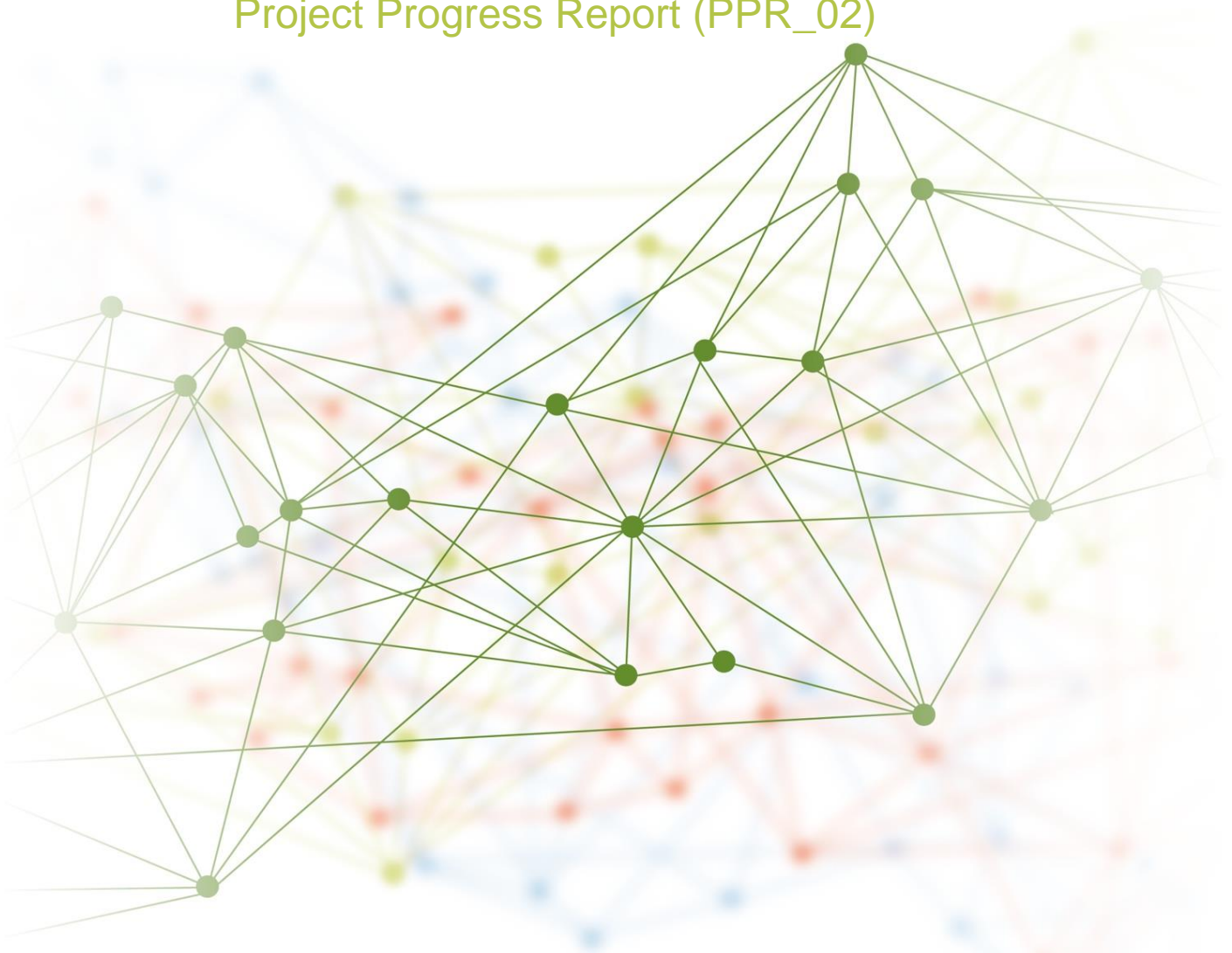




# FUSION

Project Progress Report (PPR\_02)



## Version History

Author	Revision	Date	Status	Comments
Michael Green	V0.1	29/09/2020	Final Draft	

## Approval

Name	Position	Date	Signature
James Yu	Future Networks Manger	30/09/20	

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# 1 Introduction

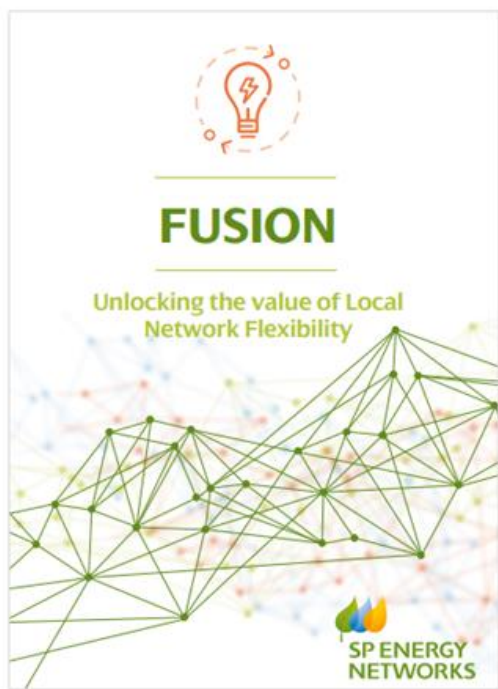
This is the second of what will comprise a series of annual Project Progress Reports (PPR) for Project FUSION. This second edition (PPR\_002) reports on the period spanning from 28<sup>th</sup> September 2019 to 28<sup>th</sup> September 2020, henceforth referred to in this report as the “reporting period”.

Project FUSION seeks to demonstrate the effectiveness of harnessing commoditised local-network flexibility as an asset management tool to allow the DSO to;

- Alleviate distribution network congestion issues, and
- Complement national balancing requirements within the existing regulatory framework.

SP Energy Networks submitted the proposal for Project FUSION in 2017 under the Network Innovation Competition (NIC) funding mechanism. Ofgem approved the proposal and issued the Project Direction on the 28<sup>th</sup> of September 2018.

The project officially commenced in October 2018 and is due to conclude in November 2023.



## 2 Executive Summary

### 2.1 Progress Update

Project progress to date has been in-line with or better than the expectations set-out in the Project Direction. No project delay or overspend is noted or anticipated.

#### 2.1.1 Project Deliverables

The Project Deliverables that were due during this reporting period are summarised in *Table 1* below. These (and indeed all Project Deliverables due to date) have been successfully completed according to schedule and budget.

Project Deliverables due during the PPR_02 reporting period				
Deliverable		Evidence required	Due date	Submission date
1	Public consultation on USEF.	<ul style="list-style-type: none"> <li>▪ Deliver the consultation document on the basis of workshops.</li> <li>▪ Hold an open consultation for a 3-month duration.</li> <li>▪ Report on consultation responses and analysis.</li> <li>▪ Report on associated changes to USEF implementation plan.</li> </ul>	29/11/19	29/11/19
2	USEF implementation plan.	<ul style="list-style-type: none"> <li>▪ FUSION USEF implementation.</li> <li>▪ Report on GB specific reference implementation of USEF.</li> </ul>	02/04/20	02/04/20
3	USEF process implementation.	<ul style="list-style-type: none"> <li>▪ Provide specification of communication and procurement platform.</li> <li>▪ Provide specification of communication protocols between market participants.</li> <li>▪ Provision of template flexibility contracts.</li> <li>▪ Quantify market participant costs for implementing USEF interface compatibility.</li> </ul>	02/06/20	02/06/20

Table 1: Project Deliverables during the PPR\_02 reporting period

Further detail on the progress made in relation to these (and all other) Project Deliverables is provided in *Section 8 - Project Deliverables*.

#### 2.1.2 Notable Milestones

Table 2 below lists some of the most<sup>1</sup> notable milestones achieved during this reporting period.

Ref	Achievement / Milestone accomplished
1	WP's 2, 3 & 4 have all been successfully completed on time and within budget
2	The DSO platform has been successfully procured and integration work has commenced
3	The trial design has been completed and a 'flexibility tender exercise' has commenced
4	Permission has been granted by Ofgem for FUSION to progress beyond the TEF Stage Gate

Table 2: Notable milestones during reporting period

<sup>1</sup> Section 3.2 'Project Highlights – Concise Summary' provides an expanded list of additional notable milestones achieved during this reporting period.

### 2.1.3 Problems encountered

No significant problems have been encountered during this reporting period.

Several minor issues have been successfully navigated, the most notable of which are listed below;

**i. Data Protection Policies;**

- Thanks to the effort that the Project Team invested last year in setting-up approved GDPR-compliant protocols (using Tractivity®), compliance with these policies was much less of an obstacle during this reporting period than it was in the preceding 12-months and we have successfully been able to significantly expand our stakeholder portfolio.

**ii. Covid-19;**

- Many of the flexibility resources located in the study area pertain to customers representing sectors which have been adversely impacted by Covid-19, including:
  - The hospitality & tourism sector
  - The education sector
  - The healthcare sector
- The imposing of 'lock-down' and social distancing measures has resulted in many of these local stakeholders being unusually burdened, furloughed or even temporarily closed for much of the reporting period.
- This has made effective engagement with these stakeholders difficult.
- Nonetheless, the project has managed successfully to maintain momentum and stay on schedule by:
  - Focussing on our efforts on advancing those areas in which we do have control over (platform procurement and integration) whilst
  - Identifying those elements of the trial that have been affected by Covid (engagement with local stakeholders) and trying to design the trial to mitigate the impact on project schedule. E.g.
    - By splitting the live trial into 2 phases, with phase 1 designed to accommodate the uncertainty that has arisen from the lack of engagement to date, and phase 2 designed to leverage the learnings and from phase 1 to deliver a more ambitious subsequent trial.
- Also, whilst many of the dissemination & networking events have successfully taken to operating online – there were some events which were unable to offer a digital alternative (such as the Fife Show) which we were unfortunately unable to attend.

Further detail on the issues encountered and their resolution is provided in Section 3.3 *Project Issues – Concise Summary*.

## 2.1.4 Interim Learnings & Dissemination

Key interim outputs generated during the reporting period are listed in *Table 3* below;

WP:	Output:	Method of Dissemination												
WP1	FUSION video used to promote the project at LCNI 2019	<ul style="list-style-type: none"> <li>Link to <a href="#">FUSION video</a> on website and handouts</li> </ul>												
WP2	Informed the aggregator market by quantified how much flexibility resource (kW) is available for enablement within the East Fife study area. Estimated the value of that flexibility in the SPEN DSO market and beyond.	<ul style="list-style-type: none"> <li>Written report published on FUSION website</li> <li>Webinar presentation to Aggregator Community</li> </ul>												
WP3	Published the following 'USEF Implementation Plans' for peer review: <ul style="list-style-type: none"> <li>'FUSION Implementation' Plan and</li> <li>'GB roll-out' Implementation Plan</li> </ul>	<ul style="list-style-type: none"> <li>Written reports published on FUSION website</li> </ul>												
	Enhanced USEF to fit GB, based on consultation feedback from industry <ul style="list-style-type: none"> <li>Analysed and reported on the responses received from our 3-month consultation.</li> <li>Report on the resulting associated changes to USEF implementation plan.</li> </ul>													
WP4	Helped to 'demystify' USEF to the aggregator community by presenting and reporting on: <ul style="list-style-type: none"> <li>The distinctive &amp; requirements of USEF</li> <li>The cost of USEF implementation</li> <li>Technical specifications for both <ul style="list-style-type: none"> <li>The DSO platform &amp;</li> <li>Aggregator platforms</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Written reports published on FUSION website</li> <li>Webinar presentation to Aggregator Community</li> </ul>												
WP5	Published our trial design for stage 1 of the live trials in the form of a 'Flexibility Services Requisition' which details; <ul style="list-style-type: none"> <li>the types of flexibility service we will be trailing @ each of our 2 x Trial locations</li> <li>the availability windows we will be requesting</li> <li>the magnitude (kW), duration (Hr) and technical characteristics of the flexibility availability that we will be procuring.</li> </ul>	<ul style="list-style-type: none"> <li>Flexibility Service Request (FSR) published on the FUSION website</li> <li>Announcements on social media highlighting the invitation to complete a PQQ for the tender process</li> <li>A promotion webinar is scheduled on 28<sup>th</sup> September</li> </ul>												
TEF	FUSION has collaborated with TRANSITION on a joint-exercise with Origami in which we are generating 5 x written reports to the ENA to assist and inform the Open Networks project Workstream 1A. The interim outputs from this exercise are summarised below:	<ul style="list-style-type: none"> <li>Written reports peer-reviewed within TEF and sent to the ENA for industry dissemination.</li> <li>Once completed they will be published on the FUSION website</li> </ul>												
	<table border="1"> <thead> <tr> <th>Report</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>Product catalogue</td> <td>Complete</td> </tr> <tr> <td>Service Definitions</td> <td>In Progress</td> </tr> <tr> <td>Service Use cases</td> <td>In Progress</td> </tr> <tr> <td>Common Terminology</td> <td>In Progress</td> </tr> <tr> <td>TEF Services Alignment</td> <td>In Progress</td> </tr> </tbody> </table>		Report	Status	Product catalogue	Complete	Service Definitions	In Progress	Service Use cases	In Progress	Common Terminology	In Progress	TEF Services Alignment	In Progress
	Report		Status											
	Product catalogue		Complete											
	Service Definitions		In Progress											
	Service Use cases		In Progress											
	Common Terminology		In Progress											
TEF Services Alignment	In Progress													



Table 3: Interim outputs generated during reporting period

## 2.2 Project Risks

No risks have been identified that are likely to impede the achievement of any of the Project Deliverables outlined in the Project Direction or cause any deviation from the agreed aims, objectives or delivery programme. Risk are reviewed regularly during weekly progress meetings and reflected periodically in the Risk Register.

A comprehensive list of identified project risks and their corresponding mitigation measures is provided in *Section **Error! Reference source not found.** - Risk Management.*

## 3 Project Manager's Report

### 3.1 Project Overview

#### 3.1.1 Project Plan

In order to ensure the successful completion of the FUSION Project, a project delivery plan was developed by SPD, which grouped activities into discrete Work Packages, within which tasks and timescales were also defined.

An overview of these Work Packages and their associated timescales is provided below in *Figure 1: Project Delivery Timeline*.

For a more detailed summary of Project Progress against each Work Package, please refer to *Section 5: Progress against Plan*.

#### 3.1.2 Project Deliverables

The latest<sup>2</sup> Project Direction issued for FUSION articulated a set of 'Project Deliverables' and associated timescales, against which the success of the project would be evaluated.

*Figure 1* below provides a timeline showing the due-dates established by the Regulator for each of these seven 'Project Deliverables' (shown in **green** for completed or **red** for pending).

Progress to date has been very good with all 'Project Deliverables' having been submitted either on or before their contractual due-dates.

For a detailed 'RAG' status report of the progress made against each of the 'Project Deliverables' please refer to *Section 8: Project Deliverables*.

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<sup>2</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/10/fusion - direction amended 09 2018.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/10/fusion_-_direction_amended_09_2018.pdf)

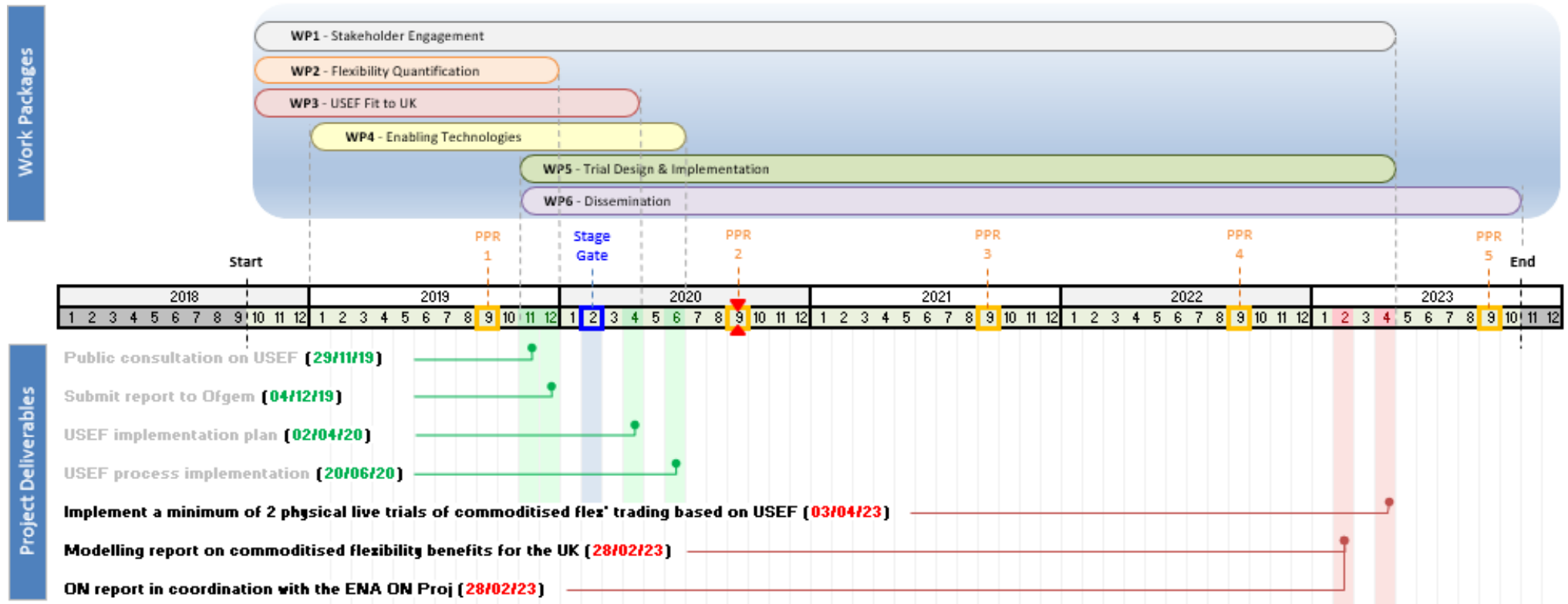


Figure 1: Project Delivery Timeline

### 3.2 Project Highlights - Concise Summary

Table 4 below provides a concise summary of the key successes noted during the reporting period. Further detail on each of the highlights listed below is provided in *Section 5.3 - Project Highlights*.

Ref	Deliverable Affected	Summary of Highlight	Brief Detail						
1	WP1: Stakeholder engagement	Consistent momentum despite the challenges posed by Covid-19	<ul style="list-style-type: none"> <li>Examples of how FUSION has successfully engaged with local, national &amp; international stakeholders include the following: <table border="1"> <tr> <td>Local</td> <td> <ul style="list-style-type: none"> <li>1-2-1 meetings with customers (admittedly Covid-19 has made this interaction more challenging but that impact has been mitigated through adapting to virtual meetings. More detail available in section 3.3).</li> </ul> </td> </tr> <tr> <td>National</td> <td> <ul style="list-style-type: none"> <li>FUSION break-out session at LCNI 2019</li> <li>Various public webinars on FUSION</li> <li>Engagement with ENA ON-P via TEF</li> </ul> </td> </tr> <tr> <td>Inter - national</td> <td> <ul style="list-style-type: none"> <li>USEF learning exchange with Dutch DNO's.</li> <li>Attendance @ USEF User Community Event in Utrecht.</li> <li>1-2-1 engagement with various national and international aggregators interested in participating in the FUSION Flexibility Tender</li> </ul> </td> </tr> </table> </li> <li>More detail available in Sections 5.2.1 &amp; 5.3</li> </ul>	Local	<ul style="list-style-type: none"> <li>1-2-1 meetings with customers (admittedly Covid-19 has made this interaction more challenging but that impact has been mitigated through adapting to virtual meetings. More detail available in section 3.3).</li> </ul>	National	<ul style="list-style-type: none"> <li>FUSION break-out session at LCNI 2019</li> <li>Various public webinars on FUSION</li> <li>Engagement with ENA ON-P via TEF</li> </ul>	Inter - national	<ul style="list-style-type: none"> <li>USEF learning exchange with Dutch DNO's.</li> <li>Attendance @ USEF User Community Event in Utrecht.</li> <li>1-2-1 engagement with various national and international aggregators interested in participating in the FUSION Flexibility Tender</li> </ul>
Local	<ul style="list-style-type: none"> <li>1-2-1 meetings with customers (admittedly Covid-19 has made this interaction more challenging but that impact has been mitigated through adapting to virtual meetings. More detail available in section 3.3).</li> </ul>								
National	<ul style="list-style-type: none"> <li>FUSION break-out session at LCNI 2019</li> <li>Various public webinars on FUSION</li> <li>Engagement with ENA ON-P via TEF</li> </ul>								
Inter - national	<ul style="list-style-type: none"> <li>USEF learning exchange with Dutch DNO's.</li> <li>Attendance @ USEF User Community Event in Utrecht.</li> <li>1-2-1 engagement with various national and international aggregators interested in participating in the FUSION Flexibility Tender</li> </ul>								
2	WP2: Flexibility Quantification Reporting	Complete.	<ul style="list-style-type: none"> <li>All associated deliverables submitted within time and budget and available to download on FUSION website.</li> <li>More detail available in <i>Section 8: Project Deliverables</i></li> </ul>						
3	WP3: USEF implementation plan	Complete.	<ul style="list-style-type: none"> <li>All associated deliverables submitted within time and budget and available to download on FUSION website.</li> <li>More detail available in <i>Section 8: Project Deliverables</i></li> </ul>						
4	WP4: System readiness	Complete.	<ul style="list-style-type: none"> <li>All associated deliverables submitted within time and budget and available to download on FUSION website.</li> <li>More detail available in <i>Section 8: Project Deliverables</i></li> </ul>						
5	WP5: Live Trial	Progressing according to schedule.	<ul style="list-style-type: none"> <li>Trial design compete for 2021 (live trading due to commence June 2021)</li> <li>DSO platform now successfully procured and being integrated</li> <li>Flexibility tender exercise has commenced and due to conclude Feb 2021.</li> </ul>						

6	TEF Collaboration	Regular meetings, and peer reviews have ensured that TEF projects continue to deliver learnings that are unique, complementary & relevant to the industry.	<p>1. TEF Stage Gate:</p> <ul style="list-style-type: none"> <li>- Collaborative ‘Stage Gate’ report successfully submitted on schedule to ENA and Ofgem.</li> <li>- All 3 TEF projects granted permission to proceed beyond Stage Gate.</li> </ul> <p>2. FUSION &amp; TRANSITION have agreed to collaborating on and jointly-submit 5 x reports to the ENA ON-P Workstream 1A, which are focused on reducing entry barriers for new participants, advancing cross market facilitation and constructively promoting competition in the GB flexibility marketplace. For more information please refer to section <i>15.1 TEF Collaboration</i></p>
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Table 4: Project Highlights – Concise Summary

### 3.3 Project Issues - Concise Summary

No significant problems have been encountered during this reporting period.

Several minor issues have been successfully navigated and these are summarised in *Table 5* below.

Further detail on each of issues listed below is provided in *Section 5.4 Project Issues*

Ref	Deliverable Affected	Issue Summary	Brief Detail
1	WP5: Trial design	Covid-19	<p>Many of the local customers representing flexible assets in the study area belong to sectors that have been particularly adversely impacted by Covid-19.</p> <p>Covid-19 mitigation measures including lock-down, furloughing and temporary closure has posed an obstacle to FUSION Partners being able to engage with these customers as frequently as we would have liked to.</p> <p>Nonetheless, the project has managed successfully to maintain momentum and stay on schedule by:</p> <ul style="list-style-type: none"> <li>▪ Focussing our efforts on advancing those areas in which we do have control over (platform procurement and integration) whilst</li> <li>▪ Identifying those elements of the trial that have been affected by Covid (engagement with local stakeholders) and trying to design the trial to accommodate that lack of engagement.</li> </ul>

Table 5: Project Issues – Concise Summary

### 3.4 Outlook to the Next Reporting Period

Table 6 below provides a summary of the progress planned under each work package during the next reporting period.

For specific detail of timings associated please refer to the RAG status report in *Section 8 - Project Deliverables*.

Anticipated activity		Associated Outputs / Value Added
WP1	Match-making	<ul style="list-style-type: none"> <li>- Engage closely with local customers and aggregators as we introduce them to one another and facilitate 1-2-1 bilateral negotiations prior to the ITT round.</li> <li>- Promote and announce each stage of the flexibility tender process on social media</li> </ul>
WP5	Live trials: Stage 1	- Complete an end-end demo of the DSO platform in SPD’s control room by October 2020
		- Contract for flexibility services by Feb 2021
		- Conclude all testing and commissioning in May 2021
		- Commence live flexibility trading in June 2021
		- Report on interim learnings from stage 1 of the live trials
WP6	Learnings from live trial stage 1	- Conclude trial design for Stage 2 of live trial (to commence Jan 2022)
		- Report on learnings from live trials stage 1
TEF	Collaboration	- Make recommendations for the design of live trials stage 2
		- Continue to meet monthly to ensure that our respective projects are aligned and relevant to the industry
		- Continue to add value to the ENA ON-P by concluding the reports that are in progress (refer to <i>Table 4 Project Highlights – Concise Summary</i> )

Table 6: Anticipated activities in next reporting period

## 4 Business Case Update

The continued relevance of the business case was a key criterion against which projects were evaluated at the TEF<sup>3</sup> Common Stage Gate review in February 2020.

The findings of that comprehensive review concluded that FUSION's business case (in February 2020) was no less relevant than it was in 2018 when the project was awarded.

Since that time the declaration of a global Covid-19 pandemic and the associated widescale social distancing measures that have been implemented have resulted in significant changes to the way that we all work, live and travel. This may well have an impact on the networks that we maintain, which could in turn impact upon the business case for projects like FUSION. However, it is still too early to tell what the scale of that impact might be and how long it will be maintained for.

In the absence of sufficient concrete evidence to the contrary it is this author's opinion that the findings of the Stage Gate review in Feb 2020 still provide the most reliable evaluation available of the project's continued business case.

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<sup>3</sup> TRANSMISSION (SSEN), EFFS (WPD), FUSION (SPEN)

## 5 Progress against Plan

This section explains in greater detail the progress made against the Project Delivery Plan.

### 5.1 Overview

*Figure 1* above provides a timeline showing the due-dates established by the Regulator for each of the seven 'Project Deliverables'.

During this reporting period, Project FUSION's interim outputs have been generated either in-line with or ahead of the timelines specified in the Project Directive.



## 5.2 Work Packages

The following sub-sections describe in more detail the progress made under each discrete Work Package during the reporting period.

### 5.2.1 WP1 - Stakeholder Engagement

The key objective of Work Package 1 is to ensure that relevant stakeholders are continually engaged with throughout the FUSION project.

Figure 2 below shows the timescale for implementing WP1.

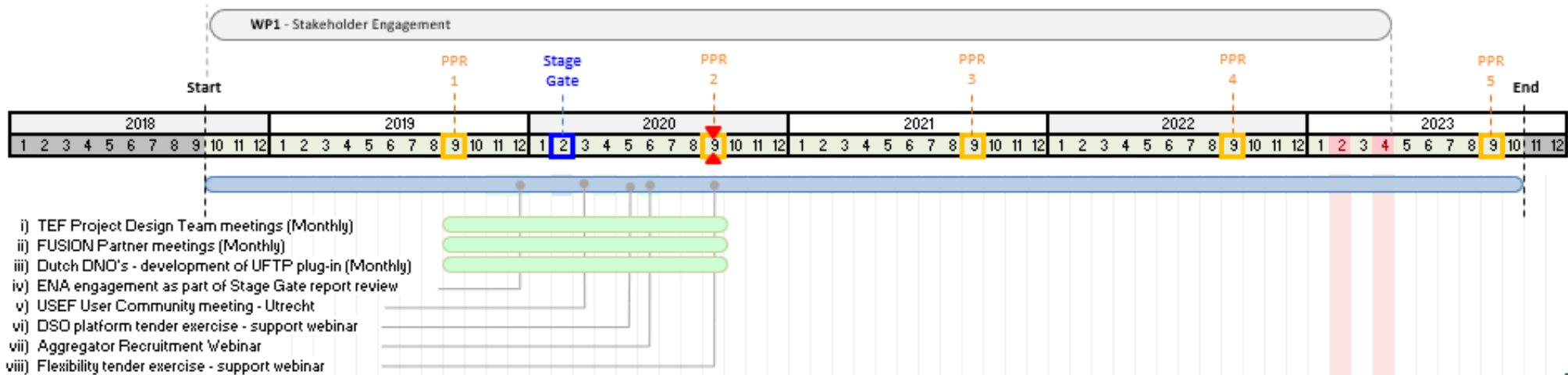


Figure 2: Timescale for implementing WP1

The original FUSION FSP defined the key activities associated with WP1 as follows:

Description
Establish and maintain an enduring and openly engaging stakeholder forum
Review and map all relevant stakeholders, their interests and alignments with FUSION
Undertake national level stakeholder events
Undertake trial location level stakeholder events

Despite the challenges imposed by Covid-19, this reporting period has seen significant progress made under WP1 with well-attended stakeholder events completed both physically and virtually and at local, national and international level. The stakeholder forum has maintained strong momentum and participation continues to grow as more contacts are voluntarily providing their written consent for FUSION Partners to retain their details on our GDPR-compliant system.

### 5.2.2 WP2 - Flexibility Quantification Report

Figure 3 below shows the timescale for implementing WP2 and the associated Project Deliverable due dates.

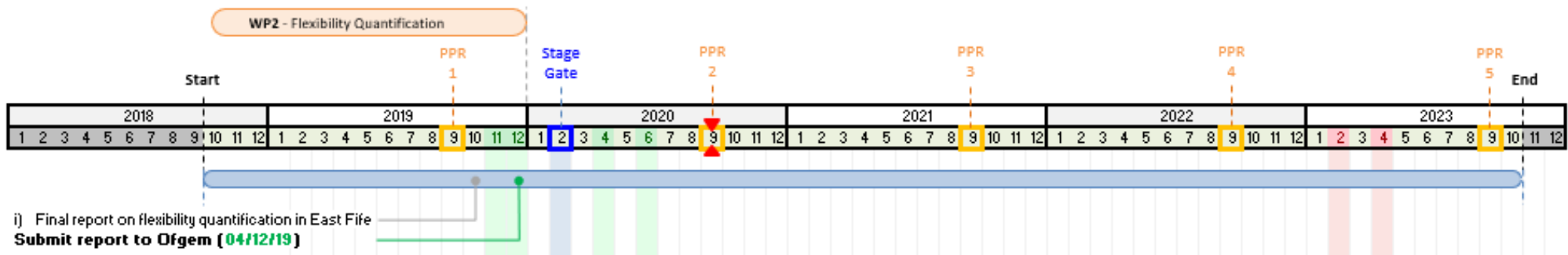


Figure 3: Timescale for implementing WP2

The following screenshot from *Section 8 – ‘Project Deliverables’* summarises the progress made under WP2 during the reporting period.

Ref	Project Deliverable	Completion Deadline (Ofgem)	Evidence required	Status	Progress update
1	Report on flexibility quantification in East Fife.	4/12/19	1.1 <b>Report</b> on quantification of the flexibility market value in E Fife, including robust assessments across voltage levels, market sector, industry type.	Complete	<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in Nov 2019 <a href="https://www.spenergynetworks.co.uk/userfiles/file/FUSION_Quantifying_Flexibility_Report.pdf">https://www.spenergynetworks.co.uk/userfiles/file/FUSION_Quantifying_Flexibility_Report.pdf</a></li> </ul>

### 5.2.3 WP3 - USEF Fit for UK

Figure 4 below shows the timescale for implementing WP3 and the associated Project Deliverable due dates.

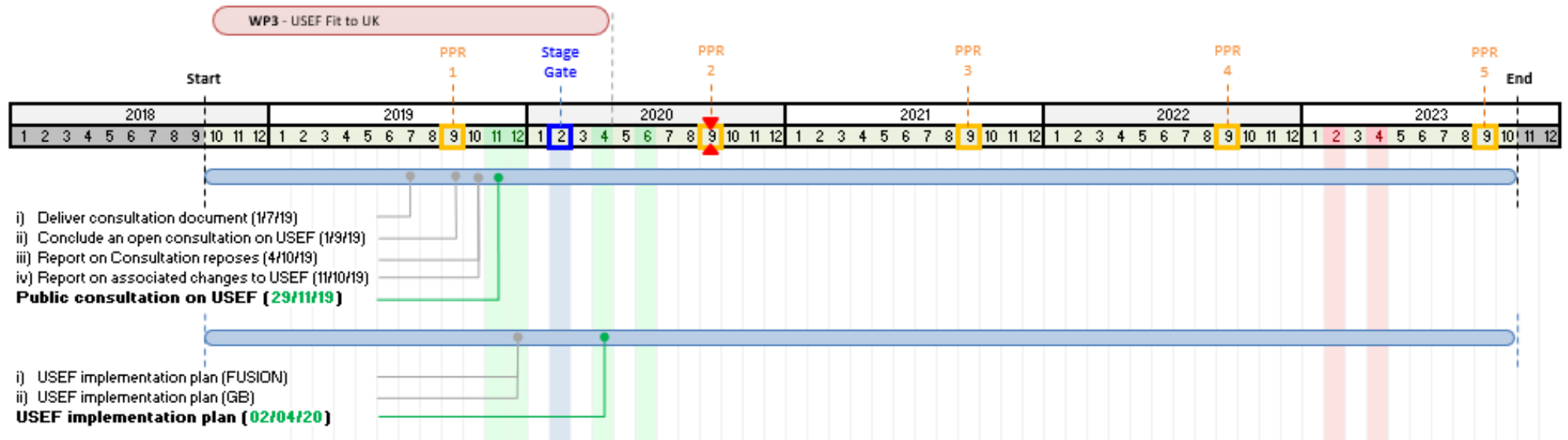


Figure 4: Timeline for implementing WP3

The following screenshot from Section 8 – ‘Project Deliverables’ summarises the progress made under WP3 during the reporting period.

Ref	Project Deliverable	Completion Deadline (Ofgem)	Evidence required		Status	Progress update
					Not started	
					Ongoing	
					Complete	
2	Public consultation on USEF	29/11/19	2.1	Deliver the <b>consultation document</b> on the basis of workshops.	Complete	<ul style="list-style-type: none"> <li>Completed &amp; published on FUSION website in June 2019 <a href="https://www.spenergynetworks.co.uk/userfiles/file/SPEN_USEF_Consultation_Document.pdf">https://www.spenergynetworks.co.uk/userfiles/file/SPEN_USEF_Consultation_Document.pdf</a></li> </ul>
			2.2	Hold an <b>open consultation</b> for a three month duration.	Complete	<ul style="list-style-type: none"> <li>An 8-week open consultation was successfully held between 08/07/19 and 02/09/19</li> <li>During that time, 2 x stakeholder events were held in Glasgow &amp; London to promote stakeholder participation and respond directly to questions.</li> </ul>
			2.3	<b>Report</b> on consultation responses and analysis.	Complete	<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in Nov 2019 <a href="https://www.spenergynetworks.co.uk/userfiles/file/USEF_Consultation_Report.pdf?v=1.2">https://www.spenergynetworks.co.uk/userfiles/file/USEF_Consultation_Report.pdf?v=1.2</a></li> </ul>
			2.4	<b>Report</b> on associated changes to USEF implementation plan.	Complete	<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in Nov 2019 <a href="https://www.spenergynetworks.co.uk/userfiles/file/Associated_Changes_to_USEF_Implementation_Plan_Exec_Report.pdf?v=1.2">https://www.spenergynetworks.co.uk/userfiles/file/Associated_Changes_to_USEF_Implementation_Plan_Exec_Report.pdf?v=1.2</a></li> </ul>
3	USEF implementation plan	2/4/20	3.1	FUSION USEF implementation plan.	Complete	<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in March 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/FUSION_USEF_Implementation_Plan.pdf">https://www.spenergynetworks.co.uk/userfiles/file/FUSION_USEF_Implementation_Plan.pdf</a></li> </ul>
			3.2	Report on GB specific reference implementation of USEF.	Complete	<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in March 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/GB_Ref_Implementation_of_USEF.pdf">https://www.spenergynetworks.co.uk/userfiles/file/GB_Ref_Implementation_of_USEF.pdf</a></li> </ul>

### 5.2.4 WP4 - Enabling Technologies

Figure 5 below shows the timescale for implementing WP4 and the associated Project Deliverables.

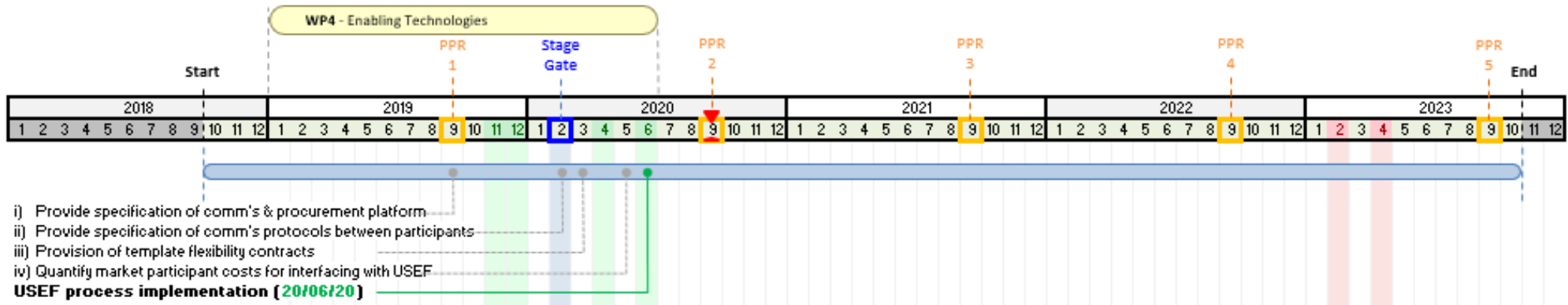


Figure 5: Timeline for implementing WP4

The following screenshot from Section 8 – ‘Project Deliverables’ summarises the progress made under WP4 during the reporting period.

Ref	Project Deliverable	Completion Deadline (Ofgem)	Evidence required	Status	Progress update
				Not started	
				Ongoing	
				Complete	
4	USEF process implementation	2/6/20	4.1 Provide specification of communication and procurement platform.	Complete	<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in May 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/D4.1_specification_of_communication_and_procurement_platform.pdf">https://www.spenergynetworks.co.uk/userfiles/file/D4.1_specification_of_communication_and_procurement_platform.pdf</a></li> </ul>
			4.2 Provide specification of communication protocols between market participants.	Complete	<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in May 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/D4.2_specification_of_communication_protocols_between_market_participants.pdf">https://www.spenergynetworks.co.uk/userfiles/file/D4.2_specification_of_communication_protocols_between_market_participants.pdf</a></li> </ul>
			4.3 Provision of template flexibility contracts.	Complete	<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in June 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/D4.3_Template_Flexibility_Contract.pdf">https://www.spenergynetworks.co.uk/userfiles/file/D4.3_Template_Flexibility_Contract.pdf</a></li> </ul>
			4.4 Quantify market participant costs for implementing USEF interface compatibility.	Complete	<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in May 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/D4.4_quantification_of_market_participant_costs_for_implementing_USEF.pdf">https://www.spenergynetworks.co.uk/userfiles/file/D4.4_quantification_of_market_participant_costs_for_implementing_USEF.pdf</a></li> </ul>

### 5.2.5 WP5 - Trials

Figure 6 below shows the timescale for implementing WP5 and the associated Project Deliverables.

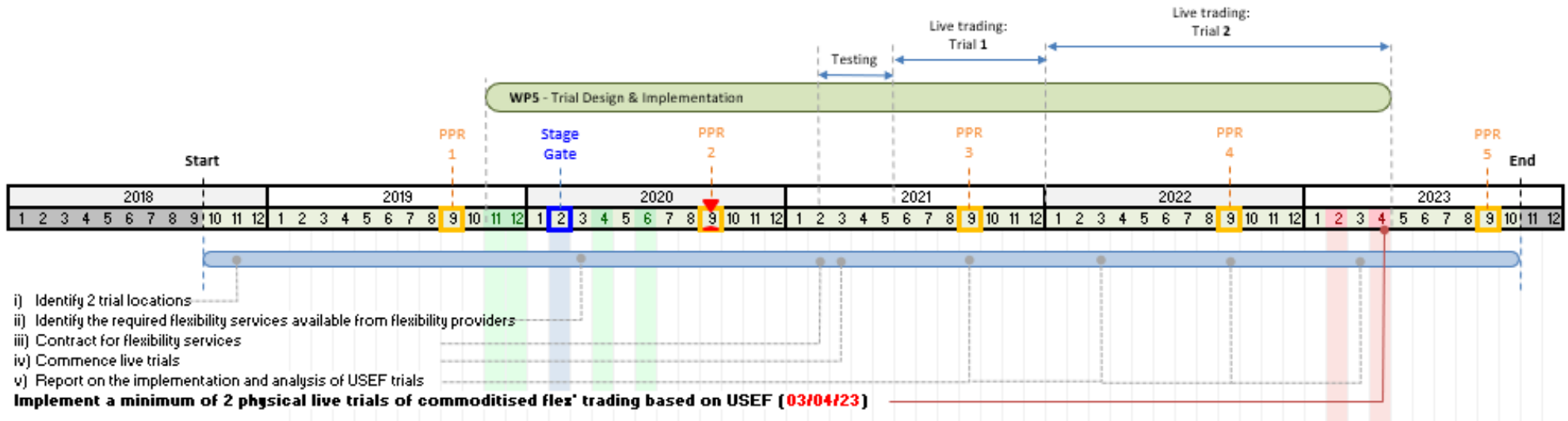


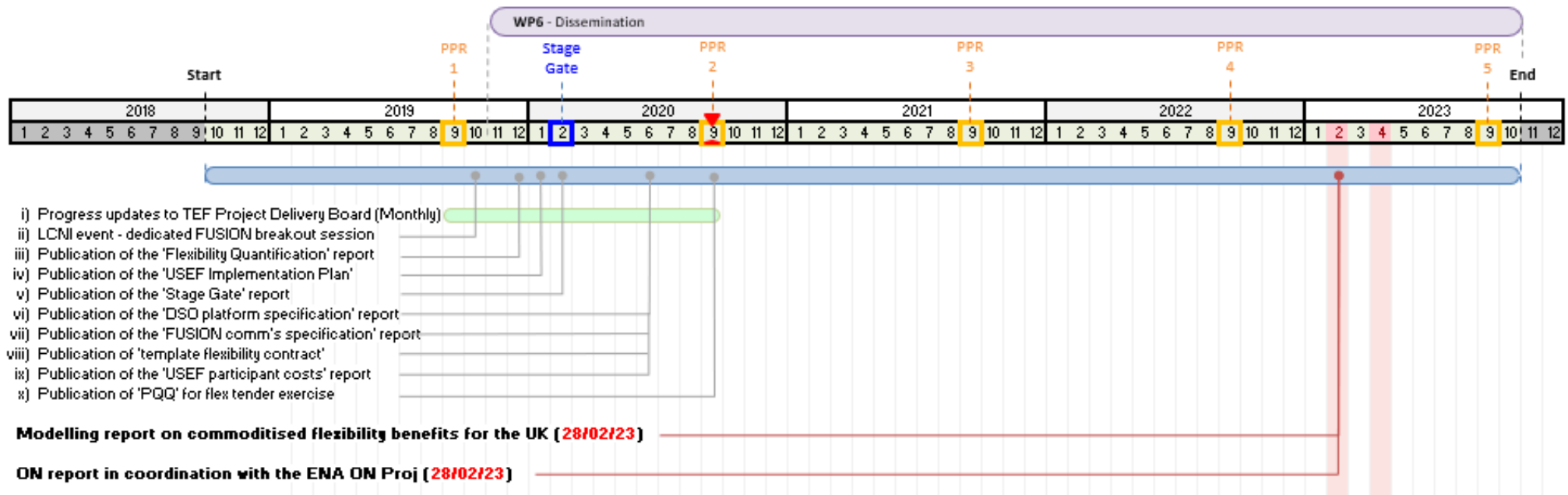
Figure 6: Timeline for implementing WP5

The excerpt below from Section 8 – ‘Project Deliverables’ summarises the progress made under WP5 during the reporting period and briefly describes the key activities planned for the next reporting period.

Ref	Project Deliverable	Completion Deadline (Ofgem)	Evidence required		Status	Progress update
					Not started	
					Ongoing	
					Complete	
5	Implement a minimum of two physical and live trials of commoditised flexibility based on the USEF framework.	3/4/23	5.1	Identify two trial locations.	Complete	<ul style="list-style-type: none"> <li>• <a href="#">Tender packs</a> have been published as part of an exercise to procure flexibility services that address network needs at the following two trial locations;                             <ul style="list-style-type: none"> <li>- St. Andrews Primary Substation</li> <li>- Leuchars Primary Primary Substation</li> </ul> </li> <li>• These tender packs can be found on the FUSION website and they specify the flexibility services that we wish to procure at each trial site</li> </ul>
			5.2	Identify the required flexibility services available from flexibility providers.	Ongoing	<ul style="list-style-type: none"> <li>• In response to the tender packs (mentioned above) flexibility service providers we be invited to tender for the provision of the services specified</li> <li>• This Invitation to Tender (ITT) will be published in December 2020</li> </ul>
			5.3	Contract for flexibility services.	Ongoing	<ul style="list-style-type: none"> <li>• Successful respondents to the 'Invitation to Tender' (ITT - see above) will enter into a contractual 'Flexibility Service Agreement' (FSA) with SPEN.</li> <li>• The ITT window closes in Dec 2020 and the successful vendors will be identified in January 2021 and invited to enter into contract with SPEN.</li> <li>• We aim for successful vendors to conclude the contractual negotiations with SPEN and sign FSA's in February 2020.</li> <li>• In an effort to expedite the conclusion of the contractual negotiations post ITT, vendors are required to agree to the T&amp;C's contained in the draft version of the FSA as a pre-requisite to participating in the ITT.</li> </ul>
			5.4	Undertake live trials.	Not started	<ul style="list-style-type: none"> <li>• According to the flexibility tender packs that Project FUSION has published on its website:                             <ul style="list-style-type: none"> <li>- a period of testing and commissioning of flexibility services (including live trialing) will run from Feb 2021 - May 2021</li> <li>- live trading of flexibility will commence in June 2021.</li> </ul> </li> <li>• The first phase of the live trials will run from June 2021 - Dec 2021</li> <li>• A second phase of live trials will run from Jan 2022 - March 2023 and will be accompanied by a second flexibility tender round which reflects a more ambitious deployment of flexibility services.</li> </ul>
			5.5	Report on the implementation and analysis of USEF trials	Not started	<ul style="list-style-type: none"> <li>• The success of the first phase of trials will be continually monitored and evaluated against pre-defined success criteria</li> <li>• The findings of this evaluation will be periodically reported and the learnings disseminated in time for the recommendations to be applied in the second phase of the trial.</li> </ul>

### 5.2.6 WP6 - Dissemination

Figure 7 below shows the timescale for implementing WP6 and the associated Project Deliverables that it seeks to address over that period.





The excerpt below from *Section 8 – ‘Project Deliverables’* summarises the progress made under WP6 with respect to the specific deliverables during the reporting period.

Ref	Project Deliverable	Completion Deadline (Ofgem)	Evidence required		Status	Progress update
					Not started	
					Ongoing	
					Complete	
6	Modelling report on commoditised flexibility benefits for the UK (Imperial College London).	28/2/23	6.1	Academic modelling report on GB flexibility.	Ongoing	<ul style="list-style-type: none"> <li>Imperial College London have been kept informed (along with all Project Partners) about the evolving trial design and timeframe</li> <li>They have been able to specify their expectations from the trial to ensure that it generates data that is fit for their modelling needs</li> </ul>
7	Open Networks report in coordination with the ENA Open Networks Programme.	28/2/23	7.1	Report on coordination and hierarchies of control for flexibility, in collaboration with the ENA Open Networks Programme.	Ongoing	<ul style="list-style-type: none"> <li>Imperial College London have been kept informed (along with all Project Partners) about the evolving trial design and timeframe</li> <li>They have been able to specify their expectations from the trial to ensure that it generates data that is relevant for their reporting needs</li> </ul>
N/A	Comply with knowledge transfer requirements of the Governance Document.	28/09/20xx	i	Annual Project Progress Reports which comply with the requirements of the Governance Document.	Complete	<ul style="list-style-type: none"> <li>PPR_01 completed in September 2019 and published on the Project FUSION website <a href="https://www.spenergynetworks.co.uk/userfiles/file/Fusion_Project_Progress_Report_Year_1.pdf">https://www.spenergynetworks.co.uk/userfiles/file/Fusion_Project_Progress_Report_Year_1.pdf</a></li> <li>PPR_02 completed in September 2020 and pending publication on the Project FUSION website</li> </ul>
		2/11/23	ii	Completed Close Down Report which complies with the requirements of the Governance Document.	Not started	
		30/10/19	iii	Evidence of attendance and participation in the Annual Conference as described in the Governance Document.	Complete	<ul style="list-style-type: none"> <li>Project FUSION was represented on the SPEN stand at the LCNI event in October 2019</li> <li>A dedicated break-out session was hosted by Project FUSION to discuss flexibility trading</li> </ul>

### 5.3 Project Highlights

Table 7 below elaborates the successes already summarised in Section 3.2 – ‘Project Highlights – Concise Summary’

Ref	Deliverable Affected	Summary of Highlight	Further Detail																				
1	WP1: Stakeholder engagement	Consistent momentum despite the challenges posed by Covid-19	<ul style="list-style-type: none"> <li>‘FUSION Communications Strategy’; A dedicated strategy is in place which includes the following regular meetings.                             <ul style="list-style-type: none"> <li>Fortnightly meeting (MS Teams) to ensure alignment of FUSION with SPEN DSO strategy</li> <li>Monthly FUSION Partner meeting (MS Teams), and</li> <li>Monthly TEF Project Delivery Board meeting (MS Teams)</li> </ul> </li> <li>Events; Physical events attended during the reporting period include;                             <table border="1"> <thead> <tr> <th>Date</th> <th>Event Title</th> <th>Location</th> <th>Objective</th> </tr> </thead> <tbody> <tr> <td>Oct 2019</td> <td>LCNI 2019</td> <td>Glasgow</td> <td>Promote FUSION to national audience. Gather contact details of interested stakeholders/guests.</td> </tr> <tr> <td>Dec 2019</td> <td>Alliander visit</td> <td>Arnhem</td> <td>Explore learnings from Alliander’s experience of having implemented USEF and how SPEN could assist with the development of a UFTP ‘plug-in’ to reduce barrier to entry for aggregators.</td> </tr> <tr> <td>Dec 2019</td> <td>ENA engagement</td> <td>London</td> <td>The draft ‘Stage Gate report’ was presented to the ENA on behalf of the TEF projects for their scrutiny and approval prior to it being submitted formally to the Regulator</td> </tr> <tr> <td>Mar 2019</td> <td>USEF User Community Meeting</td> <td>Utrecht</td> <td>Disseminate FUSION’s objectives and learnings to date. Explore how USEF/UFTP could be enhanced to ensure continued relevance to international industry needs.</td> </tr> </tbody> </table> </li> </ul>	Date	Event Title	Location	Objective	Oct 2019	LCNI 2019	Glasgow	Promote FUSION to national audience. Gather contact details of interested stakeholders/guests.	Dec 2019	Alliander visit	Arnhem	Explore learnings from Alliander’s experience of having implemented USEF and how SPEN could assist with the development of a UFTP ‘plug-in’ to reduce barrier to entry for aggregators.	Dec 2019	ENA engagement	London	The draft ‘Stage Gate report’ was presented to the ENA on behalf of the TEF projects for their scrutiny and approval prior to it being submitted formally to the Regulator	Mar 2019	USEF User Community Meeting	Utrecht	Disseminate FUSION’s objectives and learnings to date. Explore how USEF/UFTP could be enhanced to ensure continued relevance to international industry needs.
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2	WP2: Flexibility Quantification Reporting	Complete	<ul style="list-style-type: none"> <li>• All associated deliverables submitted within time and budget.</li> <li>• For more detail please refer to <i>Section 8: Project Deliverables</i></li> </ul>																
3	WP3: USEF implementation plan	Complete	<ul style="list-style-type: none"> <li>• All associated deliverables submitted within time and budget.</li> <li>• For more detail please refer to <i>Section 8: Project Deliverables</i></li> </ul>																

4	WP4: System readiness	Complete	<ul style="list-style-type: none"> <li>All associated deliverables submitted within time and budget.                             <ul style="list-style-type: none"> <li>For more detail please refer to <i>Section 8: Project Deliverables</i></li> </ul> </li> </ul>
5	WP5: Live Trial	Progressing on schedule	<ul style="list-style-type: none"> <li>Trial design complete for 2021 (live trading due to commence June 2021)</li> <li>DSO platform now successfully procured and being integrated in time for conclusion of commissioning in April 2021.</li> <li>Flexibility tender exercise has commenced and successful service providers will be invited to sign a 'Flexibility Service Agreement' (FSA) with SPEN in Feb 2021.                             <ul style="list-style-type: none"> <li>For more detail please refer to <i>Section 8: Project Deliverables</i></li> </ul> </li> </ul>
6	TEF Collaboration	Value-added through professional collaboration	<p>Demonstrable progress made in exploring potential for:</p> <ol style="list-style-type: none"> <li>Knowledge-sharing between DNO's                             <ul style="list-style-type: none"> <li>Each month FUSION (and the 2 other TEF projects) provides a project progress update to the TEF group (including key achievements &amp; learnings) and a look ahead at what activities lie on the horizon (including stakeholder engagement plans and other activities that might be relevant either to the other projects or the ON-Project).</li> </ul> </li> <li>Knowledge-sharing with ENA ON Project                             <ul style="list-style-type: none"> <li>A dedicated agenda item is included in each monthly TEF Project Delivery Board (PDB) Meeting for Daniel Burke (SSEN) to provide an update on recent progress in the ENA ON Project.</li> <li>Relevant learnings from FUSION (and the wider TEF consortium) are fed back to the ENA via Daniel each month.</li> </ul> </li> <li>TEF Stage Gate                             <ul style="list-style-type: none"> <li>Following the successful completion of the 'TEF Stage Gate report' the regulator publicly granted permission for all 3 TEF projects to proceed unabated beyond the Stage Gate.</li> </ul> </li> <li>FUSION-TRANSITION joint work to advise the ENA                             <ul style="list-style-type: none"> <li>FUSION &amp; TRANSITION have agreed to collaborate and present 5 x reports to ENA ON-P Workstream 1A, which are focused on reducing entry barriers for new participants, advancing cross market facilitation and constructively promoting competition in the GB flexibility marketplace. For more information please refer to section 15.1 <i>TEF Collaboration</i></li> </ul> </li> </ol>

Table 7: Project Highlights

## 5.4 Project Issues

No significant problems have been encountered or identified during this reporting period. *Table 8* below provides more detail on those minor issues already summarised in *Section 3.3 – ‘Project Issues – Concise Summary’*.

Ref	Deliverable Affected	Issue Summary	Further Detail
1	WP5: Trial design	Covid-19	<p>Many of the local customers representing flexible assets in the study area belong to sectors that have been particularly adversely impacted by Covid-19.</p> <p>Covid-19 mitigation measures including lock-down, furloughing and temporary closure has posed an obstacle to FUSION Partners being able to engage with these customers as frequently as we would have liked to.</p> <p>Nonetheless, the project has managed successfully to maintain momentum and stay on schedule by:</p> <ul style="list-style-type: none"> <li>▪ Focussing our efforts on advancing those areas in which we do have control over (platform procurement and integration) whilst</li> <li>▪ Identifying those elements of the trial that have been affected by Covid (engagement with local stakeholders) and trying to design the trial to accommodate that lack of engagement.</li> </ul>

Table 8: Project Issues

## 6 Progress against Budget

To date, Project FUSION has underspent by 29% relative to the forecast expenditure for the same period. A breakdown of this variation in expenditure and a summary explanation for these perceived variations is provided below in *Table 9* & *Table 10* respectively.

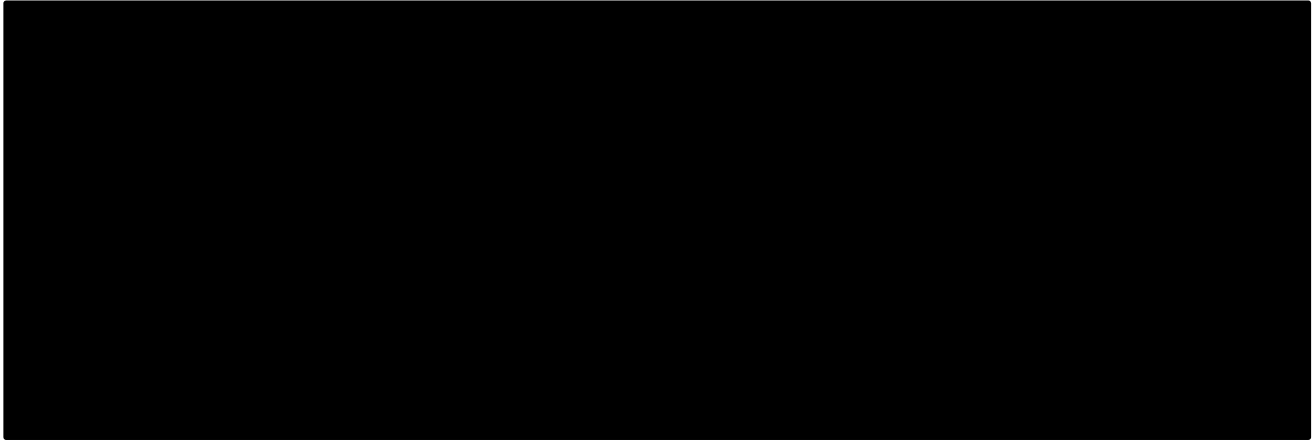


Table 9: Variation between forecast & actual expenditure.

Cost Category	Variation	Explanation
Labour	+40%	<ul style="list-style-type: none"> <li>In an effort to reduce costs, the appointment of external contractors was avoided where possible in preference of utilising more cost-effective in-house labour.</li> <li>The unexpectedly high workload associated with complying with recent changes to Data Protection policies resulted in a higher than anticipated in-house labour resource being deployed for the stakeholder activities during this reporting period.</li> <li>The following costs were also included in this category:                             <ul style="list-style-type: none"> <li>SPD travel expenses</li> <li>Any contingency costs</li> <li>The labour costs associated with the submission of the FUSION proposal for approval by the regulator</li> </ul> </li> <li>The impact of Covid-19 also meant that additional labour resources were deployed in an effort to assist with stakeholder engagement in difficult circumstances</li> </ul>
Equipment	-100%	<ul style="list-style-type: none"> <li>The equipment budget originally accounted for the cost of the sub-metering equipment that would be required as part of the WP2 flexibility quantification exercise, and for the cost of the DSO Platform (hardware)</li> <li>The sub-metering equipment was used, but their cost was accounted for under the 'Contractors' cost category. Hence the equipment cost category shows a variation of 100%, but there in fact is no variation.</li> </ul>
Contractors	-32%	<ul style="list-style-type: none"> <li>[Redacted]</li> </ul>

IT	-100%	<ul style="list-style-type: none"> <li>• The IT budget is accounted for the DSO Platform (software) and its integration with DNO and aggregators’ systems.</li> <li>• Although the DSO Platform was successfully procured this reporting period, the associated invoices and payments (costs) will not be made nor will they appear in the Project accounts until the next reporting period.</li> </ul>
Travel & Expenses	-100%	<ul style="list-style-type: none"> <li>• Rather than being captured separately, travel costs were accounted for under the ‘Contractor’ and ‘Labour’ categories.</li> <li>• (Most of the stakeholder engagement work has been completed by SPD, with the associated travel &amp; expenses being captured under the ‘Labour’ cost category).</li> <li>• Consequently; <ul style="list-style-type: none"> <li>○ the variation in the ‘Travel and Expenses’ cost category is 100%</li> <li>○ the ‘Labour’ cost category has been inflated</li> </ul> </li> </ul>
Contingency	-100%	<ul style="list-style-type: none"> <li>• This small contingency budget was provided to cater for unexpected costs that did not fit within any of the above categories.</li> <li>• Because key deliverables relied on fixed-fee Call-Off agreements with Partners, then any unexpected costs were either borne by the Partner or mopped-up by deploying in-house Labour from the Licensee.</li> <li>• Consequently: <ul style="list-style-type: none"> <li>○ the variation in the ‘Travel and Expenses’ cost category is 100%</li> <li>○ the ‘Labour’ cost category has been inflated</li> </ul> </li> </ul>

Table 10: Explanation for perceived variations in expenditure

## 6.1 Assumptions Used & their Limitations

### 6.1.1 Adjustment of the ‘forecast’ periods to align with the ‘reporting’ period

Ideally, when comparing actual and forecast expenditure, data would be available that corresponds to the same time period. However, in the case of the FUSION project the ‘forecast’ periods and the ‘reporting’ periods are out of phase, which makes their relative comparison complex.

This situation is described in more detail below, along with the assumptions used in eliciting a meaningful analysis of the available data and the associated limitations of those assumptions.

Actual monthly expenditure data is readily available for Project FUSION, dating right back to the project commencement on 28<sup>th</sup> September 2018.

When assessing the financial performance of Project FUSION over the period covered by PPR\_01 & 02 report, the actual expenditure data is therefore readily available for analysis.

The difficulty, however, lies in quantifying the forecasted project expenditure for the corresponding 12-month PPR periods. Unfortunately, because Project FUSION did not commence at the start of the financial reporting year, the time periods used in the FSS to ‘forecast’ project expenditure are not synchronous with those used for the 12monthly Project Progress Reporting.

Figure 8 below helps to illustrate this asynchronous relationship.

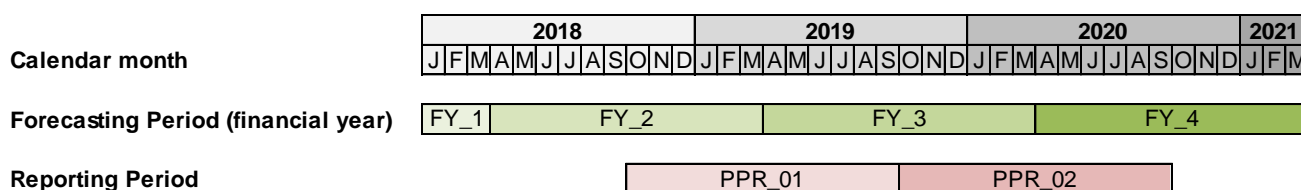


Figure 8: Non-synchronous reporting periods for 'Forecast Project Expenditure' & 'Project Progress Reporting'

In the FSS, Project Expenditure is forecast for each **financial** year.

The FUSION project was originally planned to commence in January 2018. Therefore;

- The first forecast period forecasted in the FSS corresponds to Jan, Feb & Mar 2018 (the last 3 months of the financial year 2017/18)
- Subsequent forecast periods in the FSS correspond to 12-month financial years, until the forecast end date.

The actual expenditure over a given PPR reporting period does not directly correspond to any of the discrete forecast periods within the FSS.

If Project FUSION had commenced on 1<sup>st</sup> April, then comparing actual and forecast expenditure over any given financial year would have been a straightforward exercise. Unfortunately, however, that has not been the case, and that means that quantifying the forecast expenditure over a given 12-month PPR reporting period requires some assumptions to be made.

Namely, we have had to;

- i. Disaggregate the forecast expenditure over each financial year into monthly spend\*.
- ii. Carve-out from that financial year the forecast expenditure up to and including December only.
- iii. Sum the resultant forecast expenditure with that from the remainder from the previous financial year.

\* Disaggregating the yearly forecast expenditure into a monthly forecast has employed the following assumptions:

1. Generally, forecast annual expenditure has been assumed to be uniformly distributed over the constituent 12 months.
2. The exception to this rule being where, within a given financial year of the forecast, a large expense can be confidently anticipated to occur within specific months. In which case its inclusion in any given PPR period has been a function of the timing of that anticipated expense.

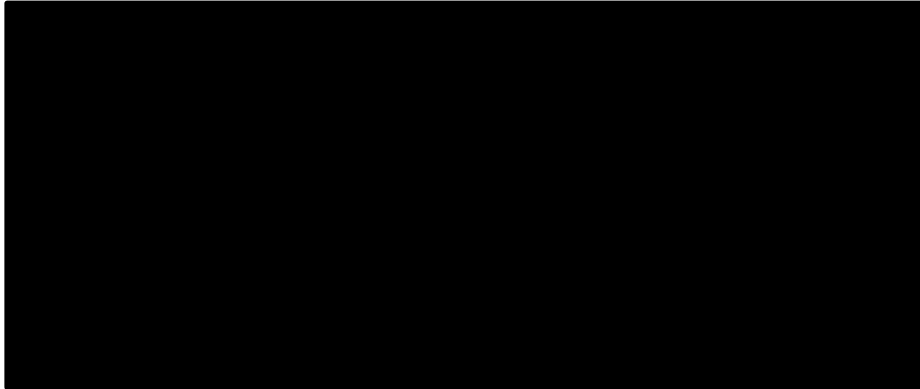
A breakdown of the monthly forecast expenditure during the PPR period is provided in *Appendix 2 – Monthly Expenditure*



### 6.1.2 Accrued costs

When expressing the actual expenditure for the FUSION Project during the PPR\_02 reporting period, the following 'accrued' costs have been included for September 2020.

These costs have not yet been invoiced for, but the associated work has been completed and the costs are therefore accounted for as having been already 'accrued';



## 7 Project Bank Account

A dedicated bank account was made available by SPD to act as the Project Bank Account in to which Ofgem deposited the project funds.

A copy of the latest bank statement for the Project Account is provided below in *Figure 9*.

*Figure 10* below also provides a summary of the transactions made to that account and the interest gained over the reporting period.

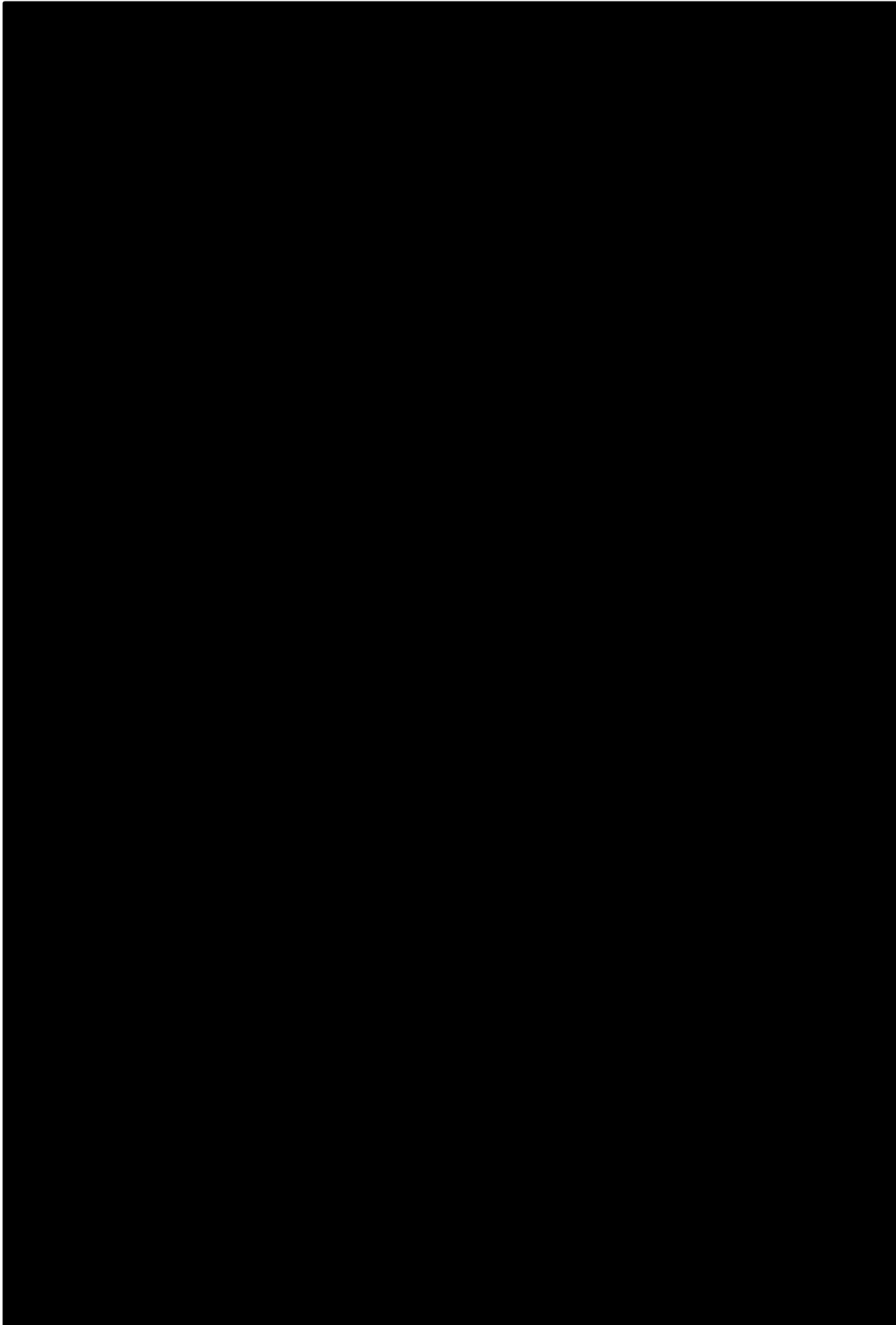


Figure 9: Project Bank Statement for the period: 14/09/19 –11/09/20

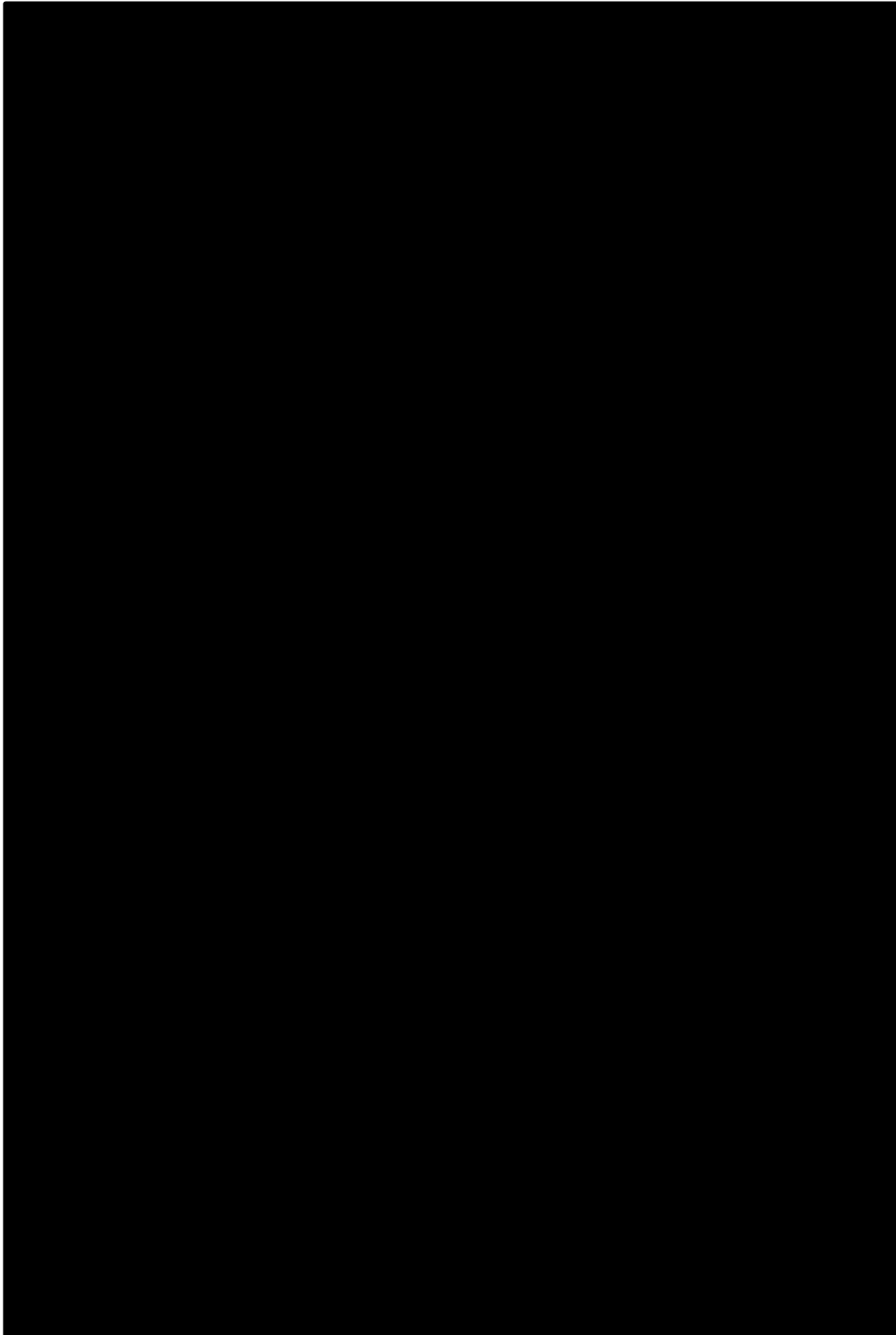


Figure 10: Memorandum of Project Bank Account transactions & interest over reporting period.

## 8 Project Deliverables

Table 11 below provides a comprehensive ‘status report’ of the progress made to date against each of the Project Deliverables and indicates next steps.

Ref	Project Deliverable	Due Date (Ofgem)	Evidence required		Status	Progress update
					Not started	
					Ongoing	
					Complete	
1	Report on flexibility quantification in East Fife.	4/12/19	1.1	<b>Report</b> on quantification of the flexibility market value in E Fife, including robust assessments across voltage levels, market sector, industry type.		<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in Nov 2019 <a href="https://www.spenergynetworks.co.uk/userfiles/file/FUSION_Quantifying_Flexibility_Report.pdf">https://www.spenergynetworks.co.uk/userfiles/file/FUSION_Quantifying_Flexibility_Report.pdf</a></li> </ul>
2	Public consultation on USEF	29/11/19	2.1	Deliver the <b>consultation document</b> on the basis of workshops.		<ul style="list-style-type: none"> <li>Completed &amp; published on FUSION website in June 2019 <a href="https://www.spenergynetworks.co.uk/userfiles/file/SPEN_USEF_Consultation_Document.pdf">https://www.spenergynetworks.co.uk/userfiles/file/SPEN_USEF_Consultation_Document.pdf</a></li> </ul>
			2.2	Hold an <b>open consultation</b> for a 3-month duration.		<ul style="list-style-type: none"> <li>An 8-week open consultation was successfully held between 08/07/19 and 02/09/19</li> <li>During that time, 2 x stakeholder events were held in Glasgow &amp; London to promote stakeholder participation and respond directly to questions.</li> </ul>
			2.3	<b>Report</b> on consultation responses and analysis.		<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in Nov 2019 <a href="https://www.spenergynetworks.co.uk/userfiles/file/USEF_Consultation_Report.pdf?v=1.2">https://www.spenergynetworks.co.uk/userfiles/file/USEF_Consultation_Report.pdf?v=1.2</a></li> </ul>
			2.4	<b>Report</b> on associated changes to USEF implementation plan.		<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in Nov 2019 <a href="https://www.spenergynetworks.co.uk/userfiles/file/Associated_Changes_to_USEF_Implementation_Plan_Exec_Report.pdf?v=1.2">https://www.spenergynetworks.co.uk/userfiles/file/Associated_Changes_to_USEF_Implementation_Plan_Exec_Report.pdf?v=1.2</a></li> </ul>
3	USEF implementation plan	2/4/20	3.1	FUSION USEF implementation plan.		<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in March 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/FUSION_USEF_Implementation_Plan.pdf">https://www.spenergynetworks.co.uk/userfiles/file/FUSION_USEF_Implementation_Plan.pdf</a></li> </ul>
			3.2	Report on GB specific reference implementation of USEF.		<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in March 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/GB_Ref_Implementation_of_USEF.pdf">https://www.spenergynetworks.co.uk/userfiles/file/GB_Ref_Implementation_of_USEF.pdf</a></li> </ul>
4	USEF process implementation	2/6/20	4.1	Provide specification of communication and procurement platform.		<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in May 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/D4.1_specification_of_communication_and_procurement_platform.pdf">https://www.spenergynetworks.co.uk/userfiles/file/D4.1_specification_of_communication_and_procurement_platform.pdf</a></li> </ul>
			4.2	Provide specification of communication protocols between market participants.		<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in May 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/D4.2_specification_of_communication_protocols_between_market_participants.pdf">https://www.spenergynetworks.co.uk/userfiles/file/D4.2_specification_of_communication_protocols_between_market_participants.pdf</a></li> </ul>
			4.3	Provision of template flexibility contracts.		<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in June 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/D4.3_Template_Flexibility_Contract.pdf">https://www.spenergynetworks.co.uk/userfiles/file/D4.3_Template_Flexibility_Contract.pdf</a></li> </ul>
			4.4	Quantify market participant costs for implementing USEF interface compatibility.		<ul style="list-style-type: none"> <li>Completed and published on the FUSION website in May 2020. <a href="https://www.spenergynetworks.co.uk/userfiles/file/D4.4_quantification_of_market_participant_costs_for_implementing_USEF.pdf">https://www.spenergynetworks.co.uk/userfiles/file/D4.4_quantification_of_market_participant_costs_for_implementing_USEF.pdf</a></li> </ul>

Not started  
Ongoing  
Complete

Ref	Project Deliverable	Due Date (Ofgem)	Evidence required	Status	Progress update
5	Implement a minimum of two physical and live trials of commoditised flexibility based on the USEF framework.	3/4/23	5.1 Identify two trial locations.	Complete	<ul style="list-style-type: none"> <li>Tender packs have been published as part of an exercise to procure flexibility services that address network needs at the following two trial locations;                             <ul style="list-style-type: none"> <li>- <a href="#">St. Andrews Primary Substation</a></li> <li>- <a href="#">Leuchars Primary Primary Substation</a></li> </ul> </li> <li>These tender packs can be found on the <a href="#">FUSION website</a> and they specify the flexibility services that we wish to procure at each trial site</li> </ul>
			5.2 Identify the required flexibility services available from flexibility providers.	Ongoing	<ul style="list-style-type: none"> <li>In response to the tender packs (mentioned above) flexibility service providers we be invited to tender for the provision of the services specified</li> <li>This Invitation to Tender (ITT) will be published in December 2020</li> </ul>
			5.3 Contract for flexibility services.	Ongoing	<ul style="list-style-type: none"> <li>Successful respondents to the 'Invitation to Tender' (ITT - see above) will enter into a contractual 'Flexibility Service Agreement' (FSA) with SPEN.</li> <li>The ITT window closes in Dec 2020 and the successful vendors will be identified in January 2021 and invited to enter into contract with SPEN.</li> <li>We aim for successful vendors to conclude the contractual negotiations with SPEN and sign FSA's in February 2020.</li> <li>In an effort to expedite the conclusion of the contractual negotiations post ITT, vendors are required to agree to the T&amp;C's contained in the draft version of the FSA as a pre-requisite to participating in the ITT.</li> </ul>
			5.4 Undertake live trials.	Not started	<ul style="list-style-type: none"> <li>According to the flexibility tender packs that Project FUSION has published on its website:                             <ul style="list-style-type: none"> <li>- a period of testing and commissioning of flexibility services (including live trailing) will run from Feb 2021 - May 2021</li> <li>- live trading of flexibility will commence in June 2021.</li> <li>The first phase of the live trials will run from June 2021 - Dec 2021</li> <li>A second phase of live trials will run from Jan 2022 - March 2023 and will be accompanied by a second flexibility tender round which reflects a more ambitious deployment of flexibility services.</li> </ul> </li> </ul>
			5.5 Report on the implementation and analysis of USEF trials	Not started	<ul style="list-style-type: none"> <li>The success of the first phase of trials will be continually monitored and evaluated against pre-defined success criteria</li> <li>The findings of this evaluation will be periodically reported and the learnings disseminated in time for the recommendations to be applied in the second phase of the trial.</li> </ul>
6	Modelling report on commoditised flexibility benefits for the UK (Imperial College London).	28/2/23	6.1 Academic modelling report on GB flexibility.	Ongoing	<ul style="list-style-type: none"> <li>Imperial College London have been kept informed (along with all Project Partners) about the evolving trial design and timeframe</li> <li>They have been able to specify their expectations from the trial to ensure that it generates data that is fit for their modelling needs</li> </ul>

Ref	Project Deliverable	Due Date (Ofgem)	Evidence required	Status		Progress update
				Not started	Ongoing	
				Not started	Ongoing	Complete
7	Open Networks report in coordination with the ENA Open Networks Programme.	28/2/23	7.1 Report on coordination and hierarchies of control for flexibility, in collaboration with the ENA Open Networks Programme.			<ul style="list-style-type: none"> <li>Imperial College London have been kept informed (along with all Project Partners) about the evolving trial design and timeframe</li> <li>They have been able to specify their expectations from the trial to ensure that it generates data that is relevant for their reporting needs</li> </ul>
N/A	Comply with knowledge transfer requirements of the Governance Document.	28/09/20xx	i Annual Project Progress Reports which comply with the requirements of the Governance Document.			<ul style="list-style-type: none"> <li>PPR_01 completed in September 2019 and published on the Project FUSION website <a href="https://www.spenergynetworks.co.uk/userfiles/file/Fusion_Project_Progress_Report_Year_1.pdf">https://www.spenergynetworks.co.uk/userfiles/file/Fusion_Project_Progress_Report_Year_1.pdf</a></li> <li>PPR_02 completed in September 2020 and pending publication on the Project FUSION website</li> </ul>
		2/11/23	ii Completed Close Down Report which complies with the requirements of the Governance Document.			
		30/10/19	iii Evidence of attendance and participation in the Annual Conference as described in the Governance Document.			<ul style="list-style-type: none"> <li>Project FUSION was represented on the SPEN stand at the LCNI event in October 2019</li> <li>A dedicated break-out session was hosted by Project FUSION to discuss flexibility trading</li> </ul>

Table 11: Project Deliverables - Status Report

## **9 Data Access Deliverables**

The 'Publicly Available Data Sharing Policy' is available to view via the following link:

FUSION Webpage (<https://www.spenergynetworks.co.uk/pages/fusion.aspx>)



## 10 Learning Outcomes

Table 12 to Table 17 below outline the learning outcomes generated under each of the Work Packages during the reporting period;

WP1 – Stakeholder Engagement			
Ref	Activity Summary	Further Detail	Output / Value Delivered
1	Bilateral discussions	<ul style="list-style-type: none"> <li>Regular 1-2-1 calls with local customers</li> </ul>	<ul style="list-style-type: none"> <li>Identified potential participants for trial (asset owners)</li> <li>Quantified their capacity to participate in the trials (both in term of their physical flexibility and their appetite).</li> <li>Tailored our trial needs to reflect the physical limitations of the assets owners whilst ensuring that they add relevant learnings to our customers and the wider industry</li> </ul>
2	Bilateral discussions with aggregators	<ul style="list-style-type: none"> <li>Regular 1-2-1 calls with aggregators and <a href="#">2 x webinars</a> with the aggregators community</li> </ul>	<ul style="list-style-type: none"> <li>Identified potential participants for trial (aggregators)</li> <li>Quantified the extent to which they are already USEF-compliant by way of a questionnaire</li> <li>Helped them to quantify the cost of becoming USEF compliant as a function of their status-quo</li> </ul>
3	Engagement with wider industry via the ENA / TEF	<ul style="list-style-type: none"> <li>Enhanced the FSA developed by the ENA ON-P WS1a to become USEF compliant</li> </ul>	<ul style="list-style-type: none"> <li>Allows for USEF-compliant projects like FUSION to adopt the industry standard FSA</li> </ul>
		<ul style="list-style-type: none"> <li>Produced a report aimed at recommending a flexibility ‘product catalogue’</li> </ul>	<ul style="list-style-type: none"> <li>Standardisation of flexibility products across distribution and transmission</li> </ul>

Table 12: Learning Outcomes - WP1

WP2 – Flexibility Quantification Report			
Ref	Activity Summary	Further Detail	Output / Value Delivered
1	Published the <a href="#">‘flexibility quantification report’</a>	This quantified the flexibility market value in East Fife	<ul style="list-style-type: none"> <li>• This helps aggregators to evaluate the indicative returns that they might be able to achieve through participation in FUSION or other DSO markets.</li> <li>• It also</li> </ul>
2	Published the <a href="#">local asset register</a>	Provides details of the local assets that have been identified in WP2 and their potential for being harnessed to provide flexibility	<ul style="list-style-type: none"> <li>• This is valuable information for aggregators interested in participating in the local FUSION DSO market</li> </ul>

Table 13: Learning Outcomes - WP2

WP3 – USEF Fit for UK			
Ref	Activity Summary	Further Detail	Output / Value Delivered
1	Public consultation on USEF.	<ul style="list-style-type: none"> <li>▪ Deliver the consultation document on the basis of workshops.</li> <li>▪ Hold an open consultation for a 3-month duration.</li> <li>▪ Report on consultation <a href="#">responses and analysis</a>.</li> <li>▪ Report on <a href="#">associated changes to USEF implementation plan</a>.</li> </ul>	<ul style="list-style-type: none"> <li>• The industry has been consulted on USEF and its applicability to the GB context.</li> <li>• The USEF implementation plans have been developed in recognition of the feedback received from these consultations.</li> </ul>
2	USEF implementation plan.	<ul style="list-style-type: none"> <li>▪ Plan for <a href="#">implementation of USEF in FUSION</a>.</li> <li>▪ Plan for <a href="#">implementation of USEF in GB</a>.</li> </ul>	<ul style="list-style-type: none"> <li>• These plans set-out clearly what our plans are for implementing USEF in FUSION and how that might be reflected should USEF be rolled-out across GB.</li> </ul>
		<ul style="list-style-type: none"> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
		<ul style="list-style-type: none"> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>

Table 14: Learning Outcomes - WP3

WP4 – Enabling Technologies			
Ref	Activity Summary	Further Detail	Output / Value Delivered
1	Published the specification of communication and <a href="#">procurement platform</a> .	-	Publishing these technical specifications helps to demystify the requirements of USEF compliance for aggregators and other platform operators/vendors. They also represented key documents that would facilitate the competitive tender of both the DSO platform and flexibility services.
2	Published the specification of communication protocols <a href="#">between market participants</a> .	-	
3	Publication of a <a href="#">template flexibility contracts</a>	FUSION took the standard FSA developed by ON-P WS1a and tailored it slightly to ensure make it compatible with USEF requirements.	This provides a template contract that not only facilitates USEF and FUSION but does so in a way which adheres to the standard developed for GB.
4	Quantify market participant <a href="#">costs for implementing USEF</a> interface compatibility.		This report helps aggregators to quantify the effort associated with them becoming USEF compliant. This is a key consideration in their evaluation of whether to participate in FUSION

Table 15: Learning Outcomes - WP4

WP5 - Trial			
Ref	Activity Summary	Further Detail	Value Delivered
1	Published the FSR for the live trials commencing in June 2021	Flexibility service requests (FSR) have been published which articulate the flexibility services that FUSION seeks to procure at the two trial locations: <a href="#">Leuchars</a> <a href="#">St. Andrews</a>	This informs the aggregator community about FUSION’s plans prior to us publishing our ITT in December.
2	The flexibility procurement process has now commenced with the <a href="#">publication of the EoI</a>	Interested parties are invited to complete their EoI response form before the 7 <sup>th</sup> October. This launch was promoted via social media, and a dedicated support webinar was provided earlier this month.	Industry engagement

Table 16: Learning Outcomes - WP5

WP6 - Dissemination			
Ref	Activity Summary	Further Detail	Value Delivered
1	Various aggregator webinars	<ol style="list-style-type: none"> <li><a href="#">FUSION Flexibility Tender – Support webinar</a></li> <li><a href="#">FUSION Aggregator webinar</a></li> </ol>	<ul style="list-style-type: none"> <li>Industry engagement and recruitment for participation in the FUSION trial</li> <li>Sign-posting to the various publications of interest referred to above and available on our website</li> </ul>
2	FUSION break-out session at LCNI 2019		<ul style="list-style-type: none"> <li>Stakeholder engagement</li> <li>Sign-posting to the various publications of interest referred to above and available on our website</li> </ul>

Table 17: Learning Outcomes - WP6

## **11 IPR**

Project FUSION complies with the Ofgem default position regarding the IPR ownership and no further IPR has been generated by FUSION during this reporting period nor is expected to be generated.

## 12 Risk Management

Project FUSION has taken a proactive approach of regularly reviewing the risk register, allocating clear ownership of each risk and putting in place appropriate mitigation measures.

### 12.1 Technical Risks

A summary of the technical risks currently affecting the project is presented below in Table 18

Risk No.	Issue	Risk Description	Potential Impact	Control measures applied during reporting period
<b>1. Technical risks</b>				
1.01	System compatibility - SP Energy Networks ICT	SP Energy Networks communications infrastructure is unable to readily adopt the DSO platform and/or execute the USEF framework.	Delay the integration of the DSO platform and delay the commencement of live trials.	<ol style="list-style-type: none"> <li>the ITT for the DSO platform was carefully designed in collaboration with the appropriate internal stakeholders from within SPEN to ensure that the solution would be compatible with our ICT systems</li> <li>The successful vendor of the DSO platform has agreed to implementing various stages of testing and commissioning throughout the integration process to ensure continual alignment with SPEN’s ICT requirements</li> <li>SPEN has allocated a dedicated ICT expert to superintend the vendor during this IT integration process.</li> </ol>

<b>1.02</b>	System compatibility - Aggregator IT	Aggregators involved in the trial element of project FUSION are unable to readily adopt USEF due to ICT infrastructure compatibility issues.	<ol style="list-style-type: none"> <li>1. Few aggregators come forwards for the project trial.</li> <li>2. USEF trial delayed</li> </ol>	<ol style="list-style-type: none"> <li>1. Early stakeholder engagement with aggregator community to inform them of the USEF framework and trial. Use existing engagement mechanisms such as the UK branch of the Aggregators Association.</li> <li>2. Work with aggregators during the project to inform the project on aggregator needs.</li> <li>3. Thorough public consultation to include aggregator community.</li> <li>4. Anticipate costs associated with ICT compatibility during the aggregator tendering phase of the trial.</li> <li>5. Work with Dutch DSO's to develop a plug-in to help remove barrier to aggregators becoming USEF-compliant</li> </ol>
<b>1.03</b>	Enabling local assets within the timeframe for the first live trials in June 2021	Covid-19 might inhibit works on site	This could result in flexibility service providers not having their assets enabled on time for the flexibility trials to commence in 2021	<ol style="list-style-type: none"> <li>1. Continue to engage with asset owners on a regular basis to understand their constraints and accommodate those limitations as best we can</li> <li>2. Take learnings from other part so the business that are having to navigate site works during the pandemic</li> <li>3. Design the trials to allow for a soft-start if necessary.</li> </ol>

Table 18: Project FUSION Technical Risks & Mitigation

## 12.2 Procurement Risks

Similarly, the risks regarding procurement have been presented in Table 19.

Risk No.	Issue	Risk Description	Potential Impact	Control measures applied during reporting period
<b>2. Procurement, manufacturing and installation risks</b>				
2.01	Insufficient flexibility availability secured in tender exercise	Aggregators might simply not be interested in responding to the ITT that FUSION plans to publish in December 2020	<ol style="list-style-type: none"> <li>1. Insufficient flexibility secured to meet all of the objectives of the trial could result in the ambition of the trial having to be curtailed to reflect the available flexibility secured.</li> <li>2. If only one flexibility service provider completes the ITT that would prohibit the trial of the dynamic spot-market and would limit the learnings from FUSION</li> </ol>	<ol style="list-style-type: none"> <li>1. FUSION has proactively engaged with aggregators for the past 6 months in an effort to not only build awareness of FUSION but crucially to understand their concerns in an effort to remove barriers to their participation.</li> <li>2. The deadline for completing the EoI is 7th October 2020. This deadline has been well advertised to the aggregator community using social media and emails. We also held a webinar to walk candidates through the EoI response form. If insufficient interest has been registered from the aggregator community upon the closure of the EoI FUSION will take steps to review the tender and actively contact aggregators to understand what would need to change to attract them.</li> <li>3. In anticipation of our plan to issue the ITT in December, FUSION has published a preliminary draft version of our flexibility needs as part of our EoI (published in September 2020). This informs the aggregator community of what to expect and so the response to the EoI will be a good indicator of the attractiveness of the proposed ITT</li> </ol>



<p><b>2.03</b></p>	<p>Limited participation from flexibility service providers representing the domestic or transport sectors.</p>	<p>Local flexibility derived from these sectors might be either;</p> <ol style="list-style-type: none"> <li>1. unavailable within our timeframes or</li> <li>2. unable to compete in a competitive tender exercise</li> </ol>	<p>FUSION’s objectives to generate learnings from participation of these sectors would have t conclude that these sectors were (for whatever reason) unable to participate. This would reduce the value of the FUSION learnings.</p>	<ol style="list-style-type: none"> <li>1. Continue already established engagement with key domestic and EV flexibility partners.</li> <li>2. Tailor the tender evaluation criteria to rank contenders not on cost alone but on ‘value for money’ which takes into account the extent to which flexibility service providers can contribute towards the learning objectives of the project, which will include achieving the participation of residential and EV flexibility.</li> </ol>
<p><b>2.04</b></p>	<p>Limited support for USEF implementation</p>	<p>A broad range of stakeholders are not convinced that USEF is a suitable framework for a flexibility market.</p>	<p>USEF not supported in its initial form. USEF implementation must be significantly adapted prior to adoption.</p>	<ol style="list-style-type: none"> <li>1. A broad-based stakeholder forum (WP1) was developed early and maintained throughout course of the project. This allows objections and concerns to be reasonably attended to in sufficient time.</li> <li>2. A full public consultation was developed as part of WP3. This allows stakeholder to raise contributions to USEFs implementation.</li> <li>3. Time and resource has been allocated to adjust USEF on the basis of the public consultation analysis.</li> </ol>

Table 19: Procurement Risks & Mitigation

### 12.3 HSE and Operational Risks

Risk No.	Issue	Risk Description	Potential Impact	Control measures applied during reporting period
<b>3. HSE and Operational risks</b>				
3.01	Flexibility reliability	Aggregators in the flexibility marketplace cannot be depended on to supply demand-side flexibility for the DNO.	Commoditised flexibility is not used for DNO constraint management. Standard reinforcement is relied on to relieve distribution network constraints.	<ol style="list-style-type: none"> <li>1. During the first stage of the trial (2021), flexibility providers are only being contracted to provide nominal amounts of flexibility (&lt;250kW to minimise the impact on the network) and the network is in no way dependent upon the successful delivery of these services for the safe-running of the network.</li> <li>2. For roll-out, competitive aggregators are contracted to supply flexibility and carry the risk for reliability. Where they are unreliable, the market will not re-select these aggregators for future use.</li> </ol>
3.02	Cyber security	The electricity flexibility marketplace is at risk of offensive cyber-attacks.	<ol style="list-style-type: none"> <li>1. Sensitive customer information is stolen.</li> <li>2. Control of flexible demand is overridden by hostile agents.</li> </ol>	<ol style="list-style-type: none"> <li>1. Dialogue with internal cyber-security experts is opened early in the project and maintained throughout.</li> <li>2. Precautionary measures and procedures are developed and diligently followed by the DNO, aggregators, and flexibility providers. At the EoI stage all interested parties are required to complete the cyber-security questionnaire.</li> <li>3. Standard resilience procedures are followed in the event of a cyber-attack.</li> </ol>

<p><b>3.03</b></p>	<p>Settlement procedures</p>	<p>Settlement procedures are not delivered to aggregators and customers in a professional manner.</p>	<p>1. Financial settlements are delayed in time. 2. USEF users are dissatisfied with the flexibility market framework and may request adjustments.</p>	<p>1. Settlement procedures are well developed based on USEF foundation findings and established protocols. 2. Settlement procedures are an element of the USEF public consultation in WP3. Stakeholders are given a chance to voice adjustments in a timely manner.</p>
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## 12.4 Project Management Risks

Risk No.	Issue	Risk Description	Potential Impact	Control measures applied during reporting period
<b>4. Project Management risks</b>				
4.01	Higher costs	Cost of scheme higher than anticipated	Exceedance of project budget; and risk of halting the demonstration project.	<ol style="list-style-type: none"> <li>1. FIDIC contract terms should be used, such that the contractor takes on the risk;</li> <li>2. Contingency funding deemed to be reasonable and sufficient.</li> <li>3. Robust financial control measures</li> </ol>
4.02	Resources	Sufficient resources are not available in SP Energy Networks to deliver the project	Delay in delivery of the project and impact on quality of deliverables	<ol style="list-style-type: none"> <li>1. Effective engagement with Director level in SP Energy Networks to provide clear understanding about project size and resource required</li> <li>2. Use competent external resources where necessary</li> </ol>
4.03	Project filing management	Project management filing not updated - file information stored on emails and personal drives	Lack of clarity and transparency within the PM team	Sharefile to be updated weekly

Table 20: Project Management Risk & Mitigation

## 13 Accuracy Assurance Statement

I confirm that processes in place and steps taken to prepare the PPR are sufficiently robust and that the information provided is accurate and complete.

Signature: \_\_\_\_\_

Name (Print): James Yu

Title: Future Networks Manger

Date: 30<sup>th</sup> September 2020

Signature: \_\_\_\_\_

Name (Print): Michael Green

Title: Senior Innovation Engineer

Date: 30<sup>th</sup> September 2020

## 14 Material Change Information

During this reporting period, and indeed since its inception, Project FUSION has incurred no material changes, nor does it foresee any in the future.

## 15 Other

### 15.1 TEF Collaboration

Collaboration with TEF Partners has been progressing well and, following Ofgem’s evaluation of the Common Stage Gate review in February 2020, all three Licensees have been granted permission to proceed as per their original proposals.

Since the Stage Gate review, FUSION & TRANSITION have agreed to collaborate and present 5 x reports to the ENA ON-P Workstream 1A, which are focused on:

- reducing entry barriers for new participants,
- advancing cross market facilitation and
- constructively promoting competition in the GB flexibility marketplace.

The status of the outputs from this collaboration exercise are summarised below:

Report	Status
Product catalogue	Complete
Service Definitions	In Progress
Service Use cases	In Progress
Common Terminology	In Progress
TEF Services Alignment	In Progress



## Appendix 1 - Project Budget

The Project Budget below is taken directly from the latest FUSION Project Direction<sup>4</sup>.

### ANNEX 1: PROJECT BUDGET

This is subject to changes resulting from condition 2.

Cost Category	Cost (£)
<b>Labour</b>	
	1,668,656.00
<b>Equipment</b>	
	482,765.00
	332,765.00
<b>Contractors</b>	
	3,031,430.00
	2,916,630.00
<b>IT</b>	
	300,000.00
<b>IPR Costs</b>	
	-
<b>Travel &amp; Expenses</b>	
	216,213.99
	181,213.99
<b>Payments to users</b>	
	220,000.00
<b>Contingency</b>	
	51,780.00
<b>Decommissioning</b>	
	-
<b>Other</b>	
	-
<b>Total</b>	
	<del>5,970,844.99</del>
	5,671,044.99

<sup>4</sup> [https://www.ofgem.gov.uk/system/files/docs/2018/10/fusion - direction amended 09 2018.pdf](https://www.ofgem.gov.uk/system/files/docs/2018/10/fusion_-_direction_amended_09_2018.pdf)



## Appendix 2 - Monthly Expenditure

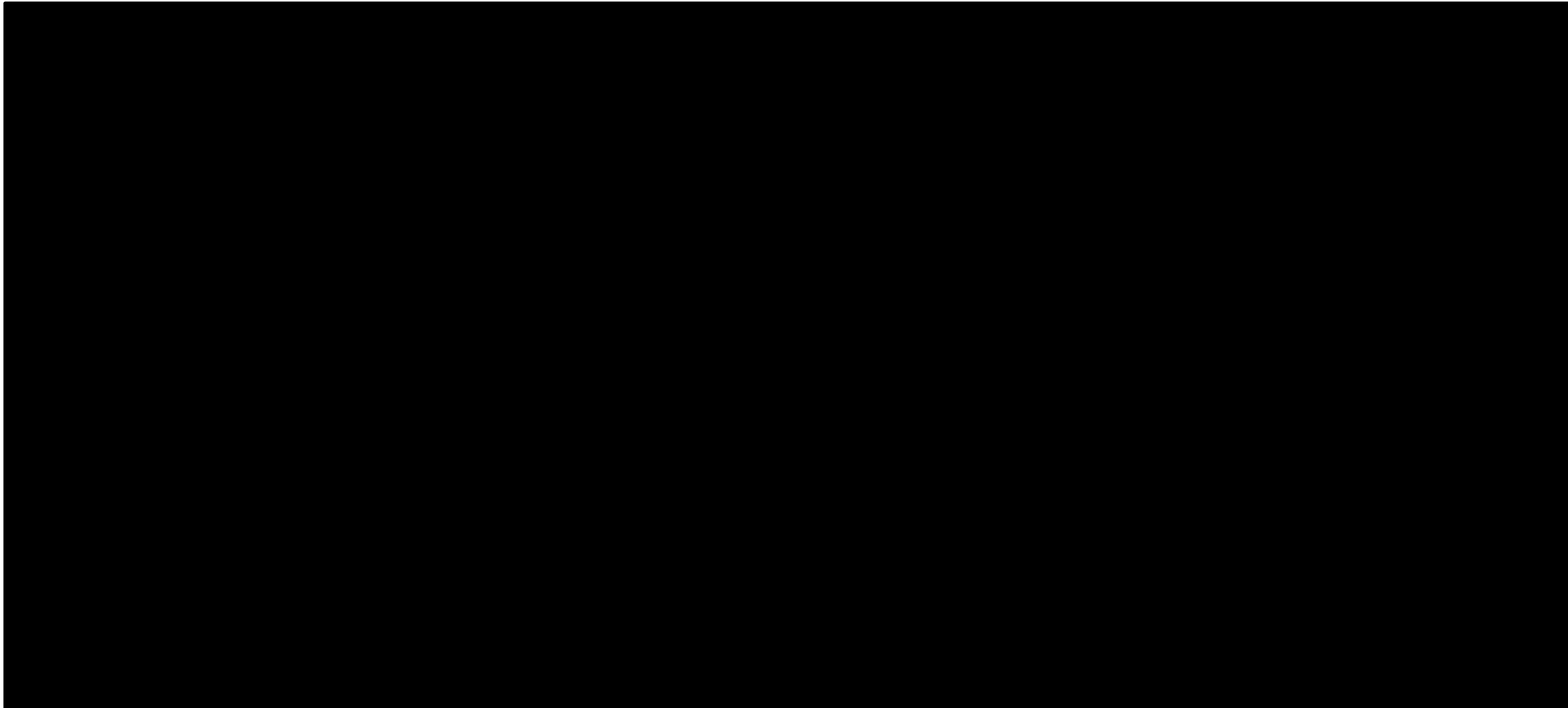


Figure 11: Actual Monthly Expenditure (Postings including Accruals)<sup>5</sup> vs FSS Monthly Apportioned Forecasts

<sup>5</sup> Occasional peaks in actual labour expenditure (e.g. March 2019) are due to the issue of a 'bulk transfer' which accounts for previous months' labour costs.