gabel associates

October 05, 2021

Via Electronic Mail [board.secretary@bpu.nj.gov]

To: **Aida Camacho-Welch**
Secretary, New Jersey Board of Public Utilities
44 South Clinton Avenue, 1st Floor
Post Office Box 350
Trenton, New Jersey 08625-0350

Re: **Comments in the Matter of Medium- and Heavy-Duty Electric Vehicle Charging Ecosystem [Docket QO21060946]**

Secretary Camacho-Welch,

Pursuant to the Board of Public Utilities' ("Board") August 12, 2021 Procedural Order for Docket **QO21060946**, Gabel Associates, Inc. ("Gabel") respectfully submits the following comments regarding the "Medium- and Heavy-Duty Vehicle ("MHDV") Electric Vehicle Charging Ecosystem" Straw Proposal ("Straw Proposal"). The Board published this straw proposal to solicit stakeholder feedback, especially regarding proposed minimum filing requirements ("MFR") and other important market development details.

I welcome the opportunity to participate in this critical proceeding. These comments represent general feedback on the MHDV MFR Straw Proposal, as well as more specific comments consistent with my participation on the "Renewables, Storage and Charging" panel associated with this proceeding on September 21, 2021.

Background:

The Electric Vehicle (EV) law signed by Governor Murphey in January 2020 established a market-leading framework for the rapid electrification of the Light-Duty Vehicle (LDV) market in New Jersey. Building on that foundation, the State is now considering similar levels of electrification in the MHDV segment, including the recent proposed rule from the Department of Environmental Protection (DEP) to adopt the Advanced Clean Truck rule (from California).

These vehicles will require a large ecosystem for the development and operation of the necessary fleet and MHDV charging infrastructure, and the Board anticipates a role for electric utilities to enable, facilitate, and optimize that development. Robust utility support will be especially critical for the MHDV segment, given that fleet depots concentrate charging loads significantly,

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and that larger vehicles may require very high power (multi-MW) charging equipment. Properly structuring the fleet and MHDV ecosystem will be critical to the successful electrification of that segment.

The Board's proposed Fleet/MHDV MFR order will have a profound impact on the development of that ecosystem. The Board has requested input on the Straw Proposal, in anticipation of formalizing the MFR framework through a subsequent Board order. We applaud the Board for soliciting input from a diverse group of stakeholders, and appreciate the opportunity to provide the comments contained herein.

Gabel has been conducting research on the entire vehicle charging ecosystem for the last five years, including publication of a "Full Market" Study for ChargEVC that was published in October of 2020. That study specifically characterized the MHDV segment in New Jersey. In addition, the Gabel team has been working in-depth with vehicle charging programs in multiple states, and has distilled emerging best practice regarding charging infrastructure policy and program design. This extensive experience has informed the following comments.

Executive Summary:

While the Straw Proposal does a good job establishing a conceptual foundation for development of charging infrastructure beyond LDVs, there are also inconsistencies and ambiguities that disrupt clear interpretation. As a result, the Straw Proposal, as written, implies that utility programs should focus only on heavy-duty vehicles that are either owned-by public entities or which are available for public use, and for which a narrow portfolio of utility programs might be considered. **That combination of constraints leads to an extremely limited fraction of the market being supported through the anticipated utility programs**, primarily public buses, government owned heavy duty vehicles, and little else. The theme of the comments provided below are to explicitly expand the MFR framework to support the full range of vehicle charging needs, with a focus on flexibility. Specifically:

- Adjust the vehicle definitions to be consistent with DEP precedent, thereby properly **including both medium- and heavy-duty vehicles**;
- Address **all fleet vehicles**, including both fleet-MHDVs and fleet-LDVs (and mixed);
- Address the needs of **all fleet/MHDV vehicles, whether publically owned/serving, or privately owned**;
- Ensure there is **flexibility** allowed for both the utilities in proposing solutions, and giving customers choices in how their needs can be met;
- **Expand the concept of Make-Ready to encourage innovation** in how fleet/MHDV charging needs are addressed through utility programs.

General Comments:

The following comments address the Straw Proposal overall, some of which would necessitate revisions in multiple parts of the current draft.

The Straw Proposal is a Good Start, But Some Important Refinements Are Needed: The Straw Proposal establishes a good conceptual foundation for the fleet/MHDV charging ecosystem. As per the comments provided below, however, it can be improved through consideration of stakeholder input. Several of the issues identified below, if not addressed in the final order, could prevent the MFR order from realizing its goals, could drive harmful dislocations in the emergence of the fleet/MHDV charging infrastructure market, and potentially prevent more innovative or optimal solutions from emerging. Overall, the MFR order can be broadened significantly to expand the potential scope of utility program filings to support these segments.

Definition of Medium-Duty: On page 7, the Straw Proposal defines Medium-Duty as being classes 4-6. This is an extremely important definition, and the proposed structure is inconsistent with the classification structure used by the DEP. It not only decreases the scope of the MHDV segment, but also forces classes 2B and 3 into the Light Duty segment, which has significant implications. The DEP defines Light-Duty as being weight classes 1 and 2a, Medium-Duty as classes 2B and 3, with Heavy-Duty being class 4 and up. As noted in the statistics below (for registered vehicles, year-end (YE) 2020), this detail has a huge impact: **the definition proposed in the Straw Proposal would eliminate about 61% of the vehicles normally included in the MHDV segment**. We recommend that the Straw Proposal be brought into alignment with DEP definitions, and that Medium-Duty be defined to include weight classes 2B and 3.

Figure 1 – MHDV Registrations In New Jersey, December 31, 2020[1]

All MHDVs (Personal and Fleet, All Fuel Types) - SUM OF ALL SEGMENTS								
Source Type	**Class 2b**	**Class 3**	**Class 4**	**Class 5**	**Class 6**	**Class 7**	**Class 8**	**Total**
Passenger Truck	17,721	229	0	0	0	0	0	**17,950**
Light Commercial Truck	207,617	1,146	0	0	0	0	0	**208,763**
Intercity Bus	0	0	3	7	23	232	761	**1,026**
Transit Bus	315	308	1,489	217	435	644	3,123	**6,531**
School Bus	1,852	4,205	2,036	188	1,139	9,819	39	**19,278**
Refuse Truck	0	0	30	34	33	127	2,999	**3,223**
Single Unit Short-Haul Truck	12,039	65,354	23,013	28,277	28,544	1,800	160	**159,187**
Single Unit Long-Haul Truck	0	82	22	131	729	552	4	**1,520**
Motor Home	22	934	1,735	746	1,510	804	303	**6,054**
Combination Short-haul Truck	0	0	0	12	53	11,813	24,159	**36,037**
Combination Long-haul Truck	0	0	1	13	13	5,578	44,299	**49,904**
Total	**239,566**	**72,258**	**28,329**	**29,625**	**32,479**	**31,369**	**75,847**	**509,473**

[1] This chart is re-produced from "New Jersey Electric Vehicle Market: Current Conditions and Projections", June 12, 2021, prepared by Gabel Associates for ChargEVC. These statistics are segmentation analysis of vehicle registration data provided by the New Jersey DEP.

Focus Needs To Be On Fleets, Not Just MHDVs: In several places within the Straw Proposal, there is intentional reference to fleets, potentially fleets that include Light-Duty Vehicles. For example, bullet 4 on page 3 refers to "... electrification of MHDs and larger light-duty fleets…", and the first bullet on page 17 notes that "… many large light-duty fleets have similar energy requirements…" However, in numerous places throughout the Straw Proposal reference is made only to MHDVs. This inconsistency creates significant ambiguity about the intended scope of the MFR order, and could restrict the range of the utility program proposals considerably. I applaud BPU for broadening the Straw Proposal to include all fleets (in some places), but urge that this important detail be strengthened and clarified in the final order for the following reasons:

- As noted by Staff, light-duty fleet vehicles can concentrate significant vehicle charging loads (especially in depot settings), and it is critical that their needs are also adequately addressed for all the reasons already identified for MHDVs.

- Fleet LDVs actually outnumber MHDVs. I estimate that there are roughly 554K LDVs operated within a fleet setting, many of which will be charged through depot-based infrastructure. This is more vehicles than all MHDVs combined.

- Many fleet operators manage both LDVs and MHDVs *within the same fleet, frequently within the same depot setting.* Attempting to provide charging infrastructure for part of a fleet, but not all of it, will be highly confusing and in many cases inefficient (if not impossible) both economically and technically.

- The two currently approved utility programs (from PSE&G and ACE) have very limited coverage for fleet vehicles at all: PSE&G is not currently approved explicitly for fleet make-ready, and the ACE program is very modest in size compared with the size of the market. LDV fleets therefore remains a critical segment of the market that could and should be addressed by a clarified fleet/MHDV order.

Given these market conditions, I think it is critical that the scope of the order be expanded to include ALL fleet vehicles, whether LDV or MHDV (or, as in most cases, mixed), and that the language in the order be clarified (throughout the document) to refer to fleets, not just MHDVs. More generally, I strongly recommend that the scope be clarified as a FLEET MFR order, not just MHDVs. This language expansion would remove current inconsistencies in the Straw Proposal, but also ensure that utility filings can address the electrification needs of the full market.

Addressing a specific question raised in the Straw Proposal: In the first bullet under Section E (page 17), staff requests input on what the appropriate threshold by which a fleet operator would be eligible for the utility make-ready programs – potentially including LDVs. My strong recommendation is that this threshold be set at three vehicles, based on the count of both LDVs and MHDVs in the fleet in recognition of the mixed nature of many fleets. This definition would ensure that general fleets – including both LDVs and MHDVs – can be appropriately supported by the anticipated utility programs, that grid impacts from the full range of fleet operators can be mitigated, and that electrification barriers for fleet operators of all types can be removed as required to realize the State's electrification goals.

Infrastructure is Needed for ALL fleet/MHDVs – Not Just Public: In multiple places throughout the Straw Proposal, there is a focus on "public fleets", and an apparent intention to focus utility programs only on "public fleets". For example, in the first bullet under the "shared responsibility" model on page 2, the Straw Proposal directs that "…EDCs would be responsible for the wiring and backbone infrastructure necessary to enable a robust number of publicly accessible or public serving MHD Make-Ready locations…". The third bullet in that section further suggests that a working group would be established to address the needs of "non-publicly accessible MHD EV Ecosystem infrastructure, which may not be eligible for direct ratepayer support…" Most importantly, in bullet 3 on page 13, the Straw Proposal notes that "…Staff does not propose EDC incentives for private-owned fleets…"

Given the fact that the majority of the MHDV segment is private fleets, I think that would be a major strategic error to limit utility make-ready programs to public-owned or public-serving fleets only. A public-only-focus would create significant dislocations within the market, is impossible to operationalize for fleets that serve multiple markets, and ignores the significant needs (and potential grid impacts) of non-public fleets and MHDVs.

There is no basis for concluding that *only* publicly-owned or public-serving fleet/MHDV infrastructure merit attention in this proceeding, especially since those "private fleets" will require the support of advanced utility support to electrify effectively. Our research indicates that it is the privately owned fleets (both LDVs and MHDVs) that are most likely to electrify first, that they represent a large part of the market, and that they face the same economic and technical barriers as public fleets do. Just as importantly, those non-public fleets/MHDV can impose significant impacts on the grid that merit mitigation – the utility programs should not be just about enabling or facilitating infrastructure, but also minimizing grid impacts that could affect all ratepayers. Focusing only on public fleets/MHDVs would ignore some of the most significant risks and needs within the market. **I therefore recommend that the final order be expanded to include ALL Fleet/MHDV segments, not just public, and that the necessary clarifications to that effect be made throughout the document**. That said, I appreciate that different levels of support between public and private segments may be appropriate, and (as has been done in the design of the LDV programs), different levels of incentive can be created for different segments with more robust incentives provided for publicly-owned or public-serving fleets.

Focus on Flexibility: In several places throughout the Straw Proposal, the MFR framework is overly prescriptive in defining the form of solutions the utilities might propose in its filing. This approach limits the opportunity for innovation in utility program design, and also constrains the options that may be available to customers in developing their fleet/MHDV infrastructure. It is important to recognize that – even for similar physical vehicle classes – there are wide range of use cases and operating profiles. As a result, a given approach (such as managed charging) may work for some customers, but not for others. Imposing a limited set of hard requirements may therefore unintentionally discourage some fleet operators from electrifying. **I recommend that flexibility be a guiding principle across the entire MFR order, with a focus on the problems to be solved, not constraints on the portfolio of solutions that could be considered.** This

approach will encourage innovation in utility program design, and provide options for customers to adopt a solution approach that meets their unique needs.

As an example: bullet number 3 on page 15 *requires* that customers make use of managed charging to take advantage of a utility make-ready program. Applying the flexibility principle I propose, that language in the Straw Proposal would be adjusted to "encourage customer approaches that mitigate grid impact, including managed charging or other options".

Addressing Demand Charge Issues: There has been extensive discussion across multiple technical panels, and united consensus from a diverse range of stakeholders, that current commercial rate designs – which includes KW-driven demand charges - creates economic barriers for the high power charging infrastructure that will be required for fleets and MHDVs. This equipment naturally has a very low capacity factor (i.e. high power, low energy), especially during the early years before utilization increases as more EVs are on the road. I agree that this is a key barrier, and that utilities should be required to propose programs that address the barriers, while ensuring fair recovery of costs for both the project and ratepayers. But it will be critical to allow flexibility in how utilities address this problem – rate designs, or more generally "rate reform", are not the only option, and may be less optimal than other solutions.

I strongly recommend that the **Straw Proposal be revised to focus on the problem to be solved, without specifying the form of the solution.** Retaining flexibility for both the utilities (in their program design) and for customers will be critical to overcoming current electrification barriers in the fleet and MHDV segments. For example, on page 16, the Straw Proposal appropriately directs the utilities to "…each EDC be directed to develop a mechanism to mitigate demand charges associated with EV charging in the early days of adoption". Unfortunately, the initial language in that section focuses on "rate reforms" to address these barriers. There may be other, more effective ways to address market needs besides rate design, especially since those economic barriers change as utilization increases over time. Offering a long term rate design to solve a temporary problem would likely impose avoidable costs on ratepayers. There is also significant potential risk in eliminating price signals that encourage customer investments and/or charging behaviors that create large loads, especially at peak times.

I strongly recommend that the Straw Proposal be amended to require that the utilities propose solutions to the economic barriers associated with low capacity factor charging infrastructure, but without dictating that such solutions be accomplished exclusively through rate design. For example, technology solutions (like integrated storage, further addressed in comments below), managed charging programs, rebate-style economic incentives, smart operational planning, and "set-point" style incentives (as summarized in the Straw Proposal) could all address demand-charge related barriers, in addition to rate-design solutions that may be appropriate in some cases. **It is critical that the Straw Proposal be revised to allow and encourage innovative solutions to demand charges and low capacity factor applications – beyond (or in addition to) rate design.** These changes are needed especially in section D, beginning on page 15 of the Straw Proposal.

Recovery Of Utility-Side Costs: The make-ready concept inherently includes both utility-side components, and infrastructure on the customer side of the meter. The Straw Proposal recognizes that these utility-side components are significant, and that it is appropriate for those costs to recovered from the full rate-base (see primarily bullet 1, pages 11 and 12 of the Straw Proposal). I agree strongly with this approach, especially since many of the benefits associated with fleet/MHDV electrification accrue to ratepayers in general through cleaner air and other beneficial impacts. I encourage clear support for recovery of utility-side make-ready as part of the overall rate-base, and potentially for part of customer-side make-ready as well for the same reasons.

Addressing Sub-Segments: Most of the comments above focus on expanding the scope of the MFR order to appropriately include all fleets (LDVs and MHDVs), whether public or private. However, it is also true that there are specific segments within the MHDV market, each of which has different needs. Two segments are of particular interest: (1) charging infrastructure for electric school buses and (2) the infrastructure required for NJ Transit to meet requirements in law. Other segments can also be quite distinct, such as medium-duty local delivery, refuse trucks, and short-haul drayage. Generic "one-size-fits-all" programs are sub-optimal in most cases, and either under-incentivize or over-incentivize investment because segment-specific conditions are not accounted for. The order should allow for make-ready to be defined, and in some cases prioritized, at a sub-segment level. I recommend adding provisions to the final order that allow the utilities to propose segment-specific programs that are uniquely tailored to meet the distinct needs of key segments. Enabling, and encouraging, segment-specific offers will allow the utilities to propose much more optimized programs that are prioritized to best meet New Jersey's market needs.

The Overlap With Light-Duty Vehicles: I also recommend that the Straw Proposal be expanded to recognize that there may be areas of overlap between the charging infrastructure already defined for LDVs, and shared use by MHDVs. The Full Market study published (by ChargEVC) in October 2020 noted that, when the charging profile of a large range of vehicles is considered, there may be opportunities for SHARED USE of key infrastructure, especially public (or quasi-public) DCFC. In particular, public DCFC in the 150-350KW range (as is already being deployed by some network operators) could be used by both LDVs and certain segments of the MHDV market (especially medium duty vehicles). This shared use concept has a profound impact since fleet use could increase the utilization (and economics) of those investments. There are large potential synergies in overburdened communities especially, such as "charging barns" that serve LDVs, local delivery vehicles, and fleets of ride-sharing or ride-hailing vehicles. I recommend that the Straw Proposal explicitly acknowledge the potential for shared use of DCFC between LDV and MHDV segments, and to encourage innovative utility programs that take advantage of that opportunity.

This potential overlap between the charging needs of LDV & MHDVs, and both fleet and privately owned vehicles, is addressed explicitly in bullet four page 13of the Straw Proposal. I encourage the filing requirements being defined in this section, but recommend that it be clarified to specifically include charging infrastructure that is shared by LDV and MHDV vehicles, or shared by both private and public vehicles. This "mixed use" concept reflects important market realities

regarding the need for all types of vehicles to be able to charge "away from the depot". As an example, imagine a charging facility that services private EVs, local medium-duty delivery trucks, and electric school buses concurrently.

Utility Filing Timeline: In section E on page 16, the Straw Proposal mandates that utility filings be submitted by February 28, 2023. Given that minimum filing requires are still being defined, this deadline is unrealistic and could result in less complete and/or less optimal utility program proposals. This deadline is especially challenging given the large amount of stakeholder feedback being provided through the current Straw Proposal stakeholder process, and the potentially for the final MFR order to be materially different from the Straw Proposal in multiple ways. It is unreasonable for the utilities to be forced to meet a hard filing deadline with the timing of the MFR order is unknown, and the proposed deadline could be harmful to the quality of the anticipated filings. The timing of utility filings should be tied to when the MFR order is approved in final form. I recommend that the deadline in Section E (on page 16) be changed to six months after the final MFR order is issued, although earlier filings are welcome.

Detailed Comments:

I participated in the technical session dedicated to "Renewables, Storage and Charging ", and with my co-panelists, had the opportunity to discuss the broader context for fleet/MHDV electrification. The following comments reflect more specific considerations coming out of that technical session.

The "Make-Ready" Framework is Powerful: The Straw Proposal starts with a general charging-ecosystem model, and then uses the "make-ready" concept as a way to focus the utility contribution to infrastructure. I think the make-ready architecture is a good framework for organizing overall market organization, and there has been valuable and growing experience with this approach in other jurisdictions. The make-ready represents a critical connection point between the charging equipment itself and the grid that supplies power, and it is an appropriate interface point for establishing principles regarding investment, roles and responsibilities, and key functional requirements. I encourage the use of the make-ready strategy as outlined in the Straw Proposal, with some expansions and clarifications as noted below.

Expanding the Make-Ready Concept: The MFR order represents a huge opportunity to encourage innovation, optimize infrastructure development (technically and economically), and ensure that key policy goals are met. These goals will best be met if the make-ready concept is broadened beyond the basic idea of "providing power". I recommend that the Straw Proposal be expanded to take a broader view on what the utility-supplied "make-ready" covers, potentially including customized interconnection processes, integrated storage, smart charging programs, fleet electrification services (as identified on page 14), etc. The make-ready concept is most powerful when it is NOT conceived of as a "chunk of copper" where connections are made, but rather an intelligent interface point that mitigates grid impacts and helps reduce costs that could impact all ratepayers. The structure and philosophy of the MFR order will determine whether a more optimal approach to charging infrastructure development in the fleet/MHDV segment actually happens. I recommend that the MFR order endorse a broad and flexible

definition of "make-ready", and encourage innovative proposals from the utilities on how the make-ready not only enables infrastructure investment, but also mitigates grid impacts. Specifically, the definition of "Make-Ready" on page 7 can, and should, be expanded significantly.

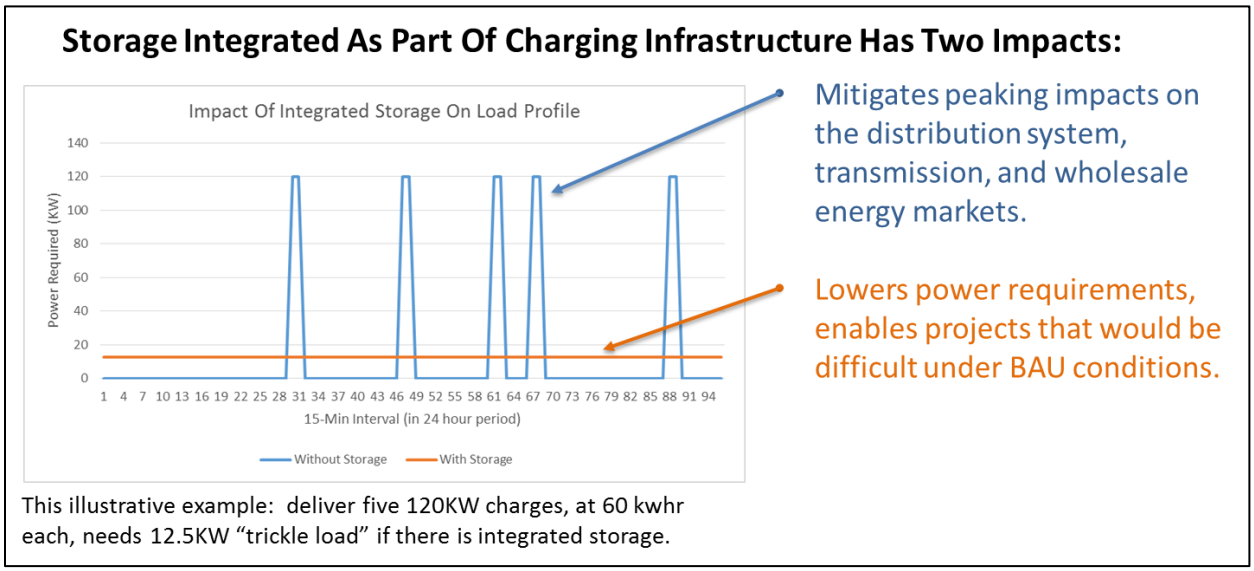
The Need for Grid-Impact Mitigation: Given the fact that fleets of all types will naturally concentrate charging loads (especially at depots), and larger MHDVs may require very large (multi-MW) charging equipment, it is critical to consider the grid impacts of electrification in both the fleet and MHDV segments. These massive grid impact issues are especially strong in the fleet/MHDV segment. Unless planned for proactively, the "business as usual" outcome will be either restricted development of fleet/MHDV charging infrastructure (due to service limitations), or large grid reinforcement costs that could impact all ratepayers. As discussed extensively on the "Renewables, Storage and Charging " technical panel, **it is critical that the make-ready be recognized as a mechanism for mitigating grid impacts and reducing costs**. In this broader context, the scope and program design for utility-supplied make-ready expands the concept of make-ready significantly – as outlined in comments above.

The Unique Role of the Utility: As discussed extensively during the "Renewables, Storage and Charging" technical panel, there is a unique role that the utility can play in connecting private investment with the benefits that result. This idea is related to the "beneficiary pays" concept introduced on page 12 of the Straw Proposal. A key challenge in charging infrastructure is that the benefits may be realized by an entity different than the party making the infrastructure investment. For example: consider a depot operator that is faced with installing standard DCFC equipment, OR DCFC with integrated storage that costs more. The installation of that integrated storage could reduce the service requirements and significantly reduce grid impact – potentially eliminating the need for local distribution system investment. BUT, that benefit is realized by the utility (and ratepayers), not by the depot operator making the private investment decision. This disconnect between investment decision-making and where (in the ecosystem) benefits are realized is a particularly challenging aspect of infrastructure development in the fleet/MHDV segment. A "business as usual" approach will result in private investors making the investments that maximize their profit, even if that forces additional costs on the public grid. The utility is the only entity in the ecosystem that can "connect those dots", and economize the grid benefits in a way that encourages smart investment by infrastructure developers. I recommend that provisions be added to the MFR order recognizing the role of the utilities in guiding private investment in a way that optimizes costs for all ratepayers, including broader consideration of grid impact mitigation as an essential component of the make-ready concept.

Integrated Storage is Critical: There was an exceptionally high degree of concurrence on the "Renewables, Storage and Charging" technical panel that electricity storage (most commonly based on batteries) will be essential in enabling fleet/MHDV charging infrastructure while mitigating expensive grid impacts. As an example of the extent of impact possible, the Freewire product (presented on the panel) provides integrated DCFC storage that allows multiple 120KW charging sessions to be served each day with only 27KW of AC power. In this example, the integrated storage reduces grid impact by a factor of four, which has the impact of making DCFC feasible in more locations (where service constraints may exist), while reducing the load spikes

that DCFC would otherwise generate. The following diagram (introduced during the "Renewables, Storage, and Charging" panel, illustrates the impact integrated storage could have.

Figure 2 – Illustrative Impact Of Integrated Storage



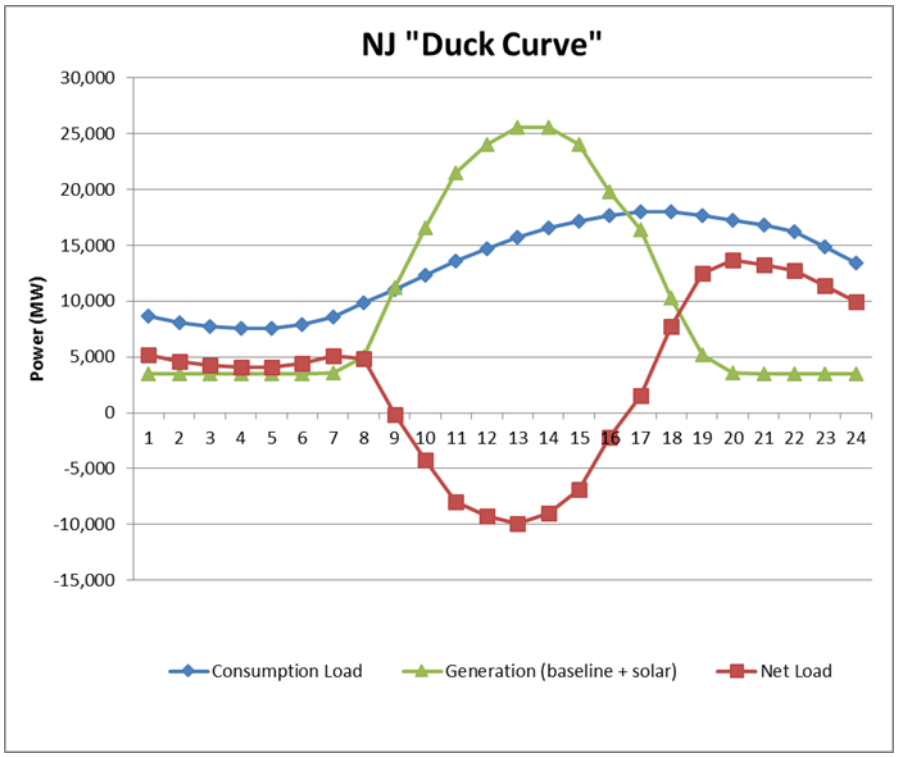
Given the load concentrations that will naturally emerge at fleet depots, and the high power charging required by some MHDVs, integrated storage is an absolute must. In some cases, support for integrated storage may be a better alternative than rate-design solutions – although there is merit to both approaches being made available in the portfolio of utility filings.

The make-ready concept is flexible enough to include integrated storage as a grid impact mitigation feature. I strongly urge that the concept of make-ready be expanded in the MFR order to specifically acknowledge, enable, and encourage the incorporation of storage technology as part of the fleet/MHDV make-ready program – especially in the definition of make-ready on page 7 of the Straw Proposal. Without this innovation, New Jersey ratepayers will ultimately be burdened by AVOIDABLE grid reinforcement costs, and/or fleet electrification will be delayed by restrictive interconnection issues and costs. This approach also allows investment in vehicle charging infrastructure to address other strategic state goals related to storage development.

Synergy Between Vehicle Charging and Renewables: As discussed extensively during the "Renewables, Storage and Charging " technical panel, there is a significant synergy between the growing use of renewable energy and vehicle charging. It would be hard to overstate the potential value of this synergy – but it won't be realized unless this synergy is developed and encouraged proactively. In particular, solar will play a key role in achieving the state's renewable energy target, and during the middle of the day, solar generation will exceed aggregate load. Vehicle charging is a unique opportunity to "absorb" this renewable generation (whether the solar is on-site or grid-connected), and to enable shifting of that generation resource to off-peak times (at night). This renewable/charging interaction is especially pronounced with both workplace (for use by employees) and fleet chargers (both LDV and MHDV). See the following

figure that illustrates the "Duck Curve" for New Jersey, and the high level of solar energy available during the mid-part of the day.

Figure 2 – Illustrative Impact Of Integrated Storage



I recommend that the MFR order include provisions that recognize this synergy between renewable energy (especially solar) and vehicle charging, and which encourage novel program designs from the utilities that embrace this synergy. In addition, although V2H and V2G are still new, these technologies could be transformative, with impacts far beyond "moving vehicles with electricity". I recommend that the MFR order be expanded allow early programs to begin rapid learning on V2H and V2G technologies so that, as they mature, they can be deployed in an optimal way across the New Jersey market.

Conclusion:

The guidelines established in the fleet/MHDV MFR order will have a profound impact on the utility filings that are proposed, and the ability of the utilities to propose innovative, cost effective, and transformative strategies. The Straw Proposal is a good start, but can be improved to significantly enhance the quality of the resulting utility filings, and as a result, better facilitate attainment of the state's vehicle electrification goals.

I appreciate the opportunity to provide these comments and look forward to continued participation in the proceeding. Please don't hesitate to contact me if there are any questions about these comments, or if I can provide additional information regarding the fleet or MHDV EV segment.

Respectfully submitted,

Mark

Mark Warner
Vice President
Gabel Associates, Inc.