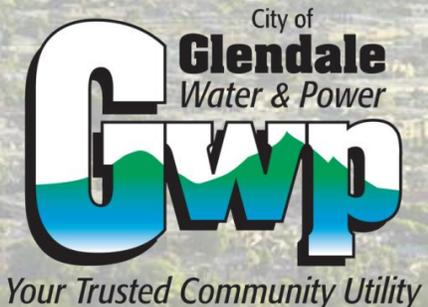




SOLAR AND STORAGE DEVELOPMENT OF CITY OWNED PROPERTIES

**Glendale Water & Power Commission
October 04, 2021**

**Daniel Scorza, Chief Assistant General Manager – Electric
City of Glendale Water & Power**



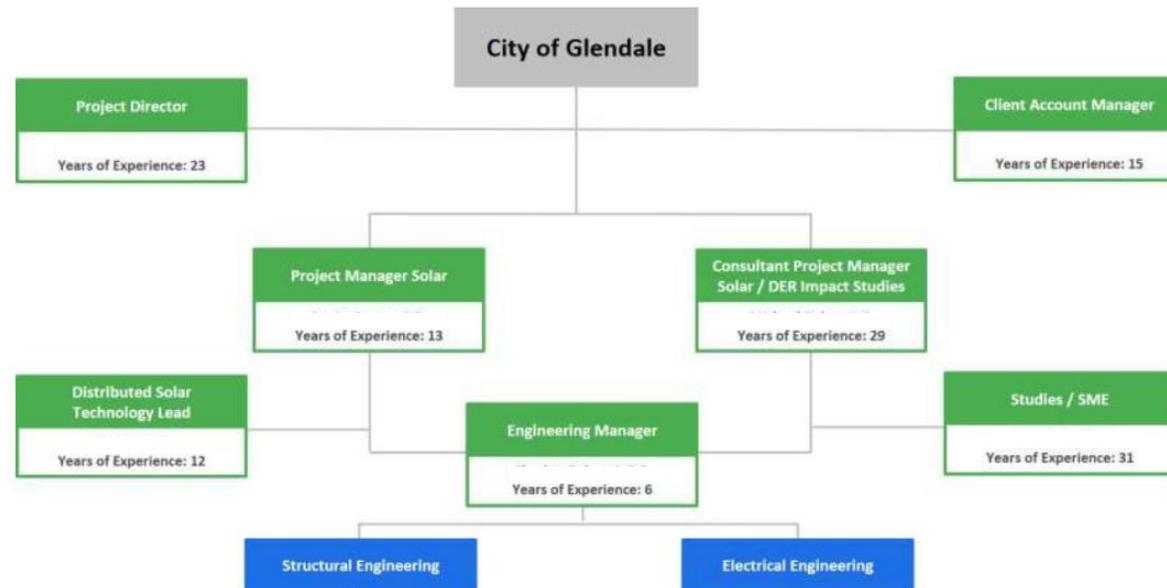
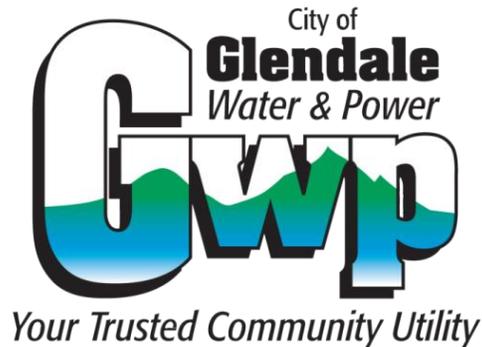
PROJECT SCOPE

- Solar + Storage Development
 - Assess the viability of installing solar & battery storage for 100+ City-owned properties.
 - Develop conceptual designs and technical specifications for solar & battery storage sites.
 - Rank site development based on expected return on investment (ROI).
- Distributed Energy Resources (DER) Penetration Impact Study
 - Use Synergi to determine feeder level DER hosting capacity study.



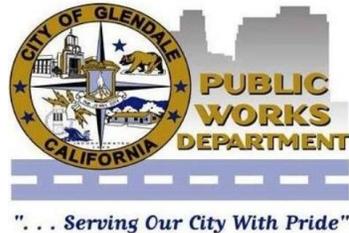
PROJECT PARTNER

- Black & Veatch was awarded the Owner's Engineer contract through the RFP process.
- PSA Contract was executed in June 2021.
- Project kick-off meeting was held July 20, 2021.



SOLAR & STORAGE DEVELOPMENT

- Internal Partnerships (July/August 2021)
 - GWP Project Manager partnered with City Department Managers to refine the list of 100 City-owned properties and gain insight into solar preferences and property limitations.
 - GWP staff partnered with Building & Safety and Public Works to collect all available building drawings and parcel maps for Black & Veatch's assessment of the properties.



SOLAR & STORAGE DEVELOPMENT

- Evaluation Process Baseline (July/August 2021)
 - Black & Veatch established technical specifications of the design basis including the selection of solar electrical equipment and solar mounting technologies.
 - Black & Veatch provided GWP with a Draft Design Basis Document outlining the site prioritization and bucketization methodology which will be applied to the sites proceeding to the structural and electrical reviews.



SOLAR & STORAGE DEVELOPMENT

- Desktop Assessment (August/September 2021)

Black & Veatch is currently working with the GWP Project Manager on the following tasks:

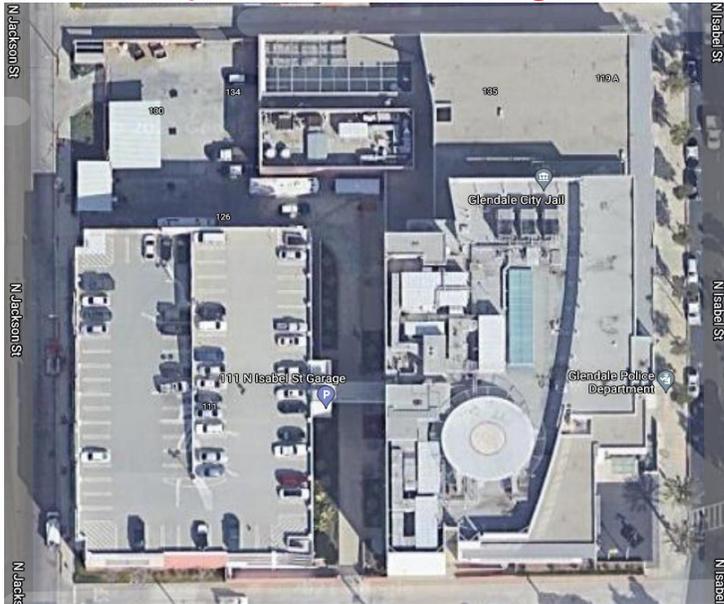
- Site Identification – Utilize Google Earth to identify locations and City preferences for solar coverage.
- Site Availability – Review of drawings, easements, permitting, and setback requirements.
- Site Development – Black & Veatch will utilize Aurora Solar & Helioscope software to further assess locations and develop preliminary solar design criteria.



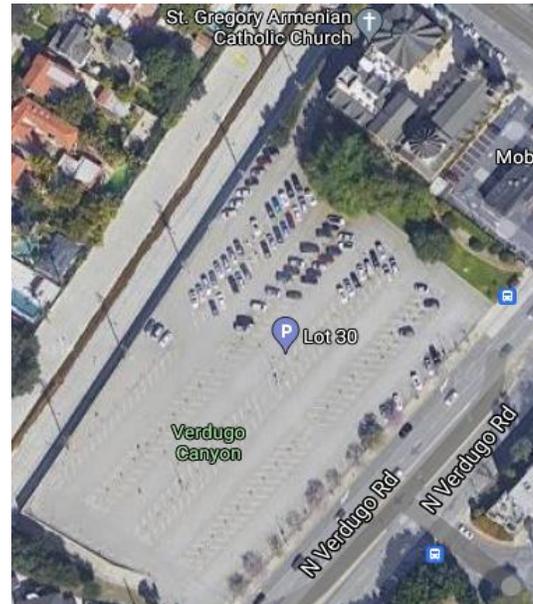
SOLAR & STORAGE DEVELOPMENT

- Desktop Assessment (August/September 2021)
 - GWP staff has identified high priority sites based on feedback from Department Managers and potential for high return on investment:

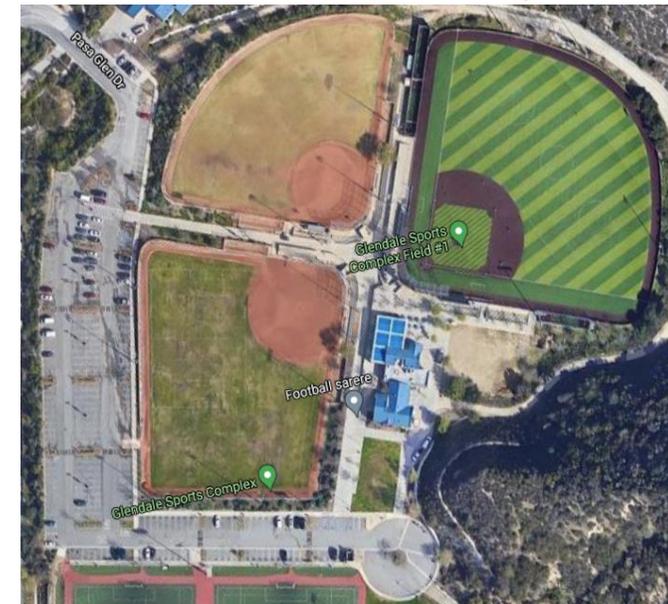
Police Department & Parking Structure



GCC Parking Lot 30



Sports Complex Parking Lot



SOLAR & STORAGE DEVELOPMENT

• Examples of High Priority Locations

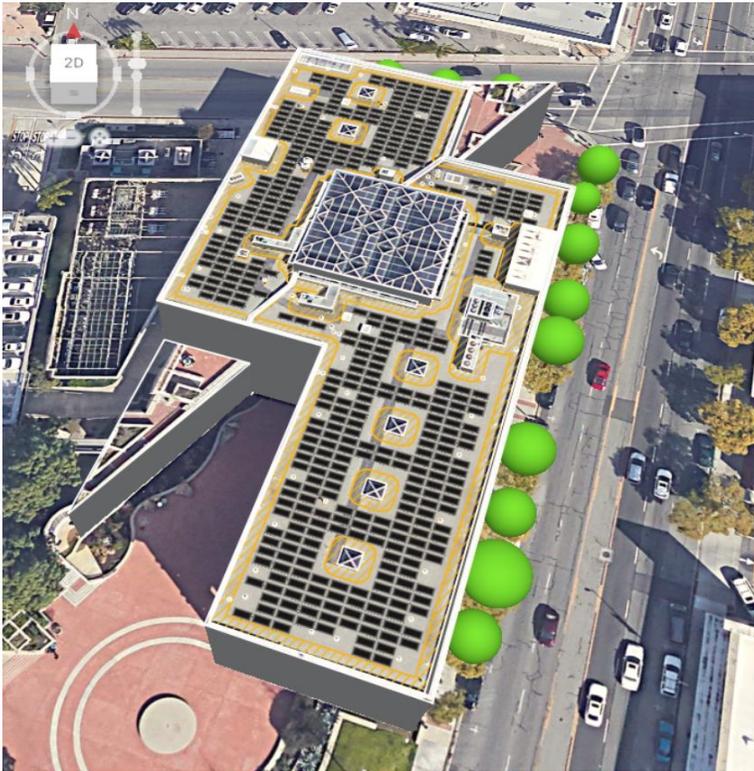
- Fire Department Station 21
- Police Department
- Police Parking Structure
- GWP Perkins Building
- UOC Offices & Parking Lot
- Brand Landfill
- Montrose Parking Lot 3
- GCC Parking Lot 30
- GCC Parking Lot 31
- GCC Parking Lot 34
- Sports Complex Parking Lot
- Corporation Yard Parking Structure



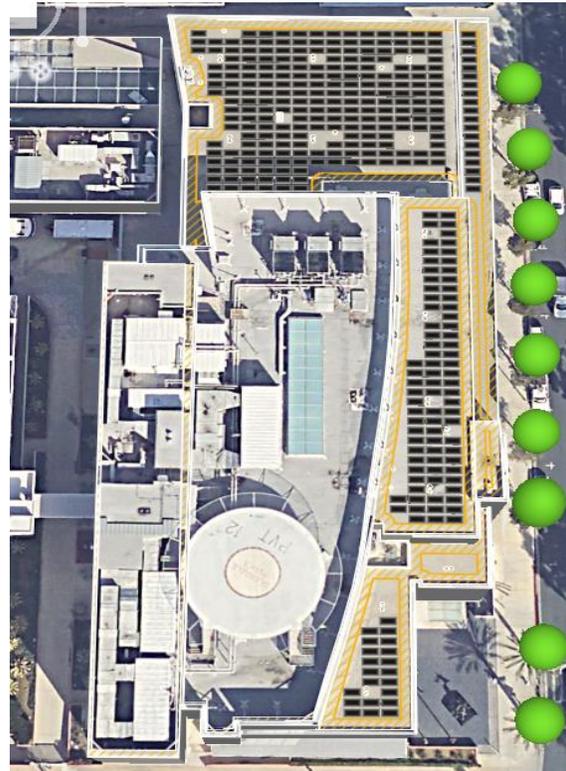
SOLAR & STORAGE DEVELOPMENT

- Aurora Assessment Layouts (September 2021)

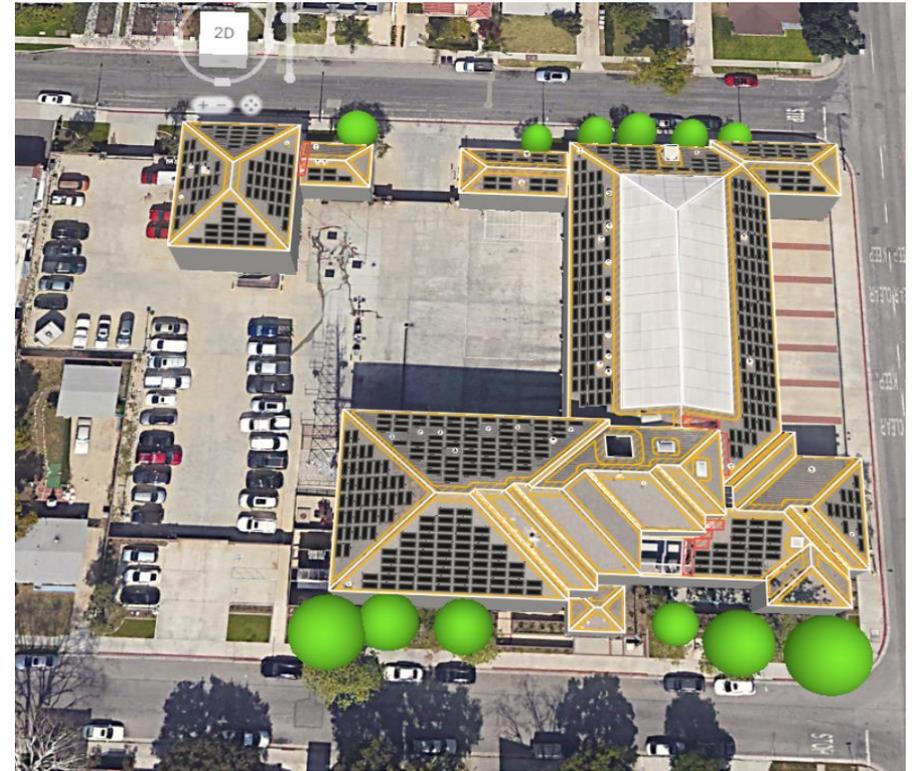
GWP Perkins Building



Police Department

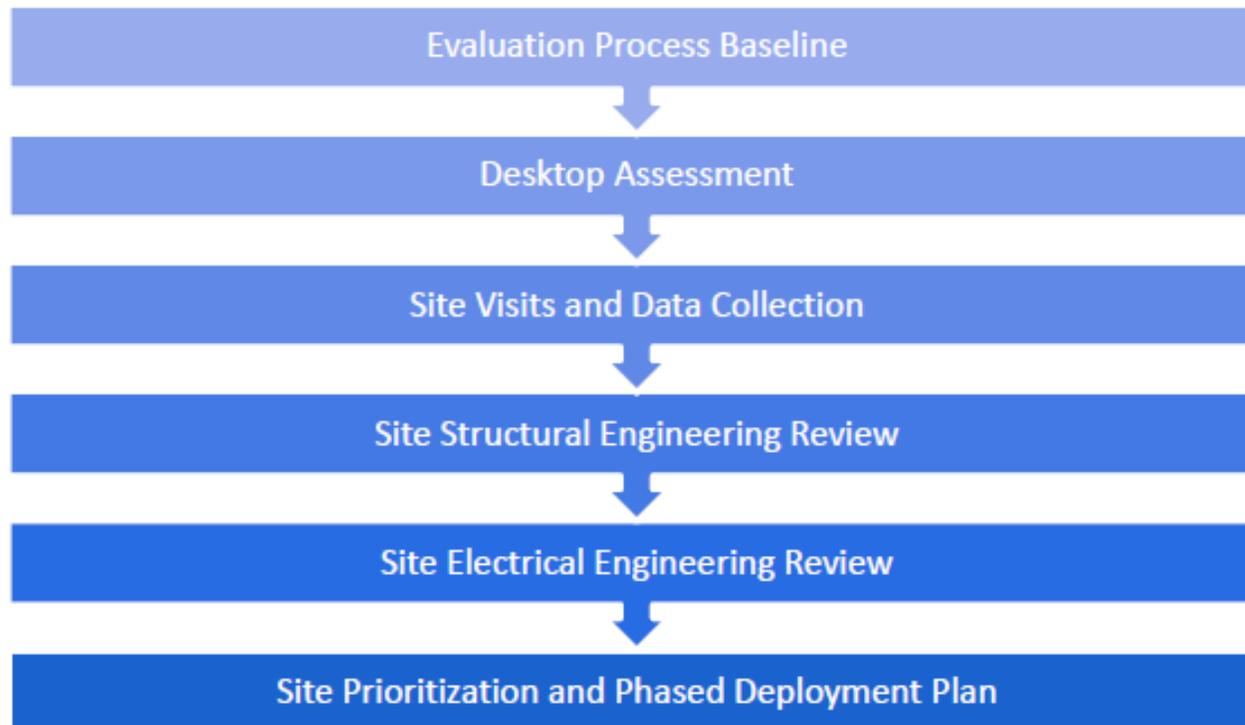


Fire Department Station 21



SOLAR & STORAGE DEVELOPMENT

Next Steps: Site Visits and Data Collection
(October 2021)



DER PENETRATION IMPACT STUDY

- GWP Project Manager provided Black & Veatch with the following information to begin the DER Penetration Impact Study (July/August 2021).
 - Synergi Model.
 - Feeder Mapping.
 - Feeder Minimum Load Readings.
 - Excel file of existing DER (kW) on the feeders.



DER PENETRATION IMPACT STUDY

- Black & Veatch presented GWP with a sample feeder analysis to discuss and establish the final approach for the DER hosting capacity analysis (August 30, 2021).
- **Base Case Setup includes:**
 - Delete the Un-fed part of the network.
 - Change feeder Voltage from 126 to 123.
 - Update the meter with Min Demand.
 - Run load allocation using connected KVA method and update the loads.

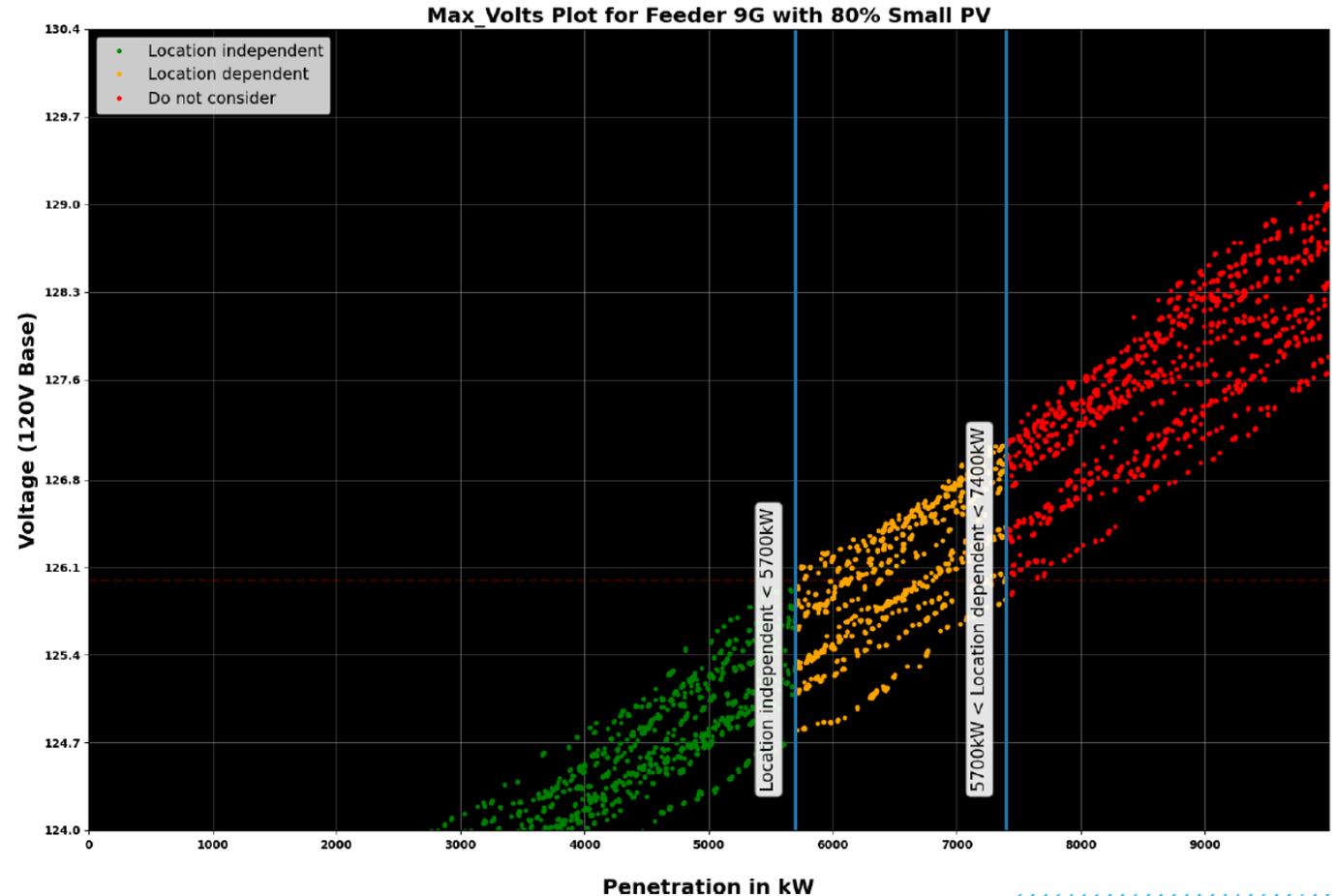


DER PENETRATION IMPACT STUDY

- DER hosting capacity based on 80% Small PV

Small PV =
4kW – 100kW

- Location independent:
< 5700kW
- Location dependent:
> 5700kW < 7400kW

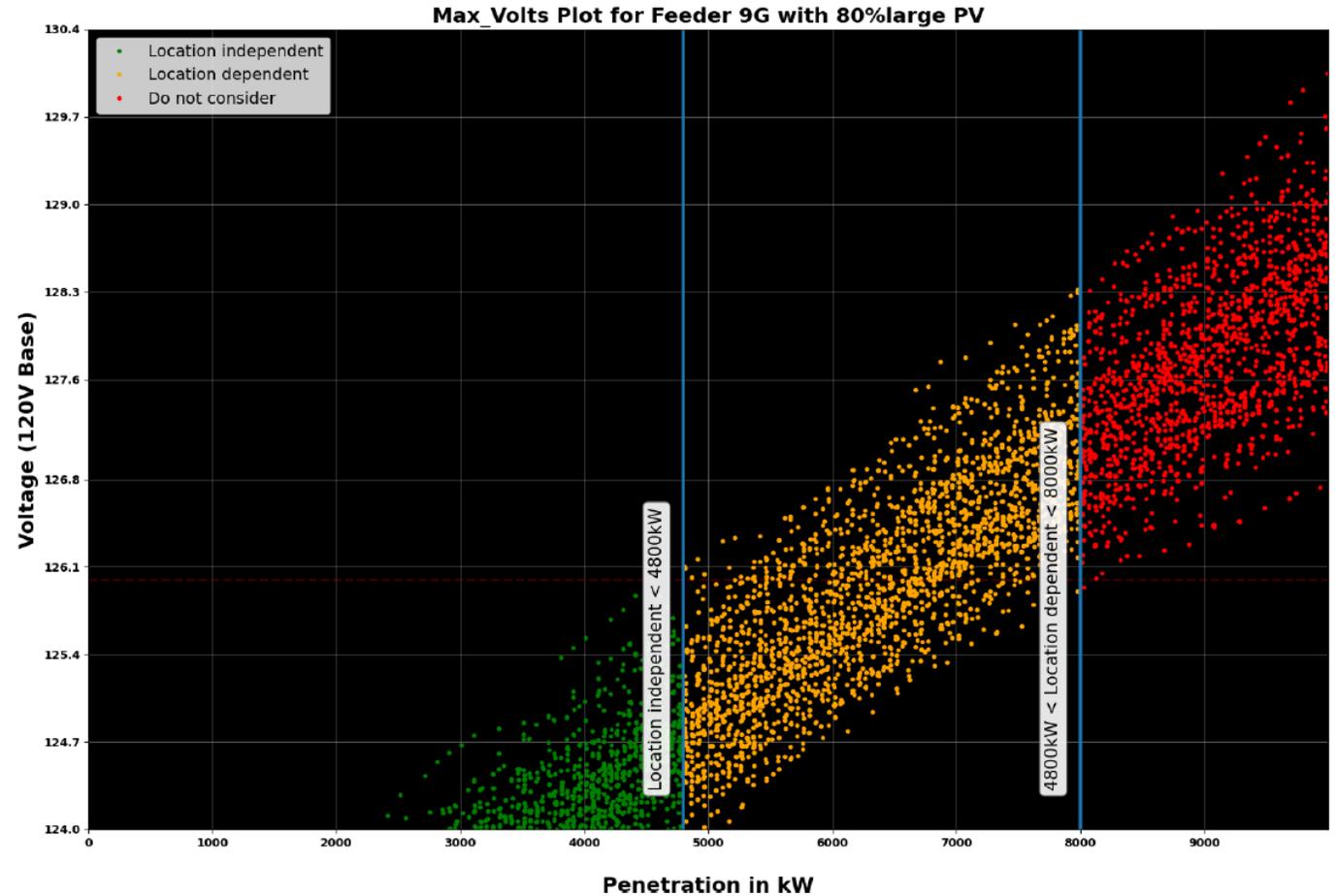


DER PENETRATION IMPACT STUDY

- DER hosting capacity based on 80% Large PV

Large PV =
250kW – 1000kW

- Location independent:
< 4800kW
- Location dependent:
> 4800kW < 8000kW



DER PENETRATION IMPACT STUDY

- **Next Steps:** DER Penetration and Hosting Capacity Studies on all Distribution Feeders (September 2021 – November 2021).
- **Deliverables:** The hosting capacity results will be presented in tabular form as well as charts similar to the previous slide examples.



SUMMARY & DISCUSSION



- **Owner's Engineer for City-Owned Properties**
 - **Assess properties**
 - **Develop Plans & Specifications**
 - **Distribution Grid Assessment**



Thank You!

