COMMONWEALTH OF PUERTO RICO
PUBLIC SERVICE REGULATORY BOARD
PUERTO RICO ENERGY BUREAU

IN RE: REVIEW OF T&D'S OPERATORS SYSTEM OPERATION PRINCIPLES	**CASE NO. CEPR-MI-2021-0001** **SUBJECT:** Submission of Public Versions of Response to Requests for Information on System Operations Principles and Attachment in compliance with order.

MOTION SUBMITTING PUBLIC VERSIONS OF RESPONSE TO REQUEST FOR INFORMATION AND OF ATTACHMENT IN COMPLIANCE WITH ORDER

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COME NOW LUMA Energy, LLC ("ManagementCo"), and **LUMA Energy ServCo, LLC** ("ServCo"), (jointly referred to as "LUMA"), and respectfully state and request the following:

1. On February 25, 2021, LUMA filed before this Honorable Puerto Rico Energy Bureau ("Energy Bureau") a Petition for Approval of LUMA's System Operation Principles ("SOP Petition"), pursuant to LUMA's obligations under Section 4.1 (h) of the Puerto Rico Transmission and Distribution System Operation and Maintenance Agreement dated as of June 22, 2020, executed by and among LUMA, the Puerto Rico Electric Power Authority ("PREPA") and the Puerto Rico Public-Private Partnerships Authority ("P3 Authority") ("OMA").
2. On April 6, 2021, this honorable Energy Bureau issued a Resolution and Order where, among others, it directed LUMA to, within ten days, provide information and responses to requests included in Attachment A to the April 6th Order ("Requests for Information").
3. On April 27, 2021, LUMA filed before this honorable Energy Bureau its responses to the eleven requests for information that are included in Attachment A to the April 6th Order

("Responses to Requests for Information"). The Responses to Requests for Information were accompanied by several attachments. LUMA also included a *Request to Submit Portions of LUMA's Responses to Requests for Information Confidentially and Memorandum of Law in Support Thereof* ("Request for Confidential Treatment").

4. On May 3, 2021, this Bureau granted and denied in part LUMA's Request for Confidential Treatment. This Bureau granted Confidential designation of two attachments to LUMA's Responses to Requests for Information, *see* table 2 at page 4 of the May 3rd Order. With regards to RFI-LUMA-MI-21-0001-210406-PREB-010 Attachment 1, which the Bureau designated as Confidential, the Bureau ordered LUMA to file a redacted public version. *Id.*
5. The Bureau denied confidential treatment of RFI-LUMA-MI-21-0001-210460-PREB-002 to LUMA's Responses to Requests for Information. *See* Table 3 at page 4 of the May 3rd Order.
6. This honorable Energy Bureau granted LUMA two days, to expire on May 5th 2021, to file a redacted version of RFI-LUMA-MI-21-0001-210460-PREB-010 Attachment 1, and an unredacted or public version of RFI-LUMA-MI-21-0001-210460-PREB-002.
7. In compliance with the May 3rd Order, LUMA is hereby submitting the following:
    a. Unredacted version of LUMA's Response to Request for Information Number 2. (RFI-LUMA-MI-21-0001-210460-PREB-002); and
    b. Redacted pdf version of Attachment 1 to LUMA's Response to Request for Information number 10 (RFI-LUMA-MI-21-0001-210406-PREB-010 Attachment 1).

WHEREFORE, LUMA respectfully requests that this Bureau **take notice** of the aforementioned, **accept** the submission of a revised public version of LUMA's Response to

Request for Information Number 2 and of a redacted pdf version of Attachment 1 to LUMA's Response to Request for Information Number 10, and **deem** that LUMA complied with the May 3rd Order.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 5th day of May 2021.

I hereby certify that I filed this motion using the electronic filing system of this Energy Bureau and that I will send an electronic copy of this motion to the attorneys for PREPA, Joannely Marrero-Cruz, jmarrero@diazvaz.law; and Katiuska Bolaños-Lugo, kbolanos@diazvaz.law.

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/s/ Margarita Mercado Echegaray
Margarita Mercado Echegaray
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System Operation Principles
Docket ID: NERP-MI-2021-0001

Information Response Round 1 to: PREB

Reference: RFI-LUMA-MI-21-0001-210406-PREB-002

Request:

Provide a detailed discussion on how LUMA will use and manage load forecasts in the Energy Management System ("EMS"). Describe LUMA's intended process for procuring a new EMS system, and the anticipated timeline for such a system to be installed and operational.

Response:

Soon after service commencement LUMA will be updating and improving the existing load forecast process. A stand-alone load forecast procedure will be developed for operations as a Phase II procedure (please refer to RFI-LUMA-MI-21-0001-210406-PREB-007 response) and will be completed by the end of calendar year 2021. This procedure may have some process improvements implemented but will largely reflect current practices.

Over the course of the next 6-12 months, LUMA will focus on consolidating and optimizing the overall load forecast process. The primary focus is to coordinate different forecasts and assumptions across the near-term (day ahead and week ahead), mid-term (12-18 months ahead) and long-term (more than 1-year planning horizon). During the Front-End Transition, LUMA has observed a lack of integration related to how these three planning horizons are coordinated. Issues have been identified related to underlying data, level of detail, and poor coordination between organizational departments. During this consolidation and optimization process, the accuracy of the existing forecasting process will be determined.

Even before the new EMS is installed, LUMA will be improving its forecasting capability. LUMA will take a closer look at forecast vs. actual track record and assess reasons for variance, examine off-the-shelf software products if needed, and provide a means to coordinate relevant forecast assumptions across departments. For example, System Operations is primarily focused on near term, but outage scheduling has a 12-18-month window to schedule plant outages, and System Planning has more of a multi-year perspective. Each perspective is different, but the underlying assumptions and decision-making needs to be consistently applied through all groups.

From a longer-term perspective, LUMA is preparing EMS business requirements for the future upgrade of the EMS system. The future EMS will need to manage a high penetration of renewables and distributed generation (including Demand Response), and the availability of grid scale and distributed energy storage. Load Forecast will have to encompass forecasting of renewable production on a geographic basis, using weather forecast information, and forecasts of how much of that production is controllable for system balancing and dispatching purposes, based on information about installed capacities with smart inverters and control interfaces. Distributed renewable generation may not always be visible so will be estimated from available SCADA and AMI data, using forecasts of "native" customer load and renewable production.

Renewable generation introduces increased dynamic variability and uncertainty into forecasting on a day and hour ahead, and real time basis as well as for longer time frames. Week ahead unit commitment, day ahead and hour ahead Security Constrained Unit Commitment (SCUC), intra hour Security Constrained Economic Dispatch (SCED) and Automatic Generation Control (AGC) are all impacted and must adapt to this increased dynamic uncertainty and variability. Energy storage as well as controllable inverter-based resources and Demand Response can provide additional flexibility and buffering to manage the additional uncertainty and variability.

The terms spinning reserves and operational reserves are still used for managing the problem of ensuring secure operations after a plant outage, and are constraints in the SCUC, SCED, and AGC processes. A new concept of maintaining ramping capability must be introduced such that the dispatch points determined by SCUC and SCED can be adjusted to meet increased variability that increases with the forward time frame. That is, SCED must ensure that sufficient ramping capability is available on (for example) 5, 10, 15 --- 60-minute time frames, where the amount of variance from the baseline forecast increases as the time horizon increases. As part of this problem, the state of charge of storage devices must be managed to ensure that they can be charged or discharged as needed to help manage the ramping and variability problem as well as to improve system economics and emissions over the course of a day.

When renewable resource uncertainty is concentrated geographically (due to a large grid connected installation, for instance) the SCUC and SCED may have to take locational ramping/ variability into account.

These problems are understood by the industry to varying degrees today. For instance, US utility system operators typically have protocols and “market products” to utilize storage for fast regulation service, including the requisite AGC algorithms. Several can co-optimize charging and discharging in the SCUC / SCED. Some have added ramping requirements into the forecasting function and ramping constraints into the SCED, with success.

These capabilities are not generally available in “off the shelf” EMS systems today but have been developed for the industry as part of market operations applications. By the time LUMA is able to procure the new EMS, these capabilities should be available from the EMS vendor community. Part of the EMS business requirements development and RFP development will involve interviewing control centers that have already had to adapt to high renewables penetration and use of energy storage to collect current best practice information. LUMA can draw on technical personnel that have been involved with US utility system operators on exactly these issues including the algorithmic developments involved so can perform this work on an expedited basis.

Increasing penetration of controllable distributed generation will in time introduce the possible need for managing congestion on distribution circuits and ensuring that system level use of these resources does not introduce excessive variability into the circuits. This would become an “ADMS” (advanced distribution management system) and “DERMS” (distributed energy management system) requirement and a focus of ADMS – EMS coordination.

Because Puerto Rico is an electrical island, and therefore is not interconnected with other utilities, moderating frequency deviations with imports or exports for balancing is not an option. This reduced flexibility, coupled with the low effective availability of supply, increases the requirements and impacts SCUC, SCED and the calculation of regulation capacity needed for AGC. Computing the actual values will require frequent updating in planning studies and continual validation with real operations.

LUMA has begun the work of identifying the requirements for a new Energy Management System (EMS) and for a new / upgraded Control Center (CC) to house the new EMS, system operations, and related functions and systems. This work will build upon the earlier work performed for PREPA by Burns & McDonnell and Sargent & Lundy. Preliminary estimates for the work associated with the EMS and the CC are identified in the LUMA Initial Budget for an amount of approximately $40 million each from FY2022-2024. Each program is has estimated $1 million on planning and procurement activities in FY2022 and the remainder of the costs in FY2023+.

Please find LUMA's working timeline as follows:

March 2021 – July 2021 – We will identify and document EMS business requirements. The requirements will be informed by LUMA's System Operations procedures (refer to RFI-LUMA-MI-21-0001-210406-PREB-007 response). As part of this there will be an outreach to peer utilities to identify current best practices and ongoing developments in system operations, especially with regard to managing high renewables penetration, preparing for severe weather and other disruptive events, and to operating an islanded system that cannot rely on interconnections. The business requirements will be consistent with the System Operation Principles.

July – October 2021 – Develop detailed EMS technical requirements to be used in a Request for Proposal (RFP). Develop IT and commercial / contractual requirements for the RFP and reach out to EMS suppliers to review available solutions and discuss any specific requirements, such as the potential need to operate minigrids during system disturbances.

October - December 2021 – Issue the RFP to EMS suppliers. LUMA can draw on internal subject matter experts with extensive experience in developing EMS requirements and managing procurements as well as actually building EMS from a former vendor role. As yet, a definitive schedule for "go live" of a new EMS has not been finalized. The existing EMS although near-obsolete, can be supported. The major risk to manage is a higher penetration rates of variable generation potentially overwhelming the existing EMS capability to manage a larger number of injection points. Our current estimate is that an EMS procurement and implementation process would take 36 months from commencement of the process to completion of installation of the new system.

LUMA has also begun the work of determining space requirements, reviewing existing PREPA CC facilities, and potential new sites. The three-year goal driven by the existing EMS expected life dictates an accelerated schedule for a new facility. To manage risk of a longer installation schedule LUMA is developing contingency plans to further extend the life of the existing EMS. Either an existing facility owned by PREPA, or another site where a new facility can rapidly be put in place (preferably without to the need for additional time for land acquisition and permitting) will be required to build and test the new EMS prior to go live. The new facility will require appropriate communications infrastructure, preferably already in place.

LUMA anticipates being able to present a plan for the new CC soon after commencement in conjunction with the detailed plans for a new EMS.

Transmission Substation Name	Overall Health Score	Site Access/Civil	Fence	Yard	Structural and Foundations	Anchors	Grounding	Insulation	Hardware	Conductor	Disconnect Switches	Instrument Transformers & Lightning Arresters	Power Transformers	Circuit Breakers	Substation DC System	AC Station Service System	Protection Building	Protection/Telecommunication and SCADA Panels	Documentation (Drawings, Settings, etc.)	Protection and Control	SCADA	Telecommunications	Stock and Material
Inspection 1																							
Inspection 2																							
Inspection 3																							
Inspection 4																							
Inspection 5																							
Inspection 6																							
Inspection 7																							
Inspection 8																							

Substation Name:	Inspection 1	Date:	

1.1. Available S&L Report: YES ☐ NO ☐:

Report Scores:

Overall:	_____	Overall Access Road Condition:	_____	Local Control Cabinet Condition:	_____
Overall Bus Structure Condition:	_____	Overall Bus Structure Condition:	_____	Overall Entry Gate Condition:	_____
Overall Perimeter Fence Condition:	_____	Overall Transformers Condition:	_____	Gas Insulated Substation Condition:	_____
Overall Yard Condition:	_____	Overall Grade Condition:	_____		

1.2. Health Condition (Health) - Point Scoring System:

Score Value	Health Condition
4	System like new (replaced or refurbished within the last five years)
3	System has been maintained with general operations and maintenance on a routine basis, no major issues noted
2	Deficiency were noted or components were out of service
1	Major issues noted causing a safety, reliability or unit output issue
0	End of life or not operational

1.3. Repair Priority Code

HIGH	MEDIUM	LOW
< 30 days	< 12 months	> 12 months

Assessment:

Group	Health (Score)	Comments
Site Access/Civil		
Fence		
Yard		
Structural and Foundations		
Anchors		
Grounding		
Insulation		
Hardware		
Conductor		
Disconnect Switches		
Instrument Transformers & Lightning Arresters		
Power Transformers		
Circuit Breakers		
Substation DC System		
AC Station Service System		
Protection Building		
Protection/Telecommunication and SCADA Panels		
Documentation (Drawings, Settings, etc.)		
Protection and Control		
SCADA		
Telecommunications		
Stock and Material		
Substation Overall health Score		

Safety Concerns – Red Flags:

Substation Name:	Inspection 2	Date:	[redacted]

1.1. Available S&L Report: YES ☐ NO ☐:

Report Scores:

Overall:	_____	Overall Access Road Condition:	_____	Local Control Cabinet Condition:	_____
Overall Bus Structure Condition:	_____	Overall Bus Structure Condition:	_____	Overall Entry Gate Condition:	_____
Overall Perimeter Fence Condition:	_____	Overall Transformers Condition:	_____	Gas Insulated Substation Condition:	_____
Overall Yard Condition:	_____	Overall Grade Condition:	_____		

1.2. Health Condition (Health) - Point Scoring System:

Score Value	Health Condition
4	System like new (replaced or refurbished within the last five years)
3	System has been maintained with general operations and maintenance on a routine basis, no major issues noted
2	Deficiency were noted or components were out of service
1	Major issues noted causing a safety, reliability or unit output issue
0	End of life or not operational

1.3. Repair Priority Code

HIGH	MEDIUM	LOW
< 30 days	< 12 months	> 12 months

Assessment:

Group	Health (Score)	Comments
Site Access/Civil	[redacted]	
Fence		
Yard		
Structural and Foundations		
Anchors		
Grounding		
Insulation		
Hardware		
Conductor		
Disconnect Switches		
Instrument Transformers & Lightning Arresters		
Power Transformers		
Circuit Breakers		
Substation DC System		
AC Station Service System		
Protection Building		
Protection/Telecommunication and SCADA Panels		
Documentation (Drawings, Settings, etc.)		
Protection and Control		
SCADA		
Telecommunications		
Stock and Material		
Substation Overall health Score		

Safety Concerns – Red Flags:

[redacted]

Substation Name:	Inspection 3	Date:	

1.1. Available S&L Report: YES ☐ NO ☐:

Report Scores:

Overall:	_____	Overall Access Road Condition:	_____	Local Control Cabinet Condition:	_____
Overall Bus Structure Condition:	_____	Overall Bus Structure Condition:	_____	Overall Entry Gate Condition:	_____
Overall Perimeter Fence Condition:	_____	Overall Transformers Condition:	_____	Gas Insulated Substation Condition:	_____
Overall Yard Condition:	_____	Overall Grade Condition:	_____		

1.2. Health Condition (Health) - Point Scoring System:

Score Value	Health Condition
4	System like new (replaced or refurbished within the last five years)
3	System has been maintained with general operations and maintenance on a routine basis, no major issues noted
2	Deficiency were noted or components were out of service
1	Major issues noted causing a safety, reliability or unit output issue
0	End of life or not operational

1.3. Repair Priority Code

HIGH	MEDIUM	LOW
< 30 days	< 12 months	> 12 months

Assessment:

Group	Health (Score)	Comments
Site Access/Civil		
Fence		
Yard		
Structural and Foundations		
Anchors		
Grounding		
Insulation		
Hardware		
Conductor		
Disconnect Switches		
Instrument Transformers & Lightning Arresters		
Power Transformers		
Circuit Breakers		
Substation DC System		
AC Station Service System		
Protection Building		
Protection/Telecommunication and SCADA Panels		
Documentation (Drawings, Settings, etc.)		
Protection and Control		
SCADA		
Telecommunications		
Stock and Material		
Substation Overall health Score		

Safety Concerns – Red Flags:

Substation Name:	Inspection 4	Date:	[redacted]

1.1. Available S&L Report: YES ☐ NO ☐:

Report Scores:

Overall:	_____	Overall Access Road Condition:	_____	Local Control Cabinet Condition:	_____
Overall Bus Structure Condition:	_____	Overall Bus Structure Condition:	_____	Overall Entry Gate Condition:	_____
Overall Perimeter Fence Condition:	_____	Overall Transformers Condition:	_____	Gas Insulated Substation Condition:	_____
Overall Yard Condition:	_____	Overall Grade Condition:	_____		

1.2. Health Condition (Health) - Point Scoring System:

Score Value	Health Condition
4	System like new (replaced or refurbished within the last five years)
3	System has been maintained with general operations and maintenance on a routine basis, no major issues noted
2	Deficiency were noted or components were out of service
1	Major issues noted causing a safety, reliability or unit output issue
0	End of life or not operational

1.3. Repair Priority Code

HIGH	MEDIUM	LOW
< 30 days	< 12 months	> 12 months

Assessment:

Group	Health (Score)	Comments
Site Access/Civil	[redacted]	
Fence		
Yard		
Structural and Foundations		
Anchors		
Grounding		
Insulation		
Hardware		
Conductor		
Disconnect Switches		
Instrument Transformers & Lightning Arresters		
Power Transformers		
Circuit Breakers		
Substation DC System		
AC Station Service System		
Protection Building		
Protection/Telecommunication and SCADA Panels		
Documentation (Drawings, Settings, etc.)		
Protection and Control		
SCADA		
Telecommunications		
Stock and Material		
Substation Overall health Score		

Safety Concerns – Red Flags:

[redacted]

Substation Name:	Inspection 5	Date:	[redacted]

1.1. Available S&L Report: YES ☐ NO ☐:

Report Scores:

Overall:	_____	Overall Access Road Condition:	_____	Local Control Cabinet Condition:	_____
Overall Bus Structure Condition:	_____	Overall Bus Structure Condition:	_____	Overall Entry Gate Condition:	_____
Overall Perimeter Fence Condition:	_____	Overall Transformers Condition:	_____	Gas Insulated Substation Condition:	_____
Overall Yard Condition:	_____	Overall Grade Condition:	_____		

1.2. Health Condition (Health) - Point Scoring System:

Score Value	Health Condition
4	System like new (replaced or refurbished within the last five years)
3	System has been maintained with general operations and maintenance on a routine basis, no major issues noted
2	Deficiency were noted or components were out of service
1	Major issues noted causing a safety, reliability or unit output issue
0	End of life or not operational

1.3. Repair Priority Code

HIGH	MEDIUM	LOW
< 30 days	< 12 months	> 12 months

Assessment:

Group	Health (Score)	Comments
Site Access/Civil	[redacted]	
Fence		
Yard		
Structural and Foundations		
Anchors		
Grounding		
Insulation		
Hardware		
Conductor		
Disconnect Switches		
Instrument Transformers & Lightning Arresters		
Power Transformers		
Circuit Breakers		
Substation DC System		
AC Station Service System		
Protection Building		
Protection/Telecommunication and SCADA Panels		
Documentation (Drawings, Settings, etc.)		
Protection and Control		
SCADA		
Telecommunications		
Stock and Material		
Substation Overall health Score		

Safety Concerns – Red Flags:

[redacted]

Substation Name:	Inspection 6	Date:	[redacted]

1.1. Available S&L Report: YES ☐ NO ☐:

Report Scores:

Overall:	_____	Overall Access Road Condition:	_____	Local Control Cabinet Condition:	_____
Overall Bus Structure Condition:	_____	Overall Bus Structure Condition:	_____	Overall Entry Gate Condition:	_____
Overall Perimeter Fence Condition:	_____	Overall Transformers Condition:	_____	Gas Insulated Substation Condition:	_____
Overall Yard Condition:	_____	Overall Grade Condition:	_____		

1.2. Health Condition (Health) - Point Scoring System:

Score Value	Health Condition
4	System like new (replaced or refurbished within the last five years)
3	System has been maintained with general operations and maintenance on a routine basis, no major issues noted
2	Deficiency were noted or components were out of service
1	Major issues noted causing a safety, reliability or unit output issue
0	End of life or not operational

1.3. Repair Priority Code

HIGH	MEDIUM	LOW
< 30 days	< 12 months	> 12 months

Assessment:

Group	Health (Score)	Comments
Site Access/Civil	[redacted]	
Fence		
Yard		
Structural and Foundations		
Anchors		
Grounding		
Insulation		
Hardware		
Conductor		
Disconnect Switches		
Instrument Transformers & Lightning Arresters		
Power Transformers		
Circuit Breakers		
Substation DC System		
AC Station Service System		
Protection Building		
Protection/Telecommunication and SCADA Panels		
Documentation (Drawings, Settings, etc.)		
Protection and Control		
SCADA		
Telecommunications		
Stock and Material		
Substation Overall health Score		

Safety Concerns – Red Flags:

[redacted]

Substation Name:	Inspection 7	Date:	[redacted]

1.1. Available S&L Report: YES ☐ NO ☐:

Report Scores:

Overall:	_____	Overall Access Road Condition:	_____	Local Control Cabinet Condition:	_____
Overall Bus Structure Condition:	_____	Overall Bus Structure Condition:	_____	Overall Entry Gate Condition:	_____
Overall Perimeter Fence Condition:	_____	Overall Transformers Condition:	_____	Gas Insulated Substation Condition:	_____
Overall Yard Condition:	_____	Overall Grade Condition:	_____		

1.2. Health Condition (Health) - Point Scoring System:

Score Value	Health Condition
4	System like new (replaced or refurbished within the last five years)
3	System has been maintained with general operations and maintenance on a routine basis, no major issues noted
2	Deficiency were noted or components were out of service
1	Major issues noted causing a safety, reliability or unit output issue
0	End of life or not operational

1.3. Repair Priority Code

HIGH	MEDIUM	LOW
< 30 days	< 12 months	> 12 months

Assessment:

Group	Health (Score)	Comments
Site Access/Civil	[redacted]	
Fence		
Yard		
Structural and Foundations		
Anchors		
Grounding		
Insulation		
Hardware		
Conductor		
Disconnect Switches		
Instrument Transformers & Lightning Arresters		
Power Transformers		
Circuit Breakers		
Substation DC System		
AC Station Service System		
Protection Building		
Protection/Telecommunication and SCADA Panels		
Documentation (Drawings, Settings, etc.)		
Protection and Control		
SCADA		
Telecommunications		
Stock and Material		
Substation Overall health Score		

Safety Concerns – Red Flags:

[redacted]

Substation Name:	Inspection 8	Date:	

1.1. Available S&L Report: YES ☐ NO ☐:

Report Scores:

Overall:	_____	Overall Access Road Condition:	_____	Local Control Cabinet Condition:	_____
Overall Bus Structure Condition:	_____	Overall Bus Structure Condition:	_____	Overall Entry Gate Condition:	_____
Overall Perimeter Fence Condition:	_____	Overall Transformers Condition:	_____	Gas Insulated Substation Condition:	_____
Overall Yard Condition:	_____	Overall Grade Condition:	_____		

1.2. Health Condition (Health) - Point Scoring System:

Score Value	Health Condition
4	System like new (replaced or refurbished within the last five years)
3	System has been maintained with general operations and maintenance on a routine basis, no major issues noted
2	Deficiency were noted or components were out of service
1	Major issues noted causing a safety, reliability or unit output issue
0	End of life or not operational

1.3. Repair Priority Code

HIGH	MEDIUM	LOW
< 30 days	< 12 months	> 12 months

Assessment:

Group	Health (Score)	Comments
Site Access/Civil		
Fence		
Yard		
Structural and Foundations		
Anchors		
Grounding		
Insulation		
Hardware		
Conductor		
Disconnect Switches		
Instrument Transformers & Lightning Arresters		
Power Transformers		
Circuit Breakers		
Substation DC System		
AC Station Service System		
Protection Building		
Protection/Telecommunication and SCADA Panels		
Documentation (Drawings, Settings, etc.)		
Protection and Control		
SCADA		
Telecommunications		
Stock and Material		
Substation Overall health Score		

Safety Concerns – Red Flags: