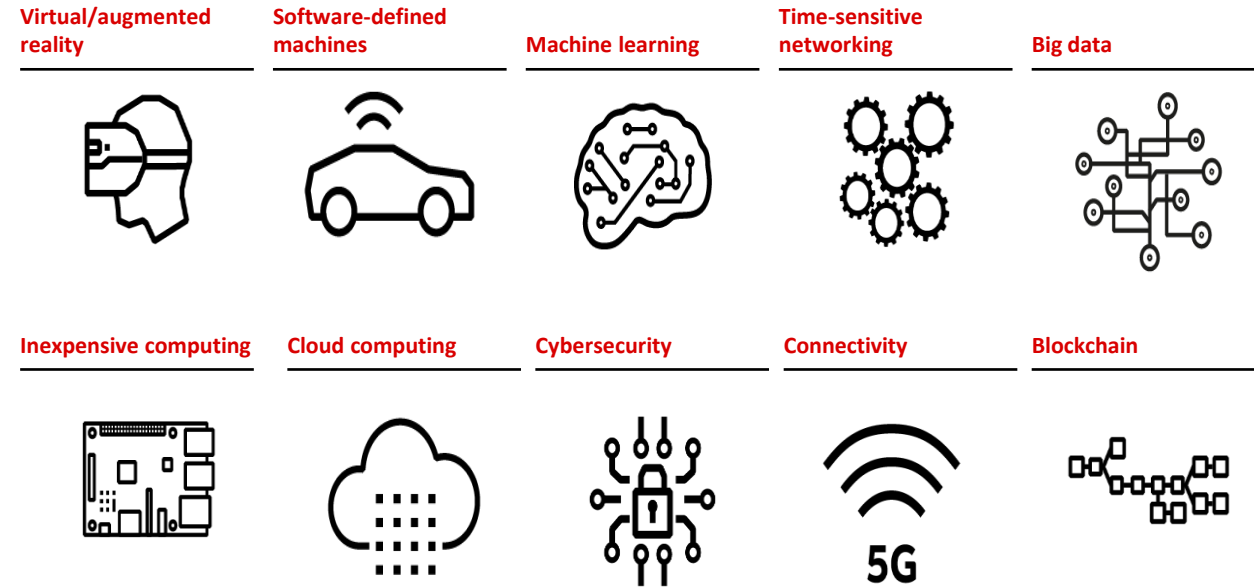


Cyber Security For Digitalized Grids

Speaker : *Ahmad Khan, SVP, Grid Automation,
Hitachi Energy India Limited*

'Future Is Uncertain, but *Electric*'



Geographical distribution of attacks* on industrial automation systems in H2 2020

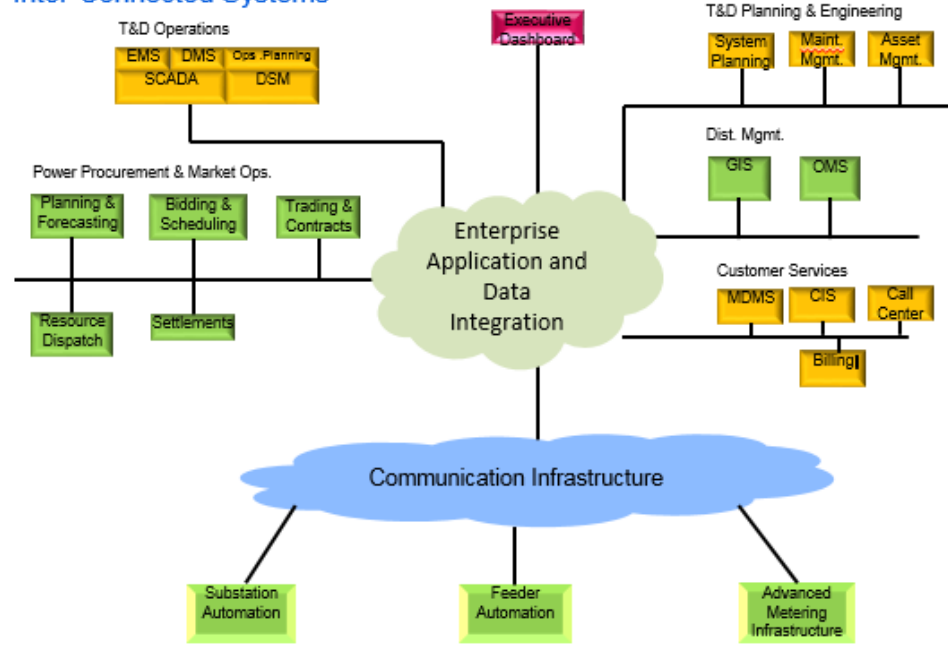


* percentage of ICS computers on which malicious objects were blocked

Digital technologies are changing the world we live in faster than ever before. Modern human society is highly dependent on mission critical software intensive solutions leveraging latest advancements in 'computing' & 'communications' technologies. Critical role played by digital technologies in management of Covid pandemic is a case in point. Electricity is fundamental to modern human society & therefore vital infrastructure to 'nurture' and 'safeguard'

'Energy' Is Among Top 3 Target Sectors For Cyber Attacks

Inter-Connected Systems



From a cybersecurity point of view, threats appear in multiple areas at the same time. This means that electricity grid resilience needs to be assessed from a completely different perspective because we are constantly facing the threat of multi-attack vectors. As example physical security becomes important as greater connectivity means more of the critical equipment is placed into outdoor equipment in the field rather than inside substations

'Ecosystem' Approach to Grid Security

No power - ...



No....

- Traffic lights, Communication, ATM, Cash-registers
- Medical services, Metros, Industrial Productions, Shopping & supply, Pump Stations, water, transportation , Critical storage , Social peace

A cyber-attack against a critical infrastructure may lead from from a technical to a social – economic disaster

It's only when we operate in a joint ecosystem where we trust to share cybersecurity information that we can truly build joint resilience. Realtime yet responsible information exchange is the future, especially as the decentralized energy system of our low-carbon world will require exponential growth in new electric and digital connections.

Cyber Security Regulations



NCIIPC, MoP

CEA

CERT-In – Generation, T&D



EU Directive (2013/0027 COD)

- Directive for all EU member states
- Member states should be equipped – technically and organizational – to prevent, detect, respond to and mitigate network and information systems' incidents and risks



NERC-CIP

- Regulation in USA and Canada
- 9 standards and 45 requirements covering the security of electronic perimeters and the protection of critical cyber assets as well as personnel and training, security management



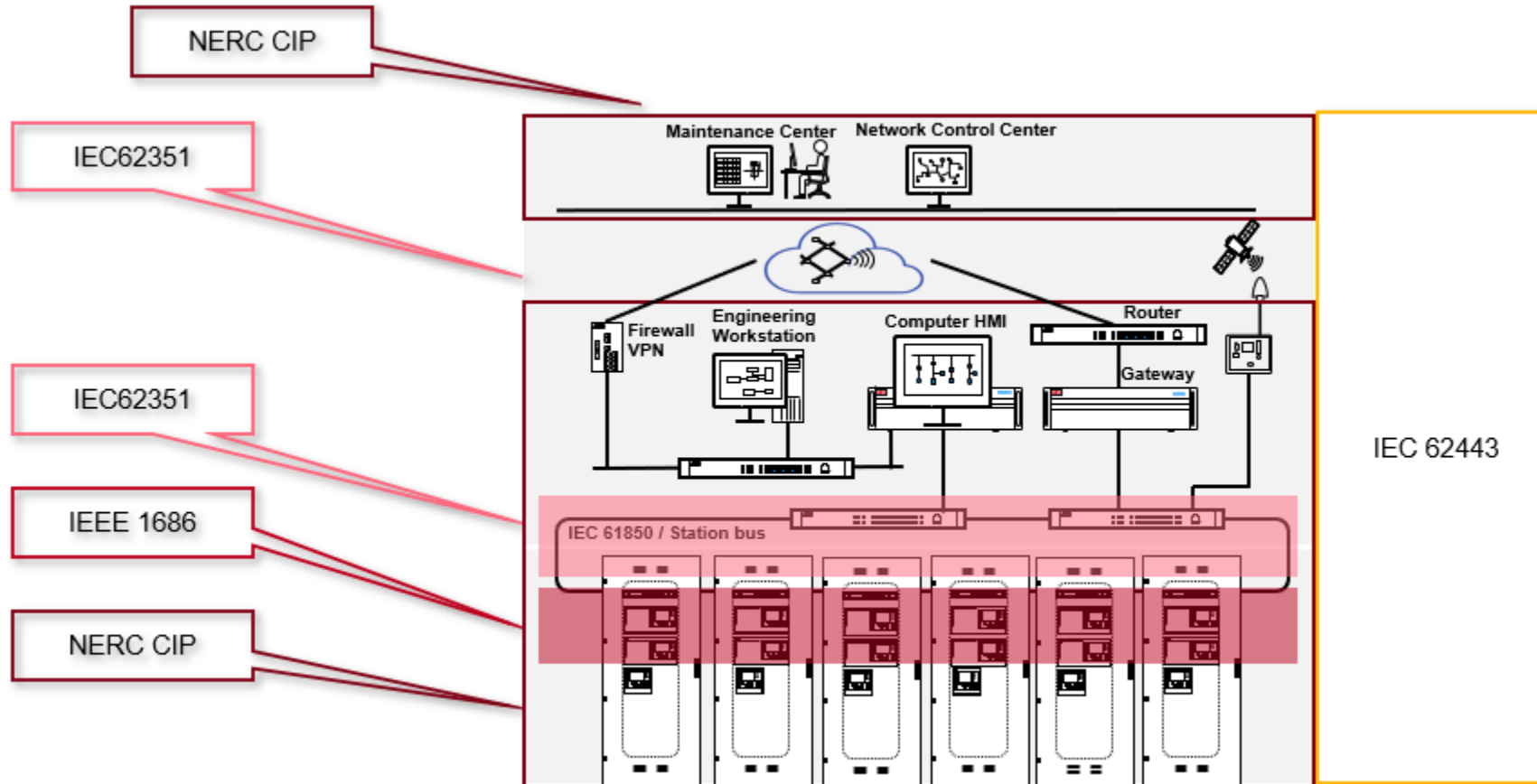
Energiewirtschaftsgesetz (EnWG) currently enforced

- IT security requirements in Germany
- Req. ensure protection against possible threats to telecommunications and electronic data processing systems that are vital for secure network operation

One very big question mark is whether we can harmonize global security rules. On the cyber side, there are so many rules and regulations that are different from country to country, but they essentially address the same issues. It just increases the operational costs but doesn't enhance security.

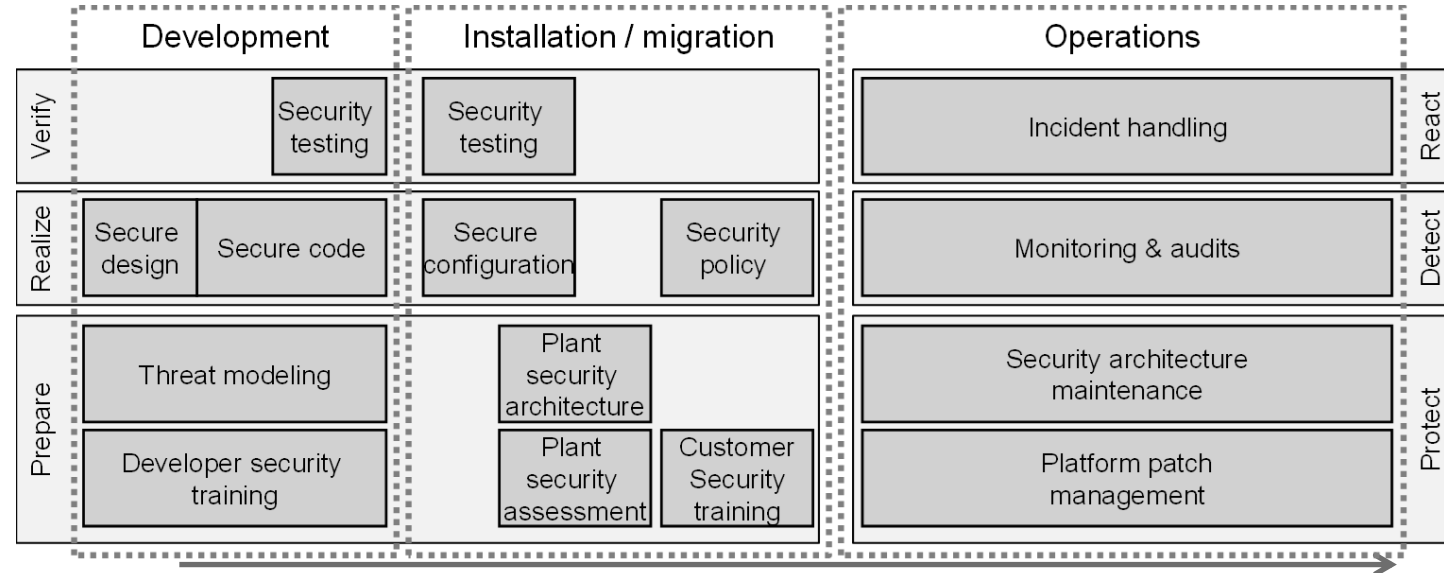
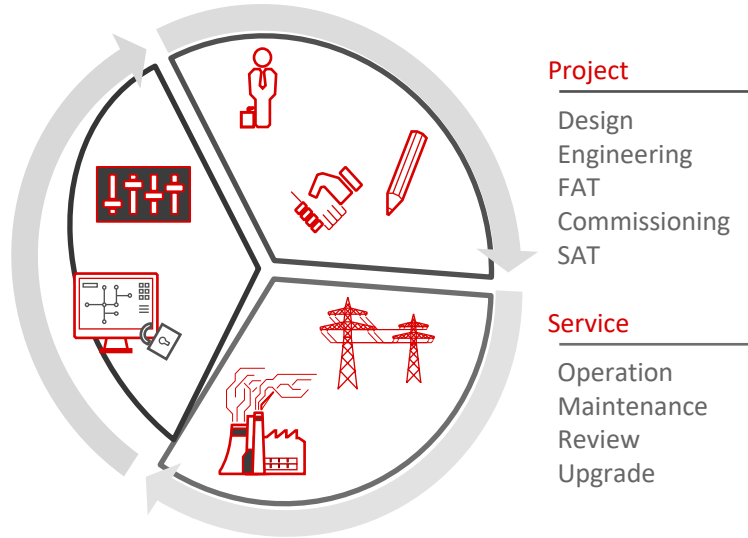


Where Do Standards Apply?



Hitachi Energy India Complies to Global Standard IEC 62443

Wholistic Approach to Cyber Security - Right Thru Product & System Lifecycle



Hitachi Energy Maintains A Secure Development Lifecycle & Stringent Cyber Security Rules Across Solution Lifecycle

Key Takeaways/ Recommendations

- Utility companies have been used to working pretty much independently. Cybersecurity incidents now present an ecosystem challenge because it's not just one utility that is being targeted but the weakest link somewhere in a country's power system
- Attack vector recognition and exchanging that information are, in a nutshell, essential to the survival of electricity systems. Companies need to jointly prepare for the worst-case scenario and think about what information they will share with whom and how. It's only a matter of time that it will happen
- We need much deeper cybersecurity collaboration in order to advance the world's energy system to become more sustainable, flexible, and secure
- At Hitachi Energy we believe there is a need for a '*wholistic*' & '*lifecycle*' approach to Cyber security- though all stages of product & solutions deployed in Electricity Grid



Thank You

*For discussions/suggestions/queries email: www.indiasmartgrid.org
www.isgw.in*

[Links/References \(If any\)](#)

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