #EX24090717.
[28] https://www.epdiusa.org/.
[29] Energy Policy Design Institute, *Energy Policy Design Institute Team to Help Maryland Reach Ambitious Energy Storage Goal* (Apr. 24, 2024).
[30] *See* Panel Two, 3:51.30, where PSEG's James Hubertus responds to question of whether the non-utilities were "oversimplifying" the complexity of the problems of DER aggregation, and panelists agree that the problems are not simple but can be addressed, in part by using existing software tools.

application fee for reviewing DERA registrations will address that administrative cost. Again, these types of administrative costs could become nominal through implementing a data access platform that contains information needed for both the AMI docket and 2222 registrations. Otherwise ratepayers or program participants risk paying twice, which could dampen participation. Maximizing participation will not only benefit wholesale prices, but mitigate any risk of stranded assets relating to 2222 implementation, a risk mentioned on Panel Three by ACE's Rosemary Jojic.

In response to the Ratepayer Advocate Brian Lipman's comment regarding revisiting subsidies in retail programs, this would not be necessary for programs that preclude wholesale market dual participation, such as net-metering. Cost allocation could also be different for different types of resources (front of the meter vs. behind the meter) and different customer classes (industrial, commercial, and residential). Further if a cost allocation framework precludes customers in certain locations from owning DERs, this could inequitably prevent certain customers from electrifying, and all the lifestyle improvements that can offer.

When considering cost allocation, DERTF would encourage stakeholders to think of DER aggregations as providing a "service" rather than as "making money." DER aggregations in the wholesale market compete against other resources, and are only used when they are the lowest cost resource. Resources are paid commensurately for this service, while reducing costs for ratepayers. DERA participation should therefore be encouraged. These comments began by noting that DERs are coming in waves. We might as well as use them to benefit all ratepayers, by creating the most efficient and cost-effective electricity system.

Dated: January 31, 2025

Sincerely,

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