

NASDAQ OSLO ASA GENERAL COMMENTS TO
THE NORWEGIAN MINISTRY OF PETROLEUM AND ENERGY
HØRING OM STRØMPRISUTVALGETS RAPPORT
“BALANSEKUNST”

The Norwegian Ministry of Petroleum and Energy (hereinafter OED) has invited market stakeholders to comment on Strømprisutvalgets report "Balanseskunst". Nasdaq Oslo ASA (hereinafter Nasdaq) appreciate the OED consultation and engagement with the industry.

Executive Summary

Nasdaq share Strømprisutvalgets view that there is a high value of a liquid Nordic electricity future market on the exchange. Nasdaq has for a long time believed that the Nordic National Energy Regulators (NRAs) and the Transmission System Operators (TSOs) need to include a well-functioning future market on the exchange as a fundamental part of the Nordic electricity market design. It is not only essential for utilities and large consumers price volatility risk management, but also to secure an efficient end-user market, where a transparent and liquid future market on the exchange allows for competitive fixed prices for consumers.

Nasdaq welcomes Strømprisutvalgets proposal that Norway should follow Sweden`s example of commissioning Statnett to auction Electricity Price Area Differential (EPAD) contracts between bidding zones in Norway and on the borders of one or more neighbouring countries. We responded recently to the NVE-RME consultation "Hedging opportunities in Norwegian Bidding zones" where we recommended NVE- RME to support the existing hedging instruments relevant for the existing future market on the exchange. Consequently, we support introducing EPAD auctions for Norwegian bidding zones.

Nasdaq has advocated that for contracts traded in the future market on the exchange, the basis for calculating the resource rent tax "Grunnrenteskatt" (hereinafter referred to as tax) must be changed. Currently, the tax is calculated based on the spot price, but should instead be calculated based on the contract price. This change will remove the current tax risk where producers can only hedge up to 42.31% of their production, otherwise they may risk paying more in tax than they have in revenue. Tax differentiation of physical contracts covered by the exemptions, and financial and physical contracts not covered by the exemptions, results in undesirable consequences that weaken the liquidity in the future market on the exchange and limit consumers access to various types of fixed price contracts. The current method is outdated due to significant changes in market conditions since the tax's introduction in 1997.

In addition, a well-functioning Nordic future exchange market is fundamental in securing the green energy transition, where transparency and liquidity impact cost and ability to manage risk. The green transition and electrification will require large investments, where long-term hedging is essential to attract capital and secure needed investments at reasonable costs. The regulated future market on the exchange contribute to transparency and price discovery as well as establishing important price signals for market participants that also operate in the bilateral markets.

Nasdaq would appreciate to work with the key stakeholders, Ministries, NRAs and the TSOs to make the Nordic electricity future market on the exchange fit for the future.

Background

The physical Nordic electricity market design created by the Nordic TSOs and NRAs consists of 12 bidding zones (=area prices). To have a 100% bidding zone hedge there is a need to trade a Nordic system price future contract and an additional EPAD contract. (EPAD contracts are used to hedge the price difference between the area price and the Nordic system price).

As we have noted on numerous occasions, the high number of Nordic bidding zones, especially Norway`s 5 dynamic ones, challenge the creation of liquidity with EPAD contracts needed for managing future electricity price risks. The poor liquidity in the EPAD contracts is a big concern to hedgers and any measures taken to reduce the liquidity further will increase the already challenging market environment. In the past the Nordic

System price contract was a sufficient and relevant price hedge for the Norwegian bidding zones, but in today's environment it's more challenging. A hedge with the Nordic system price contract alone imposes a large risk due to the reduced correlation and large price differences between the Nordic system price and the 5 bidding zones.

The value of a liquid future market on the exchange

The value of a liquid future market on the exchange is mentioned several times in the report. For example, chapter 15.4.9 mentions "Bedre likviditet i terminmarkedet kan gjøre det enklere og rimeligere for strømlleverandører å tilby fastpriskontrakter til husholdninger og små og mellomstore bedrifter". Nasdaq agrees that this is one of the values of a liquid and transparent future market on the exchange since it 1) secures competition between all producers and all suppliers 2) makes it possible for producers, suppliers, and end-consumers to adjust their risk exposure and 3) provide equal treatment for all members independent of size and business. However, this is not the only value a liquid future market on the exchange produces. It also contributes to the following:

- Objective investment signals for new production, consumption, and transmission capacities
- A reference price for bilateral agreements such as Power Purchase Agreements (PPAs)
- Low capital cost for new investments
- Optimal disposal of hydro reservoirs
- Increased competition in the physical market

The liquidity in the future market on the exchange affects the credibility of the prices, meaning that when the liquidity is low, the credibility of the prices will be low as well. Low liquidity also implies that there will be more uncertainty regarding the prices in the future. This makes it demanding for developers and lenders to agree on prices when entering PPA agreements, since these prices serve as reference prices for such bilateral agreements. A liquid future market on the exchange lowers this uncertainty, and thereby reduces capital costs and risk for new investments compared to when uncertainty is high.

The decreased liquidity in the future market on the exchange could reduce the robustness of the price formation and limit the information it contains. Nasdaq observed this when the Norwegian government in September 2022 introduced increased taxation on hydro power producers and the introduction of a new fixed price regime of 3, 5 and 7 years. With these changes the Norwegian power producers were forced to reduce their hedging activity at Nasdaq to a minimum of around 10% of the production capacity (including Høyprisbidraget). This entailed that the Norwegian power producers' evaluation of the future electricity price was not incorporated in the daily prices published on the exchange. This in turn meant increased asymmetric information between large and medium/small producers bidding in the physical market i.e., reducing the competition in the physical market, and increasing the possibility of sub-optimal hydro disposals.

A liquid future market on the exchange is the "key" to the green transition

Without a liquid future hedging market on the exchange, the green transition will be challenging. The Nordic electricity market, as other electricity markets, needs massive investments during the next decades to secure the net-zero targets. Not only do we need to invest in new renewable production to meet increasing demand, but also new technologies and infrastructure.

The key to succeed with the green transition to a net-zero economy is to secure efficient markets that allows the market to hedge against price volatility and counterparty risks. Liquid and transparent future markets on the exchange secure and attract funding of renewable projects from capital markets. Long term PPAs (10-20 years) use long term price formation in the future market on the exchange as reference. Also, PPAs are hedged via complementary trading in the future market on the exchange closer to delivery (2-3 years) to reduce price risk and counterparty risk. The increase in use of PPAs as an enabler for renewable investments must be linked with liquidity in the future market on the exchange.

Contract's price for calculating the resource rent tax ("Grunnrenteskatt")

One important measure to ensure a liquid future market on the exchange, is to change the structure of the tax from an income calculation based on the spot price to a calculation based on the contract price. When the Norwegian government introduced new fixed price contracts of 3, 5 and 7 years "Vestrevtalene" in September 2022, they made them more attractive for the hydro producers by allowing them to use the contract price when calculating the tax.

Tax differentiation of physical contracts covered by the exemptions, and financial and physical contracts not covered by the exemptions, results in undesirable consequences that weaken the liquidity in the future market on the exchange and limits consumers' access to various types of contracts. Nasdaq has advocated for a broad tax rule that will provide predictability and stability independent of where the contract is traded or negotiated. We believe that for contracts traded in the future market on the exchange, the basis for calculating the tax must be based on the contract price. This will remove the discriminatory tax risk for contracts traded in the future market on the exchange, where producers can only hedge up to 42.31% of their production.

Currently the basis for the tax is the spot price and the producers are left with an unpredictable tax-risk. As an example, if a producer sells power on a fixed price long-term-contract for year 2028 on the exchange at 50 EUR/MWh and the spot price in delivery (2028) turns out to be 200 EUR/MWh, the basis for the tax is 200 EUR/MWh. This would result in a huge tax bill where the producer would risk paying more in tax than the actual revenue.

The current tax method is outdated due to significant changes in market conditions since the tax's introduction in 1997. Please see Appendix 2 for more information.

Hedging opportunities in the Norwegian bidding zones:

Nasdaq support Strømprisutvalget when they in chapter 2.7.2 recommend an assessment of whether Norway shall copy Sweden's auctioning of EPADs. With Nasdaq listed EPADs there are sufficient hedging products available in Norway for all 5 bidding zones that have proven their efficiency but lack liquidity. NVE- RME should therefore request Statnett to fulfil the obligation under article 30.5 sub-point b), which was included in the Commission Regulation Network Code on Forward Capacity Allocation (NC FCA) at the request of the Nordic Energy Regulators (NordReg in 2014).¹ Requesting Statnett to support existing hedging products would be in our view the most efficient way of improving the hedging opportunities in the Norwegian bidding zones, while fulfilling their obligation.

The EPAD auctions provide:

- 100% bidding zone hedge for market participants against the volatility in the day-ahead market.
- 100% cross border hedging possibility for market participants.
- Increased forward market liquidity, open interest and tighter spreads resulting in
 - Increased value of the reference price and,
 - Increased hedging opportunities in the secondary market.
- Clearing to reduce counterparty risk.
- Support to the day-ahead auction and creditability of the System Price.
- Social welfare gains through increased competition and price transparency

Please see Appendix 1 for more information about the positive effects of the Swedish EPAD auctions.

In addition, the FCA article 30.5 b) opens the possibility for NVE-RME to consider a market maker function for illiquid EPAD contracts. However, this initiative should be an additional measure to the EPAD auctions to further strengthen the liquidity in the future market on the exchange.

¹ NordReg position paper "Nordic NRAs proposal for NC FCA improvements"

The Norwegian NRA should consider a bidding zone redesign.

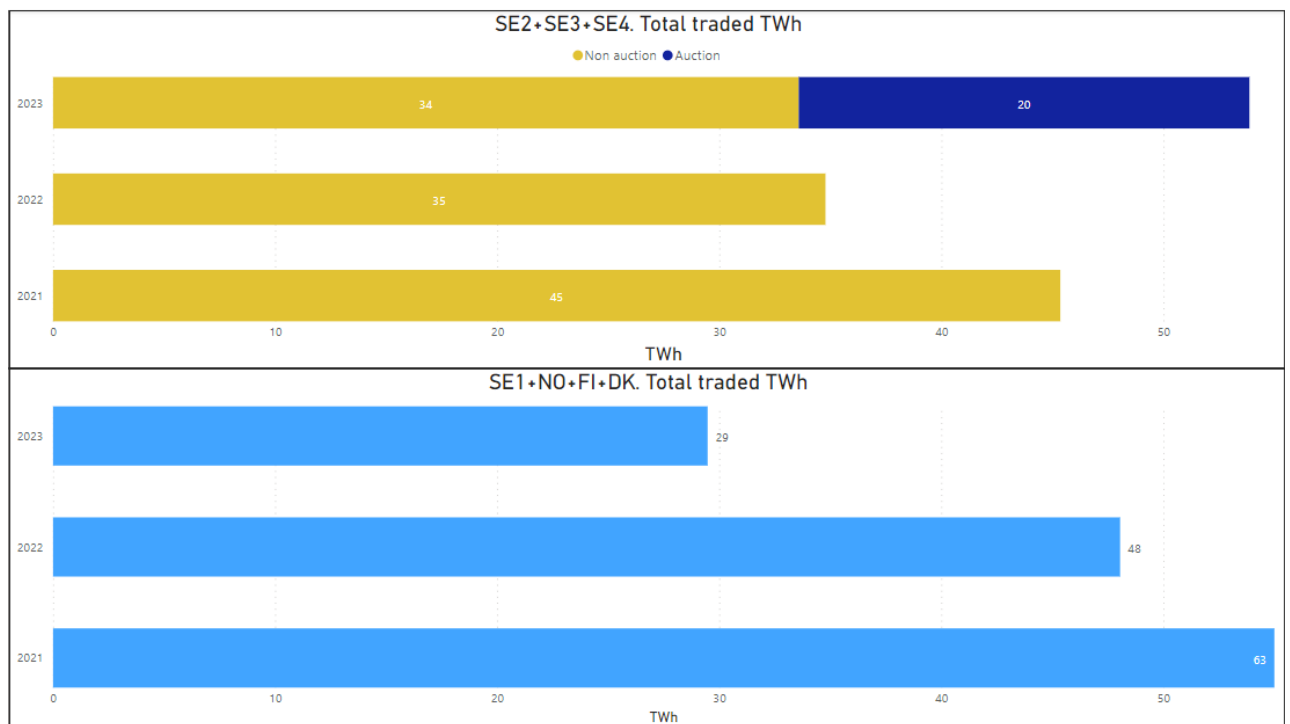
In the longer perspective, we strongly recommend NVE-RME to consider redesigning the Norwegian physical market. The biggest challenge for creating liquidity and sufficient hedging opportunities is the high number of bidding zones (5). In addition, these are dynamic bidding zones that may be changed on a short notice. Smaller dynamic bidding zones with few producers and consumers will naturally lead to lower liquidity and reduced competition. We lack a more in-depth analysis of the consequence of how smaller bidding zones may impact the market's ability to handle risk through hedging, both for existing consumers and producers, and the need for new production to meet our climate targets and increased future demand. Further, the large price differences between the price areas have significant impact on society and especially for industries located in high-priced areas.

Appendix 1

The Swedish TSO Svenska Kraftnät (Svk) introduced EPAD auctions in February 2023 for the Swedish bidding zones SE2, SE3 and SE4 with positive effects to the future market on the exchange. The Swedish EPAD auctions are being conducted as a pilot project with the aim of supporting a well-functioning market in accordance with Article 30.5 b of the NC FCA. SvK recently announced that it is extending its EPAD auction project until 31 December 2024.

Further in September 2022, the Energy Regulatory Authority (ACER) decided to recommend the Swedish and Finnish TSOs to submit a proposal for EPAD links/auctions to their NRAs. The decision refers to the Swedish EPAD pilot as an example of how TSOs can support the future market on the exchange.

Fig. 1 Traded and cleared volumes (Jan-Nov) incl auction per 30.11.2023



The decrease in non-auction traded volumes in 2023 (Jan-Nov) was higher in the non-auction EPAD bidding zones, than in the 3 Swedish bidding zones SE2_3_4 compared to 2021. The total EPAD volume in SE2_3_4 including the auction was 20 % higher than Jan-Nov 2021.

Fig 2 Auctions supporting the existing forward market per 30.11.2023

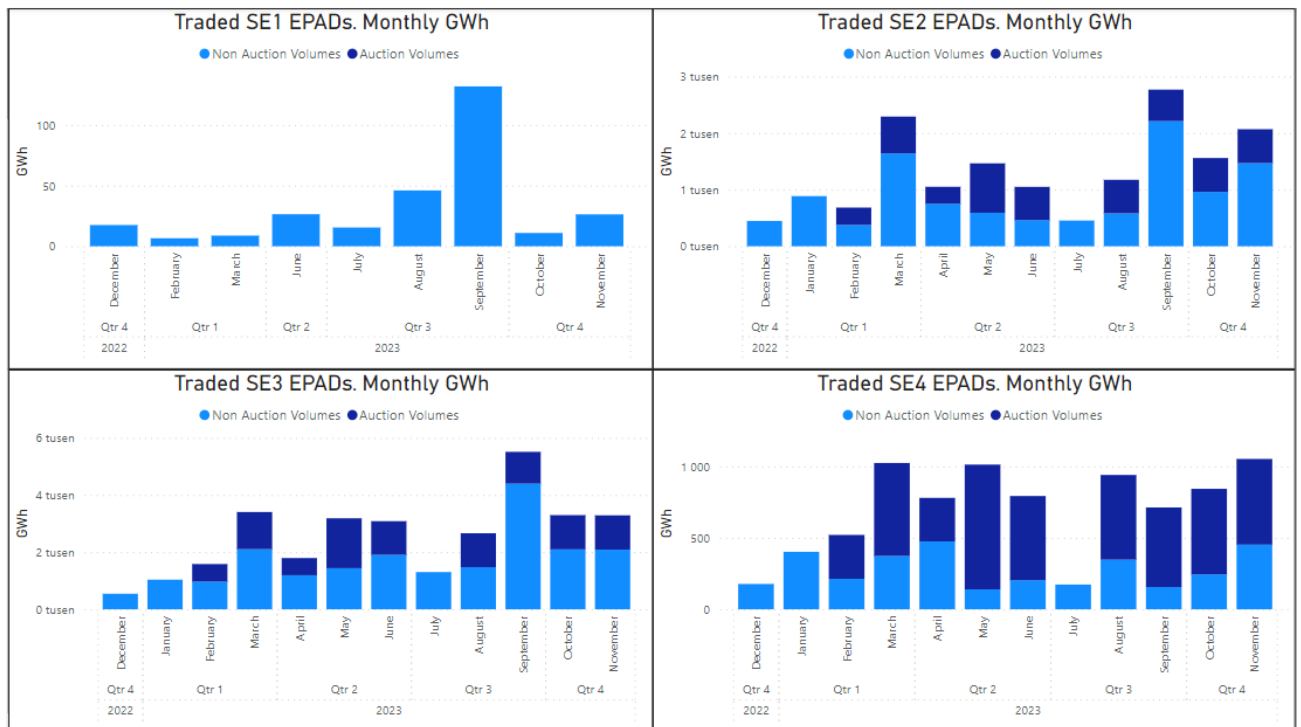
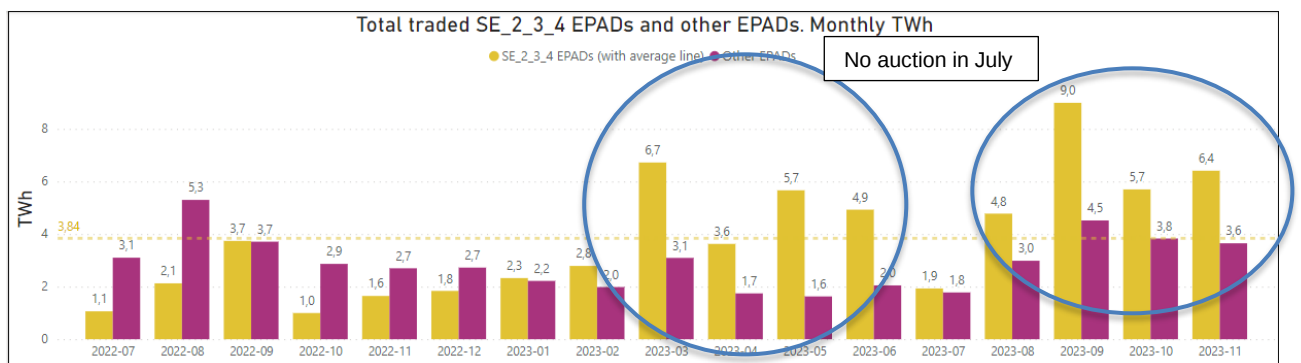
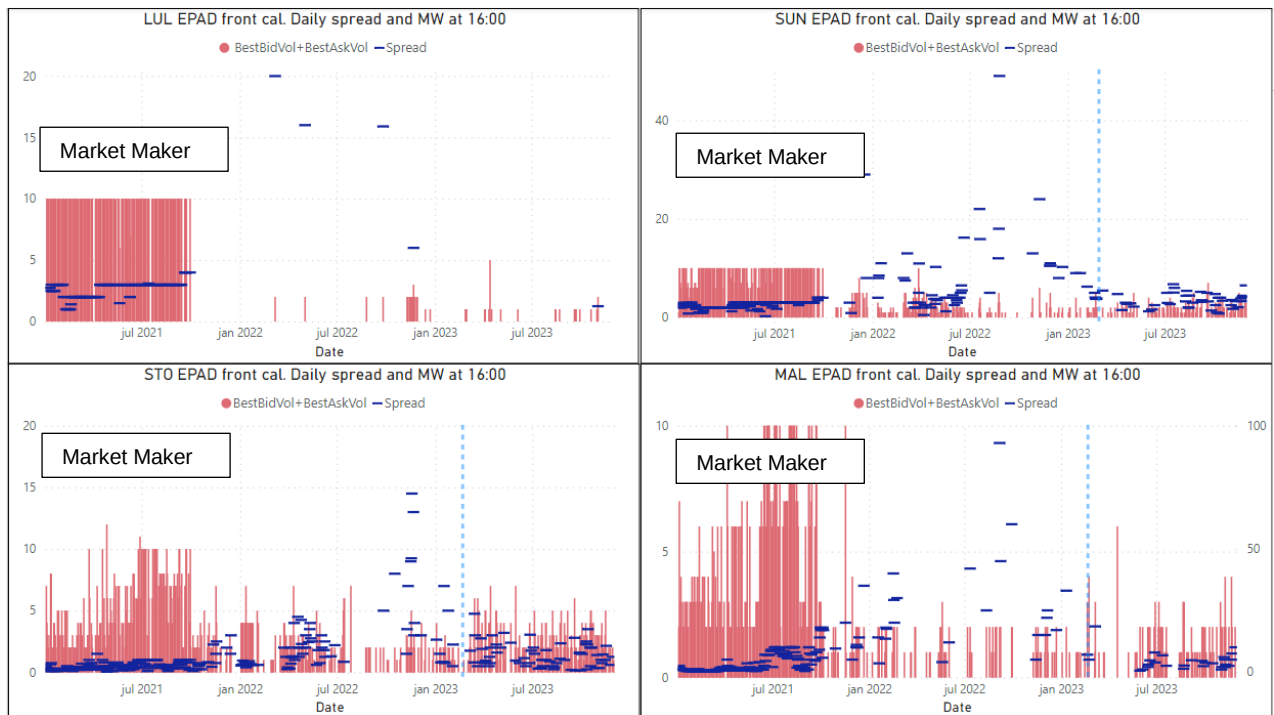


Fig 3 Auctions are providing hedging opportunities in SE 2_3_4 per 30.11.2023 (auction and secondary market)



The total traded and cleared volumes have been higher for the non-auction bidding zones, but since February 2023 the total volumes (auction and trading) in SE2,3 and 4 go beyond the non-auction bidding zone volume.

Fig 4 Daily spread and volume at best bid/offer in MW at 16.00 end of day for the front calendar year from 02.01.2021-30.11.2023



The flat red bars up to September 2021 shows the bid+ask order volumes shown by a market maker. The blue lines show the Bid-Ask-spread at 1600h. From Sep. 2021 (without Market Making) volumes decreased and the spread increased (or no spread) From the start of the EPAD Auction (blue vertical line), volumes have increased, and spreads decreased (without Market Maker)

Fig 5 Positive impact on liquidity in the future market on the exchange

SVK/SKM/Nasdaq EPAD Auction Pilot

- ACER decision in September 2022 supported the Swedish NRA (EI) proposal to auction EPAD between the Swedish(SE3 and SE1) and Finnish borders under the NC FCA regulation article 30.5 b)
- Based on ACER support [Svk](#) has started a national pilot project to auction approx. 20 TWh Swedish EPADs (1 year); possibility for extension for additional one year
- EPAD auction run by SKM and cleared by Nasdaq Clearing AB
- First auction in Feb. 2023
- [Svk](#) auction EPAD COMBO with the condition buy low and sell high
- Market participants can buy/sell single EPADs
- EPAD auction experiences so far
 - SE2, SE3 & SE4
 - 20-25 members participating in the auctions
 - 5-7 times oversubscribed
 - Excellent reception from market and authorities

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Epad auctions boost Swedish futures trading – SKM, Nasdaq

(Montel) Swedish TSO Svenska Kraftnat's launch of auctions for power futures trading in domestic bidding zone contracts this winter has increased hedging options for market participants, said brokerage SKM and power exchange Nasdaq on Thursday.

"The auctions have definitely boosted liquidity on Epad contracts. We have seen a good mix of different types of market players participating," Pierre Stromvall, CEO of SKM, told Montel.

The firm had organised three auctions on behalf of the TSO since 7 February, which had been strongly oversubscribed, he added, with the aim to boost liquidity on Epads.

General liquidity on the Nordic power market in deals secured through SKM had also increased after the auctions were launched, he said.

Power exchange Nasdaq had also seen a rise in activity in recent months, with trading volumes for financial power contracts hitting a 6-month high in February.

"Positive effects"
"We clearly see positive effects from the auctions since they contribute to stronger liquidity in our markets. My impression is that higher Epad liquidity also leads to increased trading on system price-indexed contracts," said Georg Aasen, vice president at Nasdaq Commodities.

Appendix 2

Nasdaq has advocated that for contracts traded in the future market on the exchange, the basis for calculating the tax must be changed to a calculation based on the contract price. The current method is outdated due to significant changes in market conditions since the tax's introduction in 1997. Many of the arguments used when the tax was implemented no longer exist.

Four reasons for why the spot price is used as mentioned in Ot prp nr. 23²:

1. «Begrense skattyters motiver til å foreta disposisjoner ut fra skattemessige hensyn».
2. «Unngå at det oppstår skattemessige motiver for skattyter til å selge kraft til lavere priser for dermed å kunne unngå skatt på grunnrente». The Norwegian Ministry of Finance also pointed out that «det kan oppstå ekstraordinær fortjeneste ved at foretak har vært spesielt dyktige til å forhandle fram gunstige avtaler».
3. «Det er videre administrative problemer forbundet med å benytte annet enn markedspriser til fastsettelse av den skattepliktige inntekten».
4. Spotmarkedsprisen gir et objektivt uttrykk for hvilken pris kraften kan selges til og er dermed et godt anslag på grunnrenten.

The four reasons mentioned above are not issues in 2023 due to the following:

1. The implementation of MiFID II has led to all trades in the regulated future market on the exchange being marked either as a hedge or a speculative trade. This limits the possibility of unwanted tax adjustments and makes it possible for the tax to be based on actual contract prices.
2. The contract prices in a future market on the exchange are results of anonymous trading based on the market participants' expectations of future prices and is NOT a result of negotiation of contracts.
3. The use of contract prices for hedging in the future market on the exchange reduces administrative costs since reporting to Skatteetaten can be automated as these trades are already reported to authorities. Further, the contracts are standardized and define the delivery both «når på døgnet» and «når på året», which resolves the issue as stated above (in Ot prp nr. 23).
4. All trading in a regulated and transparent future market on the exchange is conducted in standardized contracts, where members may secure the power price for the future. Currently the basis for the tax is the spot price and the producers are left with an unpredictable tax-risk. As an example, if a producer sells power on a fixed price long-term-contract for year 2028 on the exchange at 50 EUR/MWh and the spot price in delivery (2028) turns out to be 200 EUR/MWh, the basis for the tax is 200 EUR/MWh. This would result in a huge tax bill where the producer would risk paying more in tax than the actual revenue.

² https://www.stortinget.no/no/Saker-og-publikasjoner/Stortingsforhandlinger/Lesevisning/?p=1995-96&paid=4&wid=a&psid=DIVL621&pgid=a_0569&s=True