Department for Energy Security & Net Zero

Smart Secure Electricity Systems Programme: Tariff data accessibility for flexibility services

Consultation on scope and delivery approach for making tariff data accessible.

Closing date: 21 June 2024

April 2024

Any enquiries regarding this publication should be sent to us at:
SSESconsultation@energysecurity.gov.uk

General information

Why we are consulting

This consultation sets out our proposals for requiring that energy suppliers present information about their domestic and small non-domestic energy tariffs to third parties in a common and consistent way. Doing so will help lay the groundwork for new smart technologies and services that help consumers manage their electricity consumption which will reduce costs and support the net zero transition.

Consultation details

Issued: 16 April 2024

Respond by: 21 June 2024 at 23:59 GMT

Enquiries to:

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Consultation reference: Smart Secure Electricity Systems Programme: tariff data accessibility for flexibility services – Consultation on scope and delivery approach for making tariff data accessible.

Audiences: This consultation is primarily aimed at electricity and gas energy suppliers serving domestic and small non-domestic customers. The consultation proposals will also be of interest to the smart technology sector, such as manufacturers of energy smart appliances and providers of demand side response services.

Territorial extent: Great Britain only.

How to respond

Responses are encouraged to be provided via the CitizenSpace page:

https://energygovuk.citizenspace.com/energy-security/smart-secure-electricity-system

or via the response form that can be found on the GOV.UK consultation page:
https://www.gov.uk/government/consultations/delivering-a-smart-and-secure-electricity-system-implementation

This response form can be sent via email to ssesconsultation@energysecurity.gov.uk or our postal address. When responding, please state whether you are responding as an individual or representing the views of an organisation.

Your response will be most useful if it is framed in direct response to the questions posed, though further comments and evidence are also welcome.

If you need a version of this document in a more accessible format, please email alt.formats@energysecurity.gov.uk. Please tell us what format you need. It will help us if you say what assistive technology you use.

Email response form to: ssesconsultation@energysecurity.gov.uk

or

Post response form to:

Smart Secure Electricity Systems Team, Department for Energy Security and Net Zero, 7th Floor, 3-8 Whitehall Place, London, SW1A 2AW

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We will summarise all responses and publish this summary on GOV.UK. The summary will include a list of names or organisations that responded, but not people's personal names, addresses or other contact details.

Quality assurance

This consultation has been carried out in accordance with the government's consultation principles.

If you have any complaints about the way this consultation has been conducted, please email: bru@energysecurity.gov.uk.

Executive Summary

In 2022, the government consulted[1] on proposals to require energy suppliers to comply with a tariff data standard so energy smart appliances can easily receive and respond to tariff information from different energy suppliers. These proposals aimed to unlock tariff optimisation services which will give consumers opportunities to save on their energy bills while at the same time supporting our energy security and decarbonisation goals. Following analysis of consultation responses, which were supportive, the government confirmed its intention to take forward this proposal and consult further on the scope and delivery approach. This consultation is seeking views on the potential solutions for delivering tariff interoperability.

In this consultation, government proposes to extend the scope of accessible tariff data to all domestic scale electricity and gas tariffs. We have also proposed a phased approach to developing the tariff data standard so it can include complex tariff data in future iterations of the standard, such as real time unit rate tariff updates or linking directly to tariff details in a consumer's energy supplier account where consumer consent has been given.

This consultation also proposes that a standard Application Programming Interface (API) be used as the technical solution to enable energy suppliers to share the tariff data items included in the standard. Adaption of this approach would mean an energy supplier would host an API and that the API schema would be standardised across all affected energy suppliers.

To develop the proposed tariff data standard, the government proposes to establish and chair an industry working group, comprised of energy supplier representatives and representatives of data users, including third parties offering tariff optimisation, Demand Side Response (DSR) and related services. This group would finalise the first phase of the tariff data standard, referred to as the Minimum Viable Product (MVP) standard specification.

An initial view of what would be included in the MVP is detailed in this consultation, building on existing simpler tariffs and 'public' tariff data items and simple use cases of tariff data optimisation. The final MVP would be developed with the Tariff Interoperability Working Group and prior to supply licence condition changes being finalised. Once the MVP is in force and hosted within the Retail Energy Code (REC), it is envisaged that further iterations of the tariff data standard, such as to support wider tariff data optimisation use cases, would predominantly be developed utilising REC modification governance.

Subject to the outcome of this consultation, government anticipates consulting on the proposed legal supply licence condition changes that would bring this proposal into effect. Our intention is to use powers under the Energy Act 2023 to deliver the tariff data standards by 2025/2026 by making amendments to supplier licence conditions and the REC.

[1] GOV.UK, 'Delivering a smart and secure electricity system: consultation on interoperability and cyber security of energy smart appliances and remote load control' (2022), https://www.gov.uk/government/consultations/delivering-a-smart-and-secure-electricity-system-the-interoperability-and-cyber-security-of-energy-smart-appliances-and-remote-load-control, consultation closed 28 September 2022 (viewed on 7 March 2024)

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1. Introduction

Price signals in the energy system are primarily conveyed to consumers through their energy tariffs, and as such, energy tariffs have a vital role to play in enabling consumers to utilise demand flexibility. Traditionally energy tariffs were static, in that the price was fixed for a period, but as the energy market becomes smarter it has become possible for tariffs to become more dynamic, in which the unit price is linked to costs of the energy system. For example, Time-of-use Tariffs (TOUTs) change the price of energy charged by an energy supplier, based on the time it is consumed or produced. TOUTs will facilitate benefits to consumers and the energy system, through rewarding consumers for shifting consumption to times when supply of electricity is most abundant.

Most TOUTs today, such as Economy 7 tariffs, are relatively simple and do not change from one day to the next. However, government expects that more suppliers will offer complex, dynamic TOUTs in the future, as consumers and energy suppliers take advantage of smart metering and half-hourly settlement.

To foster innovation and competition in the market, we need to ensure that consumers can easily access and switch to new tariffs. In fact, government expects that in the future certain aspects of switching between dynamic tariffs could be automated as devices and organisations respond to updated dynamic tariffs.

In our July 2022 Smart Secure Electricity Systems (SSES) programme consultation[2] and later government response[3], we proposed to require energy suppliers to make energy tariff data interoperable by making it available in a common and consistent format over the internet.

Interoperability of tariff data will make it easier for Energy Smart Appliances (ESAs) used in homes, such as electric vehicle smart charge points or smart heat pumps, to be used alongside innovative energy tariffs which give consumers the opportunity to save money by optimising their energy consumption. This proposal, in conjunction with others published by the Smart Secure Electricity Systems (SSES) Programme, will help reduce energy bills, support decarbonisation, and increase our energy security.

Tariff data interoperability is aligned with the government's wider plans for the energy retail market[4], the Smart Systems and Flexibility Plan[5] and the Energy Digitalisation Strategy[6]. As

[2] 'Delivering a smart and secure electricity system: consultation on interoperability and cyber security of energy smart appliances and remote load control' (2022), https://www.gov.uk/government/consultations/delivering-a-smart-and-secure-electricity-system-the-interoperability-and-cyber-security-of-energy-smart-appliances-and-remote-load-control

[3] GOV.UK, 'Delivering a smart and secure electricity system: Government response to the 2022 consultation on interoperability and cyber security of energy smart appliances and remote load control' (2023), https://www.gov.uk/government/consultations/delivering-a-smart-and-secure-electricity-system-the-interoperability-and-cyber-security-of-energy-smart-appliances-and-remote-load-control (viewed on 8 March 2024)

[4] GOV.UK, 'Delivering a better energy retail market: A vision for the future and package of targeted reforms' (2023) https://www.gov.uk/government/publications/delivering-a-better-energy-retail-market/delivering-a-better-energy-retail-market-a-vision-for-the-future-and-package-of-targeted-reforms-html (viewed on 8 March 2024)

[5] GOV.UK, 'Transitioning to a net zero energy system: Smart systems and Flexibility Plan 2021', https://www.gov.uk/government/publications/transitioning-to-a-net-zero-energy-system-smart-systems-and-flexibility-plan-2021 (viewed on 8 March 2024)

[6] GOV.UK, 'Digitalising our energy system for net zero: Strategy and Action Plan 2021', https://www.gov.uk/government/publications/digitalising-our-energy-system-for-net-zero-strategy-and-action-plan (viewed on 8 March 2024)

set out in the 'Towards a More Innovative Retail Energy Market'[7] Call for Evidence, the implementation of market-wide half-hourly settlement is expected to drive an increase of smart tariffs.

Furthermore, there has also been progress in using personal data to enhance energy products for consumers and this can include the next generation of energy tariffs. In 2023 Ofgem published a Call for Input (CfI) on Data Sharing in a Digital Future[8] to empower consumers to securely share their energy data with trusted market participants. It focused on three key objectives, including enhancing access to personal data, building consumer trust in data-sharing services, and establishing an effective consent process or mechanism. The CfI outlined the importance of putting consumers at the forefront of the net zero transition by ensuring they are empowered to give, manage, and revoke consent for sharing their data.

Government is also exploring the use of smart data across the economy beyond the energy sector. In September 2023, Department for Science Innovation and Technology (DSIT) published a consultation[9] to explore the potential benefits of establishing a Smart Data Scheme in the UK telecoms market, to support consumers making more informed choices about the services they purchase. One of the three core components of DSIT's Open Communication scheme is data sharing, and through the consultation DSIT sought views on how information should be provided to consumers.

Finally, the technical solution proposed in this consultation - APIs – are already being utilised for similar purposes in other sectors. For example, in the financial sector, millions of consumers and businesses are using innovative Open Banking enabled products and services through APIs that give regulated access to their payments and account data to third-party service providers[10].

[7] GOV.UK, 'Towards a more innovative energy retail market: A Call for Evidence' (2023), https://www.gov.uk/government/consultations/towards-a-more-innovative-energy-retail-market-a-call-for-evidence, call for evidence closed 18 September 2023 (viewed on 8 March 2024)
[8] Ofgem, 'Data Sharing in a Digital Future: Call for input' (2023), https://www.ofgem.gov.uk/publications/data-sharing-digital-future, Call for Input closed 27 January 2024 (viewed on 8 March 2024)
[9] GOV.UK, 'Open Communications: A Smart Data scheme for the UK telecoms market' (2023), https://www.gov.uk/government/consultations/open-communications-a-smart-data-scheme-for-the-uk-telecoms-market, consultation closed 13 November 2023 (viewed on 8 March 2023)
[10] Open Banking, https://www.openbanking.org.uk (viewed on 8 March 2024)

2. Delivery approach & scope

2.1 A common data standard to deliver tariff data interoperability

To optimise energy consumption or production on behalf of consumers, ESAs such as private EV smart charge points or smart heat pumps, will need to receive and respond to energy tariff data or instructions (possibly provided by a third-party organisation offering optimisation services) that are based on algorithms that use tariff data as inputs.

The current methods for accessing tariff data are not simple or consistent. Currently, ESAs may obtain tariff information by directly collecting it from a consumer, a smart meter, energy supplier websites, price comparison websites, and other sources. This data is typically not provided in a format that can be easily read or processed by machines. The lack of a consistent approach is a barrier to integrating ESAs with supplier tariffs, and either requires customers to manually configure their ESAs or for ESA manufacturers to build custom integrations with these data sources.

In the July 2022 consultation 'Delivering a smart and secure electricity system'[11], government outlined these issues and proposed that creating a common data standard could deliver tariff data interoperability to support DSR services, making it easier for ESAs to use data for DSR services, improving the consumer experience and reducing energy system costs.

Government proposes to require, through an amendment to Electricity [and Gas] Supply Licence conditions, that energy suppliers make available their energy tariffs in accordance with a tariff data standard that would specify the common format in which the tariff data should be made available.

2.1.1 Scope and use cases

The July 2022 consultation focused on proposals to standardise time-of-use tariff data, namely data on electricity tariffs which have a unit price per kilowatt-hour (kWh) that changes throughout the day. It also focused on the public data of such tariffs, such as the information that identifies one or more tariffs offered by energy suppliers, including the name of the tariff, its standing charge, and its different unit rate charges. The government response to the consultation[12] stated that further policy development will also consider solutions that enable interoperability of personal tariff data – whereby a consumer provides consent to a third party to obtain their individual tariff information from their energy supplier account – after responses to the consultation highlighted the benefits of doing so.

In the consultation response of March 2023, government committed to considering an expansion of the scope of the proposal, while ensuring data privacy and cyber security of

[11] 'Delivering a smart and secure electricity system: consultation on interoperability and cyber security of energy smart appliances and remote load control' (2022), https://www.gov.uk/government/consultations/delivering-a-smart-and-secure-electricity-system-the-interoperability-and-cyber-security-of-energy-smart-appliances-and-remote-load-control

[12] 'Delivering a smart and secure electricity system: Government response to the 2022 consultation on interoperability and cyber security of energy smart appliances and remote load control' (2023), https://www.gov.uk/government/consultations/delivering-a-smart-and-secure-electricity-system-the-interoperability-and-cyber-security-of-energy-smart-appliances-and-remote-load-control

consumer data. Government also accepted that tariff data standard proposals could be introduced in a phased way by first creating a Minimum Viable Product (MVP) and later adding additional standardisation for more complex tariff data.

Since the March 2023 consultation response government has engaged with industry and consumer group representatives on our tariff proposals to develop views on its scope and the best technical means to achieve it. Using the results of this engagement we developed several detailed tariff data use cases. The use cases included optimisation of ESA activities against tariff data by different parties including DSR Service Providers (DSRSPs), original equipment manufacturers, and the device itself.

Key factors identified

These use cases and stakeholder engagement highlighted four key factors for designating the scope of the tariff interoperability solution:

1. *The need to future-proof the solution by ensuring it can accommodate future products such as dynamic tariffs.*

Most available tariffs are simple and static, for which prices and time periods are fixed for the duration of the contract; more advanced dynamic tariffs that track real-time wholesale energy costs are not yet widely available. Regulatory reforms, market-wide half-hourly settlement, and smart meter capabilities are projected to encourage energy suppliers to align consumer demand with cost-efficient time periods, thereby encouraging dynamic tariffs. Although current methods for accessing tariff data may work for simple tariffs, they are unlikely to take account for the complexity of future dynamic tariffs. Therefore, we need a solution for tariff interoperability that can accommodate new and innovative products, either now or in subsequent iterations of the solution.

2. *The solution should be able to accommodate the use of private data (such as addresses and MPAN[13]) if consumers consent to enable more opportunities for flexibility.*

Although focusing on public tariff data (data on all the tariffs in use by a supplier, without linking tariffs to individual consumers) would remove technical barriers to integrating time of use tariffs with ESAs, it would require all consumers to manually inform their optimisers of what tariff they are on. Certain organisations can currently access this personal data through the smart metering system, but with developing approaches for obtaining consumer consent (such as the dashboard recommended by the Energy Digital Taskforce) this information could be more easily made available to third parties. Additional evidence regarding alternative consumer consent options, as provided by Ofgem's Data Sharing in a Digital Future[14] initiative, will shape and support future policy developments in this domain. Optimisation services that utilise personal tariff data could be implemented at a later stage, following the provision of optimisation based on public tariff data.

3. *The scope should be expanded to include gas tariffs as well as electricity tariffs.*

A focus on electricity tariffs would exclude any optimisation opportunities for dual fuel customers. These optimisation opportunities may include optimisers accessing public gas tariff

[13] Meter Point Administration Number (MPAN) is a unique 13-digit reference that identifies each electricity supply point.
[14] Ofgem, 'Data Sharing in a Digital Future: Call for input' (2023), https://www.ofgem.gov.uk/publications/data-sharing-digital-future, Call for Input closed 27 January 2024 (viewed on 8 March 2024)

data to inform customers whether it would be cheaper to run heat pumps or gas-fired boilers for heating their premises, or new innovations such as the ability to compare water heating costs using gas or electricity. In the future, domestic consumers with ESAs and other technologies such as solar panels may opt to use “energy as a service” business models, whereby the customer is charged a single unit rate, and energy consumption is optimised by a DSRSP to enable cost savings for the energy supplier.

The proportion of optimisation services that would involve dual-fuel customers is currently unknown. Further development of this market is also dependent on the innovation, roll-out, and uptake of smart heat pumps and associated technologies. The additional cost for developing the technical solution that enables gas tariff data interoperability along with that of the electricity tariff have not been estimated, though given that most energy suppliers provide both electricity and gas, the cost is thought to be minimal.

4. *The solution needs to ensure that optimisers have accurate and up to date information.*

For optimisation against a tariff, it is crucial to guarantee that the data is accurate and up to date. As consumers can and do change their tariffs, switch suppliers, or relocate, it is imperative that optimisers always have access to the most recent tariff information from a trusted source. Without this, optimisers may optimise incorrectly, which could lead to failure in achieving cost reductions and consumer complaints.

Use cases

We worked closely with stakeholders through a series of workshops to identify the user requirements for optimisers and consumers. This allowed us to generate use cases A-D to test potential solutions against and highlighted further scope requirements:

A. Support a third-party organisation in optimising energy consumption when a customer of the organisation knows their current supplier and tariff name (or can easily find them) and provides this information to the organisation.

Our initial proposals, as set out in the July 2022 consultation, would permit this use case by enabling organisations undertaking tariff optimisation services to get access to both static and dynamic electricity time-of-use tariff data. Although this would remove some technical barriers to integrating time-of-use tariffs with ESAs, and support initial forms of tariff flexibility, its scope would limit future innovations in tariff optimisation and any consequent benefits.

B. Support a third-party organisation in optimising energy consumption if a customer of the organisation does not know their current supplier and tariff name (and cannot easily find them) but has previously consented to sharing this information.

Where consumers do not know their tariff information, organisations will be required to request and obtain a consumer’s tariff details, most likely from a supplier’s database. Giving consumers the choice to share their tariff details with third parties, for instance via a consumer consent dashboard, opens additional possibilities for flexibility and removes the need for consumers to identify and manually inform their organisations about their current tariff information.

C. Support a third-party organisation in optimising energy consumption of a customer when the supplier modifies the unit prices of a tariff (such as in the case of dynamic tariffs).

Complex dynamic tariffs, where energy suppliers change price or time periods every half-hour, will require a robust but flexible data interoperability strategy. This strategy will necessitate consumers giving consent to third parties to access their latest tariff information; specifically, the tariff they are currently using. This use case enables organisations to monitor these dynamic changes to manage their charging and ensure that their optimisation propositions still offer value to the consumer.

D. Support a third-party organisation in optimising energy consumption of a customer, without requiring the customer of the organisation to manually inform the organisation if they change their tariff or supplier.

This use case applies to scenarios where consumers initiate dynamic changes, such as switching tariffs, suppliers, or relocating. Organisations can deliver accurate and appropriate optimisation services to consumers only by having access to up-to-date tariff information. Organisations should be able to monitor these changes through an automated system that would not require manual intervention from consumers.

1. **Do you agree with the use cases proposed in this consultation for the MVP? Are there any other use cases that you believe should be included in the MVP for energy tariff optimisation services?**

2.1.2 The minded-to scope

Given the use cases outlined above, our minded-to view on the scope of the MVP tariff data standard is that it should account for the widest range of use cases for domestic-scale flexibility.

This would mean that the tariff data standard would need to:

1. cover tariffs offered to domestic and small non-domestic (for example microbusinesses[15]) consumers. Note that some types of tariffs, such as non-domestic tariffs for microbusinesses that are based on a bespoke arrangement, would be excluded from the tariff data standard;
2. include both electricity and gas tariffs;
3. include single rate tariffs, type of use tariffs (whereby a customer is charged a different rate depending on what the customer is using the electricity for) as well as static and dynamic time of use tariffs.

Proposed drafting of Electricity [and Gas] Supply Licence condition changes will be published for consultation around the time of the response to the current consultation.

We have committed to a phased approach to delivery and implementation of tariff data items. In practice, this would mean that the simpler tariff items would be introduced into the tariff data standard first. More complex data items requiring further consideration would be introduced at a later point. Further information on how the tariff standard could develop over time, as well as

[15] Electricity microbusiness customers are those with an annual consumption of not more than 100,000 kWh OR fewer than 10 employees and an annual balance sheet/turnover not exceeding €2 million. Gas microbusiness customers are those with an annual consumption of not more than 293,000 kWh OR fewer than 10 employees and an annual balance sheet/turnover not exceeding €2 million. This definition comes from: Ofgem, 'Guidance - Standard of Conduct (SLC0 and SLC0A)' (2019), https://www.ofgem.gov.uk/publications/licence-guide-standards-conduct (viewed 8 March 2024)

the specific data items we would expect to be included in the MVP of the standard, can be found in Chapter 3.

2. **Do you agree with the government's proposal to extend the scope of public tariff data to all tariffs that are applicable to domestic and small non-domestic (microbusiness) consumers? If you do not agree, please explain why.**

3. **Do you agree that the data standard should be extended to include gas tariffs? If you do not agree, please explain why.**

2.2 Technical solutions

This sub-chapter sets out the government's approach and analysis to shortlisting a technical solution for the tariff data standard, bearing in mind the above use cases and scope.

Government, through stakeholder engagement, has identified several technical solutions that could deliver on the identified use cases. These ranged from technical solutions requiring little change to energy suppliers' current IT systems, to API solutions which would require some suppliers to make more substantial changes to standardise information into a common format and give third parties access to this data, as well as centralised solutions whereby tariff data is put into a central system which organisations can access. Further detail on these technical solutions can be found in Table 1 below.

Table 1. Technical solutions for achieving tariff data standardisation for third party organisations offering tariff optimisation, DSR and related services.

Category	Solutions	Description
Minimum technical change	1a. Access tariff data direct from smart meter/via a Consumer Access Device (CAD)/Smart Meter Home Area Network (SMHAN)/via the Data Communications Company (DCC) as an *Other User*	• Tariff data would be read from the smart meter. • Organisations would register as a DCC Other User or access via CAD/SMHAN. • Guidance/regulation would need to be reviewed to ensure supplier must provide up to date information on the meter. • Consumer consent required to access data or pair a CAD to the SMHAN.
	1b. Download tariff data files from Supplier websites using a standard	• A minimum tariff data set and format (such as field length) would be established. • Suppliers would provide tariff data on their websites using a recognised format, such

		as csv. Organisations (and consumers) could download this from their websites.
Non-standard APIs	2a. Supplier Non-standardised APIs	• A minimum tariff data set and format (such as field length) would be established. • Suppliers would store their tariffs on their IT systems and be mandated to provide access via an API, but this would not be standardised. Organisations would access this from their systems and 'translate' it for use on their systems.
	2b. Supplier Non-standard APIs + Gateway	• As Option 2a, but a new gateway provider would be procured to access supplier tariffs and provide a single point of access for optimisers. Organisations would access the gateway to obtain tariff data.
	2a or b + extended functionality for events and authorisation	• As Option 2a or 2b, but also with: ○ Webhooks[16] that allow Suppliers to notify organisations when an event happens. Events could include a new tariff being created; an existing tariff being modified (in the case of a dynamic tariff); a tariff being withdrawn/deleted; or a customer switching a tariff or supplier. ○ Organisations subscribe to the event topic by providing the Supplier with their URL for receiving the events. Suppliers use event handlers to capture the events. Suppliers send the event and tariff data to the receipt URL of each subscribed Optimiser, using HTTP methods.
Supplier wide standardised API	3a. Supplier wide standardised APIs	• A minimum tariff data set and format (such as field length) would be established. • Energy suppliers store their tariffs on their IT systems and provide access via a standard API. Organisations would access this from the supplier systems for use on their own systems.
	3b. Supplier wide standardised APIs + Gateway	• As 3a, but a new gateway provider would be procured to access supplier tariffs and provide a single point of access for

[16] Webhooks are one-way automated messages that are sent to a defined URL following a specified event.

		organisations. The organisations would access the gateway to obtain tariff data.

	3a or b+ extended functionality for events and authorisation	• As Option 3a or 3b, but with:
		  ○ Webhooks that allow Suppliers to notify organisations when an event happens. Events could include a new tariff being created; an existing tariff being modified (in the case of a dynamic tariff); a tariff being withdrawn/deleted; or a customer switching a tariff or supplier.
		  ○ Organisations subscribe to the event topic by telling the Supplier their URL for receiving the events. Suppliers use event handlers to capture the events. Suppliers send the event and tariff data to the receipt URL of each subscribed Optimiser, using HTTP methods.

Centralised tariff provision	4. Central system	• A minimum tariff data set and format (such as field length) would be established. A central system would be procured to manage tariff data. Suppliers would post their tariffs to the single central system. Central system provides access via its own API. Organisations call the central system API to access tariffs.

2.2.1 Evaluation of technical solution options

Stakeholders were interviewed to test the different technical solutions and understand their view on the evolution of the DSR market**.** The options were subsequently refined based on this feedback and evaluated against use case support, ease of use, cost, delivery risk, governance requirements, regulatory change, and implementation timelines. The results are summarised as a RAG rating for each criterion in Table 2, with further explanation in Table 3. More evidence of this analysis is also available within Appendix A of this document which evaluates each option against the use cases.

Table 2. RAG rating assessment of the possible technical solutions against the proposed criteria.

Technical Solution	Cost	Implementation time	Use cases	Delivery risk	Governance requirements	Regulatory change	Ease of Use
Minimum technical solution.							
Non-standard APIs.			Fully met with extended functionality.				
Standardised APIs.			Fully met with extended functionality.				
Centralised tariff provision.							

The RAG ratings for each possible technical solution are expanded on in Table 3 with feedback from stakeholders and analysis from government.

Table 3. Summary of the assessment of the technical solutions.

Solutions	Evaluation
Minimum technical change: • Option 1a: Access tariff data direct from meter • Option 1b: Download tariff data files from Supplier websites	Stakeholder feedback suggested that the lack of any seamless automatic access to data will place a burden on optimisers and constrain the market. The lack of automation associated with these options could also hamper user experience. Stakeholders had concerns regarding the DCC Other User route in terms of time and flexibility, and the CAD route requiring a consumer to have an additional device, which could be both a barrier to entry as well as result in an increase in costs. Stakeholders also fed back that these options do not offer any evolution path for non-manual support for use cases C and D, and that the implementation timeline is relatively long, given the limited benefit and use case support. Organisations and suppliers could use these solutions in the short term, but they are unlikely to be

Solutions	Evaluation
	viable if there is greater uptake of dynamic time of use tariffs, requiring further government intervention and disruption to industry. In addition, consumer consent is required for this solution which will create additional implementation and governance challenges. **In the cost appraisal of the analytical annex, this solution is used as the counterfactual**.
Supplier Non-standard APIs: • Option 2a without Gateway • Option 2b with Gateway • Option 2a or 2b with extended functionality	The stakeholder feedback on these options was that they were preferred by larger market participants who anticipate that the use of non-standardised APIs would mitigate the risk of stifling innovation. Feedback also reported that a gateway could be considered if multiple APIs are deemed onerous for organisations providing demand side flexibility services. Stakeholders believe that the extended option would support the widest amount of use cases. These options would support a phasing approach, with core functionality developed by suppliers, potentially followed by a gateway created with event and authorisation functionality added in parallel to support organisations and enable further use cases. These options would likely result in some suppliers progressing quickly with a detailed API, whilst others would produce base functionality solutions only. Regulatory intervention would likely be needed to ensure openness (for example, where a supplier is also an organisation offering tariff optimisation, DSR and related services, they would need to provide equivalent functionality to all organisations). *This solution, as set out in the analytical annex, generates net cost savings for the entire industry after 13 years against the counterfactual solution (minimum technical change) in the central scenario.*
Supplier Standard APIs : • Option 3a without Gateway • Option 3b with Gateway • Option 3a or 3b with extended functionality	These options were strongly preferred by smaller market participants and some energy suppliers. Analysis of these options is comparable to supplier non-standard API options. The main difference is that more standardisation could facilitate easier access for organisations providing demand side flexibility services and long-term management, but at the downside of a longer timescale and potential risk to innovation. Stakeholders were sceptical of the value that a gateway solution will offer over and above mandating a standard API. The key advantage of a gateway solution is that it avoids organisations who want to access the tariffs having to develop multiple sets of translation code, but this is already achieved through standardisation. The Gateway gives further advantages in

Solutions	Evaluation
	terms of single point of access and potentially through the coordination of upgrades, but these are unlikely to be significant. *This solution, as shown in the analytical annex, leads to net cost savings for the entire industry after 5 years against the counterfactual solution (minimum technical change) in the central scenario.*
Centralised tariff provision (Option 4)	This option is comparable to the Market Informed Demand Automation Server (MIDAS) system which is already operational in California[17]. The main downsides are cost, timescale, and the provision of personal data (given that holding all personal data in a central database may constitute an unacceptable data security risk). This was not a preferred option among stakeholders; they had concerns regarding possible delays in implementation, stifling innovation, risks to consumer privacy and finally the complications of finalising long-term funding arrangements for a central system.

As a result of this assessment, **the government is minded to discount Options 1 and 4 in the first instance**. The next section considers options 2 and 3 in more detail and we then set out our minded to technical solution.

2.2.2 API solutions

An API is a set of rules, protocols, and tools that allows different software applications to communicate and interact with each other. An API enables developers to build applications that can utilise the features and data of another application or service without needing to understand the details of its internal workings. APIs play a crucial role in fostering interoperability, enabling innovation, and facilitating collaboration between different software applications and services.

API-based solutions are ubiquitous in software development for data sharing and enable a phased approach. A phased API solution could allow the core use case (such as use case A) to be delivered first and the introduction of extended use cases (such as B to D) in the future.

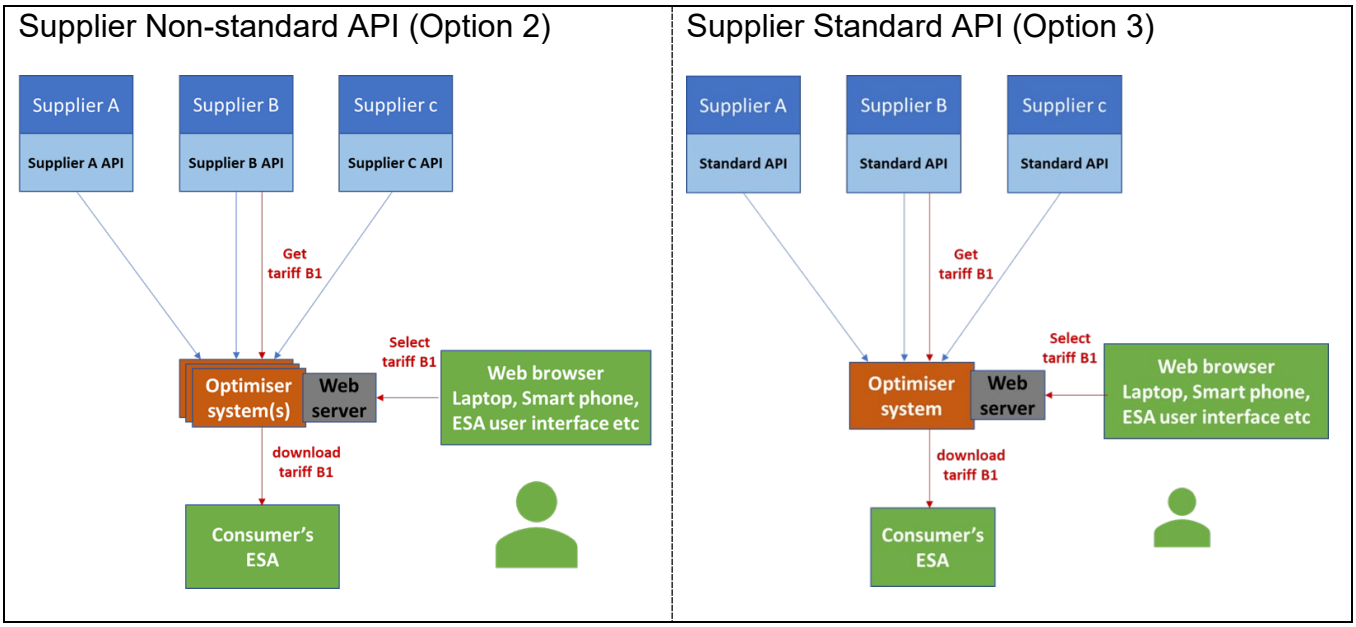
API-based solutions also allow wider use case support whereas the minimum technical change solutions (namely accessing tariff data directly from meters and downloading tariff data files from supplier websites) do not. As noted in the Analytical Annex published alongside this document, relative to the centralised option, the API-based options offer shorter timelines for development and implementation, and reduced cost.

[17] California Energy Commission, 'Market Informed Demand Automation Server (MIDAS)', https://www.energy.ca.gov/proceedings/energy-commission-proceedings/inactive-proceedings/market-informed-demand-automation (viewed on 8 March 2024)

An API Schema is a structured document outlining the details and rules for interaction with an API. An API Schema allows developers to understand an API's structure, parameters, data formats, methods, and guidelines.

A high-level view of the supplier non-standard (Option 2) and standard (Option 3) API is provided below. It depicts the communication between energy supplier, optimiser, and consumers for allowing data interoperability. The key difference between a standard and non-standard approach is that, for the latter, the optimiser must create a specific system to interact with each API, whilst for the standardised option, as there is only one API, there only needs to be one optimiser system.

Figure 1. High-level diagram for API, or API-based, solutions to allow interoperability of energy tariff data.



2.2.3 The 'minded-to' technical solution

Both standard and non-standard API options allow tariff data to be hosted and updated by the energy suppliers. However, in a non-standard API (Option 2), lack of uniformity in the API development and the absence of a clear upgrade or versioning strategy may lead to varying levels of API integration adding complexity. This complexity could be onerous for ESA manufacturers and third-party organisations offering tariff optimisation, DSR and related services, as they might be required to develop multiple systems to support data exchange.

Standard APIs (Option 3) offer easier access to data, though use of such an API could potentially provide less scope for innovation. However, this risk is mitigated by the proposed MVP approach to the tariff data standard as described in Chapter 3. This approach will require energy suppliers to publish the minimal data required for interoperability of tariff data and so allows for additional innovation and product differentiation to be added.

Based on stakeholder engagement and our assessment above of the technical options, **government considers that the Supplier Standard API (Option 3), where an energy supplier hosting an API with the API schema being standardised across the suppliers, will best enable interoperability of tariff data and meet overall SSES Programme objectives**. The schema will include certain data for tariff optimisation purposes; a preliminary

list of such data items is provided in Table 4. The different variations of supplier standard API (Option 3a v 3b v 3a/b+ variations in Table 1 with or without a gateway solution and extended functionality) will be developed in further detail with industry and considered as part of the programme phasing.

4. **Do you agree that a Supplier Standard API is the most suitable technical approach to enable interoperability of tariff data, based on the analysis set out in the consultation document and analytical annex? Please explain your answer.**

5. **What is your view on the methodology and cost assumptions used in the cost appraisal as presented in the analytical annex?**

3. Delivery and implementation of the tariff data standard

3.1 Phased implementation and delivery of the initial MVP standard

In the July 2022 consultation, government proposed a phased approach to the delivery and implementation of tariff interoperability. We confirmed this intention in the March 2023 response. Accordingly, we are proposing the introduction, by 2025/2026, of an initial standard specification for simpler tariff data items based on an MVP and public tariff data of both domestic and small non-domestic electricity and gas tariffs.

This initial standard specification will support implementation of the simplest use case, use case A, wherein a consumer can identify their tariff and share it with an optimiser or an ESA via a simple user interface. This will be based on the simpler tariffs that exist now, such as single rate or static TOUTs that have 2+ unit rates set throughout the day. The initial standard would be operational by 2025/2026 in line with the proposed Code Governance Reform.

Complex tariffs, such as dynamic TOUTs with fluctuating unit rates that are based on network constraints, and type-of-use tariffs would be included in later phases. Management of the standard would be primarily through a code body and additional requirements would be introduced in line with the governing code modification processes. The timeline for enduring standards should be mapped out by an industry working group overseen by the governing code body in line with strategic objectives set out by government and Ofgem.

The phased implementation approach will also allow valuable lessons to be learned prior to the implementation of more complex TOUTs.

An MVP in this case refers to the minimum tariff items required to develop the initial standard data specification and to allow interoperability of energy tariff for the simplest use case (use case A).

A list of the current MVP tariff data items is provided below. Please note that the list is likely to change and will be ultimately determined and approved by a government-chaired industry working group.

Table 4. Preliminary list of MVP tariff data items for electricity and gas tariffs.

Data Item	Definition
Supplier name	Unique Name of Supplier
Supplier brand	Unique Brand Name of Supplier (for if supplier has sub-brands)
Tariff ID	ID of tariff – unique within this Supplier
Tariff Name	Full Name of Tariff – as published by Supplier

Data Item	Definition
Tariff Display Name	Name of Tariff – "friendly" name as referred to by Supplier
Direction	Import/Export Tariff
Tariff contract type	Fixed or Variable
Tariff type	Static TOUT, Dynamic TOUT, Block, Type of Use, single/flat rate, etc.
Customer Scope	Domestic and small non-domestic
Electricity Standing charge	The fixed charge per day (£/day) - including or excluding of VAT
Gas Standing charge	The fixed charge per day (£/day) - including or excluding of VAT

6. **Do you agree with the proposed 'phased approach' to implementation; namely, to implement an MVP tariff standard for existing simple electricity and gas tariffs to meet use case A? If you do not agree, then please explain why.**

7. **Are there any other data items that you believe should also be included within the list of proposed MVP tariff data items?**

8. **Do you support the government's proposal to deliver complex tariffs and remaining use cases (B – D) through future changes to the tariff data standard? If not, then please explain why.**

3.2 Role of Tariff Interoperability Working Group (TIWG)

In parallel to this consultation, the government will establish a Tariff Interoperability Working Group (TIWG), comprised of external representatives and chaired by government, that will develop and finalise the tariff data standards.

The primary focus of the Group will be on energy suppliers as the providers of the tariff data. Membership will also include representatives of data consumers such as optimisers, DSRSPs, ESA manufacturers, software vendors, and trade associations. We would also expect code bodies and Ofgem to be involved.

In line with our consultation proposals, the focus of the Group will be phased. Initially, the TIWG will work towards developing a high-level delivery plan for the initial standard specification and its incorporation into a governing code responsible for the enduring standards. During this phase, the TIWG will be developing the MVP of the tariff data standard, focusing on simpler forms of tariffs (namely, single rate and static TOUTs).

The TIWG will explore potential roadmaps on how proposed technical updates to the standard, such as user authentication or real time data, will be incorporated. This will inform the future governing code modification proposals for enduring standards. The subsequent focus for the Group will be on preparing for further phases of the data standard as part of the enduring governance, such as accommodating more complex forms of tariffs, and any potential for consumer authentication protocols, specifically:

- outlining consumer authentication protocols (such as domestic and small non-domestic consumers to authenticate themselves and receive details of their own tariff and associated information);
- informing policy development on governing the data standard on an enduring basis; and
- informing planning for event driven architecture that would allow real-time updates of tariff information.

The second phase of the TIWG work will focus on the development of the technical solution chosen. For example, if the lead option of a supplier standard API is confirmed, the TIWG will explore the development of an OpenAPI compatible specification for the standardised API Schema. The OpenAPI Specification is a standardised way of describing web APIs. An OpenAI Specification allows production of a file which is both machine and human readable and which describes the format and responses of APIs.

Finally, the TIWG will create non-functional requirements related to security, uptime (a measure of reliability), and versioning (for example, of the GB Tariff API for enduring standards) that each supplier API must adhere to for the technical solution; and compile a list of data items beyond the MVP items for complex TOUTs. In addition, the TIWG is expected to advise on non-technical matters that have technical ramifications, including the governance and delivery of the technical framework.

3.3 Enduring governance: The Retail Energy Code (REC)

In the July 2022 consultation, government proposed the Smart Energy Code (SEC) as the governing code body to house and govern the tariff data standard. There were mixed responses to this proposal, and the Retail Energy Code (REC) came out as the most popular alternative. The government response committed to consulting further on this prior to deciding on a code body.

Government has engaged with a range of industry parties on this question since publication of the consultation response. Throughout this engagement, the REC stood out as the best body for hosting the tariff data standard as:

- it spans both the electricity and gas sectors, which is in line with the proposed scope of the intervention;
- it is retail focussed;
- our proposed solution is not directly linked to smart metering (thereby making the SEC less appropriate); and
- the REC also allows non-REC parties to raise amendments and to be involved in the modification process.

Government recognises that non-REC parties such as optimisers, DSRSPs, ESA manufacturers, and consumer groups will play a crucial role in standard development. The government accordingly proposes the REC as the document to host the tariff data standard.

9. **Do you agree with the government's proposal to host the tariff data standard in the REC? If not, then please provide reasons.**

3.4 The minded-to delivery approach

The government intends to implement the data standard in phases. This incremental approach will help address the complexities associated with the implementation of simple TOUTs in the short term (2025-2026), and more complex TOUTs in the longer term.

Government therefore proposes the following as the minded-to option to deliver the tariff data standard at MVP and in later phases:

1. The tariff data standard will be incorporated into and maintained under the REC.
2. Government will oversee the development of the MVP. Government will lead the development of the initial standard through the TIWG and explore the initial design of the lead technical solution that unlocks interoperability of the simplest use case (use case A).
3. Government and Ofgem will work with the industry and the code body to ensure that future iterations of the standard accommodate more complex tariff types to enable tariff data interoperability for the remaining use cases, namely use cases B to D. The government will retain the right to intervene if needed.
4. Ofgem will ultimately approve future iterations of the data standard via the modification process for the REC (minor changes to the standard may be capable of being progressed as a self-governance change).

10. **What is your view on the government's minded-to position on the phased delivery approach to deliver the tariff data standard?**

4. Regulations

Proposed regulatory approach

The government has powers under the Energy Act 2023 to make changes to implement the requirements flowing from the SSES Programme of work. These powers include the ability to make licence and code changes.

We envisage using powers under section 245 of the Energy Act 2023 to deliver tariff data interoperability. Under these powers, the Secretary of State may amend licences and/or codes as necessary. As set out above, we believe that the REC is the most appropriate code in which to set out these arrangements, given that the REC spans both the gas and electricity sectors and is a consumer-focussed code. We recognise, however, that some third parties that are interested in using the tariff data will not be REC parties. As such, we propose to work with the Retail Energy Code Company (RECCo)[18] to put arrangements in place that will allow such third parties to be involved in the modification process where it relates to tariff data availability.

Depending on the progress of the work via the TIWG, the government may, following consultation, extend the requirements beyond those included in the initial MVP. On an enduring basis, we expect any material changes to the standard to be handled as an "Authority-Approved Change" under the REC, thus giving energy suppliers and other interested parties an opportunity to input into the change process, and ultimately giving the Authority oversight of the standard. The Gas and Electricity Market Authority (GEMA), the Ofgem governing body, would be the Authority.

We propose to progress the minded-to technical solution via the TIWG, with the intention of implementing the arrangements via licence conditions and REC changes once the initial solution is developed.

Under the terms of Energy Act powers, the government will consult with licence holders, GEMA, and anyone else deemed appropriate on any proposed changes to licence conditions, and on any changes to the REC. We currently intend to consult on proposed licence conditions and REC changes in the second half of 2024.

We envisage that gas and electricity suppliers will be required to make information available regarding their tariffs in ways that are in accordance with the tariff data standard mentioned above that will be specified in the REC. All tariffs will be included in the scope of the tariff data standard requirements, other than those which are bespoke to a specific non-domestic consumer and those that are structured in a manner that is not compatible with the standard (namely, dynamic TOUTs for the MVP).

11. Do you support the proposed regulatory approach to implement the tariff data standard and technical solution? If not, please provide reasons.

[18] The Retail Energy Code Company (RECCo) is an independent, not-for-profit organisation that manages the Retail Energy Code. For further guidance on RECCo please see: https://www.retailenergycode.co.uk/ (viewed on 8 March 2024)

5. Next steps

Our current timeline for implementing phase 1 of the MVP tariff data standard is 2025/2026.

This will require the government-chaired proposed Tariff Interoperability Working Group to develop the minded-to technical solution, namely a standardised API/API schema, and the tariff data standard based on existing simple TOUTs. Responses to this consultation will feed into the development of the technical solution.

The government is required to consult on the proposed wording of the licence condition and any Retail Energy Code (REC) changes. We intend to consult on the initial licence condition changes and REC changes alongside the publication of the government response of this consultation in 2025. The government will work with Ofgem on any potential licence condition amendments.

Our current working timeline is presented below. These timescales may change depending on the timing of the next General Election.

Table 5. Indicative timeline for the development and implementation of tariff data accessibility for flexibility services.

Proposed/Indicative timeline	**2024**		**2025**		**2026**	**2027**	**2028**
Tariff interoperability	Details of proposals consulted on	Develop MVP data standard	Associated Code Change introduced	Prospective window for proposals to become operational	*Window for potential further Tariff Interoperability enhancements and implementation*		

12. Do you support the proposed timeline set out in Table 5? Are there any other factors or relevant events to consider? If so, what are these?

6. Consultation questions

1. Do you agree with the use cases proposed in this consultation for the MVP? Are there any other use cases that you believe should be included in the MVP for energy tariff optimisation services?

2. Do you agree with the government's proposal to extend the scope of public tariff data to all tariffs that are applicable to domestic and small non-domestic (microbusiness) consumers? If you do not agree, please explain why.

3. Do you agree that the data standard should be extended to included gas tariffs? If you do not agree, please explain why.

4. Do you agree that a Supplier Standard API is the most suitable technical approach to enable interoperability of tariff data, based on the analysis set out in the consultation document and analytical annex? Please explain your answer.

5. What is your view on the methodology and cost assumptions used in the cost appraisal as presented in the analytical annex?

6. Do you agree with the proposed 'phased approach' to implementation; namely, to implement an MVP tariff standard for existing simple electricity and gas tariffs to meet use case A? If you do not agree, then please explain why.

7. Are there any other data items that you believe should also be included within the list of proposed MVP tariff data items?

8. Do you support the government's proposal to deliver complex tariffs and remaining use cases (B – D) through future changes to the tariff data standard? If not, then please explain why.

9. Do you agree with the government's proposal to host the tariff data standard in the Retail Energy Code? If not, then please provide reasons.

10. What is your view on the government's minded-to position on the phased delivery approach to deliver the tariff data standard?

11. Do you support the proposed regulatory approach to implement the tariff data standard and technical solution? If not, please provide reasons.

12. Do you support the proposed timeline set out in Table 5? Are there any other factors or relevant events to consider? If so, what are these?

Appendix A: Assessment of technical solutions to use cases A, B, C and D

Category	Solutions	Optimisation use cases			
		A. Could not link consumer to tariff name	B. Could link consumer to tariff name[19]	C. Includes notification of tariff change	D. Includes notification of tariff switch
Minimum technical change	1a. Access tariff data direct from meter / via a Consumer Access Device (CAD) / Home Area Network (HAN) or via the Data Communications Company (DCC) as an Other User	✓	✓	×	×
	1b. Download tariff data files from Supplier websites using a standard	✓	×	×	×
Non-standard APIs	2a. Supplier Non-standardised APIs	✓	×	×	×
	2b. Supplier Non-standard APIs + Gateway	✓	×	×	×
	Option 2a. or 2b. + extended functionality for events and authorisation	✓	✓	✓	✓
Supplier wide standardised API	3a. Supplier wide standardised APIs	✓	×	×	×
	3b. Supplier wide standardised APIs + Gateway	✓	×	×	×
	Option 3a. or 3b,+ extended functionality for events and authorisation	✓	✓	✓	✓
Centralised tariff provision	4. Central system	✓	×[20]	×	×

[19] Any solution catering to this use case would need to include a mechanism for consumers to consent to their personal data (including consumption history, address, etc.) being shared with DSRSPs.
[20] Whilst this option could support access to personal data, use of a central system would raise further privacy concerns, making it unviable.

This consultation is available from: www.gov.uk/government/consultations/delivering-a-smart-and-secure-electricity-system-implementation

If you need a version of this document in a more accessible format, please email alt.formats@energysecurity.gov.uk. Please tell us what format you need. It will help us if you say what assistive technology you use.