

Atlanta VAMC CHP Project
Technical Questions and VA Responses #07 – 7-30-2014

1. Specification section 482010, page 12 references NFPA requirement for “Stationary Combustion Engines and Gas Turbines”. As part of this section of code, there is a requirement for emergency generators to be able to start and come on line within ten seconds. In addition, the gensets must have the capability of accepting a 100% nameplate block load and recover from the block load. Is it the intention of the VA to apply this section of code to the prime power, natural gas gensets? Or, is the VA using the five 2000kW gensets that are already on site to meet this requirement? Just for reference, prime power natural gas gensets of this size that are operating in parallel, are not capable of starting and coming on line in ten seconds, and are not able to handle a 100% nameplate block load in a single step.

VA Response: The five existing diesel generators are the emergency generators. The new natural gas CHP generators are prime generators and do not have to start within ten seconds, and do not have to handle 100% nameplate block load in one step.

2. Please refer to Drawing SS-601. Details 16, 17, and 18 include a vertical C10x25 member. This member is also shown in various other details. Can you specify the spacing required for this channel and its related support framing?

VA Response: Information is contained in details 9 and 10 on drawing SS-602 which are referenced on plans and in note 7 on drawing SF-103.

3. Please indicate the full size of the “C8” members that are used at the interior openings on every floor (for example the opening on Drawing SF-104 near Column A4).

VA Response: A note will be added in *Addendum #2 to the Issued for Bid Design Package* that defines C8 as C8 X 11.5.

4. Refer to Detail 11 on Drawing SS-602. Are there any additional support requirements for the composite slab portion extending beyond the structural beams?

VA Response: Additional #5 bars are required per the note stating to see 12/SS-601.

5. Contract drawing ES-601, Remote Computer Workstation (Control Room EB105): Is this SCADA package being provided as part of 5kV Switchgear package?

VA Response: No.

6. Contract drawing ES-601, Surge Protective Device (SPD) noted on MV equipment: Could we have clarified that per Spec 261313 Par 2.11.C that a *distribution* class surge arrestor would be applied at these points for the MV equipment.

VA Response: The drawing will be revised in *Addendum #2 to the Issued for Bid Design Package* to reflect the fact that distribution class surge arrestors are to be provided on MV switchgears.

7. Section 261313-16, Par 2.9 125Vdc Battery System and Drawing EP102 Drawing Note 14: Does one battery system supply DC control power for both 5kV Switchgear and 21kV Switchgear?

VA Response: It is acceptable to provide one battery system for both switchgears.

8. Section 261313-19, Par 2.11.D – Panelboards: Panelboards are not shown on contract drawing for both the 5kV & 21kV lineups. If required, are the panelboards AC and/or DC types – please confirm the type and if there are needs for them?

VA Response: Panelboards may not be needed per switchgear manufacturer requirements. Control voltage can be either AC or DC. Provide panelboards per manufacturer requirements, if needed.

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9. Spec section 482010, page 38, K.ii.4, identifies “Provide critical power systems as required for the plant including life safety requirement”. Has there been any life safety load studies performed, or are the “life safety loads” defined?

VA Response: The normal power feed into the CHP building is backed up by the existing emergency diesel generators. No additional critical power system is required other than what is shown on the drawings.

10. Specification section 482010, page 44, paragraph h, identifies a 50% and 100% step load increase and decrease test requirement. Natural gas gensets of this size are not designed for such large step load changes. Is it acceptable to limit the step load to the manufacturer’s maximum recommended step load increase and decrease?

VA Response: Yes.

11. Specifications Section 48 20 10 – pg 8– The specifications call for certification of the engine generator of the same model and configuration, with the same bore, stroke, number of cylinders, and equal or higher KW/KVA ratings as the proposed engine generator, has been operating satisfactorily with connected loads of not less than 75% of the specified KW/KVA rating, for not fewer than 2,000 hours without failure of a crankshaft, camshaft, piston, valve, injector, or governor system. Will a signed letter stating the engine model (confirming the same as to be installed at Atlanta VA) along with location of current installation and operational time suffice for this requirement? Additionally, please confirm that the minimum operational hours requirement for the specific engine generator have to be met while in commercial operation.

VA Response: Yes, a signed letter stating that the engine model (confirming the same as to be installed at Atlanta VA) along with locations of current installation and operational time will be sufficient for this requirement. The Letter must be signed by an individual within the manufactures Company that is authorized to sign on behalf of the company. Yes, the 2,000 hours is for commercial operation; as opposed to manufactures’ internal testing.

12. Specifications Section 48 20 10 – pg. 14 & Drwg ES-601, Package #3, p34/44 – The engine generator parameter schedule as part of the specification calls for the engine generator application to be “Parallel with other engine generators and a utility source.” The drawing calls for the addition of island mode operation with blackout starting capability. Please confirm that the gas engine generators must be capable of both utility parallel operation and operating in island mode with blackout starting capability during loss of utility.

VA Response: Gas engine generators must be capable of both utility parallel operation and operating in island mode with blackout starting capability during loss of utility.

13. Specifications Section 48 20 10 – pg. 30 – The Heat Recovery Steam Generator calls for stamps with ASME Boiler and Pressure Vessel Code, Section I and Section VIII Div. 1 as applicable. Please confirm that Section VIII Div. I stamp is required.

VA Response: Yes, applicable ASME Stamp is required.

14. Specifications Section 48 20 10 – pg. 51 –Please confirm the number of operational hours to be assumed over a year to be considered for the proposal.

VA Response: The Contractor shall include a run time of 6,000 hours per gen set per year.

15. Please confirm that the minimum output for the gas engine generator is 2,500 KWel at 0.8 power factor.

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VA Response: As indicated in the Specifications, the minimum output for the gas engine generator shall be 2.5 MW at 0.8 power factor.

16. With a significant range of engine sizes (2.5 – 2.8 MWe) suitable for this project, is the VA accounting for life-cycle, or project life long term value as part of the evaluation? Engine-generators with higher electrical efficiency and greater energy output will typically have better operational and fuel costs along with greater energy (electrical and thermal) offset and savings which generate more significant long-term value and benefits for the VA. Is this differentiation being considered as part of the project evaluation in order to ensure the greatest long-term value for the VA?

VA Response: As noted in the Solicitation, this is a sealed bid opportunity, The Instructions to offerors covers how the project will be evaluated.

17. Please confirm the available natural gas pressure located at the project site.

VA Response: See Drawing PL-614 for gas pressures. (45 psi is available)

18. Please confirm that the spare parts listed in Section 48.1.6, 1-3, need only to be included in the submittal list of spare parts, or are the listed spare parts to be included and delivered with the unit to the project site?

VA Response: Section 48.1.6 is 'Submittals' and refers to submittals. Provide Spare Parts as indicates in Section 48.

19. The specifications reference IBC Certification. As related to generators, IBC certification typically applies to "Emergency Standby Generators". However, Prime Power, Natural gas of this size are not available with a manufacturer's IBC certification. A primary reason for this is that, as related to an operating generator, the critical component for seismic certification is the supply gas line, as this component is the most likely component to fail during a seismic event. As a result, IBC certification on the genset is not available. However, it is typical to supply the required seismic zone vibration isolators. Given that the hospital already has five 2000kW rated emergency standby generators, does this meet the VA's requirement?

VA Response: The Contractor will not be held to that seismic portion of the IBC certification.

20. Specification section 482010, pages 13, 14, 16 & 17: The specs define the electrical efficiency as 43.5%, a thermal efficiency of 41.7%, and a total efficiency of 86.1%. However, the total of 43.5% + 41.7% is 85.2%. It appears there is a math error, can you please confirm?

VA Response: The Specifications will be revised in *Addendum #2 to the Issued for Bid Design Package* to reflect a total efficiency of 86.1%.

21. Specification section 482010, pages 13, 14, 16 & 17: Manufacturers ratings of prime power, natural gas generators, are typically defined at 1.0 power factor and ISO conditions due to the fact that most utility parallel applications operate at very close to 1.0 power factor. Also, is it acceptable for the equipment to have a slightly lower thermal efficiency, or kW output, as long as the required steam production is met? It is our understanding that steam production has more economic value to the project than hot water from the engine jacket water.

VA Response: Yes this is acceptable.

22. Drawing SS-001, Section J, Item 16: The lintel schedule only includes specifications for 8" thick walls. The plans call for 6" and 12" thick walls. Please provide lintel schedule for these wall thicknesses.

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VA Response: There are no lintels in the 6" walls. The lintel schedule will be revised to include a 12" wall lintel in *Addendum #2 to the Issued for Bid Design Package*. Note that Detail 13/SS-601 is a rollup/overhead door header detail requirement.

23. Please clarify the type of supports that are to be used in the walls above the overhead doors.

VA Response: Please see Detail 13/SS-601 for the rollup/overhead door header detail requirement.

24. Drawing LP-107, Detail 1:

- a. Please provide details and specifications for the metal edge restraint material.
- b. Please provide specifications for the filter fabric.

VA Response: Specifications for both the metal edge restraint material and filter fabric are to be in *Addendum #2 to the Issued for Bid Design Package*.

25. Drawing LP-103, Note 1 calls for a drip irrigation system to be installed in landscape areas. Please provide specifications for this work.

VA Response: *Addendum #2 to the Issued for Bid Design Package* will note that the Landscaping specification SECTION 32 60 00 has been updated to add irrigation information.

26. Drawing CS-101: Please specify the lettering size for the "No Parking" pavement striping.

VA Response: Pavement lettering will be 24" tall and 18" wide.

27. Drawing CS-500, Detail 1 refers to VA Standard Detail 32 05 23-04 for more information, but we have not been able to locate this detail. Can you provide the detail for the post?

VA Response: The detail will be provided in *Addendum #2 to the Issued for Bid Design Package*.

28. Amendment # 6/ Addendum # 1 states that specification section 12 93 00 Site Furnishings is attached. There is no attachment for Site Furnishings. Please provide.

VA Response: The specification was inadvertently omitted from *Addendum #1*. It will be provided in *Addendum #2 to the Issued for Bid Design Package*.

29. On Drawing PL-614, Note No. 1 directs the contractor to contact Atlanta Gas Light for the fees related to the new natural gas service. Do you have a contact person and phone number at Atlanta Gas Light that is familiar with this project? Also, could an allowance be established for this work for all bidders to carry?

VA Response: Contact Mark Clay at AGL:

678-278-5276 Office

mtclay@aglresources.com

30. 48 20 10 (3.9B): Please confirm that the Maintenance Period is also 1 year, not 3 years per the specification.

VA Response: Correct, the Maintenance Period is one (1) year. To be clear, the Contractor will be responsible for providing full operation and maintenance, full service, annual overhaul and emergency call back for a period of one (1) year from date of final acceptance. Full maintenance includes all consumables for the Gen Sets (and Ancillary Equipment) sans water, natural gas, or electricity. Such costs shall be provided as a separate line item within the Contractors bid.

31. On detail 16-18/SS-601 and all other details that encompass the C10x25 vertical girt support, there is no spacing shown for the vertical channel or the outrigger support framing w/ kicker

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angle bracing. The only spacing shown is on 18/SS-601 but the description is for #5 rebar to be spaced at 6'-0 O.C. Should we assume that the six foot spacing used in the slab reinforcement also be used for the vertical channel and the steel support framing shown in the referenced details?

VA Response: Information is contained in Details 9 and 10 on Drawing SS-602 which are referenced on plans and in Note 7 on drawing SF-103. Note that the #5 bar spacing is 6-inches not 6 feet.

32. Please indicate the full size of the "C8" members that are used at the interior openings on every floor.

VA Response: A note will be added in *Addendum #2 to the Issued for Bid Design Package* that defines C8 as C8 X 11.5.

33. Please provide additional approved elevator manufacturers; none of the three specified are willing to quote.

VA Response: Part 2, 2.0 acceptable Manufacturers will be amended in *Addendum #2 to the Issued for Bid Design Package* to allow additional manufacturers meeting the requirements of this specification for machine-room-less (MRL) traction elevators.

34. 16-18/SS-601: On detail 16-18/SS-601 and all other details that encompass the C10x25 vertical girt support, we see no spacing shown for the vertical channel or the outrigger support framing w/ kicker angle bracing. The only spacing that we see is on 18/SS-601 but the description is for #5 rebar to be spaced at 6'-0 O.C. Should we assume that the six foot spacing used in the slab reinforcement also be used for the vertical channel and the steel support framing shown in the referenced details?

VA Response: Information is contained in Details 9 and 10 on Drawing SS-602 which are referenced on plans and in Note 7 on drawing SF-103. Note that the #5 bar spacing is 6-inches not 6 feet.

35. Structural Drawings: Please indicate the full size of the "C8" members that are used at the interior openings on every floor.

VA Response: A note will be added in *Addendum #2 to the Issued for Bid Design Package* that defines C8 as C8 X 11.5.

36. Amendment A00005 – Questions #11 and #16: We understand that the successful Offeror must demonstrate four successful projects per specification section 48 20 10. If this requirement applies only to the Contractor, we believe that most (if not all) of the Offerors currently pursuing this project will not qualify; however, if the Contractor can demonstrate successful projects that we were completed by a subcontractor that is specifically teamed for this project, then competition is opened up. The answer to Question 11 is ambiguous: When it says "prime/sub", does this mean either the prime or the sub can show the experience, or the experience must be four projects that both the prime and the sub completed together? When it states "former teaming agreement", what is meant by "former"? A teaming agreement that was executed when?

VA Response: *The successful offeror must demonstrate that they meet the experience requirement of section 48 20 10 through any combination of projects completed by the prime, subcontractor, parent or affiliated company. For this experience to be credited, the offeror must*

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provide evidence during the submittal phase that the knowledge and resources of the subcontractor, parent or affiliated company will be used to complete a substantial amount of the work covered by this section.

37. Please provide specifications for the lube oil piping system.

VA Response: ASTM A53/A53M steel pipe. Pipe smaller than 50 mm 2 inches shall be Schedule 80. Pipe 50 mm 2 inches and larger shall be Schedule 40. Specifications for lube oil piping will be provided in *Addendum #2 to the Issued for Bid Design Package*.

38. Please provide specifications for the urea piping systems.

VA Response: Specifications for Urea Piping systems will be in *Addendum #2 to the Issued for Bid Design Package*.

39. Contract drawings indicate the new CCTV system for the CHP building shall be compatible with the hospital CCTV system. Who is the manufacturer of the hospital CCTV system?

VA Response: The new CCTV system is anticipated to be Pelco or similar.

40. What is the material specification for the Lube Oil piping system?

VA Response: Material specification will be provided in *Addendum #2 to the Issued for Bid Design Package*.

41. What is the material specification for the Urea piping system?

VA Response: Material specification will be provided in *Addendum #2 to the Issued for Bid Design Package*.

42. 1.5 a Page 48 20 10-5: Can the current required Factory testing be done at a qualified testing facility to reduce project costs?

VA Response: Yes, the Specification will be clarified to allow testing at a qualified testing facility in *Addendum #2 to the Issued for Bid Design Package*.

43. 2.1.D.2.d Page 48 20 10-14: The current power factor of 0.8 lagging at 2.5MW is not an available rating from Caterpillar. It is customary to have grid parallel units rated as 1.0 PF which is a 2.5MW Caterpillar rating. Can this be changed?

VA Response: Yes, the Specification will be clarified in *Addendum #2 to the Issued for Bid Design Package*.

44. 2.1.D.7.b Page 48 20 10-14: Caterpillar standard vibration limits are Overall displacement = 0.22 mm (8.5 mils), with Overall Velocity = 34.3 mm/sec (01.35 in/s). Can this requirement be changed to read shall not exceed the mfg.'s limits for displacement and vibration as is stated in the spec 2.2.I.2.A.9.iv Page 48 20 10-26?

VA Response: Yes, this requirement will be revised in *Addendum #2 to the Issued for Bid Design Package*.

45. 2.2.B.i Page 48 20 10-16: The Performance Guarantees as written limit the competitive bidding from Caterpillar due to Caterpillar's much higher electrical efficiency which limits the thermal efficiency to 41.0% and a slight reduction of BTU output when compared to the specifications as written. Caterpillar's G3520H product at 2.5MW 4160V/60Hz site specific to this project is 45.0% elec. efficient and 41.0 thermal efficient. The cost benefit value of CHP systems increases with higher electrical efficiency and therefore the Caterpillar system should not be penalized because

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the specification is narrowly written with regards to performance. Can this be changed? We can provide the site specific data sheet for your review upon request.

VA Response: Yes a slight reduction of thermal efficiency is acceptable if total efficiency requirement is met.

46. 2.2.F.2 Page 48 20 10-21: Caterpillar's offering for this project requires 2.0 to 5.0 PSIG gas delivered to the engine. Can the zero pressure regulator requirement be removed?

VA Response: If a zero pressure regulator is not required for engine operation it does not have to be provided. To be clear, the Contractor shall only provide all necessary gas train components per the manufacturer's requirements. If such items are not required, then they do not have to be furnished.

47. 2.2.F.3.d Page 48 20 10-21: Currently the specification requires Class F insulation with maximum temperature rise limited to Class F. Caterpillar's offering for this project provides a NEMA class "H" insulation. Can the spec be changed to read NEMA class "F" or class "H" form wound alternator with a maximum temperature rise limited to the class rating at rated load with a 40 degree C ambient... If reluctant to change, I can simplify this comment to say Caterpillar provides a higher rated temperature winding while limiting the temperature rise at rated to at or below the current spec but as "H" is better, please modify the "F" requirement.

VA Response: Both NEMA classes F and H are acceptable. The specification will be adjusted in *Addendum #2 to the Issued for Bid Design Package*.

48. 2.2.F.3.i.ii Page 48 20 10-22: It is customary to only have 2 bearing temperature monitors on a generator set. Can this be changed from 3 to 2?

VA Response: Yes bearing temperature monitor will be reduced to 2 point in *Addendum #2 to the Issued for Bid Design Package*.

49. 2.2.F.5 Page 48 20 10-22: Caterpillar does not require or provide "Factory provided and installed" engine hot water recovery system on this platform, can this limiting portion be removed from the spec and have it read similar to the required to be included section of 2.2.I.2.A.9.iv Page 48 20 10-27?

VA Response: This may be contractor provided and installed. The Specification will be changed in *Addendum #2 to the Issued for Bid Design Package*.

50. 2.2.H.4.b Page 48 20 10-23: It is unclear why the specification requires decentralized input and output cards. Can this portion be removed as it does not appear to benefit the intent of the specification in any way?

VA Response: Do not provide if not necessary.

51. 2.2.I.1.d Page 48 20 10-24: Similarly to the above question, It is unclear why the specification requires decentralized input and output cards. Can this portion be removed as it does not appear to benefit the intent of the specification in any way?

VA Response: Do not provide if not necessary.

52. 2.2.I.2.A.9.iv Page 48 20 10-27: It appears the intent is to substantiate the long term operation of the unit. Can the "dynamic analysis and modeling calculations" be substituted with a "factory provided Torsional Vibration Analysis"?

VA Response: Yes

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53. 2.2.I.a Page 48 20 10-35: Each engine should even at end of life cycle use less than 5-6 gallons a day and in general use less than 2 gallons a day throughout the life. Can the 50 gallon day tank per engine requirement be changed to a more customary 20 gallon size?

VA Response: Please provide the 50-gallon day tank as specified.

54. 2.2.K.iv Page 48 20 10-39: Is the engineering coordination study required to be stamped in the state of GA?

VA Response: No.

55. 2.2.K.iv Page 48 20 10-39: Has the individual metering and reporting requirement of any load over 10 kW been evaluated for cost? Is there estimate for this design provided by URS to show the placement of meters, communication wiring, and a structure of the required metering and management been established?

VA Response: Any load requiring individual metering is shown on drawings.

56. 3.2.A.3 Page 48 20 10-42: This spec appears to communicate UL field testing and approval of the system is required. Is this correct? Also, it is not customary for FM to provide approval in the field of the same fashion. Can this be removed or specified that this is only to be provided in specific equipment literature?

VA Response: This section requires field inspection of proper UL and FM labeling on all safety devices prior to initial operation.

57. 3.2.B.6 Page 48 20 10-45: Earlier in the specification, 2.2.K.v Page 48 20 10-39 harmonics are limited to less than 5% as measured from the CHP plant main voltage bus which we interpret as measuring the 5% generally accepted THD limit provided for by most generator manufacturers and as specified in NEC and IEEE requirements. This spec now appears to set the same limit but includes connection to the grid and/or load. Considering the complexity of the design, has the design been analyzed for harmonic filter requirements at the secondary of each transformer? Specifically the transformers feeding motor control centers.

VA Response: No. Provide as needed.

58. 3.3.A & B Page 48 20 10-45: Is a factory-authorized, factory-trained representative of the engine generator manufacturer required to attend this testing and is 24 hour attendance required if so?

VA Response: Provide per specifications.

59. 3.6.C Page 48 20 10-47: Is Fuel oil intended to be instead Natural Gas? Also, if so, does this require the contractor to supply the NG for all testing? It would appear that testing would provide substantive use and value by providing power output and therefore should be provided by the customer.

VA Response: A contractor provided fuel source is not required for engine testing.

60. 3.6.F.5 Page 48 20 10-48: Indicated load banks are required for testing which will require significant cost with the size of this system and the requirement for transformers. A good example of this would be a data center of similar size with similar testing requirements had \$100,000 USD allocated for a project in 2013. Can this not be accomplished by loading the facility using the utility grid and hospital load for a considerable cost savings?

VA Response: No.

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61. ES-604 and ES-603 Has Generator Heater - 500W and Anti-Condensation Heater 2100W (why both?)

VA Response: Provide as required per generator manufacturer requirements.

62. ES-604 and ES-603 have Pre-Heating - Aftercooling Water Pump (Using the performance criteria temperatures already in the spec, it does not appear necessary according to the engine mfg, can it be removed?)

VA Response: Provide as required per generator manufacturer requirements.

63. Doors Type "D" and "E" on Door Schedule AS-601. However, there are problem between the specification and drawings. Door Type "D" are presumably specified in Section 08 33 00, which calls for an insulated coiling door and a galvanized steel grille together in the same opening. Details on Sheet AS-310 do not support this arrangement. Door Type "E" is shown on Floor Plan AS-101 as Door #B101 with a note "INSULATED ACOUSTICAL OVERHEAD DOOR WITH SECURITY SCREEN". Specification Section 08 36 13 calls for Sectional Acoustical Doors with no mention of a "security screen". Are we to submit a price for Door Type "D" on the basis of a door/grille combination for the three (3) Openings B108A, B and C in the absence of details, and are we to price Door Type "E" per the specifications only, and assume the "security grille" not required?

VA Response: A two-panel 6' metal lattice "Security Grill" (safety gate) will be provided for door type "E". Specification section 08 36 13 Sectional Acoustical Doors will be amended in *Addendum #2 to the Issued for Bid Design Package* to reflect this change. You are correct that Door type "D" will have an integral overhead grill in the same opening as indicated in Specification section 08 33 00 coiling doors and grills. Both grills need to be included in the contract.

64. ES-602: Drawing ES-602 shows a 1000A circuit breaker being added to existing switchgear GHSB-AG-1. Currently the breaker provision for GHSB-AG-1-07 is configured for an 800A breaker. Is the intention to modify the bus work and breaker carriage to accommodate a 1000A breaker?

VA Response: Provide modification to bus work and breaker carriage as required. Drawing ES-602 will be modified in Addendum #2 to the Issued for Bid Design Package.

65. It appears that the ventilation ductwork on the second floor will interfere with the transformers that are close coupled to the 5kV paralleling switchgear. What is the maximum allowable height of the transformers that are closed coupled to the 5kV switchgear?

VA Response: Sheets MH-102 and MP-102 do not show duct or piping above the switchgears. Sheet MH-301 key note 3 shows bottom of duct at a minimum of 14' above floor. If any part of the switchgears is located directly below duct or piping, then provide protective equipment that ensures occurrences such as leaks, condensation, and breaks do not damage the electrical equipment located below.

66. 26 13 14 - Section 1.2.D – Specification 25 10 10 not found, not reviewed. Please provide this missing spec section if available.

VA Response: New electrical utility metering will be a primary metering cubical to be provided by Georgia Power. Specification 25 10 10 is not needed.

67. 26 13 14 - Reference section 2.1.A.2 and 2.4.C - These spec sections call for 750MVA rating interrupting rating. The industry is phasing out the MVA ratings on the breakers and moving to k=1 breakers with kA ratings. Spec section 2.4.D calls for 25kA rated breakers at k=1. Please confirm that the interrupting rating of the breakers can be 25kA and not 750MVA.

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VA Response: The Specification will be revised in Addendum #2 to indicate that 25kA is acceptable.

68. 26 13 14 - Reference section 2.1.A.4 and 2.8– Currently we do not have any revenue metering cabinets and they are not shown on the drawings. Are these required for the proposed switchgear?

VA Response: Revenue metering cabinets are not required for the switchgear.

69. 26 13 14 - Reference section 2.1.A.5 and drawing ES-601 sheet keynote #20 – This proposal offers electrical interlocks for the two intertie breakers to maintain system automation. If kirk key interlocks are truly required for a manual throw over scheme, please clarify and we will adjust our quote accordingly.

VA Response: Provide automatic electrical interlocks. Manual kirk key interlocks are not required.

70. 26 13 14 - Reference section 2.3.A.8 and 2.3.D.1 – In other sections of the spec it calls for silver plated bus and breaker contacts. This section calls for tin plated bus. For consistency, should all the bus be silver plated?

VA Response: The Specifications will be modified in *Addendum #2 to the Issued for Bid Design Package* to reflect that Silver plated should be provided.

71. 26 13 14 - Reference section 2.4.B.2.a and 2.4.D – We are providing 125VDC control power only on breaker control power. Please confirm this is acceptable.

VA Response: Acceptable.

72. 26 13 14 - Reference section 2.5.C – Verify need for zero sequence CTs (ground sensor CTs) as they are not in the current design.

VA Response: Provide zero sequence CTs if they are required for ground fault protection.

73. 26 13 14 - Reference section 2.6.D – The PTs will have epoxy supports for the VT bushings which is the latest technology and industry standard. Porcelain is not available.

VA Response: The Specifications will be modified in *Addendum #2 to the Issued for Bid Design Package* to reflect that Epoxy PT supports are acceptable.

74. 26 13 14 - Reference section 2.7 – There are no CPTs in the current design. If required, please clarify the loads that they are feeding and the size of the CPTs required.

VA Response: Not all switchgear manufacturers require CPTs. Provide CPTs per switchgear manufacturers' requirements.

75. 26 13 14 - Reference section 2.11.C.2-3 – This proposal offers distribution class surge arresters on those breakers labeled with "SPD" on drawing ES-601. Please confirm no other surge arresters are required for the 20kV gear.

VA Response: Provide surge arresters for the 20KV switchgear as shown on drawing ES-601, which are the circuit breakers labeled with SPD. No other surge arresters are required.

76. 26 13 14 - Reference section 2.11.D – No panel boards are included in the current switchgear design. If required, need more detail on qty/size of breakers in the panel.

VA Response: No panelboards are required in the switchgear.

77. 26 13 14 - Reference section 2.11.E – Since roll-on-floor breakers were required for all breakers (2.2.A.1.n), is a lifting device truly required?

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VA Response: Provide a lifting device if required for future maintenance.

78. 26 13 13 - Reference section 2.1.A.2 –The current design has provided 50kA rated breakers. We are interpreting the 50kV rating as a typographical error, but please confirm.

VA Response: Provide 50kA rated breakers.

79. 26 13 13 - Reference section 2.1.A.4-5 – Please confirm there are no utility metering cabinets or kirk key interlocks in the proposed design of the 5kV switchgear.

VA Response: There are no utility metering cabinets or kirk key interlocks in the 5kV switchgear.

80. 26 13 13 - Reference section 2.3.A.8 – In other sections of the spec it calls for silver plated bus and breaker contacts. This section calls for tin plated bus. For consistency, should all the bus be silver plated?

VA Response: The Specifications will be modified in *Addendum #2 to the Issued for Bid Design Package to reflect that Silver plated should be provided.*

81. 26 13 13 - Reference section 2.4.J – This proposal offers DC control power only for breaker charge/close/trip. Please confirm this is acceptable.

VA Response: DC control power only is acceptable.

82. 26 13 13 - Reference section 2.8 – The drawings do not show a utility metering cabinet. Please confirm that one is not required by the switchgear provider.

VA Response: Utility metering cabinet is not required by the switchgear provider.

83. 26 13 13 - Reference section 2.11.C.2 –Distribution class surge arresters will be provided on switchgear bus as shown on drawing ES-601. Surge arresters will be provided at the generators by the generator manufacturer as shown on drawing ES-601. Drawing ES-601 does not show any other surge arresters for the 5kV gear. Please confirm no other surge arresters are required for the 5kV gear.

VA Response: Provide surge arresters on the three generator input circuit breakers as shown on drawing ES-601. Add a surge arrester on the switchgear bus to the right of the tie breaker. Drawing ES-601 will be modified in Addendum #2 to the Issued for Bid Design Package.

84. 26 13 13 - Reference section 2.11.D – No panel boards are included in the current switchgear design. If required, please provide more detail on quantity, size, and function of breakers in the panel.

VA Response: No panelboards are required in the switchgear.

85. 26 23 13 - Reference section 1.5.A.5 – Will there be a pre-defined sequence of operations provided for this project? What requirements will there be that are in addition to section 2.3 of this specification? What is the scope of controls for the CHP generators, ATS, and other components in the system?

VA Response: Pre-defined sequence of operations is listed under section 2.3 of this specification. Coordinate with Georgia Power, generator manufacturer, and switchgear manufacturer for additional requirements and submit for review as specified under section 1.5.A.5 of this specification. Provide all controls as required for the CHP generators. Controls for the existing diesel emergency generators and ATSs shall remain as is.

86. 26 23 13 - Reference section 2.2 – Does the annunciation at the switchgear qualify as the remote annunciator?

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VA Response: No.

87. Amendment A00006: Section 129300, site furnishings, is listed but not included.

VA Response: The specification was inadvertently omitted from *Addendum #1 to the Issued for Bid Design Package* but will be provided in *Addendum #2*.

88. Amendment A00006: Pedestal paver spec was not included.

VA Response: The information will be provided in specification section 09 06 00 SCHEDULE FOR FINISHES issued in *Addendum #2 to the Issued for Bid Design Package*.

89. Amendment A00006: Column protection spec was not included.

VA Response: The specification was provided in *Addendum #1 to the Issued for Bid Design Package*. See section 11 13 13 FULL DOCK-LENGTH LAMINATED DOCK BUMPERS AND COLUMN PROTECTION beginning on page 26 of the published Amendment 6.

90. Amendment A00005: Items 1 & 12 stated that they would be addressed in addendum 1, but they are not. (Amendment 5 refers to technical questions #3)

VA Response: Item 1: The original answer "Waterproofing is to be applied on the exterior CMU face on the south and east sides of the area way shaft. The reference to detail 11/SS-607 was in error and will be removed in the forthcoming *Addendum #1 to the Issued for Bid Design Package*. "However the erroneous note will be removed in the upcoming "Issue for Construction set" rather than issue an additional sketch

Item 12: The specification language that reads, "*The Contractor shall have in place a complete and functioning comprehensive Quality Assurance program covering the design, procurement, fabrication, packaging and delivery of the specified systems, equipment and materials*" refers to the equipment that is to be provided by the Contractor.

91. Amendment A00004: Items 2,4, & 21 stated that they would be addressed in addendum 1, but they are not.

VA Response:

a) Item 2, has been addressed by the specification section 12 93 00 SITE FURNISHINGS which will be issued in *Addendum #2 to the Issued for Bid Design Package*.

b) Item 4, is addressed in specification section 07 55 56 PROTECTED HOT FLUID APPLIED RUBBERIZED ASPHALT ROOFING (for intensive Garden roof installation). Additionally the paver finish is indicated on the drawings and will be included in specification section 09 06 00 SCHEDULE OF FINISHES issued in *Addendum #2 to the Issued for Bid Design Package*.

c) Item 21, was addressed by the addition of specification section 11 13 13 FULL-LENGTH LAMINATED DOCK BUMPERS AND COLUMN PROTECTION issued in *Addendum #1 to the Issued for Bid Design Package*.

These questions are generated based on volume 3 of 3 for the spec updated 6 June 2014.

92. PART I: RELATED WORK - 1.5.a Page 48 20 10-5" Can the current required Factory testing be done at a qualified testing facility to reduce project costs?

VA Response: Yes, the Specification will be clarified to allow testing at a qualified testing facility in *Addendum #2 to the Issued for Bid Design Package*.

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93. PART II: PRODUCTS - 2.1.D.2.d Page 48 20 10-14: The current power factor of 0.8 lagging at 2.5MW is not an available rating from Caterpillar. It is customary to have grid parallel units rated as 1.0 PF which is a 2.5MW Caterpillar rating. Can this be changed?

VA Response: Yes, the Specification will be clarified in *Addendum #2 to the Issued for Bid Design Package*.

94. PART II: PRODUCTS - 2.1.D.7.b Page 48 20 10-14: Caterpillar standard vibration limits are Overall displacement = 0.22 mm (8.5 mils), with Overall Velocity = 34.3 mm/sec (01.35 in/s). Can this requirement be changed to read shall not exceed the mfg.'s limits for displacement and vibration as is stated in the spec 2.2.I.2.A.9.iv Page 48 20 10-26?

VA Response: Yes specification will be changed as requested in forthcoming *Addendum #2 to the Issued for Bid Design Package*.

95. PART II: PRODUCTS - 2.2.B.i Page 48 20 10-16: The Performance Guarantees as written limit the competitive bidding from Caterpillar due to Caterpillar's much higher electrical efficiency which limits the thermal efficiency to 41.0% and a slight reduction of BTU output when compared to the specifications as written. Caterpillar's G3520H product at 2.5MW 4160V/60Hz site specific to this project is 45.0% elec. efficient and 41.0 thermal efficient. The cost benefit value of CHP systems increases with higher electrical efficiency and therefore the Caterpillar system should not be penalized because the specification is narrowly written with regards to performance. Can this be changed? A Caterpillar G3520H site specific performance data sheet can provided for your review upon request,

VA Response: Yes a slight reduction of thermal efficiency is acceptable if total efficiency requirement is met.

96. PART II: PRODUCTS - 2.2.F.2 Page 48 20 10-21: Caterpillar's offering for this project requires 2.0 to 5.0 PSIG gas delivered to the engine. Can the zero pressure regulator requirements be removed?

VA Response: If a zero pressure regulator is not required for engine operation it does not have to be provided. To be clear, the Contractor shall only provide all necessary gas train components per the manufacturer's requirements. If such items are not required, then they do not have to be furnished.

97. PART II: PRODUCTS - 2.2.F.3.d Page 48 20 10-2: Currently the specification requires Class F insulation with maximum temperature rise limited to Class F. Caterpillar's offering for this project provides a NEMA class "H" insulation. Can the spec be changed to read NEMA class "F" or class "H" form wound alternator with a maximum temperature rise limited to the class rating at rated load with a 40 degree C ambient... If reluctant to change, Caterpillar provides a higher rated temperature winding while limiting the temperature rise at rated to at or below the current spec but as "H" is better, please modify the "F" requirement.

VA Response: Both NEMA classes F and H are acceptable. The specification will be adjusted in *Addendum #2 to the Issued for Bid Design Package*.

98. PART II: PRODUCTS - 2.2.F.3.i.ii Page 48 20 10-22: It is customary to only have 2 bearing temperature monitors on a generator set. Can this be changed from 3 to 2?

VA Response: Yes bearing temperature monitor will be reduced to 2 point in *Addendum #2 to the Issued for Bid Design Package*.

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99. PART II: PRODUCTS - 2.2.F.5 Page 48 20 10-22: Caterpillar does not require or provide "Factory provided and installed" engine hot water recovery system on this platform, can this limiting portion be removed from the spec and have it read similar to the required to be included section of 2.2.I.2.A.9.iv Page 48 20 10-27?

VA Response: This may be contractor provided and installed. The Specification will be changed in *Addendum #2 to the Issued for Bid Design Package*.

100. PART II: PRODUCTS - 2.2.H.4.b Page 48 20 10-23: It is unclear why the specification requires decentralized input and output cards. Can this portion be removed as it does not appear to benefit the intent of the specification in any way?

VA Response: Do not provide if not necessary.

101. PART II: PRODUCTS - 2.2.I.1.d Page 48 20 10-24: Similarly to the above question, It is unclear why the specification requires decentralized input and output cards. Can this portion be removed as it does not appear to benefit the intent of the specification in any way?

VA Response: Do not provide if not necessary.

102. PART II: PRODUCTS - 2.2.I.2.A.9.iv Page 48 20 10-27: It appears the intent is to substantiate the long term operation of the unit. Can the "dynamic analysis and modeling calculations" be substituted with a "factory provided Torsional Vibration Analysis"?

VA Response: Yes

103. PART II: PRODUCTS - 2.2.I.a Page 48 20 10-35: Each engine should even at end of life cycle use less than 5-6 gallons a day and in general use less than 2 gallons a day throughout the life. Can the 50 gallon day tank per engine requirement be changed to a more customary 20 gallon size?

VA Response: Please provide the 50-gallon as specified.

104. PART II: PRODUCTS - 2.2.K.iv Page 48 20 10-39: Is the engineering coordination study required to be stamped in the state of GA?

VA Response: No.

105. PART II: PRODUCTS - 2.2.K.iv Page 48 20 10-39: Has the individual metering and reporting requirement of any load over 10 kW been evaluated for cost? Is there estimate for this design provided by URS to show the placement of meters, communication wiring, and a structure of the required metering and management been established?

VA Response: Any load requiring individual metering is shown on drawings.

106. PART III: FIELD QUALITY CONTROL - 3.2.A.3 Page 48 20 10-42: This spec appears to communicate UL field testing and approval of the system is required. Is this correct? Also, it is not customary for FM to provide approval in the field of the same fashion. Can this be removed or specified that this is only to be provided in specific equipment literature?

VA Response: This section requires field inspection of proper UL and FM labeling on all safety devices prior to initial operation.

107. PART III: FIELD QUALITY CONTROL - 3.2.B.6 Page 48 20 10-45: Earlier in the specification, 2.2.K.v Page 48 20 10-39 harmonics are limited to less than 5% as measured from the CHP plant main voltage bus which we interpret as measuring the 5% generally accepted THD limit provided for by most generator manufacturers and as specified in NEC and IEEE requirements. This spec now appears to set the same limit but includes connection to the grid and/or load. Considering the complexity of the design, has the design been analyzed for harmonic filter requirements at the secondary of each transformer? Specifically the transformers feeding motor control centers.

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VA Response: No. Provide as needed.

108. PART III: FIELD QUALITY CONTROL - 3.3.A & B Page 48 20 10-45: Is a factory-authorized, factory-trained representative of the engine generator manufacturer required to attend this testing and is 24 hour attendance required if so?

VA Response: Provide per specifications.

109. PART III: FIELD QUALITY CONTROL - 3.6.C Page 48 20 10-47: Is Fuel oil intended to be instead Natural Gas? Also, if so, does this require the contractor to supply the NG for all testing? It would appear that testing would provide substantive use and value by providing power output and therefore should be provided by the customer.

VA Response: Contractor provided fuel source is not necessary for testing.

110. PART III: FIELD QUALITY CONTROL - 3.6.F.5 Page 48 20 10-48 Indicated load banks are required for testing which will require significant cost with the size of this system and the requirement for transformers. A good example of this would be a data center of similar size with similar testing requirements had \$100,000 USD allocated for a project in 2013. Can this not be accomplished by loading the facility using the utility grid and hospital load for a considerable cost savings?

VA Response: No.

111. Drawing Review: ES-604 and ES-603 Has Generator Heater - 500W and Anti-Condensation Heater 2100W (why both?)

VA Response: Provide as required per generator manufacturer requirements.

112. Drawing Review: ES-604 and ES-603 have Pre-Heating - Aftercooling Water Pump (Using the performance criteria temperatures already in the spec, if determined to be unnecessary according to the engine mfg, can it be removed?)

VA Response: Provide as required per generator manufacturer requirements.