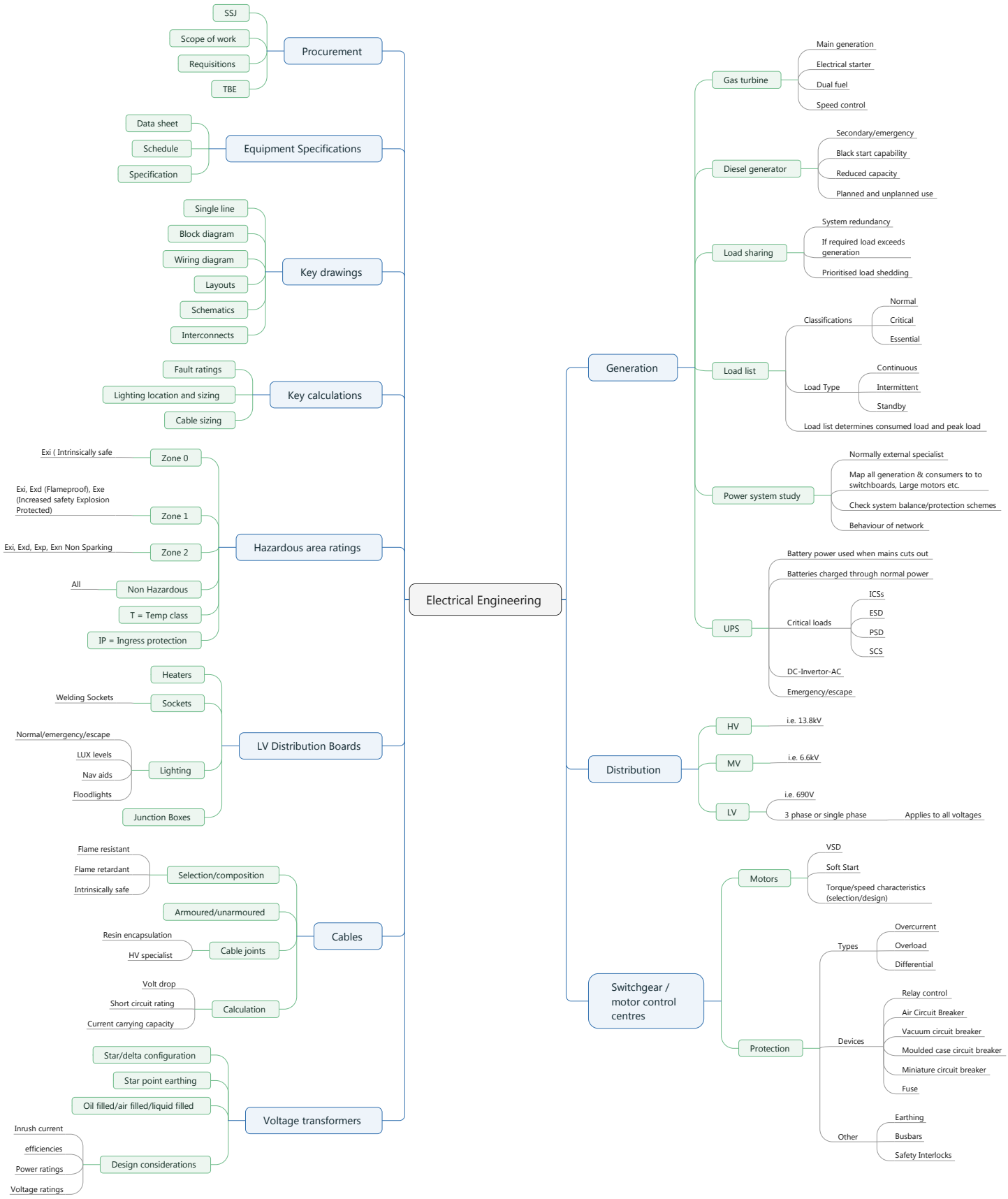
Electrical Engineering
Procurement
SSJ
Scope of work
Requisitions
TBE
Equipment Specifications
Data sheet
Schedule
Specification
Key drawings
Single line
Block diagram
Wiring diagram
Layouts
Schematics
Interconnects
Key calculations
Fault ratings
Lighting location and sizing
Cable sizing
Hazardous area ratings
Zone 0
Exi (Intrinsically safe
Zone 1
Exi, Exd (Flameproof), Exe (Increased safety Explosion Protected)
Zone 2
Exi, Exd, Exp, Exn Non Sparking
Non Hazardous
All
T = Temp class
IP = Ingress protection
LV Distribution Boards
Heaters
Sockets
Welding Sockets
Lighting
Normal/emergency/escape
LUX levels
Nav aids
Floodlights
Junction Boxes
Cables
Selection/composition
Flame resistant
Flame retardant
Intrinsically safe
Armoured/unarmoured
Cable joints
Resin encapsulation
HV specialist
Calculation
Volt drop
Short circuit rating
Current carrying capacity
Voltage transformers
Star/delta configuration
Star point earthing
Oil filled/air filled/liquid filled
Design considerations
Inrush current
efficiencies
Power ratings
Voltage ratings
Generation
Gas turbine
Main generation
Electrical starter
Dual fuel
Speed control
Diesel generator
Secondary/emergency
Black start capability
Reduced capacity
Planned and unplanned use
Load sharing
System redundancy
If required load exceeds generation
Prioritised load shedding
Load list
Classifications
Normal
Critical
Essential
Load Type
Continuous
Intermittent
Standby
Load list determines consumed load and peak load
Power system study
Normally external specialist
Map all generation & consumers to to switchboards, Large motors etc.
Check system balance/protection schemes
Behaviour of network
UPS
Battery power used when mains cuts out
Batteries charged through normal power
Critical loads
ICSs
ESD
PSD
SCS
DC-Invertor-AC
Emergency/escape
Distribution
HV
i.e. 13.8kV
MV
i.e. 6.6kV
LV
i.e. 690V
3 phase or single phase
Applies to all voltages
Switchgear / motor control centres
Motors
VSD
Soft Start
Torque/speed characteristics (selection/design)
Protection
Types
Overcurrent
Overload
Differential
Devices
Relay control
Air Circuit Breaker
Vacuum circuit breaker
Moulded case circuit breaker
Miniature circuit breaker
Fuse
Other
Earthing
Busbars
Safety Interlocks