Site Selection: Strategic and Regulatory Considerations

Objectives

Select a power plant site that satisfies:

- Applicant's business plans and objectives
- Technical site suitability requirements
- NEPA requirements for the consideration of alternative sites

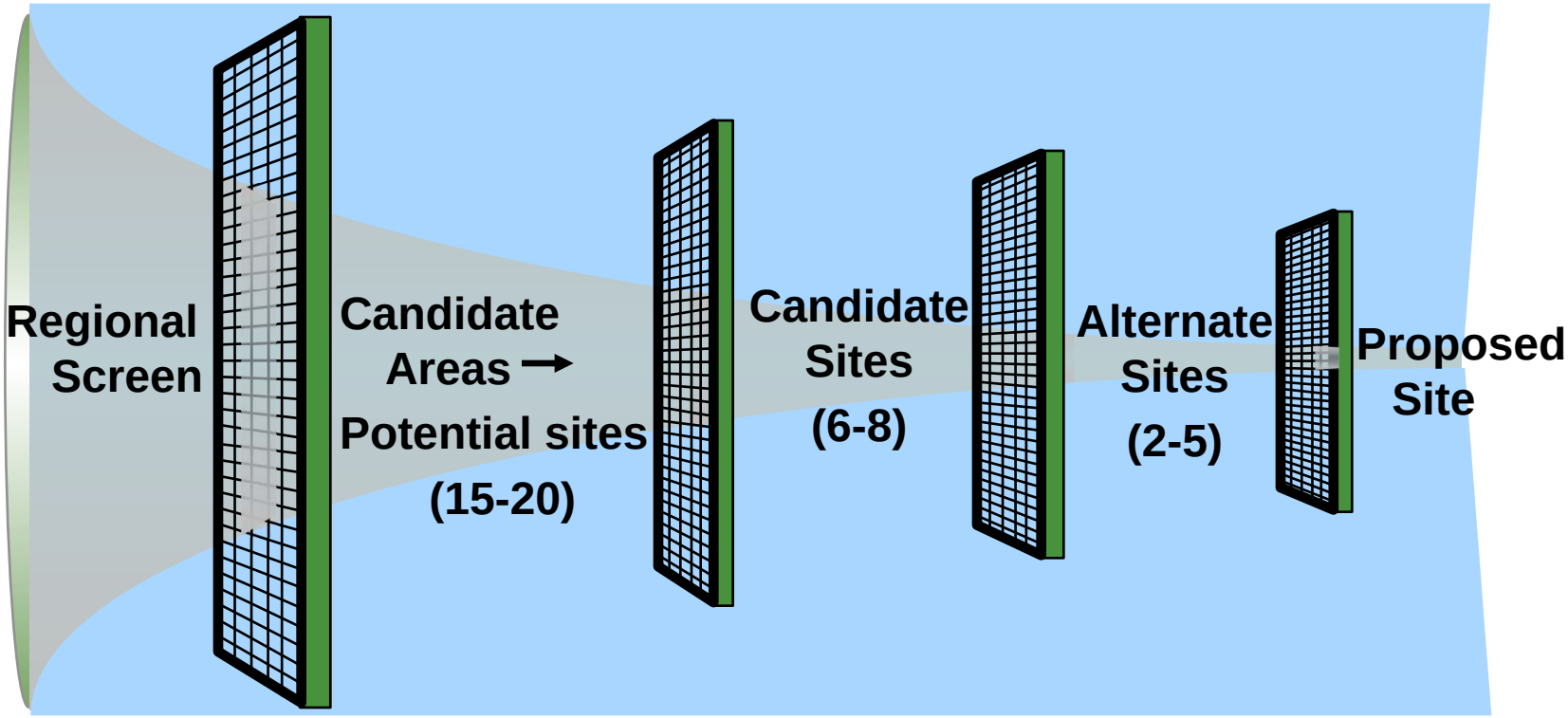
Define Region of Interest

Under NEPA, reasonable alternatives are defined by project objectives (business plan)

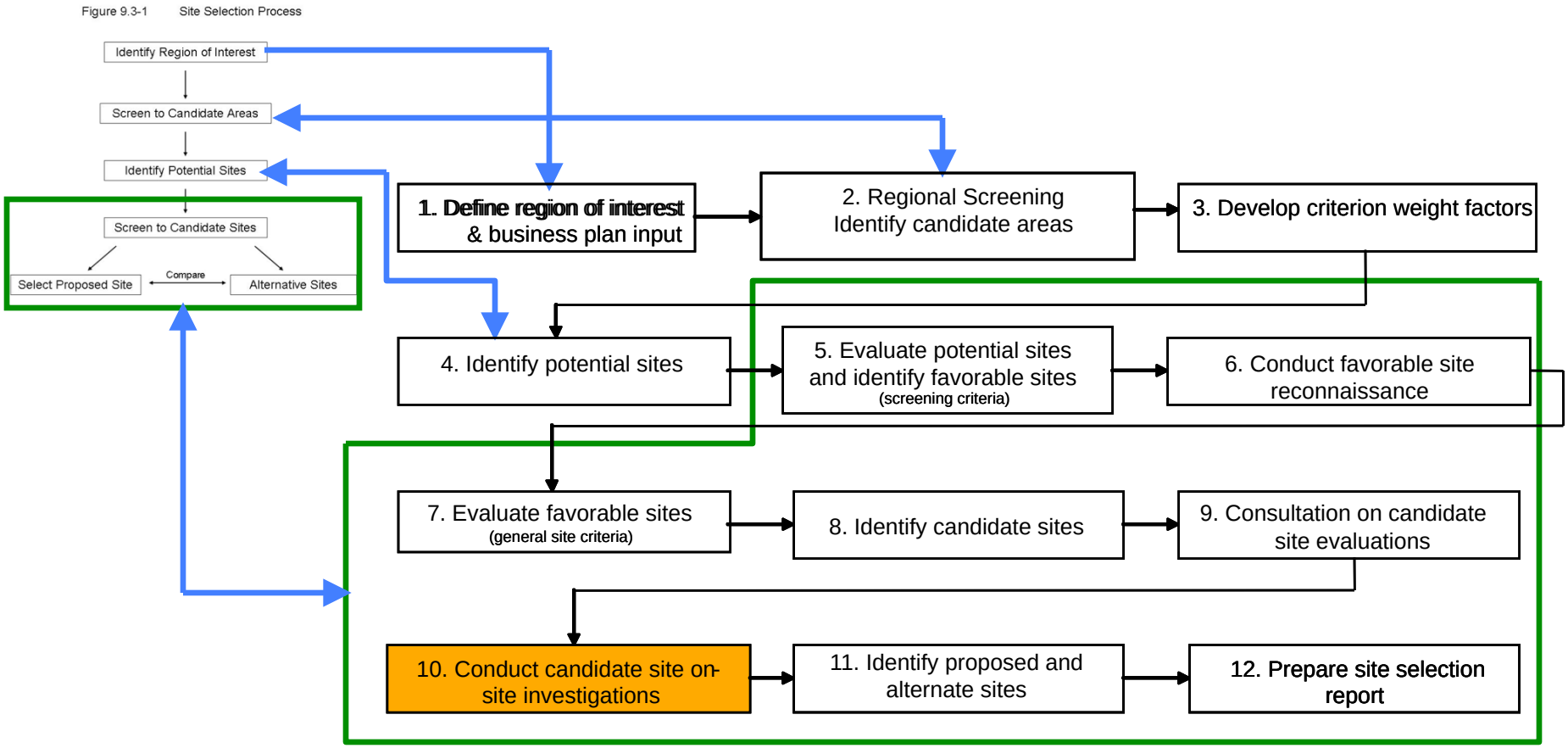
Region of interest is defined by applicant's project objectives

- Examples:
  - Existing plant sites
  - Service territory
  - Multiple states

Site Screening



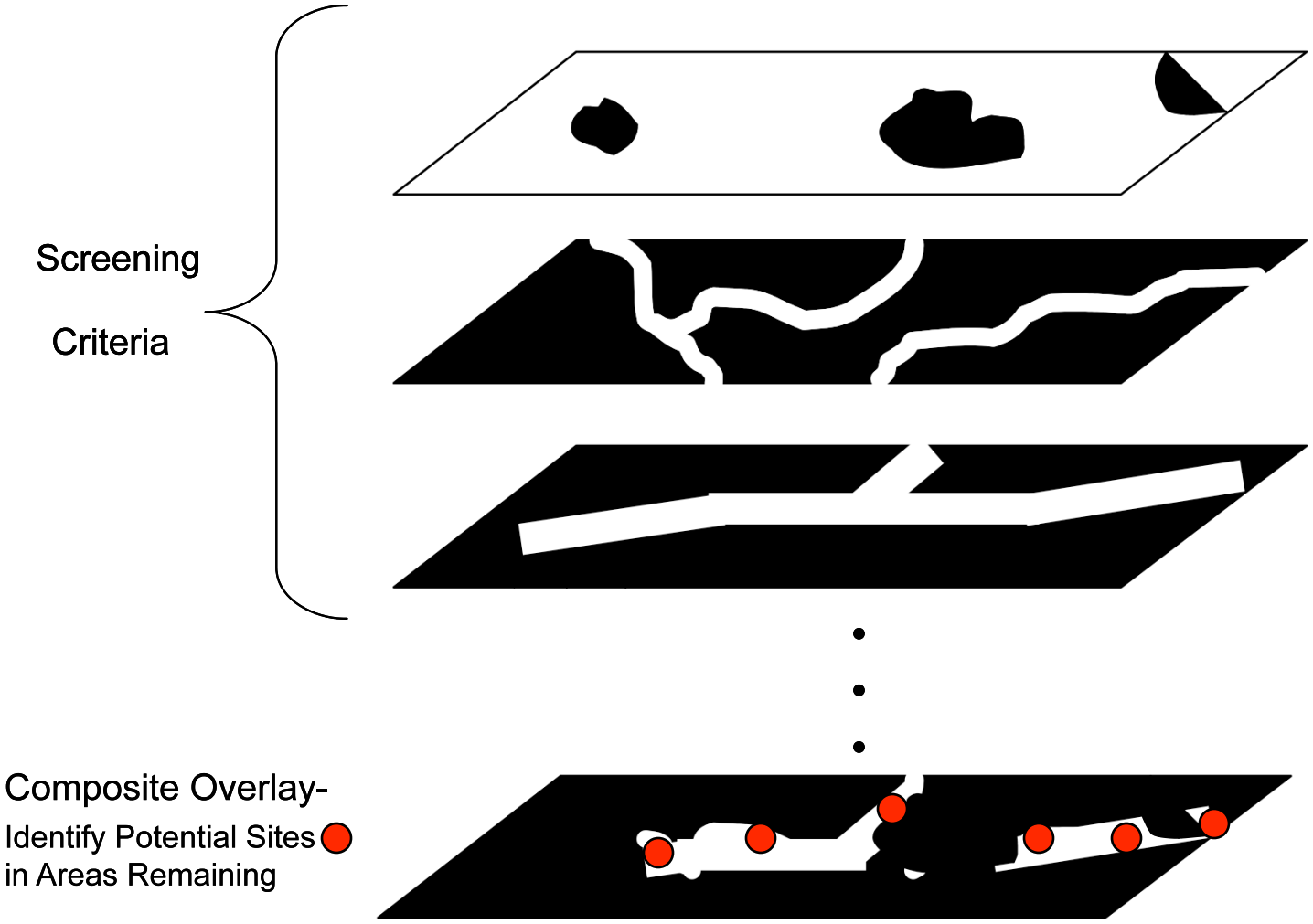
Site Selection – Process Diagram



Regional Screening

Data Category	Mapped Data	Screening Criteria (Areas excluded)
Population	Population Density	Census blocks where population density > 300 persons/mi^2
Water Availability	Water sources (large rivers, coastal areas)	Areas > Five mile band around source. River reaches for which the average flow <10 times the plant makeup water requirement
Dedicated Land Use	Federal & State parks, monuments, wildlife areas, wilderness areas, wild and scenic rivers	Five mile buffer around each mapped feature
Regional Ecological Features	Known, mapped wetlands, estuaries, designated T&E species habitat	Areal extent of identified features

Conduct Regional Screening

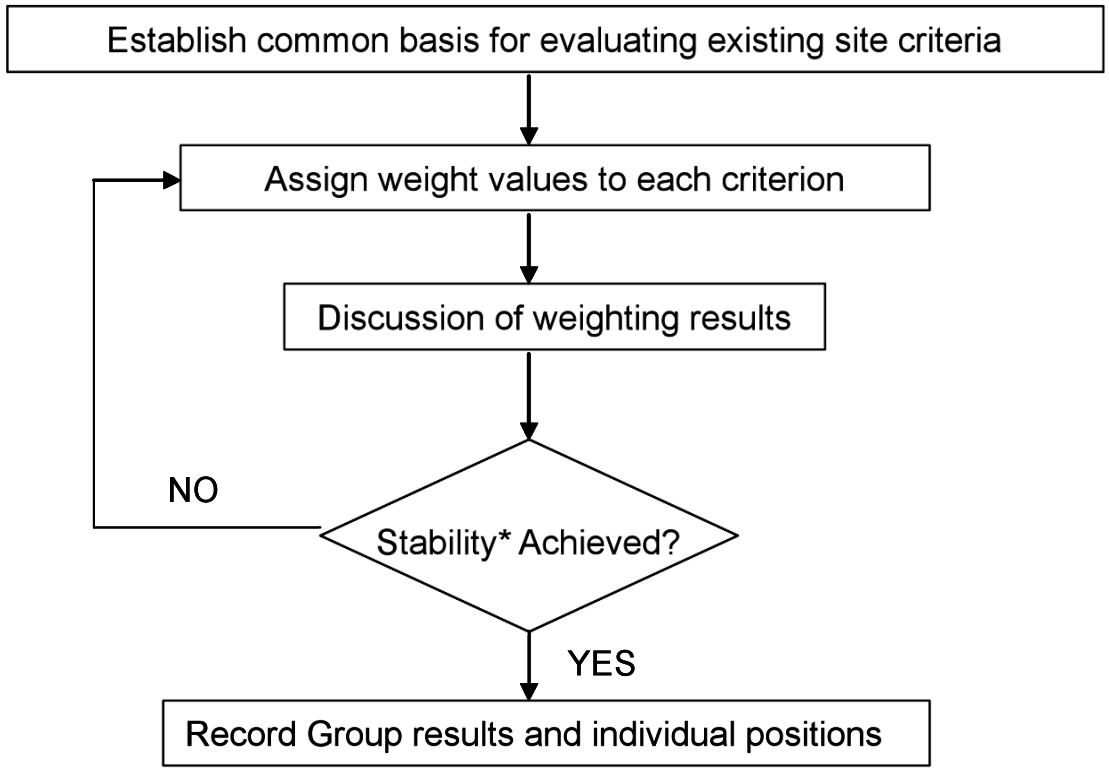


Identify Potential Sites

Considerations

- Diversity of sites (e.g., major water sources)
- Proximity to transmission/load centers
- Avoidance of high population areas & towns
- Consideration of ecologically sensitive and special designation areas
- Proximity to transportation (e.g., rail lines, barge terminals)
- Site layout flexibility (engineering, cost & environmental)
- Minimal number of land parcels

Weight Factor Development

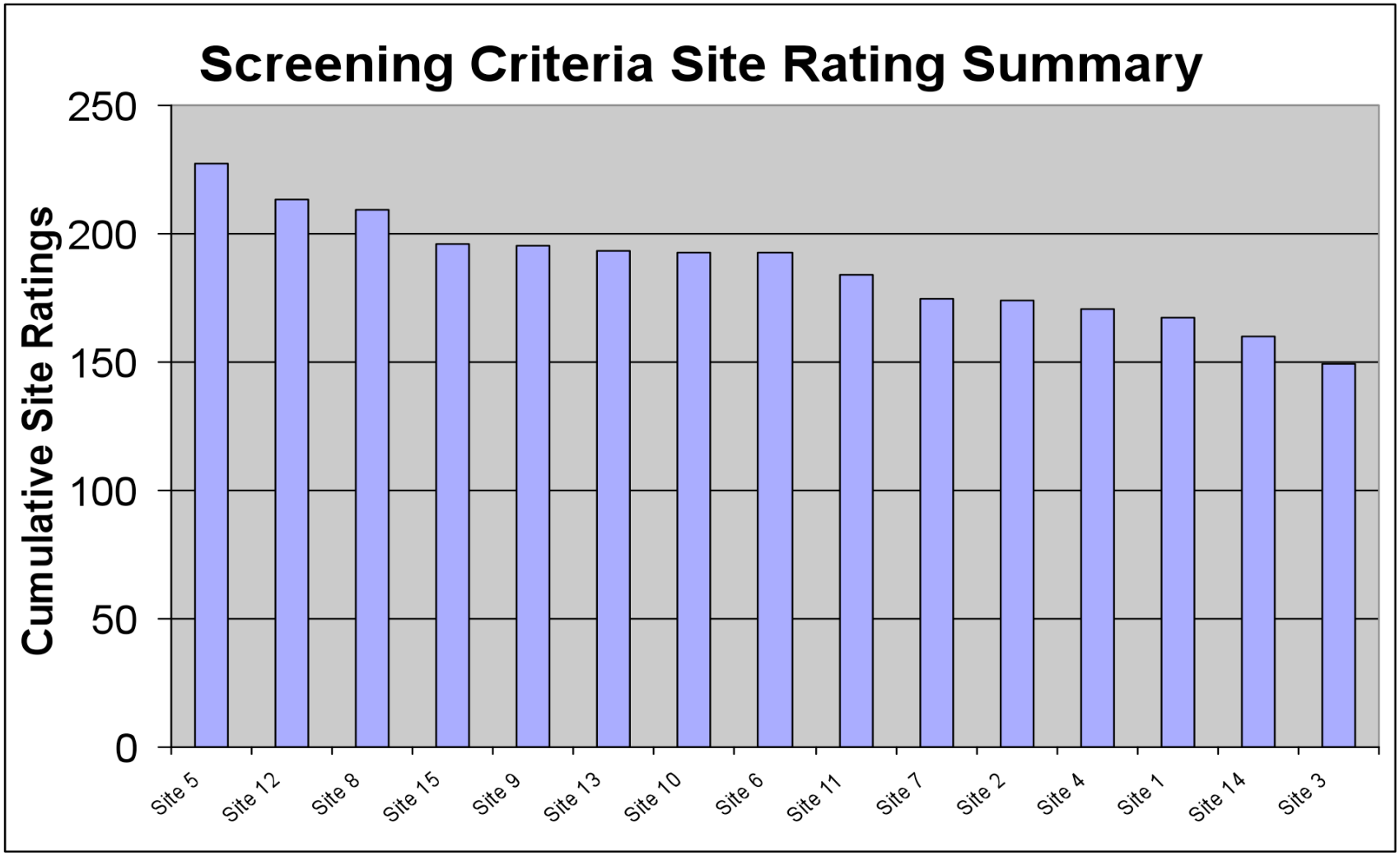


•- Group average weights do not change significantly from one voting round to the next

Evaluate Potential Sites

	Seismic	Cooling Water Supply	Flooding	Popula-tion	Hazard-ous Land Uses	Ecology	Wetlands	Heavy Haul Access	Transmis-sion Access	Land Acquisi-tion	Site Rating
	Weight Factor										
Site Name	**8.2**	**9.5**	**4.6**	**8.1**	**6.0**	**5.7**	**6.2**	**5.1**	**7.8**	**3.3**	
Site 1	3	4	5	4	2	1	1	5	1	5	**167.1**
Site 2	3	5	1	5	2	1	1	5	2	5	**174.1**
Site 3	2	2	1	4	2	2	2	5	2	5	**149.4**
Site 4	5	1	5	4	4	1	3	5	2	5	**170.8**
Site 5	5	5	4	5	3	2	5	4	3	5	**227.1**
Site 6	4	3	5	4	2	4	3	3	3	5	**192.5**
Site 7	3	3	4	3	2	2	4	3	3	5	**174.6**
Site 8	1	5	4	4	2	2	4	3	4	5	**209.5**
Site 9	1	5	3	4	1	2	4	3	4	4	**195.6**
Site 10	2	3	5	5	2	3	4	2	3	4	**192.7**
Site 11	3	3	4	4	2	2	5	2	3	5	**183.8**
Site 12	4	5	2	5	2	2	4	4	4	5	**213.5**
Site 13	5	5	4	1	2	2	5	4	4	4	**193.2**
Site 14	3	2	4	3	2	1	5	1	4	4	**159.9**
Site 15	4	2	5	2	3	2	5	5	5	4	**196.3**

Evaluate Potential Sites



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Evaluate Candidate Sites

** - General site criterion set abbreviated for illustration

Criterion	Weight Factor	Site 5		Site 12		Site 8		Site 9		Site 15		Site 13		Site 10		Site 6	
		Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score
Geology/Seismology	3.77	5	18.9	5	18.9	5	18.9	5	18.9	4	15.1	5	18.9	4	15.1	5	18.9
Cooling System Requirements	3.27	4	13.1	3	9.81	2	6.54	3	9.81	3	9.81	4	13.1	3	9.81	4	13.1
Flooding	2.4	2	4.8	3	7.2	1	2.4	2	4.8	5	12	3	7.2	5	12	3	7.2
Nearby Hazardous Land Uses	3.35	1	3.35	3	10.1	3	10.1	3	10.1	2	6.7	3	10.1	2	6.7	3	10.1
Extreme Weather Conditions	2.36	2	4.72	3	7.08	3	7.08	3	7.08	3	7.08	1	2.36	3	7.08	2	4.72
Air Radionuclide Pathway	2.5	5	12.5	4	10	4	10	3	7.5	4	10	5	12.5	4	10	5	12.5
Disruption of Important Species/Habitats	2.64	2	5.28	2	5.28	5	13.2	1	2.64	3	7.92	1	2.64	3	7.92	1	2.64
Disruption of Important Species/Habitats and Wetlands	3.18	3	9.54	4	12.7	3	9.54	3	9.54	3	9.54	5	15.9	2	6.36	3	9.54
Socioeconomics – Construction – Related Effects	2	4	8	3	6	5	10	3	6	4	8	4	8	5	10	3	6
Water Supply	3.7	5	18.5	4	14.8	4	14.8	4	14.8	4	14.8	5	18.5	4	14.8	5	18.5
Civil Works	3.4	3	10.2	3	10.2	3	10.2	4	13.6	3	10.2	3	10.2	3	10.2	3	10.2
Transmission Access	4.8	3	14.4	4	19.2	4	19.2	4	19.2	5	24	4	19.2	3	14.4	4	19.2
Topography	2.55	5	12.8	5	12.8	5	12.8	4	10.2	5	12.8	5	12.8	3	7.65	4	10.2
Land Rights	2.75	5	13.8	4	11	3	8.25	1	2.75	2	5.5	1	2.75	3	8.25	4	11
Composite Site Rating			**358**		**336**		**334**		**323**		**340**		**342**		**334**		**341**

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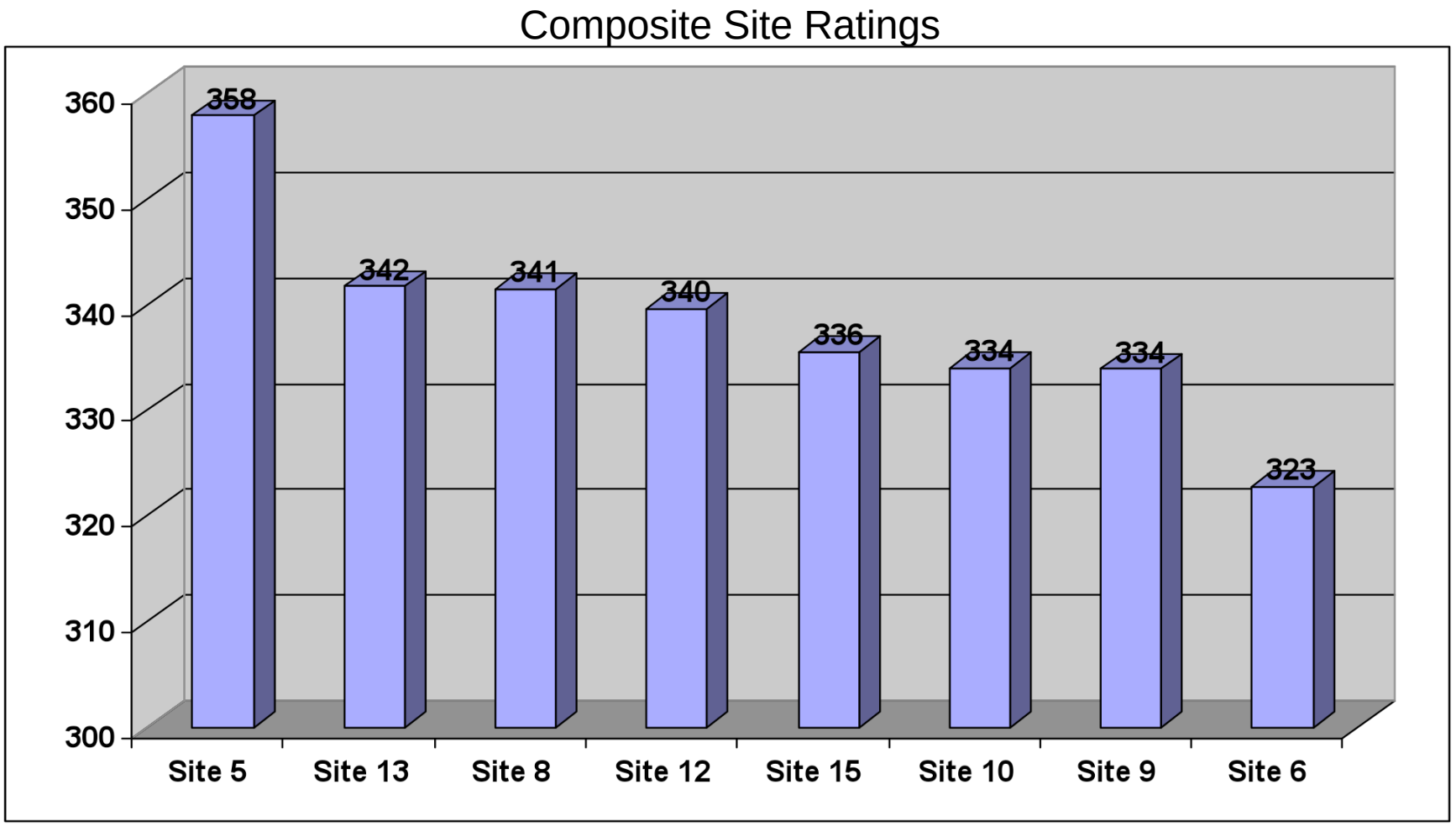
Evaluate Candidate Sites



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Site Reconnaissance

- Over-flights
- Windshield Surveys
- Site walkdowns
- On-site geotechnical investigations

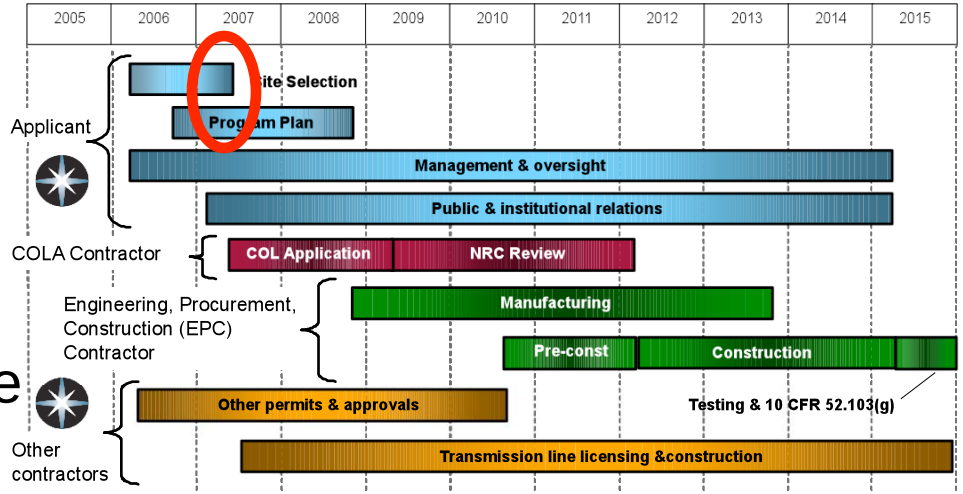
Identify Proposed Site

	Site Suitability Issue				
	Transmission	**Geotechnical**	**Environmental**	**Seismic**	**Land Acquisition**
Basis for Evaluation / **Site →**	Detailed transmission impact study	On-site geotechnical investigations, including borings and geophysical studies.	On-site reconnaissance survey	Qualitative analysis of risk factors for reliable power production and supply (e.g., vulnerability to single-event failures)	Real estate analysis supplemented by preliminary third-party negotiations with landowners
Site 5 ↓	Upgrade costs conser-vatively estimated to be similar to those for Site 12 – $653 M[1]	Geotechnical characteristics assumed to be acceptable; similar to those underlying existing plant.	Site is characterized by industrial development.	Co-location of new units at the site does not allow for any physical separation of transmission lines and would subject them to single natural event failures.	Additional land would be required. Early contacts indicate that acquisition of adjacent land would be feasible.
Site 13	Estimated total direct connect plus upgrade costs: $726M[1]	Geotechnical characteristics acceptable; foundation costs may exceed other sites due to large depth to bedrock.	Site is characterized primarily by open forested pineland with some evidence of timbering. Some wetlands indicator species apparent on relatively small fraction of site area.	Location allows additional separation of transmission lines over that provided by Site 4.	Acquisition of sufficient land for a nuclear power plant in the time frame necessary to meet the ESP application schedule appears not to be feasible.
Site 8	Estimated total direct connect plus upgrade costs: $1,370M. Includes significant ($592M) upgrades due to contingencies in adjacent utility service area.	Geotechnical characteristics acceptable.	Mostly agricultural cleared land; significant sod farming on site and significant cattle and dairy farming near the site.	Site would almost eliminate the possibility that new units would be affected by a single natural event. Location provides for a different transmission approach to load centers.	Acquisition appears to be feasible. Acquisition of water rights on required schedule appears to be feasible.
Site 12	Estimated total direct connect plus upgrade costs: $653M.	Geotechnical characteristics acceptable.	Site is characterized primarily by desert scrub.	Site would almost eliminate the possibility that new units would be affected by a single natural event. Location allows some separation of transmission lines as compared to Site 12.	Preliminary agreements with landowners for future acquisition have been successfully negotiated.

Final Confirmation of Proposed Site

Final proposed site identification and public announcements

- **Scenario** – A few favorable candidate sites have been identified under firm confidentiality
- **Objective** – Obtain adequate level of confidence in the suitability of candidate sites such that a proposed site can be identified.
- **Challenge** – Studies required to meet this objective involve public disclosure of project and sites



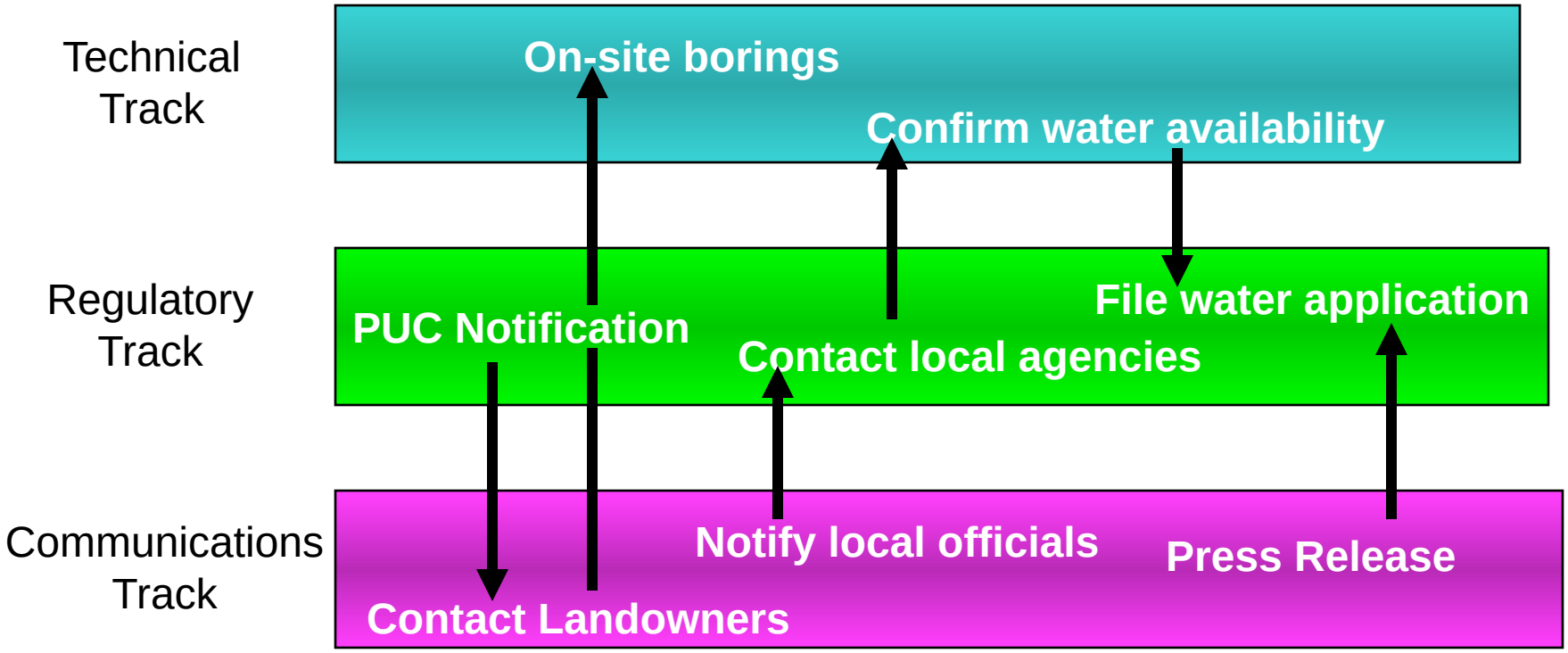
Proposed Site Selection

Implementing Objectives

- Manage interface with key leaders/regulators
- Manage public awareness and relations
- Obtain necessary site technical data
- Maintain “competition” among sites
- Maintain basis for negotiating incentives among alternative jurisdictions

Proposed Site Selection

Technical-Regulatory-Communications Plan Hypothetical Relationships*



* = Sample subset of activities