Managing Security Updates and extending the life time of HVDC installations

B4 PS1-3

HVDC Refurbishment

Question 1.5:

How should the existing HVDC installations manage the security issues and updates?

How can the lifetime of control systems be extended?

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How should the existing HVDC installations manage the security issues and updates.

- This issue can be segregated into two largely independent areas.
  - Protection of the HVDC substation from external security events is typically provided by well known and highly regarded dedicated firewall and DMZ products.
  - Protection of the HVDC substation from malicious internal events which requires the HVDC system to be cyber secure.

- Firewall and DMZ security updates
  - Security patches have to be provided by the equipment manufacturer.
  - End user should ideally have a service/update agreement with the Firewall and DMZ supplier
    - HVDC system supplier may be able to act as an agent if there is a suitable service agreement in place.
  - The system communication architecture and physical design should anticipate the obsolescence of any dedicated hardware.

- HVDC control systems
  - Control Platform releases/updates should be routinely cyber security tested/reviewed.
  - Subject to a suitable service agreement, updates to be applied at the HVDC systems routine maintenance outage time if necessary.

- End User must ensure that strict cyber security policies are rigorously adhered to by their employees and contractors.

Group Discussion Meeting

How can the lifetime of control systems be extended

– Correctly maintain system, make enough spares provisions, and take advantage of Last Time Buy offers.

– Use a control system that has been designed to more readily stand the test of time.
- – Clear functional and hierarchical physical modularity
- – Simple, preferably internationally standardized, interfaces between elements e.g., IEC61850
- – Hardware platform that is designed to minimize customized elements, to ensure that replacement hardware is a standard product available on the market both now and into the foreseeable future
- – Each element can then be upgraded but remains backwards compatible as it supports the same interfaces.

– The HVDC application is more important than the hardware it is executing on today.
- – The control system architecture must insulate the application from the hardware
- – Much easier to do using the high-performance computing, standardized communication systems, and IEC 61850 I/O systems available today.

– Use Model based design techniques to both improve the quality of the application and increase its portability, should a replacement future control system platform have radically different interfaces.