BHI Future PSA Plant Electrical Assessment Form

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Form Completed by:	

1. Site Information

1.1 Hospital/Facility Name:

1.2 Location:

1.3 Date Visited:

1.4 Describe the architecture of the system. Develop the sequence of the different system parts and interconnections following a top (power supply) to bottom (loads) structure. Specs and technical details can be provided here but will be developed in more detail at the specific sections.

2. Main Power Supply

(usually utility, provide description otherwise)

2.1 Transformer Location:

- (Dedicated to the hospital?):

2.2 Transformer Ownership:

2.3 Transformer size & rating:

2.4 Nameplate Photo:

2.5 Manufacturer & Model #:

2.6 Primary Voltage:

2.7 Secondary Voltage:

2.8 Number of Phases:

2.9 Frequency:

2.10 Connection (Wye/Delta; Delta/Delta; etc.):

2.11 Impedance %:

2.12 Utility Feeder Size (Outgoing from Transformer):

2.13 Utility Feeder Photo (Outgoing from Transformer):

2.14 Utility Disconnect (Size/Rating):

3. Backup System & Switchgear

3.1 What kind of system? (Generator, UPS, other?):

3.2 Nameplate Photo:

3.3 Backup system #1 size:

- Prime:
- Standby:
- Manufacturer:
- Model #:

3.4 Breaker Photo:

3.5 Breaker Manufacturer & Model#:

3.6 Breaker Amperage:

3.7 Breaker Voltage:

3.8 Breaker # of Poles:

3.9 Breaker Curve Type:

3.10 Breaker Adjustable Ratings & Range (Ir, In, etc.*);
**Thermal Trip Setting (Ir), Rated Current (In)*

3.11 Breaker Condition (visual inspection):

3.12 Quality of connections & Photo (i.e. connected in lug nuts or other, are they well organized, etc):

3.13 Backup system feeder size:

3.14 Backup system running hours:

3.15 Backup system external tank?

- External tank size?

3.16 Hospital staff reports, which may include past or existing issues, maintenance schedule, maintenance responsibility, other issues/concerns.

- Were you able to test it without disrupting clinical operations?
- If yes, how is it functioning? (If no, skip this question.)

3.17 Does it have an automatic transfer switch (ATS) or manual transfer switch (MTS)?

- Picture of ATS/MTS Nameplate:
- Amperage of ATS/MTS:
- ATS/MTS # of Poles:

3.18 Describe a synchronizing system if it exists. Provide controllers make and model and configuration.

- Repeat for all additional backup systems

4. Grounding Configuration

4.1 Grounding/bonding scheme (TT/TN/TN-S/TN-C/other*):
**Tierra Tierra (TT), Tierra Neutral (TN), Tierra Neutral Separated (TN-S), Tierra Neutral Combined (TN-C)*

4.2 Utility connection grounding/earthing arrangement:

4.3 Gensets grounding arrangement:

4.4 Genset Separately or Non-Separately Derived?:

4.5 Main ground bar location/details:

5. Main Distribution Panel (MDP) & Main Hospital Breaker

5.1 Panel type:

- *Examples: IEC, TPN, busbar distribution, metal, DIN rail, IP65)*

5.2 Picture of panel nameplate:

5.3 Number of circuits:

5.4 Main Breaker Photo:

5.5 Main Breaker Location:

5.6 Breaker Manufacturer & Model#:

5.7 Breaker Amperage:

5.8 Breaker Voltage:

5.9 Breaker # of Poles:

5.10 Breaker Curve Type:

5.11 Breaker Adjustable Ratings & Range (Ir, In, etc.);

5.12 Breaker Condition (Please also provide information on its visual inspection):

5.13 What is the quality of connections? (i.e. connected in lug nuts or other, are they well organized?, etc) Please provide a photo.

5.14 Feeder size (to main hospital breaker):

5.15 Amperage Readings at Main Breaker (L1, L2, L3, N):

5.16 Voltage Readings at Main Breaker (L1, L2, L3, N):

5.17 Phase Rotation (Clockwise or Counter Clockwise?):

6. Additional Elements

6.1 What are the additional elements? (capacitor bank, AVR, surge arrester, large UPS, etc anything relevant):

1) Additional element 1:
2) Additional element 2:
3) Additional element 3:

6.2 Make/model:

6.3 Electrical characteristics:

6.4 Location in system:

6.5 What is the reason why this additional element was installed?

Repeat this section for all additional elements.

7. Future plant and plant power supply

7.1 Collect the following information for the future plant:

- Make:
- Model:
- Size:
- Variable Speed Drive (VSD):
- Full load amps (FLA) for all elements:
- Drawing:

- Other relevant information:

7.2 Provide an estimate of the plant FLA and maximum transient current. This only applies if the plant doesn't have VSD and/or if there are cylinder filling compressors:

7.3 Identify the specific panel where the new O2 plant will be fed from according to hospital staff.

7.4 What panel will be used - an oxygen panel or panel to feed future O2 panel?

7.5 Panel type

- *Examples: IEC, TPN, busbar distribution, metal, DIN rail, IP65*

7.6 Number of Circuits:

7.7 Panel Photo:

7.8 Panel Location:

7.9 Panel Main Breaker

- Manufacturer
- Model #:

7.10 Breaker Amperage:

7.11 Breaker Voltage:

7.12 Breaker # of Poles:

7.13 Breaker Curve Type:

7.14 Breaker Adjustable Ratings & Range (Ir, In, etc.):

7.15 Breaker Condition (provide details of visual inspection):

7.16 Detail the quality of connections (i.e. connected in lug nuts or other, are they well organized, etc) and provide photo.

7.17 Panel condition (provide details of visual inspection – e.g.is it waterproof? exposed?)

7.18 Condition of breakers (i.e. evidence of overheating, are they properly installed, etc.) and provide photo

7.19 Incoming feeder size (to possible oxygen panel)

7.20 Grounding?

7.21 Amperage Readings at Main Breaker (L1, L2, L3, N):

7.22 Voltage Readings at Main Breaker (L1, L2, L3, N):

7.23 Additional details?

7.24 Gather all the information for the feeder/panels upstream of this panel:

7.25 If the proposed location is inadequate based on power requirements, identify the most suitable location and gather all the information for this location.

7.26 If installation of a new subpanel/feeder is necessary, provide a description of the new feeders/panels proposed and identify where they will be fed from on the existing system.

8. Data Logger (if applicable)

8.1 How many hours of data were you able to collect?

8.2 Based on data, how reliable is electricity at the facility?

8.3 Based on reports/observations from staff, how reliable is electricity at the facility?

8.4 Any other observations on power usage and quality?

8.5 Take measurements as close as possible to the transformer that is proposed/most appropriate to feed the PSA plant (usually the hospital main breaker). Provide a clear description of its location.

8.6 A second set of power logs should be taken from the panel where the new PSA plant will be fed from. If not possible/accessible measure at the next accessible point upstream. Provide a clear description of its location. If a second set of power logs cannot be taken with the data logger, take a few minutes of video recordings of amperage and voltage with a multimeter.

9. Overview

9.1 Any major safety concerns at time of assessment (even if unrelated to the PSA plant installation)?

9.2 Please comment on the capacity of the electrical system for an expansion of the medical oxygen system and/or additional machinery.

9.3 Any further information?