Exhibit No.: 651
Issue: ChargeAhead Program Tariff
Witness: James Ellis
Sponsoring Party: ChargePoint, Inc.
Case No.: Case No. ET-2018-0132

Charge Point, Inc.

Case No. ET-2018-0132

SURREBUTTAL TESTIMONY

OF

JAMES ELLIS

November 2018

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Approval of Efficient Electrification Program.	))))	Case No. ET-2018-0132

AFFIDAVIT OF JAMES ELLIS

STATE OF Tennessee)
) ss.
COUNTY OF Davidson)

JAMES ELLIS, being first duly sworn on his oath, states:

1. My name is James Ellis. I am the Senior Director for Utility Solutions of ChargePoint, Inc.

2. Attached hereto and made a part hereof for all purposes is my Surrebuttal Testimony.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my personal knowledge, information and belief.

JAMES ELLIS

Subscribed and sworn before me this 16th day of November, 2018.

Kristi G. Allen
Notary Public

KRISTI G. ALLEN
STATE OF TENNESSEE
NOTARY PUBLIC
DAVIDSON COUNTY
My Commission Expires SEPT. 6, 2021

Q: Please state your name and address.

A: My name is James Ellis. My business address is 254 E. Hacienda Avenue, Campbell, CA 95008.

Q: On whose behalf are you testifying?

A: I am testifying on behalf of ChargePoint, where I serve as Senior Director for Utility Solutions.

Q: Are you the same James Ellis who submitted testimony in this matter on October 1, 2018?

A: Yes.

Q: Are you sponsoring any exhibits?

A: No.

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

A: The purpose of my surrebuttal testimony is to address assertions made in the Rebuttal Testimony of Witnesses Geoff Marke, Office of Public Counsel ("OPC"), and Byron Murray and Sarah Lange, Commission Staff Division. Those Witnesses provided testimony on October 1, 2018 regarding the Union Electric Company d/b/a Ameren Missouri's ("Ameren") application and accompanying tariff sheets seeking approval of two new tariffed programs collectively referred to as the "Charge Ahead" program, as filed at the Commission on February 22, 2018. I plan to provide additional perspectives on two critical topics in the Charge Ahead – Electric Vehicles proposal: (1) the appropriate utility role in electric

vehicle ("EV") charging infrastructure deployments, and (2) the effective targeting of key market segments in the proposal.

Q: What specific testimony from Witness Marke do you wish to address?

A: I would like to address Witness Marke's several concerns for the proposal, including: (1) risk aversion to the extent to which EV charging buildout will stimulate EV adoption,[1] (2) a negative outlook on the extent to which automakers are embracing EV technology,[2] and (3) skepticism for the role of third-party charging station providers in assessing the needs of the EV charging market.[3]

Q: What specific testimony from Witnesses Murray and Lange do you wish to address?

A: I would like to address Witness Murray's assertion that the rebate offered under the corridor program is not necessary given other electric vehicle charging station programs.[4] I would also like to provide additional insights to supplement Witness Lange's recommendation that utility programs be based around line extension policies or make-ready costs.[5]

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[1] Marke, Geoff. "Rebuttal Testimony of Geoff Marke: ET-2018-0132." October 1, 2018. Page 18, Lines 7-9. "The Charge Ahead-EV application is built on the premise that the EV market will 'further' materialize as a result of populating the Ameren Missouri service territory with a 'holistic charging station environment.' It's a bet on future consumer actions of non-essential service and OPC is largely risk averse when it comes to speculative value-added services."

[2] Ibid. Page 19, Lines 20-21. "Other real risks impacting this investment include rising EV costs due to thin profit margins for automakers."

[3] Ibid. Page 13, Lines 8-11.

[4] Murray, Byron. "Rebuttal Testimony of Byron Murray: ET-2018-0132." October 1, 2018. Page 7, Lines 17-18. "The rebate offered under the program is not necessary given other electric vehicle charging station programs."

[5] Lange, Sarah. "Rebuttal Testimony of Byron Murray: ET-2018-0132." October 1, 2018. Page 3, Lines 7-9. "Staff supports promulgation of a reasonably designed make-ready tariff to subsidize the line extension costs associated with the installation of separately-metered electric vehicle charging facilities under specific circumstances."

Q: Does ChargePoint have a position on the Charge Ahead – Electric Vehicles proposal?

A: Yes. ChargePoint believes that under the terms outlined in the application, rebates provided through Ameren will incent development of charging infrastructure in a way that will stimulate technology innovation, encourage competition in the market, and enable customer choice for EV charging equipment and services. As articulated my rebuttal testimony, rebates for EV charging hardware and installation represent an efficient, low-risk model for utility investment and will encourage customer investment in competitive charging technologies and electric vehicle adoption, long-term.

Q: Should the utilities be playing a role in the EV charging market?

A: Yes. Nationally, utilities in many jurisdictions have supported the adoption of electric vehicles through programs that enable the buildout of charging infrastructure. Those programs can significantly lower barriers to EV charging station deployment and accelerate EV charging markets overall. More importantly, utility role in charging infrastructure can foster and support a long-term, scalable competitive market for charging equipment and networks.

Q: In response to Witness Lange, should the role of utilities in EV charging be broader than distribution line extension policy?

A: Yes. While I agree with Commission Staff that addressing line extensions is a critical step in preparing grid policy for greater buildout of EV charging infrastructure, utilities can and should have a role in supporting and facilitating

third-party installation, ownership, and operation of charging equipment and services. To that end, utilities should be permitted to provide an investment in the form of programs that maintain and accelerate the EV charging market.

Q: Have other jurisdictions approved programs enabling utility roles beyond distribution line extensions?

A: Yes. Utility commissions have considered and approved utility programs for charging infrastructure that include rebates and incentives for equipment and/or installation, including Utah,[6] Massachusetts,[7] California,[8] Ohio,[9] and Nevada.[10]

Q: Ameren's Charge Ahead – Electric Vehicles proposal includes utility investment in rebates for charging infrastructure. In response to Witness Marke, is that program design an appropriate role for the utility in this market, and does this design avoid risks of other deployment models?

A: Yes. Rebates can serve as an effective model to lower barriers for third parties to deploy charging infrastructure. As I noted in Rebuttal Testimony, rebates allow for competitive market participants to continue to meet customer demands and

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[6] *See* Public Service Commission of Utah. Docket No. 16-035-36. "In the Matter of the Application of Rocky Mountain Power to Implement Programs Authorized by the Sustainable Transportation and Energy Act." June 28, 2017. https://pscdocs.utah.gov/electric/16docs/1603536/294954 1603536ptrao6-28-2017.pdf

[7] *See* Massachusetts Department of Public Utilities. Docket 17-05. "Order Establishing Eversource's Revenue Requirement." November 30, 2017. https://eeaonline.eea.state.ma.us/EEA/FileService/V1.4.0/FileService.Api/file/FileRoom/dehehcjj

[8] *See* California Public Utilities Commission. Application 17-01-020. "Transportation Electrification Proposals Pursuant to SB 350." 2018. http://www.cpuc.ca.gov/sb350te/

[9] *See* Ohio Public Utility Commission. "In the Matter of the Application of Ohio Power Company for Authority to Establish a Standard Service Offer Pursuant to R.C. 4928.143, In the Form of an Electric Security Plan." Case No. 16-1852-EL-SSO. Opinion and Order. April 25, 2018. https://dis.puc.state.oh.us/CaseRecord.aspx?CaseNo=16-1852

[10] *See* Public Utilities Commission of Nevada. Docket No. 18-02002. "Joint Application of Nevada Power Company d/b/a NV Energy [...] Electric Vehicle Infrastructure Demonstration Program for Program Year 2018-2019." June 27, 2018. http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2015_THRU_PRESENT/2018-2/31126.pdf

serve the market, while also allowing utilities to invest in charging deployments without the risks of large-scale ownership and operation. Additionally, rebate programs may allow utilities to gain insights into the grid from networked charging, without building and maintaining the complex networking capabilities already offered in the competitive market. Overall, this program design reduces the cost barrier to EV adoption, allows the charging station site host to determine which equipment and services best meet their needs, and builds a sustainable EV charging marketplace.

Q: In response to Witness Marke's testimony on the state of the EV market, why is it important to accelerate deployments of charging infrastructure in Missouri's market?

A: Studies have shown that in the coming years Missouri will experience rapid growth in EV adoption, which will require a commensurate buildout of charging infrastructure. For example, according to National Renewable Energy Laboratory, by 2030, Missouri is projected to have roughly 201,000 electric vehicles in the State. If achieved, that level of EV adoption would be supported through deployments of an estimated 5,900 workplace charging ports, 4,100 public charging ports, and 370 DC fast charging ports.[11] While studies and models may show a range of potential infrastructure needs, clearly more infrastructure is needed to accommodate the forecasted growth of electric vehicles. Supporting EV

[11] National Renewable Energy Laboratory. "National Plug-In Electric Vehicle Infrastructure Analysis." September 2017. Page 51. https://www.nrel.gov/docs/fy17osti/69031.pdf.

charging infrastructure buildouts through utility investment will help to achieve greater EV adoption near-term.

Q: In response to Witness Marke's testimony on the state of the EV market, is there any indication that automakers will not introduce more EV models in the coming years due to cost concerns?

A: No. Several forecasts have projected the EV segment to experience growth over the coming decades. The International Energy Agency's outlook shows that global EV ownership will expand from 3 million vehicles in use in 2017 to over 125 million by 2030.[12] Another long-term outlook from Bloomberg New Energy Finance shows that EV sales will increase from a record 1.1 million worldwide in 2017 to 30 million in 2030. By 2040, annual sales will be roughly 60 million electric vehicles, representing 55% of all cars sold. That same forecast shows that upfront costs for EVs will be competitive with internal combustion engines starting in 2024.[13] Behind this trend is a steep decline in battery prices for vehicles, which according to some reports could drop as much as 70% by 2030.[14] Battery optimization of lithium-ion technologies will lower electric vehicle costs overall, bringing consumer prices for EVs below those of gas-powered cars within the coming decade.

Q: In response to Witness Marke's comments on the role of third-party providers in assessing the market, as well as Witness Murray's comments on

[12] International Energy Agency. "Global EV Outlook". (2018). https://webstore.iea.org/global-ev-outlook-2018
[13] Bloomberg New Energy Finance. "Electric Vehicle Outlook 2018." (2018). https://about.bnef.com/electric-vehicle-outlook/
[14] Jeremy Hodges. "Electric cars may be cheaper than gas guzzlers in seven years." BNEF (March 22, 2018). https://www.bloomberg.com/news/articles/2018-03-22/electric-cars-may-be-cheaper-than-gas-guzzlers-in-seven-years

potentially redundant programs for corridor charging, how does the rebate program target appropriate segments of the EV market?

A: I can speak to that as an employee of a third-party provider of charging services. The rebate incentives proposed would be offered to offset the project costs for multifamily, workplace, public around town, and long distance corridor market segments. The program offerings are designed to incent installation of both L2 and DC fast charging infrastructure. Each of these segments has unique considerations that can be facilitated through utility investments, and in-turn improve the ease of use for EV drivers and the business case for site hosts. I have provided examples of these considerations below:

- *Multifamily*: Installation costs of EV charging stations in apartment complexes or condominiums tend to be much higher than installation costs in single-family residences. A rebate could help lower cost barriers for homeowners and property managers to install charging infrastructure in the residential context, where nearly 80% of charging takes place.[15]
- *Workplace*: Studies have shown that when workplace charging is available, employees onsite are six times more likely to drive electric than the average worker.[16] Rebates could accelerate workplace charging deployments and increase the likelihood of EV adoption across the State.
- *Public Around Town*: Outside of workplaces and residents, successful charging deployments generally take place where drivers go during a

[15] Department of Energy. "Charging at Home." https://www.energy.gov/eere/electricvehicles/charging-home.
[16] Department of Energy. "Workplace Charging Challenge Progress Update 2016: A New Sustainable Commute." 2016. https://www.energy.gov/sites/prod/files/2017/01/f34/WPCC_2016%20Annual%20Progress%20Report.pdf.

daily routine and where cars dwell for longer periods of time – a grocery store, retail establishment, or public parking garage. While the competitive market serves this segment currently, rebates could offer an important sales tool to drive greater deployments for existing and future site hosts.

- *Long Distance Corridor*: Due to significant gaps in fast charging infrastructure along corridors, drivers may be deterred from adopting electric vehicles, as they may not easily accommodate long-haul journeys. Current or planned programs in the Missouri for corridor charging are in the early stages of planning and may not adequately cover the gaps that exist in this market. Utility investment programs for third parties can help fill those gaps and improve project economics in currently underserved areas of the market.

Q: Does this conclude your testimony?

A: Yes.