



Annual Report

October 2021 to
September 2022

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Foreword from the SEM Committee



The difficulties faced this year have been stark. Consumers have struggled with increasing bills and our industry has faced the most challenging of market conditions. Russia's war in Ukraine has driven gas prices to historic highs, some 221% greater at the day ahead stage with the six-month forward price 323% greater compared to the year prior. That has had a substantial impact on SEM prices with significant increases seen in the market price.

In response to these challenging conditions, we have taken steps to protect consumers and the market. By reprioritising our work programmes, we have been able to focus our teams on timely market interventions. We made adjustments to the collateral arrangements to help prevent suppliers being forced to leave the market, preventing a further burden on consumer bills. We postponed DC rounds, carried out further analysis and changed processes which strengthened the ability of the DC pricing model to reflect unprecedented market price volatilities. Following feedback from market participants, we assessed if there was a need

for an exceptional recalculation of the strike price and committed to keep this under review. We also consulted on a possible modification to the balancing market to determine if changes should be made to reduce the volatility of the imbalance price. We remain ready to make any further necessary interventions to ensure the market continues to operate in the best interests of consumers.

In addition to managing the impacts of higher international fuel prices in the market, we have taken steps to bring further improvements to the energy system. The Transmission System Operator identified a potential capacity shortfall in Ireland for the winter periods of 2021/22 to 2025/26 as set out in the All-island generation capacity statement 2021. In response, specific jurisdictional measures have been implemented in Ireland to help provide additional stability and resilience to the system. The most recent generation capacity statement, 2022-2031, further identified a deterioration in the security of supply outlook for Northern Ireland, with a notable reduction in the short-term surplus. Thirteen system alerts were issued across this reporting year when the margins between supply and demand became squeezed as generation took unplanned outages or wind availability was lower than expected. Directly addressing these security of supply challenges, we asked for industry feedback on an independent review of the performance of the Capacity Remuneration Mechanism. Along with other workstreams, including an assessment of the impact of inflation on the CRM, we continue to make enhancements to this critical market mechanism.

Two capacity auctions ran during the year securing new capacity for delivery in three and four years. This capacity will join the market having competed with existing capacity to deliver generation at a competitive price for consumers. We welcome the almost €1 billion of savings the CRM auctions have delivered to consumers in comparison to the old capacity payment mechanism. The monitoring of successful capacity continues as we see a diverse technology mix coming forward in response to decarbonisation targets.

As well as addressing these very significant market impacts, we have delivered on our 'business as usual' programme. Our market monitoring team has carried out a range of market investigations to ensure market participants continue to act in accordance with the market rules. They have also helped inform the market through the development of new monthly market performance reports which help increase transparency and also provide valuable information on market outcomes during these turbulent times. We carried out a suite of audits and dealt with a range of modification requests to market codes. This work helps ensure the market continues to run as it should and serves customers effectively.

Our move to an operational 75% SNSP operating standard during the year has helped support the decarbonisation targets of our governments. This world-leading standard will not only help us achieve ambitious carbon reduction targets, but improve the value of the market for our consumers. Our decision on the high-level design for future system services will also help the market deliver the critical services for effective market operation as we welcome a new

generation technology mix. We continued in our delivery of the requirements of the EU's Clean Energy Package including decisions on dispatch and re-dispatch. Along with progress on work to deliver an enduring solution to enable energy payments in the balancing market for demand side units, we have continued to manage the shift of new technologies to promote a decarbonised future.

We know there will be further challenges ahead as the market volatility we saw so much of during the year is likely to continue. Working with government, market participants and other key stakeholders we remain ready to collectively respond to these challenges. We thank our stakeholders for continuing to engage constructively and effectively with us as we seek to continue to protect the interests of the all-island consumer.

The end of this reporting year saw the end of appointment terms for independent member, Odd Håkon Hoelsæter and deputy independent member, Professor David Newbery. We thank them for their invaluable contributions to the Committee over the past ten years and wish them well for the future. We welcome the new independent members, Jonathan Hodgkin and Dr Chris Harris (Deputy) as they begin their terms on the Committee.

This year more than most exemplifies the agility, professionalism and responsiveness of our Regulatory Authority teams who have continued to deliver in the most challenging of circumstances. We thank them for their efforts and know that they will continue to effectively deliver for consumers as we face the challenges and successes that lie ahead.

Paul McGowan
SEM Committee Chair



The Year in Summary

KEY HIGHLIGHTS



The rise in international gas prices led to a 254% increase in day-ahead market prices.



The day-ahead market is worth over €10 billion.



High liquidity continues to be concentrated in the day-ahead market with over 86% of volumes traded in this market.



Gas prices were 221% greater at the day-ahead stage and 323% greater at the six-month forward price, having a direct impact on end market prices.

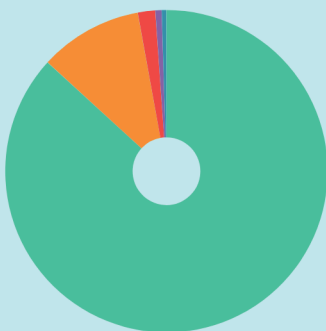


We increased to a 75% System Non-Synchronous Penetration (SNSP) operational standard.



Two capacity auctions ran across the year for delivery of capacity three and four years in advance.

Ex-ante market share by volume



● DAM ● IDA1 ● IDA2
● IDA3 ● IDC

DAM 86.22% IDA1 10.94%
IDA2 1.99% IDA3 0.74%
IDC 0.11%



DS3



75% SNSP NEW OPERATIONAL STANDARD

INTERCONNECTORS

Interconnectors flowing in the right direction, electricity moving from the **higher** market price to the **lower** market price



62%



of Interconnector flows have been allocated from the SEM to GB direction.



The Year in Summary



PRICES

Prices in the day-ahead market were up 254%.

The total value for each market was €10bn in the DAM, €1.2bn in IDA1; over €233m in IDA2; €94.7m in IDA3; and over €13m in IDC market.

CRM

Two auctions completed across the year:



T-3 for 2024/2025

Top up auction

1,471MW secured

Total cost €216m (£193m)



Results of T-1 top up auction for 2022/23 published:

7,412MW already secured from T-4 in 2019

Further 1,129 MW secured

Total cost of T-4 and T-1 €401m (£370m)

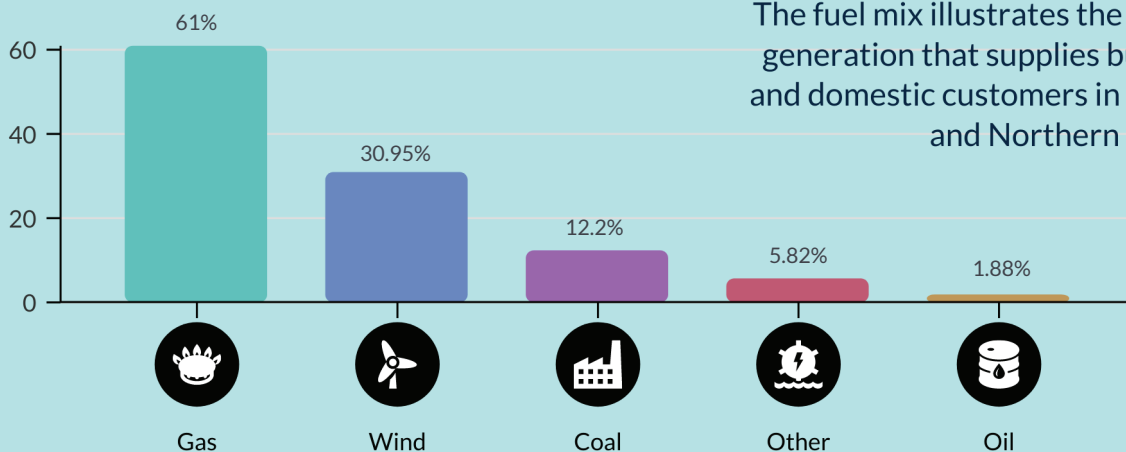


T-4 for 2025/2026

6,484 MW capacity secured

Total cost €363m (£323m)

FUEL MIX in the DAM



The fuel mix illustrates the type of generation that supplies business and domestic customers in Ireland and Northern Ireland.

How the SEM Works



The Single Electricity Market (SEM) is the wholesale market on the island of Ireland where electricity generators and suppliers trade the power used by homes and businesses across the island of Ireland

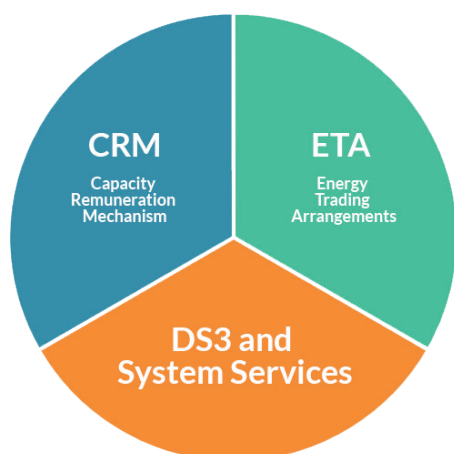
Much has changed since the SEM was established in 2007, not least the significant increase of renewable generation, introduction of new technologies and the increased advantages to be gained from interconnection with other markets.

To take advantage of new opportunities and to improve the efficiency, competitiveness and operation of the market, new operational arrangements were put in place from 1 October 2018. This project, known as ISEM, sought to make best use of all the power on the system and ensure that interconnectors operate in the most efficient way. Compliance with the EU target model and alignment of cross border trading arrangements within the region was also at the core of the project.

Benefits of the SEM

The SEM brings significant benefits for all consumers. It provides trading opportunities for generators, suppliers and investors while delivering an efficient and competitive electricity market.

The market is designed to support competition, allow increased renewables on the system, encourage new investment and support security of supply, all while placing a downward pressure on prices.



The SEM comprises three distinct areas that provide revenue streams relating to the services provided by market participants. The Energy Trading Arrangements (ETA), Capacity Remuneration Mechanism (CRM) and Delivering a Secure Sustainable Electricity System (DS3)/System services make up the three main pillars of the market.

Energy Trading Arrangements (ETA)

The ETA are the activities comprising wholesale energy trading, which make up the major portion of revenue and cost for the majority of market participants. A key principle of the SEM is the flexibility it offers for those who wish to sell and purchase power. A number of markets each spanning different trading timeframes, have been designed to enable increasing levels of competition that place a downward pressure on prices whilst ensuring that the supply of power matches demand.

SEM energy markets are broken down between forward, day-ahead, intraday and balancing.



Forwards market

To manage wholesale electricity price risk and achieve longer-term certainty, forward contracts allow generators and suppliers to contract publicly via Contract for Differences (CfDs). This allows generators to sell a fixed volume for an agreed upon price covering a specific period of time which provides both generators and suppliers with more wholesale price certainty. In the SEM there are regulated and unregulated forward contracts.

Day-ahead market

	Market Opening	Market Close	Delivery Periods	Coupling
Day-Ahead Market (DAM)	11:00 (D-19)	11:00 (D-1)	23:00 - 23:00 (24 * 1 hr.)	SEM Only

The day-ahead market (DAM) is the largest ex-ante market by volume and value. Bids and offers can be submitted 19 days before the market closes at 1 am the day before delivery. An algorithm, call Euphemia (the acronym for Pan- European Hybrid Electricity Market Integration Algorithm), determines the market price and position for all participants on an hourly basis.

Participation in the DAM is not mandatory, but it is the only way of achieving a day-ahead position in the SEM that will minimise their exposure in the balancing market. Participants have opportunities to adjust their position by trading in the intraday market.

Intraday market

Market Name	Order Book Opening	Order Book Closing	Delivery Periods	Coupling
IDM Continuous Trading	11:45 (D-1)	1hr before real time (t-1)	48 * ½ hours	SEM only
IDA-1	23:00 (D -19)	17:30 (D-1)	23:00 - 23:00 (48* 1/2hrs)	SEM - GB
IDA-2	23:00 (D -19)	08:00 (D)	11:00 - 23:00 (24* 1/2hrs)	SEM - GB
IDA-3	23:00 (D -19)	14.00 (D)	17:00 - 23:00 (12* 1/2hrs)	SEM auction only

The intraday market (IDM) allows participants to adjust their physical positions closer to the time power is delivered. The IDM runs right up to one hour before trading and takes account of up-to-date market information including, for example, unscheduled plant outages or congestion on interconnectors.

The market consists of three daily auctions with IDA-1 and IDA-2 coupled with the GB market via the interconnectors. The third Intraday Auction (IDA-3) is a local SEM auction that is not coupled with the GB bidding area.

Balancing market

Market Name	Market Opening	Market Close	Delivery Periods	Coupling
Balancing Market	13.30 (D-1)	1hr before real time (t-1)	23:00 – 23:00 (48*1/2 hrs)	I-SEM only

The balancing market is different from the other markets in that it reflects actions taken by the Transmission System Operator (TSO) to keep the system balanced and secure. Unlike the other ex-ante markets, participation in the balancing market is mandatory.

The balancing market trading day is divided into 48 (30-minute) imbalance settlement periods, within which are six (five-minute) imbalance pricing periods. The submission window for market data opens 19 days ahead of the trading day and closes one hour before the start of each 30-minute imbalance settlement period. The imbalance prices for each five-minute imbalance pricing period are used to calculate the imbalance settlement price for each 30-minute imbalance settlement period.

A rules-based, flagging-and-tagging process is used to determine the initial imbalance price in each five-minute imbalance pricing period. The flagging-and-tagging process prevents bids and offers that are scheduled due to a system constraint, or where units are operating at a unit constraint, from influencing the imbalance price.

Capacity market

The Capacity Remuneration Mechanism (CRM) allows generators to recover their fixed costs. It also helps to ensure there is enough capacity to meet demand and that this capacity is purchased at a competitive price via an auction.

The auctions are run a minimum of one year before the capacity is needed. Auctions for capacity required four years before delivery help to encourage new investment by providing a clear and pre-determined revenue stream. By promoting competition between market participants, it ensures payments more closely reflect the value provided by the capacity

The overall costs of these capacity payments are spread among suppliers. Those generators that do not deliver the capacity when needed are subject to a financial penalty

Governance arrangements and market structure

The SEM Committee are the decision-making authority for all Single Electricity Market matters. Established in 2007 following the introduction of the SEM, legislation required the establishment of SEM governance in the form of a SEM Committee.

The Committee consists of three Commission for Regulation of Utilities (CRU) and three Utility Regulator (UR) representatives along with an independent and a deputy independent member appointed jointly by the Department for the Economy and Department of the Environment, Climate and Communications.

On 25th February 2014 the UR and CRU signed a Memorandum of Understanding that outlines how the two organisations will maintain and facilitate effective and beneficial co-operation and collaboration. This signifies the ongoing commitment of both regulatory authorities to work together to ensure the effective delivery of both joint and separate statutory remits and for the customers of the energy and water sectors they regulate. They are separately responsible for the licensing of market participants, implementation of market codes as well as the regulation of the network operators.

We are supported in our work by the Regulatory Authorities and their teams who work to deliver on our objectives. They are broadly structured across the areas of Market Modelling, Market Monitoring, Capacity Remuneration Mechanism, System Services, Audits, Market Operation and European Relations.

Corporate support is also provided for communications, procurement, legal and administrative matters to ensure we are able to discharge our duties effectively. The teams are guided by the Oversight Committee, led by the Director of Wholesale Markets in the UR and Director of Security of Supply and Wholesale in CRU.

The SEM is operated by the Single Electricity Market Operator (SEMO). This is a joint venture between the transmission system operators in Ireland (EirGrid) and Northern Ireland (SONI). EirGrid and SONI are also the Nominated Electricity Market Operators (NEMOs) for Ireland and Northern Ireland respectively. The NEMO is designated as responsible for the day-ahead and intraday market coupling in each national or regional bidding zone.

Detailed market rules and procedures govern the SEM with market behaviour scrutinised by our market monitoring unit.

Market Performance



The SEM ex-ante markets are traded via a number of auctions at the day-ahead and intraday stage. These auctions are complemented by continuous intraday trading. For each trading day, there are four auctions: Day-ahead (DAM), Intraday 1 (IDA1), Intraday 2 (IDA2) and Intraday 3 (IDA3). The majority of the market transactions take place at the day-ahead stage. The intraday and balancing markets clear the residual volumes to meet the all-island demand.

The DAM and IDA3 are local auctions in the sense that only orders originated by market participants in the SEM are matched. The IDA1 and IDA2 are coupled auctions, which means that orders originated in the SEM and GB are matched. As a consequence of the coupling process, the capacity of the SEM interconnectors is allocated in these two auctions. Interconnector flows are allocated in the direction of the higher price zone.

The SEM Trading Day starts at 23:00 (GMT) D-1 and ends at 23:00 (GMT) D. The SEM DAM and IDA1 take place in the day ahead of the delivery while the IDA2 and IDA3 take place within the day of the delivery and clear volumes for the remaining hours within the day.

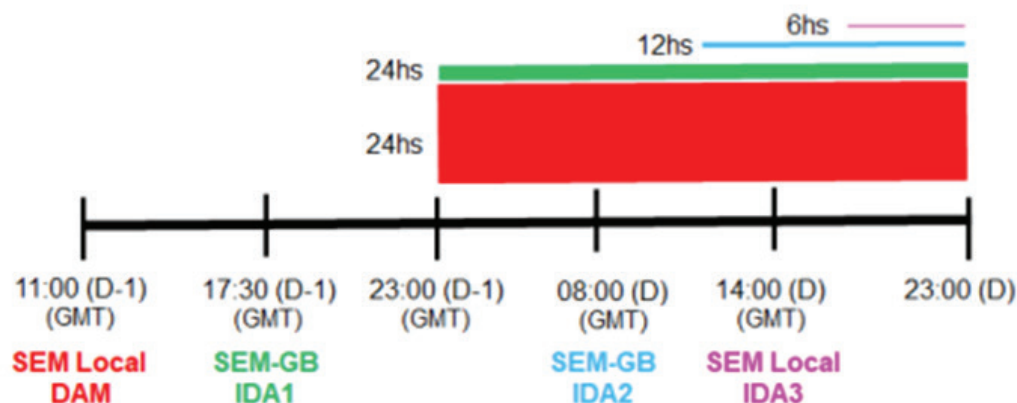


Figure 1: Timeframes and approximate volumes traded in SEM ex-ante markets

Figure 2 provides a snapshot of the overall market outcomes across the year. Explained in more detail across this report, this year saw unprecedented increases in wholesale gas costs which had a knock-on impact on day-ahead market prices. Gas prices were 221% greater at the day-ahead stage with the six-month forward price 323% greater compared to the year prior.

Monthly Averages	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
DAM (€/MWh)	214.77	204.72	250.40	201.46	175.11	293.25	218.26	143.27	181.84	267.19	387.64	283.25
% Change from previous month	10%	-5%	22%	-20%	-13%	67%	-26%	-34%	27%	47%	45%	-27%
% Change from previous year	346%	347%	326%	157%	204%	302%	155%	48%	91%	86%	195%	45%
Actual System Demand (MW)	4387	4735	4789	4834	4833	4675	4408	4208	4169	4085	4099	4197
% Change from previous month	3%	8%	1%	1%	0%	-3%	-6%	-5%	-1%	-2%	0%	2%
% Change from previous year	2%	5%	2%	2%	3%	4%	3%	0%	2%	-1%	-1%	-2%
Actual Wind Generation (MW)	1541	1542	1971	1682	2777	1559	1426	1428	1129	854	817	1081
% Change from previous month	77%	0%	28%	-15%	65%	-44%	-9%	0%	-21%	-24%	-4%	32%
% Change from previous year	-16%	-13%	-1%	11%	13%	-3%	31%	34%	13%	90%	-3%	24%
Gas Price (€/MWh)	80.46	80.34	109.16	81.61	76.55	124.91	66.21	38.25	55.33	90.30	147.59	92.16
% Change from previous month	30%	0%	36%	-25%	-6%	63%	-47%	-42%	45%	63%	63%	-38%
% Change from previous year	459%	463%	532%	262%	328%	594%	208%	46%	94%	149%	237%	49%
Carbon Price (€/Tonne)	59.44	66.22	78.99	84.16	90.96	74.69	81.09	85.41	83.74	81.34	88.20	70.29
% Change from previous month	-4%	11%	19%	7%	8%	-18%	9%	5%	-2%	-3%	8%	-20%
% Change from previous year	135%	150%	155%	149%	138%	81%	77%	63%	59%	52%	56%	14%
Coal Price (€/MWh)	28.56	17.63	16.94	18.89	23.26	44.28	39.91	42.55	44.66	52.67	49.03	48.20
% Change from previous month	38%	-38%	-4%	12%	23%	90%	-10%	7%	5%	18%	-7%	-2%
% Change from previous year	322%	184%	125%	142%	204%	460%	384%	341%	258%	243%	181%	133%
EWIC % Periods Import	39.58%	30.97%	25.77%	17.61%	18.15%	68.75%	0.00%	12.33%	27.16%	33.03%	25.84%	16.25%
EWIC % Periods Export	30.07%	31.18%	47.14%	48.19%	59.19%	17.04%	0.00%	23.49%	43.56%	56.52%	51.92%	41.81%
EWIC % Not Flowing	30.01%	37.85%	27.08%	34.21%	33.37%	14.21%	100.00%	64.18%	29.28%	10.45%	22.24%	45.28%
Moyle % Periods Import	57.00%	50.63%	24.29%	35.65%	27.31%	55.04%	56.33%	38.54%	40.44%	24.90%	31.55%	35.35%
Moyle % Periods Export	42.67%	49.38%	75.71%	64.35%	72.69%	44.83%	43.63%	61.46%	59.56%	10.72%	66.26%	63.85%
Moyle % Not Flowing	0.00%	0.00%	0.00%	0.00%	7.14%	0.13%	0.00%	0.00%	0.00%	64.38%	2.18%	0.80%

Figure 2: Market overview

Day-ahead market



The average daily price in the DAM was €235.71/MWh during the period from October 2021 to September 2022. The lowest price recorded in an hourly period was -€25.78/MWh and the maximum price recorded in a single period was €705.47/MWh. Prices in the DAM were 254% higher compared to the same period from October 2020 to September 2021. This increase has been primarily driven by a surge in the price of wholesale gas, which makes up the majority of thermal generation on the island.

Wholesale gas and electricity prices have reached record levels in 2021/22 and hit an all-time high following Russia's invasion of Ukraine. Gas prices increased by 221% at the day-ahead stage compared to 2020/2021. Record-breaking temperatures across Europe during the spring/summer of 2022 pushed energy demand to new levels, adding additional pressure on electricity generation which contributed to even higher energy prices. In total, the value of the DAM market for the year was over €10bn. Figure 3 illustrates the correlation between power and gas prices in the SEM.

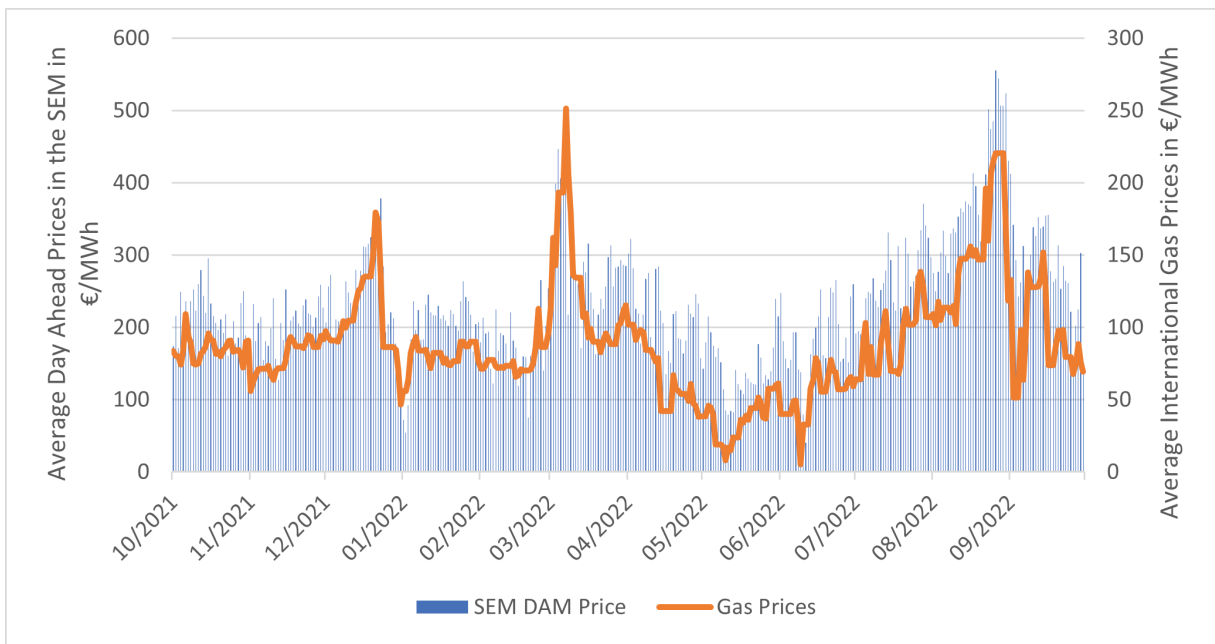


Figure 3 – DAM average price vs international gas prices

Figure 4, below, shows the evolution of gas prices from October 2020 to September 2022.

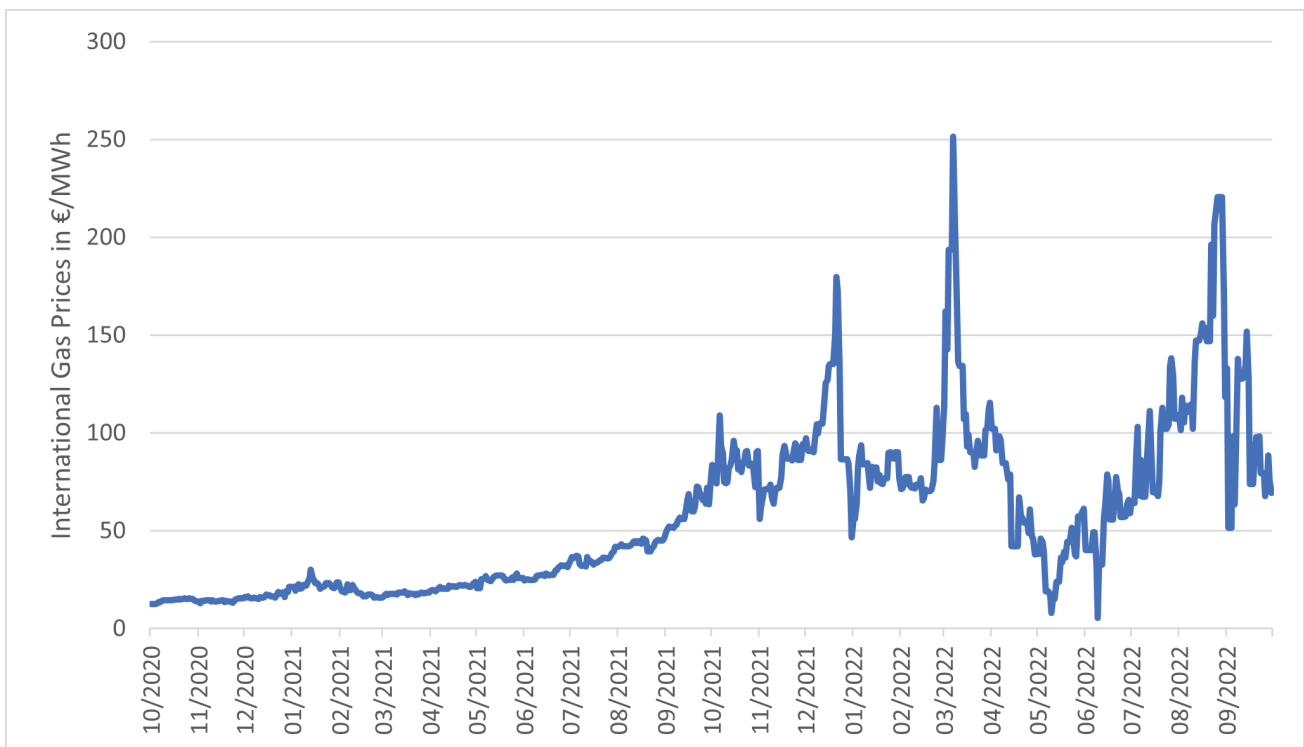


Figure 4 – Monthly international gas prices

Figure 5 below shows the average volume and price across each hourly period in the DAM showing how higher prices are correlated to peak demand and vice versa.

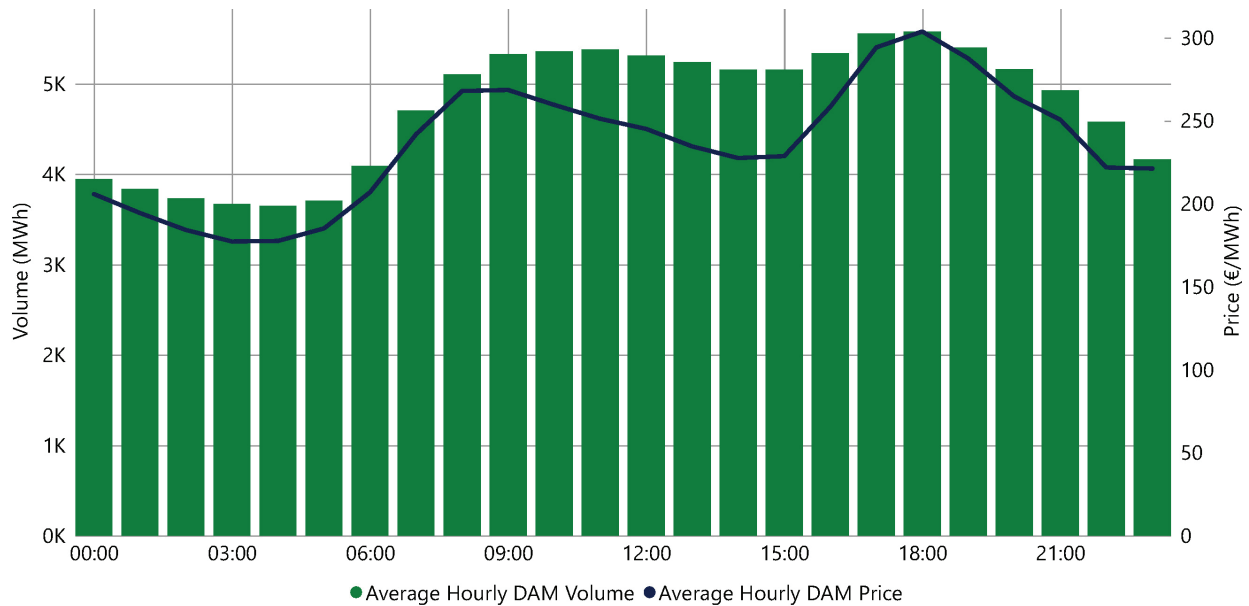


Figure 5: Average volume and average DAM price in each hourly period

The concentration of trading in the DAM, compared to the other markets before final balancing of supply and demand in the balancing market, has meant that over 86% of ex-ante volumes were traded through the DAM across October 2021 to September 2022. This is consistent with the previous year. This is illustrated in Figure 6, which shows the total daily volumes in each ex-ante market and Figure 7 translates this into a market share %.

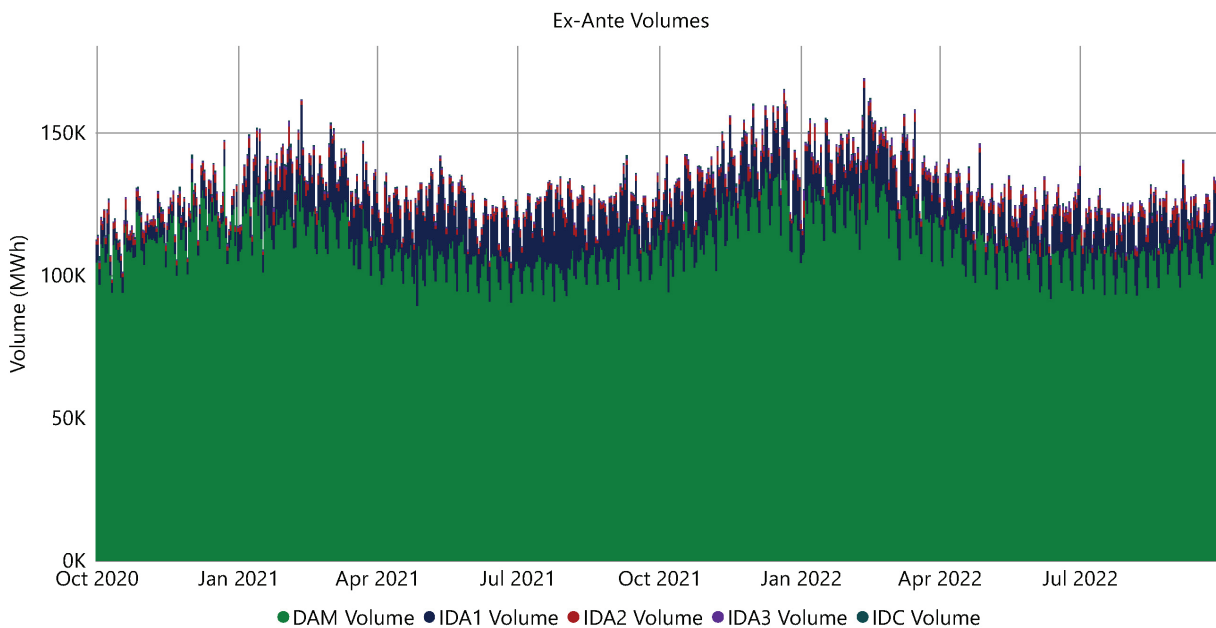


Figure 6: Daily market volume

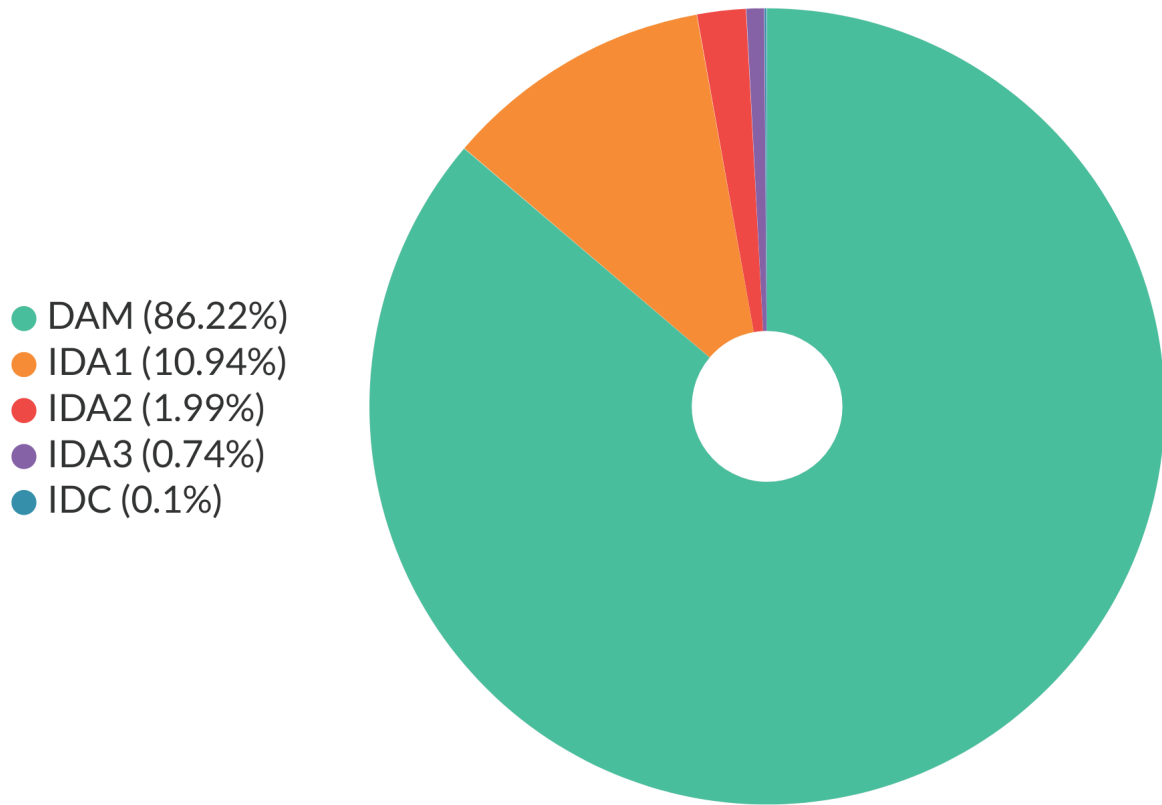


Figure 7: Market share by volume

Fuel mix in the DAM



The fuel mix illustrates the type of generation that supplies business and domestic customers in Ireland and Northern Ireland, including the role of renewable generation. Figure 8 shows that gas was the predominant fuel used for generation in the day-ahead market with 49.15% of metered generation. Wind made up 30.95%, with 12.2% coal and 1.88% peat. The remaining generation was made up of hydro, peat, biomass, distillate and pump storage.

Small scale generation, generating power less than 10MW, does not have to participate directly in the market. The fuel mix figures outlined in Figure 8 above does not therefore include many of the small-scale generators across the island. This generation is however captured in the overall fuel mix figures for the year as described later in this report.

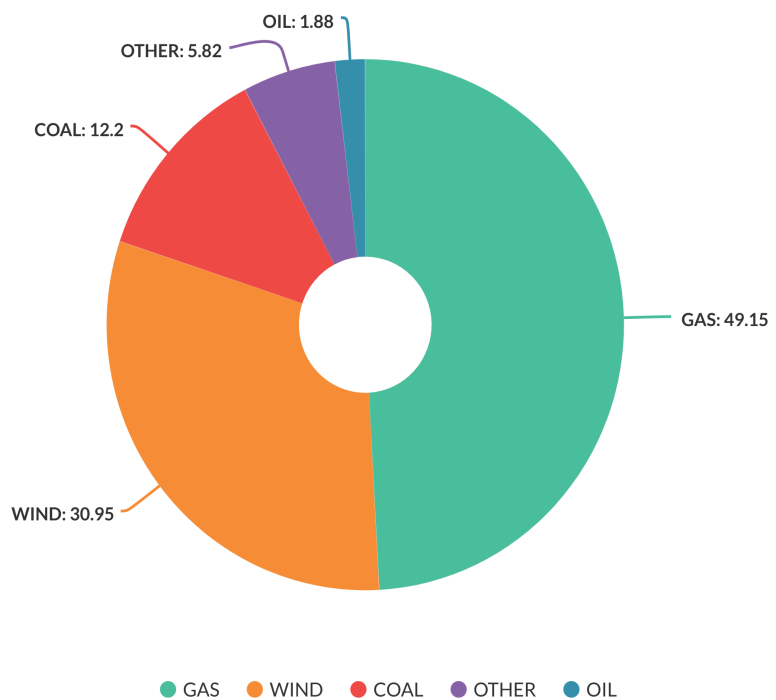


Figure 8: Metered generation by fuel mix

Wind and the DAM



DAM prices have been significantly impacted by the level of wind on the system and the forecast of wind at the day-ahead stage. Figure 9 shows that the level of wind can vary significantly over the year, having an important influence on the fuel mix and price formation.

Figure 9 shows the daily DAM price against the daily aggregated wind forecast. It shows the volatility of wind and its impact on the level and volatility of prices. Periods of high wind (columns) are associated with a reduction in DAM prices and likewise periods of low wind are associated with an increase in DAM prices.

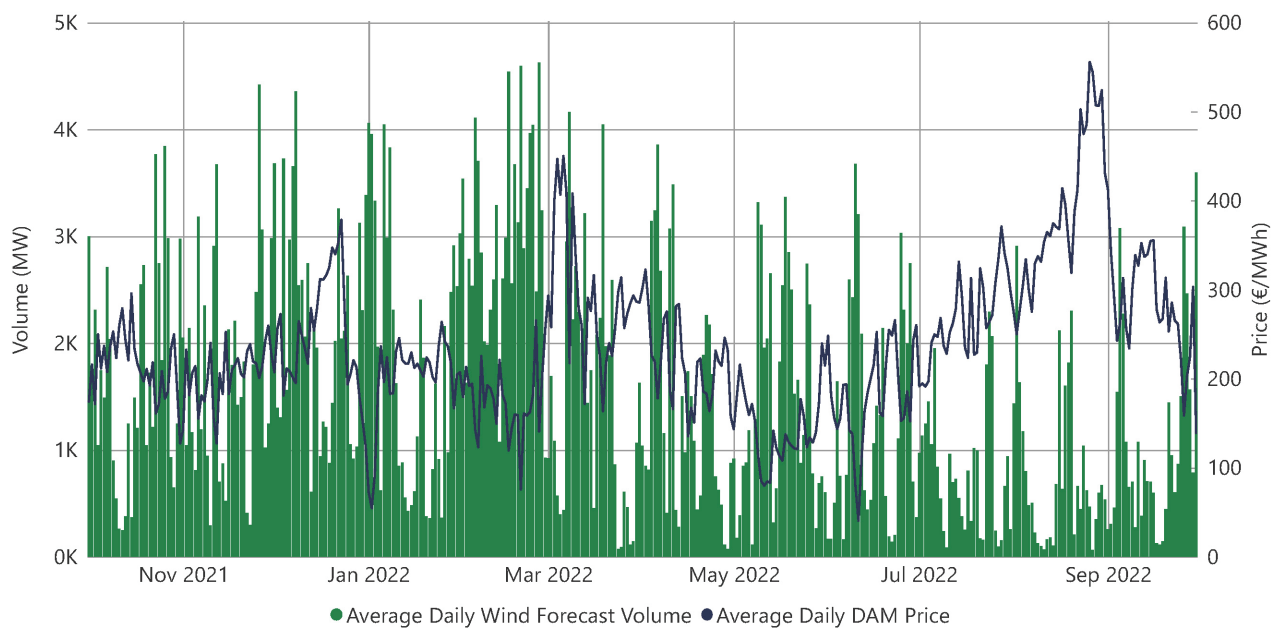


Figure 9: Average daily wind forecast and average daily DAM price

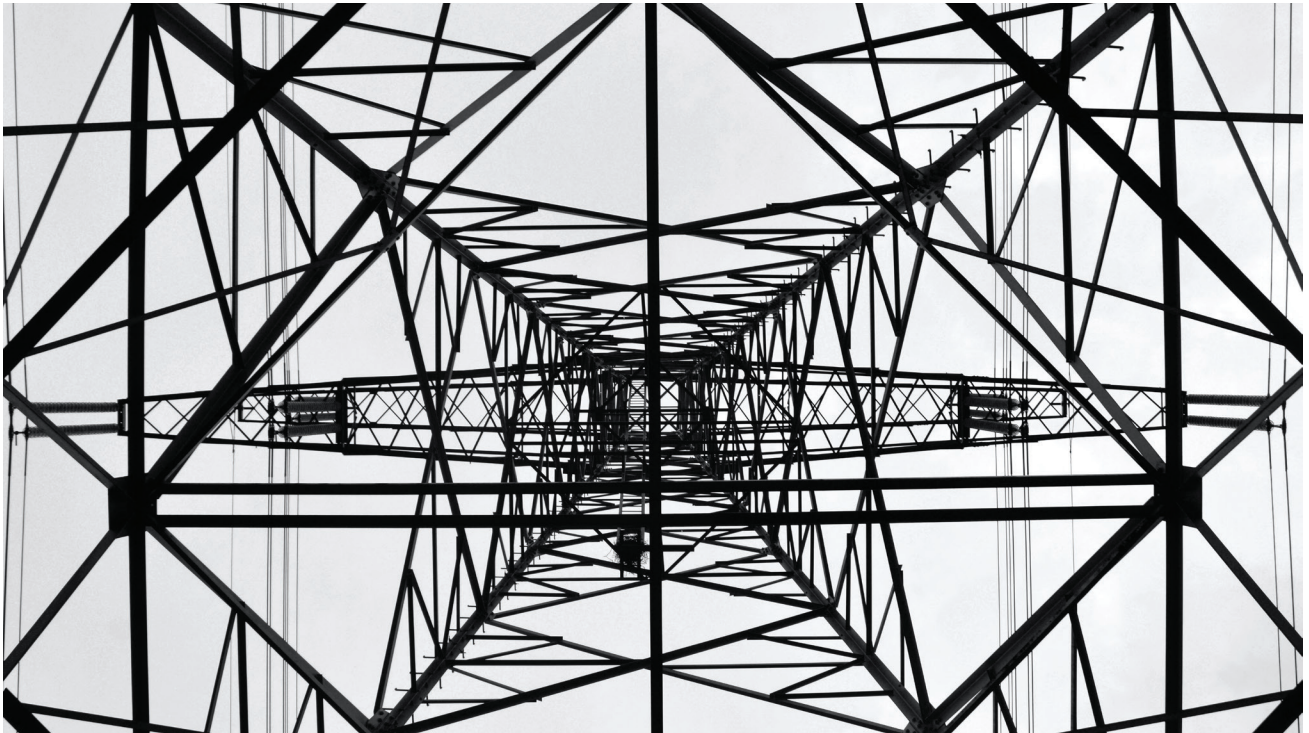
Figure 10 illustrates the relationship between prices the forecast level of wind across the year, highlighting the highest and low prices observed in the day-ahead market.

High Price-Low Wind				Low Price-High Wind			
Date	Time	Price (€/MWh)	Wind Forecast (MW)	Date	Time	Price (€/MWh)	Wind Forecast (MW)
09/03/2022	18:00	705.47	668	03/01/2022	03:00	-25.78	4187
09/03/2022	19:00	705.47	573	01/01/2022	06:00	-23.72	4770
04/03/2022	18:00	668.00	246	03/01/2022	04:00	-19.70	4136
06/03/2022	18:00	661.13	885	02/01/2022	06:00	-19.60	3698
27/08/2022	18:00	653.17	42	03/01/2022	02:00	-18.88	4237

Figure 10: DAM prices and forecast wind periods

The table shows that highest prices are all occurring at evening peak demand (18:00) with the lowest prices overnight where demand on the system is lower.

Day-ahead market price comparison



Many factors impact on DAM prices, including of levels of demand, wind, fuel prices, carbon prices and power plant availability. Figure 11 compares the seven-day rolling average DAM price 2021/22 with the DAM price in 2020/21. Over 2021/22 the average DAM price has increased (254%) compared to the same period in 2020/21.

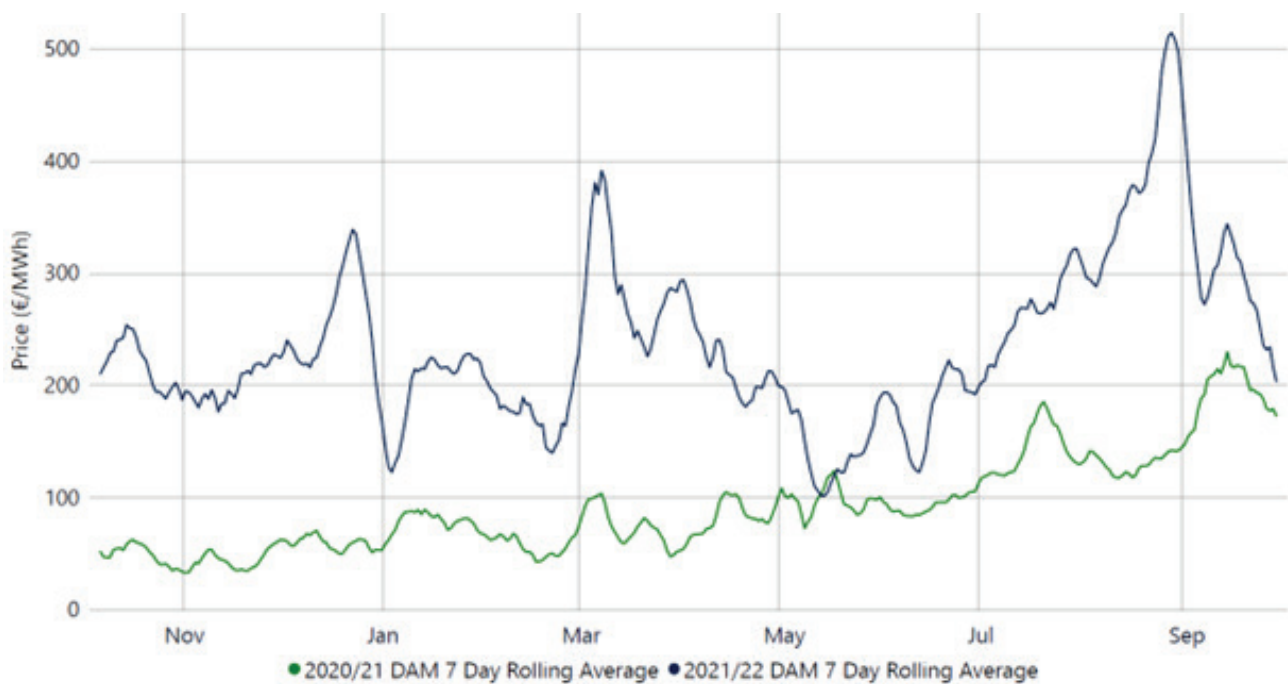


Figure 11: DAM price seven-day rolling average 2020/21 and 2021/22

Intraday market



The intraday markets across the year have allowed market participants to refine their market position by buying or selling nearer to real time, when power is generated and consumed. This allows market participants to balance their generation or consumption with their contracted position so that any imbalance between them is not subject to potential charges in the balancing market.

Since January 2021, when the new market coupling arrangements were introduced, the IDA1 and IDA2 are the only markets coupled with GB and allocation of interconnection capacity takes place solely during these auctions.

The IDA1 auction accounted for 10.94% of the total ex-ante market by volume. The IDA2 auction accounted for 1.99%, the IDA3 auction for 0.74% and the intraday continuous market (IDC) for 0.11% following similar trends to the previous year.

Average prices in the intraday markets have risen significantly from 2020/21, as with the day-ahead prices, due to rising wholesale gas prices. Average prices for IDA1 were €232.94, IDA2 €248.52, IDA3 €261.78 and the IDC €247.68. The total value of these markets over the year has also increased significantly due to the higher fuel prices. The total value for each market is €1.2bn in IDA1; over €233m in IDA2; €94.7m in the IDA3 and over €13m in the IDC market.

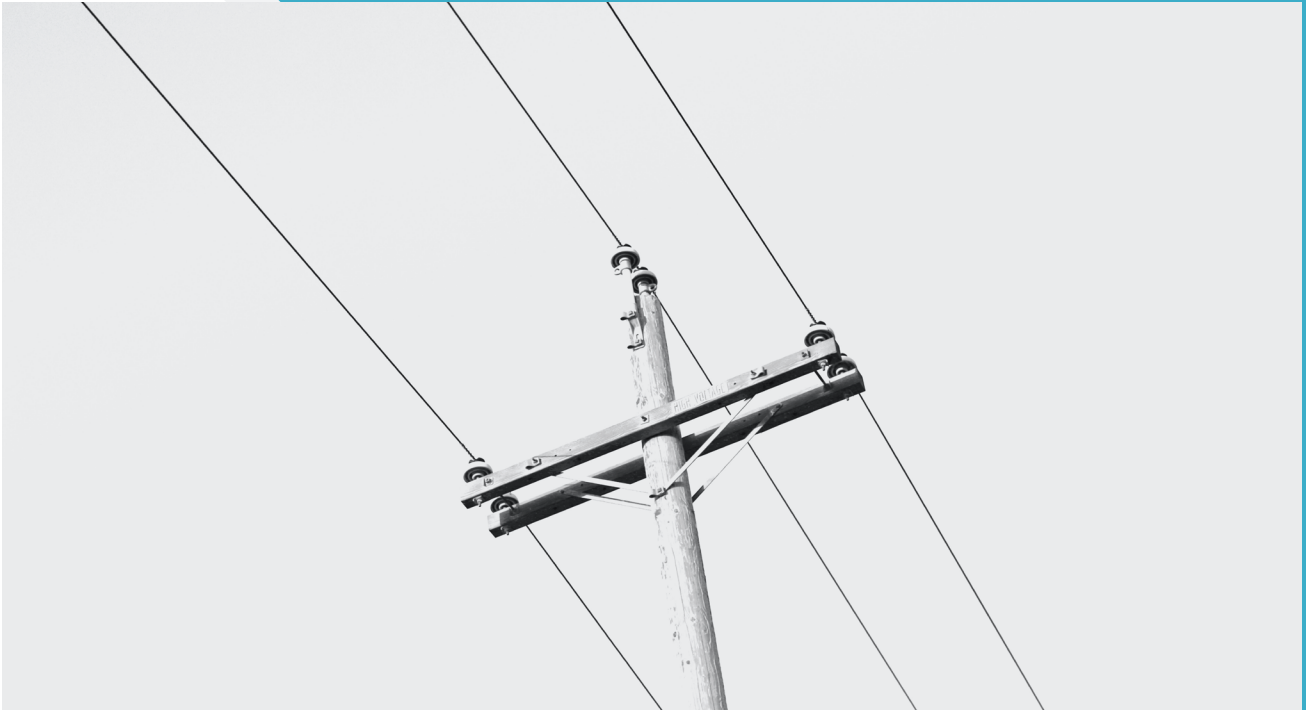
The IDC market, unlike the other intraday markets is not an auction in which all trades in a particular period are cleared at a single price. It involves buyers and sellers posting volumes and prices on an order book visible to the market that are cleared by sellers and buyers accepting the volumes and prices offered.

Prices in all markets generally move in a similar direction. Figure 12 below shows this trend across the year.



Figure 12: Intraday market average daily prices

Interconnectors



The SEM has two interconnectors with the GB market, Moyle Interconnector, a 500 MW HVDC linking Scotland and Northern Ireland and the East West Interconnector, 500 MW HVDC linking Ireland and Wales.

As discussed in the in the intraday market section, the volumes and direction of flows across the interconnectors linking the SEM with GB are determined in the IDA1 and IDA2 implicit auctions. Interconnector flows are allocated in the direction of the higher price zone, therefore when the SEM IDA1 or IDA2 prices are higher than the GB prices the SEM interconnectors are set to import power from GB. Conversely the SEM will export to GB when our prices are lower.

Interconnectors increase the social welfare by reducing price differentials between the two markets. That improves the efficiency of dispatch and price formation by enabling generation that would otherwise be curtailed, in times of surplus, to be exported. Conversely interconnector flows can mitigate price shocks during periods of scarcity by injecting additional generation into the SEM.

Figure 13 shows the volumes imported and export across both SEM Interconnectors.

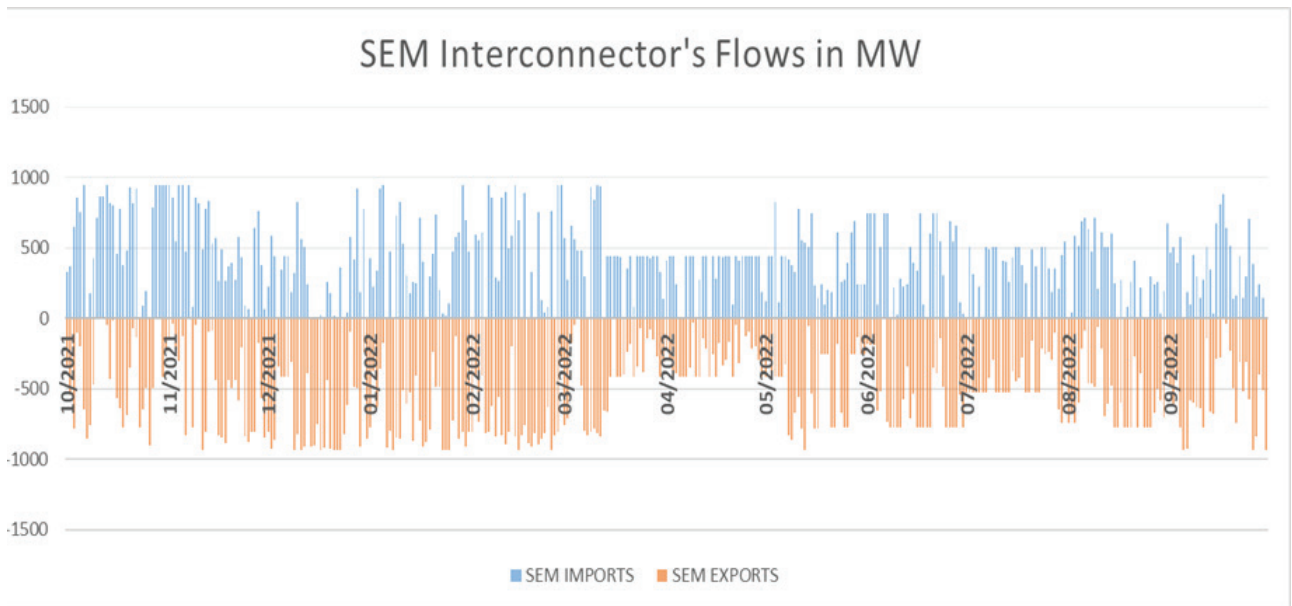


Figure 13: SEM interconnector flows

Figure 14 shows the average volumes allocated between SEM and GB. Exports to GB were higher than the imports. During this period 62% of the Interconnector flows have been allocated from the SEM to GB direction.

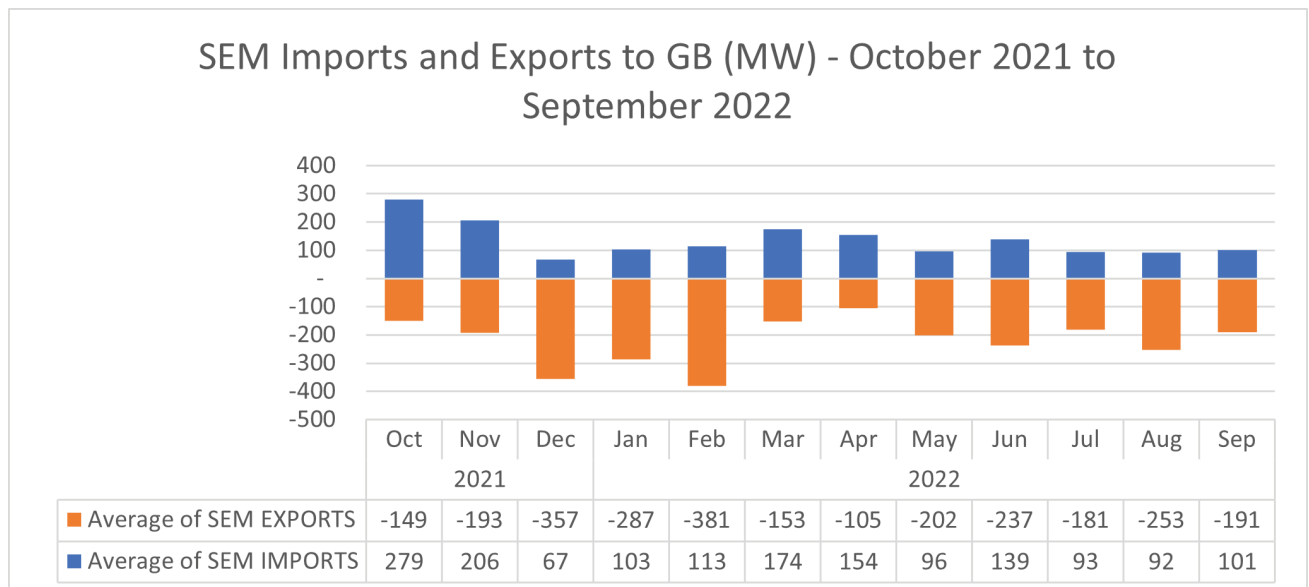


Figure 14: Interconnector average flows

Figure 15 shows the average volumes allocated between the two markets in previous years, 2019-2021. Relative volumes of imports and exports between the two markets fluctuate from year to year. These fluctuations are explained by variables playing a role in price formation in both markets such as local demand, wind generation and fuel mix costs in each market.

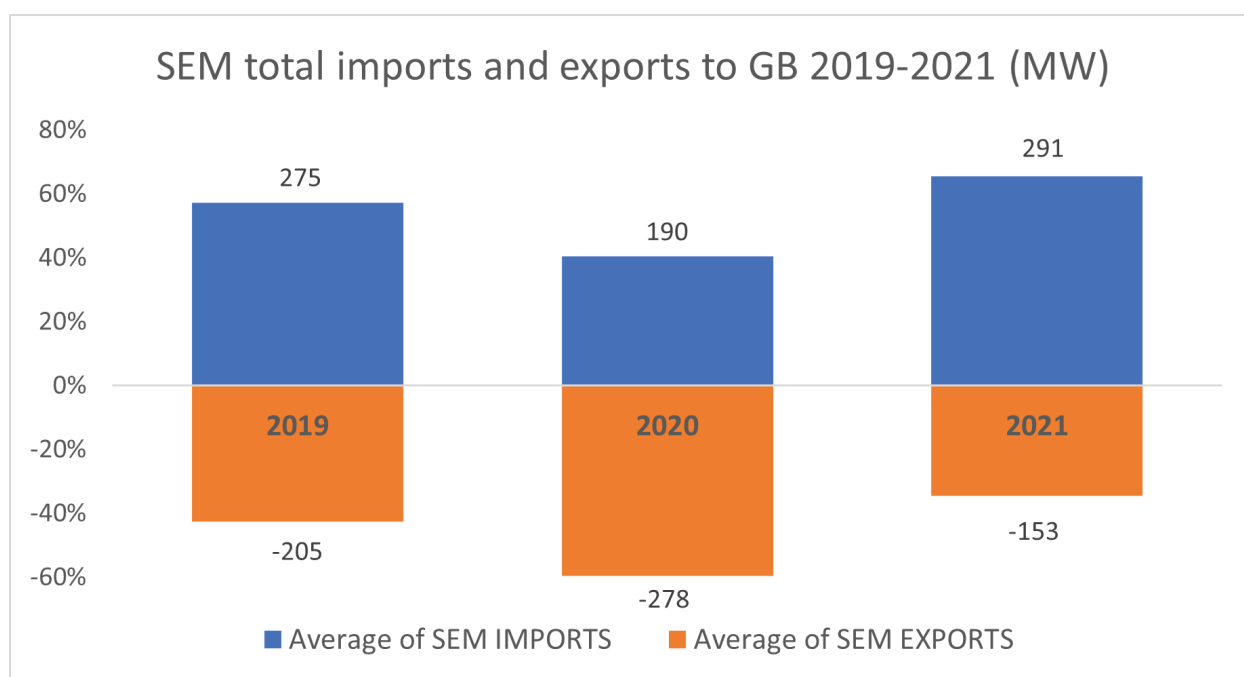


Figure 15: SEM imports and exports 2019 to 2021

Balancing market



The balancing market is designed to ensure levels of supply meet the levels of demand in real time. If, for example, the level of demand is higher than expected, the market operator might instruct a generator with available capacity to increase their output.

Balancing market prices show relatively higher volatility in the market in terms of prices. Figure 16, below, shows the imbalance settlement price across the year.

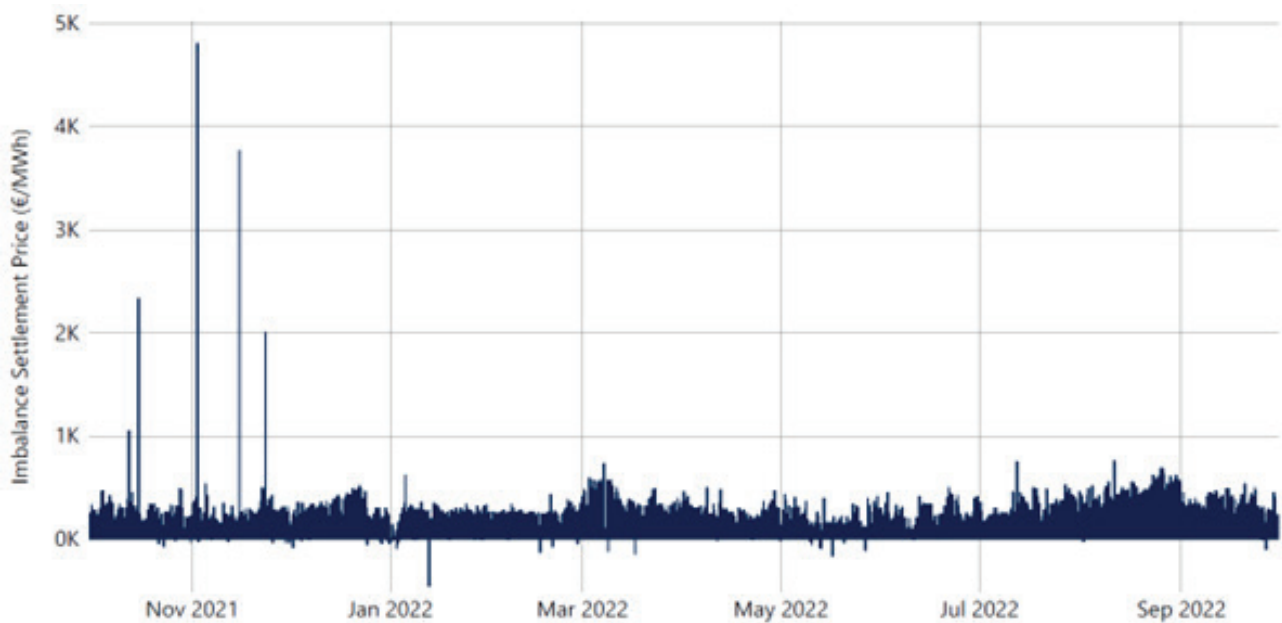


Figure 16: Imbalance settlement price

In Figure 16, a number of extraordinary high prices can be seen across the balancing market with a highest settlement price of €4800 observed on 2 November 2021. This high price was due to trading across the interconnectors to ensure security of supply and the same reasons contributed to a number of other very high prices across the year. Due to these high prices, it is hard to see the exact volatility of the balancing market. Therefore, Figure 17 (below) shows the imbalance settlement prices for the year, excluding prices greater than €1000 – of which there were 14 periods in the year which is similar to the previous year.

Figure 17 shows the relative volatility of the balancing market when the outliers of >€1000 are removed. Here, the next high price is €996.80 with a low price of €-456.34.

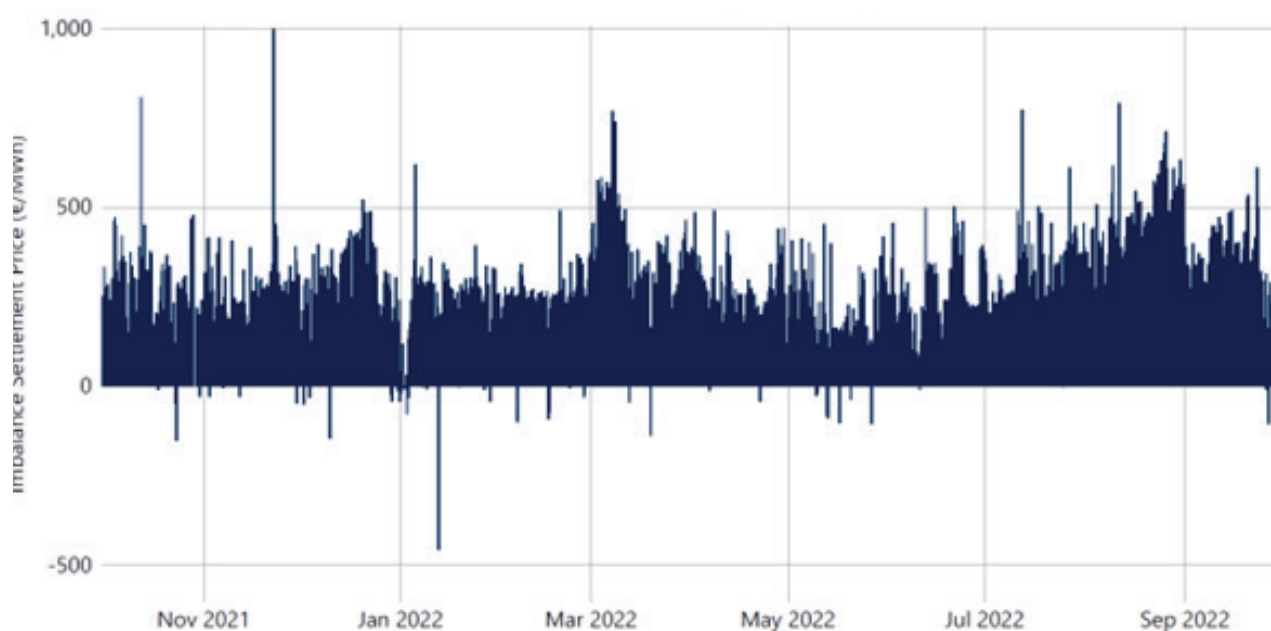


Figure 17: Imbalance settlement price <€1000/MWh

Forwards Market



To manage wholesale electricity price risk and achieve longer-term certainty, forward contracts allow generators and suppliers to contract publicly via Contract for Differences (CfDs). This allows generators to sell a fixed volume for an agreed upon price covering a specific period of time which provides both generators and suppliers with more wholesale price certainty. In the SEM there are regulated and unregulated forward contracts.

Regulated contracts

Directed Contracts (DCs) are currently the only regulated forward contract in the SEM. DCs are a key feature of our approach to mitigating market power. Generators with a large market share (ESB) are required to sell electricity forwards (DCs) to suppliers. The objective of DCs is to ensure generators with a large market share cannot unduly dominate the market. DCs remove the incentives on the incumbent generators to attempt to profit from the exertion of market power. These contracts mitigate market power by reducing the incentive for the market participants to submit bids above competitive levels, or otherwise withhold capacity, to influence current spot prices or future contract prices. DC subscription windows are typically held every quarter, with DCs being allocated on a rolling basis up to five quarters ahead. There are three DC products in the market: baseload, mid-merit, and peak. Supply companies can elect to subscribe for any given product for which they are eligible in any particular quarter from the incumbent generator (i.e. ESB).

Due to the ongoing market uncertainty and significant commodity price volatilities observed in the market, DC rounds were postponed during the year. Market conditions and global developments posed a disproportionate risk that the DC pricing model (and associated regression formulae) may move outside the volatility range, therefore not remaining fit for purpose, during the relevant scheduled subscription windows. We therefore postponed subscription rounds to allow time to conduct further analysis and re-evaluate modelling procedures, gather expert advice, and implement amendments to modelling processes to better reflect the highly volatile market conditions.

Amendments were implemented to the process of calculating DC pricing formulae and a six-day primary subscription window was introduced (instead of historically standard three-day window). Model amendments implemented strengthened the ability of the DC pricing model to reflect unprecedented market price volatilities. Additional subscription window days enabled eligible suppliers to mitigate some of the fuel price volatility risks by spreading their eligible volumes over an extended period. Furthermore, the extended subscription window enabled the market incumbent to more effectively hedge their exposure to price volatilities. Amendments were implemented to DC modelling processes and three DC rounds were successfully held in 2022.

A total of 1980.3 MW of Quarter 4 2021 to Quarter 3 2022 products were purchased by suppliers. 400 MW, 1367 MW and 213 MW of baseload, mid-merit and peak products were purchased respectively. The average prices of each product were: baseload €120.81 MWh, mid-merit €113.93 MWh and peak €135.74 MWh.

Figures 18 and 19 outline the aggregate volumes purchased and average prices of the specific DC products.

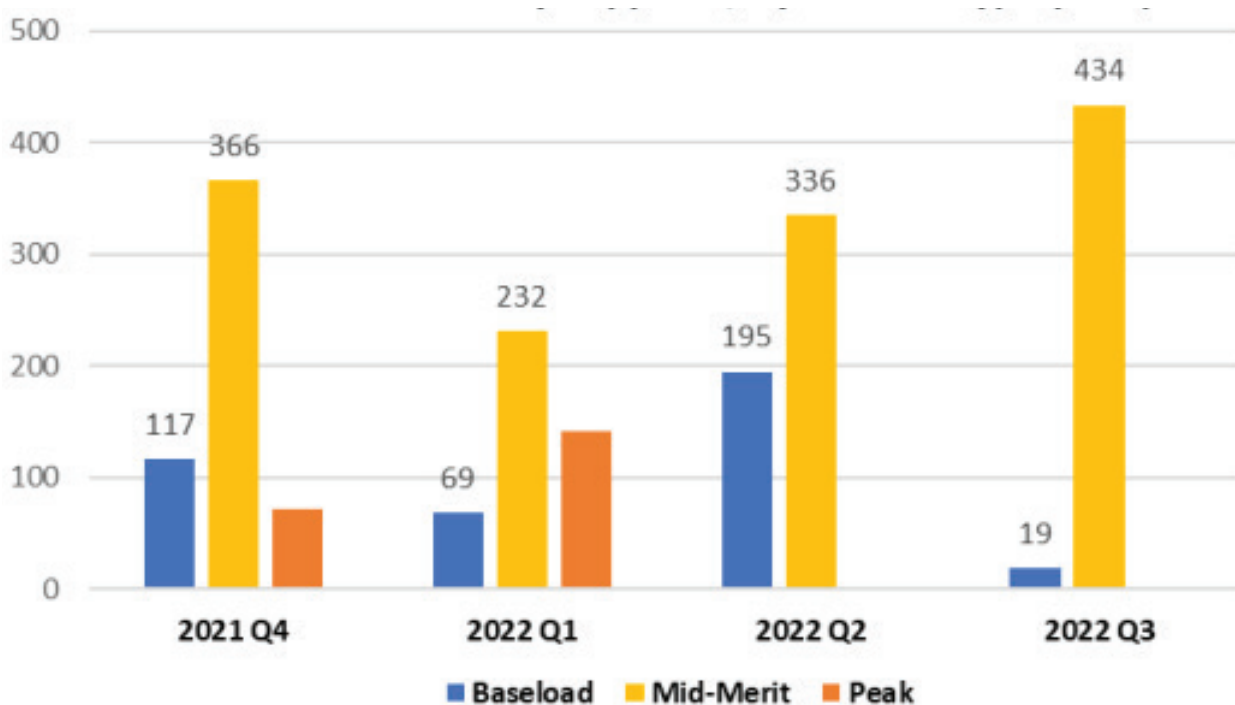


Figure 18: Total directed contract product volumes purchased by suppliers (MW)

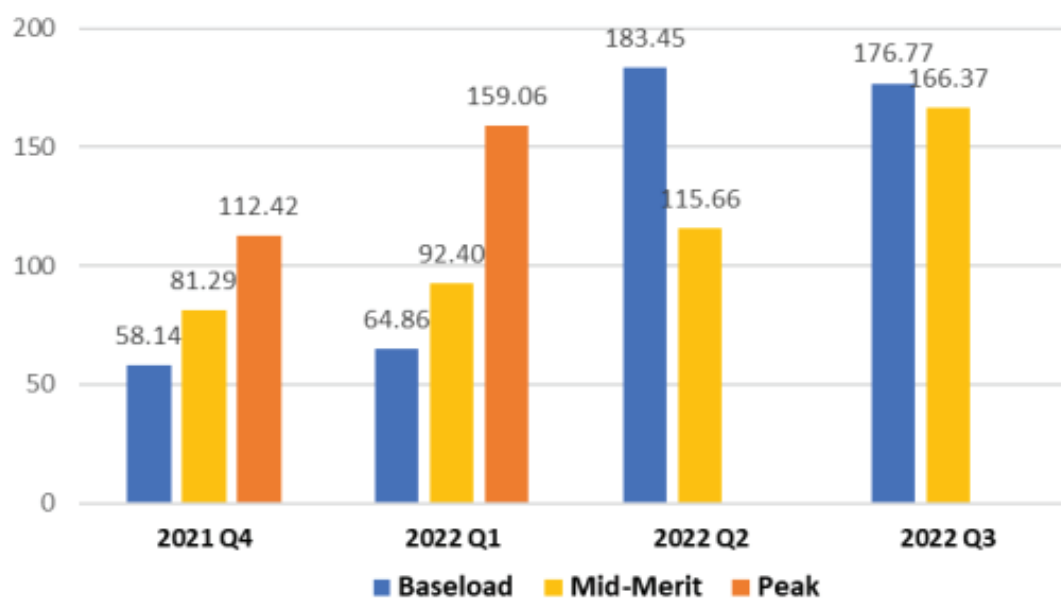


Figure 19: Average price of directed contract products (€/MWh)

As a result of an unprecedented increase in commodity prices (predominantly NBP gas prices) since December 2021, the monetary value of each DC round has increased significantly over the past year. The monetary value of DC Rounds has increased seven-fold since DC Round 9, held in January 2020.

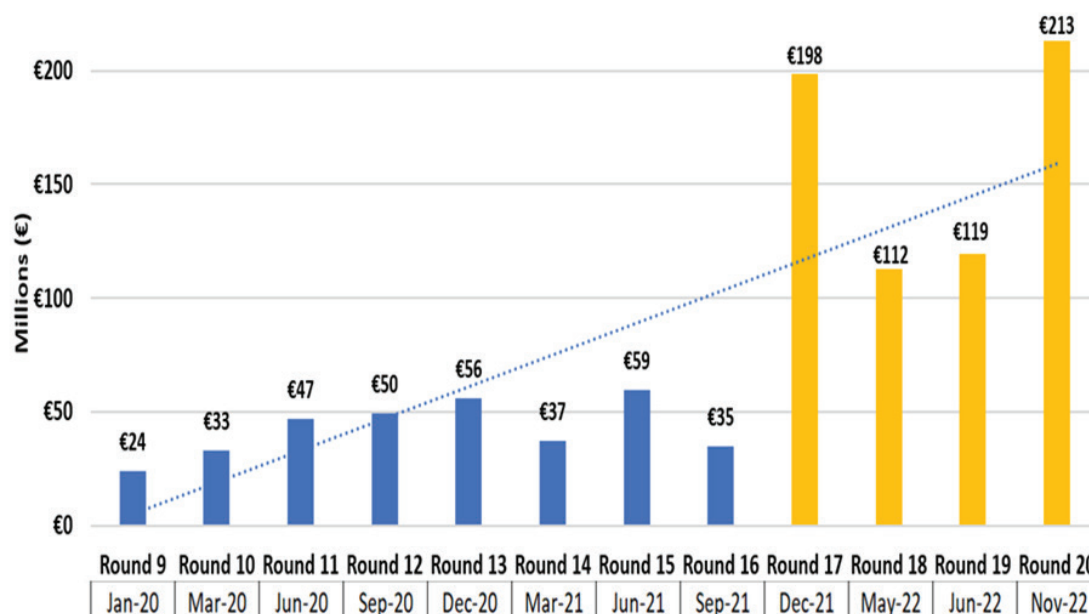


Figure 20: Monetary value of DC products sold during each DC round, January 2020 to November 2022

Unregulated contracts

Generators can offer forward contracts in the SEM which suppliers are free to bid for. We have no direct role in setting the price or volume of these forward contracts, although we do monitor transaction activity. The most common type of forward contract is an Over the Counter (OTC) sale, in which the generator offers the product, setting the volume and the price. With an OTC sale the suppliers have a set window in which to purchase a product. If a supplier makes a bid at the price set by the generator, then they are able to purchase it instantly (i.e. first-come-first-served). Other hedging options include ‘Proxy Hedging’. A proxy hedge involves the use of a correlated financial instrument (gas) to hedge a particular risk when a direct hedge (electricity) is not available.

Capacity Remuneration Mechanism

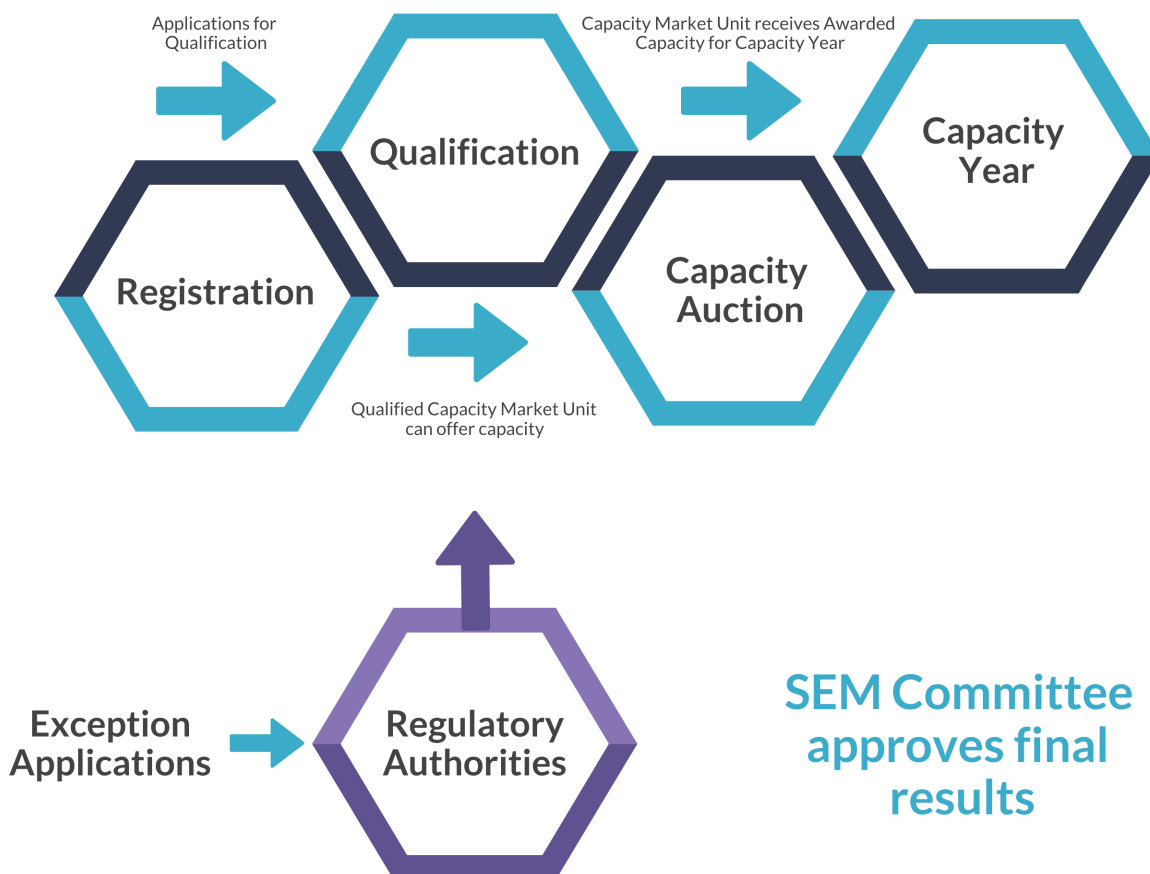


The Capacity Remuneration Mechanism (CRM) is designed to ensure that enough capacity is available to meet the demand for electricity on the island of Ireland. The overall aim of the CRM is to ensure security of supply, as well as ensuring that consumers do not pay for more capacity than is needed.

The CRM was implemented as part of the revised SEM arrangements which went live on 1 October 2018 and replaced the Capacity Payment Mechanism (CPM) under the previous arrangements. Capacity providers sell qualified capacity to the market, based on generation capacity required in a future capacity year. This takes place in the form of capacity auctions. Auctions are normally held by the Transmission System Operators between one and four years ahead of delivery.

Capacity providers who are successful in a capacity auction receive a regular capacity payment. This payment assists with funding generation capacity. In return, successful participants have an obligation to refund consumers for any energy prices which rise above a set strike price for each capacity auction. Participants submit bids that specify the volume of capacity being offered and the price sought for that capacity. Bids submitted to an auction are arranged from lowest to highest until the capacity requirement for the specific capacity year is satisfied.

The level of capacity required is assessed by the Transmission System Operators in advance of the auction. Capacity that has been bid at a price less than or equal to the last bid is accepted and receives this market clearing price. Capacity that is bid at a price higher than the market clearing price is deemed to have failed to clear the auction and is not paid, unless the capacity is needed to meet a local security of supply need.



Holders of a capacity contract are expected to be available to provide their agreed generation volumes or load reductions (in the case of demand side units) when required at times of system stress or high demand. If a generator is unable to do this, they risk being exposed to charges.

Capacity market code

The Capacity Market Code (CMC) describes the arrangements whereby market participants can qualify for and participate in capacity auctions. It was first published in June 2017 and is regularly reviewed and modified to ensure the efficient and effective operation of the capacity auctions.

The most recent version was published on 12 August 2022 (V7). CMC working groups are convened every two months and have allowed for the progression and implementation of over forty modifications to date. Modifying the CMC has involved the co-operation, commitment and constructive engagement with industry stakeholders.

Capacity auctions

To date, ten capacity auctions have taken place and completed successfully (four T-4 auctions, one T-3 auction, one T-2 auction and four T-1 auctions). Two of these auctions took place in 2022. A T-3 for capacity year 2024/2025 and a T-4 for capacity year 2025/2026 held in January and March respectively.

A key benefit of the T-4 auction is that it facilitates competition between new and existing generation, to deliver the best outcome for consumers. The CRM was adapted to take account of the impact of the introduction of the Clean Energy Package (CEP). As a result, it was modified to ensure that limits were imposed on existing plant in the SEM through restricted levels of annual running hours (directly relating to CO2 emissions), which take effect from July 2025. This led to limitations on some plant to contribute towards security of supply.

CRM

Two auctions completed across the year:



T-3 for 2024/2025

Top up auction
1,471MW secured
Total cost €216m (£193m)



T-4 for 2025/2026

6,484 MW capacity secured
Total cost €363m (£323m)



Results of T-1 top up auction for 2022/23 published :

7,412MW already secured from T-4 in 2019
Further 1,129 MW secured
Total cost of T-4 and T-1 €401m (£370m)

The T-1 capacity auction for 2022/2023 was the first “top-up” auction for this capacity year. There was 7,412 MW of capacity already secured in the T-4 Auction, which took place in March 2019. The outcome of the T-1 Capacity auction was published in December 2021. This led to a further 1,129 MW of capacity being secured for the 2022/23 year. The total cost of this auction was a further €59m (£51m) to the €342m (£319m) in March 2019.

A ‘top up’ T-3 Capacity auction was completed in 2022 which secured 1,471MW additional capacity for 2024/2025 capacity year following market analysis which identified the need for additional capacity to be procured. The total cost of this auction was €216m (£193m). The T-4 auction for 2025/2026 capacity year was held in March 2022. This auction secured 6,484 MW of capacity, at a total cost of €363m (£323m).

Work has also progressed during 2022 on a T-4 2026/2027 auction to be held in March 2023 and a T-1 2023/2024 auction to be held in July 2023. In comparison to the CPM, which had an estimated cost of circa €550 million, the CRM represents an average saving of around €250 million across each Capacity Auction (T-4) to date.

Review of the Capacity Remuneration Mechanism

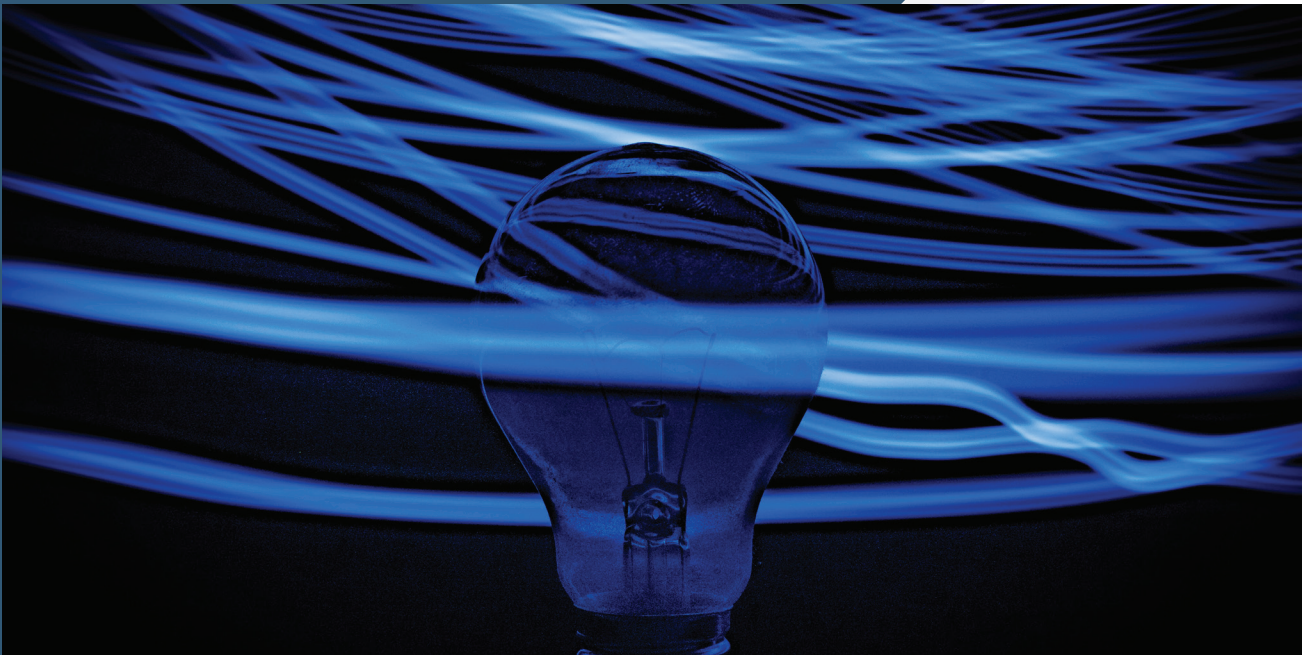
As part of the Security of Supply programme in Ireland, the CRU initiated an independent review of the Capacity Remuneration Mechanism (CRM) following a request from the Minister for Environment, Climate and Communications of Ireland.

Economic consultants from EY were procured to conduct this review. EY assessed the design of the CRM for any improvements that could be made in order to ensure sufficient procurement of capacity and prepared a report. It included recommendations that could be implemented to make the CRM more beneficial to industry and consumers, while delivering system adequacy. The review focused on volume of capacity procured in auctions, level of participation in the auctions, timely delivery of new capacity procured and value of procured capacity.

The report was published and consultation closed on 28 October 2022. Following the analysis of the responses to this consultation, we will decide on next steps in relation to the recommendations proposed in the EY CRM review report.

In addition to this work, we have also reviewed a number of the CRM parameters and continue to consider the need for any further amendments that will improve the capacity mechanism.

System Services and DS3



The system services workstream aims to improve the technical capability of the generation fleet and the system more generally. This is achieved by defining the capability required by the TSOs and appropriately incentivising the delivery of that capability.

System services allow participants to provide services which support operating the system with increased renewable penetration through allowing the TSO to deploy units when a frequency deviation occurs. Participants are currently rewarded for their availability through a tariff or a contract.

We have been developing a framework for the system services future arrangements since 2020. The objective of the project is to deliver a competitive framework for the procurement of system services, which ensures secure operation of the electricity system with higher levels of non-synchronous generation.

Following on from a consultation in 2021, we published our decision on the high-level design for the project. Setting out the next steps for the detailed design, we have been engaging with the TSOs and stakeholders on delivery.

The DS3 programme (Delivering a Secure, Sustainable Power System), aims to meet the challenges of operating the electricity system in a secure manner while achieving the renewables targets set in both Ireland and Northern Ireland.

With increasing amounts of variable renewable generation, there is a need to ensure that the power system can continue to be operated securely and sustainably. Through the successful completion of the DS3 Programme the operational limit on non-synchronous generation (i.e. level of renewable generation that can be on the system) may be increased beyond 75%.

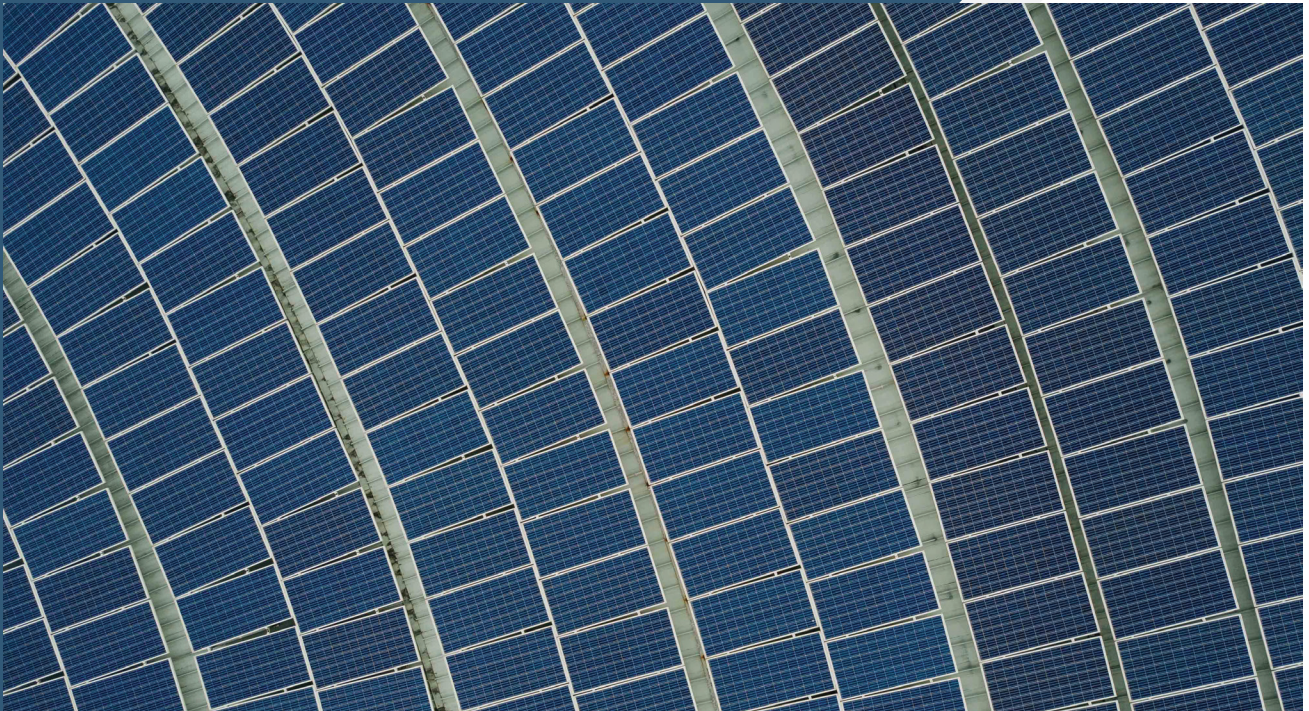
Our key objective is to ensure that the interests of the all-island customer are protected throughout the programme. We do this through:

- Oversight of TSOs activities;
- Review of the impact and appropriateness of the various options and proposals put forward by the TSOs;
- Making key decisions on TSO proposals/ recommendations which will only be implemented after consultation with industry stakeholders; and
- Ensuring consistency across SEM activities and that the full implication of all actions proposed by the TSOs is considered.

The programme is now in its latter stages and has been a driver in the successful progression of SNSP increases from 50% to 75% since 2015. Facilitating additional renewables on the grid should support lower wholesale energy prices, which achieves a good outcome for consumers as well as supporting Ireland and Northern Ireland's transition to a low-carbon economy. This can already be seen in the day-ahead market where increased wind generation places a downward pressure on prices.

In 2021-2022 a number of significant steps were taken to deliver on the aims of the DS3 Programme. A 75% SNSP trial was successfully completed in Q1 2022, with operational practice moving to this new standard following completion of the trial. The move to 75% SNSP largely achieves the original ambitions of the DS3 programme. Close out of the programme has now commenced and we continue to engage with the TSOs to ensure there are no further delays in closing out the DS3 programme.

Market Operation



SEMO regulation

SEMO is licensed and regulated cooperatively by the CRU in Ireland and the Utility Regulator in Northern Ireland. SEMO is subject to a regulated price control and also has a number of licence and market rules obligations to comply with.

The current price control was determined in September 2021 and covers the period from October 2021 to September 2024. This allows for recovery of around €37 million of operating expenditure and €29 million of capital expenditure. Progress reports on expenditure and investment are provided regularly to the regulators and via market participant fora. A flexible and agile framework applies to capital investment, with costs recoverable subject to SEMO evidencing that the expenditure is efficiently incurred, is demonstrably necessary, is incremental to existing price controls and is capable of being robustly validated by the regulators.

The SEMO price control review process introduced the first 'Participant Consultative Forum' to provide input and feedback from a wide range of industry representatives in advance of the price control determination. Following the effectiveness of this forum, an invitation for expressions of interest to join a SEMO focus group was issued by the regulators in December 2021 and the first meeting was convened in March 2022. The focus group consists of twelve representatives from industry across a range of technologies and is chaired by a market participant. The group meets bi-annually to discuss SEMO's performance and capital investment programme. This provides a platform for accountability, transparency and two-way feedback.

Development of an enhanced reporting regime is underway with changes made to the frequency and content of performance/ KPI reporting. SEMO has submitted regular updates for regulatory review regarding its market system releases, annual performance reporting, agent of last resort service and capital expenditure.

SEMOpX regulation

SEMOpX provides day-ahead and intraday electricity market trading as part of the Single Electricity Market and is subject to a regulated price control as part of the regulatory framework. We decided to 'roll forward' the last years' allowance of the 2019-2022 price control into the period covering 3 October 2022 to 2 October September 2023. The next price control period is therefore due to commence from 3 October 2023.

SEMOpX is governed by a set of rules and operating procedures that set out the obligations on Exchange Members and process for trading on the exchange. The regulatory authorities attend biannual Exchange Committee meetings where the rules are discussed and modified as necessary.

SEMOpX (as a contractual joint venture of EirGrid plc and SONI Ltd) was designated by the respective regulators in the Ireland and Northern Ireland jurisdictions as the Nominated Electricity Market Operator (NEMO) from 3 October 2022 on an enduring basis.

Trading and settlement code

Through 2021 into 2022, the trading and settlement code modifications committee continued to consider and progress modification proposals in order to further develop the SEM in line with the objectives of the trading and settlement code. Twenty-one modification proposals were raised across 2021 and sixteen modifications have been raised so far in 2022. These have been considered through committee meetings, working groups and constructive engagement and feedback from the committee and broader industry observers.

At the end of 2021, the RAs raised a modification following consideration of SEMO's Key Performance Indicators (KPIs) which formed part of the SEMO price control consultation and decision. This was raised to place explicit reporting requirements within the trading and settlement code on the market operator regarding the accuracy and timeliness of published data.

In 2022, the modifications committee considered a proposal related to accepting another form of collateral under the trading and settlement code called a Surety or Demand Guarantee, in addition to the two acceptable forms of collateral currently provided for i.e. cash and letter of credit. This was approved by the RAs earlier this year to expand the options available for providing collateral under the trading and settlement code and thereby allow market participants to better manage their credit cover. Another proposal raised by the RAs was to introduce a mechanism to the code by which the market operator can collect monies incorrectly paid out due to incorrect data submissions by a participant leading to an overpayment to the participant. There has also been a proposal which has been approved and implemented to change the frequency of the preparation and publication of the SEMO performance reports from a monthly to a quarterly basis.

Currently there are a number of complex issues being considered by the modifications committee and by the RAs regarding the reliability option strike price calculation and the operation of the reliability option itself.

While there were limited changes to the SEMOpx rules and operation procedures, in 2021 a significant project commenced to replace complex orders with scalable complex orders in order to improve the performance of the Euphemia algorithm for market coupling across the EU. This was progressed by SEMOpx throughout 2022 and scalable complex orders are now scheduled to go live in November 2022.

Fuel mix disclosure

The All-Island Fuel Mix Disclosure and CO₂ Emissions 2021 information paper sets out the 2021 fuel mix disclosure and CO₂ emissions for electricity suppliers licensed in Ireland and Northern Ireland and operating in the SEM. It presents reliable information regarding the sources of electricity, i.e. the fuel mix that suppliers have chosen to meet their customers' demand and the related environmental impact. It does this by disclosing the fuel mix as the percentage of a supplier's demand that is met by various electricity sources and the associated carbon dioxide (CO₂) emissions intensity (grammes/kWh). The disclosure allows consumers to understand the recent environmental impact of the electricity that they buy and choose between suppliers on this basis, and to show how the individual supplier's fuel mix compares with the All-Island average.

The 2021 report showed that, on average, 55.9% of the electricity supplied was from renewable sources, compared to 57.9% in 2020. CO₂ emissions intensity increased from 236 grammes per kWh in 2020 to 258 grammes per kWh in 2021.

Generator financial performance reporting

In June 2022, the Generator Financial Performance Report for FY2020 was published, highlighting the financial performance of generators operating in the SEM with a combined ownership capacity greater than or equal to 25MW.

The report showed that the gross margin for all generators remained unchanged from the previous year, while the net margin decreased notably (7% in FY2019 to 0.7% in FY2020). A drop in wholesale electricity prices and electricity demand (because of the COVID-19 pandemic) contributed to lesser revenues for generators. Market share of coal rebounded slightly, a change from the downward trend observed in recent years, while wind and solar maintained their level from previous years.

It should be noted that due to the time taken for generation companies to have their financial audits completed for a given year, and for the subsequent submission and collation of the relevant data, there is a lag between the reporting period covered in the Generator Financial Performance Report and its publication. The context for the 2020 report was therefore markedly different in terms of commodity prices, and their impact on electricity prices, to the current context. The impact on generator financial performance of the increases in commodity and electricity prices that have occurred more recently would be expected to become evident in next year's Generator Financial Performance Report, which will be published in 2023 and will incorporate the 2021 financial year.

Tariffs

SONI and Eirgrid, together the Transmission System Operators for the all-island Single Electricity Market, control the transmission of electricity and the management of various network constraints. These network constraints create additional costs within the SEM, as the TSOs are required to allow for such constraints in real time and increase or decrease individual generator's output of electricity to ensure the balance between supply and demand of electricity is maintained at all times. Constraint costs are recovered through the imperfections charge.

In their submission, the TSOs requested recovery of an Imperfections Charge of €870.81m for the tariff year 2022/23, compared to the €330.83m allowed for tariff year 2021/22. This would have resulted in an imperfections tariff of €22.80 per megawatt-hour (MWh), compared to €9.19/MWh for tariff year 2022/23.

This increase has been driven predominately by a significant rise in the forward prices of the key commodities that determine electricity prices i.e. gas and, to a lesser extent, carbon. The TSOs' modelling was based on commodity prices for Q4 2022 to Q3 2023 as of 9 May 2022. We consulted on a significant reduction to the TSO proposal in July 2022.

Since the submission of the TSOs' modelling data, future gas prices saw further significant increases. During the consultation period, we conducted a further analysis of the TSOs submission. Although this resulted in revising downwards the costs for the dispatch of pump storage and system operation interconnector countertrading by €36.28m, the overall cost of imperfections remained at €834.53m, giving an estimated imperfection tariff of €21.85/MWh. Any further reduction of the imperfections tariff would likely result in a significant under-recovery for the TSOs, resulting in a greatly increased K factor correction next year and the potential for a significantly higher overall imperfections charge in tariff year 2023/24.

Due to the ongoing volatility in international wholesale fuel prices, we also decided to develop and implement an enduring within-year biannual review of the costs covered by imperfection charges. Any downward movement in prices can then be reflected quickly in tariffs.

Market monitoring

The Market Monitoring Unit (MMU) is a joint regulatory unit that is the main monitoring function of the two Regulatory Authorities (RAs). The unit's role is to monitor the performance of the wholesale market, including compliance with the Bidding Code of Practice (BCoP) and other market rules, and where necessary investigate potential abuse of market power.

This function of the MMU is carried out alongside that of the Agency for the Cooperation of Energy Regulators (ACER) and is provided for by Regulation (EU) No 1227/2011 of 25 October 2011 on wholesale energy market integrity and transparency (REMIT). The monitoring function of the Regulatory Authorities is complemented by the oversight of the Single Electricity Market Operator (SEMO) and SEMOpx which also provide surveillance to ensure the integrity of their exchanges. The purpose of the monitoring of trading activity in wholesale energy products carried out by the MMU is to:

1. Detect and prevent trading based on inside information and market manipulation.
2. Enhance transparency of the SEM and improve market integrity and functioning.
3. Assist identification of barriers to efficiency e.g. low liquidity, and possible improvements to competition in the market.

The MMU has put in place the necessary systems and processes required to actively monitor the SEM arrangements. Throughout the year the unit engaged with market participants on a number of key areas including bidding behaviour. The unit has also provided in-depth analysis on a number of market events to the SEM Committee alongside regular market updates. The MMU has moved from a quarterly to a monthly market monitoring report which provides useful information on the performance of the market.

Audits

The Terms of Reference for the TSC Market Audit 2021 were published on 4 November 2021. Based on the responses, we decided to implement a core SEMO audit, with limited expansion into the calculation, application and reporting of the Market Operator charges (Fixed and Variable) and Imperfection charges within the TSC. It was also decided to continue with the materiality threshold being set at 0.25% of estimated annual market value, with a threshold of 10% of the materiality level set for the reporting of Significant Issues. Due to a delay in tendering for an auditor, the Regulatory Authorities expect to receive the 2021 TSC Market Audit in Q1 2023.

The second audit of the scheduling and dispatch process covered the period of 1 January 2020 to 31 December 2020. The auditors found that, in all material respects, the TSOs had complied with the requirements as they relate to the specified elements of the scheduling and dispatch process. The 2021 scheduling and dispatch audit is underway, and the Regulatory Authorities expect to receive the report from the auditors by November 2022.

The TSOs are required to develop the Balancing Market Principles Statement (BMPS) and publish an updated version annually. The BMPS is a restatement of obligations, alongside an explanation of how these obligations are met and is intended to increase awareness and visibility of the TSOs' scheduling and dispatch process. It also provides clarity and certainty to the market on the timing and nature of TSO actions. The 2022 BMPS was published for consultation on 12 April 2022, and the final BMPS was published on 29 July 2022.

Clean Energy Package

The Clean Energy Package is a framework developed by the EU to help decarbonise the energy system in line with the European Green Deal objectives. This package of measures aims to help us move away from fossil fuels towards cleaner energy and reduce greenhouse gas emissions as outlined in the Paris Agreement.

We have already taken significant steps to implement the CEP requirements and made further progress across this year.

In March 2022, we published our decision on Dispatch and Redispatch in the SEM, specifically relating to Articles 12 and 13 of the Clean Energy Package. We continue to work with the TSOs on the implementation of the decision.

Report on FWP October 2021 – September 2022 projects

Our October 2021-September 2022 Forward Work Plan set some of the most significant projects identified to commence or complete across the year. In May 2022 following our mid-term review of progress on the FWP, we indicated that we needed to reprioritise our work programme to address the critical, market impacting issues that had emerged including the impact of the ongoing rise in international wholesale energy prices. At that time we identified some additional projects that would be undertaken across the year and listed some FWP projects that were unlikely to be progressed.

At the end of the reporting year, of the 38 projects identified in our original FWP, 82% were completed or partially completed and 18% delayed.

FWP Ref	Project title	Project scope and outcomes	Timing	End of year position	Comments
1	PLEXOS Validation	Publish a report on backcast/validation exercise and public version of model.	Q4 2021	complete	
2	Directed Contracts Modelling	Complete quarterly D contracts modelling for rounds 18,19 and 20.	Across year	partially complete	DC Round 20 postponed. Due to take place before end of 2022.
3	Market Power and Liquidity*	Progress market power and liquidity workstream including outcomes from SEM-20-045, SEM-21-065 and SEM-21-072.	2022 - 2023	delayed	Project delayed due to resource constraints.
4	Imperfections Tariff	Assess, consult on and then publish the imperfections charges for tariff year 2022-23.	Q1 - Q3 2022	complete	
5	BMPCOP (Balancing Market Principles Code of Practice) implementation	Progress licence modification to implement BMPCOP.	Q2 2022	delayed	Project delayed due to resource constraints.
6	MMU IT infrastructure - further enhancement	Progress further enhancement of software and IT capabilities to strengthen and widen scope of MMU monitoring activities.	Across year	complete	
7	Reporting on the stake of the market to internal and external stakeholders	Prepare and publish a range of reports on market performance including quarterly market monitoring reports.	Across year	complete	
8	Market queries and investigations	Effectively respond to and action market queries. Carry out investigations where necessary.	Across year	complete	

FWP Ref	Project title	Project scope and outcomes	Timing	End of year position	Comments
9	System Services Future Arrangements	Publish High Level Design Decision paper.	Q1 2022	complete	
10	System Services Future Arrangements*	Progress Phase III: Detailed Design	2022 - 2024	partially complete	Transition approach developed. New project plan being developed with the TSOs
11	Testing Tariffs Methodology Review	Following TSO consultation, publish decision on Testing Tariffs methodology.	Q2 2022	delayed	Project delayed due to resource constraints.
12	T-1 2022/23 capacity auction	Complete auction for T-2 2022/23 capacity year.	Q4 2021	complete	
13	T-4 2025/26 capacity auction	Complete preparation for T-4 2025/26 capacity auction.	Q1 2022	complete	
14	T-3 2024/25 capacity auction	Complete preparation for T-3 2024/25 capacity auction.	Q1 2022	complete	
15	T-1 2023/24 capacity auction	Complete preparation for T-1 2023/24 capacity auction.	Across year	complete	
16	T-4 2026/27 capacity auction	Complete preparation for T-4 2025/26 capacity auction.	Across year	complete	
17	New capacity delivery and terminations	Monitor the delivery of new capacity in the market in line with milestones required under the CMC.	Across year	complete	
18	Capacity Market Code Audit	Determine terms of reference, initiate and complete audit and publish final report of audit of the Capacity Market Code.	Across year	partially complete	Auditor appointed but audit delayed
19	Trading and Settlement Code Market Audit 2021	Final market audit completed with report produced and published.	Q3 - Q4 2022	partially complete	T&S Audit report to be presented to the Modification Committee in early February 2023
20	Trading and Settlement Code Market Audit 2022	Terms of reference to be consulted on and decision published.	Q4 2022 - Q1 2023	delayed	2022 ToR consultation to take place in April 2023 after 2021 audit.

FWP Ref	Project title	Project scope and outcomes	Timing	End of year position	Comments
21	Scheduling and Dispatch Audit 2021	Scheduling and Dispatch Audit 2021	Q2 2022	partially complete	Over 50% complete with remaining actions to be completed by end of 2022.
22	Scheduling and Dispatch Audit 2022	Scheduling and Dispatch Audit 2022	Q2 - Q3 2022	partially complete	Commenced but to be completed in next FWP year
23	Demand Side Management	Demand Side Management	Q4 2021 - Q3 2022	partially complete	Consultation published and decision expected before the end of 2022
24	SEMO Tariffs	Approval and publication of SEMO tariffs for 2021/22	Q3 2022	complete	
25	SEMOpX Tariffs	Approval and publication of SEMOpX tariffs for 2021/22.	Q3 2022	complete	
26	SEMO price control implementation	Implementation of arrangements in SEMO price control decision SEM-21-073 including establish focus groups.	Q4 2021 - Q1 2022	complete	
27	NEMO (Nominated Electricity Market Operator) designation (NI)	Designation of Nominated Electricity Market Operator (NEMO) for Ireland/NI from October 2022.	Q4 2021 - Q2 2022	complete	
28	SEMOpX Price Control	Consult on and determine SEMOpX price control.	Q4 2021 - Q3 2022	delayed	Project delayed due to resource constraints.
29	Decision on EBGL compliance assessment	Decision following consultation on Compliance of the SEM Trading and Settlement Code with the EBGL.	Q2 2022	partially complete	Work commenced and due to be completed within next FWP year
30	CEP - Decision on Treatment of new Renewable Units	Decision following consultation on the treatment of new renewable units in SEM (SEM-21-026)	Q1 2022	complete	
31	CEP - Decision on Dispatch and Redispatch in SEM	Decision following consultation on Dispatch and Redispatch in SEM.	Q1 2022	complete	
32	CEP - Decision on Priority Dispatch*	Consultation and decision on Priority Dispatch Hierarchy.	Q1 - Q2 2022	delayed	Project delayed due to resource constraints.
33	Consultation on Sundry CEP articles*	Consultation on sundry articles relating to market design.	Q3 2022	delayed	Project delayed due to resource constraints.

FWP Ref	Project title	Project scope and outcomes	Timing	End of year position	Comments
34	Review of applicability of RO (Reliability Options) difference charges to available units	Review how RO difference charges are applied and incentives on capacity providers.	Q1 2022	partially complete	Consultation complete and decision expected before the end of 2022
35	Scarcity Pricing and Demand Response paper	Investigate whether interim measures could be introduced for Winter 21/22 to encourage appropriate price signals during scarcity, and demand response to those signals.	Q4 2021	complete	
36	CEP adequacy work	Calculating new VoLL (Volume of Loss Load) (followed by Reliability Standard). Inputting into ACER work in evaluating ERAA.	Q2 2022	partially complete	Survey work complete and to be progressed along with other CRM workstreams
37	Generator Financial Performance Report	Publish 2020 report.	Q1 2022	complete	
38	GB SEM Trading	Analyse and consider improvements for SEM and GB trading.	Across year	partially complete	Consultation complete. Decision due Q1 2023

* Projects identified at risk of non-completion during mid-term review.



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