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European Union Agency for the Cooperation of Energy Regulators

ACER's Decision on alternative bidding zone configurations

MESC meeting

14 September 2022

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Introduction

- The Decision follows from the lack of configurations submitted by TSOs for continental Europe, back in 2020
- The Decision uses **ACER's high-level approach (consulted in July 2021)**, which relies on TSOs LMP simulation results and additional analysis on e.g. loop flows (see below)
- **In line with the Electricity Regulation (Article 14(1))**, the alternative configurations have been selected based on the objectives of **maximising economic efficiency and cross-zonal capacity**. In essence, the selection relied on **two high-level indicators**:
  - **Geographical nodal price dispersion within a bidding zone** resulting from TSOs simulations: The higher the dispersion, the higher the scope to manage congestions through better bidding zones delineation.
  - **The cross-zonal capacity taken away by loop flows and other internal flows** on network elements relevant for capacity calculation. The higher these flows, the higher the scope to increase cross-zonal capacity through better bidding zones delineation.
- Additionally, ACER took into account the configurations previously proposed by TSOs and TSOs' feedback on the configurations initially identified by ACER

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Summary of the proposed configurations: Continental Europe

Member State	Individual alternative configurations		Justification
Germany	DE2	ACER clustering algorithm (k-means)	Germany ranked first in terms of nodal price dispersion and flows 'consuming' cross-zonal capacity. The indicators improve when splitting it into 2 or more BZs.
	DE2	TSOs' modifications on ACER clustering algorithm (Spectral P1)	
	DE3	ACER clustering algorithm (Spectral P1)	
	DE4	TSOs' modifications on ACER clustering algorithm (Spectral P1)	
France	FR3	ACER clustering algorithm (Spectral P1)	France ranked the second 'poorest'; however, only one configuration is proposed because the overall improvements when splitting France were not so perceptible as for Germany.
The Netherlands	NL2	ACER clustering algorithm (Spectral DIRC)	The Netherlands and Italy are the third and fourth countries in the ranking. The indicators improve when splitting.
Italy	IT2	ACER clustering algorithm (k-means)	

In addition:

- TSOs are requested to study **at least the 2 more promising combinations**, comprising two Member States and based on the intermediate results obtained during the bidding zone review study (e.g. MS_x split into 2 BZs combined with MS_y split into 3 BZs)
- **Fallback configurations better following control area borders were envisaged for Germany**, in case challenges with the unique assignment of generation and load units to BZs in the configurations proposed by ACER are found

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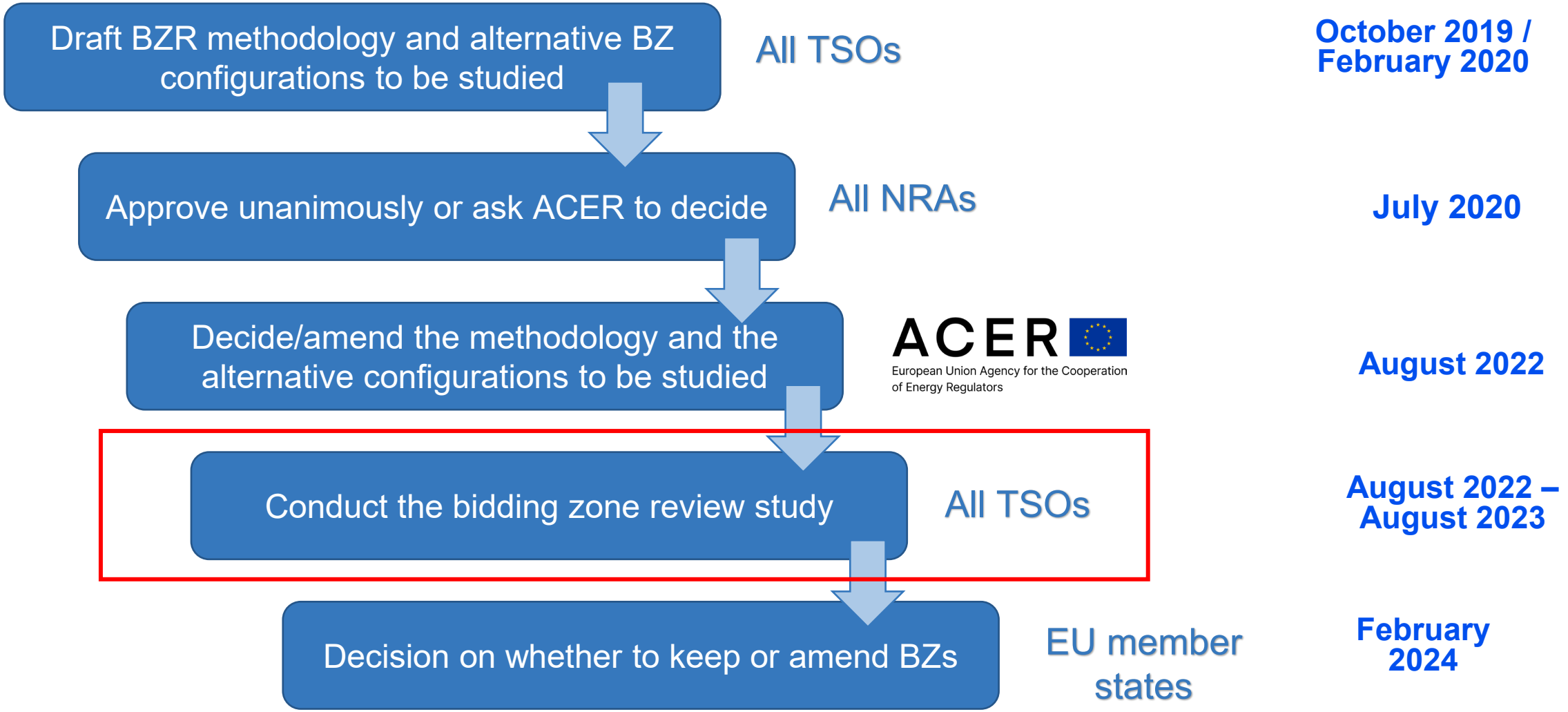
Summary of the proposed configurations: Nordics

Member State	Individual alternative configurations		Justification
Sweden	SE3	ACER clustering algorithm (Spectral P1)	These alternative configurations in 3 and 4 BZs lead to an improvement for both indicators compared to the status quo. They confirm that the focus of the splits is on the area around Stockholm, in line with the alternative configurations proposed by the Nordic TSOs back in 2020.
	SE3	TSOs' modifications on ACER clustering algorithm (Spectral P1)	
	SE4	ACER clustering algorithm (Spectral P1)	
	SE4	TSOs' modifications on ACER clustering algorithm (Spectral P1)	

Overview of the bidding zone review process



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Annex: Maps of the alternative BZ configurations to be studied

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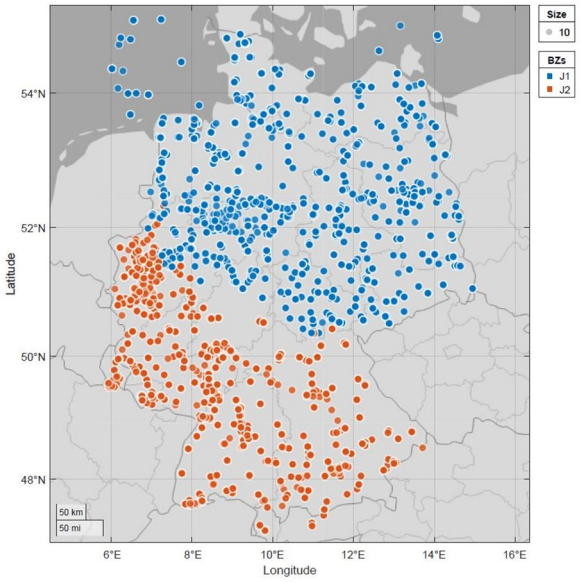
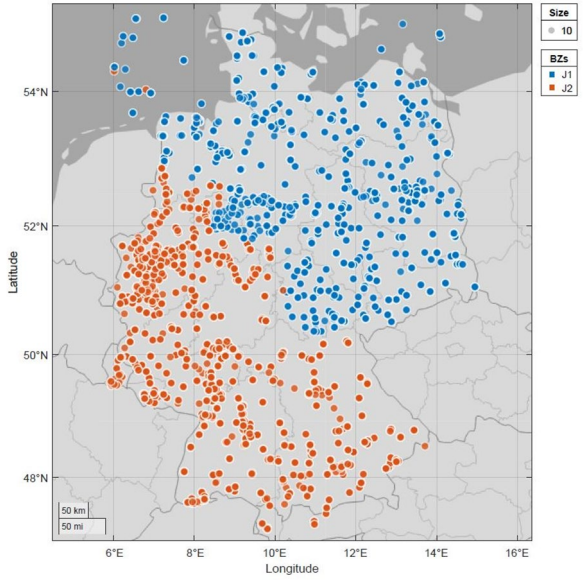
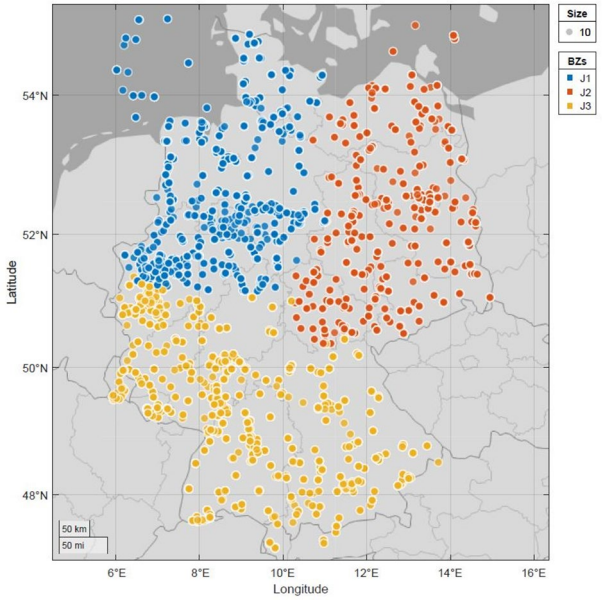
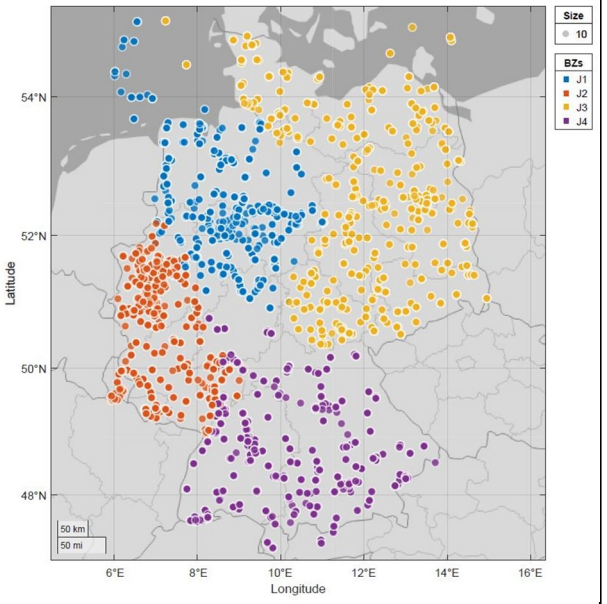
Alternative BZ configurations for Germany

DE2	DE2	DE3	DE4
k-means	Modified version of Spectral P1 following remarks provided by the German TSOs	Spectral P1	Modified version of Spectral P1 following remarks provided by the German TSOs
			
Split of Germany into 2 BZs along the border identified to reduce loop flows and price dispersion within Germany the most	Modified configurations to accommodate TSOs' comments to facilitate the unique assignment of generation and load units to BZs	Split of Germany into 3 BZs along the borders identified to reduce loop flows and price dispersion within Germany the most	Modified configurations to accommodate TSOs' comments to facilitate the unique assignment of generation and load units to BZs

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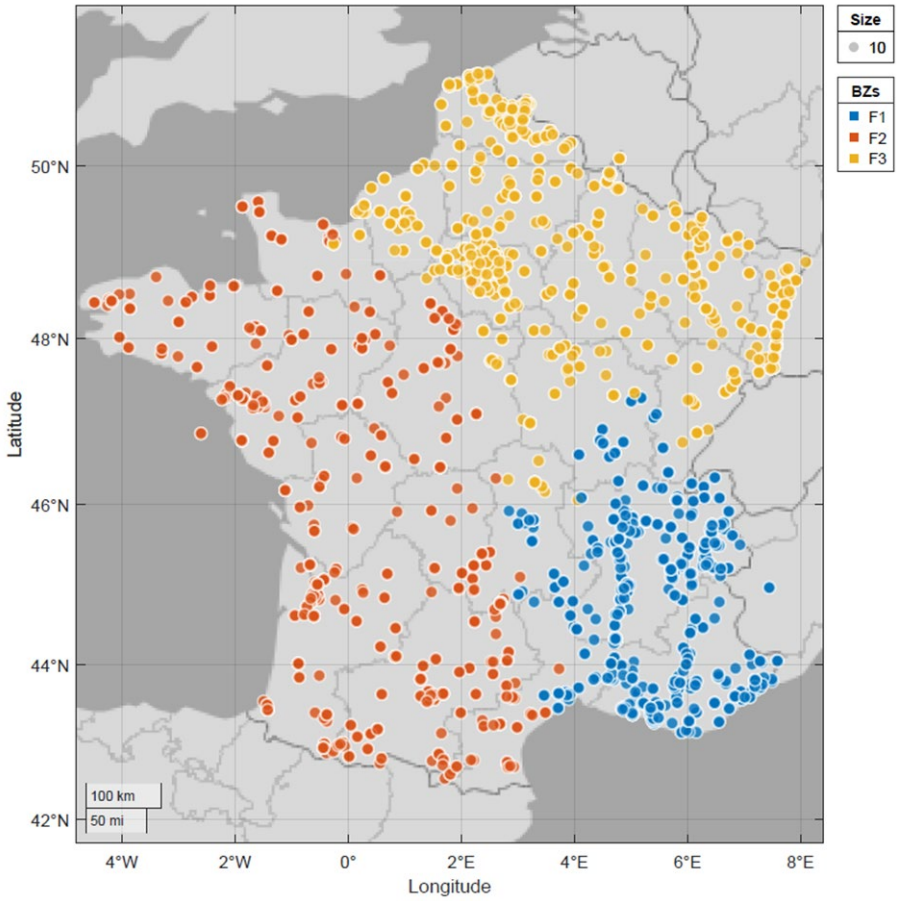
Alternative BZ configurations for France



Split of France into 3 BZs (ACER clustering algorithm Spectral P1) along the borders identified to reduce loop flows and price dispersion within France the most. Some small refinements suggested by TSOs were also considered.

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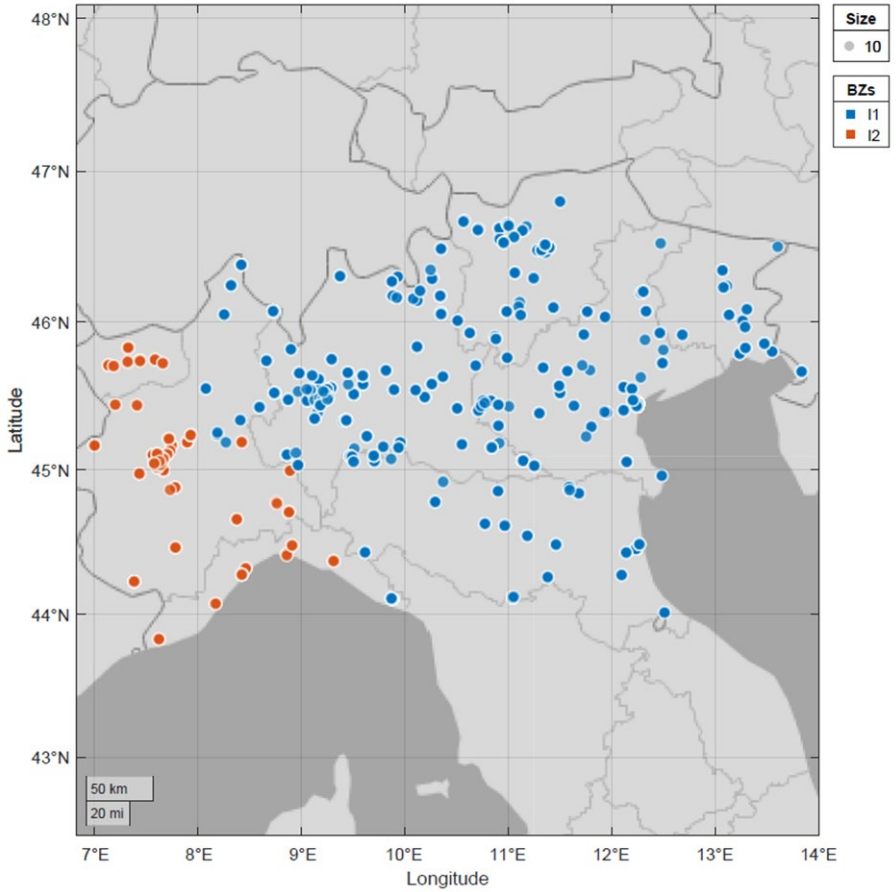
Alternative BZ configurations for Italy



Split of Italy into 2 BZs (ACER clustering algorithm k-means) along the borders identified to reduce loop flows and price dispersion within Italy the most. Some small refinements suggested by TSOs were also considered.

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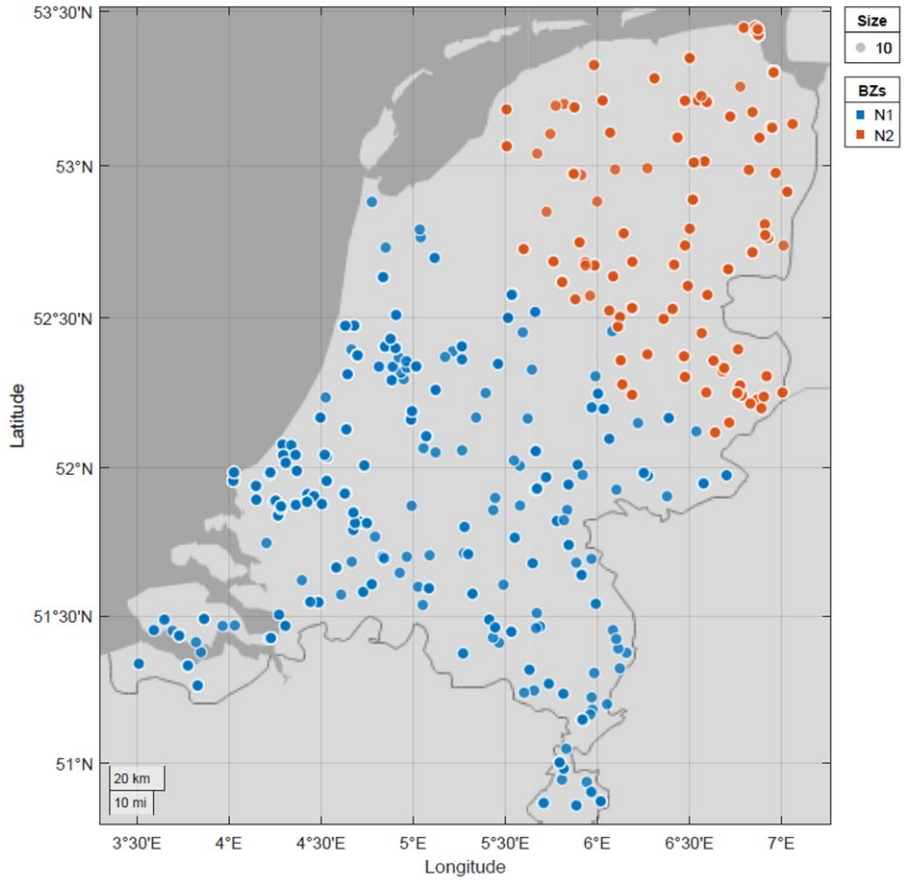
Alternative BZ configurations for the Netherlands



Split of the Netherlands into 2 BZs (ACER clustering algorithm Spectral DIRC) along the borders identified to reduce loop flows and price dispersion within the Netherlands the most.

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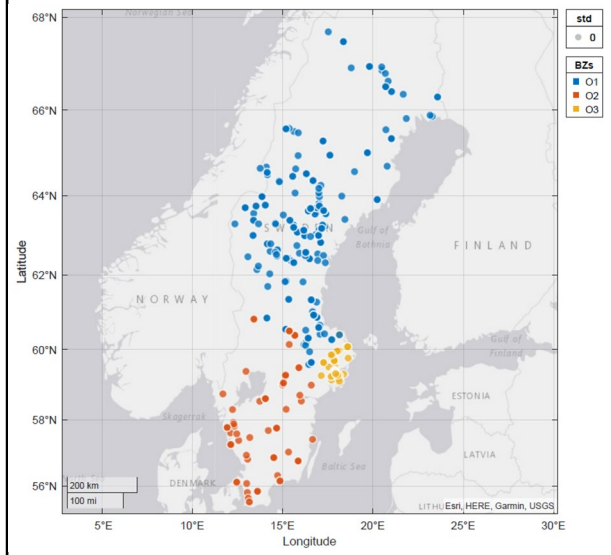
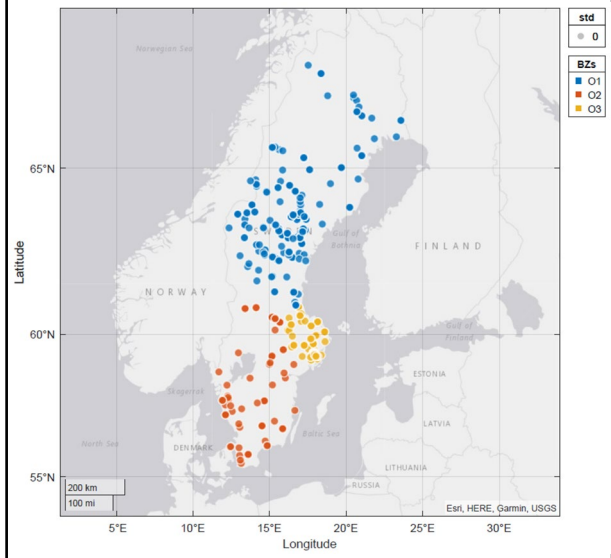
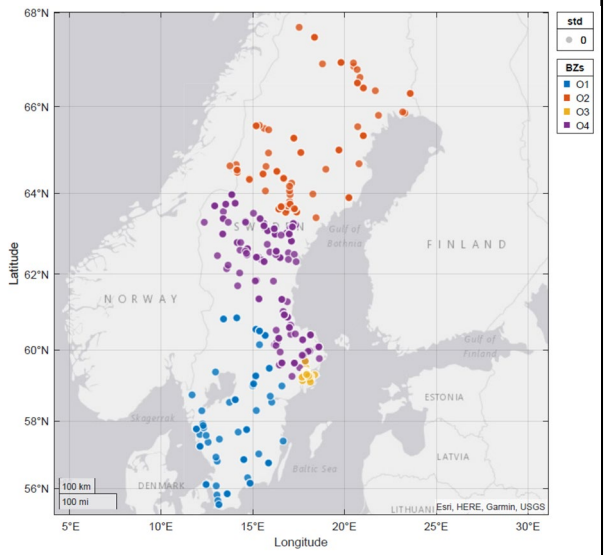
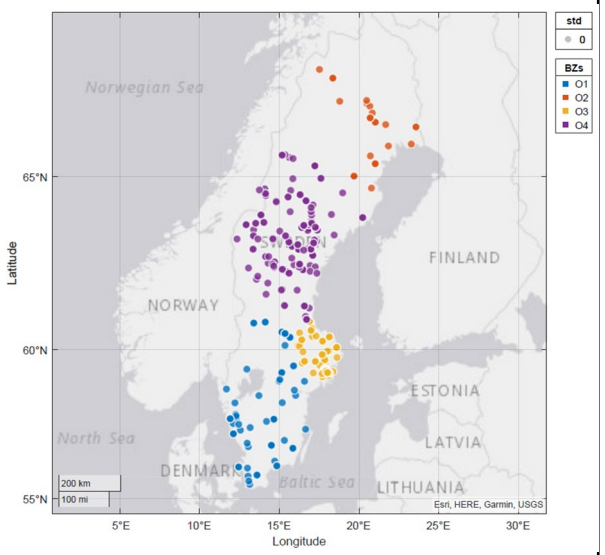
Alternative BZ configurations for Sweden

SE3	SE3	SE4	SE4
Spectral P1	Modified version of Spectral P1 following remarks provided by Svenska Kraftnät	Spectral P1	Modified version of Spectral P1 following remarks provided by Svenska Kraftnät
			
Split of Sweden into 3 BZs along the borders identified to reduce loop flows and price dispersion within Sweden the most. It includes a specific ‘Stockholm BZ’.	Merge of current SE1 and SE2. The ‘Stockholm BZ’ includes the Forsmark power plants and the Fennoskan interconnector.	Split of Sweden into 4 BZs along the borders identified to reduce loop flows and price dispersion within Sweden the most	Current SE1 and SE2 BZs are kept. The ‘Stockholm BZ’ includes the Forsmark power plants and the Fennoskan interconnector.

Thank you.
Any questions?

The contents of this document do not necessarily reflect the position or opinion of the Agency.

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