GROUP REF. : B4
COUNTRY : FI PREF. SUBJECT : 1
REGISTRATION NUMBER : DLG94 QUESTION N° : 1.5

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

There are several aspects that should be considered together. There is no single correct solution to this, as the risks and the weight of the risks versus available mitigation efforts must be considered based on risk evaluation, mitigation costs and benefits.

Some means to manage the security issues and updates could be following :

- Use strict and systematic in-depth cyber security management within the utility
  - IT & OT experts to build it up together
- Restrict (especially remote) access to the C&P equipment at site
- Strict user management, use of AD domain
- Secure management of passwords
  - No default passwords
  - Sufficient length and difficulty
  - Secure transition from vendor's "factory" passwords to "customer" passwords
- Use of secure communication and documentation of sensitive parts of the installations
  - IP addresses, switch/router/firewall configurations, passwords, etc.
- Use of SIEM (Security Information and Event Management) tools (logging), where it is possible
- Update operating systems and software systematically and regularly, where it is possible
- etc.

How can the lifetime of control systems be extended?

There are some means to extend the lifetime of control systems, but these include operational risks and they are dependent on their manufacturers and the installed asset types and versions. Some considerations to achieve this could include the following:

- Vendors to find safe & feasible ways to replace failing ageing components one-by-one (retrofit), even after they become obsolete
- Vendors to actively inform owners about component lifetime expectations and before they are reaching limited availability and obsolescence
- Owners to proactively purchase sufficient number of spares, before they become obsolete.
- Use of latest platforms for project implementations → to reach maximum lifetime until obsolescence
  - On the other hand, systems must be proven and comprehensively tested before use
- Going towards virtualized solutions
  - At least for part of the C&P systems, it can be done in steps separately for
    - Station control & monitoring layer

        - Control & protection main computer layer
    - Hardware independency