McCarter & English

Nathan Howe
Associate
T. 973-639-2053
F. 973-297-3975
nhowe@mccarter.com

McCarter & English, LLP
Four Gateway Center
100 Mulberry Street
Newark, NJ 07102-4056
www.mccarter.com

September 18, 2020

VIA ELECTRONIC MAIL

Aida Camacho-Welch, Secretary
Board of Public Utilities
44 South Clinton Ave., 9th Floor
Trenton, New Jersey 08625

Re: BPU Docket No. EO18080190

Dear Secretary Camacho-Welch:

Please find enclosed for filing the Direct Testimony of Joshua J. Cohen on behalf of Zeco Systems Inc. d/b/a Greenlots, with attached exhibits, in BPU Docket No. EO18020190, *In the Matter of the Petition of Atlantic City Electric Company for Approval of a Voluntary Program For Plug-in Vehicle Charging*.

Thank you, please confirm receipt and feel free to contact me with any questions or concerns.

Respectfully submitted,

/s/ Nathan Howe

Nathan Howe

Enclosures

Cc: See attached service list

STATE OF NEW JERSEY

BEFORE THE BOARD OF PUBLIC UTILITIES

In the Matter of the Petition of Atlantic City Electric Company for Approval of a Voluntary Program For Plug-in Vehicle Charging	))))	BPU Docket No: EO18020190

CERTIFICATION OF SERVICE

I hereby certify that copies of the foregoing Direct Testimony of Joshua J. Cohen was served via electronic mail on this day, September 18, 2020, to all individuals and entities as provided on the attached service list.

*/s/ Nathan Howe*_____

Nathan C. Howe, Esq.
McCarter & English LLP
Four Gateway Center
100 Mulberry Street
Newark, NJ 07102-4056
Phone: 973-639-2053
Fax: 973-297-3975
nhowe@mccarter.com

Attorneys for Zeco Systems, Inc.
d/b/a Greenlots

Dated: September 18, 2020

IN THE MATTER OF THE PETITION OF ATLANTIC CITY ELECTRIC COMPANY FOR APPROVAL OF A VOLUNTARY PROGRAM FOR PLUG-IN VEHICLE CHARGING
BPU DOCKET NO. EO18020190

SERVICE LIST

ACE

500 N. Wakefield Drive
P.O. Box 6066
Newark DE 19714-6066

Philip J. Passanante, Esq.
philip.passanante@pepcoholdings.com

Clark M. Stalker, Esq.
clark.stalker@exeloncorp.com

Heather Hall, Manager
heather.hall@pepcoholdings.com

Michael Normand
michael.normand@delmarva.com

Jennifer Grisham
Pepco Holdings LLC- EP3624
701 Ninth Street, NW
Washington DC 20068-0001
jmgrisham@pepcoholdings.com

BPU

44 South Clinton Avenue, 9th Floor
Trenton NJ 08625-0350

Paul Flanagan, Esq.
Executive Director
paul.flanagan@bpu.nj.gov

Christine Sadovy
Chief of Staff
Christine.sadovy@bpu.nj.gov

Aida Camacho-Welch
Board Secretary
aida.camacho@bpu.nj.gov

Office of the Economist

Benjamin Witherell, Chief Economist
Benjamin.witherell@bpu.nj.gov

Jacqueline O'Grady
jackie.ogrady@bpu.nj.gov

Counsel's Office

Abe Silverman, Esq.
General Counsel
abe.silverman@bpu.nj.gov

Carol Artale, Esq.
carol.artale@bpu.nj.gov

Andrea Hart, Esq.
andrea.hart@bpu.nj.gov

Division of Clean Energy

Kelly Mooij, Director
Kelly.mooij@bpu.nj.gov

Sherri Jones
sherri.jones@bpu.nj.gov

Cathleen Lewis
Cathleen.lewis@bpu.nj.gov

Division of Energy

Stacy Peterson, Director
stacy.peterson@bpu.nj.gov

Scott Sumliner
scott.sumliner@bpu.nj.gov

Christopher Oprysk
Christopher.oprysk@bpu.nj.gov

Division of Law

25 Market Street
P.O. Box 112
Trenton, NJ 08625

Brandon Simmons, DAG
brandon.simmons@law.njoag.gov

Alex Moreau, DAG
alex.moreau@law.njoag.gov

Michael Beck, DAG
michael.beck@law.njoag.gov

Pamela Owen, DAG
pamela.owen@law.njoag.gov

Rate Counsel

140 East Front Street, 4th Flr.
P.O. Box 003
Trenton NJ 08625

Stefanie A. Brand, Esq., Director
sbrand@rpa.nj.gov

Brian O. Lipman, Esq, Litigation Manager
blipman@rpa.nj.gov

Felicia Thomas-Friel, Esq.
fthomas@rpa.nj.gov

Ami Morita, Esq.
amorita@rpa.nj.gov

Brian Weeks, Esq.
bweeks@rpa.nj.gov

Kurt Lewandowski, Esq.
klewando@rpa.nj.gov

Shelly Massey, Paralegal
smassey@rpa.nj.gov

Karen Forbes, Secretary
kforbes@rpa.nj.gov

Rate Counsel Consultants

Ezra D. Hausman, Ph.D.
77 Kaposia Street
Newton, MA 02466
ezra@ezrahausman.com

Brian Kalcic
Excel Consulting
225 S. Meramec Avenue, Suite 720T
St. Louis, MO 63105
excel.consulting@sbcglobal.net

PSE&G

PSEG Services Corporation
80 Park Plaza-T5
Newark NJ 07102-4194

Justin B. Incardone, Esq.
Justin.incardone@pseg.com

Bernard Smalls
bernard.smalls@pseg.com

Michele Falcao
michele.falcao@pseg.com

JCP&L

Lauren M. Lepkoski, Esq.
FirstEnergy Service Company
Legal Department
2800 Pottsville Pike
Reading, PA 19612-6001
llepkoski@firstenergycorp.com

CHARGEPOINT, INC.

Bevan, Mosca & Guiditta P.C.
222 Mount Airy Road, Suite 200
Basking Ridge, NJ 07920

Murray E. Bevan, Esquire
mbevan@bmg.law

William K. Mosca, Jr. Esq.
wmosca@bmg.law

Jennifer McCave, Esq.
jmccave@bmg.law

Katherine M. Dailey, Paralegal
kdailey@bmg.law

GREENLOTS

925 N. La Brea Avenue, 6th Floor
Los Angeles, CA 90038

Thomas Ashley
Vice President, Policy
tom@greenlots.com

Joshua Cohen
jcohen@greenlots.com

McCarter & English
100 Mulberry Street
Newark, NJ 07102-4056

Nathan Howe, Esq.
nhowe@mccarter.com

Guillermo Artiles
gartiles@mccarter.com

TESLA

Kevin Auerbacher
Managing Counsel
Tesla, Inc.
1333 H Street, NW, Floor 11
Washington, DC 20005
kauerbacher@tesla.com

Patrick Bean
Global Charging Policy Lead
Tesla, Inc.
1333 H Street, NW, Floor 11
Washington, DC 20005
pbean@tesla.com

Bill Ehrlich
Senior Policy Advisor
Tesla, Inc.
3500 Deer Creek
Palo Alto, CA 94304
wehrlich@tesla.com

NRDC

William Bittinger, Esq.
Eastern Environmental Law Center
50 Park Place, Suite 1025
Newark, NJ 07102
wbittinger@easternenvironmental.org

Daniel Greenhouse, Esq.
Eastern Environmental Law Center
50 Park Place, Suite 1025
Newark, NJ 07102
dgreenhouse@easternenvironmental.org

Vgo

Rothfelder Stern, L.L.C.
Greenwood Avenue, Unit #301
Trenton, NJ 08609

Martin C. Rothfelder, Esq.
mrothfelder@rothfelderstern.com

Bradford M Stern, Esq.
bstern@rothfelderstern.com

Sara Rafalson
Director of Market Development
EVgo Services LLC
11835 West Olympic Boulevard, Suite 900
Los Angeles, CA 90064
sara.rafalson@evgo.com

Electrify America, LLC

Ira G. Megdal, Esq.
Cozen O'Connor
Liberty View Suite 300
457 Haddonfield Road
Cherry Hill, NJ 08002
imegdal@cozen.com

William Lesser, Esq.
Cozen O'Connor
45 Broadway, 16th
Floor New York, NY 10006
wlesser@cozen.com

David Appelbaum, Esq.
Senior Counsel
Electrify America, LLC
2003 Edmund Halley Drive
2nd Floor, Suite 200
Reston, VA 20191
david.appelbaum@electrifyamerica.com

STATE OF NEW JERSEY

BEFORE THE BOARD OF PUBLIC UTILITIES

In the Matter of the Petition of	)	
Atlantic City Electric Company for	)	BPU Docket No.
Approval of a Voluntary Program	)	EO18020190
For Plug-In Vehicle Charging	)	

DIRECT TESTIMONY OF JOSHUA J. COHEN

ON BEHALF OF

ZECO SYSTEMS INC. D/B/A/ GREENLOTS

September 18, 2020

I. INTRODUCTION

Q. Please state your name, position, and business address.

A. My name is Joshua J. Cohen. I am Director of Policy for Zeco Systems, Inc. d/b/a Greenlots ("Greenlots"). Greenlots' principal place of business is located at 767 S. Alameda Street, Suite 200, Los Angeles, CA, 90021. I currently work remotely at my home office in Maryland.

Q. Please briefly summarize Greenlots.

A. Headquartered in California, Greenlots is a leading provider of electric vehicle ("EV") charging software and services committed to accelerating transportation electrification in New Jersey and beyond. The Greenlots network supports a significant percentage of the DC fast charging infrastructure in North America, and an increasing percentage of the Level 2 infrastructure. Greenlots' smart charging solutions are built around an open standards-based focus on future-proofing while helping site hosts, utilities, and grid operators manage dynamic EV charging loads and respond to local and system conditions. Greenlots is helping accelerate the electric mobility future through the delivery of innovative software and services to empower cities, utilities, automakers, fleets, and many others to deploy EV charging infrastructure at scale. The Greenlots footprint spans 13 countries. Greenlots frequently engages in EV regulatory and stakeholder processes and in the deployment of utility and non-utility EV charging

infrastructure and programs across many jurisdictions in North America. In 2019 Greenlots was acquired by Shell New Energies.

Q. Please describe your duties as Director of Policy for Greenlots.

A. I lead policy and regulatory engagement in New Jersey and a number of other states in the eastern U.S. In this capacity I participate in regulatory and legislative proceedings, industry conferences and stakeholder discussions with the goal of advancing outcomes that accelerate EV adoption, grow the market for EV charging, and add value through the application of technology-based managed charging.

Q. Please describe your educational background and professional experience.

A. I have more than twenty years of experience as a leader in policy and communications in both the private and public sectors with a professional focus on electric transportation and clean energy. I hold a Bachelor of Arts in Economics from the University of Maryland College Park, and I am currently pursuing a Master of Science in Energy Policy and Climate from Johns Hopkins University. I joined Greenlots as Director of Policy in July, 2019. Prior to joining Greenlots, I was the founder and principal of Polity Partners Consulting in Annapolis, Maryland, where I focused on clean energy policy advocacy, stakeholder engagement and business development for clients in the electric vehicle charging and renewable energy development industries. I hosted an independent podcast, *More Power to You*, which focused on the policy, political and market developments shaping the clean energy economy. I also have extensive experience working in federal, state, and municipal government. From 2015-2017, I served as Deputy Administrator of

the USDA Rural Utility Service which financed billions of dollars annually in energy, broadband, and water and sewer projects in rural communities. From 2013-2015, I was the Chief Administrative Officer at the Maryland Department of General Services where I supervised legislative affairs, fiscal services, human resources, sustainability, and communications for Maryland's procurement and facilities management agency. Finally, my experience in local government includes a four-year term as Mayor of Annapolis, Maryland from 2009-2013 and service as Vice-Chair of the Baltimore Regional Transportation Board.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to: (1) discuss the benefits of Atlantic City Electric Company ("Atlantic City Electric" or "ACE")'s Voluntary Program for Plug-In Vehicle Charging as submitted via Amended Petition on December 17, 2019 ("PIV Program"); (2) provide facts and information relating to the EV charging landscape and marketplace; and (3) support Greenlots' recommendation that the Board of Public Utilities (the "Board" or "BPU") approve ACE's proposed PIV Program.

Q. Are you sponsoring any attachments in this proceeding?

A. Yes. I am sponsoring the following attachments to my direct testimony:

- Attachment JJC-1 - *Emerging Best Practices for Electric Vehicle Charging Infrastructure* prepared in October 2017 by Dale Hall and Nic Lutsey of the International Council on Clean Transportation

- Attachment JJC-2 - *Electric Vehicles are Driving Electric Rates Down* prepared in February 2019 by Jason Frost, Melissa Whited, and Avi Allison of Synapse Energy Economics, Inc.

- Attachment JJC-3 - *Driving Out Pollution: How Utilities Can Accelerate the Market for Electric Vehicles* prepared in June 2016 by Max Baumhefner, Roland Hwang and Pierre Bull of Natural Resources Defense Council.

- Attachment JJC-4 - *Electric Vehicle Benefits for New Jersey* prepared in April 2019 by the Union of Concerned Scientists

- Attachment JJC-5 – *Electric Vehicles in New Jersey – Costs and Benefits* published on January 26, 2018 for ChargEVC by Gabel Associates, Inc. and Energy Initiatives Group, LLC.

- Attachment JJC-6 – *Clean Air Future: Health and Climate Benefits of Zero Emission Vehicles* prepared in October 2016 by the American Lung Association.

- Attachment JJC-7 – Reply Comments of Greenlots, *In re Investigation into Electric Vehicle Charging Services*, PUCO Case No. 20-434-EL-COI (April 7, 2020).

- Attachment JJC-8 – Staff Briefing Papers, *In re Matter of Otter Tail Power Company's Request for Approval of Electric Vehicle Charging and Infrastructure Programs*, MPUC Docket No. E017/M-20-181 (Aug. 27, 2020).

- Attachment JJC-9 – *Multi-State Zero Emission Medium- and Heavy-Duty Vehicle Initiative Memorandum of Understanding* published by the Northeast States for Coordinated Air Use Management ("NESCAUM") (July 14, 2020) ("Multi-State Medium- and Heavy-Duty ZEV MOU")

- Attachment JJC-10 – *Electrification of CTA Buses: Health Implications of Inaction* published by the Respiratory Health Association (August 2020)

Q. Are you sponsoring any work papers in this proceeding?

A. No.

Q. Were all of the attachments prepared or assembled by you or under your direction?

A. Yes.

II. ATLANTIC CITY ELECTRIC'S VOLUNTARY PROGRAM FOR PLUG-IN CHARGING AND THE EV CHARGING LANDSCAPE

Q. Please summarize Atlantic City Electric's proposed PIV Program.

A. Atlantic City Electric's proposed PIV Program comprises thirteen offerings designed to take a portfolio approach to accelerate electrification and "foster the growth of PIVs in a holistic manner"[1] across multiple customer segments and use cases:

Residential:

1. Offering 1 – Residential Whole House Time-Of-Use ("TOU") rate to enable customer savings by shifting consumption to off-peak periods, with no limit on participation.
2. Offering 2 – Residential Off-Peak Charging Incentive of 5 cents per net kilowatt hour ("kWh") for charging off-peak compared to the customer's on-peak charging. This incentive will be available to up to 300 customers with existing or independently acquired chargers, and they will enroll in Rider "REVCP".
3. Offering 3 – Residential Rebate and Managed Charging Program. ACE will offer installation rebates equivalent to 50% of the cost of a smart Level 2 ("L2") charger and its installation. This incentive will be available to up to 1,500 residential customers who also will be enrolled in Offering 2's residential off-peak charging incentive Rider REVCP.

Commercial:

4. Offering 4 – Multifamily rebate and incentive: ACE will offer customers who own or operate multifamily apartment or condominium properties a 50% rebate towards a

[1] PIV Program at p. 10.

smart L2 charger, a rebate up to $10,000 towards installation costs, and a demand charge incentive of 50% of the charger's nameplate capacity multiplied by the demand charge (Rider "CEVCP"). Offering 4 will cover up to four charging stations per customer and up to 200 chargers total.

5. Offering 5 – Workplace and Garage rebate and incentive: ACE will offer a 50% rebate towards the purchase of smart L2 charging stations and the same Rider CEVCP demand charge offset as the multifamily customers. Offering 5 will cover up to six charging stations per customer located at up to three different sites, up to 150 charging stations total.
6. Offering 6 – Fleet rebate and incentive: Designed similarly to Offering 5 above, ACE will offer owners of light duty commercial vehicle fleets a 50% rebate toward the purchase of smart L2 charging stations and the Rider CEVCP demand charge offset. Offering 6 will also cover up to six charging stations per customer located at up to three different sites, up to 150 charging stations total.

<u>Public charging:</u>

7. Offering 7 – Utility-owned public fast charging: ACE will install, own and operate up to 45 public Direct Current Fast Charging ("DCFC") stations at up to 15 locations serving both local and long-distance drivers, including locations targeted to serve low-to-moderate-income ("LMI") and environmental justice ("EJ") communities.
8. Offering 8 – Utility-owned public L2: ACE will install, own and operate up to 200 utility-owned L2 at approximately 65 neighborhood locations, including locations targeted to serve LMI and EJ communities.

9. Offering 9 – Non-utility-owned public fast charging make-ready and incentive: ACE will "perform the electrical upgrades and work up to the point of charger connection, at no direct cost to the non-utility owner/operator"[2] at up to 30 locations for up to four DCFC each, and offer a "set point" incentive of $0.20 per kWh to offset demand charges. Customers who receive this incentive will participate in Rider "NOUPDCFC."

Community Planning and Transit:

10. Offering 10 – Innovation Fund: ACE will award grants up to 50% of project cost to support innovative projects designed to accelerate transportation electrification for different use cases such as car share hubs and port electrification, particularly in underserved communities.
11. Offering 11 – Electric School Bus Fund: ACE will cover the incremental cost of up to 20 electric school buses (estimated at $250,000 per bus) and up to $25,000 to cover charging infrastructure, for up to two buses per school district.
12. Offering 12 – New Jersey Transit bus electrification: ACE will provide up to $250,000 in distribution engineering and upgrades and up to $2.25 million for high-powered charging station equipment for an NJ Transit bus depot in ACE's service territory.

Green Adder:

13. Offering 13 – Green Adder: ACE will procure renewable energy credits ("RECs") to ensure the electricity dispensed from the ACE-owned public charging stations for Offerings 7 and 8 will come from fully renewable sources. ACE will further allow the

[2] PIV Program at p. 18.

residential customers participating in Offering 1 to also source 100% of their electricity from renewable sources, with the customer responsible for covering any additional cost per kWh, by participating in the "PIV-Green" Rider.

The PIV Program also includes cross-subprogram investment of $9 million that covers implementation, administration, IT and an education and outreach plan across all offerings.

Q. Does Greenlots support ACE's proposed PIV Program?

A. Greenlots strongly supports the portfolio of EV offerings in ACE's PIV Program and recommends approval, although Greenlots believes that increasing the overall size and scale of the program will amplify the many benefits described below in this testimony and by other parties, and increase the likelihood of New Jersey achieving its electrification targets. Greenlots considers the proposed PIV Program offerings to be needed, prudent and targeted utility investment that will have a significant beneficial impact in accelerating both the adoption of electric vehicles and the market for EV charging infrastructure products and services, applying downward pressure to rates for all utility customers, and more broadly supporting the growth and modernization of New Jersey's economy. The offerings are effectively designed to support consumers in realizing the benefits of EVs, efficiently integrate EV load into the grid, and reduce persistent barriers to EV adoption. Additionally, the Board should approve ACE'S PIV Program because it is in the public interest, will meet a need regarding the advancement of EVs in New Jersey that is not being met by the private EV charging market, will

support the development of the private EV charging market – including products and services, will meaningfully increase charging options for EV drivers, will support load management strategies, and will be used and useful.

Q. Please discuss the benefits associated with transportation electrification.

A. Transportation electrification represents likely the single greatest opportunity to increase and optimize the utilization of the electric grid to the benefit of all ratepayers, while also reducing emissions and air pollution and delivering significant economic development and cost savings benefits to the state.

More EVs charging on the grid increases electric load, which in turn spreads out fixed system costs across greater usage of electricity, thereby applying downward pressure to rates for all ratepayers, not just EV drivers. A recent analysis by Synapse Energy Economics examined costs and benefits associated with utility support of transportation electrification from 2012 through 2017 by two large investor-owned utilities, Pacific Gas & Electric and Southern California Edison. The study found that those two utilities' transportation electrification programs realized in excess of $500 million in direct revenues, not including broader societal benefits, far in excess of the total costs associated with the programs. *See* Attachment JJC-2 at 4; *see also* Attachment JJC-3 at 6, 9, 13 for further analysis on how widespread EV charging can benefit all utility customers.

It is widely understood that electrification of transportation reduces emissions and improves health outcomes. The Union of Concerned Scientists (UCS), a non-profit and non-partisan research organization, compared emissions from gas-powered vehicles and electric vehicles in New Jersey by examining several factors such as upstream emissions, electricity generation and transmission loss. Even after factoring in the aggregated emissions that go into producing the electricity an EV consumes, UCS found that a typical EV in New Jersey emits less than one-third the carbon dioxide than a new gas-powered vehicle — 1.5 metric tons of CO_2 compared to 4.9 metric tons. *See* Attachment JJC-4 at 2. This gap will only increase as New Jersey's coming offshore wind developments and other carbon-free generation facilities come online.

The Respiratory Health Association examined impacts of diesel transit buses on respiratory health. The report found that proximity to high traffic transit bus routes and especially bus garages was associated with higher asthma and chronic obstructive pulmonary disease (COPD) rates. Specifically, people living within 500 meters of CTA's seven transit garages have asthma rates more than 12 percent higher, and COPD rates 23.6 percent higher, than the citywide averages. People living within 500 meters of high traffic transit bus routes have asthma rates 8.4 percent higher, and COPD rates 10.6 percent higher, than the citywide averages. *See* Attachment JJC-10 at 12. Though focused on Chicago, the report is relevant to other metropolitan areas with urbanized transit operations such as the New York/Newark and Philadelphia/Trenton/Camden regions of New Jersey.

These reductions in pollution and emissions translate to significant health and climate-related benefits for New Jersey. The American Lung Association quantified the monetary impact of transitioning New Jersey's fleet to primarily zero-emission vehicles by 2050, and projected the net benefits to be $4.1 billion annually. Attachment JJC-6 at 14.

The cost savings are significant as well. UCS found that an EV driver in New Jersey who charges up at home pays the equivalent of $1.37 per gallon, compared to an average statewide fuel price of $2.54 per gallon as of 2019. *Id.* Moreover, rural drivers stand to gain the most – more than $575 annually compared to operating a gas vehicle. *Id.; see also* Attachment JJC-1 at 10-11, 13-14. These savings that result from income not spent on fueling internal combustion engines "represent enhanced disposable income that will have a multiplier effect on the economy when spent on other goods and services." Attachment JJC-5 at 57.

The economic value of the clean energy economy is already widely understood in New Jersey. Indeed, the Board has taken strong action previously to establish regulatory frameworks that support the growth of the solar industry and—more recently—the offshore wind industry. Similar actions by the Board can position New Jersey to prepare and transition its transportation economy for the 21st century and enable the state's workers to both support and benefit from electrification.

While most research about the economic and job-related benefits of transportation electrification ("TE") are national in their scope, Advanced Energy Economy recently

published an in-depth analysis of the TE supply chain potential in neighboring Pennsylvania that should be highly relevant to New Jersey. The study identified hundreds of businesses that could immediately be retooled to supply the EV market, and hundreds more that could transition with relatively minimal time and investment. Importantly, however, the study also found that "to spur the transition to EVs and start putting [people] to work, regulatory and legislative action is needed to encourage EV deployment in the state and address one of the major barriers to EV adoption: a lack of available charging infrastructure."[3]

Greenlots strongly encourages the Board to recognize that these many benefits of transportation electrification – grid optimization, downward pressure to rates, emissions and pollution reduction, and jobs and economic development – will not happen automatically, however. These benefits will require thoughtful and deliberate planning and programs to realize, especially if the state seeks to maximize the value of this opportunity for New Jerseyans. ACE's PIV Program, by addressing significant barriers to widespread transportation electrification in New Jersey, including a lack of accessible charging infrastructure, high upfront infrastructure costs and a lack of consumer awareness, is therefore both appropriate and necessary.

[3] Advanced Energy Economy (June 8, 2020), A Supply Chain is Growing for Electric Transportation. Here's What It Could Do for One State, *available at* https://blog.aee.net/a-supply-chain-is-growing-for-electric-transportation.-heres-what-it-could-do-for-one-state.

Q. Why is ACE's proposed PIV Program important for New Jersey?

A. ACE's proposed offerings represent a well-designed portfolio of targeted offerings to accelerate transportation electrification, gain learnings to further inform ACE's and other utilities' future offerings, and leverage the Company's core competencies and ability to help support and grow the market to the benefit of all utility customers. In fact, Greenlots finds that the major shortcoming of the proposed PIV Program is that, notwithstanding that ACE's amended 2019 filing is larger than its original 2018 filing, it could deliver even greater benefits to New Jerseyans if its scale were to be increased.

The PIV Program is particularly beneficial for New Jersey in light of the state's strong goals for electrification. Specifically, S.2252 (January 9, 2020) – the electric vehicle bill enacted by the legislature and signed into law by Governor Murphy earlier this year, the New Jersey Energy Master Plan ("EMP"),[4] and the Multi-State Medium- and Heavy-Duty ZEV MOU together chart an ambitious path forward for the state to electrify its transportation sector. Some of the key goals and, notably, statutory commitments contained in these policy documents include:

- EVs: a commitment to at least 330,000 light-duty EVs on the road by the end of 2025; at least 2 million EVs by end of 2035; and EVs comprising 85% of registered vehicles by 2040;[5]

[4] 2019 New Jersey Energy Master Plan, Pathway to 2050 (Jan. 27, 2020) ("Energy Master Plan") *available at* https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf.

[5] *N.J.S.A.* 48:25-3(a).

- Public charging: 400 DCFC stations at 200 locations, and 1,000 Level 2 charging stations by 2025 including a multi-family requirement;[6]
- Transit electrification: NJ Transit electric transit bus procurement requirements of 10% by 2024, increasing to 50% by 2026 and 100% by 2032; and
- Medium- and Heavy-Duty Vehicle Electrification: at least 30 percent of new medium- and heavy-duty vehicles sold by 2030 to be zero emission vehicles and 100% by 2050. *See* Attachment JJC-9 at 3

The state's EV commitment represents a twelve-fold increase from the 26,580 EVs that had been sold in New Jersey by the end of 2018. *See* Attachment JJC-4. The state's public charging commitment is similarly relatively bold for a state that, as of November 2019 ranked 35th in the number of public charging stations per capita.[7] Indeed, as of the date this testimony was submitted, New Jersey had only 64 public, non-proprietary DCFC stations, which are the more costly and challenging stations to deploy.[8] Greenlots commends New Jersey for its electrification goals which, while ambitious, are achievable if the state leverages electric utility filings such as the PIV Program. Indeed, Greenlots views the Program as critically important to help the state achieve its goals and realize the many benefits that electrification has to offer.

[6] *Id.* at (4)-(6).

[7] Internal calculations based on https://autoalliance.org/in-your-state/NJ/ and Atlas EV Hub., retrieved November 25, 2019 from https://www.atlasevhub.com/materials/market-data.

[8] *See* U.S. Department of Energy; Energy Efficiency & Renewable Energy; Alternative Fuels Data Center – Electric Vehicle Charging Station Locations, *available at* https://afdc.energy.gov/fuels/electricity_locations.html#/analyze?fuel=ELEC&region=US-NJ&ev_levels=dc_fast&ev_connectors=J1772COMBO&ev_connectors=CHADEMO.

Q. Please discuss how market barriers to the adoption of EVs and the development of EV charging infrastructure and stations warrants investment by the local electric utility.

A. As noted above, New Jersey lags behind its counterparts both nationally and in the Mid-Atlantic when it comes to availability of public charging infrastructure. This relative lack of public charging infrastructure in New Jersey makes it quite clear that the private market has failed to adequately support the current EV market, let alone what will be needed to support and maximize future growth and associated benefits. Indeed, one of the most significant and challenging barriers to increased EV adoption is the lack of adequate charging stations, particularly public charging. *See* Attachment JJC-5 at 34, 36; *see also* Attachment JJC-3 at 7-8. It is critical to understand this fundamental link between charging station visibility, availability, and EV adoption, as it can both confine and slow EV adoption when scarce, or act as a market and EV adoption accelerator when prominently and readily available.

Many consumers disqualify EVs from their purchasing/leasing considerations due to the lack of charging infrastructure and the resulting concern commonly referred to as "range anxiety." *See* Attachment JJC-3 at 7-8. This specific concern and the lack of public charging infrastructure is consistently cited by drivers as a primary barrier to EV adoption. *Id.* While the market is now seeing more EVs with longer ranges, many currently deployed EVs have relatively smaller batteries that are best situated to support local driving, compounding this issue. Even as EVs with 200+ mile ranges become standard, this will put increased pressure on DCFC infrastructure both along corridors

and in urban areas. While the business models for deployment and operation of both L2 and DCFC stations are challenging, the latter has particularly high costs to develop and is arguably the most challenging business model.

With the lens pulled out, this lack of charging infrastructure, which in turn hinders EV adoption, is a classic market failure that warrants public investment and the involvement of regulated utilities. Unfortunately, a sustainable and competitive market in the deployment of public charging infrastructure remains aspirational at this time, and it is unlikely to arise prior to the adoption of a critical mass of electric vehicles. This is primarily due to a lack of a sustainable private market business model for the ownership and operation of public charging stations based on revenues from charging activities. While some property owners who install charging stations may do so as an amenity to attract EV-driving customers whose primary expenditure is not the charging session but rather the purchase of products or services in a convenience store, for example, even the increased sales receipts remain largely inadequate to cover the costs of installation and operation of the charging infrastructure and stations. This has thus far resulted in a fundamentally inadequate amount of private investment in such charging infrastructure. The unfortunate result is that economics simply don't support sufficient private investment to adequately grow the infrastructure market to support current and future drivers and their adoption decisions.

While there is market competition between a relatively small but expanding field of sellers of EV charging products and services to motivated investors/site hosts in some

market segments, such as residential and business Level 2 charging, those motivated buyers are relatively few and far between. Those that are participating in the market are often at a small scale that lacks the value of wholesale-level procurement, and for public charging there is not a competitive market for offering these services directly to drivers. This void persists despite significant private investment in technology companies engaged in supporting transportation electrification. Per basic economic theory, no number of competitive suppliers/producers results in a competitive market in the absence of a sufficiently large number of consumers or motivated buyers. So, while there may not be a sufficient volume of EV drivers on the road today to meet this condition, utility investment in charging infrastructure will directly help accelerate EV adoption and, by extension, the health and growth of the market.

As Greenlots noted in its Comments on the Straw Proposal, the electric utility is uniquely positioned to advance the market past these barriers and accelerate the market across a number of key customer segments, supporting competition, improving the environment for private investment, and – notably – serving as a market transformer.[9] In this manner, Greenlots agrees with the inclusive and flexible role the Washington Utilities and Transportation Commission ("UTC") envisions for utilities, as expressed in its seminal Policy Statement. This view is so salient because it is firmly rooted in a clear understanding of the state of the EV market which even today remains an emerging technology. In its Policy Statement, the UTC wrote:

[9] *See* Comments by Greenlots, *In re Straw Proposal on Electric Vehicle Infrastructure Build Out*, BPU Docket No. QO20050357, at pp. 2-6 (submitted Jun. 17, 2020) ("Greenlots Straw Proposal Comments").

> Market transformation is the process of getting these new products to a wider audience, removing market barriers, and exploiting opportunities to make the new market mainstream. For energy efficiency technologies, this is done through programs promoting the product and voluntary efficiency standards. The ultimate goal of market transformation is for the product to become accepted by the general public and adopted into codes and standards.
>
> The challenge facing the expansion of EVs is similar to the challenge facing energy efficiency technologies before market transformation…there are three main barriers to additional adoption of EVs: price, range and charging availability, and low consumer awareness. *Charging availability and consumer awareness, in particular, are barriers that electric utilities are naturally positioned to address.* (emphasis added)[10]

Indeed, when considering the right role for the utility in a broader market context, it is necessary to differentiate between a mature, profitable private market and a nascent, largely pre-profit market that is still in the "emerging technology" stage described by the UTC. Regulatory guiderails that may be appropriate and warranted for a mature market may be inappropriate, and indeed, detrimental for a nascent market. New Jersey's market, which the Straw Proposal recognizes as "in the early days of EV adoption,"

[10] Policy and Interpretive Statement Concerning Commission Regulation of Electric Vehicle Charging Services, *In re Rules in WAC 480-100 Rulemaking to Consider Policy Issues Related to Electric Vehicle Supply Equipment*, WUTC Docket UE-160799, at 29-30 (Issued June 14, 2017) ("UTC Policy Statement"), *available at* https://www.utc.wa.gov/docs/Pages/ElectricVehicleSupplyEquipment,DocketUT-160799.aspx.

cannot realistically be viewed as competitive, if by competitive one means profitable.[11] Despite the enormous value that transportation electrification writ large offers to the grid and ratepayers, as a stand-alone commercial enterprise it remains generally unprofitable to deploy, own and operate EV infrastructure and charging stations today.

Q. Is Greenlots concerned that ACE's proposed ownership of charging stations will hinder the development of the private market?

A. No. ACE's utility-owned public charging offerings (Offerings 7 and 8) represent a modest, market-seeding, foundational network of public charging stations. ACE's utility-owned public DCFC proposal (Offering 7), in particular, comprises a small percentage of what will be required in the coming years in a market segment not adequately served by the private market. Importantly, ACE has designed this offering to leverage some of the core competencies of the utility with respect to ownership and maintenance of widely-dispersed, long-lived electricity-dispensing and metering equipment, and ensuring the safety and reliability of those assets, providing a key value and market-supporting function that has historically been in inadequate supply.

Q. Please explain why utility ownership of charging infrastructure, including charging stations, will help support the private, competitive market.

A. It is important to note that the EV charging industry encompasses companies with a diversity of business models, products and services. This is not a one-dimensional

[11] Final Straw Proposal, *In re Straw Proposal on Electric Vehicle Infrastructure Build Out*, BPU Docket No. QO20050357, at p. 12 (issued May 18, 2020).

market. Some companies own and operate the charging stations; others sell stations and/or software to site hosts which then own and operate them; and others may do some aspects of both. Utility ownership, operation – and indeed, procurement of charging infrastructure and stations is vital to support competition in the industry and grow the market.

Although it has been almost a decade since the first Nissan Leafs and Chevy Volts rolled off assembly lines and into dealer showrooms, much of the relatively modest amount of charging infrastructure deployed today is often not consistently reliable or available. Utility programs by and large can extend the same type of reliability to EV charging infrastructure that customers expect for all other utility services. The cost associated with keeping equipment up and running and repairing or replacing it quickly, if and when it encounters an issue, is an often undervalued aspect of the EV charging equipment and services market. While early adopters of EVs may tolerate reliability limitations, I do not believe the coming market of mass adopters will. Moreover, as the demands on EV charging station deployments increase with more EV drivers on the road, many of the factors that lead to poor reliability may compound. This therefore represents a key barrier to widespread transportation electrification. To achieve the level of reliability drivers currently experience from traditional fueling stations, much more needs to be done. Utility ownership offers opportunity for electric vehicle service providers to benefit from a more accurately valued maintenance service that will not only improve reliability of EV charging stations within the utility program, but will likely extend beyond the bounds of

the program to benefit EV charging equipment and service providers in the market as a whole.

On a broader level, utility ownership and procurement of charging infrastructure, including charging stations, should also not be confused for anti-competitive behavior. Rather, I expect that by growing the installed fleet of charging stations, utility investment and ownership will help spark EV purchasing decisions, accelerate adoption and grow the total customer base. This will advance the market closer to an inflection point where asset utilization rates of charging stations can attract greater private investment to sustain a healthy, competitive future market.

Greenlots addressed this notion of competition in a recent investigation before the Public Utilities Commission of Ohio ("PUCO"):

> Currently, competition exists in a largely pre-profit market, but that competition is largely competition for market share, competition to offer leading technology and services, and competition for site hosts and locations. It is not competition in the sense that EV charging companies are competing for a share of the net profits. In this current EV charging ecosystem there are very few profitable actors: installers, some value-added resellers (VARs), some consultants, and – notably – regulated, investor-

owned utilities following regulatory approval, precisely because they can earn a reasonable and just rate of return on their investment.[12]

Greenlots further expanded on this perspective in its Comments on the BPU's EV Infrastructure Ecosystem 2020 Straw Proposal:

> Put simply, the appropriate utility role in a nascent, emerging market may look very different than an appropriate utility role in a mature market. Far from harming the EV charging market in New Jersey, Greenlots firmly believes that utility investment in charging—including ownership of charging stations—will increase EV adoption. This will in turn increase demand for charging stations and services, thereby supporting the growth and maturation of the private competitive market. In this way, utilities can fulfill their role as market transformers, as envisioned by the Washington UTC.[13]

Utility ownership of charging infrastructure, including charging stations, further provides important opportunities for suppliers in the absence of a critical mass or relative size of other motivated buyers across these market segments, incentivizing competition and product innovation through utility procurement programs. Indeed, utility procurement in

[12] *In the Matter of the Commission's Investigation into Electric Vehicle Charging Service in this State,* PUCO Case No. 20-434-EL-COI, Reply Comments of Greenlots, at 2-3 (April 7, 2020), provided as Attachment JJC-7.

[13] Greenlots Straw Proposal Comments at p. 5.

itself – a related but separate issue from ownership – further benefits competition and grows the market. Greenlots expands upon this more fully in the next question.

These many benefits that flow from utility ownership of charging infrastructure reflect how the electric utility is uniquely positioned to help transform the market, as envisioned by the Washington UTC in its Policy Statement. Indeed, utility investment results in increased opportunities for all market participants, importantly positioning utility investment – including utility ownership and direct utility procurement – as a market catalyst, rather than a market constraint.

Importantly, for ACE's proposed utility-owned public charging offerings (Offerings 7 and 8), the Company will bill drivers "based on a market pricing study of current public charging prices" in New Jersey.[14] This will ensure that utility-owned stations do not undercut privately-owned stations. I would note, however, that ACE and the Board should be cognizant that rates charged to drivers across the state should still provide for an adequate level of fuel cost savings relative to gasoline, as this is a primary motivator for EV purchase decisions.

Q. In what other ways does utility procurement of charging infrastructure hardware and software promote competition in the private market and benefit customers?

A. There is a prevalent and inaccurate view of the market for EV charging products and services that competition exists only at the retail level, where naturally-occurring market

[14] PIV Program, Direct Testimony of Michael T. Normand at pgs. 11-12.

opportunities are limited. In fact, the wholesale-level competition that is tied to utility procurement, which introduces a significant, motivated and sophisticated buyer to a market that generally otherwise lacks one, represents the purest form of competition in today's market, based on product features, price, service, etc. This allows different types of players, regardless of size or market position to compete on a leveled playing field. Additionally, wholesale-level competition that results from utility procurement is more likely to drive down program and equipment costs due to purchasing in bulk rather than via individual retail transactions. A focus only on the retail or third-party market for charging stations historically has led to less sophisticated purchasing and planning decisions by customers with little technical knowledge or meaningful negotiating leverage.

Greenlots notes that these benefits of utility procurement and selection of charging station hardware and software can apply both to scenarios in which the utility directly owns the charging station and scenarios in which a third-party customer or site host participating in the utility program owns the charging station that the utility has procured.

ACE proposes to leverage the benefits of utility procurement of a single, open standards-based software platform to manage multiple hardware vendors for its Residential Rebate and Managed Charging Program (Offering 3). Greenlots concurs with ACE's reasoning that:

> An open platform will allow the Company to seamlessly retrieve charging data from the various vendor hardware expected to be approved for use in the program, allowing multiple EVSE (EV supply equipment) vendors to supply equipment. It will also avoid the cost and time that would be associated with integrating multiple operating systems to retrieve the data, and allow for interoperability with other existing EVSE providers … ACE is adopting this strategy to maximize efficiency and ensure consistency of the consumer experience, and to minimize ratepayer costs.[15]

In addition to enabling more efficient integration and retrieval of charging data, a single software network will also enable smart charging management by the utility. This approach of leveraging a single software network to manage multiple makes and models of charging stations is one that ACE's sister utility Baltimore Gas & Electric is already implementing, having received approval last year by the Maryland Public Service Commission.[16] Greenlots discusses smart charging more fully below.

Greenlots encourages stakeholders to look beyond the ideology that there is only one form of market competition, i.e. retail-focused, or place where it can develop. By allowing for both third-party ownership and wholesale competition for utility ownership through procurement by ACE – as ACE's portfolio approach of offerings supports– the

[15] PIV Program, Direct Testimony of Jennifer M. Grisham at pgs. 35-36.

[16] Order No. 88997, MPSC Case No. 9478 (issued Jan. 14, 2019), *available at* https://www.psc.state.md.us /order-no-88997-case-no-9478-ev-portfolio-order/.

Program will provide a diverse set of opportunities for market participants, and in growing the market, increase charging options for EV drivers.

Greenlots especially commends the Program for including utility-owned public charging offerings at the outset of the Program. This will avoid slowing down EV adoption by relying solely on third-party, private providers to step in and own and operate public charging stations during the initial years of the Program.

Q. How have other states reacted to the concept of utility ownership of charging infrastructure?

A. The value and market need for utility ownership is becoming increasingly understood by the stakeholder community and regulators. For example, last year in Maryland, in the Public Service Commission's Order approving a statewide portfolio of utility investment programs in EV charging infrastructure, it found that:

> …where private companies have been unable or unwilling to make initial capital investments in difficult and underserved areas, utility ownership can help reach these market segments faster.
>
> The Commission finds that the Utilities have resources, electrical connectivity, and the technical bandwidth within their service territories to address emerging challenges impacting the grid as a result of EV charging on a mass scale. The Utilities can also leverage their customer relationships

to educate and advertise EV ownership to potential buyers. Furthermore, the Utilities will also be responsible for ensuring that public charging stations are working and maintained in good working order. [17]

Last month, the Minnesota Public Utilities Commission approved Otter Tail Power's proposal to "own and operate a backbone fast charging network for its service territory, including the DC Fast Chargers." Attachment JJC-8 at page 4. Otter Tail Power's proposal is designed to ensure that 97% of its customers are within 30 miles of a DCFC station, and 100% are within 60 miles.

Last year, the Minnesota Public Utilities Commission also approved Xcel Energy's ("Xcel") $14.4 million proposal for a utility-owned fleet EV charging pilot. Xcel proposed to install, own and maintain the service connection and infrastructure costs, and, if requested by a participant, the charging stations as well.[18] The Commission found that the pilot advances the "goal of increasing transportation electrification in a manner that reasonably limits potential rate impacts, while presenting an opportunity for ratepayers and the public to benefit," and it approved Xcel's recovery request totaling $1.894 million in EV service connection costs; $9.853 million in EV supply

[17] *Id*. at p. 63.

[18] Petition of Xcel Energy, *In re Matter of Xcel Energy's Petition for Approval of Electric Vehicle Pilot Programs*, MPUC Docket No. E-002/M-18-643 (filed Oct. 12, 2018). Both the order and Petition of Xcel are available online at https://www.edockets.state.mn.us/EFiling/edockets.

infrastructure and charging equipment costs; $575,000 for installation management; and $2.073 million in advisory services, outreach, program management and IT costs.[19]

Other examples include Avista Utilities and Puget Sound Energy in Washington, Duke Energy in Florida, Pacific Gas & Electric (PG&E), San Diego Gas & Electric (SDG&E), and Southern California Edison (SCE) in California, and Pacific Power and Portland General Electric (PGE) in Oregon.

Q. Please discuss how the PIV Program's load management strategies can help manage load and enhance and maximize grid and ratepayer benefits.

A. The development of rates and strategies that more accurately align the price of electricity to its cost are key to shaping EV load to reflect local or grid constraints and realities. Managing load in this way is essential to optimize electricity on the grid, minimize ratepayer-funded investments in unnecessary system upgrades, and unlock the value charging offers to the broader public.

Greenlots views the static TOU rates and tariffs as envisioned by this filing as an often appropriate first step to deliver price signals to drivers, especially at low levels of EV market penetration. By encouraging drivers to charge off-peak during periods of lower demand, rates and tariffs such as ACE's TOU rate and Rider REVCP appropriately reward drivers for modifying their charging behavior in a way that benefits the grid.

[19] Order, *In re Matter of Xcel Energy's Petition for Approval of Electric Vehicle Pilot Programs*, MPUC Docket No. E-002/M-18-643 (issued July 17, 2019)

While beneficial, however, static rates and tariffs are often a rather blunt approach whose value can be amplified through the use of smart technology. These smart charging strategies that leverage real-time or dynamic pricing represent more accurate instruments that can better shape, utilize, and dispatch flexible EV charging loads to better maximize system-wide benefits and cost reductions. While this is applicable to charging stations with longer dwell times such as residences and workplaces, dynamic pricing instruments can also be deployed in higher power charging and shorter dwell time contexts, including DCFC. For these reasons, we commend ACE for incorporating smart chargers with internal metering in its residential managed charging program (Offering 3), which ACE anticipates using "to provide more advanced managed charging functions such as start-time scheduling, power throttling, load curtailment and other beneficial load management programs."[20] Greenlots encourages the Board and ACE to consider how to expand its technology-facilitated managed charging solutions beyond Offering 3 to other offerings such as the longer dwell-time Commercial offerings and the public charging offerings, in order to further pilot and explore these benefits across different customer segments and use cases.

Mr. Warner's Benefit-Cost Analysis underscores "the importance of strong deployment of effective managed charging programs, especially for residential customers," based on analyses Mr. Warner, Gabel Associates, Inc. and Energy Initiatives Group, LLC have performed for service territories in New Jersey and on Long Island:[21]

[20] PIV Program, Direct Testimony of Jennifer M. Grisham at p. 8.

[21] PIV Program, Direct Testimony of Mark Warner at pgs. 19-20.

> While price signals that defer charging start into off-peak hours is a very effective strategy short term, eventually, as PIV penetration increases, these [managed charging] programs will be [able] to more actively coordinate vehicle charging through staggered starts, power throttling, and curtailment in extreme cases. *If managed charging is not implemented, larger impacts on infrastructure are likely to result* as represented in the grid reinforcement costs associated with natural charging. As a rough rule of thumb, effective managed charging programs reduce or mitigate distribution impacts by about a factor of four. *(Emphasis added)*

Smart charging technology is also key to optimzing charging speeds needed to maximize the impact of shifting or managing EV loads. Additionally, and especially in the residential market, smart networked charging stations are critical to help enable consumers to respond to advanced rates and charging programs utilizing pre-defined, but potentially evolving and reconfigurable hands-off “set it and forget it” preferences. What is key to understand here is that EV-specific rates and programs governing a single load type and managed with technology does not require active customer involvement to respond to price signals, as the technology embedded within the charging station and network software handles this actively on behalf of the customer or site host. This capability not only makes traditional arguments against advanced rate structures inapplicable, but it also makes it practical and warranted to move to advanced rates and/or rate alternative technology-driven programs. This more fully leverages the capabilities of the underlying technology at the outset, and in an ongoing manner.

Greenlots therefore also encourages the non-residential offerings to contemplate, evaluate, and potentially incorporate such capabilities and functionality.

Looking not too far down the road, and recognizing the value provided by technological solutions already being deployed in EV charging hardware and software today, it is relatively easy to envision a future where the needs addressed and values historically provided by rate design are instead provided in a more predictable and effective manner by software-facilitated technological solutions. Indeed, to reiterate, managed charging programs are not limited to complementing rate design, but can instead go further and be a more effective alternative strategic solution for maximizing outcomes such as effective load management and cost savings.

In the context of DCFC, unfortunately there has been a trend towards unmanaged charging, premised on the notion that in this context, drivers always need full power immediately and must be as fully charged as quickly as possible. In fact, there are often opportunities to reduce both site host and system costs through technology and dynamic rates or fee structures that could be a valuable subject for evaluation in the context of a pilot. For example, a driver could be given the option to receive a discount on their charging session if they are able to wait a few minutes to begin charging. Or they could be offered a similar discount for a slightly longer session at a lower power level. While there are limitations in feasibility if other drivers are queued up, there are very workable solutions to reduce site and system costs associated with DCFC while passing on a

portion of savings to the driver. This is likely to become more critical over time with a shift to higher and higher power charging.

Greenlots therefore also encourages evaluation of such strategies in the context of the Public DCFC offering. Green Mountain Power is currently implementing a fast charging pilot which is an example of how a utility program can apply managed charging specifically to DCFC stations. The pilot's objectives include testing "different functionality of controls such as load sharing, load management and other functions that help to also reduce peak-driven costs from electric vehicle charging infrastructure. This pilot will help to show if we can strike a balance between customer convenience of a fast-public charging station and the ability to shave even a few kW off the peak hours during charging sessions."[22]

Effective management of EV load is critical to fulfill the promise of EVs for the grid, and as Greenlots has emphasized, smart technology is fundamental to realize these benefits. While potential grid impacts today may be minimal, as EV adoption grows and transportation electrification scales, regulated utilities such as ACE are unlikely to be able to turn on a dime and immediately deploy the necessary tools and infrastructure on short notice. It is critical that utilities and commissions both plan now and establish foundational programs and appropriate regulatory frameworks to effectively manage this new load. As Greenlots has described, technological solutions represent the platform on

[22] See Vermont PUC: *Green Mountain Power's Charge Fast Innovation Pilot*, Vermont PUC Docket No. 20A-0619, *available at* https://epuc.vermont.gov/?q=node/64/147995.

which powerful, effective, and customer-friendly load management solutions will be built. It is vital that regulators, utilities, and stakeholders think through how to leverage this technology in the near term.

Q. What are Greenlots' views on ACE's Community Planning and Transit offerings?

A. Greenlots supports the three offerings under ACE's Community Planning and Transit header. Collectively, these offerings demonstrate a recognition that electrifying New Jersey's transportation sector requires electrifying customer segments and use cases beyond the light-duty passenger vehicle; electrifying urban, suburban and rural communities as well as LMI and EJ communities; and continuing to invest in creative partnerships and innovation.

ACE's Innovation Fund (Offering 10) which targets LMI and EJ communities directly speaks to Goal 1.1.7 of New Jersey's Energy Master Plan to: "Increase clean transportation options in low- and moderate-income and environmental justice communities." Indeed, the EMP specifically contemplates "targeted incentives [to] facilitate electric charging infrastructure installation through public-private partnerships … and/or through electric public utility company filings." [23]

ACE's Electric School Bus proposal (Offering 11) will help reduce barriers to school bus electrification by helping eliminate the up-front cost premium to purchase electric school buses and their associated charging infrastructure. This will enable more school districts

[23] Energy Master Plan at p. 73.

to save money on fuel and enjoy lower lifetime vehicle operating costs, and will enable school children to breathe cleaner air and avoid the harmful particulate matter and other pollutants associated with riding in diesel school buses.

ACE's transit charging proposal (Offering 12) will similarly help reduce barriers to electrifying NJ Transit. In particular, the offering's focus on assisting NJ Transit with configuring a transit bus depot and installing charging infrastructure addresses this essential factor for electrifying transit at scale. Indeed, as noted earlier, living in proximity to transit bus garages correlates with increased incidence of respiratory illnesses such as asthma and COPD at even higher rates than proximity to the bus routes themselves. *See* Attachment JJC-9 at 12. This offering, therefore, may be expected to contribute to improved respiratory health, both broadly by supporting the electrification of NJ Transit, and in a more localized way in proximity to the transit bus depot itself.

III. CONCLUSION

Q. Please summarize Greenlots' position regarding the value of EV charging programs in general.

A. Greenlots is a strong supporter of scaling the market for EVs and EV charging products and services as quickly as possible, believes the electric utility has a critical role to play as a market transformer, and believes a portfolio approach that tailors different offerings to different customer segments has significant value. Such an approach offers value beyond the program itself in that it enhances optimization of electricity on the grid and offers value to all ratepayers. Furthermore, it contributes to building a base of knowledge,

data, and positive customer experience, which in turn helps utilities, other industry stakeholders and regulators make more informed decisions about how to refine future filings to support and scale these markets in a cost-effective manner that returns value to ratepayers.

Q. Please summarize Greenlots' position regarding ACE's proposed PIV Program in this proceeding.

A. Greenlots supports and respectfully requests that the Board approve ACE'S proposed PIV Program.

Q. Does this conclude your pre-filed verified direct testimony?

A. Yes.