Posting Date: January 31, 2022

➢ Summary of 60-Day Notice: DCFC Charging + Storage Demonstration Project

The following 60-Day Notice summarizes Public Service Company of Colorado's ("Public Service" or "the Company") action to update stakeholders of the Company's development of the Direct Current Fast Charge ("DCFC") Charging + Storage Demonstration Project ("Demonstration Project") within the Company's 2021-2023 Transportation Electrification Plan ("TEP"). This 60-Day Notice is issued in compliance with Decision No. C21-0017 in Proceeding No. 20A-0204E.

A copy of this notice will be available on our website at:
https://www.xcelenergy.com/company/rates_and_regulations/filings/transportation_electrification_plan

DCFC Charging + Storage Demonstration Project

In Decision No. C21-0017, the Colorado Public Utilities Commission ("Commission") approved the Company's proposed Partnerships, Research, and Innovation ("PRI") portfolio. The objective of the PRI portfolio is to ease the process for customers to access electricity as a transportation fuel, minimize system costs, increase environmental benefits for charging, and help inform future Company TEPs. As a part of this portfolio, Public Service is proposing to direct a portion of the PRI budget to fund a DCFC Charging + Storage Demonstration Project.

Through this 60-Day Notice, Public Service is providing a description of the Demonstration Project, the scoring considerations developed to review and evaluate submitted applications, and the metrics that Public Service will report on and provide to stakeholders through its semi-annual TEP reporting. To inform this proposal, the Company conducted several individual stakeholder meetings to present draft pilot designs and gather input.

➢ DCFC Charging + Storage Demonstration Project

A. Project Description, Goals, and Key Outcomes

A lack of sufficient public DCFC is often cited as a primary barrier to widespread electric vehicle ("EV") adoption throughout the United States. Drivers are accustomed to refueling their vehicles in minutes at a gas station and expect a similar experience with EV charging. In order to provide charging at the speeds expected by customers, DCFC stations are necessary. These stations present problems to both owners and the grid due to the high-power draw (50 kilowatt ("kW") and higher) of these stations and the operating expenses and grid strain that this can cause.

In order to implement DCFC stations at scale, significant grid constraints must be overcome through upgrades to the distribution system. DCFC hubs will often require one to two megawatts ("MW") of capacity to be available to meet customer expectations for charging speed and availability. The distribution grid will need to be upgraded to meet these capacity needs, adding significant costs to construction. The costs for these upgrades can vary widely depending on where on the grid these charging hubs are installed and are often prohibitive for installation of charging stations. With the costs of battery storage declining rapidly, pairing front of the meter battery storage with high capacity DCFC hubs could soon prove to be more cost effective and efficient for overcoming distribution constraints by deferring distribution upgrades. This use case is sometimes referred to as a non-wires alternative ("NWA") and is the primary use case to be tested in this demonstration. A battery operating in this manner would also provide resiliency benefits to the charging stations and allow for charging to continue during disruptions to the grid. Furthermore, by pairing battery storage with smart rate design, such as the Company's existing S-EV rate or the additional commercial EV charging rate proposed in Proceeding No. 21AL-0494E, customers can reduce operating costs and remain responsive to system peaks to potentially reduce costs for EV drivers as well as the electric grid.

Pairing battery storage with EV charging, and DCFC specifically, has the potential to lower barriers to charging implementation and provide value to both the utility and the customer. The Company is proposing to demonstrate the value of utilizing battery storage as an NWA for large DCFC installations as well as the technology's potential to provide resiliency services. This demonstration will help the Company understand the true cost of battery deployment and the value they can provide to the grid in terms of capacity deferral. This demonstration will inform future battery deployment strategies.

For this Demonstration Project, the Company is proposing to partner with one to three customers with plans to install a DCFC charging hub with 0.5MW or more of charging capacity. The Company proposes this capacity level because charging installations of this size and higher are more likely to contribute to grid constraints at higher adoption levels. The Company is currently in talks with potential partners planning to build, own and maintain these charging hubs. The Company will own and operate a battery of similar capacity and MWh storage in front of the meter to pair with the high-capacity charging hub. The battery will be dispatched according to grid and customer needs to better understand the value it can provide as an NWA, a demand management resource, and the interaction of these two dispatching strategies. The Company will gain an

understanding of costs of battery implementation in this type of application, in terms of both capital and operations and maintenance ("O&M") expenses, which can then be compared to the costs of equivalent distribution upgrades. This information will be used to define future battery implementation strategies, and based on the findings of this Demonstration Project, the Company hopes to encourage DCFC installations in the future, even when high capacity charging hubs are concentrated at a single site or in close proximities. Provided that the results of this pilot are favorable, the Company would consider scaling this into a larger program through future Distribution System Plan filings.

B. Estimated Costs, Benefits, Value to Customers

The purpose of this Demonstration Project is to test the benefits of battery storage to prospective owners, operators and the Company in the form of deferred distribution upgrades and bill savings. For this particular demonstration, the Company will provide the battery system at no cost to the customer who will fund the installation of the charging hub. Battery charging and discharging schedules will be coordinated between the customer and the Company in a manner that will benefit both while achieving the goals of the project. See the table below for project cost estimates to be borne by the Company.

Pilot Spend Assumptions	
Capital Costs	
Number of Batteries	2
Battery Cost	$875,000
Software Costs	$50,000
Software Licensing (Annual)	$10,000
O&M Charges	
Labor	$20,000
Annual Asset O&M	$20,000
Total Project Cost	**$975,000**

C. Equity & Commercial Viability

Pairing battery storage with EV charging will reduce barriers to implementation and increase the availability of charging across Public Service's service territory. Findings from this demonstration will be used to develop products that increase the commercial viability of DCFC stations and increase cost-effective charging for all Public Service customers.

D. Education and Outreach Efforts

The Company has been in contact with multiple communities and commercial organizations regarding planned public and fleet DCFC installations. Through these conversations, customers have been made aware of how a battery storage system could benefit their project and how the Company would deploy the technology. Additional outreach and education with stakeholders has

taken place through the Company's quarterly TEP stakeholder meetings and individual conversations as outlined in section H of this document. The Company has also taken meetings with various battery providers to better understand their capabilities and prepare for the Request for Proposal ("RFP") that will take place in early 2022.

E. Application, Process, and Scoring

The Company is seeking partners with plans to install, operate and maintain a minimum of 0.5MW of DCFC. Partnership and site host considerations are outlined in section G of this document.

F. Reporting, Measurement, and Evaluation

This demonstration project will seek to determine the cost and peak load reductions that battery storage can provide when paired with DCFC. To do this, the following criteria will be measured:

- Charging station utilization
- Charging station energy usage
- Charging station peak demand
- Battery charge times/rates
- Battery discharge times/rates
- Peak demand reductions at various times of day
- Feeder capacity
- Battery costs
- Battery O&M costs

While measuring these metrics, the Company will test various control strategies and battery duty cycles to understand the optimal battery duty cycle for a DCFC station. These findings will then be used to evaluate how much capacity can be provided to a feeder from a battery and at what cost, which will then be compared to the costs and capacities that traditional upgrades provide to understand how batteries could be deployed efficiently and cost effectively in front of the meter to reduce system costs.

The effects on customer bills will also be closely monitored to understand how optimizing a battery as an NWA will affect the electricity bills of the charger owner and operators. The Company will also test the capacity of the battery's capability to provide both capacity relief to the system and bill savings to the customer simultaneously.

G. Partners

The Company is looking to partner with a community or commercial entity with plans to implement 0.5MW or more of DCFC at their site. In exchange for use of these chargers, the Company will install a battery storage system to pair with the charging equipment at no cost to the customer. This battery will be used to manage system peaks with control strategies and dispatch schedules negotiated with the site host. The Company is currently in discussion with potential partners on a number of prospective sites with the goal to implement at one to three sites throughout the course of this project.

The Company will also partner with a battery manufacturer to provide the storage hardware and software needed to implement this project. An RFP will be released in early 2022 to identify a technology vendor.

H. Stakeholder Involvement

During the development of the methodology and the identification of the proposed DCFC Charging + Storage Demonstration Project, the Company engaged numerous stakeholders to gather feedback and refine its approach. The table below summarizes stakeholder involvement:

Table 2: Stakeholder Involvement

Stakeholder Group	Meeting Date
Transportation Electrification Plan Stakeholder Group[1]	9/29/2021
Transportation Electrification Plan Stakeholder Group	12/17/2021
Commission Staff	1/5/2022
Western Resource Advocates	1/11/2022

[1] The TEP Stakeholder Group includes dozens of organizations spanning Colorado state government agencies, Colorado municipalities, environmental advocates, energy efficiency and electrification groups, other utilities, EV charging hardware and software providers, automobile manufacturers and dealerships, community groups, and many others.