BGM Partner Meeting 2024

Zurich Airport and Online Meeting, 12 November 2024

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New imbalance price mechanism in Switzerland

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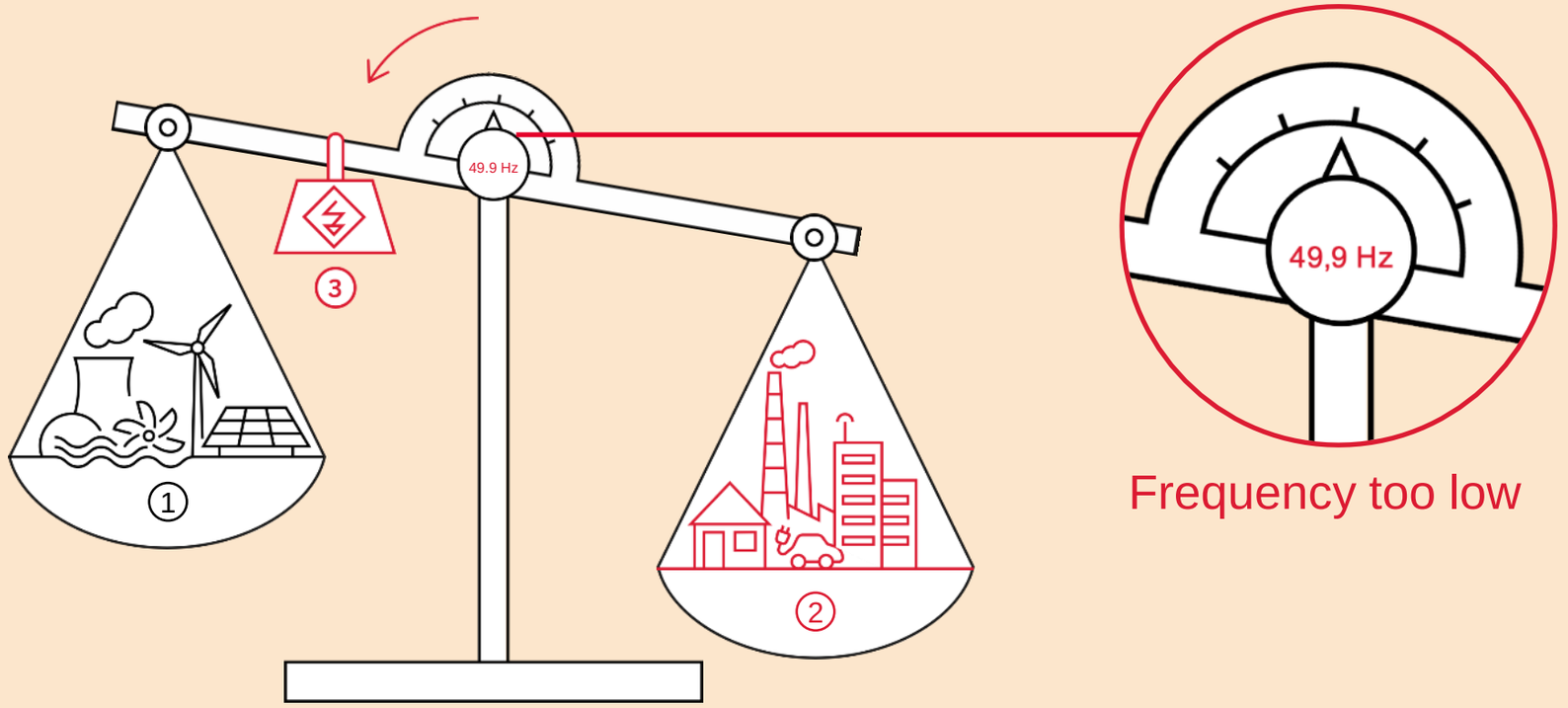
There is a risk of a further increasing of high imbalances

The amount of electricity fed into the grid must correspond to the amount with-drawn, to keep the grid frequency constant.



① Generators / power plants

② Consumers: private households and industry

③ Control energy

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We have to update our imbalance price mechanism to create an incentive for a control area-supporting behavior of our balance groups

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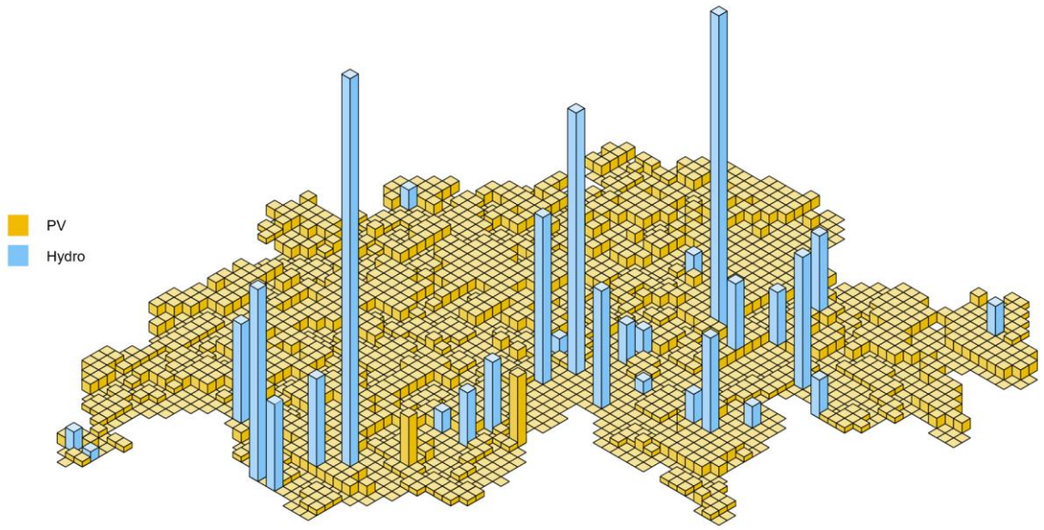
Today’s imbalance price mechanism is based on a two-price model

- Today asymmetric two-price imbalance price mechanism
- Incentive effect is aimed solely at ensuring that balance groups balance themselves out
- System penalizes unbalanced balance groups multiple

Balance group	short (deficit)	BGV pays $(A + P_1) * \alpha_1$	$A = \max (P_{spot}; P_{sek+}; P_{ter+})$
	long (surplus)	BGV receives $(B - P_1) * \alpha_2$	$B = \min (P_{spot}; P_{sek-}; P_{ter-})$

With alpha factors as following:	α_1	1.1
	α_2	0.9
With base price as following:	P_1	0.5 ct/kWh



- With increasing volatility in the Swiss electricity system, imbalances will increase and prices will fluctuate more
- To counteract this, balance groups must be incentivized by a new imbalance price mechanism to behave in a way that supports the system

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Swissgrid plans to introduce a one-price system

- Swissgrid has analyzed during last months various imbalance price mechanisms with the help of an external service provider
- Swissgrid has been in contact with various European TSOs to understand their mechanisms and learn from their experiences
- Current structural and institutional framework conditions in Switzerland were considered, like…
  - no electricity agreement
  - no comprehensive liberalization of the electricity market
  - high concentration of generation capacity among a small number of players

Proposed new imbalance price mechanism in detail

	Balance group short	Balance group long	Price formula
Under-covered control area (short)	Balance group pays: A	Balance group receives: A	$A = \max (P_{sec+}; P_{ter+})$
Over-covered control area (long)	Balance group pays: B	Balance group receives: B	$B = \min (P_{sec-}; P_{ter-})$

P_{sec} = defined as weighted average price of secondary control energy (aFRR) activations, only activations in the relevant direction are used for the calculation

P_{ter} = defined as weighted average price of tertiary control energy (mFRR) activations, only activations in the relevant direction are used for the calculation

Note: If A or B results in a negative price, the direction of the payment type changes from pays to receives specific numerical examples will be shown in the dedicated breakout session

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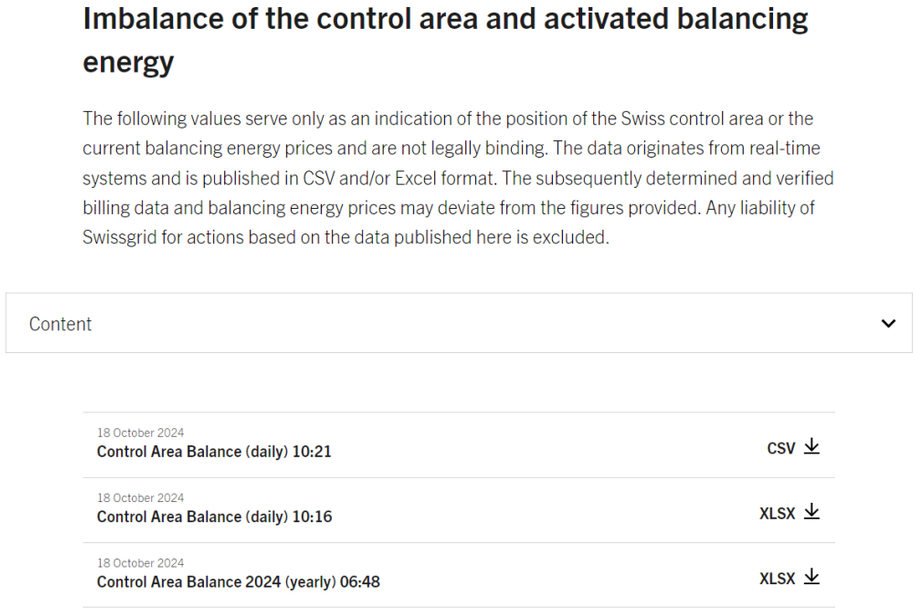
Additional information about proposed new imbalance price mechanism

- Alpha factors and basis price will be deleted
- SwissIX day-ahead spot price is no longer considered, because it does not reflect the near real time value of energy, it will only be considered for quarter hours where no aFRR and mFRR prices are available
- A link to the Swiss intraday price index is currently not possible due to the limited liquidity of this market, big risk of manipulation
- An additional scarcity component will be introduced
- Trade balance groups will be allowed to support the Swiss control area

Note: Swissgrid already publishes on its website an indicative imbalance price and the total system imbalance with a delay of approx. 30 minutes

With alpha factors as following:	α_1	1.1
	α_2	0.9
With base price as following:	P_+	0.5 ct/kWh



Introduction of scarcity component for critical control area balance

What is our motivation?

- Strong and predictable incentive for all balance groups to balance Swiss control area in critical situations
- Pricing of emergency measures activated near real time, as no intraday price component is available

What are the benefits of a scarcity component?

Balance groups have an incentive to take preparatory work, like...

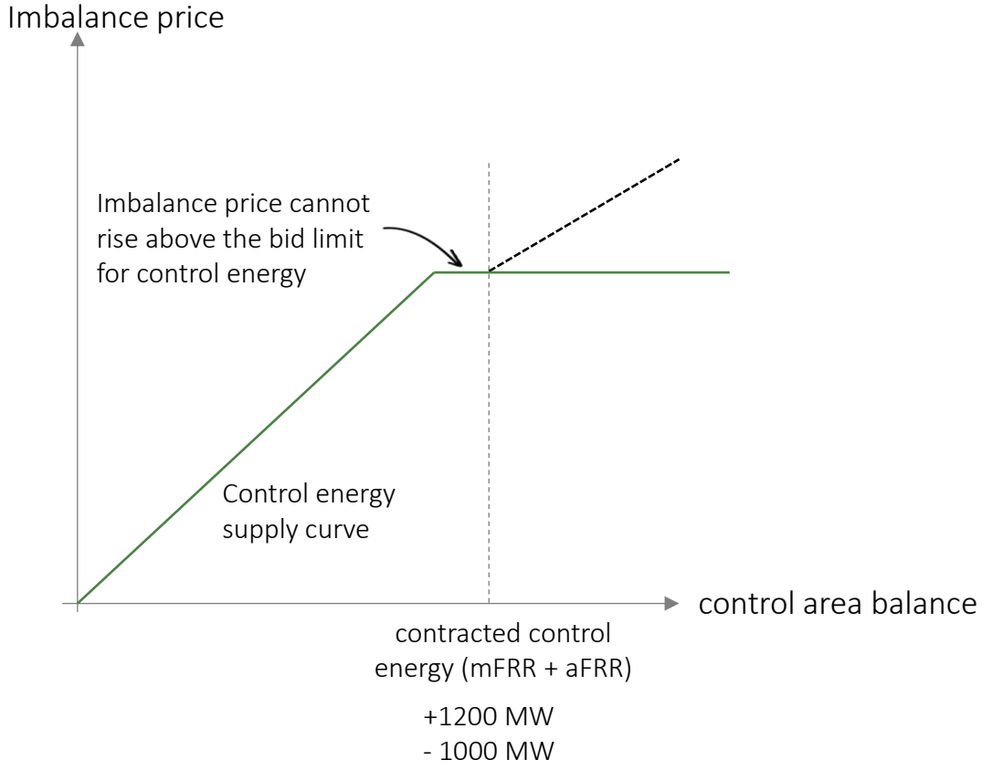
... investing in the option to switch off photovoltaic systems

... having telephone numbers of major customers ready for intervention

How does it work?

- addition to the "normally" calculated imbalance price
- It only applies if the control area balance exceeds 100% of the contracted control energy (values will be published on Swissgrid website)
- It increases by 10 EUR/MWh for each MW of imbalance above this limit

Simplified graphic to visualise scarcity component



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Quantitative assessment of proposed new imbalance price mechanism

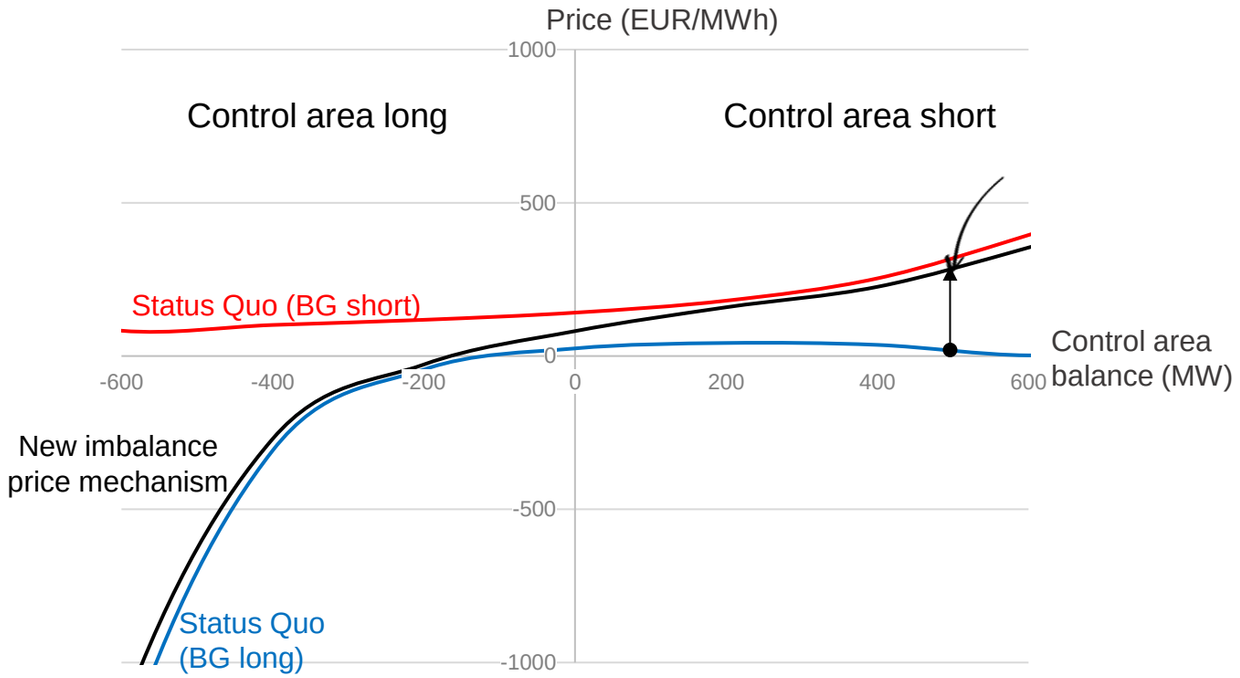
We have made time series available to all balance groups, with calculated prices according to the new algorithm based on previous months.

Additionally, a graphic which tries to visualize average values of these imbalance prices has been created.

Mains findings are:

- Control area-supporting behaviour is much more financially rewarded than today
- Control area-harmful behaviour is penalized less than today (due to elimination of α-factor and base price), but still sufficient incentives to reduce imbalances

Note: extreme price peaks not visible, smoothed out by using of average values



Period June 2023 to June 2024

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Proposed adjustment of the current limit concept

Status quo

- Balance groups with metering points may take open positions in the amount of their maximum production
- Trading balance groups may take open positions depending on the collateral deposited

Proposal

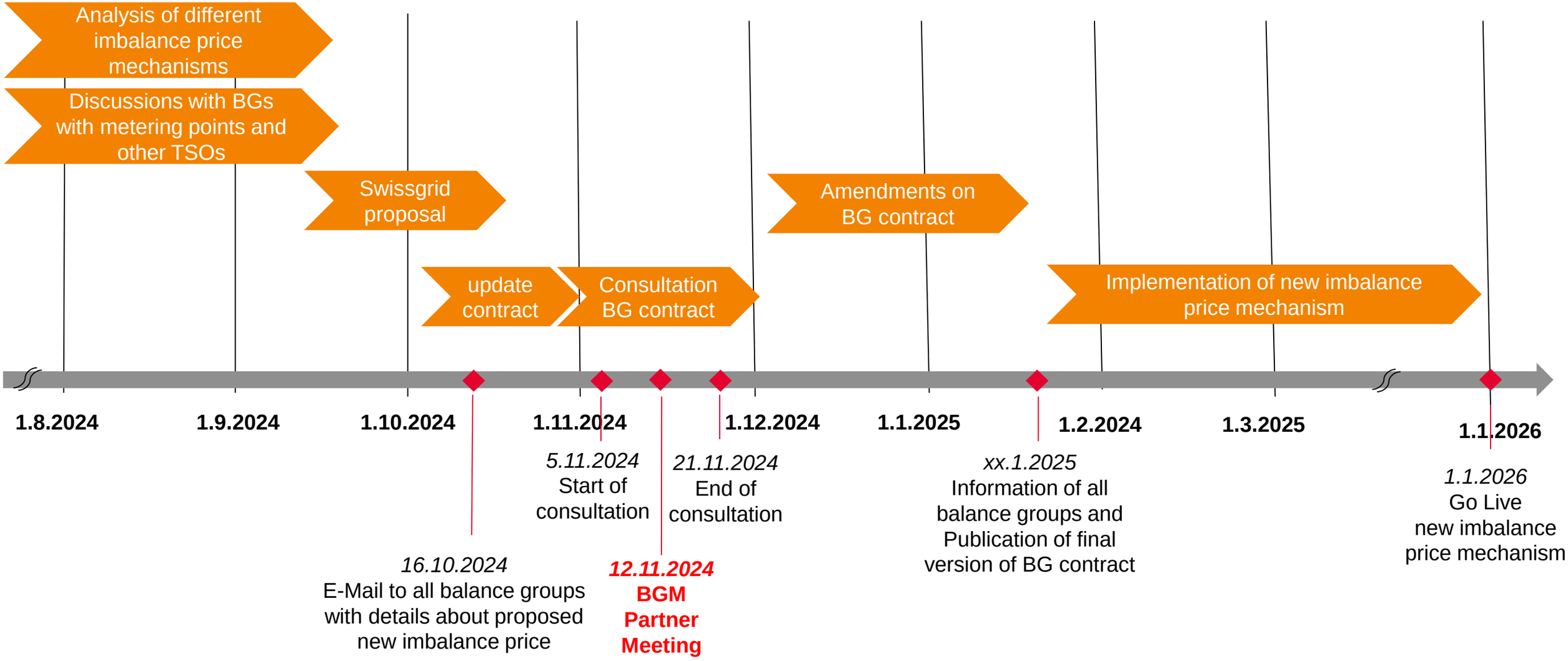
- Balance groups with metering points may take open positions in the amount of their maximum production, same as today
- Trading balance groups may take open positions in real time for limit sets 5-7, depending on the collateral deposited
- Control area-supporting is still permitted for the first four limit sets due to the low level of deposited collaterals and the therefore resulting risk for Swissgrid

Limit 1: DA bis D-2h [MW] (long/short)	Limit 2: D-2h bis COT ID [MW] (long/short	Limite : COT ID und PS [MW] (long/short)	Collateral [EUR]
10	10	10	100 000
25	10	10	200 000
50	25	10	400 000
100	25	10	550 000
200	50	10	850 000
300	75	10	1 100 000
400	100	10	1 400 000

Limit 1: DA until D-2h [MW] (long/short)	Limit 2: D-2h until COT ID [MW] (long/short)	Limite : COT ID and PS [MW] (long/short)	Collateral [EUR]
10	10	10 *	100 000
25	10	10 *	200 000
50	25	10 *	400 000
100	25	10 *	550 000
200	50	20	850 000
300	75	25	1 100 000
400	100	30	1 400 000

* This limit set may not be used to contribute to actively balance the Swiss control area; there is an obligation to ensure a zero power balance. The reason for this is the insufficient collateral deposited for these limit sets, which represents too high a risk for Swissgrid.

Planning introduction of the proposed imbalance price mechanism



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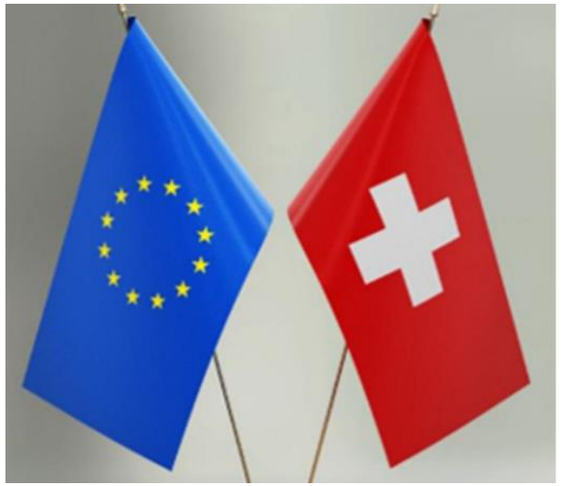
Changes in the framework conditions can affect imbalance price mechanism

If new framework conditions arise before or after the introduction of the proposed new imbalance price mechanism, for example…

- signing of electricity agreement or
- accession to the cross-border balancing energy co-operations



Swissgrid may amend the contract at any time in compliance with the deadlines specified in the Balance Group Contract.

After a signed electricity agreement, imbalance price mechanism can…

- change from weighted average costs to marginal costs for secondary and tertiary control energy
- include Swiss intraday price in the formula

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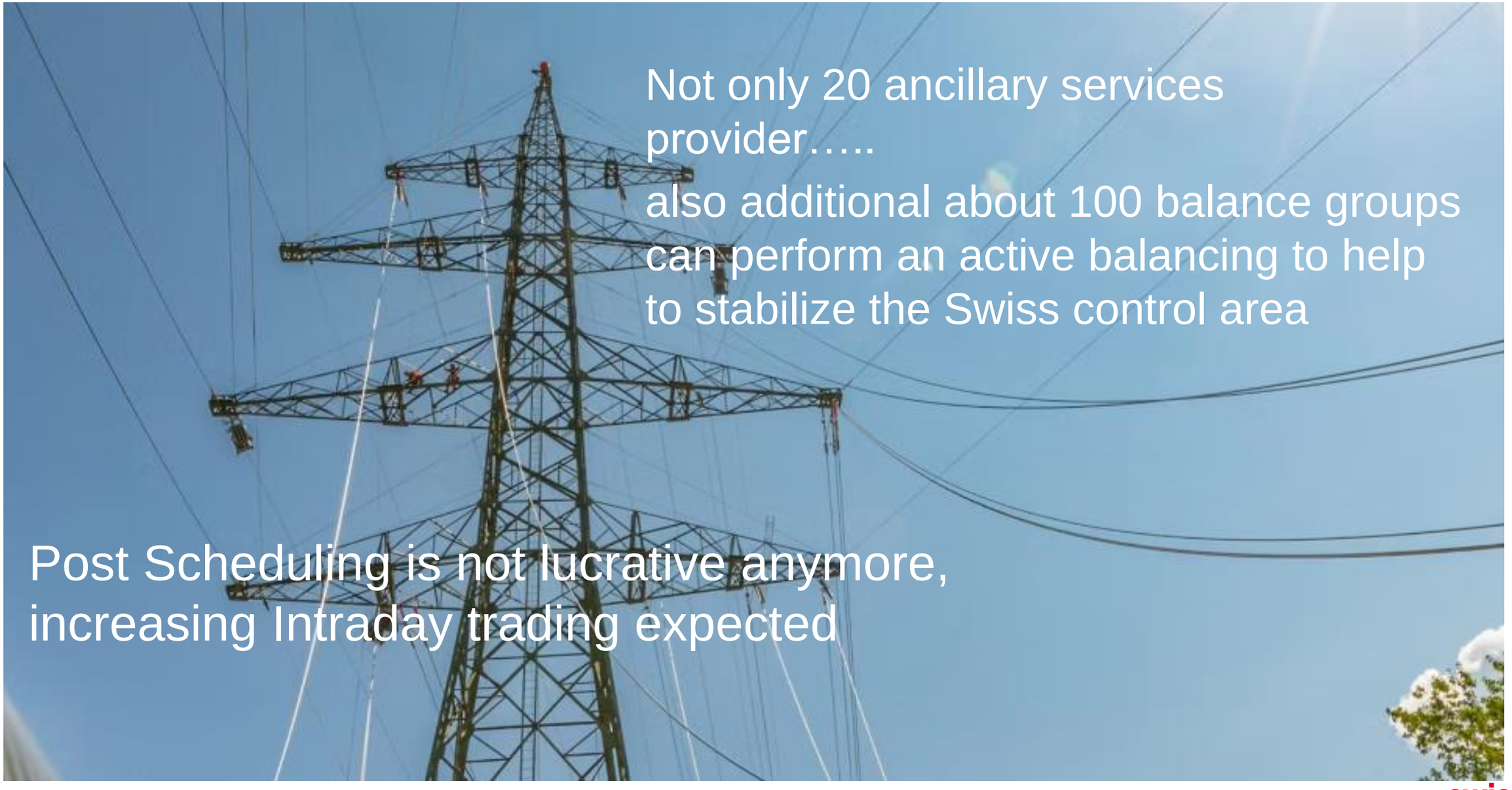
Summary of main advantages of the proposed change to a one-price system



More detailed information about the proposed new imbalance price mechanism or the ongoing consultation will be provided during the breakout session in the afternoon

We are very much looking forward to interesting discussions with you there!

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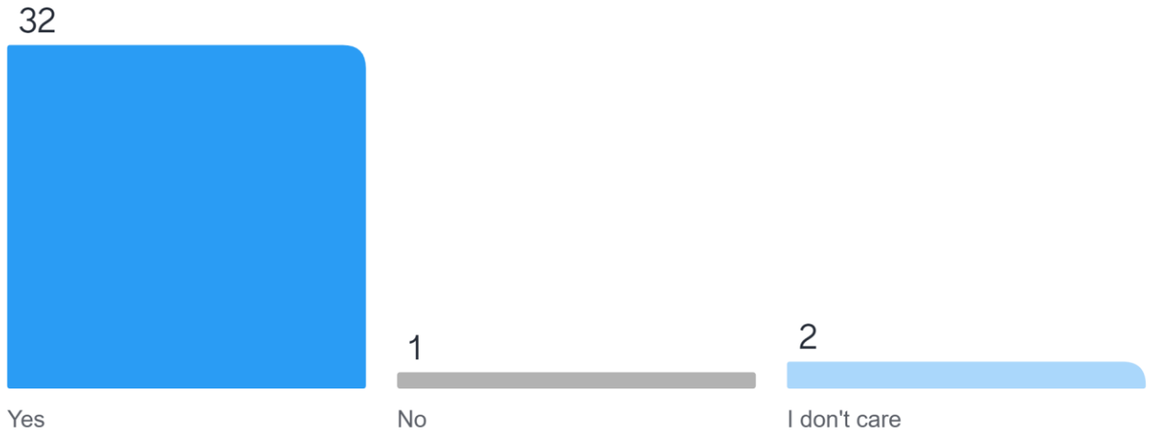
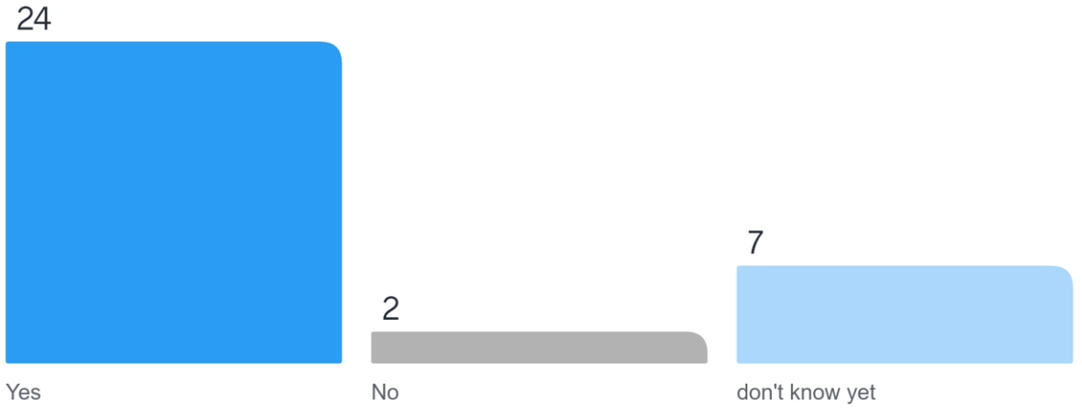
Survey of meeting participants

Do you support the switch to the one-price system?



Could you imagine helping to balance the Swiss control area?



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See you again in a year

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Presentations are available on Swissgrid website:
https://www.swissgrid.ch/en/home/customers/topics/bgm.html#operational-documents

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