

Engineering & Inspections

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We look forward to hearing from you

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Q&A





Engineering and
M&V for Complex
Energy Projects

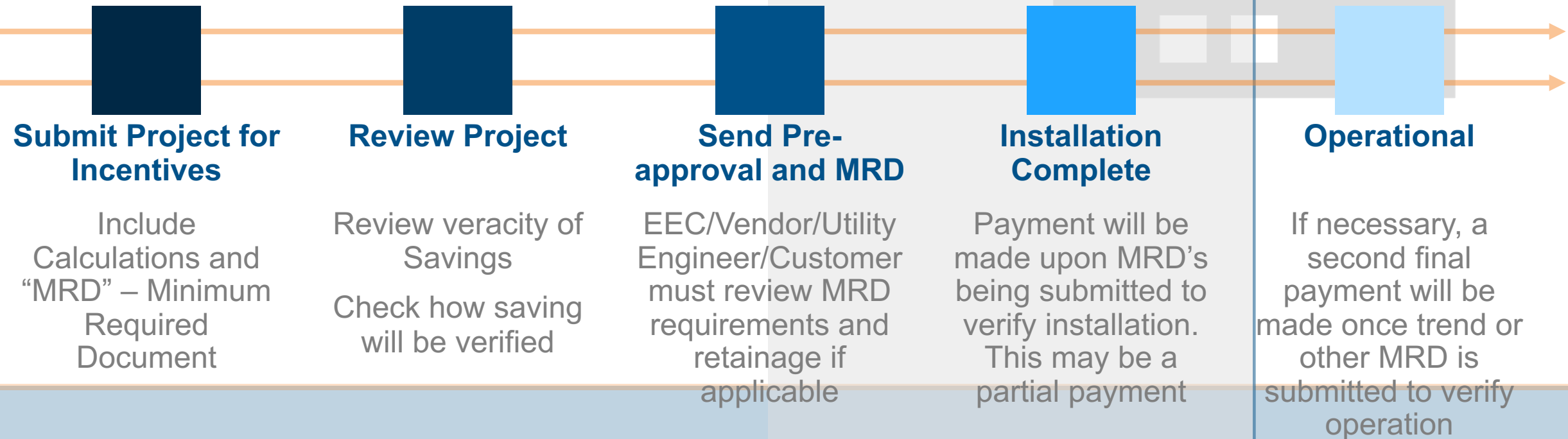


Inspection Process

Two Priorities - Complex Projects And Inspections

Timeline for Complex Projects

Customer, Vendor and Utility all benefit from **upfront clarity and coordination** on what is expected to complete a project.



Sample Minimum Required Document (MRD) Language

EQUIPMENT: Provide a list of equipment or materials installed as part of this project. Include equipment counts, HP, kW, efficiency and capacity ratings, rating conditions, location of controls hardware, etc.

	<u>Project Design Intent</u>	<u>Post Inspection Findings</u>
Yes <input type="checkbox"/> No <input type="checkbox"/>	1. System Controller (basis of design: Konvetka) – Demand dependent regulation of the entire energy recovery system (circulation pumps, valves, bypass, etc.), including controller hardware and software, display unit for energy efficiency, temperatures, and volumetric flows.	
Yes <input type="checkbox"/> No <input type="checkbox"/>	2. (2) 200 HP centrifugal pumps (one is stand-by) – GLYP-1 and GLYP-2 Each equipped with VSDs	
Yes <input type="checkbox"/> No <input type="checkbox"/>	3. (5) Plate & Frame heat exchangers – HR-P&F-1,-2,-3,-4,-5	
Yes <input type="checkbox"/> No <input type="checkbox"/>	4. Supply and exhaust energy recovery coils: <ul style="list-style-type: none"> • Supply SHRCs 1-5 (AHU-1-5) • Supply SHRCs 6-7 (HVU-1, HVU-2) • Exhaust SHRCs 1-5 (EAHU-1-4) 	

Step 1: Define Equipment

Sample MRD Language

SEQUENCES OF OPERATION: *Provide a description of equipment operating sequences, setpoints, operating schedules, balancing requirements (flow, velocity, head, etc.) or any other required operating parameters. Describe requirements separately.*

Yes <input type="checkbox"/> No <input type="checkbox"/>	6. The heat recovery system attempts to maintain the AHU pre-heat coil leaving air temperature of 55.2F db during winter conditions and 80.3 F db/69.6 F wb during summer conditions. During winter operation, heating from the boiler plant may be required to supplement the heat recovery.	
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Sample MRD Language

POST INSTALLATION VERIFICATION: *Provide a list of controls and monitoring capabilities required to verify proper system operation. Trends should document operational sequences, set points and scheduling of equipment as described in TA Study.*

Yes <input type="checkbox"/> No <input type="checkbox"/>	<p>11. To verify proper operation of the system, a trend report from the Building Automation System must be provided. The following points shall be trended for a minimum of 2 weeks. Data samples should be taken at no greater than 1 minute intervals.</p> <ol style="list-style-type: none">1) AHU glycol loop supply pre-heat coil air entering temperature (outside air dry-bulb temperatures)2) AHU glycol loop supply pre-heat coil air leaving temperature3) EAHU glycol loop exhaust heat recovery coil air entering temperature4) EAHU glycol loop exhaust heat recovery coil air leaving temperature	
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Update to Inspection Process

Inspection Process Improvements

Please let us know of any as-built changes to project **before** we inspect

1

Improved Inspection tracking

Failure rates, common discrepancies, # of inspections

2

Continual Improvement

Vendor Scorecards and feedback

3

Inspection performance

Track inspection timeliness, quality, quantity



Questions

Thank you

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