

## Risk Prepardness TAIEX Regional Workshop on transposition of EU electricity legislation

Katharina Bauer, E-Control



# Risk Preparedness Regulation EU 2019/941



- rules for the cooperation between Member States
- prevent, prepare for, and manage electricity crises
- common provisions for risk assessment, risk preparedness plans, managing electricity crises, evaluation and monitoring

Member State tasks:

- define competent authority
- establish a risk-preparedness plan
  - based on the regional and national electricity crisis scenarios
  - measures planned or taken to prevent, prepare for and mitigate electricity crises

Two methodologies to be developed by ENTSO-E:

- methodology for identifying regional electricity crisis scenarios
- methodology for short-term and seasonal adequacy assessment





Done	6 months 2 months (6+2	Development of methodology of crisis scenarios + consultation	EC Guidance on fair compensation		
once		ACER approval			
		(improval of methodology + approval)			
	months) 6 months*	Identification of regional crisis scenarios (ENTSO-E)	National crisis plans		
		Identification of national crisis scenarios			
regul arly	4 months 4 years	update of crisis scenarios			

\* Finalised September 2021

## Crisis plans



Art 12 (2 8 months\* Info on reg. Agreement to ECG National crisis plans Art 10 (5) ECG recommendations to MS 6 months Adopt crisis plans (by concerned MS) Art 10 (6) \*during the development phase of 9 months the national crisis plans regional adopt + publication + notification (MS) Art coordination should already take 2.5 vears unbinding. opinion by EC Art 13 (1 √4 months∕ adaptation or explanation (MS) Art 13 (3) 3 months answer EC if disagreement months justification (MS) Art 13 (4) 3 months reg. crisis trainings reguliAnhang 6.a 2 véars

place.

Katharina Bauer/Risk Preparedness

Forest fire	
Dandamic	Ī

Winter Incident

Pandemic

Storm.

Volcanic eruption

Earthquake

Solar Storm

Power system control mechanism complexity Local technical failure Human error

Serial equipment failure

Simultaneous multiple failures Loss of ICT systems for real-time operation

Unforeseen interaction of

energy market rules

Fossil fuel shortage

Nuclear fuel shortage

Cyberattack - entities connected to electrical grid Cyberattack - entities not connected to electrical grid Physical attack - critical assets Physical attack - control centres Threat to key employees Insider attack Industrial / nuclear accident Strike, riots, industrial action Unwanted power flows

Unusually big RES forecast errors



30+ crisis scenarios identified

Multiple failures caused by

Precipitation and flooding

extreme weather

Cold Spell

Dry period

Heatwave.



#### 03. April 2023

Market tools Katharina Bauer/Risk Preparedness

## AT highest rated scenarios (arbitrary ordering)



#### Cyber Attack

· Attack on infrastrucure of entities physically connected to the grid

#### Storm

• Exceptionally strong winds (average > 150 km/h, gusts > 200km/h)

#### Winter incident

• Multiple failures due to snow & ice

#### Multiple failures caused by extreme weather

• e.g. heatwave

#### Pandemic

Staff shortages for TSO, DSO, power plants

#### Loss of ICT tools or telecommunication infrastrucutre

· e.g. loss or unavailability of grid security calculations or market tools

#### Simultanous failure of power system primary elements

• e.g. fault on HVDC cable and substation

#### Heavy precipitation and flooding

· Flooding of substaions and powerplants

#### Large impact industrial or nuclear accident

· Emission of radioactive waste or toxic material

#### Complexity of power system control mechanism

· High dependencies of complex systems leading to cascading failures

#### Accidental violation of n-1 criterion

• e.g. human error having a cascading effect

## Crisis scenarios $\rightarrow$ national considerations



- Clusters of categories
  - Outages/Asset failures
  - Lack of resources
  - Human made threats/malicious acts
  - Natural hazards/Force major
  - Technical complexity
- Technical complexity not considered in AT scenarios
  - Situations occur on a frequent basis
  - Not classified as crisis scenario

# National Risk Preparedness Plan



Identified national crisis scenarios:

- 22
- Competent Authority:
  - Federal Minister for Climate Action, Environment, Energy, Mobility, Innovation and Technology (no tasks delegated)

Stakeholders consulted:

- TSOs
- DSOs (110kV directly connected to a TSO)
- Oesterreichs Energie representing the interests of the Austrian e-business; Austrian Chamber of Commerce; Industry Association
- Regulatory Authority

### National Risk Preparedness Plan Austria





## 3 Energy intervention measures

Measures to follow one another or overlap as necessary.

Save Energy (§ 14 Zi 2 EnLG 2012)

Order on the usage of electricity for industries (§ 17 EnLG 2012)

> Allocation of quota to federal states (§ 14 Zi 7 iVm § 21 EnLG 2012)









- Date: 18. 19. April 2018
- Defined date: 16. 17. January 2019
- Duration: 1,5 Tage



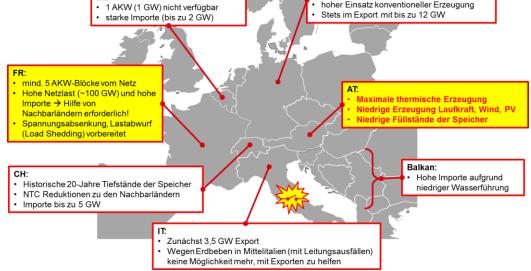
Katharina Bauer/Risk Preparedness







- Based on the real tight grid situation in Europe in January 2017: long dry period, low temperature, high demand, high market prices, low wind and PV production,
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in Europe in January 2017:
  Based on the real tight grid situation in
  - limited thermal production
- The situation escalated gradually
- European Scenario –
- Location played: Vienna







			1. Shortage		2. Shortage	3. Shortage
16.1.				17.1.		
Unplanned outage of generation unit	Energy Intervention Council	Energy Crisis Regulation		Regulation on costs for waste of energy	Limitation of industry – 2nd intervention method	Quotation of supply areas – 3rd intervention method
	"careful use of energy" – press release		Call for reduction of demand – 1st intervention method			





- Feedback from European Commission on all Risk Preparedness Plans
- More focus on cross-border Measures
- Update of Methodology for Crisis Scenario definition by ENTSO-E

Always improving on all levels – in hope we will never need to activate those measures

