



Electricity Network Competition
SSEN005 TRANSITION
Project Progress Report
September 2020



1) Executive Summary

Overview of TRANSITION

The GB network continues to evolve, and there is a clear need for networks to adapt, become more flexible, enhance operations and allow new technologies and new market models (such as peer-to-peer trading) to emerge. The 'fit-and-forget' approach of traditional network operation relied on predictable energy use and production that matched that use. The transition to DSO (Distribution System Operations) has the potential to bring significant benefits to customers; however, it also brings a range of new complex challenges, unintended consequences and risks for market participants, new entrants and the network licensees themselves.

The ENA Open Networks Project (ON-P) is focussed on defining the DNO (Distribution Network Operator) transition to a DSO model and has been endorsed by the UK Government's Smart Systems and Flexibility Plan.

TRANSITION is an Ofgem Electricity Network Innovation Competition (NIC) funded project. Led by SSEN in conjunction with our project partners ENWL, CGI, Origami and Atkins.

TRANSITION, based on the outputs of ON-P, will inform the design requirements of a Neutral Market Facilitator (NMF) and Whole System Coordinator (WSC), develop the roles and responsibilities within the marketplace, develop the market rules required for the trials, and implement and test the concept of the systems by means of trials in Oxfordshire.

The TRANSITION NIC project gained Ofgem funding as part of a collaboration agreement between TRANSITION (SSEN project) and two other NIC projects known as EFFF (WPD project) and FUSION (SPEN project), all three collectively known in the industry as T.E.F.

In addition, the project is also integral to the Local Energy Oxfordshire (LEO) project, a UK Industrial Strategy funded project. Both TRANSITION and LEO have objectives that are closely aligned and when combined significantly enhance the overall learning.

Progress within this Reporting Period

During this reporting period, October 2019 to September 2020, the Project has focused on:

- Successfully completing the procurement of NMF and WSC systems
- Finalising High Level Design (HLD) and requirements
- Developing the Commercial arrangements and Flexibility Services to trial
- Developing the basic Market Rules which will be utilised during the Trial Phase
- Trial site identification with our LEO partners.
- Commenced the installation of substation monitoring
- Interfacing extensively with the Project LEO, the T.E.F. collaboration, ON-P and other stakeholders.

Deliverables

The project has successfully completed both Project Deliverables which were due within this reporting period.

- The Project completed its third deliverable, "Stakeholder feedback event (Stage Gate)" with the joint T.E.F Stage Gate submitted on 28th February 2020, and subsequently approved by Ofgem on 4th May 2020. The report has been published on the TRANSITION project website.
- The Project completed its fourth deliverable, "WP7 Deployment - Develop appropriate commercial arrangements and contract templates for flexibility services. Network adaptation for trial deployment", with two reports submitted on 30th July 2020, both of which were published on the TRANSITION project website.
- The next Deliverable, "WP7 Deployment - Platform Full Acceptance Testing completed"; is on schedule to be completed by 30th June 2021.

1) Executive Summary

Risks

The main risks to the project are:

- Stakeholder engagement and dissemination activities delayed due to Covid-19: Due to the ongoing restrictions associated with Covid-19, any stakeholder face to face sessions planned for 2020 have/will not been possible. To ensure that engagement with stakeholders is maintained and knowledge is shared the project is proactively reviewing alternative delivery methods such as online tools and webinars. In addition, the project is investigating the possibility of developing an online flexibility market tool to develop learnings and feedback from stakeholders.
- Ensuring a diverse range of assets are available for the trials. A broad range of assets categorised for example by technology type, capacity, voltage level, low carbon etc will bring depth to the trial learnings. A lack of diversity of assets may affect the learning outcomes. Ongoing dialogue with LEO partners is underway to ensure a variety of assets are available within the trial zones. Also, the project is investigating the possibility of utilising existing assets within the trial zones.
- Control system (NMF/WSC) fails to perform to specification. Failure to meet the intended scope of the systems may affect the output of the trials, with negative effects on business case development. Where possible the project will benchmark or use simulations to test system operation under various conditions, as well as the use of Service Level Agreements to ensure delivery by selected supplier. Finally, the contract has included development milestones to regularly check progress.

Dissemination

During this reporting period, the project has led, presented or attended several events, webinars and conferences with the purpose of engaging with and sharing learnings with both internal and external stakeholders.

During this reporting period, project information has been shared with both our internal and external stakeholders, through twelve publications uploaded on the TRANSTION project website.

In addition to this we have used a combination of news releases and social media to communicate key milestones and deliverables to our audiences with articles in relevant trade press and local Oxfordshire news press.

Details of dissemination activities are contained in section 2.

For more information, the TRANSITION project website address is: <https://ssen-transition.com/>

2) Project Manager's Report

Project Summary

The project is split into two distinct phases; Phase 1 the Requirements phase, and Phase 2 the Deployment and Trial phase. During this reporting period the project transitioned from Phase 1 to Phase 2 following the approval of the Stage Gate submission in May 2020.

Phase 1 focused on the definition of requirements, stakeholder engagement and consultation, IT architecture and integration requirements, trial site identification and the specification of the proposed trials. The business case was reviewed by SSEN at the end of Phase 1 to ensure the scope and content were still appropriate in this rapidly changing area, to maintain alignment with the Open Networks Project (ON-P), and to incorporate learning from other innovation projects in this area.

The first half of this reporting period focused on finalising the requirements for the NMF and WSC systems, as well as preparation for the Stage Gate submission. The second half of this reporting period focused on the NMF and WSC tender process, as well as the development of commercial arrangement for trial deployment.

The Project is managed via six work packages. An update on the progress made on each work package during this reporting period is provided below.

Project Management

The project team regularly engage with our T.E.F. project partners, LEO project partners, ON-P Workstreams as well as other innovation projects.

During this period, contracts have been awarded for:

- Project partner works to cover deliverables associated with work package WP4 (Origami);
- Consultancy support services for TRANSITION Stage Gate (TNEI);

- Supply of portable LV/HV monitoring equipment (eMS and Eneida);
- Support services for the development of Commercial Arrangements (Fraser Nash);
- Power System Analysis (PSA) interface module (Siemens).

Requirements, design, development

Progress within this reporting period:

- The "Whole System Coordination Requirement Specification" document (updated November 2019) was published on the project website in November 2019. The document identifies the requirements for the WSC, a key function to facilitating DSO.
- The "High Level Solution Design Summary" document was also published on the project website in November 2019. The purpose of this document is to provide a high-level view of the components and interactions needed for the TRANSITION project (excluding physical infrastructure of the electricity networks and energy flexibility resources) to achieve its objectives and how the components will be used in the trials.

Discussions have also been progressed with National Grid ESO to scope capabilities to test service stacking with TRANSITION

Forecasting and DSO data

Progress this period has included;

- Ongoing work to optimise the EFFS project output from WPD to determine the suitability of those project tools and learnings for our SSEN Oxfordshire trial area. The project is working closely with our wider innovation team and Data and Analytics department to develop the requirement for a forecasting tool that is suitable for deployment as part of LEO.

2) Project Manager's Report

Market Models

Progress within the reporting period has included;

- Three “War Games” were held within the reporting period, the stakeholder feedback from these events was used to further develop the Basic Market Rules, with the output captured in “Market Rules Development Phase 1” report published on 4th February 2020. Further events of this nature are planned for later in 2020 focussing on Peer to Peer trading and DSO/ESO coordination.
- A “Use Cases and Services To Be Trialled Phase 1” paper was published on 15th May 2020. This paper outlined the development of possible market services by the LEO project since publication of the “Services in a Facilitated Market” report in August 2019. Thus, this report provides early visibility for all stakeholders of the Use Case concept and Services designed for trialling.
- TRANSITION and FUSION jointly procured a piece of work led by Origami to develop Use Cases, Services and Products with the intention of using the output to engage and consult with ON-P. To date five reports have been produced, three of which have been reviewed and updated based on ON-P feedback. All of these are listed with details below: -
 - Product Catalog – the purpose of this work was to create a catalogue of services that exist or could exist in the ESO, DNO and P2P markets and provide proposals on standardisation.
 - Use Case report – this work created a use case template and used it to define the services being considered by both the FUSION and the TRANSITION innovation projects.
 - Service Descriptions - this created a common service description template and use it to define the services being considered by FUSION and TRANSITION.
 - Maximise Learnings – this work summarised the TEF projects, determined any overlaps and further established how the three projects can

work together to maximise the overall learnings for ON-P.

- Glossary – this provided a review of terminology used across various sources, standardising on ON-P Flexibility Services Agreement (FSA).

The above reports are due for publication within the next reporting period.

- Work with consultants Fraser Nash to develop an initial methodology for project trials. Business as usual connections agreement templates reviewed and revised for trials to allow P2P trading
- Published ‘Smart-Grid, Smart-Economics-TRANSITION and LEO Project Auctions’ paper building on academic insight from Auction Markets to design a behaviourally driven auction market.
- Published “Smart-Grid, Smart Economics- The power of social norms on LV networks” paper building on academic insight into game theory to test social norms on LV networks.

IT framework

Work progressed within the period on this topic included:

- Significant progress has been made on the tendering exercise for the NMF and WSC, which is a significant milestone for the project. The tender evaluation has successfully concluded with a preferred bidder identified for both systems. A contract award for both systems is due October 2020.
- PSA interface module – during development work to review the IT requirement for data transfer into the WSC, it was established that a conversion tool was needed before connectivity model data could interface with Power System Analysis tools. The project successfully procured and commissioned PSS®SINCAL v16, a Siemens interface module

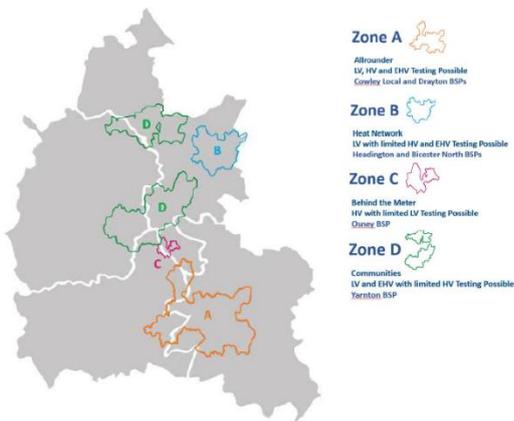
2) Project Manager's Report

designed to provide such a conversion, which will facilitate the proposed trials.

Trial Specification

Progress within this reporting period;

- Published "Oxfordshire Programme Trial Strategy" report on the TRANSITION website on 4th February 2020. The report further developed the strategic approach for trial deployment.
- The "TRANSITION Network Adaptation for Trial Deployment" report was published on 31st July 2020. The purpose of the report was to provide an update of how TRANSITION is preparing for the trial deployment phase of the project. In addition, the report detailed the next phase in the site selection process identifying 12 primary substations in four zones within Oxfordshire, see diagram below.



- Network Monitoring – in order to establish a baseline of network activity in Oxfordshire the project has begun the installation of LV monitoring. Progress has been delayed due to Covid-19 restrictions and the remaining units will be installed within the next reporting period. In addition, the project has procured three portable HV devices to be installed in Oxfordshire.

Knowledge Dissemination

During this reporting period, the project has led, presented or attended several events, webinars and conferences with the purpose of engaging with and sharing learnings with both internal and external stakeholders. Opportunities to engage in person with our stakeholders have not been possible since March 2020 due to Covid-19.

However, during this time delivered virtual events in the form of engagement webinars collaborating closely with our LEO partners and have taken up other opportunities offered by external bodies. Examples are provided below:

Title: Prospering from the Energy Revolution Demonstrator – Project LEO
Host: Prospering from the Energy Revolution Conference
Date: 18 March 2020

Title: Beyond Covid-19: How can innovation play its part in a green economic recovery?
Host: Knowledge Transfer Network
Date: 19 June 2020

Title: The First Year of Project LEO
Host: The Low Carbon Hub
Date: 8 June 2020

Title: How are Local Networks Enabling the Energy Transition?
Host: Oxford Energy Colloquia
Date: 16 June 2020

Title: Smart Local Energy Systems: social, technical and operational aspects
Host: The Programme on Integrating Renewable Energy, University of Oxford
Date: 8 July 2020

These events have been open to any attendees and have either been recorded or the presentations shared online. This new approach to engagement during Covid-19 has helped to broaden the dissemination of learning and general awareness of TRANSITION to a wider audience.

2) Project Manager's Report

In addition to this we have used a combination of news releases and social media to communicate key milestones and deliverables to our audiences with articles in relevant trade press and local Oxfordshire news press.

- The following documents have been added to the project website document library in the last year;
 - TRANSITION Network Adaption for Trial Deployment
 - Oxfordshire Programme Commercial Arrangements
 - Regulatory Roadmap and Impact Assessment
 - Use Cases and Services to Be Trialled Phase 1
 - Market Rules Development Phase 1
 - Oxfordshire Programme Trial Strategy
 - WSC Vendor Webinar
 - NMF Vendor Webinar
 - NMF and WSC Dissemination Briefing
 - LCNI 2019 TRANSITION and LEO
 - High Level Solution Design Summary
 - TRANSITION Project Progress Report 2019
- TRANSITION held three webinars in November 2019 with the purpose of engaging with stakeholders/suppliers on the system requirements and architecture for both the Whole System Coordinator and Neutral Market Facilitator.
- The project presented at the Low Carbon Networks & Innovation Conference in Glasgow 2019. The presentation covered the functionality of the NMF and WSC and highlighted the collaboration opportunities associated with LEO so that we can maximise learnings and stakeholder engagement across the industry.



- The TRANSITION Project outputs and learnings have been shared directly with the LEO project, and T.E.F. project partners during this reporting period, to avoid unnecessary duplication of effort and to maximise learnings for the industry. In addition, both EFFS and FUSION have shared learnings with the TRANSITION project in return.
- Finally, the T.E.F. project has engaged with ON-P 2020 Project Initiation Document, in particular Workstreams WS1A (Flexibility Services), WS1B (Planning & Forecasting) and WS3 (DSO Transition), 2020 Project Initiation Document. The engagement ensured that the project remains aligned with the ON-P and identifies what outputs from the project will be shared with ON-P.

The project has held several iterations of the “War Games”, with LEO participants, and wider industry stakeholders. The events were a round table stakeholder exercise with the primary objective to test and find weaknesses in the basic market rules, developed by TRANSITION, so they can be addressed before they are used in field trials next summer. The output from the events were captured in “Market Rules Development Phase 1” report published on 4th February 2020. Further events of this nature are planned for later in 2020 focussing on Peer to Peer trading and DSO/ESO coordination

Deliverables

The project has successfully completed two Project Deliverables which were due within this reporting period.

- “Stakeholder feedback event (Stage Gate)” was completed with the delivery of the T.E.F. Stage Gate report to Ofgem on 29th February 2020.
- “WP7 Deployment – Commercial Arrangement and Network Readiness” was completed on schedule on 30th July 2020.

2) Project Manager's Report

The next deliverable, "WP7 Deployment Platform Full Acceptance Testing completed", is on schedule to be completed by June 2021.

Next Reporting Period

This section provides a high-level outlook onto the next reporting period and describes the key issues and concerns that may be considered a challenge in the next reporting period:

The key focus in the next reporting period as the project moves into the deployment and trial phase are;

- Onboarding on vendor for the NMF and WSC
- Integration and testing of the NMF and WSC
- Development of a detailed trial plan, including ENWL as well as the development of learnings via the ongoing LEO MVS's
- Development of commercial arrangements for flexibility services
- Installation of the remainder of the LV monitoring units

Refer to "Progress Against Plan" section below for further details.

Looking ahead to the next reporting period the project considers the key issues or concerns to be:

- Stakeholder engagement and dissemination activities have been delayed due to Covid-19. Due to the ongoing restrictions associated with Covid-19, any stakeholder face to face sessions planned for 2020 have/will not been possible. To ensure that engagement with stakeholders is maintained and knowledge is shared the project is proactively reviewing alternative delivery methods such as online tools and webinars. In addition, the project is investigating the possibility of developing an online flexibility market tool to develop learnings and feedback from stakeholders.
- Ensuring a diverse range of assets are available for the trials. A broad range of assets categorised for example by technology type, capacity, voltage level, low carbon etc will bring depth to the trial learnings. A lack of diversity of assets may affect the learning outcomes. Ongoing dialogue with LEO partners is underway to ensure a variety of assets are available within the trial zones. Investigate possibility of utilising existing assets within the trial zones.
- Control system (NMF/WSC) fails to perform to specification. Failure to meet the intended scope of the systems affect the output of the trials, with negative effects on business case development. Where possible benchmark or use simulations to test system operation under various conditions. Use of Service Level Agreements to ensure delivery by selected supplier. Include development milestones in contract to check progress.

3) Business Case Update

No changes have been made to the Business Case for the TRANSITION project, as described in the NIC Full Submission document.

4) Progress Against Plan

Summary of Progress

The Project has made good progress over the last 12 months with the third and fourth Project Deliverables submitted on schedule, and works are progressing well towards the fifth “Platform Full Acceptance Testing completed” due in June 2021.

The project has been delayed in some areas due to the Covid-19 situation which started in March 2020 and is ongoing. In particular the project has found it challenging to install the LV and HV monitoring units, therefore progress on that particular activity is around four months behind schedule.

Also the procurement of the WSC and NMF is three months behind schedule, however the Acceptance Testing milestone due in 2021 is on schedule due to the fact that the vendor products are more established than was originally envisaged. The later start date of that activity has delayed spend within the reporting period.

In addition, stakeholder engagement and sharing of learning in a face to face environment has been on hold since March 2020. The project is utilising technology where appropriate such as conferencing software and webinars.

The Project remains on schedule to deliver its remaining Project Deliverables.

Focus This Reporting Period

The focus over this reporting period has been on:

- Successfully completing the procurement of NMF and WSC systems;
- Developing the Flexibility Services to trial;
- Define the Market Rules which will be utilised during the Trial Phase;
- Selection of the four trial zones within Oxfordshire;
- Selecting a vendor for the HV Substation monitoring equipment;
- Interfacing extensively with the T.E.F. collaboration and Project LEO;
- Joint work with Origami and FUSION to develop Use Cases, Service Descriptions and Common Terminology.

Key Activities in Next Reporting Period

The Key Activities planned in the next reporting period are:

- System integration and user acceptance testing of WSC and NMF (Ofgem Deliverable #5).;
- Development and deployment of WSC and NMF systems for stage 1 of trials;
- Publishing a report detailing the Use Cases on the chosen Market Models;
- Site Selection in partnership with the LEO project;
- Carry out network analysis testing Baringa 'reinforcement valuation tool (across TRANSITION sites) and feed results on tools usability back in Open Networks;
- Engage all partners to determine asset running costs to inform auction reserve price and price increments;
- Work with NGENSO to understand to what extent STOR can be tested in trials;

4) Progress Against Plan

- Test and record pre-procurement requirements (response time, ramp, monitor granularity etc.) in LEO Minimum Viable Scheme (MVS) trials;
- Create a baselining approach to audit Demand Side Response (DSR) response levels;
- Assess alternate baselining methodologies for unreliable/unpredictable flexibility sources;
- Develop market rules building on learning from contracts and second round of war games;
- Gain and monitor feedback and contracts in pre-trials and iterations needed for full trials;
- Explore settlement mechanisms/tools to support trial management;
- Develop new waiver and load-flow processes to support peer-to-peer trading;
- Develop a flexibility markets simulation game that people can play remotely through an application;
- Explore NMF/WSC capabilities to host market indexes i.e. level of competition, liquidity, reliability;
- Develop a programme of quarterly online webinars supported by graphics with the first aimed at explaining the TRANSITION market and auction process;
- Develop and deliver a marketing and publicity plan as part of our Trial Planning process to encourage asset owners to consider becoming involved in trials;
- Produce a quarterly range of 'Only takes a minute' 'quick-read' guides, with appropriate infographics on agreed topics, with the aim of education and the dissemination of learning to targeted audiences;
- Deliver two animation style videos hosted online and through the TRANSITION website – where this format might support the explanation of complex or challenging technological or commercial concepts;
- Carry out one to one interviews with a cross section of asset owners registered on our market platform 'post auction', to identify human or behavioural blockers to them taking part in auctions.
- Attendance and participation in the LCNI and All Energy 2021 conferences.

5) Progress Against Budget

The table below details the spend to date against the Project budget for each cost category.

Cost Category	Total Budget	Spend to Date	Comment
Labour	£4,493,570.33	£1,338,189.50	Lower than planned ^{2 and 4}
Equipment	£1,117,393.84	£193,663.87	Lower than planned
Contractors	£3,018,310.76	£1,355,007.94	Higher than planned ^{2 and 4}
IT	£3,187,325.86	£31,753.90	Lower than planned ²
IPR costs	£0.00	£0.00	On plan
Travel & Expenses	£516,827.59	£25,301.24	Lower than planned ⁴
Payments to users	£385,562.33	£0.00	On plan
Contingency	£0.00	£0.00	On plan
Decommissioning	£72,550.75	£0.00	On plan
Other	£0.00	£0.00	On plan
Total	£12,791,541.46	£2,943,916.45¹	Outturn on schedule

Notes:

1. The table above provides details of the project spend to date up to the 31st August 2020. The Project Progress Report 2021 will contain Progress Against Budget information from 1st September 2020 to 31st August 2021.
2. The project submitted a revised financial forecast as part of the Stage Gate documentation in February 2020. In total TRANSITION proposed a total saving of £148,900, split into £50,400 of IT savings, and £98,500 of labour savings. The full amount of which will be returned at the end of the project. This revises the total project budget from £12,791,541.46 to £12,642,641.46.

In addition, and in accordance with NIC Governance V3 section 8.33 the project is proposing a change in the allocation of funds to the cost categories set out in the Project Direction. The proposal does not increase the overall Project budget. The proposal is to change the allocation of funds by £300K from Labour to Contractors. This takes into account higher than planned costs for contractors and an increase is forecasted costs going forward. Refer to table below, "Revised Cost Categories" which details the change in cost category inclusive of the saving identified at Stage Gate.

3. Up to 31st August 2020 the project spent £2,696,177.07 (which has been processed through the Project Bank Account, see Appendix 1 for details). In addition, the project has spent £247,739.38 which has yet to be processed through the Project Bank Account. The total Project spend to 31st August 2020 is therefore £2,943,916.45 (as detailed in the table above).

5) Progress Against Budget

4. The project spend has been affected by the restrictions associated with Covid-19. Specifically, the tendering process and associated contract award for the NMF and WSC which is circa three months later than planned. In addition, the installation of LV monitoring is circa four months later than planned. As a result, the project had spent more on external resources (Contractors) and less on internal labour costs (Labour) than originally planned. Consequently, "Travel & Expenses" are also underspent compared to plan. In order to minimise the impact to project progress the TRANSITION project has utilised resources within the business where appropriate. However, the project is forecasting an overall outturn on target.

Revised cost categories – refer to note 3 above for details

Cost Category	Project Direction Budget	Revised Project Forecast	Delta
Labour	£4,493,570.33	£4,095,070.33	Reduction of £398,500
Equipment	£1,117,393.84	£1,117,393.84	£0
Contractors	£3,018,310.76	£3,318,310.76	Increase of £300,000
IT	£3,187,325.86	£3,136,925.86	Reduction of £50,400
IPR costs	£0.00	£0.00	£0
Travel & Expenses	£516,827.59	£516,827.59	£0
Payments to users	£385,562.33	£385,562.33	£0
Contingency	£0.00	£0.00	£0
Decommissioning	£72,550.75	£72,550.75	£0
Other	£0.00	£0.00	£0
Total	£12,791,541.46	£12,642,641.46	Reduction of £148,900

6) Bank Account

A copy of the current project bank account statement is provided in Appendix 1 (Confidential).

7) Project Deliverables

Project's Deliverables update.

The TRANSITION Project identified seven deliverables which are strongly linked to the objectives and span the lifecycle of the project. In addition, "Common Project Deliverables" were identified in the Project Direction, dated 28th September 2018. Project progress within the reporting period was delivered as planned with both Project Deliverables, the #3 Stakeholder feedback event (Stage Gate) and the #4 WP7 Commercial and Network adaptation, all submitted on schedule. In addition, the overall project progress is on schedule.

The following table lists each deliverable in chronological order and details the project's progress towards their achievement.

Deliverable	Due	Description	Evidence	Status
1	31/03/19	WP6 Trial specification Produce and apply the site selection methodology and select the Trial networks.	<ol style="list-style-type: none"> 1. Publish on the TRANSITION website a report detailing the site selection methodology, and a map of Trial areas. 2. Selection of networks to install monitoring (if required). 	<p>Completed – deliverable met.</p> <p>The following report was published on the TRANSITION project website on 29th March 2019.</p> <p>"TRANSITION Site Selection Methodology"</p>
2	31/05/19	WP2 Requirements design development Data exchange requirements and updated data governance processes specified.	<ol style="list-style-type: none"> 1. Publish report detailing learning from relevant international DSO experience relating to trial objectives. 2. Functional specification for connectivity model, data exchange and governance requirements. 	<p>Completed – deliverable met.</p> <p>Reports published on the website 31st May 2019.</p> <p>"Best Practice Report – Market Facilitation for DSO" And "Neutral Market Facilitator Data Exchange and Governance"</p>
3	29/02/20	Stakeholder feedback event (Stage Gate)	<ol style="list-style-type: none"> 1. Stakeholder feedback event to disseminate and gather feedback on outputs from WP 2-6 	<p>Completed – deliverable met.</p> <p>The "T.E.F. Stage Gate 2020 – Main Document v1.0" was submitted on schedule.</p> <p>Stage Gate approval letter was published on 4th May 2020.</p>

7) Project Deliverables

Deliverable	Due	Description	Evidence	Status
4	31/07/20	WP7 Deployment Develop appropriate commercial arrangements and contract templates for flexibility services. Network adaptation for trial deployment.	1. Publish contract templates for flexibility services and commercial arrangements learning 2. Publish equipment specifications and installation reports	Completed – deliverable met. Two reports published on the project website: “Network adaptation for trial deployment” “Oxfordshire Programme Commercial Arrangements”
5	30/06/21	WP7 Deployment Platform Full Acceptance Testing completed	1. Publish interface and configuration specifications and commissioning reports.	On Target –Planned to be completed within the next reporting period
6	31/01/22	WP8 Trials stage 1 Completion of one stage of trials	1. Publish monitoring and analysis results for Trials on TRANSITION website. 2. Stakeholder dissemination event showcasing learnings.	On Target – No planned progress within this reporting period.
7	30/09/22	WP8 Trials stage 2 Completion of second stage of trials	1. Publish monitoring and analysis results for Trials on TRANSITION website 2. Stakeholder dissemination event showcasing learnings.	On Target – No planned progress within this reporting period.

Common Project Deliverable

N/A	End of project	Comply with knowledge transfer requirements of the Governance Document.	1. Annual Project Progress Reports which comply with the requirements of the Governance Document. 2. Completed Close Down Report which complies with the requirements of the Governance Document. 3. Evidence of attendance and participation in the Annual Conference as described in the Governance Document.	2019 Project Progress Report was submitted on schedule. 2020 Project Progress Report is on schedule for submission in September 2020. No planned progress for the Close Down Report. TRANSITION presented at the 2019 LCNI Conference in Glasgow.
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 Completed (Deliverable met)

 Emerging issue, remains on target

 Deliverable completed late

 On target

 Unresolved issue, off target

 Not completed and late

7) Project Deliverables

The main challenges expected in the next reporting period are as follows: -

- i) **Stakeholder engagement and dissemination activities delayed due to Covid-19:** Due to the ongoing restrictions associated with Covid-19, any stakeholder face to face sessions planned for 2020 have not been possible. To ensure that engagement with stakeholders is maintained and knowledge is shared the project is proactively reviewing alternative delivery methods such as online tools and webinars. One example is that the project had planned to present at both the LCNI and All-Energy conferences later in the year, and now both events are likely to be hosted online. In addition, the project is investigating the possibility of developing an online flexibility market tool to develop learnings and feedback from stakeholders.

- ii) **Onboarding of the vendor for both the NMF and WSC:** This will be affected due to Covid-19 travel restriction as initial engagement sessions such as face to face kick off meetings and workshops will not be possible. The project is in the process of awarding a contract for both the NMF and WSC and in order to prevent any delay to the development of these systems, the project will work closely with the successful vendor/s to ensure that alternative engagement arrangements are established. This proactive approach will de-risk the delivery of project deliverable #5, “WP7 Deployment Platform Full Acceptance Testing completed”, which is due in June 2021.

- iii) **Post Covid-19 industry landscape uncertainty:** There is the possibility that the landscape changes such that businesses fail, markets fail and/or demand reduces which may impact flexibility requirements. The recruiting of flexibility assets within Oxfordshire is ongoing and will continue in the next reporting period despite the restrictions associated with Covid-19. At this stage project deliverable #6, Trials stage 1, is still on schedule for completion in January 2022.

8) Data Access Details

Information gathered as part of this project will be provided to interested parties upon request. The form of the information will be in accordance with the SSEN Network Innovation Competition (NIC) and Network Innovation Allowance (NIA) Data Sharing Procedure, reference PR-NET-ENG-020, Revision 1.00, published on the SSEN website.

Please email future.networks@sse.com for more information.

9) Learning Outcomes

The following learning objectives have been set for the TRANSITION project:

- a) **Identify the data requirements and data exchanges** informed by Open Networks for DSO functions, map this against current technology (service provider) capabilities and develop requirements for future technologies.
- b) **Using the outputs from Open Networks, test and validate the market model options being proposed.** Understand the requirements to create a sustainable market that can facilitate competition based on whole system needs.
- c) **Build on learnings from previous and ongoing projects, as well as collaboration opportunities such as T.E.F. and LEO.** This will help develop understanding of a range of areas where a collaborative approach will be beneficial, including monitoring and modelling requirements to provide network data, connectivity and constraint data in sufficient detail to let the market operate in different network types.
- d) **Establish system processing and visualisation requirements, including data protection and information security.** This will ensure that cyber security risks are effectively identified and managed.
- e) **Develop and test DSO Use Cases that will be tested within the project** on different network configurations as well as the market/trading rules and timeframes to allow a neutral market to develop. This will remove barriers to new technology and markets allowing the increased use of market-based solutions as alternatives to reinforcement.
- f) **Evaluate stakeholder experience of DSO trials.** Comprehensive stakeholder consultation will include discussion with licensees, aggregators, statutory authorities, consumer groups, community energy groups and engagement with the supply chain.
- g) **Understand and communicate the requirements of an NMF/WSC Platform and the commercial mechanisms** that will be required for market participation to trial ways in which energy markets can evolve.
- h) **Present the commercial interactions required for a DNO to transition to a DSO, develop and demonstrate NMF Platform tested on different network configurations** that will accelerate the transition from DNO to DSO. This will demonstrate the true value or flexibility from a whole system perspective. Maximising access to existing markets alongside new markets and being able to stack revenue across them.

These learning objectives will be met as the TRANSITION Project progresses from the Requirements phase through to the Deployment and Trial phase. Due to the nature of the project these objectives may not remain static and will be reviewed on a regular basis, and where applicable, revised.

9) Learning Outcomes

Learning during this reporting period

During this reporting period the TRANSITION project has produced several Deliverables, Reports, Shared Learnings and engaged with relevant groups. The specific learnings from these activities have been categorised against the project's learning objectives below.

a) Identify the data requirements and data exchanges.

- Work completed earlier this year developed the data requirements and data exchanges needed for the project. The learnings from this activity were captured in the tender pack for both the NMF and disseminated via three webinars held in November 2019.
- In collaboration with FUSION and EFFS, the TRANSITION project produced a common context diagram illustrating the core building blocks on testing for each project which enabled the sharing of knowledge and a comparison between the systems.
- A further learning gained with respect to this objective would be that the development of efficiently functioning markets will be dependent on competition, liquidity, reliability (of flexibility assets) and penetration. As a result, TRANSITION acknowledges the requirement for market information to be collated and stored in a central repository.
- It was also learned that data from flexibility assets will be required to create a baseline for their delivery potential. An initial review of existing baselining methodologies was included in the "Oxfordshire Programme Commercial Arrangement Report".

b) Using the outputs from Open Networks, test and validate the market model options being proposed.

During the reporting period the project tested and validated outputs from the ON-P listed below. The learning from each of these has been shared with the LEO partners and also fed back to the relevant ON-P workstream.

- The WS1A Product 4 FSA contract was adopted as a basis for TRANSITION. An initial learning was that the proposed standard contract had to be modified to facilitate service stacking.
- The WS1A Product 2 pre-procurement methodology was used to inform and develop the pre-procurement requirements of TRANSITION for LEO MVS and trials. The project team furthermore recognised that a standard approach to pre procurement may not be appropriate for all customer types.
- The WS1A Product 3 active power services parameters were used to amend the naming convention of TRANSITION services to ensure industry consistency.
- WS3 Product 2 Conflicts of Interest and Unintended Consequences register was updated with specific learnings from the project twice within the reporting period.

c) Build on learnings from previous and ongoing projects, as well as collaboration opportunities such as T.E.F. and LEO

- The project has engaged with and shared learning with the T.E.F. collaboration during the Stakeholder feedback event (Stage Gate). This provided an opportunity to share the new knowledge and collaboration activities to date, for example forecasting, trial planning and flexibility service development, with a wider set of stakeholders, allowing them to learn about the project progress, and also further demonstrating that the commitments made by partners in the "T.E.F. Compliance Document" are being fulfilled.
- Facilitating the first LEO MVS trials provided an opportunity to develop some early experience ahead of next summer's full trials, in particular including aspects of monitoring granularity, procedural practice and commercial arrangements. The learnings generated have been disseminated with LEO partners and documented in four reports.

9) Learning Outcomes

- The project has also liaised with two other SSEN NIC funded projects, namely MERLIN and RaaS. MERLIN has taken some learnings from TRANSITION and as a result is adopting the TRANSITION flexibility services for the purpose of running its simulation studies. TRANSITION has also shared learnings produced from the development of the Flexibility Contract with the RaaS project which is currently reviewing the content with the intention of adopting where applicable.

Finally, the TRANSITION project has built on the learnings from the following previous/ongoing innovation works:

- o Learning from NGENSO have been built into market design and contracts to ensure consistency across markets, including payment reduction mechanisms.
- o We have built on learning from ENTIRE and Power Potential, particularly around procurement and baselining.
- o Building on an assessment of other industry initiatives such as: Cornwall Local Energy Markets, Project COMMUNITY, RENeW Nexus, SonnenCommunity, Powerpeers, Vanderbron the project has developed learnings on Peer-to-peer services for example flexibility parameters.

The experience from those previous/ongoing works has been reviewed and refined with our LEO project partners and including throughout 'Oxfordshire Programme Commercial Arrangements' document;

- Establish system processing and visualisation requirements, including data protection and information security. The wider project team and internal stakeholders within SSEN have developed their knowledge on the IT security requirements of the NMF and WSC, which directly fed into the tender pack for the both systems, specifically within the functional and non- functional requirements.
- As a result of the LV network monitoring installation work, the data collected from the 30 installed units helped to develop our understanding for system processing and data protection, experience that was further fed back to the wider LEO project partners.

d) Develop and test DSO Use Cases that will be tested within the project

- A set of Basic Market Rules were developed during several "War Game" sessions held with industry wide stakeholders, with the learnings from this extremely valuable activity captured in "Market Rules Development Phase 1" report.
- Furthermore, the TRANSITION and FUSION projects jointly: -
 - o Created a catalogue of services that exist or could exist in the ESO, DNO and P2P markets and provided proposals on standardisation.
 - o Created a use case and service description template and used it to define the services being considered by the project.

The output generated from the work has enabled both projects to share their learnings with ON-P.

e) Evaluate stakeholder experience of DSO trials.

- During this reporting period no end to end DSO trials were planned; however the following activities under this learnings objective category have progressed, with valuable experience gained to support the next stage of the project:

9) Learning Outcomes

- Refer to c) above for learnings generated as part of the LEO MVS trials.
- Published “Oxfordshire Programme Trial Strategy” report on the TRANSITION website on 4th February 2020. The knowledge collated in the report further helped to develop a strategic approach for trial deployment in the near future.

f) Understand and communicate the requirements of an NMF/WSC Platform and the commercial mechanisms.

- The TRANSITION project presented at Low Carbon Networks & Innovation Conference in Glasgow 2019. The dissemination presentation covered the functionality of the NMF and WSC and highlighted the collaboration opportunities associated with LEO. The slides from the presentation, “LCNI 2019 TRANSITION and LEO” are also available on the TRANSITION website, allowing a wide range of stakeholders to learn from our experience on these issues to date
- The project produced “Regulatory Roadmap and Impact Assessment” which allowed us to highlight learnings and key considerations based on DCUSA; CUSC; BSC and REC assessment.

g) Present the commercial interactions required for a DNO to transition to a DSO, develop and demonstrate NMF Platform tested on different network configurations

TRANSITION is working closely with a wide range of industry stakeholders (e.g. the LEO partners) to understand the commercial interaction required for a complete “end to end” flexibility service definition and procurement approach. The project has also worked closely with ENWL and others to ensure that any learnings and conclusions from TRANSITION are as technology-neutral and solution-agnostic as possible, are transferable to other networks where appropriate, and can be deployed on different system configurations. Some examples of specific learnings under this objective category would be:

- An understanding of the commercial framework for service stacking was developed, requiring data input and software integration
- The theoretical benefits of dynamic auctions for service stacking are now better understood, reported and ready for testing prior to trials.
- NG-ESO service parameters are better understood and reflected in the TRANSITION contract and market development (i.e. penalty mechanisms and feasibility mechanism support in black start markets).
- P2P charging requirements were scoped, though continued development will be needed to understand the DSO role in P2P charges.
- Initial learning has been developed for the DSO processes required to help better understand the flexibility market, for example pre-procurement processes and auction mechanisms. Also, we gained a better understanding of where it would be beneficial to stimulate competition with extra short-term support (i.e. Capex support) for cost-effective long-term operation.

10) IPR

No relevant IPR has been generated or registered during this reporting period, and none is forecast to be generated or registered in the next reporting period.

11) Risk Management

Risk Management Plan

The Project risk register is regularly reviewed by the Project team and the key Project risks are highlighted and discussed at project partner meetings, where mitigating actions are agreed.

Risk Register

The current Project Risk Register is provided in Appendix 2 (Confidential)

12) Accuracy Assurance Statement

PPR Preparation Steps

To ensure that the information contained in this report is accurate and completed, the following steps have been taken, the report has been:

- Prepared by the Project Manager;
- Reviewed by the Project Team;
- Reviewed by the Steering Group; and
- Approved by the Project Director and Regulation.

Sign-off

As the senior manager responsible for the TRANSITION Project, I confirm that the processes in place and steps taken to prepare this PPR are sufficiently robust and that the information provided is accurate and complete.

Melanie Bryce

Oxfordshire Programme Director
Scottish and Southern Electricity Networks

Date

13) Material Change Information

In reference to the Electricity Network Innovation Competition (NIC) Governance Document version 3.0, the project can confirm that no material change has occurred within the reporting period.

14) Appendices

Appendix 1

Project Bank Account Statement

Appendix 2

Risk Register

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