

ELEXON

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# KINNECT

OUR CLOUD NATIVE  
DIGITAL PLATFORM EXPLAINED



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**“Data and digitalisation are transforming economies across the globe, in sectors from banking to transport to healthcare. It is now the turn of energy, with digitalisation an essential enabler of the rapid decarbonisation we need to avoid catastrophic climate change.”**

**— BEIS/Ofgem Energy  
Digitalisation Strategy,  
July 2021**

**At Elexon, our core business is electricity balancing and Settlement: working out how much electricity suppliers have actually used and how much generators have actually produced, comparing these amounts with what was agreed in the trading contracts, and settling the difference.**

To do this, we rely on processing massive volumes of data on our central systems. These systems have served us well, but are still based on architecture designed over twenty years ago. As part of our digitalisation agenda, we're investing in a new digital platform, Elexon Kinnect.

The cloud-based services that Kinnect offers can be quickly expanded and changed to manage the rapid evolution in the energy sector. The current BSC Systems will not support swift changes in this way, as they were designed for a centralised market model. There is a significant risk that if our legacy systems were not upgraded, they would not be able to cope with the demands of our customers for quicker BSC rule changes, more support for innovation, and new Settlement functionality in the coming months and years.

# Working with industry to deliver a smarter system for Net Zero

**Market-wide Half Hourly Settlement (MHHS) will mean huge reforms, and it is just one of many expected market changes that will take place over the coming years. We expect to see a host of new flexibility products and service operators that will increasingly rely on data and data insights.**

## **This will mean:**

- Higher volumes of data running through our systems
- More market participants interacting with data
- More complex interactions between systems

We need to make sure that the systems used by both established companies and new entrants to the market are intuitive, easy to manage and less resource intensive. We must also make sure the increasing volumes of data that Elexon deals with are as accurate, reliable, comprehensive and as easily accessible as possible. Firstly, so that it's as easy as possible to participate in the electricity market, and secondly so that we can support our customers as they navigate the changes required by us all as we work towards Net Zero.

Access to detailed wholesale electricity market data will be essential to fully develop a smart electricity system. For that reason, and to ensure that we help to deliver Net Zero, we played a major role in the Energy Data Taskforce established by Energy Systems Catapult. We quickly acted on the Taskforce's recommendations, becoming the first code body to explicitly embed open data principles in a code. These principles will now also be applied to access to data in Kinnect.

## **Background to Kinnect**

We started preparing for Kinnect when we realised the volume and complexity of industry change ahead, knowing our legacy systems might struggle to keep up. We have made Parties and the BSC Panel aware of progress regularly, through our circular letters to Parties from Michael Gibbons, Chair of Elexon's board and the BSC Panel, and updates in our business plans, Annual BSC Meetings and through engagement with individual Parties.

## **A platform born in the cloud**

Kinnect is a 'cloud native' solution comprising three parts: Customer, Settlement and Insights. A cloud native platform is one that's established in the cloud, as opposed to an existing platform that is migrated to the cloud – the latter of which still having potential limitations. Kinnect is fully flexible and scalable and has the ability to rapidly change or expand the service when needed, therefore making the changes required for MHHS and other reforms quicker and easier.

## **Embracing quicker, more efficient ways of working**

Kinnect is much more than moving existing processes into the cloud environment, it is also about recreating those processes for the future decentralised market environment.

In parallel to developing Elexon Kinnect, we have been changing our ways of working at Elexon. In 2020, we restructured our organisation, moving to a Product focused business model, in a bid to drive efficiency and to make sure that by design, we are putting our customers first in everything we do. We're also embracing agile ways of working, so that we can move quickly to respond to our customers' demands and deliver at pace.

# ELEXON KINNECT



## CUSTOMER SOLUTION

- Simpler and quicker online process for entering the market replacing manual form filling.
- Companies active in the market can manage their Settlement account far more easily online, including registering assets, or registering for new roles.
- Processes that used to take days now take minutes.



## SETTLEMENT SOLUTION

- Cloud-based technology allows for rapid expansion of our services when needed.
- By using modular technology we can respond more quickly to deliver regulatory changes and the services our customers want.
- Scalable Settlement calculation systems will future proof the arrangements and help us support our customers to meet Net Zero.
- Quicker and better support for innovators, as Kinnect allows for multiple, concurrent 'Sandbox' trials.



## INSIGHTS SOLUTION

- Using cloud-based technology to develop a more comprehensive data and insights service to replace the BMRS.
- Based on open-data principles and accessible to everyone.
- We can respond more quickly to customers' data needs and allow them to 'self-serve' data requests.

# Elexon Kinnect Customer Solution

Play video ▶

In January 2021 we launched the Kinnect Customer Solution, and so far the feedback from Parties has been very positive. The Customer Solution removes cumbersome form filling and paperwork that companies had to complete either to manage their existing account, or to enter the market.

For new entrants, the Customer Solution provides a simple, online process for acceding to the BSC and completing market entry. Active companies can register new assets, register for new roles and manage their own details. For example, it will be far easier for customers to make changes to 'authorised signatories' (colleagues within their company who are designated to make changes to the company's BSC account) as this will be handled through an automated process.

FOR NEW MARKET ENTRANTS, THE CUSTOMER SOLUTION PROVIDES A SIMPLE, ONLINE PROCESS FOR ACCEDING TO THE BSC.

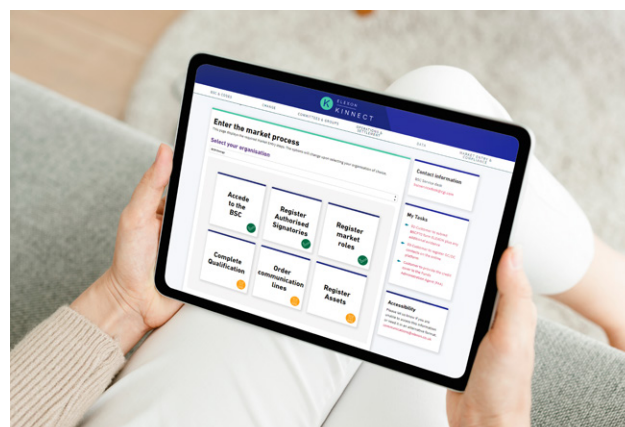
## Saving time and resources

Interacting with Elexon online with Kinnect will save time and resources for both our customers and Elexon. Utilising the online platform to accede to the BSC, participants can follow a straightforward customer journey for market entry, which guides them through the required steps before they can go live as a fully qualified market participant and then on to registering assets. The platform actively feeds back on tasks that companies need to complete, and assigns tasks for Elexon to finalise registration. By using the Customer Solution, tasks that previously took days to complete take mere minutes.

## Focusing on our customers

As at September 2021, we have onboarded over 900 customer contacts to the platform, with around 300 people using the platform regularly.

Looking ahead, we will be making further enhancements and improvements to the system, including bringing more paper-based forms and processes online, and adding extra functionality. We will also be reaching out to users to make sure we capture their feedback and look to address it in future releases.



If you'd like access to the Elexon Kinnect Customer Solution, the authorised signatory at your company will be able to grant this to you. Alternatively, please contact [party.mgmt@elexon.co.uk](mailto:party.mgmt@elexon.co.uk).



# Elexon Kinnect Settlement Solution

Play video ▶

Settlement calculations are at the core of Elexon's role and these processes are at the heart of the services we provide to Great Britain's electricity market.

We launched the first iteration of the Settlement Solution back in 2019, which enabled Virtual Lead Parties to participate in balancing and Settlement as part of the P344 Wider Access reforms.

## Flexible and scalable to handle larger volumes of data

As the Settlement Solution is born in cloud technologies, it can achieve scalability from the very beginning. We are looking to the future in our design to be prepared for changes in customer base and a reduction in Settlement timescales for Market-wide Half Hourly Settlement.

If 15-minute Settlement or even 5-minute Settlement were introduced in the future, the solution will be ready to change far more quickly than the current systems.

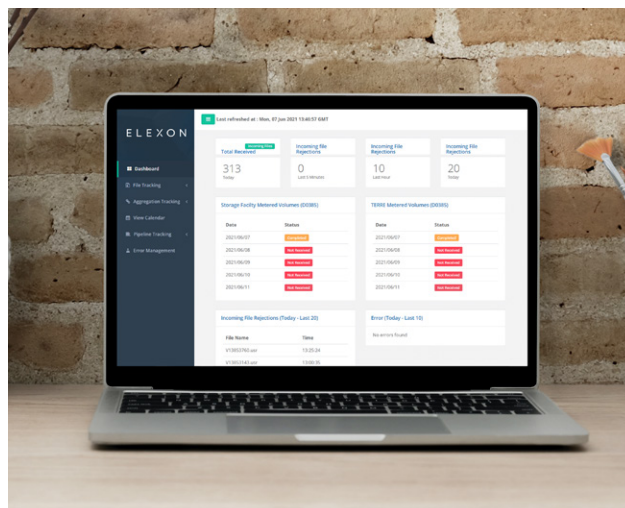
As well as being suitable for local or regional Settlement, the Settlement Solution is also adaptable, and could potentially be used beyond electricity Settlement. This could support future Code consolidation and reduction of costs to customers.

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## Modular design allows for agile change

The Settlement Solution in Kinnect leverages several modular components known as microservices, which will each access data storage and processing technologies that can be developed quickly in response to changes in market rules, without unduly impacting other services. Currently, even routine changes to the BSC can take around a year to implement, with at least a third of that time spent carrying out testing and regression testing of the solution. For example, the code Modification P375, a major change allowing activity of smaller asset owners to be visible in Settlement, was approved by Ofgem in March 2021. However, due to current systems configuration it won't be implemented until June 2022.

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BORN IN CLOUD TECHNOLOGIES,  
IT CAN ACHIEVE SCALABILITY FROM  
THE VERY BEGINNING

The advantage of managing BSC change with Kinnect is that it uses unique self-contained algorithms, which could be individually replaced to deliver large scale changes, or discretely modified for routine changes. All this can be done without impacting on the rest of the Settlement applications, which in turn reduces the need for the time-consuming end-to-end testing we must currently carry out to implement rule changes.

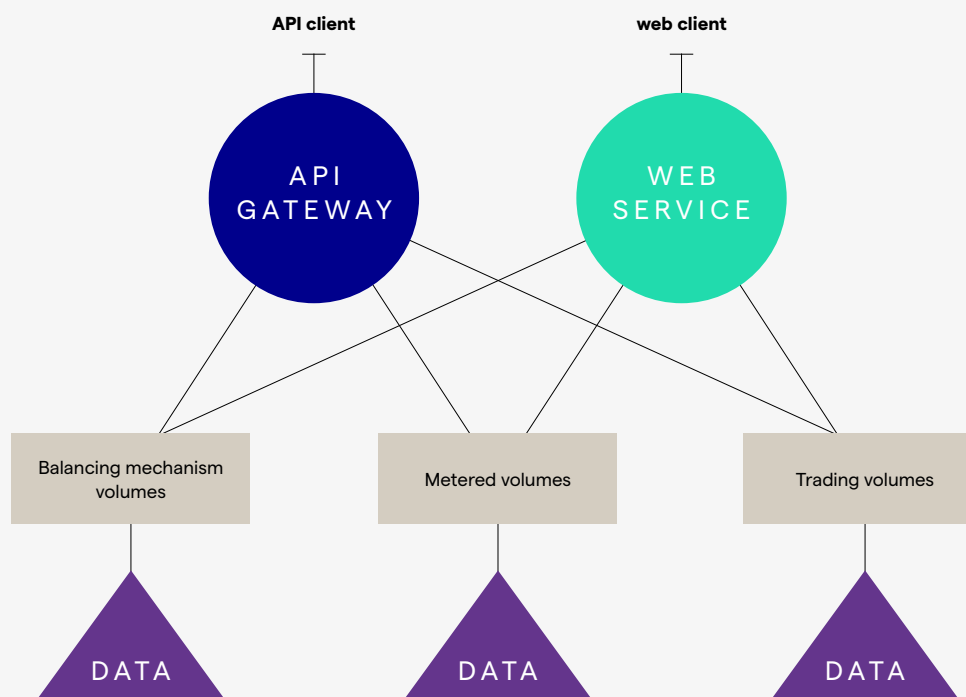
THE SETTLEMENT SOLUTION REDUCES  
THE NEED FOR THE TIME-CONSUMING  
END-TO-END TESTING

## Open access to BSC data

New data storage and processing technologies will also enable access to the BSC data within the Settlement calculations. This will support our initiatives to make data held by Elexon openly available via Application Programming Interfaces (APIs). Settlement calculations are those defined by the BSC that determine critical outputs such as BM Volumes and each Party's Trading Charges.

## Microservices architecture

Image shows three of the microservices that make up the Settlement Solution



The most significant calculation activity to be migrated to Kinnect is that which performs the daily Settlement Runs, known as the Settlement Administration Agent (SAA). Once the legacy SAA functionality has been migrated, other BSC Agent calculation services will be migrated to the Settlement Solution, for example the Central Data Collection Agent (CDCA) which collects metered data from power stations and grid supply points around Great Britain.

To deliver MHHS a solution will be developed on Kinnect which will incorporate the necessary Supplier Volume Allocation Agent (SVAA) components required for the transition of the services out to 2026 as per Ofgem's timescales. The SVAA profiles Non Half-Hourly volumes into Half-Hourly data and aggregates all Supplier volumes for Settlement.

### Improved analytics and operational efficiency

The Settlement Solution will also drive operational efficiency within Elexon through greater automation and real time monitoring as the data is orchestrated through the microservices. The ability to then use analytics on each stage of the meter to bank calculation allows us to identify areas for improvement in Settlement – effectively providing a feedback loop to the Performance Assurance process and identifying areas of Settlement risk. Ultimately, this means we can support our customers more quickly and efficiently.

The SAA calculation activity on the Elexon Kinnect Settlement Solution is due to go live in June 2022, after testing and parallel runs to provide maximum assurance to our Parties. If you have questions about the Elexon Kinnect Settlement Solution, please contact [Kinnect@elexon.co.uk](mailto:Kinnect@elexon.co.uk).



# Elexon Kinnect Insights Solution

Play video ▶

A growing part of our role is to provide clear transparent, accessible energy data on the wholesale market through the Balancing Mechanism Reporting Service (BMRS), which is the industry's 'go to' source of statistics on demand, generation, System Prices and other indicators.

We know from the high scores in our annual customer satisfaction survey that industry values and needs access to BMRS data and we want to ensure this service will meet the rapidly growing requirements of our customers in the future.

It has become increasingly difficult to make changes to the BMRS software platform at the pace we need, and to support the needs of our customers for new data or functionality. Therefore, the third element of Kinnect is to develop a new data and insights capability, to deliver BMRS data. By 2023, the Elexon Kinnect Insights Solution will be a go-to source for GB electricity data, providing a reliable, market leading technology platform that delivers timely, accurate and insightful GB electricity data and reporting. It will deliver value to our customers by providing reports which are accessible through easily adoptable technology solutions, and will continue to evolve with changing customer requirements, while remaining cost-effective and flexible to change.

Development started on the Insights Solution platform in June 2021, with the first release due to go live in October 2021. Release one will deliver a platform to receive and store Out-Turn Generation/Fuel Type data from National Grid ESO, and make it available via best in class APIs and a new state of the art website. The platform will also allow the introduction of further Fuel Type Categories through configuration alone, without requiring major software changes.

This release will form the basis of the new Insights Solution platform, to which the various data sets and functionality from BMRS will be migrated over time. As with the Settlement Solution, as a cloud based service it will leverage storage and processing capabilities at scale.

## Other key benefits include:



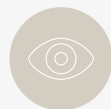
**01**  
Cloud-based service leveraging storage and processing capabilities at scale



**02**  
Enhanced digital experience tailored to user types



**03**  
Best in class API structure and design



**04**  
State of the art data visualisation



**05**  
Self-serve data requests



**06**  
Ad-hoc analysis



**07**  
Improved platform speed

We will continue the development of new capabilities such as a 'data push' service integration, and migrate all BMRS data and functionality across including the Regulation on Energy Market Integrity and Transparency (REMIT) disclosure service.

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### **Embracing open data principles**

Access to granular data on demand is essential to the development of a smarter system and can help companies develop products and services which support progress to Net Zero.

Following the recommendations of the Energy Data Task Force, Elexon worked with the BSC Panel to bring forward Modification P398, which requires that all data held by Elexon is assumed to be openly available, unless the Panel decides there is a specific reason why it should not be. In February 2021, Ofgem approved implementation of P398 and therefore we will now see more BSC data being made available to all with no additional charges.

The Insights Solution will embed these principles in its design. It will draw its data from the Settlement Solution, ultimately using Market-wide Half Hourly data when this functionality is delivered. It will use best practice on data visualisation from the Finance sector (particularly that provided by hedge funds) to completely re-imagine data provision for the wholesale and balancing markets and Elexon's customers.

### **Our customers will help shape design**

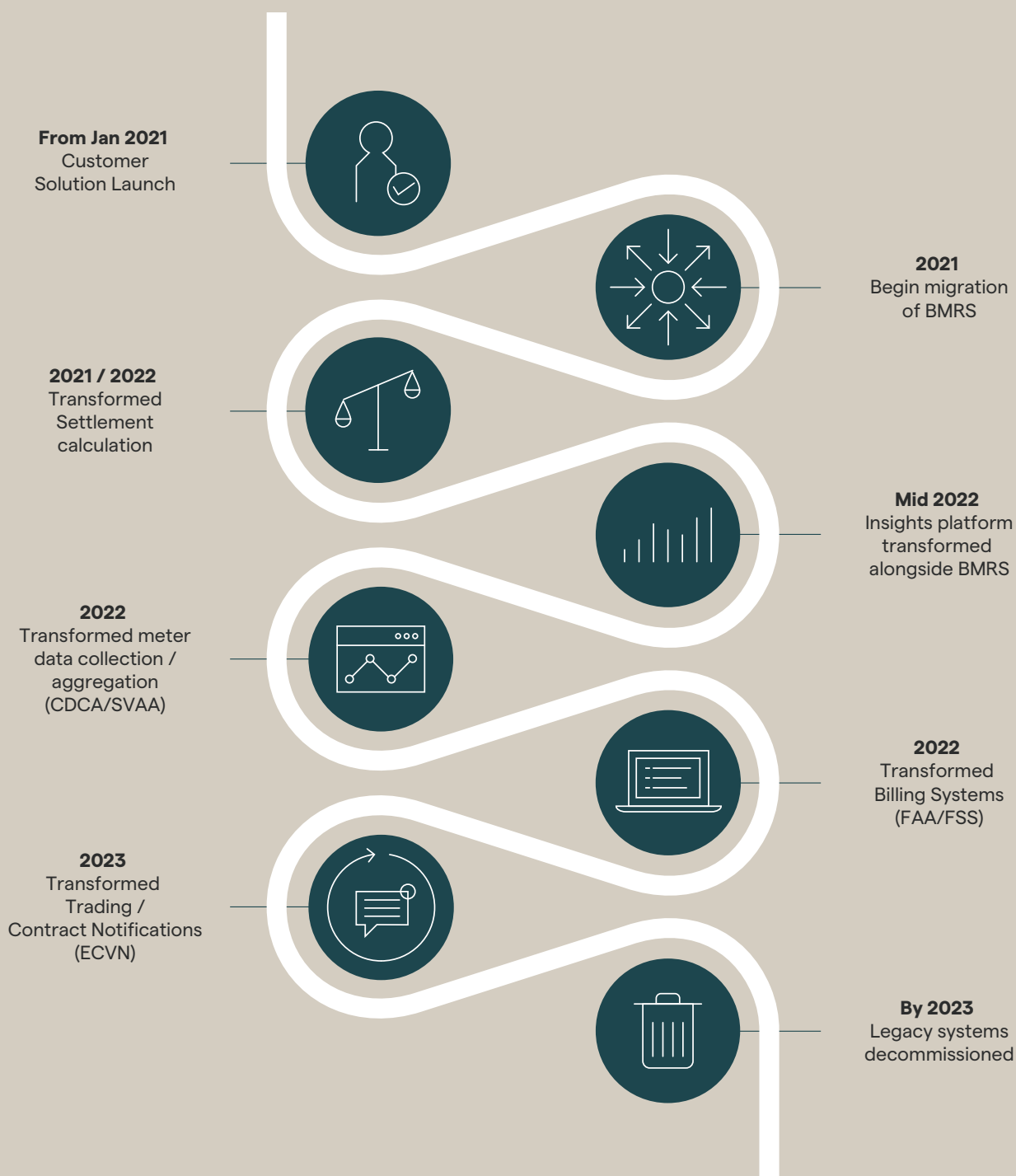
We have created a Data and Reporting User Group where people can engage in shaping the Insights Solution. Over 150 people across the industry have so far signed up and we expect around 50 to be closely involved in testing throughout 2021.

We will continue to evolve the solution to meet the needs of users by ensuring the voice of our customer remains front and centre.

If you would like to be part of the Data and Reporting User Group, please let us know by visiting our website. Alternatively, contact us at [Kinnect@elexon.co.uk](mailto:Kinnect@elexon.co.uk).

# Roadmap to delivery of Elexon Kinnect

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