SECURES

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Securing Austria's Electricity Supply in times of Climate Change

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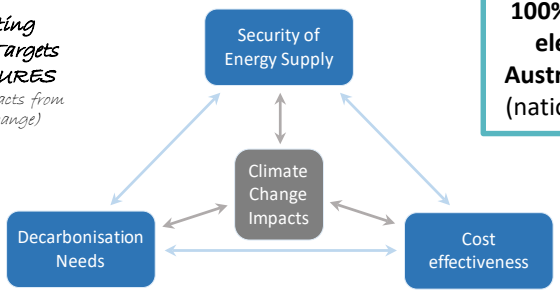
MOTIVATION & OBJECTIVES

Conflicting Policy Targets in SECURES (with impacts from climate change)



100% renewable electricity in **Austria until 2030** (national balance)

The overarching goal of SECURES

- **targeted support to Austrian policy makers** → taking a closer look at the **challenges and opportunities** arising **for Austria's electricity system**
- safeguard for securing **a reliable, sustainable and cost-efficient electricity supply** in times of **climate change**.

We analyse the impact of **climate change** and **decarbonisation** and **interaction** thereof.

METHOD

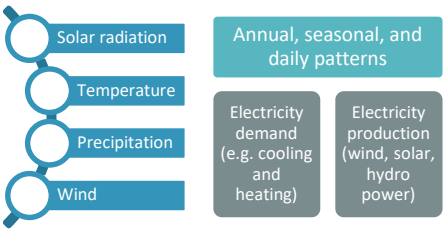
(1) Analysis of changing patterns in weather, electricity demand and supply driven by **climate change & decarbonisation**

(2) Modelling of scenarios for securing a reliable, sustainable and cost-efficient transition of **Austria's electricity sector in times of climate change**

(3) Stakeholder dialogue & consolidation for ensuring a proper research orientation and **policy impact**

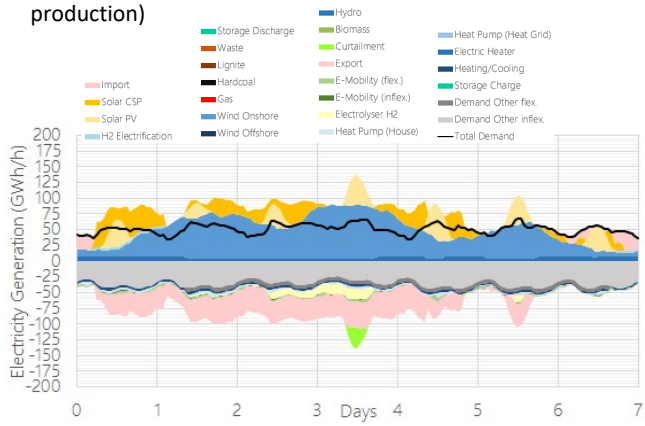
INSIGHTS from CLIMATE MODELLING …

- Impact of climate change on **meteorological patterns** in Austria and Europe
- Modelling of individual weather patterns enables **event-based** evaluation of rare **extreme situations** like cold doldrums, heat waves, etc. (high electricity demand and low production)



… feeding into ENERGY MODELLING and the ASSESSMENT of SUPPLY SECURITY

- Model-based analysis of the impact of changing patterns on future electricity demand & supply
- **Scenario** design to cover different aspects of **decarbonisation**, **climate change**, and **supply security** of the electricity system
- Austria and the EU27 + CH, NO, UK: Impact of **other countries** and power transmission



Exemplary visualisation of possible results from the energy system modelling (source: MUSTEC project, www.mustec.eu)

	Scope	Likelihood 1 x in … Years	CBD	Generation	Transmission	Demand	SC-Ref	SC-S1	SC-S2
Climate Change									
RCP 8.5	L			✓	?	✓			✓
RCP 4.5	L			✓	?	✓	✓	✓	
RCP 2.6	L			✓	?	✓			
Cross-Border Transmission (CBT) lines									
Current plans for Tramission lines expansion	L			✓	✓		✓		
Limited cross-border Transmission capactiy	L			✓	✓				✓
Delays in the Transmission lines expansion	L			✓	✓			✓	✓
Enviromental and Environmental Policies									
Current CO2 emissions targets	L			✓	✓	✓	✓	✓	✓
Acceleration of the CO2 emissions reduction target	L			✓	✓	✓			
Rare and extreme natural hazards									
Flooding (eg. event in central europe in 2002)	S	10-100	1.2	✓	✓				
Drought and associated water shortage (eg. 2017)	S	2-5	1.2	✓				✓	✓
Extreme winds	S	< 2	1.2	✓					✓
Lack of wind (eg. 2017)	S	2-5	1.2	✓				✓	✓
ice-storn or snowfall	S	10-100	1.2	✓	✓				
heat-waves	S	2-5	1.2	✓	✓	✓			✓
infectious threats, incl. pandemic;	S	> 100	1.2	✓	✓	✓		✓	
Others	S	> 100	1.2	✓	✓				
Accidental beyond the N-1 (failure of grid) security criterion	S	2 -5	1.2	✓	✓			✓	✓
Malicious attacks (cybercrime, sabotage…)	S	5 -10	1.2	✓	✓				✓
Disruption of fuel supply for electricity generation	S	5 -10	1	✓					✓
Not electricity-related industrial accident (e.g. chemical spill…)	S	5 - 10	1			✓			

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