PV Siting: Where Should You Put a Solar Facility?

TENA MONSON
SOLAR DEVELOPMENT MANAGER, GERONIMO ENERGY
Presentation Overview

SITING CONSIDERATIONS AND CONSTRAINTS

• Interconnection
• Local Land Use Policies
• Environmental Factors
• Community
• Other Factors
• O&M
GERONIMO ENERGY

COMPANY BACKGROUND
Geronimo Energy

Geronimo has evolved into a leading North American renewable energy developer with a comprehensive development team that has successfully delivered over 1,500 megawatts of wind and solar projects to sophisticated project buyers in the U.S.

KEY ATTRIBUTES OF GERONIMO ENERGY

• Core Value – farmer-friendly
• Established track record with new wind development
• Led the establishment of the Minnesota solar market
  o Innovator of utility-scale Aurora Solar Project – 100 MW Solar Capacity portfolio of projects at select distribution substations
• Community Solar Garden expertise
PV SITING

GENERAL CONSIDERATIONS: WHERE TO START
General Considerations

AVAILABLE LAND
- Size of the facility
- Previously disturbed land
- Residential neighbors
- Service territory – Co-op members

FLAT AND SQUARE
- Grading and design considerations

SUBSTATION/FEEDER PROXIMITY
- Determines risk of impacts to the system

WILLING LANDOWNER
- Primary restriction
INTERCONNECTION: MUST HAVE

PRIMARY DRIVER
Interconnection

SUBSTATION/FEEDER PROXIMITY

- Size of project
- Distance to substation
- Local load

CHALLENGES

- Capacity available
- Studies

FUTURE

- Smart Inverters and changes in modeling
- Energy Storage
LOCAL LAND USE

GETTING THROUGH PERMITTING
## Local Land Use Considerations

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<th>Item</th>
<th>Evaluation</th>
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| **Ordinance Review**        | 1. *Does the ordinance include Solar?*  
No => Ordinance amendment required
Yes => Can you meet requirements (setbacks, height, coverage limits, wetland regulations, shoreland, floodplain, variances, etc)? |
| **Annexation Areas**        | 1. *Do you want to annex the property?*  
2. *What impacts/risks exist?* |
| **Surrounding Uses**        | 1. *What is the character of the area?*  
2. *What is the land value?* |
| **Comprehensive Plans**     | 1. *Where are the Sewer and Water expansions?*  
2. *How is the property guided and/or zoned?*  
3. *What is the timeline of planned development for the property?* |
ENVIRONMENTAL FACTORS

AVOIDING DETRIMENTAL ENVIRONMENTAL CHARACTERISTICS
Environmental Factors

WATER FEATURES
- Wetlands
- Shoreland
- Floodplain
- Riverways

CULTURAL SIGNIFICANCE
- Bluffs
- Cultural Surveys

TREES AND PLANES
- Aviation: FAA policy and Airport Zoning
- Shading: Design impacts
COMMUNITY

SUPPORT NEEDED
Community Outreach and Permitting

1. Acquire Land
2. Call/Meet Jurisdictions
3. Letter to Neighbors
4. Meet with Neighbors and Jurisdictions
5. Engineer
6. Public Hearing Notice
7. Permit Decision
OTHER FACTORS

THINGS TO KEEP IN MIND
Other Factors

SOLAR RESOURCE
- Options available to you for locating the project

SNOW LOADS
- Equipment impacts
Operations and Maintenance Considerations

WEATHER
Snow Plowing and Drifting. Rain averages to determine if you need to remove dust from panels.

EMERGENCY SERVICES
Fire safety access, security approach (cameras, fencing, etc), police awareness, safety precautions for the community.

VEGETATION MANAGEMENT
Establishment of vegetation underneath the panels and any screening. Maintenance of the vegetation is important depending on the seed mix or planting choice.

EQUIPMENT MAINTENANCE & ONSITE MANAGEMENT
There are weekly, monthly, quarterly, yearly checks that need to happen. For example, fans on inverters, voltage checks, hot spots, tracking system equipment, issues with modules, etc.
Questions?

TENA MONSON
SOLAR DEVELOPMENT MANAGER
GERONIMO ENERGY
952-988-9000
WWW.GERONIMOENERGY.COM