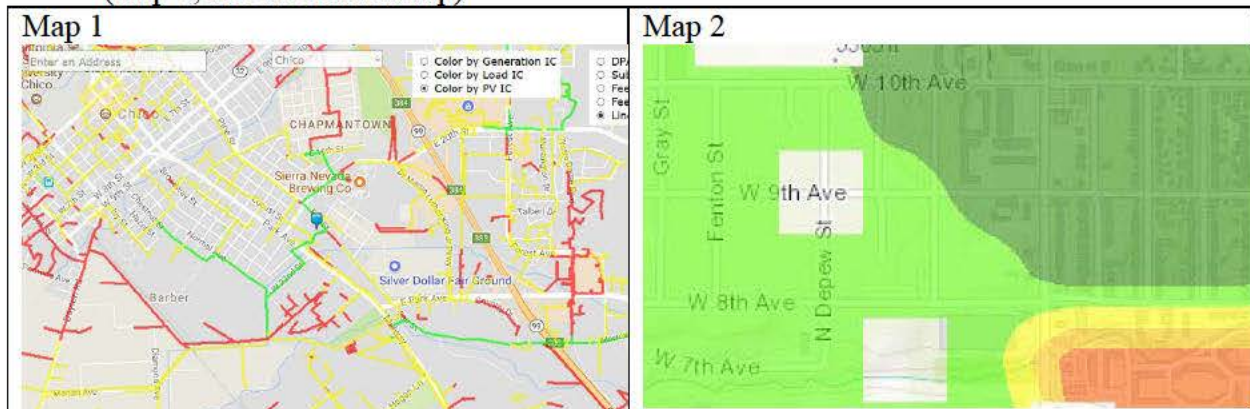


HCA rules could include:

- Use case and goals for HCA
 - address specifically how customers and utilities would use the HCA in each use case, *i.e.*, interconnection and planning
- Date for publication of first map and downloadable data
- Specify the granularity level at which the analysis should be performed, and the granularity level at which results should be published, *e.g.*, the line segment level (a.k.a. sub-feeder level). Results provided at the feeder level are not granular enough to be useful for making interconnection decisions.
- Specify what types of DER the HCA should address, *e.g.*, PV, PV plus storage, standalone storage, other generation, load (such as EV chargers).
- What data may be redacted, *e.g.*, no data redaction; must publish all data unless PUC order grants an exception or the redaction is permitted under existing customer privacy rules (that are applicable to the HCA).
- Should the map show the actual location of distribution system lines, substations, and other equipment, (map 1) or simply color broad areas based on their hosting capacity (map 2, Xcel's current map)



- Update frequency, *e.g.*, monthly
- General requirement for validation
- Publish a user guide and technical specifications documenting the HCA's criteria and thresholds.
- Require a stakeholder engagement process leading up to a commission order/guidance setting technical inputs and assumptions in advance of publishing the first results.

HCA orders could include:

- Selection of methodology and software for analysis
- Specific technical criteria that must be included (*i.e.* thermal, voltage, etc.) and appropriate thresholds for those.
- Number and type of load hours for which the analysis is performed
 - require use of actual feeder load or allow use of estimated feeder load?
 - for example California uses 576 hours, representing the actual 24 hour load profile of the peak and minimum load day for each of the 12 months
- Threshold for changes that trigger an update to the map
- Data fields for map pop-up boxes and downloadable data (see attachment for example)

- o publish 8760 hour load profiles?
- Search and sort capabilities
 - o require API access to data so that developers can build their own apps to process data?
- Applicable data redaction standards
- Specific validation requirements.
- Mechanism for ongoing stakeholder engagement and Commission action to refine and improve the HCA.

Data Fields for a Hosting Capacity Map and Downloadable Spreadsheet

Substation (Location needs to be shown on map)

Name

Voltages

Transformer nameplate rating

Existing Generation (Nameplate/Export Capacity)

Queued Generation (Nameplate/Export Capacity)

Total Generation (Nameplate/Export Capacity)

8760 Load profile

Percentage of residential, commercial, industrial customers

Currently scheduled upgrades

Has protection and/or regulation been upgraded for reverse flow (yes/no)

Number of substation transformers and whether a bus-tie exists

Notes (include any other relevant information to help guide interconnection applicants, including electrical restrictions, known constraints, etc.)

Feeder (Both distribution and sub-transmission circuits)

Name of substation line connects to

Line voltage

Number of phases

Which Substation Transformer is Connected

Feeder type: Radial, Network, spot, mesh etc.

Feeder length

Feeder conductor size and impedance

Service Transformer rating

Service Transformer daytime minimum load

Existing Generation (at least weekly refresh rate)

Queued Generation (at least weekly refresh rate)

Total Generation (at least weekly refresh rate)

8760 Load profile

Percentage of residential, commercial, industrial customers

Currently scheduled upgrades

Notes (include any other relevant information to help guide interconnection applicants, including electrical restrictions, known constraints, etc.)

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