



IEA assessment framework for emergency response reviews

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BACKGROUND



Background

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- IEA conducts Emergency Response Reviews (ERR) of its member countries on a 5-year cycle
- ERRs form the basis of Emergency Response Assessments (conducted on non-member countries)
- ERRs assess member country's emergency response capabilities to deal with sudden supply shocks (oil and gas) and electricity security
- ERRs initially just oil, designed to test countries' ability to participate in collective actions, have progressively evolved to incorporate gas and electricity
- ERRs, although led by IEA Secretariat, are peer-reviews

Background: Assessment framework

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- ERR Questionnaire consists of 5 sections:
 - Recent Developments
 - Oil
 - Natural Gas
 - Electricity
 - Data

ASSESSMENT FRAMEWORK: OIL AND GAS

Assessment framework: oil and gas

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- **Oil/ gas market**
 - **Supply/demand outlook**
 - **Import dependency**
 - **Oil market structure**
- **Oil/gas infrastructure**
 - **Ports**
 - **Pipelines**
 - **Storage**
 - **Refining for oil**

Assessment framework: oil and gas

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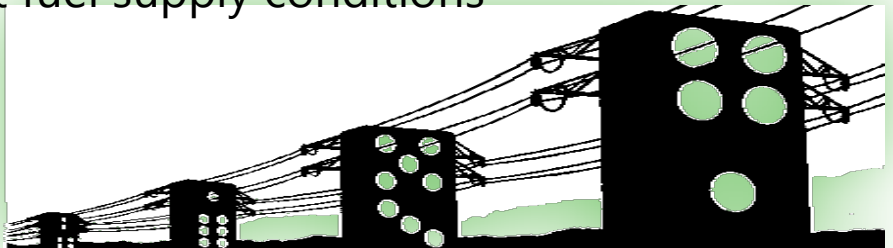
- **Oil/Gas Emergency Policy**
 - Energy policy and security of supply/ emergency response
 - NESO structure/ Decision-making in an emergency
 - Legal basis
- **Oil/and gas Stockholding System**
 - Stockholding regime
 - Monitoring and penalties
 - Bilateral stockholding/ Ticket agreements
 - Emergency drawdown of oil/gas stocks
- **Oil demand restraint and other measures for gas**

ASSESSMENT FRAMEWORK: ELECTRICITY

Assessment framework: electricity

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- Ability of power system to maintain reliable power supplies in real-time response to:
 - unexpected shocks
 - sudden disruptions
 - Loss of largest generation
 - Loss of largest network components
 - rapid changes in aggregate, load & fuel supply conditions
 - Variable renewable energy
 - Distributed generation



Assessment framework: electricity

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Transmission infrastructure resilience

- levels of spare capacity on transmission lines and international interconnectors
- levels of redundancy in the transmission network (i.e. the ability of the TSO to reroute electricity flows in the event of an outage on a transmission line or substation transformer)
- spare domestic generation capacity or import capacity
- level of interconnectedness with adjacent electricity networks
- bottlenecks in the domestic transmission (or distribution) network that could hinder the ability of the TSO to use spare generation capacity/ increase power flows to particular regions during an emergency

Assessment framework: electricity

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Governance and regulatory arrangements

- Roles, responsibilities and accountabilities for power system security should be clearly allocated to specific entities
- Accountability for power system security should be aligned with functional responsibilities. Usually the TSO is ultimately accountable for power system security – a reality that should be enshrined in regulation or statute
- Regulatory institutions should have the necessary resourcing, technical capacity, objectivity and access to timely, relevant and accurate information to effectively monitor and enforce the rules
- Coordination and communication

Assessment framework: electricity

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Power system security

- spare generation capacity (including “spinning” reserves).
 - interruptible contracts for demand response purposes (usually with large industrial consumers);
 - load shedding protocols (automatic and manual).
 - automatic “tripping” protocols
 - “black start” services
- Situational awareness
 - SCADA systems

ASSESSMENT FRAMEWORK: DATA



Assessment framework: data

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- **Data Collection Framework**
 - Oil data collection framework
 - Natural gas data collection framework
 - Electricity data collection framework
- **Data Collection Process**
 - Normal monthly oil data collection process
 - Normal monthly natural gas data collection process

Assessment framework: data

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- **Reporting Obligations**
 - Reporting obligation on industry for oil
 - Reporting obligation on industry for natural gas
- **Quality**
 - Data Quality
- **Emergency Data Collection**
 - Emergency oil data collection
 - Emergency natural gas data collection
 - Emergency electricity data collection

