



LineVision Inc.
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Nov 14, 2022

LineVision Comments Re: South Carolina Grid Resilience Grant (GRG) Program

GENERAL COMMENTS:

LineVision is pleased to provide comments to Santee Cooper in response to the Infrastructure Investment and Jobs Act (IIJA) Section 40101(d), a formula grant program focused on preventing outages and enhancing the resilience of the electric grid. As the designated program administrator, we appreciate Santee Coopers efforts to solicit stakeholder input on the critical topic of electric grid resilience in South Carolina.

LineVision is a Grid-Enhancing Technology (GET) company founded in 2018 that has developed an advanced non-contact sensor and analytics platform that continuously monitors the behavior of overhead transmission line conductors,¹ detecting anomalies and issuing real-time alerts on risks, while unlocking as much as 40% additional capacity on existing lines through dynamic line ratings (DLR). Currently, LineVision is working with many leading utilities in the United States including National Grid, Xcel, Dominion, Exelon companies, and the New York Power Authority.

LineVision believes the 40101d program can provide eligible entities with the real time grid visibility that can help improve the resilience of the electric grid in South Carolina against disruptive events, including severe winter weather events, wildfires, and hurricanes as identified in the South Carolina Hazard Mitigation Plan². LineVision's patented LiDAR-based grid monitoring technology monitors the sag (vertical motion) and blowout (horizontal motion) of all conductor phases and provides alerts if safe operating limits are at risk of being violated, allowing utilities and operators to take proactive steps to prevent violations from occurring.

This monitoring technology can help meet Objective 1 of the GRG, including the ability to detect icing conditions on conductors as LineVision's algorithms can use data collected by field-based sensors along with weather information to identify conditions conducive to in-cloud icing (rime and glaze) and precipitation-based icing (freezing rain, wet snow, and dry snow) and produce alerts indicating where current conditions are conducive to ice formation and where ice buildup has been detected on a particular line(s). LineVision's monitoring systems are also able to monitor phase to phase distance and alert if conductors are at risk of line slap, which caused the 2017 Cascade Fire in California.³

Another key benefit of DLR technology is its ability to create additional capacity on surrounding lines in the case of an unexpected event/grid outage. For example, in a situation when the grid is in an irregular operating state, whether due to construction,

¹ Applications are also possible on lower voltage distribution networks.

² <https://www.scmd.org/media/1391/sc-hazard-mitigation-plan-2018-update.pdf>

³ <https://www.fire.ca.gov/media/5131/cascade-fire-cause-release.pdf>



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maintenance, and/or unplanned outages, use of DLR can provide additional capacity on existing transmission pathways enabling operating flexibility that will help mitigate some of the impacts to the grid and reduce the amount of required generation re-dispatch needed to alleviate the short-term constraint.

LineVision believes that the deployment of technologies that allow for more sophisticated capabilities such as the real-time monitoring and control of system assets is critically important. Such capabilities can support the GRG objectives of investing in modernized grid infrastructure while ensuring that ratepayers see the lowest rate-impact possible from this investment. This includes implementing technology solutions that help ensure existing infrastructure is being utilized at its maximum capacity so that more clean electricity can be put onto existing assets. In addition to their resilience benefits, sensor-based monitoring technologies like LineVision's can also be utilized for inputs to enable advanced transmission line ratings, like DLR, which have demonstrated an ability to create low-cost additional grid capacity⁴ and are currently being examined by the Federal Energy Regulatory Commission (FERC) as a means to promote grid efficiency.⁵

Finally, LineVision's equipment is installed by utility field crews with on-site supervision from LineVision. LineVision adheres to and supports strong utility labor standards and protections, while also noting the job creation associated with each sensor's deployment on the grid – for each 100 systems LineVision deploys, the company creates and/or retains between 375-610 jobs.

TECHNOLOGY OVERVIEW:

LineVision's non-contact sensor-based platform is able to provide solutions to a number of challenges that utilities and grid operators are facing, including the need for increased capacity to accommodate increased electrification, how to identify and prioritize maintenance on aging assets, and how to integrate an increasing amount of renewable generation onto the grid. A resilient grid requires that all such challenges be addressed as soon as possible, as the increasing risk from the threats the grid is facing only further exacerbates these challenges.

LineVision's solutions come from three applications that all tie to the company's non-contact equipment, which has no limitations on the line voltage, conductor size, type, or bundle configurations.

The three solutions are: LineAware, LineRate, and LineHealth:

⁴ <https://www.utilitydive.com/news/duquesne-light-expands-linevision-partnership-after-dynamic-ratings-boost-t/631112/>

⁵ <https://www.ferc.gov/news-events/news/ferc-opens-inquiry-use-dynamic-line-ratings-promote-grid-efficiency>



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- LineAware provides utility and grid operators with situational awareness, which helps to inform operators with clearances and horizontal motion data, triggering alerts on exceedances
- LineRate provides Dynamic Line Ratings (DLR), which increase the capacity on lines with Forecasted and Real-Time DLR as well as Ambient Adjusted Ratings (AAR)
- LineHealth provides planners and risk management teams with Asset Health Monitoring, which improves maintenance strategies by creating a digital twin to determine conductor health

CONCLUSION:

LineVision stands ready to be a resource regarding the funding made available for this area from the IIJA in South Carolina. We believe that GETs such as LineVision's would provide eligible entities in the state with the tools to make speedy, safe, and efficient decisions that enhance grid resilience. Thank you for consideration of this request.

Sincerely,

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