

## 1.1 REQUIREMENTS & CONSTRAINTS

List all requirements for your project. Separate your requirements by type, which may include functional requirements (specification), resource requirements, physical requirements, aesthetic requirements, user experiential requirements, economic/market requirements, environmental requirements, UI requirements, and any others relevant to your project. When a requirement is also a quantitative constraint, either separate it into a list of constraints, or annotate at the end of requirement as “(**constraint**).” Ensure your requirements are realistic, specific, reflective or in support of user needs, and comprehensive.

- Function requirements
  - The design of a 60 MW solar plant and a 115/34.5 kV distribution substation that takes into consideration things like:
  - An Electric Panel with Sufficient Capacity
  - Energy Information to Size the Solar
- Physical Requirements
  - Solar plant: hundred acres of land, flat & dry land, close to a substation, fence and maintenance
  - Substation: central, elevated, flat, large, easy to access land
- Environmental Requirements
  - High irradiance, low humidity, low cloud coverage, stable ground material
- Resource Requirements
  - BlueBeam, AutoCAD, Array Parameter Analysis Tool, Google Drive
- Aesthetic Requirements
  - Clear layout for diagrams (string, rack, array, yard), concise agenda and minutes for each client meeting, color coded Gantt chart
- User Experiential Requirements
  - clear and concise design diagrams, budget-friendly design, weekly meeting report updates

## 1.2 ENGINEERING STANDARDS

What Engineering standards are likely to apply to your project? Some standards might be built into your requirements (Use 802.11 ac wifi standard) and many others might fall out of design. For each standard listed, also provide a brief justification.

- IEEE 80 - Guide for safety in AC substation grounding
- NFPA 70 - National Electrical Code
- UL1741 - Ensures equipment safety with distributed energy resources