

Protecting Critical Energy Infrastructure

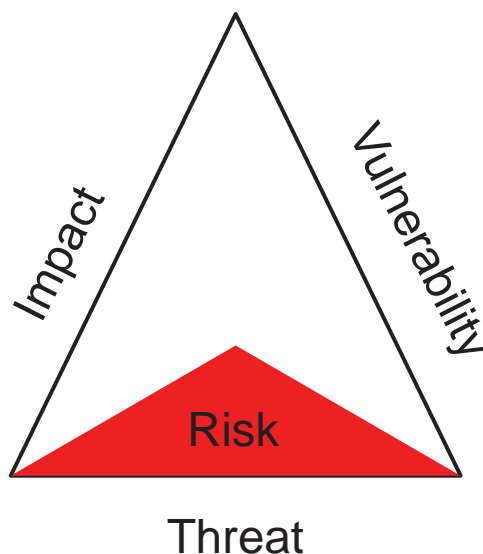
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Risks in the Energy Sector



Risk = Threat x Vulnerability x Impact (Cost)



Threat is the frequency of potentially adverse events.

Vulnerability is the exposure to threats or the ability of the critical assets to cope with specific threats.

Impact is potential adverse consequences that may result from each threat scenario.

Risk is a probability or threat of damage/loss, or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided through preemptive action.



Types of Physical Risks

- **Deliberate Physical Attacks** – theft, arson, terrorist attacks, etc.
- **Cyberspace Threats** - viruses, worms and Trojan horses.
- **Environmental Threats:**
 - Geophysical (earthquakes, volcanoes, landslides);
 - Climate-related (floods, storms, extreme temperatures, droughts).



Risks for Energy Utilities

- **Market risk** - risk of financial gain or loss due to exposure to fluctuations in market prices;
- **Credit risk** - risk of loss due to a contract implementation;
- **Operational risk** - losses from events caused by processes, people or equipment, or from external events.
- **Business risk** - risk of the specific industry, including strategic and regulatory risks.



ECS focus

- **Operational** (technological) risks (failures and accidents caused by people, equipment or systems);
- **Business** (regulatory) risks (uncertainty of demand, new technologies, legal actions, laws and regulations).



ESC potential contribution

Focusing on international dimension of potential threats related to energy security and protection of critical infrastructure:

- **Information sharing and best practices exchange among wide range of stakeholders – operators, regulators and governments;**
- **Level playing field on market conditions and security standards without discrimination by source of generation;**
- **“Keeping the lights on” - emergency response and early warning.**



Thank you for attention!

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Common rules for global energy security