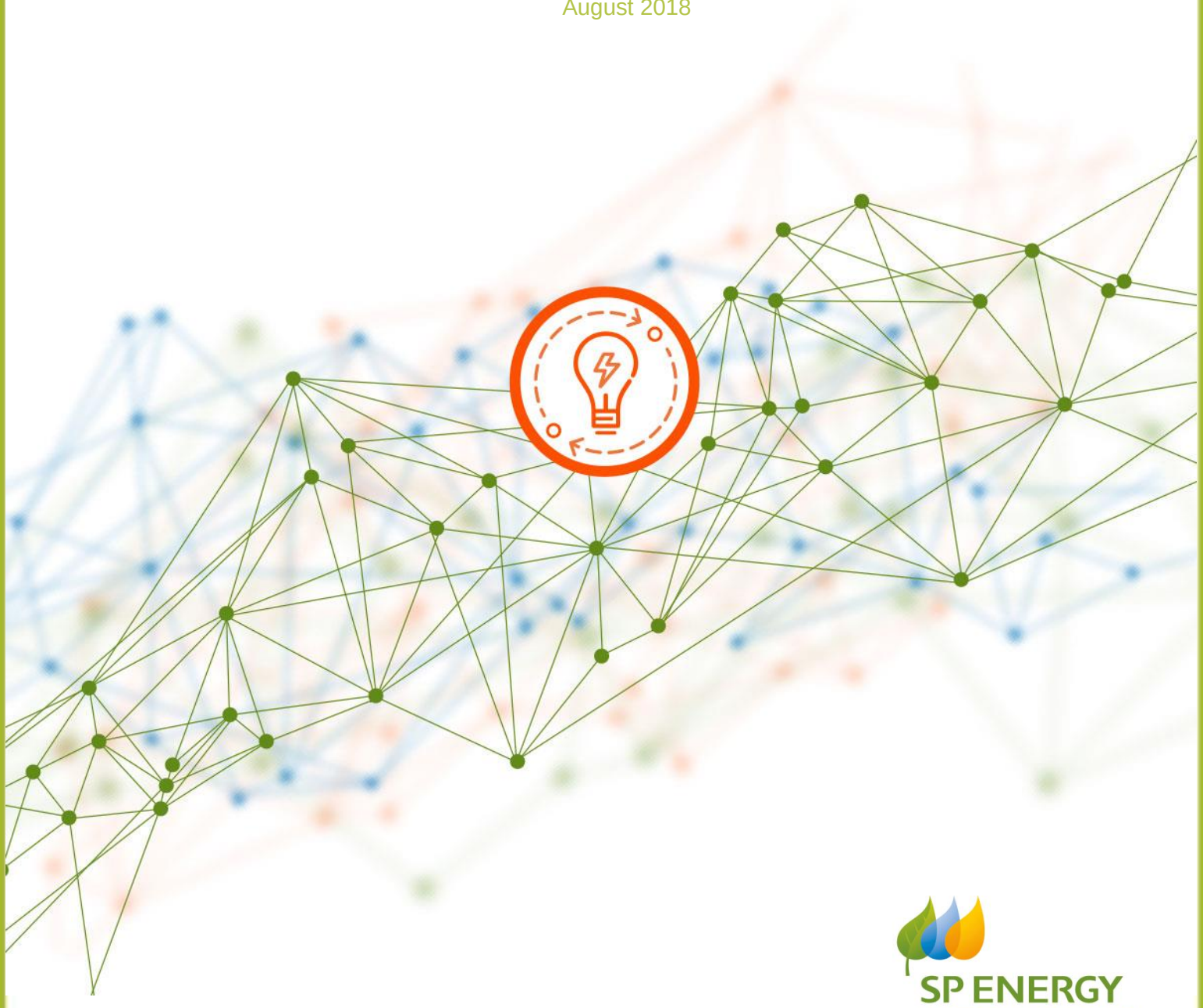
FUSION

A response to Ofgem's request for information

August 2018



SP ENERGY NETWORKS

Contents

About FUSION

FUSION is the implementation of a structured and competitive local flexibility market in East Fife in Scotland utilising the Universal Smart Energy Framework (USEF). FUSION will demonstrate the value of releasing flexibility from a local distribution system to facilitate fair and transparent access to energy markets for distributed energy resources to;

a) meet **local** energy requirements, while;
b) contributing to efficient and effective **whole system balancing** of the electricity system.

In doing so, FUSION will inform and accelerate the transition to a flexible, smart and market based electricity system including the **transition to the Distribution System Operator**.

USEF is an internationally developed framework with energy flexibility at its heart. Close to **£20m has already been invested** in its development. FUSION will enable UK customers to benefit from this investment by adapting USEF for implementation within the UK regulatory framework.

Ofgem's NIC panel recognises that the benefits of USEF **enable FUSION to deliver far ahead of other proposals**, for example those of SSEN, which involve developing a market framework from scratch [*Ofgem 2017 NIC Expert Panel Report*]. The advantages of USEF together with the state of readiness of the project, means that SPEN will be in a position to provide learning **6-12 months ahead of the TRANSITION project**. This will be made available to all parties, including other DSO projects and market participants. The TRANSITION project has yet to be defined in detail since it is still awaiting output from the Open Networks project but any subsequent overlap with FUSION can be coordinated directly with SSEN.

The network impacts from the role-out of a distributed energy market and the need for DSO capability will evolve at different rates across regions of GB. It would therefore be in the interest of customers that trials of these Models / Market Worlds are carried out at different locations, provided the projects are coordinated and executed efficiently. Given that more detail is yet to be provided on TRANSITION, we do question whether c£13m, more than double that requested for FUSION (c£6m), would provide the same **value for money for the customer.**

In addition to the adaptation and implementation of USEF the chosen **location for FUSION** provides a number of differentiating factors from other proposals, including:

- a well-rounded consortium of partners including the local authority, aggregators and academia;
- a rich and diverse range of distributed energy resources including wind (onshore and offshore), hydrogen and storage; and
- engaging with **customers in economically disadvantaged areas** and via partnership with the local authority.

Figure 1: FUSION trial location

This part of our network is diverse in terms of topology and characteristics and is representative of the distribution network nationally. Thanks to the existing monitoring infrastructure placed by previous projects, it is also an ideal testing bed for flexibility market. It has a diverse generation and demand portfolio within the control of the local authority, academic institutes, research organisations (Offshore Renewable Catapult), and low carbon technology suppliers (hydrogen facility at Levenmouth).

Thanks to its unique approach, project FUSION is a **key enabler** to achieving the ENA's vision of Open Networks across the GB. It does this in three steps:

1. **Leveraging** and developing the **latest** advances from other projects
2. **Generating new** unique learnings
3. Developing robust blueprint for **GB roll-out**

1. Leveraging latest advances;

The EFFS project will develop algorithms for advanced constraint and flexibility forecasting. FUSION commits to leverage these developments by adopting those algorithms and integrating them into a fully-operational DSO solution in East-Fife, which combines the latest technical and commercial innovations to enable the generation of new learnings and advance the evolution of the DSO vision.

2. Unique learnings;

FUSION will trial a hybrid of **Worlds B, C & E** considered under the **ON-PRJ**.

- FUSION is **unique** in its capacity to offer learnings related to these many 'Worlds' due to flexibility and agility benefits derived from utilising USEF.
- The learnings generated from these trials will;
    - provide the industry with unprecedented empirical insights into the working of these three Worlds,
    - **inform the decision** as to which of the five Worlds considered should be progressed further for GB roll-out.

3. GB roll-out;

The USEF GB implementation plan (a deliverable of FUSION WP3) will be adaptable enough to accommodate not only the 5 Worlds currently considered under ON-PRJ, but also any future variances that may evolve.

We believe formal partnerships with other licensees work successfully. Evidence of this stems from successful collaborations with other companies on our: Visor and Phoenix transmission projects and very recently with our LV Engine project, where we partnered with UKPN. We have sought openly to engage with SSEN and WPD in this area on a number of occasions (most recently in late August 2018), unfortunately they do not agree that a formal partnership would benefit here.

Executive Summary

This document has been drafted in response to the request for Information (RFI) received from Ofgem on 13th August 2018. SPEN trust that this detailed response will satisfy that request.

In order to clearly demonstrate our commitment to continually seek further efficiencies we **have built in an additional efficiency stretch of £300k in addition to the £1.77m of savings already confirmed in our 2017-October Re-submission**, making the total saving over £2m for customers. [redacted]

[redacted]

We believe that the attached response demonstrates the following credentials for FUSION:

i. Its **advanced readiness**[2] for deployment:
ii. Its **alignment** with the objectives of the **ON-PRJ**, as confirmed by SGAM modelling[3].
iii. Its **unique learnings**. FUSION is not limited to trialling just one of the Worlds considered under ON-PRJ. Its use of USEF uniquely enables FUSION to trial a hybrid of Worlds B, C & E (learnings from which can be easily extended to all 5 'Worlds').
iv. Its commitment to **collaboration** with TRANSITION, EFFS and FUSION **(TEF)** and the co-ordination of **sequential learnings**, to enable incremental progress towards the DSO Vision
v. The demonstrable initiative and steadfast commitment of project team to **maximising cost efficiencies** through collaboration with:
   - TEF licensees.
   - wider strategic stakeholders

[2] *'**FUSION is the one closest** (among three received proposals) **to implementation in the market'***
(Source: Ofgem 2017 NIC Expert Panel Report)

[3] *From April, 2018*, SPEN has engaged with EA Technology to develop a Smart Grid Architecture Model (SGAM) of the USEF framework. The aim of this model was to;

i. visualize the IT data interactions ahead of the physical trials scheduled in East Fife, and
ii. compare and contrast the USEF 'World' with the five alternative 'Worlds' being considered under the ON-PRJ to ensure its alignment with wider technical, commercial and regulatory arrangements in Great Britain (GB).

This study concluded that USEF contains a high degree of commonality with the ON-PRJ DSO market models.

1. Structure of response

In order to ensure that this document delivers maximum value to Ofgem, the specific requests from the RFI have been distilled into tabular format, so that each item can be succinctly addressed, to the satisfaction of Ofgem.

The table below summarises those distilled items from the RFI.

Ofgem request			
1	Please provide a **detailed commentary** against **each work package/line item** in the 'whole project costs' tab of the full submission spreadsheet you submitted in July. Within this commentary please describe:	1.a.	The internal **processes** you put in place to understand where there may be areas of unnecessary duplication **before** engaging with other licensees.
		1.b.	The processes you implemented within your business **after** engaging with the other licensees to remove areas of un-necessary duplication or reduce cost?
		1.c	The areas of potential **future** savings relative to the proposed budget which are attributable to the processes for avoiding unnecessary duplication which you have implemented – please include the scale of potential future savings.
		1.d	The approach you will take to achieve these **future** savings
2	**How** have you **ensured** that the following will deliver **learnings** that are **complementary** to (rather than duplicative of) those that will be delivered by the other two licensees?		The definitions and requirements of FUSION **trials**?
			Your use of **market models** within the project?
2a.	Have the **definitions** and **requirements** of your trial and market model **changed** since your Full Submission? i) If so, how and why? ii) If not, why?		Trial
			Market models

Figure 3: Specific items to address from the RFI

Section 2 of this document seeks to address each of these items in detail.

2. Detailed response

In this section of the document, a detailed response is provided for each of the specific items identified above.

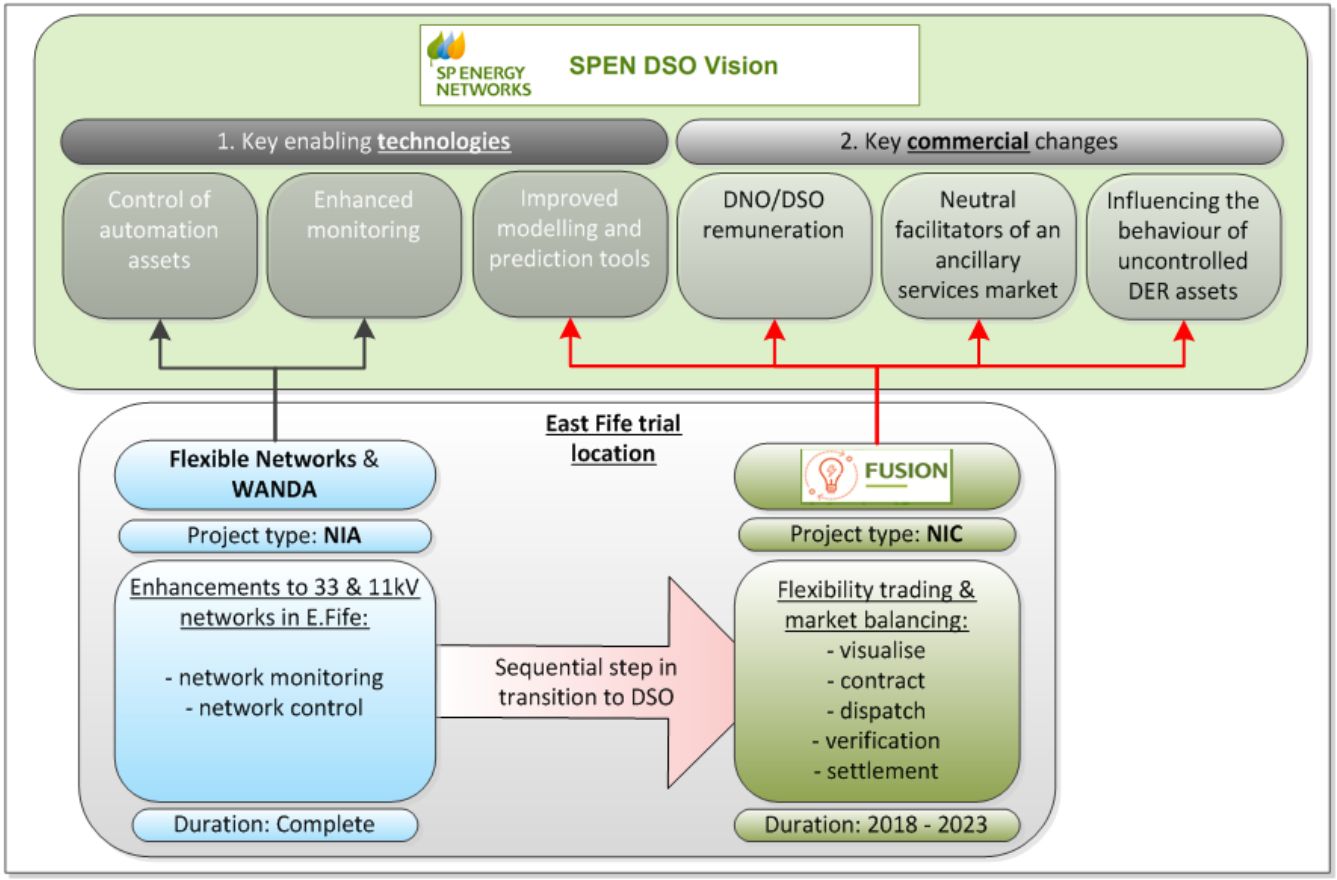
Ofgem Request			SPEN Response
1	Please provide a **detailed commentary** against **each work package** / line item in the 'whole project costs' tab of the full submission spreadsheet you submitted in July. Within this commentary please describe:	1.a: The internal **processes** you put in place to understand where there may be areas of unnecessary duplication **before** engaging with other licensees.	For a **detailed commentary** of how these processes were implemented for each Work Package, please refer to Appendix A of this document. Generally, the **internal processes put in place before engaging with other licensees were:** 1. an in depth analysis of the ISP's published for EFFS & TRANSITION, supported by dialogues with the licensees to express our commitment of collaboration and invited them to be the partner of FUSION; 2. a comparison of these published documents with the FUSION proposal to make ambitious but valid assumptions on collaboration areas; 3. identification of potential commonality/overlap that existed between; ▪ the scope of activities for FUSION, e.g. the national stakeholder events will be coordinated and ▪ the activities/outputs associated with the EFFS & TRANSITION projects 4. inference of how those commonalities might lead to specific instances of unnecessary duplication 5. estimation of the extent to which that unnecessary duplication could be eliminated from the scope of the FUSION project through; ▪ de-scoping FUSION of these duplicated tasks/expenditures[6] ▪ back-filling these voids with the applicable outputs/resources made available through collaboration with EFFS and TRANSITION 6. elaboration of a 'cost reduction' spreadsheet (see Appendix C), which quantifies the estimated collaboration savings associated with each FUSION Work Package, representing the £1.77m financial savings (but also the risks associated with the above assumptions, undertaken by SPEN);

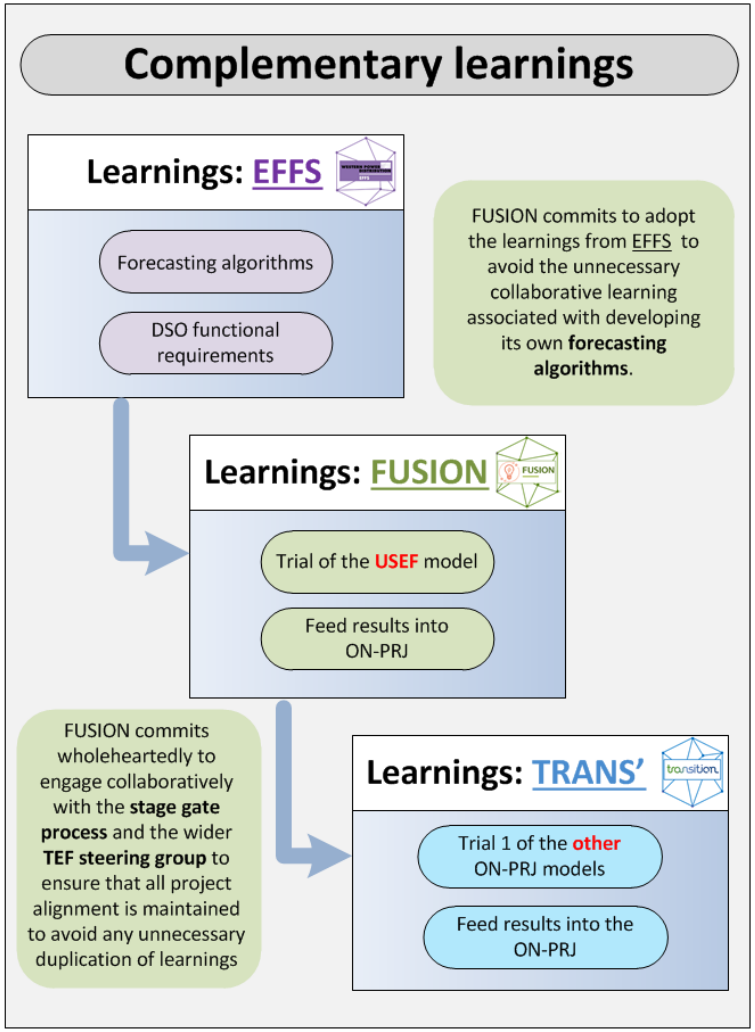
[6] E.g. we committed to actively engage the development and we will use the application of the flexibility forecast tools under EFFS in our work package 4, and removed any associated development costs.

Ofgem Request			SPEN Response
1	Please provide a **detailed commentary** against **each work package** / line item in the 'whole project costs' tab of the full submission spreadsheet you submitted in July. Within this commentary please describe:	1.b: The **processes** you implemented within your business **after** engaging with the other licensees to **remove** areas of un-necessary duplication or **reduce** cost?	**SPEN has committed to an additional efficiency stretch of £300k in addition to the £1.77m of savings reflected in our most recent FSP, making the total saving over £2.1m for customers** Project Direction (Jan 2018): The Project Direction received on January 2018 (see Appendix B for timeline of events) represented an official call from Ofgem for the three Licensees to collaborate. By the time that call was issued, SPEN had already completed the pro-active identification and removal all areas of unnecessary duplication from the scope of FUSION (via the processes described in item 1.a above). All cost savings identified in item 1.a and the associated rationale for their estimation were summarised in the document titled; 'Cost Reductions' (see Appendix C). These costs savings were all committed to directly in the FUSION FSP (submitted Nov' 2017). Following January 2018: The subsequent engagement with other electricity licensees allowed for third party scrutiny, evaluation and ratification of the processes already employed by SPEN in step 1.a. Licensees were encouraged to review and respond to the 'Cost Reductions' sheet (see Appendix C). This peer-review allowed SPEN to validate the assumptions and inferences it had made in step 1.a. Wider engagement and Further Efficiency: Parallel to our direct engagement with TEF licensees, the FUSION project team has also been engaged with wider stakeholders to explore opportunities for leveraging further cost efficiencies through strategic collaboration. These wider stakeholder include the following: [redacted] ▪ ***EA technology*** (We commissioned a detailed and independent SGAM model to compare USEF with the other 5 Worlds considered under the ON-PRJ. This study quantified the extent to which the functionality of the USEF World is 'complementary to' and 'unique from' the other worlds **This enabled the £300k further saving commitment set out in this document**. This process highlighted the opportunity to reduce IT implementation costs by leveraging the investment in the sector both in the UK and at the international level. For a detailed response of how this process was implemented for each Work Package, please refer to Appendix A of this document.

Ofgem Request			SPEN Response
1	Please provide a **detailed commentary** against **each work package** / line item in the 'whole project costs' tab of the full submission spreadsheet you submitted in July. Within this commentary please describe:	1.c: The areas of **potential future savings** (relative to the proposed budget) which are attributable to the processes for avoiding unnecessary duplication which you have implemented – please include the scale of potential future savings.	SPEN has already firmly committed to achieving all of the £1.77M savings that were identified in item 1.a. This is commitment is reflected in the full project cost in the FSP (*submitted Nov 2017*). *Since November 2017*, SPEN has pro-actively engaged with wider strategic stakeholders in an ambitious effort to identify additional future savings - particularly through the avoidance of unnecessary duplication not only within the EFFS, FUSION and TRANSITION, but also wider industry efforts already made. These ongoing engagements have identified several potential opportunities that could deliver future costs efficiencies to the FUSION Project. These include: • adopting learnings from international DNO's with first-hand experience of trialling USEF [redacted] SPEN will realise the **future savings** of additional **£300k**.
		1.d: The **approach** you **will** take to achieve these future savings	SPEN will realise these savings through collaboration with licensees and other stakeholders. As highlighted in the Executive Summary and Appendix (and detailed in Sections 1.a - 1.c above), [redacted] **It will be challenging to release these savings but SPEN accepts this risk and commits to bearing the costs of delivering the full outputs from FUSION in the event that these savings do not materialise.**

Ofgem Request			SPEN Response
2	**How** have you **ensured** that the following will deliver **learnings** that are **complementary** to (rather than duplicative of) those that will be delivered by the **other two licensees**;	The definitions and requirements of **FUSION trials?**	SPEN has taken the following steps to ensure that the learnings of the FUSION trial are maximally complementary to those generated by the TRANSITION and EFFS trials: 1. **Defining** the objectives and outputs of trials from each project; ▪ What is the **main learning objective** associated with; i. the **FUSION** trial? ii. the **EFFS** & **TRANSITION** trials? ▪ What are the areas of potential **duplication of learnings**? 2. **Exploring** the art of the possible: ▪ How could the (interim or final) outputs from each TEF trial be leveraged by the other TEF trials (to avoid unnecessary duplication)? i. What **outputs from FUSION** could be useful for the other trials? ii. What **outputs from the other trials** could be useful for the FUSION trials? ▪ How could the timing of projects be co-ordinated to optimise the extent to which outputs from one trial could be usefully leveraged by another? 3. Specifying **requirements:** ▪ To what extent would the outputs from one trial (e.g. EFFS) be directly applicable to another trial (e.g. FUSION)? ▪ Would the outputs only be partially applicable? If so, what extra processing would be required in order for outputs from one trial (e.g. EFFS) to benefit another trial (e.g. FUSION)? ▪ What would be the **minimum requirements** of the outputs from each trial in order to ensure sequential adoption by another? ▪ How could these be **specified**?

Ofgem Request			SPEN Response
2	**How** have you **ensured** that the following will deliver **learnings** that are **complementary** to (rather than duplicative of) those that will be delivered by the **other two licensees**;	The definitions and requirements of **FUSION trials?**	Figure 3 below illustrates how the concept for FUSION was not developed in isolation, but was in fact the product of a co-ordinated programme of innovation projects that address the objectives of the SPEN DSO Vision Statement by successively adopting and generating sequential learnings.  Figure 4: Contribution of FUSION to the objectives of SPEN's internal DSO- Vision

Ofgem Request			SPEN Response
2	**How** have you **ensured** that the following will deliver **learnings** that are **complementary** to (rather than duplicative of) those that will be delivered by the **other two licensees**;	The definitions and requirements of **FUSION trials?**	Figure 4 below seeks to illustrate how the FUSION trial has been co-ordinated, in the context of the EFFS and TRANSITION trials, to ensure that learnings from FUSION are **complementary** to (rather than duplicative of) those of the other two licensees. A pre-requisite has been included in the technical specification of the FUSION platform that it must be able to adopt the forecasting algorithms developed by EFFS. FUSION commits to adopt those algorithms and integrate them into a fully-operational DSO solution in East-Fife, which combines the latest technical and commercial innovations to enable the generation of new learnings which will be adoptable by TRANSITION. Regular stage-gate reviews will allow all three DNO's to constantly review and re-align the outputs of their trials to ensure complementary and sequential learnings.  Figure 5: Steps taken by SPEN to ensure complementary learnings

Ofgem Request			SPEN Response
2	**How** have you **ensured** that the following will deliver **learnings** that are **complementary** to (rather than duplicative of) those that will be delivered by the **other two licensees**;	The definitions and requirements of **FUSION trials?**	Trial location: FUSION will be deployed in East Fife. Like every region in the UK, East Fife has its own characteristics, and the complex interaction of site/business-specific factors will ensure that the learnings generated by the FUSION trial are inherently unique and therefore complementary to those generated by other DNO's. However, the choice of trial location for FUSION was also an **intentional** decision to maximise the delivery of **complementary learnings**. East Fife is an ideal testing bed for network innovation thanks to the existing monitoring infrastructure placed by our previous projects (see figure 1 above), the local authority, academic institutes, research organisation (Offshore Renewable Catapult) and low carbon technology suppliers (hydrogen facility at Levenmouth). It is also a great example in providing meaningful learning as it is representable for macro economy in that: ▪ The population profile and aging profile is similar as the national average; The employment rate and average income is lower as the national average (representing some **fuel poor customers** and some economically challenged areas); ▪ The diversity and proportion of **stakeholders** (and the flexibility suppliers) is representable at the national level-Diageo at Cameron Bridge, Quaker Oats, Scottish Water, and Fife Council; ▪ The **network topology** and characteristics are are representative of a significant part of the distribution network nationally.

Ofgem Request			SPEN Response
2	**How** have you **ensured** that the following will deliver **learnings** that are **complementary** to (rather than duplicative of) those that will be delivered by the **other two licensees**;	Your **use** of **market models** within the project?	The FUSION project will run trials using the USEF Framework. This was an intentional decision based on the following unique attributes of USEF; 1. its **readiness** & **reliability** 2. its **unique** ability to model a hybrid of **Worlds B, C** & **E** 3. its **universality** & **flexibility** Hybrid of Worlds B, C & E: ▪ The 'Universal Smart Energy Framework' (USEF) has the flexibility to accommodate all five of the 'Worlds' considered by ON-PRJ. ▪ For the sake of maximising the value of learnings, the FUSION project has limited the application of the USEF framework to focus exclusively on trialling a hybrid[7] of 'Worlds' B, C & E only. However, the FUSION project will be able to trial, demonstrate and share learnings on these market models while retaining flexibility to incorporate new models and/or focus on individual models as policy direction emerges from Ofgem, BEIS and Open Networks. ▪ Worlds B, C & E are perceived as the front-runners for being short-listed by ON-PRJ. ▪ FUSION is unique in its capacity to offer learnings related to these many 'Worlds'. ▪ The learnings generated from these trials will; o provide the industry with unprecedented empirical insights into the working of these 3 Worlds, o inform the ON-PRJ decision on which of the Worlds considered should be progressed further for GB roll-out.

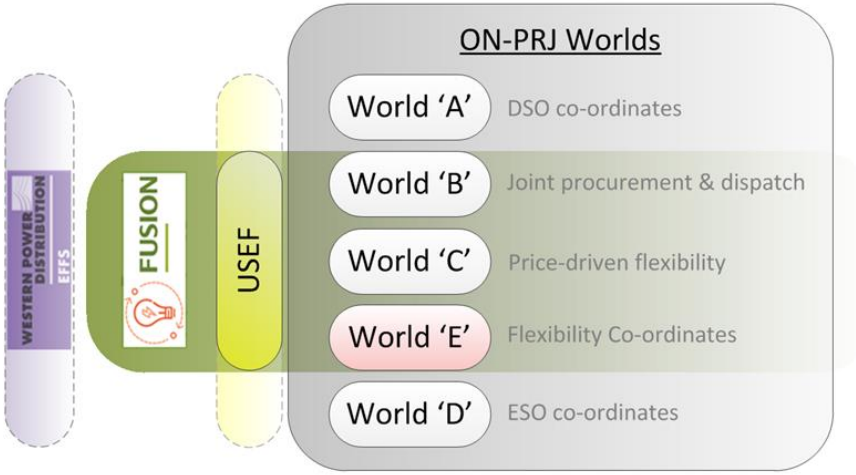
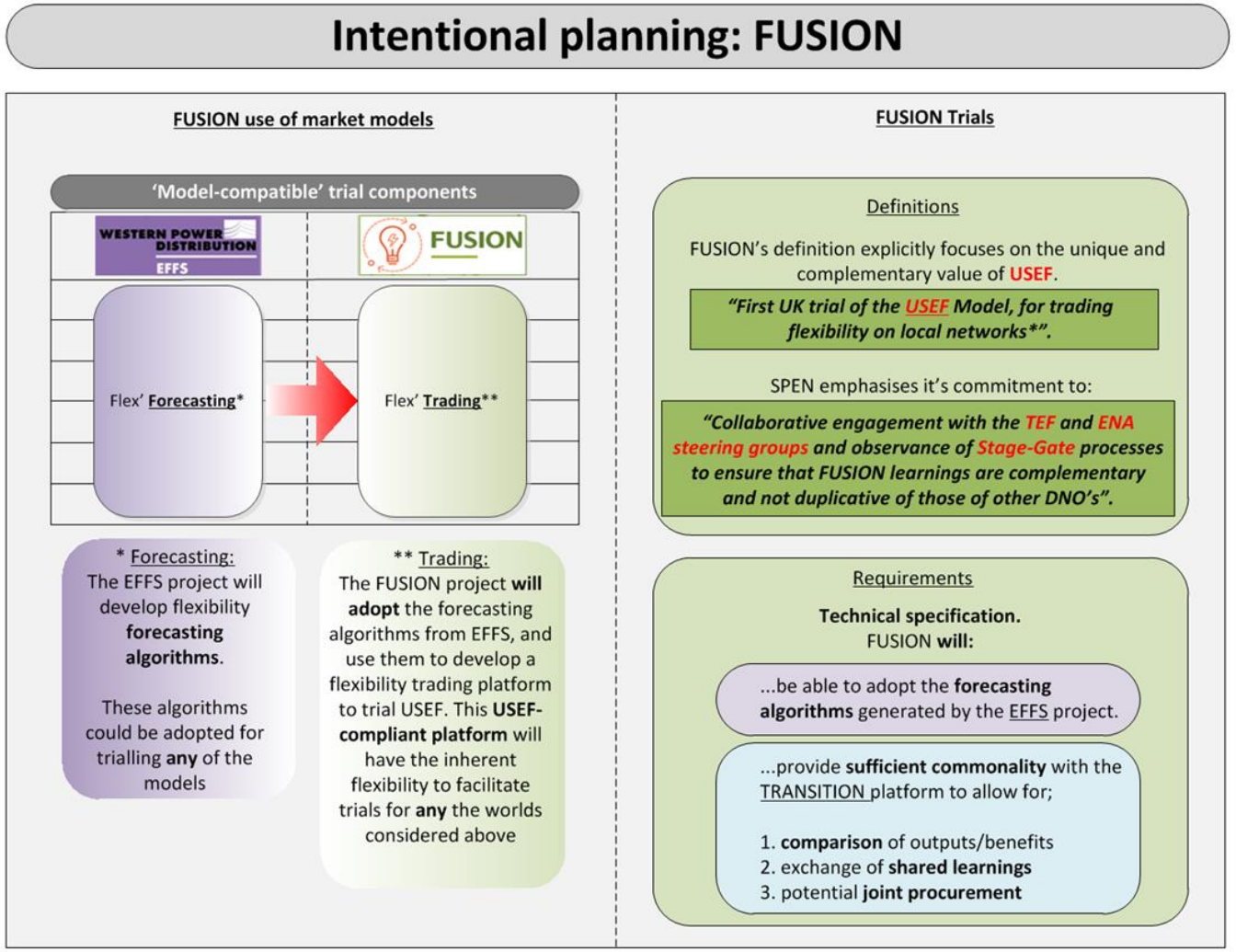


Figure 6: FUSION's use of Market Models

[7] This hybrid is referred to elsewhere in this document as 'World U'

Ofgem Request			SPEN Response
2	**How** have you **ensured** that the following will deliver **learnings** that are **complementary** to (rather than duplicative of) those that will be delivered by the **other two licensees**;	Your **use** of **market models** within the project?	Readiness: ▪ The **readiness** of the USEF framework, demonstrated by its recent successful deployment in the Netherlands, means that the FUSION project is uniquely positioned for rapid deployment[8]. ▪ The resulting rapid generation of **interim learnings** will provide unprecedented insights that will **inform** the **ON-PRJ** and **TRANSITION** Universality: ▪ The USEF GB implementation plan (a deliverable of FUSION WP5) will be adaptable enough to accommodate not only the 5 Worlds currently considered under ON-PRJ, but also any subtle variances that may evolve in the future ▪ FUSION's use of the USEF framework therefore ensures that the learnings generated will be complementary to TRANSITION – regardless of whichever market model it ultimately commits to trial. Figure 6 illustrates FUSION's use of market models. It demonstrates that FUSION's use of market models was not accidental, but was in fact the product of careful consideration to ensure that; ▪ the 'World-agnostic' learnings from EFFS can be adopted and leveraged ▪ the outputs from FUSION are applicable to Worlds B, C and E in order to ensure that learnings offer maximum value to TRANSITION and the wider ON-PRJ.

[8] *'FUSION is the one closest (among three received proposals) to implementation in the market'*
(Source: Ofgem 2017 NIC Report)

Ofgem Request			SPEN Response
2	**How** have you **ensured** that the following will deliver **learnings** that are **complementary** to (rather than duplicative of) those that will be delivered by the **other two licensees**;	The definitions and requirements of **FUSION trials?** & Your **use** of **market models** within the project?	Figure 7 below seeks to illustrate SPEN's responses to item 2 by summarising the **intentional steps** taken on behalf of **SPEN** to ensure that the complementary learnings described above are **achieved**.  Figure 7: intentional planning of FUSION's use of market models

Ofgem Request			SPEN Response
2a	Have the **definitions** and **requirements** of your **trial** and **market model changed** since your Full Submission? • If so, **how** and **why**? • If not, **why not?**	**Trial**	<u>Definition change:</u> While, the primary objectives, definitions and requirements of FUSION are consistent with the FSP, our approach has changed and evolved to build agility and flexibility into the various aspects to ensure alignment with outputs from Open Networks and optimise complimentary learning from the different projects **<u>How and Why:</u>** This consistency of approach is a reflection of the pro-active diligence exhibited by SPEN, prior to the publication of the FUSION FSP, to ensure that the FUSION project was developed with consideration of wider developments including the TRANSITION, EFFS and Open Networks Project. • SPEN originally submitted the FUSION ISP (Apr 2017), with a total project cost of £7.7M • When SPEN submitted the FUSION FSP (Nov 2017) it had a total project cost of £6M • This £1.7M reduction in total project cost reflected SPEN's initiative to identify commonalities between TRANSITION and EFFS, and adjust the scope of FUSION to avoid unnecessary duplication. • For full details and justification of the changes made, please refer to the Cost Reduction Spreadsheet in Appendix C. Another factor in the consistency of FUSION's defining objectives is its readiness. • One of FUSION's unique strengths is its readiness for deployment • That, coupled with its unique and complementary learnings, has served to establish the FUSION FSP as the benchmark flexibility market trial, with reference to which TEF licensees have sought to define the scope and requirements of the TRANSITION project.

Ofgem Request			SPEN Response
2a	Have the **definitions** and **requirements** of your **trial** and **market model changed** since your Full Submission? • If so, **how** and **why**? • If not, **why not?**	**Trial**	<u>Requirements change:</u> As a result of collaboration with the TEF, and the proactive and current pre project activities of FUSION, there has been an evolvement of Material changes associated to the FUSION trial. Material changes have been made regarding the requirement of the trial in that FUSION has further committed further £300k saving through leveraged learning from international collaboration. Through TEF engagement, it was concluded that the EFFs project output, forecasting algorithms will be used to develop FUSION's own forecasting tool. In addition, alignment of trial programmes between TRANSITION and FUSION would be beneficial for knowledge dissemination. **<u>How and Why:</u>** • The learning objectives required from the FUSION trial have not changed since the initial issue of the FSP in November 2017 • However, we are now of the view that we can leverage the national and international projects to reduce the research element required for the success of the FUSION trial. • The latest change of IT implementation cost since the submission of the FSP reflects the pro-active diligence that went into the FUSION FSP, and a continued diligent effort to ascertain a more advanced starting position than originally proposed. [redacted] • EFF's project output will be used by FUSION to incorporate forecasting.

Ofgem Request			SPEN Response
2a	Have the **definitions** and **requirements** of your **trial** and **market model changed** since your Full Submission? • If so, **how** and **why**? • If not, **why not?**	**Market Model**	<u>Definition change:</u> FUSION is still proposing to model the USEF Framework, this has been confirmed by an independent review of USEF market model and a comparison between it and the models presented by the Open Networks project. SPEN therefore see no benefit in changing the market model. **<u>How and Why:</u>** • Through engagement EA Technology, who commissioned a report published August 2018 following their preparation of SGAM models for all five Worlds under Open Networks plus USEF, concluded that the USEF Market Model that is fully relevant, unique and complementary to other Open Network models. • USEF model will be developed in line with EA Technologies SGAM modelling, and allows the FUSION project to acknowledge with an effort to develop IT platforms that could lend themselves to be market model agnostic, or require as minimal change as possible to update. <u>Requirements change:</u> Given the consistency of the model, the requirements thereof also remain unchanged. **<u>How and Why:</u>** The independent evaluations by EA Technology have affirmed the validity of the USEF market model.

Appendix A – Detailed commentary on each Work Package

The following table indicates the overall project budget (and subsequent reductions) associated to each work package corresponding to the original and submitted FSP, along with FUSION's further financial commitments. This robust process demonstrated the thoroughness the FUSION team went through to identify every possible saving opportunity to safeguard the customer's investment.

Work Package	Original Submission (April & July 2017)	Resubmission (Oct-Nov 2017)	Further Commitments (August 2018)
1	[redacted]	[redacted]	[redacted]
2	[redacted]	[redacted]	[redacted]
3	[redacted]	[redacted]	[redacted]
4	[redacted]	[redacted]	[redacted]
5	[redacted]	[redacted]	[redacted]
6	[redacted]	[redacted]	[redacted]
Total Budget	**£7,744 k**	**£5,974 k (Reduction of £1.77 M)**	**£5,674k (New Reduction £300 k)**

Table 1: Summary of Efficiency Committed

The following tables provide a detailed commentary to describe the additional information requested by the regulator, to each of the Work Packages described in the latest Full Submission Spreadsheet (FSS).

WP1 - Stakeholder forum		[redacted]
1.a	The internal **processes** you put in place to understand where there may be areas of unnecessary duplication **before** engaging with other licensees.	Prior to the elaboration of the FUSION FSP, SPEN compared the stakeholder activities outlined in the published documents of the TRANSITION and EFFS to identify areas of potential overlap & commonality with those of FUSION. SPEN pro-actively identified the areas of unnecessary duplication between FUSION, TRANSITION & EFFS, prior to the elaboration of the FUSION FSP (published November 2017). This exercise resulted in SPEN committing to a £1.77M reduction to the total project cost of FUSION in the FSP (published November 2017). This diligent review lead to SPEN identifying and removing significant elements of the FUSION scope on the assumption that, given their obvious commonalities, the above projects could agree to collaborate where practicable, and that FUSION could leverage the benefits of that collaboration. The stakeholder forum will connect and communicate with multiple groups across the industry and form the basis of continual feedback and information exchange as the project progresses across local, national and international levels. This exercise inferred that; 1) all three projects were proposing **national** stakeholder events 2) all three project probably shared many of the **same stakeholders** (certainly at a UK-wide level) It also identified that, due to their site-specific nature, the following activities in the FUSION proposal were unlikely to offer any direct overlap with TRANSITION & FUSION - Stakeholder mapping (predominantly **local** stakeholders) - Trial **location** stakeholder events The following WP1 deliverables were shortlisted as those most likely to offer scope for removal of unnecessary duplication. **WP1.1 - Stakeholder Forum** ▪ Establish and maintain an enduring and openly engaging stakeholder forum that would be common to FUSION, EFFS and TRANSITION ▪ Establishing and maintaining a unified forum for representatives from all three licenses to engage with these stakeholders in a unified manner **WP1.3 - National Stakeholder Events** ▪ Organising and attending unified stakeholder events ▪ Co-ordinating attendance of licensee representatives to optimise cost efficiency without compromising quality of service. This consisted of inputs from partners DNV GL, SAC and SPD of mainly labour costs with expenses for venue hire and function costs to host such stakeholder events. [redacted]
1.b	The **processes** you implemented within your business **after** engaging with the other licensees to **remove** areas of un-necessary duplication or **reduce** cost?	<u>Before:</u> Item 1.a above describes the internal processes followed by SPEN in pro-actively identifying the areas of unnecessary duplication between FUSION, TRANSITION & EFFS, prior to the elaboration of the FUSION FSP (published November 2017). This diligent review lead to SPEN identifying and removing significant elements of the FUSION scope on the assumption that, given their obvious commonalities, the above projects could agree to collaborate where practicable, and that FUSION could leverage the benefits of that collaboration. This exercise resulted in SPEN committing to a £1.77M reduction to the total project cost of FUSION in the FSP (published November 2017). <u>After:</u> The Jan 2018 Project Direction represented an official call from Ofgem for the three Licensees of FUSION, TRANSITION and EFFS to engage collaboratively. By the time this Project Direction was issued, SPEN had already pro-actively identified and removed all areas of perceived unnecessary duplication from the scope of FUSION (via the processes described in item 1.a above). From SPEN's perspective, the subsequent engagement with licensees allowed for third party scrutiny and evaluation of the processes already employed by SPEN to; • identify those areas of unnecessary duplication and • quantify the savings that collaboration with licensees could leverage through removal of unnecessary duplication.

		This engagement served to ratify the assumptions and processes employed by SPEN in their estimation of the savings associated with this collaboration (already reflected within the FUSION FSP). Engagement with the TEF confirmed the anticipated reduced cost of £21k for FUSION WP1 activities; and a plan devised to share stakeholder engagement included a schedule of national stakeholder events for each licensee to host. FUSION had anticipated this and has communicated through the TEF that while envisaging an overall cost reduction any costs incurred will be absorbed into the WP1 budget.
1.c	The areas of **potential future savings** (relative to the proposed budget) which are attributable to the processes for avoiding unnecessary duplication which you have implemented – please include the scale of potential future savings.	All savings reflected in the FSP on this work package have been fully committed to. There are no additional future savings anticipated in this particular work package. SPEN will have no hesitation in reporting and returning further savings during the delivery if more efficiency can be realised, in additional to the updated committed savings totalling of £2.1m savings.
1.d	The **approach** you **will** take to achieve these future savings	

WP2 - Flexibility quantification		[redacted]
1.a	The internal **processes** you put in place to understand where there may be areas of unnecessary duplication **before** engaging with other licensees.	FUSION's WP 2 will provide a comprehensive assessment of the available flexibility will be made in the East Fife area. This audit requires highly specific competencies and accordingly will be performed by one of the aggregator project partners in FUSION, with stakeholder support from SAC Consulting and aggregator partners. That exercise quickly lead SPEN to infer that; 1) Both FUSION and TRANSITION would require 'flexibility quantification' exercises. 2) The EFFS forecasting algorithms might be able to assist in modelling flexibility availability on local networks Given that the flexibility quantification exercises would be inherently focussed on assessing the **local** assets in the respective trial areas, the degree of overlap between FUSION and other proposals would be **limited**. However, the **desk-based** elements of the work would most likely share commonalties in terms of; - the data **attributes** to be compiled and - the **methodologies** employed to analyse that data The following WP2 deliverables (and their respective sub-tasks) were therefore quickly shortlisted as those most likely to offer scope for removal of unnecessary duplication. It was determined that efficiencies could be ascertained through collaboration with UK DNO's such as using the EFFs forecasting algorithm to assist with the desktop modelling; and engagement with international DNOS's with established experience in the trial of flexibility (**Alliander**, European DNO), along with reciprocal peer reviews across the other DNO's. **WP2.2 – Desktop flexibility quantification** ▪ Review and model customer connectivity within East Fife in sufficient detail to facilitate FUSION ▪ Agreeing on scope, outputs and methodology for evaluation exercises, for UK commonality approach ▪ Exploring the potential for EFFS forecasting algorithm assisting in the modelling of flexibility availability on local networks **WP2.4 – Analysis and report on flexibility** ▪ Analyse and report on the detailed quantification of flexibility and its market value in East Fife, this can be consulted with international DNO's who can verify findings based on their own experiences of trial in their own region. ▪ Reciprocal peer- review across licensees [redacted]

1.b	The **processes** you implemented within your business **after** engaging with the other licensees to **remove** areas of un-necessary duplication or **reduce** cost?	<u>Before:</u> Item 1.a above describes the internal processes followed by SPEN in pro-actively identifying the areas of unnecessary duplication between FUSION, TRANSITION & EFFS, prior to the elaboration of the FUSION FSP (published November 2017). This diligent review lead to SPEN identifying and removing significant elements of the FUSION scope on the assumption that, given their obvious commonalities, the above projects could agree to collaborate where practicable, and that FUSION could leverage the benefits of that collaboration. This exercise resulted in SPEN committing to a £1.77M reduction to the total project cost of FUSION in the FSP (published November 2017). <u>After:</u> The Jan 2018 Project Direction represented an official call from Ofgem for the three Licensees of FUSION, TRANSITION and EFFS to engage collaboratively. By the time this Project Direction was issued, SPEN had already pro-actively identified and removed all areas of perceived unnecessary duplication from the scope of FUSION (via the processes described in item 1.a above). From SPEN's perspective, the subsequent engagement with licensees allowed for third party scrutiny and evaluation of the processes already employed by SPEN to; • identify those areas of unnecessary duplication and • quantify the savings that collaboration with licensees could leverage through removal of unnecessary duplication. This engagement served to ratify the assumptions and processes employed by SPEN in their estimation of the savings associated with this collaboration (already reflected within the FUSION FSP). Engagement with the TEF confirmed the anticipated forecasting from the EFFS project could be used and is in line with FUSION requirements to carry out a desktop flexibility quantification.
1.c	The areas of **potential future savings** (relative to the proposed budget) which are attributable to the processes for avoiding unnecessary duplication which you have implemented – please include the scale of potential future savings.	All savings for this work package reflected in the FSP have been fully committed to. There are no additional future savings anticipated in this particular work package. SPEN will have no hesitation in reporting and returning further savings during the delivery if more efficiency can be realised, in additional to the already committed £2.1m savings.
1.d	The **approach** you **will** take to achieve these future savings	

WP3 - USEF fit to UK		
1.a	The internal **processes** you put in place to understand where there may be areas of unnecessary duplication **before** engaging with other licensees.	FUSION's WP3 include for activities concerning USEF implementation in GB. This includes a due diligence of USEF against the GB legal, regulatory and market frameworks, including current and future settlement arrangements. That exercise quickly lead SPEN to infer that; 1) Each one of the above NIC projects (EFFS and TRANSITION) would want to **align itself** with a different one (or more) of the **'Worlds'** being considered under the Open Networks Projects (ONP)*. *(This was perceived as the most efficient and logical way for all three projects to maximise their relevance to the ENA whilst avoiding inter-duplication). SPEN therefore anticipated that FUSION, EFFS and TRANSITION would share the following commonality; ▪ they would all recognise the **ENA** as a **key stakeholder** ▪ they would **each align** themselves with **one (or more) of the 'Worlds'** being considered in the ON project (without inter-duplication). ▪ they would each have to undertake a **due diligence*** exercise to evaluate the **suitability** their DSO world being **rolled-out** across the **UK** ▪ they will all need to consider their fit within the **same constraints** of the GB regulatory framework and market structure *(SPEN inferred that, in order provide a fair comparison of the Worlds, the above due-diligence exercises would each have to invite a **GB-wide public consultation** process). The following WP3 deliverables (and their respective sub-tasks) were therefore quickly shortlisted as those most likely to offer scope for removal of unnecessary duplication. It was determined that efficiencies could be ascertained through collaboration with UK DNO's and the Open Networks Project including alignment with SGAM Modelling; and a common approach to between DNO's with regard to public consultation and dissemination activities. Collaboration through engagement with additional stakeholders both local and international. **WP3.1 – GB legal and regulatory framework** ▪ Agreeing on scope and methodology of exercise ▪ Agreeing on unified approach to events attendance and materials dissemination & peer review **WP3.2 – GB market structure & flexibility valuation and pricing** ▪ Agreeing on scope and methodology of exercise ▪ Agreeing on unified approach to events attendance and materials dissemination & peer review **WP3.3 – Public Consultation** ▪ Agreeing on scope and methodology for consultation ▪ Agreeing on unified approach to events attendance and materials dissemination **WP3.4 – USEF Implementation plan for GB** ▪ ENA ON engagement and SGAM modelling comparison between USEF and other DSO models. ▪ Preliminary work and model comparison will input directly to implementation plan [redacted]
1.b	The **processes** you implemented within your business **after** engaging with the other licensees to **remove** areas of un-necessary duplication or **reduce** cost?	<u>Before:</u> Item 1.a above describes the internal processes followed by SPEN in pro-actively identifying the areas of unnecessary duplication between FUSION, TRANSITION & EFFS, prior to the elaboration of the FUSION FSP (published November 2017). This diligent review lead to SPEN identifying and removing significant elements of the FUSION scope on the assumption that, given their obvious commonalities, the above projects could agree to collaborate where practicable, and that FUSION could leverage the benefits of that collaboration. This exercise resulted in SPEN committing to a £1.77M reduction to the total project cost of FUSION in the FSP (published November 2017). <u>After:</u> The Jan 2018 Project Direction represented an official call from Ofgem for the three Licensees of FUSION, TRANSITION and EFFS to engage collaboratively. By the time this Project Direction was issued, SPEN had already pro-actively identified and removed all areas of perceived unnecessary duplication from the scope of FUSION (via the processes described in item 1.a above). SPEN is of the view that FUSION advanced position adds value to the ON-PRJ and wider UK industry, as such SPEN outlined and sought approval from to the ON-PRJ and other DNO's to develop a USEF SGAM model directly EA Technology realising that the most cost efficient manner in reducing duplication of work carried out all ready, to engage with a common supplier. From SPEN's perspective, the subsequent engagement with licensees allowed for third party scrutiny and evaluation of the processes already employed by SPEN to; • identify those areas of unnecessary duplication and • quantify the savings that collaboration with licensees could leverage through removal of unnecessary duplication. This engagement served to ratify the assumptions and processes employed by SPEN in their estimation of the savings associated with this collaboration (already reflected within the FUSION FSP).

1.c	The areas of **potential future savings** (relative to the proposed budget) which are attributable to the processes for avoiding unnecessary duplication which you have implemented – please include the scale of potential future savings.	All savings reflected in the FSP on this work package have been fully committed to. There are no additional future savings anticipated in this particular work package. SPEN will have no hesitation in reporting and returning further savings during the delivery if more efficiency can be realised, in additional to the already committed £2.1m savings.
1.d	The **approach** you **will** take to achieve these future savings	

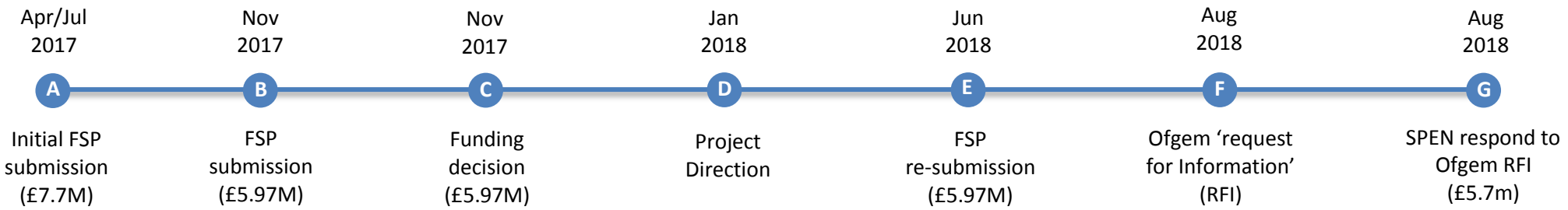
WP4 - Process & Technology		
1.a	The internal **processes** you put in place to understand where there may be areas of unnecessary duplication **before** engaging with other licensees.	Prior to the elaboration of the FUSION FSP, SPEN studied the ISP's for EFFS & TRANSITION, which were published online. That exercise allowed SPEN to quickly evaluate which elements of WP4 might overlap with elements from EFFS and TRANSITION, and how the three licensees might be able to co-ordinate their collective efforts to leverage complimentary learnings without unnecessary duplication. It should also be noted that SPEN is an active member of the Open Networks initiative and measures are in place to communicate the proposal development/ evolvement in a timely and efficient manner. In this evaluation process, SPEN considered the individual deliverables of WP4 in turn and this lead to the following observations and conclusions during the Full proposal development stage; **WP 4.1 - USEF redesign** This USEF-focussed task is inherently exclusive to FUSION, and shares no direct overlap with the other TEF projects. However, it was perceived that there could be scope for TEF partners (as industry experts and key stakeholders within the GB regulated market) to provide peer-review of the USEF re-design findings, as the USEF model has been European TSO/DSO oriented [redacted] **WP 4.2 - DNO Process design & development** SPEN recognised that a key component to developing the DSO flexibility market is having a system in place to: • forecast constraints on local network (2-5 days ahead and near real time) • assess the availability of local flexibility to address those constraints A review of the EFFS ISP revealed that objectives of their project were very closely aligned with some parts the deliverables of WP 4.2 (particularly the flexibility forecasting technology), and it was presumed that the interim learnings from EFFS forecasting tool could potentially provide valuable learnings to de-risk FUSION's specification and procurement of its associated IT solution. [redacted] **WP 4.3 - Aggregator Processes** A review of the ISPs for FUSION and TRANSITION revealed that both projects require the development of a web-based flexibility trading platform. Both projects would have to overcome the challenges of allowing aggregators to access their respective platforms. The published documents and the initial conversations revealed that both projects shared some common aggregator partners, albert FUSION has demonstrated the certainty and clear definition by making some Aggregators the formal partner of the Project to de-risk the project delivery. There was significant evidence to suggest that the aggregator integration challenges faced by TRANSITION would be the same as those faced by FUSION. [redacted] **WP 4.4 - New GB USEF roles** This USEF-focussed task is inherently exclusive to FUSION, and shares no direct overlap with the other DSO projects. However, it was perceived that there could be scope for Open Networks Consortium(not only the electricity licensees) s to provide peer-review of the USEF re-design. This assumption was based on the inference that the other TEF projects would be aligning themselves with one of more of the 'Worlds' being considered under the ON Project. Representatives from the Open Networks would therefore be well positioned as industry experts to provide peer-review of the suitability of the proposed USEF roles. [redacted]
1.b	The **processes** you implemented within your business **after** engaging with the other licensees to **remove** areas of un-necessary duplication or **reduce** cost?	<u>Before:</u> Item 1.a above describes the internal processes followed by SPEN in pro-actively identifying the areas of unnecessary duplication between FUSION, TRANSITION & EFFS, prior to the elaboration of the FUSION FSP (published November 2017). This diligent review lead to SPEN identifying and removing significant elements of the FUSION scope on the assumption that, given their obvious commonalities, the above projects could agree to collaborate where practicable, and that FUSION could leverage the benefits of that collaboration. This exercise resulted in SPEN committing to a £1.77M reduction to the total project cost of FUSION in the FSP (published November 2017). <u>After:</u> The Jan 2018 Project Direction represented an official call from Ofgem for the three Licensees of FUSION, TRANSITION and EFFS to engage collaboratively and closely. By the time this Project Direction was issued, SPEN had already pro-actively identified and removed all areas of perceived unnecessary duplication from the scope of FUSION (via the processes described in item 1.a above).

		SPEN is of the view that the most efficient manner of collaboration is to make WPD (the leading Licensee for EFFS), SSEN (the leading Licensee for TRANSITION) as part of the formal partners of FUSION, a proposal SPEN raised in several occasions and is still committed to. *Since November 2017*, SPEN has pro-actively engaged with wider strategic stakeholders in an ambitious effort to identify additional future savings - particularly through the avoidance of unnecessary duplication not only within the EFFS, FUSION and TRANSITION, but also wider industry efforts already made. Such a process enabled clear positioning for FUSION in the wider context that FUSION will provide unique learning and will make timely contributions to the ongoing discussions under Open Networks. SPEN maintained the advantages of project readiness of FUSION over the past 12 months by detailed analysis and continued partnerships. From the market models perspective, the USEF compliant market can be represented by the hybrid of some market models identified under Open Networks: The detailed study at function level reveals that USEF is very close to Market Model 'World E', can be treated as the hybrid of World E and World B (or World C). Such an evidenced clarity provides more confidence in the value of FUSION and its great flexibility to enable other trials thereafter. These ongoing engagements have identified several potential opportunities that could deliver future costs efficiencies to the FUSION Project. These include: • adopting learnings from international DNO's with first-hand experience of trialling USEF [redacted]
1.c	The areas of **potential future savings** (relative to the proposed budget) which are attributable to the processes for avoiding unnecessary duplication which you have implemented – please include the scale of potential future savings.	All savings reflected in the FSP on this work package have been fully committed to. [redacted]
1.d	The **approach** you **will** take to achieve these future savings	

WP5 - Trial		[redacted]
1.a	The internal **processes** you put in place to understand where there may be areas of unnecessary duplication **before** engaging with other licensees.	Prior to the elaboration of the FUSION FSP, SPEN studied the published documents for EFFS & TRANSITION, which were published online. That exercise allowed SPEN to quickly evaluate which elements of WP5 might overlap with elements from EFFS and TRANSITION, and how the three licensees might be able to co-ordinate their collective efforts to leverage complimentary learnings without unnecessary duplication. In this evaluation process, SPEN considered the individual deliverables of WP5 in turn and this lead to the following observations and conclusions; **WP 5.1 - 5.3 - (Trial design, tender & delivery)** Given their inherent focus on site-specific factors - the physical trials proposed by FUSION were expected to offer relatively little potential for collaborative savings across the TEF licensees. That said, the study of the ISP for TRANSITION suggested that, although the two projects would be conducting trials in unique network contexts, they would share some commonalities in the sense that they would both require the delivery of a live trial of a local flexibility trading platform in the UK. In order to deliver this trial, both licensees would have to procure IT trading platforms that offer similar functionality. Reference to the ISP suggested that the TRANSITION trials could potentially be carried-out concurrently with the FUSION trials. Using this information SPEN inferred that there could be the potential for FUSION and TRANSITION to mutually benefit from reciprocal peer-review and knowledge-sharing in the design, development, procurement and delivery stages of their respective trials. In addition to promoting valuable knowledge sharing, this collaboration could reduce dependence on third party consultants (whom are more expensive) and could allow the two licensees to leverage economies of scale to negotiate more competitive procurement of services. [redacted] **WP 5.4 – Refine USEF GB implementation plan** Part of the evaluation of the FUSION trial will include detailed academic modelling work from the academic partner; Imperial College London (ICL). Reference to the ISP for EFFS suggested that there might be some overlap between the scope of the modelling work proposed by ICL and that proposed under the EFFS project. [redacted]
1.b	The **processes** you implemented within your business **after** engaging with the other licensees to **remove** areas of un-necessary duplication or **reduce** cost?	<u>Before:</u> Item 1.a above describes the internal processes followed by SPEN in pro-actively identifying the areas of unnecessary duplication between FUSION, TRANSITION & EFFS, prior to the elaboration of the FUSION FSP (published November 2017). This diligent review lead to SPEN identifying and removing significant elements of the FUSION scope on the assumption that, given their obvious commonalities, the above projects could agree to). <u>After:</u> The Jan 2018 Project Direction represented an official call from Ofgem for the three Licensees of FUSION, TRANSITION and EFFS to engage collaboratively and formally. By the time this Project Direction was issued, SPEN had already identified and removed all areas of unnecessary duplication from the scope of FUSION (via the processes described in item 1.a above). From SPEN's perspective, the subsequent engagement with licensees allowed for third party scrutiny and evaluation of the processes already employed by SPEN to; • identify those areas of unnecessary duplication and • quantify the savings that collaboration with licensees could leverage through removal of unnecessary duplication. [redacted]
1.c	The areas of **potential future savings** (relative to the proposed budget) which are attributable to the processes for avoiding unnecessary duplication which you have implemented – please include the scale of potential future savings.	All savings reflected in the FSP on this work package have been fully committed to. There are no additional future savings anticipated in this particular work package. SPEN will have no hesitation in reporting and returning further savings during the delivery if more efficiency can be realised, in additional to the already committed £2.1m savings.
1.d	The **approach** you **will** take to achieve these future saving	

WP6 - Knowledge dissemination		
1.a	The internal **processes** you put in place to understand where there may be areas of unnecessary duplication **before** engaging with other licensees.	This work package is to fulfil the knowledge sharing responsibilities set out under NIC Governance, and to maximise the impact of innovation so that the benefits of FUSION trial can be shared by the whole industry. As a customer oriented project, it is important for the FUSION team to take on board the feedbacks from key stakeholders and reflect the evolving requirements from existing and future customers. SPEN has been promoting from the beginning that: 1) The three TEF projects shared sufficient commonality and mutual relevance to warrant their findings being disseminated ▪ concurrently and ▪ to the same audience. 2) potential savings could be achieved if the three projects were to disseminate their findings: ▪ through common channels, and ▪ via under a unified 'TEF' banner. The following WP6 deliverables (and their respective sub-tasks) were therefore quickly shortlisted as those most likely to offer scope for removal of unnecessary duplication: **WP6.1 – Participation in workshops/events** ▪ Co-ordinate to ensure that all three projects are represented same events (to reduce total number of events needed) ▪ Co-ordinating attendance of licensee representatives to optimise cost efficiency without compromising quality of service (to limit unnecessary participation) ▪ Preparing unified dissemination materials under the TEF banner (to limit unnecessary expenditure of labour and materials) **WP6.2 – Dissemination reporting** ▪ Preparing unified dissemination materials under the TEF banner (to limit unnecessary expenditure of labour and materials) ▪ sharing common communication channels (websites etc) under the TEF banner (to limit unnecessary expenditure of labour and materials) [redacted]
1.b	The **processes** you implemented within your business **after** engaging with the other licensees to **remove** areas of un-necessary duplication or **reduce** cost?	<u>Before:</u> Item 1.a above describes the internal processes followed by SPEN in pro-actively identifying the areas of unnecessary duplication between FUSION, TRANSITION & EFFS, prior to the elaboration of the FUSION FSP (published November 2017). This diligent review lead to SPEN identifying and removing significant elements of the FUSION scope on the assumption that, given their obvious commonalities, the above projects could agree to collaborate where practicable, and that FUSION could leverage the benefits of that collaboration. This exercise resulted in SPEN committing to a £1.77M reduction to the total project cost of FUSION in the FSP (published November 2017). <u>After:</u> The Jan 2018 Project Direction represented an official call from Ofgem for the three Licensees of FUSION, TRANSITION and EFFS to engage collaboratively. By the time this Project Direction was issued, SPEN had already identified and removed all areas of unnecessary duplication from the scope of FUSION (via the processes described in item 1.a above). From SPEN's perspective, the subsequent engagement with licensees allowed for third party scrutiny and evaluation of the processes already employed by SPEN to; • identify those areas of unnecessary duplication and • quantify the savings that collaboration with licensees could leverage through removal of unnecessary duplication. This engagement served to ratify the assumptions and processes employed by SPEN in their estimation of the savings associated with this collaboration (already reflected within the FUSION FSP). No further changes were made to the scope or cost of the FUSION project since the publication of the FSP.
1.c	The areas of **potential future savings** (relative to the proposed budget) which are attributable to the processes for avoiding unnecessary duplication which you have implemented – please include the scale of potential future savings.	All savings reflected in the FSP on this work package have been fully committed to. There are no additional future savings anticipated in this particular work package. SPEN will have no hesitation in reporting and returning further savings during the delivery if more efficiency can be realised, in additional to the already committed £2.1m savings.
1.d	The **approach** you **will** take to achieve these future savings	

Appendix B – timeline of events: NIC submission for Project FUSION



A - (Apr 2017) **Initial FUSION FSP submission:**
- Total project cost £7.7M
- (NIC requested: £6.4m)

B - (Nov 2017) **FUSION FSP submission:**
- Total project cost £5.97M
- (NIC requested: £5.3m)

C - (Nov 2017) **Ofgem NIC funding decision:**
- FUSION awarded £5.3M, subject to satisfaction of TEF collaboration condition

D - (Jan 2018) **Ofgem project direction:**
- Official call for TEF collaboration
- Scope and direction defined

E - (June 2018) **Response:**
- FUSION FSP resubmitted
- Total project cost £5.97M
- (NIC requested: £5.3m)
- TEF collaboration document submitted

F - (Aug 2018) **Ofgem RFI:**
- call for more information from each TEF licensees (further savings at £300k)

G - (Aug 2018) **SPEN response to RFI:**
- Additional information provided

Appendix C – Screenshot from the 'Cost Reduction Spreadsheet' #1

The following cost reductions represent SPEN's commitment as part of the Oct-2017 Resubmission.

			DNV									SPD									Budget (£5.97M)	Difference	Saving by 'Collaboration Type'			Saving by 'Reduction Element'						
			Before (£7.74M)			After (£5.97M)			Difference	Reduction Element	Collaboration Type	Before (£7.74M)			After (£5.97M)			Difference	Reduction Element	Collaboration Type												
WP		Task	Labour	Equipment	Total	Labour	Equipment	Total			1 2 3	Labour	Equipment	Total	Labour	Equipment	Total			1 2 3			1	2	3	a	b	c	d	e	f	g
1	Stakeholder Forum	Stakeholder forum																													
1		Stakeholder mapping																													
1		National stakeholder events																													
1		trial location stakeholder events																													
2	Flexibility quantification	Customer mapping & netw ork connectivity																													
2		Desktop flexibility quantification																													
2		Onsite customer surveys																													
2		Analysis and report on flexibility																													
3	USEF fit to UK	GB legal and regulatory framew ork																													
3		GB market structure & flexibility valuation and																													
3		Public Consultation																													
3		USEF Implementation plan for GB																													
4	Process & Technology Implementation	USEF Redesign																													
4		DNO Process design & implementation																													
4		Aggregator processes																													
4		New GB USEF roles																													
5	Trial	Trial design																													
5		Tender setup, delivery support and evaluation																													
5		Trial delivery																													
5		Trial evaluation, analysis and reporting																													
5		Refine USEF GB implementation plan																													
6	Knowledge Dissemination	Participation in w orkshops/events																													
6		Dissemination reporting																													
Totals																															

	Reduction Element	Total
A	Design authority/peer review and associated learning.	
B	Activities: know ledge dissemination, public consultation, stakeholder forum	
C	Academic modelling cost reductions.	
D	Enhanced supplier management.	
E	Greater industry engagement w ith IT service and supply chain.	
F	Accelerated learning from IT projects (forecasting & implementation)	
G	Industry w ide learning for UK and International DNO's	
		£1,769,930

	Collaboration Type	Total
1	Direct	
2	Indirect	
3	Cost efficiencies	
		£1,769,930

Appendix D – Screenshot from the 'Cost Reduction Spreadsheet' #2

The following cost reductions represent SPEN's new commitment (as part of this latest response) to reduce a further £300k

		DNV												SPD											
		Apr 2017 (£7.74M)			Nov 2017 (£5.97M)			Aug 2018 (£5.67M)			Difference	duction Element	Collaboration Type	Before (£7.74M)			After (£5.97M)			Aug 2018 (£5.67M)			Difference	duction Element	Collaboration Type
WP	Task	Labour	Equipment	Total	Labour	Equipment	Total	Labour	Equipment	Total			1 2 3	Labour	Equipment	Total	Labour	Equipment	Total	Labour	Equipment	Total			1 2 3
1	Stakeholder forum	[redacted]																							
1	Stakeholder mapping																								
1	National stakeholder																								
1	trial location stakeholder events																								
2	Customer mapping & network connectivity																								
2	Desktop flexibility quantification																								
2	Onsite customer surveys																								
2	Analysis and report on flexibility																								
3	GB legal and regulatory framework																								
3	GB market structure & flexibility valuation and																								
3	Public Consultation																								
3	USEF Implementation plan for GB																								
4	USEF Redesign																								
4	DNO Process design & implementation																								
4	Aggregator processes																								
4	New GB USEF roles																								
5	Trial design																								
5	Tender setup, delivery support and evaluation																								
5	Trial delivery																								
5	Trial evaluation, analysis and reporting																								
5	Refine USEF GB implementation plan																								
6	Participation in workshops/events																								
6	Dissemination reporting																								
	Totals																								

Appendix E – Mapping of common deliverables

The following deliverables across the TEF projects have been identified as exhibiting some degree of commonality

		Overlap of deliverables																		
FUSION Project		TRANSITION								EFFS										
WP	Deliverable	Trial specification	Requirement design development	Stakeholder feedback event	Deployment	Deployment	Trials stage 1	Trials stage 2	Know ledge transfer	Mobilisation Exit Report	Output from the forecasting and conflict avoidance	Development of requirements specification for DSO functionality	Development of EFFS Design Specification document	Implement and deliver system	Completion of on-site system testing	Trials design and preparation	Trials – execution and know ledge capture	Gatew ay review s	Know ledge dissemination
1	Stakeholder forum																		
1	Stakeholder mapping																		
1	National stakeholder events																		
1	trial location stakeholder events																		
2	Customer mapping & netw ork connectivity																		
2	Desktop flexibility quantification																		
2	Onsite customer surveys																		
2	Analysis and report on flexibility																		
3	GB legal and regulatory framew ork																		
3	GB market structure & flexibility valuation and pricing																		
3	Public Consultation																		
3	USEF Implementation plan for GB																		
4	USEF Redesign																		
4	DNO Process design & implementation																		
4	Aggregator processes																		
4	New GB USEF roles																		
	Stage gate report																		
5	Trial design																		
5	Tender setup, delivery support and evaluation																		
5	Trial delivery																		
5	Trial evaluation, analysis and reporting																		
5	Refine USEF GB implementation plan																		
6	Participation in w orkshops/events																		
6	Dissemination reporting																		

Appendix F – Supporting Evidence

The following documents have also been enclosed and should be considered in conjunction with this response.

i. High-level supporting PPT presentation
ii. EA technology SGAM modelling report for USEF (published August, 2018)
iii. Letters of support from
    a. Imperial College London (August, 2018)
    b. Scottish Government (August, 2018)