

# BZR CG Physical Meeting

13 October 2022: BZR CG members, BZRR representatives, pan-EU studies leads, ENTSO-E team



# Agenda

## START 10 am

- Welcome to participants (10 min)
- Work in progress: sensitivities in the current BZR process (20 min)
- PAN EU Studies: scope of the liquidity study (20 min)

## COFFEE BREAK (11-11.15 am)

- PAN EU Studies: share experiences and concerns on the on going process on transition costs consultation \* (55 min)
- Public consultation (20 min)

## LUNCH (12.30 – 1.30 pm)

- Status update from CE Region (30 min)
- Status update from Nordic Region (20 min)
- AOB (10 min)

## END 3 pm

# Sensitivity analyses

## Considerations

- Each sensitivity analysis introduces very large computational burden -> number must be limited
- Feedback from the BZR Consultative Group (All-TSO level) has highlighted that robustness of the findings of the BZR for the years after 2025 and current unprecedented fuel prices are concerning for market parties.
- Need to reflect BZRR specificities and priorities on local parameters/dimensions, while aligning on global parameters

## Approach

- Nordics will consider a single sensitivity including (i) higher fuel and carbon prices (aligned), and (ii) drop of Russian imports/exports
- CE will consider a single sensitivity including (i) higher fuel and carbon prices (aligned), and (ii) additional grid investments, and (iii) additional RES capacity

		Sensitivity for NORDIC	Sensitivity for CE
<b>COMMON PARAMETER</b>	<b>Fuel prices</b>	Nordic	CE
<b>LOCAL PARAMETER</b>	<b>Grid</b>		CE (based on year 2028)
	<b>RES</b>		CE (based on year 2028)
	<b>Drop of Russian exports</b>	Nordic	

# PAN EU Studies: Market liquidity

## Extension of the scope

Following the exchanges with the Consultative group, we are under assessment to increase the scope of the market liquidity study. The red cells are the most promising ones.

Data collection is a challenge (see next slide)!!!

	churn rates / traded volumes	retail risk premium	B/A spread	Market depth indicators: bid curve analysis / order book analysis
Intraday market	Additional analysis requested	Analysis neither requested nor included	Additional analysis requested	Additional analysis requested
Day-ahead market	Analysis included	Analysis included	Analysis neither requested nor included	Additional analysis requested
Forward markets	Analysis included	Analysis neither requested nor included	Adjusted scope	Additional analysis requested

Timeframe	Add 2016 and 2021	New scope
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Legend	Additional analysis requested	Analysis included	Analysis neither requested nor included
			

# PAN EU Studies: Market liquidity

## Data collection and challenges

Time-frame	Data type	Main provider
Day-Ahead	Traded volumes	NEMOs
Intra-Day	Traded volumes Bid-ask spreads	Not all ID data might be available/ACER kindly offer to explore if information on ID volumes from its market monitoring work could be shared”
Forward <a href="#">(slides)</a>	several indicators	Data exchanges

- Data collection is challenging and takes much more time than initially foreseen
- Potential consequences on the planning in particular on the start of the public consultation will need to be assessed in case TSOs do not have access to the data soon
- Cooperation with the NEMOs on DA and ID data collection is however promising.
  - for DA data: a solution has been found
  - for ID data: data not available (work in progress)
- Data collection for the forward market is on-going: discussion/negotiation with the vendors has started.

# PAN EU Studies: share experiences and concerns on the on going process on Transition costs consultation

Floor to stakeholders

# Pan-EU studies: Content of the public consultation

## Requirements according to Art. 17 the methodology

No later than six months after the start of the BZR, TSOs of a BZRR shall hold a public consultation regarding at least the following aspects of the BZR: the impacts of alternative BZ configurations on at least the following criteria:

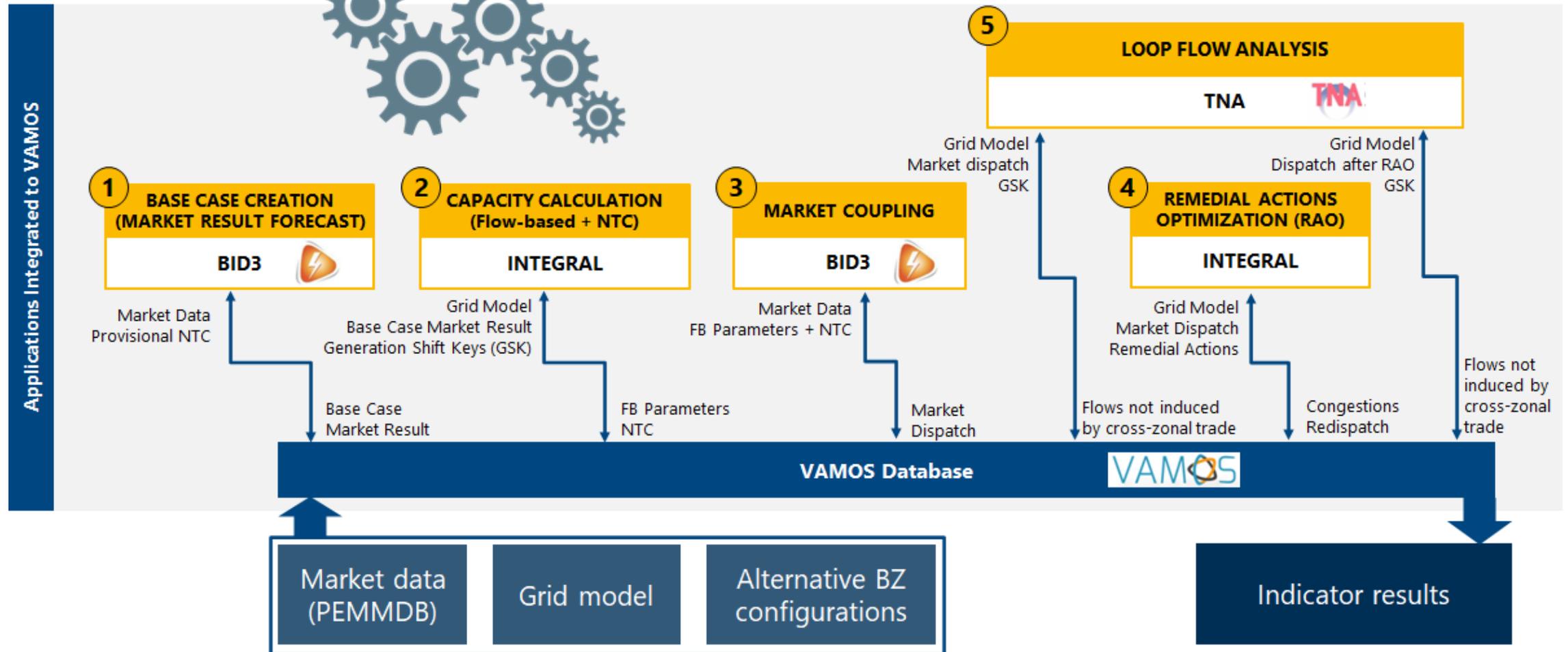
Pan-EU Studies
<p>a) <i>Market liquidity and transaction costs' and 'Transition costs</i></p> <p>Identified risk: As part of the liquidity study, a correlation analysis is carried out which needs market simulation data as an input. Due to the two-step approach in determining the combinations, the market simulation results for the combinations may not be there in time for meeting the 6 months deadline of the public consultation. Possible solution: Placeholder in the draft liquidity study report for combinations</p>
<p>Get stakeholders' feedback on the Pan-EU studies. Hence, this requires the (draft) report of the Pan-EU studies that is accessible for stakeholders</p>

Measures to mitigate negative impacts
<p>b) <i>possible measures to mitigate negative impacts of specific alternative BZ configurations with regard to at least the criteria listed in point 4(a) of this article (market liquidity and transaction costs and transition costs</i></p>
<p>Get stakeholders' feedback on (policy) measures that can help overcome negative liquidity effects of BZ splits</p>

Practical implementation considerations
<p>c) <i>identification of practical considerations which may need to be considered in case of a possible BZ configuration change as set forth in Article 14(10)* of the Electricity Regulation, including possible timescales for implementation of alternative BZ configurations</i></p>
<p>Get stakeholders' feedback on practical considerations, particularly on implementation dates</p>

# Updates from the regions: CE tool chain

BZRR Central Europe



# Updates from the regions: CE computational challenge

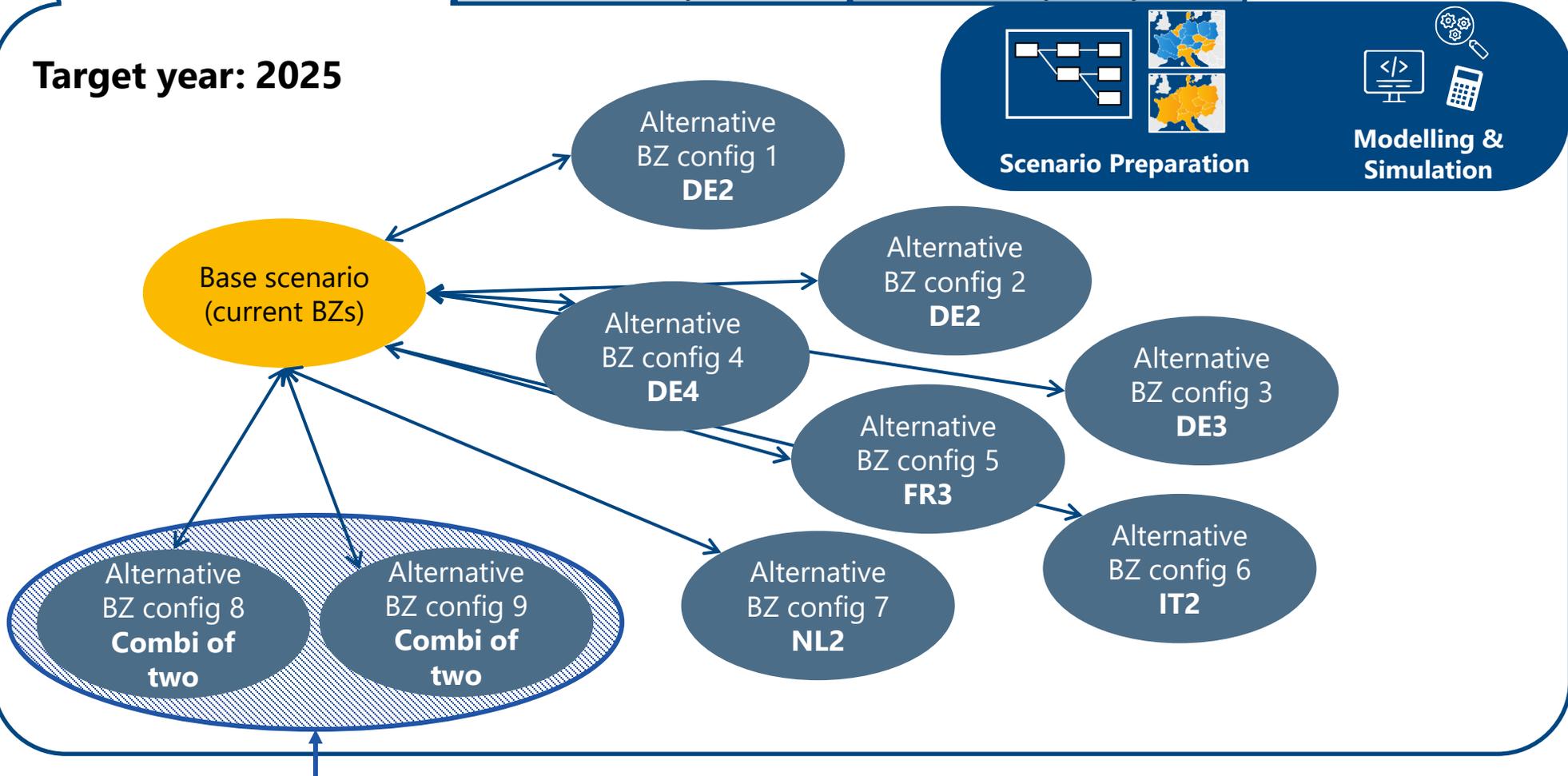
BZRR Central Europe

Base setup

3 climate years

Sensitivity analysis

Target year: 2025



60 full years of simulations to be performed  
(Base scenario + 7 alternative BZ configurations + 2 dynamic ones) \* 3 CYs \* 2 (sensitivity analysis)

Criteria Evaluation & Reporting

# Updates from the regions: CE computational challenge

## BZRR Central Europe

### Situation

- The simulations to be run with the Modelling chain are very demanding from a computational/performance point of view.
- An assessment of the computational run times shows that **more than 56 days per configuration, per climate year** are needed.
- The Methodology ((Base scenario + 7 alternative BZ configurations + 2 dynamic ones) \* 3 CYs) \* 2 (sensitivity analysis) = **60 full years of simulations to be performed (with an hourly resolution)**
  - This implies a total computational time (without any hiccups in the process or with the data) of:  $60 * 56 = 3360$  days
  - Allowing for parallelization could divide by 3, so ~1000 days -> **still infeasible**
- Taking into the current status, the project timeline (slide 4), and the time needed for managing hiccups and probable reruns (based on the experiences in the LMP work), a **run time of 5 to 6 days (~90% reduction) is needed** for meeting the Methodology timeline requirements.

Current performance indication for main steps in the modelling chain



Element/Model Step	Computational time (days)
All-EU NTC market simulations	4,45
Capacity Calculation	6,32
CE FB market simulation	5,48
OSA / RAO	31,25
Loop flows, pre-RAO	8,26
Loop flows, post-RAO	1,03
	56,79

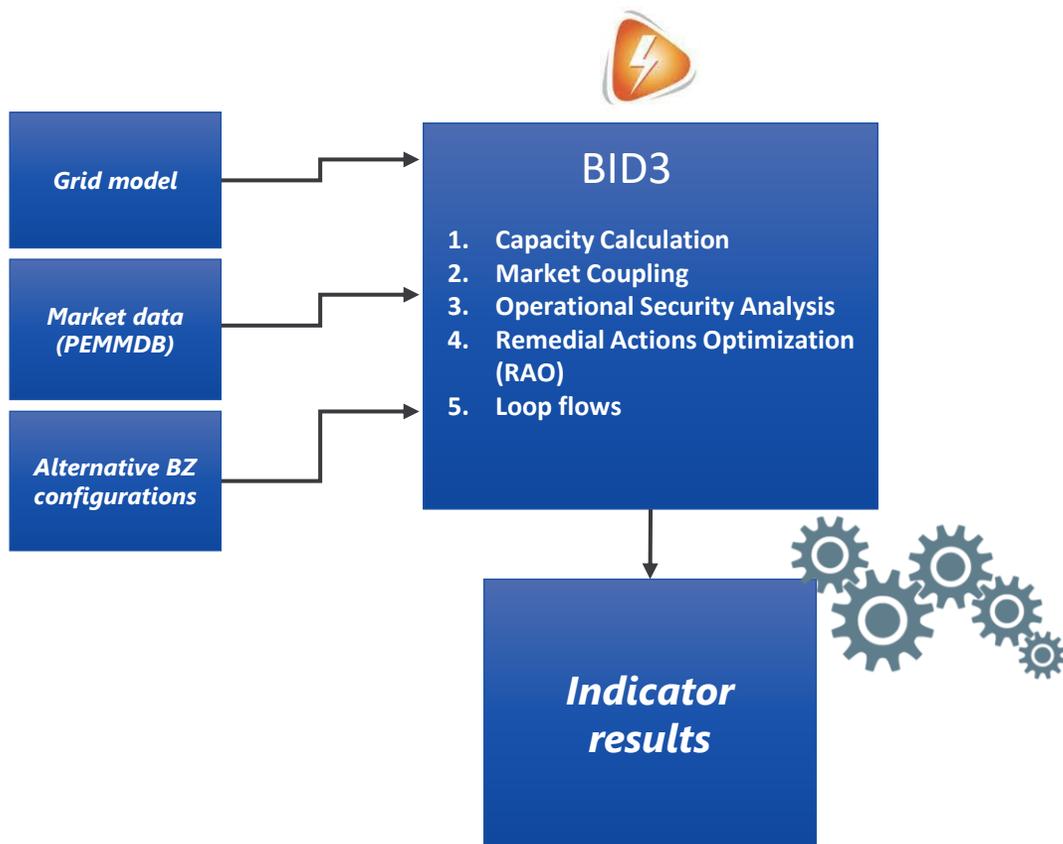
Note: RAO is performed for 50 days, and so is the loopflow analysis post-RAO

### Solution directions

- Simplifications to be applied in the modelling approach
- Simulation prioritization
- Computational performance: 4 additional computational cores (on top of the 3 existing ones) are to be added

# Updates from the regions: Nordic status update

## Modelling chain



### *Current status*

- Main modelling tool used in Nordics is BID 3
- New tool, which is an extension of the previous existing tool, developed for Nordic requirements for BZR study
- Modelling tweaks and optimization in order to run the first simulation of the base scenario are ongoing. The Nordics identified a problem with the BID3 model when prices from the simulations resulted in higher values than was anticipated. The problem was identified as being caused by the choice of GSK strategy, this is currently being changed.
- Estimated time for one run is 1-2 weeks. In total there are 10 model runs including the sensitivity analysis, with the possibility of running a few simulations in parallel.
- High intensity of work for Nordic BZR Modelling Group.

### *Next steps*

- Finalize modelling tool and data preparations
- Runs of base scenario and alternative configurations, including sensitivity.
- Start preparations for evaluation of indicators.

# Updates from the regions: Nordic data update

## Data set

Nordic LMP-data sets are now available on [ENTSO-E site](#). The same data set is provided to ACER as inputs to be used in the BZR.

## Coordinates and map

In addition, Svk has published nodal coordinates (rounded) as a list and in GIS-format providing further information on the data/coordinates applied in the Nordic BZR study: [Elområdesöversyn | Svenska kraftnät \(svk.se\)](#)

 [Koordinatlista \(.xlsx\)](#) 

2022-10-03

Lista med koordinater för noder i respektive elområde enligt ACERs förslag.

 [Geodata: Nationell Sverigeprojektion \(.zip\)](#) 

2022-10-03

Geodata (shapefil)

 [Geodata: Neutralt koordinatorsystem för "utlandsanvändning" \(.zip\)](#) 

2022-10-03

Geodata (shapefil)

# General timeline (for stakeholder interactions)

Duration of the BZR (12 months)

Start of the BZR : 8 Aug 2022

	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023
<b>Main milestones</b>	Apr: LMP results delivered to ACER	8 Aug: Alternative configurations by ACER	8 Oct: Input data to NRAs 8 Dec: Input data publication	Jan-Feb: Public consultation <b>under check</b>		8 Aug: Publication of the BZR report  Sep-Oct*: Output data publication
<b>BZR Consultative Group Meetings</b>		5 July Kick-off call 1 Sep Online call	13 October: physical workshop (WS)	WS Jan/Feb <b>(under check)</b>		WS April
<b>Public Webinar - PAN EU with Regions</b>	21 April (explain the BZR process and present LMP results)	16 September		Webinar before or during public consultation		Webinar after publication of the BZR
<b>MESC</b>	1 June	14 September	7 December	TBD	TBD	TBD
<b>Public consultation</b>				Jan -Feb <b>under check</b>		
<b>Regional meetings</b>	TBD	TBD	Sweden 14 Nov	TBD	TBD	TBD
<b>PAN EU studies</b>		Questionnaire on transition costs: Available for input: 6 Sep - 31 Oct Analysis: after 31 Oct		TBD	TBD	TBD

\* Additional step to select combinations for the BZ alternative configurations may result in an increase of project time

## Who we are

ENTSO-E, the European Network of Transmission System Operators for Electricity, is the **association for the cooperation of the European transmission system operators (TSOs)**. The 42 member TSOs, representing 35 countries, are responsible for the secure and coordinated operation of Europe's electricity system, the largest interconnected electrical grid in the world. In addition to its core, historical role in technical cooperation, ENTSO-E is also the common voice of TSOs.

ENTSO-E **brings together the unique expertise of TSOs for the benefit of European citizens** by keeping the lights on, enabling the energy transition, and promoting the completion and optimal functioning of the internal electricity market, including via the fulfilment of the mandates given to ENTSO-E based on EU legislation.

## Our mission

ENTSO-E and its members, as the European TSO community, fulfil a common mission: Ensuring the **security of the interconnected power system in all time frames at pan-European level and the optimal functioning and development of the European interconnected electricity markets**, while enabling the integration of electricity generated from renewable energy sources and of emerging technologies.

## Our vision

ENTSO-E plays a central role in enabling Europe to become the first **climate-neutral continent by 2050** by creating a system that is secure, sustainable and affordable, and that integrates the expected amount of renewable energy, thereby offering an essential contribution to the European Green Deal. This endeavour requires sector integration and close cooperation among all actors.

Europe is moving towards a sustainable, digitalised, integrated and electrified energy system with a combination of centralised and distributed resources. ENTSO-E acts to ensure that this energy system **keeps consumers at its centre** and is operated and developed with **climate objectives and social welfare** in mind.

ENTSO-E is committed to use its unique expertise and system-wide view - supported by a responsibility to maintain the system's security - to deliver a comprehensive roadmap of how a climate-neutral Europe looks.

## Our values

ENTSO-E acts in solidarity as a community of TSOs united by a shared responsibility.

As the professional association of independent and neutral regulated entities acting under a clear legal mandate, ENTSO-E serves the interests of society by optimising social welfare in its dimensions of safety, economy, environment, and performance.

ENTSO-E is committed to working with the highest technical rigour as well as developing sustainable and innovative responses to prepare for the future and overcoming the challenges of keeping the power system secure in a climate-neutral Europe. In all its activities, ENTSO-E acts with transparency and in a trustworthy dialogue with legislative and regulatory decision makers and stakeholders.

## Our contributions

ENTSO-E supports the cooperation among its members at European and regional levels. Over the past decades, TSOs have undertaken initiatives to increase their cooperation in network planning, operation and market integration, thereby successfully contributing to meeting EU climate and energy targets.

To carry out its **legally mandated tasks**, ENTSO-E's key responsibilities include the following:

- Development and implementation of standards, network codes, platforms and tools to ensure secure system and market operation as well as integration of renewable energy;
- Assessment of the adequacy of the system in different timeframes;
- Coordination of the planning and development of infrastructures at the European level (Ten-Year Network Development Plans, TYNDPs);
- Coordination of research, development and innovation activities of TSOs;
- Development of platforms to enable the transparent sharing of data with market participants.

ENTSO-E supports its members in **the implementation and monitoring** of the agreed common rules.

**ENTSO-E is the common voice of European TSOs** and provides expert contributions and a constructive view to energy debates to support policymakers in making informed decisions.

Our values define who we are, what we stand for and how we behave.  
We all play a part in bringing them to life.



## EXCELLENCE

We deliver to the highest standards.  
We provide an environment in which people can develop to their full potential.



## TRUST

We trust each other, we are transparent and we empower people.  
We respect diversity.



## INTEGRITY

We act in the interest of  
ENTSO-E



## TEAM

We care about people. We work transversal and we support each other.  
We celebrate success.



## FUTURE THINKING

We are a learning organisation.  
We explore new paths and solutions.

**We are ENTSO-E**