

Resource Attributes Matrix

Proposed Evaluation Stage

ID	Attribute Category	Metric	Proposed Evaluation Stage				
			Phase 1: Threshold Requirement Per Proposal	Phase 2: Individual Scoring Per Proposal	Phase 3: Portfolio Formation	Phase 4a: Portfolio Viability Assessment	Phases 4b & 5: Portfolio Scoring & Selection
1	Capacity	Nameplate capacity of commercially operable project is > 5 MWac.	x				
2	Capacity	Commercially operable project must be transmission-interconnected.	x				
3	Capacity	Commercially operable project must interconnect in MISO Zone 1 with uninterrupted interconnection path to MISO Load.	x				
4	Capacity	Must achieve COD by 12/31/2028	x				
5	Capacity	<u>For Physical Assets:</u> Must be able to operate commercially at the highest 0.2 percentile hourly temperature from Jan 1, 2000 until the date the temperature is calculated, using the NOAA NCEI station nearest to the generator, and for cold weather, the smallest of the 50 year regional extreme cold temperature as defined by the NOAA NCEI station nearest to the generator or the Extreme Cold Weather Temperature defined in NERC EOP-012, whichever is colder. <u>For Demand Response Assets:</u> Capable of commercial operation at equivalent analog criteria.	x				
6	Capacity	For Existing Projects: Minimum remaining operational life or PPA contract term of 10 years after COD of contract selected in this competitive resource acquisition.	x				
7	Capacity	For New Projects Only: Minimum design life or PPA contract term of 10 years	x				
8	Capacity	<u>For Proposals containing a BESS Project:</u> Must provide estimate of capacity degradation rate via warranty or independent evaluation.	x				
9	Capacity	<u>For Power Purchase Agreements Only:</u> O&M plan must be provided and must be sufficient for proposed contract term	x				
10	Capacity	<u>For Build-Transfer Projects Only:</u> Compliance with Company Technical Specifications	x				
11	Capacity	Level of capacity degradation over project life or PPA contract term relative to other proposals, with a better score for lower degradation.		x			
12	Capacity	Level of accredited capacity over project life or PPA contract term relative to other proposals, with a better score for higher level of accreditation assumptions.		x			
13	Energy availability	<u>Fuel Access For Physical Fuel Assets:</u> Demonstrated firm fuel transport (i.e., contract for firm fuel delivery)		x			
14	Energy availability	<u>For Inverter-Based, Physical Resources Utilizing Renewable Energy:</u> High net capacity factor of renewable component relative to other proposals		x			
15	Energy availability	Does an unacceptable level of LOLH or EUE occur during the planning period when the portfolio is modeled?				x	
16	Energy availability	Does this portfolio have less LOLH and EUE relative to the Reference Portfolio under identical test conditions?					x

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Blackstart criteria in the section below are required only for those units within a proposal that seeks consideration as a blackstart unit.							
17	Blackstart and system restoration	Initial Unit (Blackstart Unit) must register with MISO as a Blackstart Resource	x				
18	Blackstart and system restoration	Unit capability to operate in isochronous mode	x				
19	Blackstart and system restoration	Unit capability to operate in islanded operation	x				
20	Blackstart and system restoration	The capability to accept instantaneous loading of demand blocks, % of rated output but not less than 1 MW, while controlling frequency and voltage levels within acceptable limits during block loading process	x				
21	Blackstart and system restoration	The ability to control voltage level within acceptable limits during energization/block loading (-10%/+5%).	x				
22	Blackstart and system restoration	The ability to control frequency within 58.7 Hz to 61.8 Hz during energization/block loading	x				
23	Blackstart and system restoration	The ability to dispatch at any time if needed and run in a continuous stable and controllable mode for at least 48 hours without violating any environmental or other restrictions	x				
24	Blackstart and system restoration	Blackstart capacity must have technical capability to 1) run in a continuous stable and controllable mode over entire design operating range of resource (to 0 load); 2) operability in remote load control service (up and down).	x				
25	Blackstart and system restoration	Sufficient reactive reserve capability to allow energization of the transmission system within the station to supply the facility with restoration power	x				
26	Scro	Ability to close to a dead bus	x				
27	Blackstart and system restoration	Locational benefit of unit placed in area with renewables but no current owned/contracted blackstart resource		x			
28	Blackstart and system restoration	Amount/presence of blackstart unit capacity.		x			
29	Blackstart and system restoration	Attribute: Flexibility of blackstart units and/or planned target unit (restoration support unit). Evaluated in item #30.				x	
30	Blackstart and system restoration	Does the proposed portfolio meet the goals of the TOP's System Restoration Plan?				x	
31	Blackstart and system restoration	Does the portfolio improve system restoration time relative to the Reference Portfolio?					x

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32	Environmental Impacts	For a new resource, an applicant must provide the information required of generating facilities under Minn. R. 7849.0320 and 7849.1500, subd. 2. State whether the proposal is located in an environmental justice area using the census criteria identified in Minnesota Statute, section 216B.1691, subd. 1(e). A proposer must provide a climate change analysis of the proposal consistent with the Minnesota Environmental Quality Board's environmental assessment worksheet guidance for developing a carbon footprint and incorporating climate adaptation and resilience.		x			
33	Environmental Impacts	Carbon-free or low-carbon generation resource, with points assigned based on the duration and certainty of emissions avoided. For purposes of this metric, a non-generating resource will receive the same points as a carbon-free resource.		x			
34	Environmental Impacts	Innovative & Emerging Technologies: Long Duration Storage, Hydrogen, Advanced Geothermal, and Others					x
35	Environmental Impacts	Carbon impact of portfolio relative to NSP Reference Portfolio, assuming opportunities to substitute zero-carbon delivered fuels for fossil fuels if provided in portfolio. Any analysis of carbon impact cannot assume the ability to substitute zero-carbon fuels for fossil fuels unless it also properly includes the costs of doing so during the evaluation of project and fuel costs and as part of cost inputs to the capacity expansion modeling. Scoring will account for the certainty and timing of potential fuel substitutions, with higher scores for more certain emissions avoidance and longer durations of zero-carbon operation.					x
36	Environmental Impacts	Carbon impact of portfolio relative to NSP Reference Portfolio					x
37	Costs	Low levelized cost of installed capacity in relation to other proposals. Costs of on-site fuel storage and/or potential conversion to cleaner fuels must be included.		x			
38	Costs	Low levelized cost of accredited capacity in relation to other proposals. The costs of on-site fuel storage and/or potential conversion to cleaner fuels must be included.		x			
39	Costs	Does this portfolio decrease MISO market purchases relative to the Reference					x
40	Costs	Low PVRR relative to other portfolios					x
41	Costs	Low PVSC relative to other candidate portfolios					x
42	Costs	Cost to Value Modeling/Adjusted Value Comparison					x

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43	Flexibility	Demonstrated up and down ramp capability, through registration or capability to provide one or more MISO products prioritizing ramping capability (i.e., including Short-Term Reserve and Fast Ramping Resources); more points awarded for participation products with a higher level of change capability in terms of capacity per time.		x			
44	Flexibility	Demonstrated ability to start quickly, through registration or capability to provide one or more MISO products prioritizing rapid starts (i.e., including Quick-Start Resource, Short Term Offline Reserve, offline Supplemental Reserves, and Fast-Start Resource) and more points awarded for products with the shorter lead time requirements.		x			
45	Flexibility	Lack of constraints on run time (small minimum run time constraint (i.e., 4 hours or less); ability to deploy rapid response product(s) for a minimum duration of time (i.e., 60 minutes))		x			
46	Flexibility	Increased cycling capability relative to other proposals, demonstrated by minimal cycling costs and lack of technical constraints		x			
47	Flexibility	Large range of dispatchable capacity relative to other proposals		x			
48	Flexibility	Ability of portfolio to improve system ramps relative to the Reference Portfolio					x
49	Essential Reliability Services	Demonstrated capability to provide voltage control/support through registration in MISO Markets to provide Spinning or Regulating Reserves		x			
50	Essential Reliability Services	Demonstrated capability to provide frequency regulation through registration in MISO Markets to provide Spinning or Regulating Reserves		x			
51	Essential Reliability Services	Demonstrated capability to provide spinning reserve through registration in MISO Operating Reserves Market		x			
52	Essential Reliability Services	Demonstrated capability to operate in dynamic voltage support (demonstrated by providing .dyr file for stability modeling)				x	
52	Essential Reliability Services	Portfolio demonstrates adequate voltage control/support capability, including containing asset(s) who have capability for registration in MISO Markets to provide Spinning or Regulating Reserves				x	
53	Essential Reliability Services	Portfolio demonstrates adequate capability of providing frequency regulation, including through asset(s) that have capability for registration in MISO Markets to provide Spinning or Regulating Reserves				x	
54	Essential Reliability Services	Portfolio demonstrates adequate capability of providing spinning reserve, including through asset(s) that have capability for registration in MISO Operating Reserves Markets				x	
55	Essential Reliability Services	Attribute: Short-Circuit Current. Portfolio must provide enough Short-Circuit Current to maintain bulk power system stability. Evaluated in item #56.				x	
56	Essential Reliability Services	Does Steady State or Stability modeling of the NSP system with this proposed portfolio meet transmission planning criteria?				x	

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57	Essential Reliability Services	Attribute: Inertial Response. Level of inertial response the portfolio contains above the minimum amount needed to maintain bulk power system stability. Evaluated in item #58.					x
58	Essential Reliability Services	Does the portfolio contribute to any demonstrated need improve for inertial/stability response relative to the Reference Portfolio?					x
59	Bidder Financial Strength & Experience	Bidder has financial viability & demonstrated experience on same type of project.	x				
60	Energy Justice	Does the proposal utilize union labor?	x				
61	Energy Justice	Analysis of EJ factors of projects in the candidate portfolio.					x

* These Phase 1 Metrics do not apply to demand response.