

**SP Energy Networks**  
**Future Networks**  
04 / December / 2020

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**FUSION Flexibility  
Services  
Requisition for  
St. Andrews  
V1.5**

# FSR – St. Andrews

## 1. Flexibility Services Requisition for St. Andrews

### Overview

The Flexibility Services Requisition (FSR) articulates the service requirements for St. Andrews trials in 2021 (see Appendix 1) and has been developed to ensure trials occur during normal business hours. The learnings developed from these initial trials will inform subsequent FSR's in later years of FUSION which will provide a greater understanding of the application of the Universal Smart Energy Framework (USEF) to the use of flexible assets in delivering network services.

### USEF Compliance

All participants<sup>1</sup> must be USEF compliant<sup>2</sup> as FUSION will use USEF protocols for the delivery of flexibility in the initial trials.

The following documents define what is required for USEF compliance in Project FUSION:

- [Specification of communication protocols between market participants](#)
- [Compliance to the USEF Flexibility Trading Protocol \(UFTP\) version 1.01](#)

Any costs that you would incur in responding to the needs of this FSR (e.g. UFTP development costs) may be reflected in your pricing schedule when you come to respond to the Invitation to Tender (ITT)<sup>3</sup>. The following study provides an indication of the scale of costs aggregators might anticipate for implementing USEF.

- [Quantification of market participant costs for Implementing USEF Interface compatibility](#)

### Location of Flexibility

All flexible units, including distributed energy resources (DERs) and flexible assets, must be located within the areas normally supplied by St. Andrews primary substation as indicated in Table 1.

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<sup>1</sup>Participants can be an individual entity or a consortium.

<sup>2</sup>Participants are not required to be currently USEF compliant provided full compliance can be demonstrated prior to the commencement of the earliest contracted availability period.

<sup>3</sup>An 'ITT response proforma' is included within the ITT pack issued in Dec 2020. Respondents will be invited to populate this with any costs they would like to include.



## FSR – St. Andrews

Post codes served by the St. Andrews Primary Substation									
KY10 2SA	KY16 8BN	KY16 8HR	KY16 8NS	KY16 8RT	KY16 8XS	KY16 9DT	KY16 9LL	KY16 9QT	KY16 9UR
KY10 3TN	KY16 8BP	KY16 8HS	KY16 8NT	KY16 8RU	KY16 8XT	KY16 9DU	KY16 9LN	KY16 9QU	KY16 9US
KY10 3TQ	KY16 8BQ	KY16 8HT	KY16 8NW	KY16 8RW	KY16 8XU	KY16 9DW	KY16 9LP	KY16 9QW	KY16 9UT
KY10 3UB	KY16 8BU	KY16 8HU	KY16 8NX	KY16 8RX	KY16 8XX	KY16 9DY	KY16 9LQ	KY16 9RG	KY16 9UU
KY10 3UJ	KY16 8BW	KY16 8HW	KY16 8NY	KY16 8RY	KY16 8YA	KY16 9EB	KY16 9LS	KY16 9RH	KY16 9UX
KY10 3UL	KY16 8BX	KY16 8HX	KY16 8NZ	KY16 8RZ	KY16 8YB	KY16 9ED	KY16 9LT	KY16 9RJ	KY16 9UY
KY10 3UX	KY16 8BY	KY16 8HY	KY16 8PA	KY16 8SA	KY16 8YD	KY16 9EE	KY16 9LU	KY16 9RP	KY16 9WH
KY10 3UZ	KY16 8BZ	KY16 8HZ	KY16 8PB	KY16 8SB	KY16 8YE	KY16 9EF	KY16 9LX	KY16 9RQ	KY16 9WJ
KY10 3WH	KY16 8DA	KY16 8JA	KY16 8PD	KY16 8SD	KY16 8YF	KY16 9EG	KY16 9LZ	KY16 9RR	KY16 9XB
KY10 3WJ	KY16 8DB	KY16 8JB	KY16 8PE	KY16 8SE	KY16 8YG	KY16 9EH	KY16 9NA	KY16 9RS	KY16 9XD
KY10 3WN	KY16 8DD	KY16 8JD	KY16 8PF	KY16 8SF	KY16 8YH	KY16 9EJ	KY16 9NB	KY16 9RT	KY16 9XG
KY10 3XG	KY16 8DE	KY16 8JE	KY16 8PG	KY16 8SG	KY16 8YL	KY16 9EL	KY16 9ND	KY16 9RU	KY16 9XH
KY10 3XH	KY16 8DG	KY16 8JF	KY16 8PJ	KY16 8SH	KY16 8YP	KY16 9EN	KY16 9NE	KY16 9RX	KY16 9XJ
KY10 3XN	KY16 8DH	KY16 8JG	KY16 8PL	KY16 8SJ	KY16 8YW	KY16 9EP	KY16 9NF	KY16 9RY	KY16 9XL
KY10 3XQ	KY16 8DJ	KY16 8JH	KY16 8PN	KY16 8SL	KY16 9AA	KY16 9EQ	KY16 9NG	KY16 9RZ	KY16 9XN
KY15 5LG	KY16 8DL	KY16 8JJ	KY16 8PP	KY16 8SN	KY16 9AB	KY16 9ER	KY16 9NH	KY16 9SA	KY16 9XP
KY15 5LN	KY16 8DN	KY16 8JL	KY16 8PQ	KY16 8SP	KY16 9AD	KY16 9ES	KY16 9NL	KY16 9SB	KY16 9XQ
KY15 5TX	KY16 8DP	KY16 8JN	KY16 8PR	KY16 8SQ	KY16 9AE	KY16 9ET	KY16 9NN	KY16 9SD	KY16 9XR
KY15 5TY	KY16 8DQ	KY16 8JP	KY16 8PS	KY16 8SR	KY16 9AF	KY16 9EU	KY16 9NP	KY16 9SF	KY16 9XS
KY15 5UB	KY16 8DR	KY16 8JQ	KY16 8PT	KY16 8SS	KY16 9AG	KY16 9EW	KY16 9NQ	KY16 9SG	KY16 9XT
KY15 5UD	KY16 8DS	KY16 8JR	KY16 8PU	KY16 8ST	KY16 9AH	KY16 9EX	KY16 9NR	KY16 9SH	KY16 9XU
KY15 5UE	KY16 8DT	KY16 8JS	KY16 8PW	KY16 8SU	KY16 9AJ	KY16 9EY	KY16 9NS	KY16 9SJ	KY16 9XW
KY15 5UF	KY16 8DW	KY16 8JT	KY16 8PX	KY16 8SW	KY16 9AL	KY16 9EZ	KY16 9NT	KY16 9SL	KY16 9XX
KY15 5UG	KY16 8DY	KY16 8JU	KY16 8PY	KY16 8SX	KY16 9AP	KY16 9FB	KY16 9NU	KY16 9SN	KY16 9XY
KY15 5UQ	KY16 8EA	KY16 8JW	KY16 8PZ	KY16 8SY	KY16 9AQ	KY16 9HA	KY16 9NW	KY16 9SP	KY16 9XZ
KY16 0UA	KY16 8EB	KY16 8JY	KY16 8QA	KY16 8SZ	KY16 9AR	KY16 9HB	KY16 9NX	KY16 9SQ	KY16 9YF
KY16 0UB	KY16 8ED	KY16 8LA	KY16 8QD	KY16 8TA	KY16 9AS	KY16 9HE	KY16 9NY	KY16 9SR	KY16 9JF
KY16 0UD	KY16 8EE	KY16 8LB	KY16 8QE	KY16 8TB	KY16 9AT	KY16 9HG	KY16 9PA	KY16 9SU	KY16 9JG
KY16 0UE	KY16 8EF	KY16 8LD	KY16 8QF	KY16 8TD	KY16 9AU	KY16 9HH	KY16 9PB	KY16 9SW	VKY00172
KY16 0UG	KY16 8EG	KY16 8LE	KY16 8QG	KY16 8TE	KY16 9AW	KY16 9HJ	KY16 9PD	KY16 9SX	VKY00177
KY16 8AA	KY16 8EH	KY16 8LF	KY16 8QH	KY16 8TG	KY16 9AX	KY16 9HL	KY16 9PE	KY16 9SY	VKY00179
KY16 8AB	KY16 8EJ	KY16 8LG	KY16 8QL	KY16 8TH	KY16 9AY	KY16 9HN	KY16 9PF	KY16 9TA	VKY00180
KY16 8AD	KY16 8EL	KY16 8LH	KY16 8QN	KY16 8TJ	KY16 9AZ	KY16 9HP	KY16 9PG	KY16 9TB	VKY00181
KY16 8AE	KY16 8EN	KY16 8LJ	KY16 8QP	KY16 8TL	KY16 9BA	KY16 9HA	KY16 9PH	KY16 9TD	VKY00395
KY16 8AF	KY16 8EP	KY16 8LL	KY16 8QQ	KY16 8TN	KY16 9BB	KY16 9HR	KY16 9PJ	KY16 9TH	VKY00419
KY16 8AG	KY16 8EQ	KY16 8LP	KY16 8QR	KY16 8TP	KY16 9BE	KY16 9HT	KY16 9PL	KY16 9TJ	VKY00423
KY16 8AH	KY16 8ER	KY16 8LR	KY16 8QS	KY16 8TQ	KY16 9BG	KY16 9HU	KY16 9PN	KY16 9TL	VKY00424
KY16 8AJ	KY16 8ES	KY16 8LS	KY16 8QT	KY16 8TR	KY16 9BL	KY16 9HW	KY16 9PP	KY16 9TP	VKY00427
KY16 8AL	KY16 8ET	KY16 8LT	KY16 8QU	KY16 8TS	KY16 9BP	KY16 9HX	KY16 9PQ	KY16 9TQ	VKY00430
KY16 8AN	KY16 8EU	KY16 8LU	KY16 8QW	KY16 8TT	KY16 9BQ	KY16 9HY	KY16 9PS	KY16 9TR	VKY00431
KY16 8AP	KY16 8EW	KY16 8LW	KY16 8QX	KY16 8TU	KY16 9BS	KY16 9HZ	KY16 9PT	KY16 9TS	VKY00434
KY16 8AQ	KY16 8EX	KY16 8LX	KY16 8QY	KY16 8TW	KY16 9BT	KY16 9JA	KY16 9PU	KY16 9TT	VKY00437
KY16 8AR	KY16 8EY	KY16 8LY	KY16 8QZ	KY16 8TX	KY16 9BU	KY16 9JB	KY16 9PW	KY16 9TU	VKY00440
KY16 8AS	KY16 8EZ	KY16 8LZ	KY16 8RA	KY16 8XA	KY16 9BW	KY16 9JD	KY16 9PX	KY16 9TW	VKY00445
KY16 8AU	KY16 8HA	KY16 8NA	KY16 8RB	KY16 8XB	KY16 9BX	KY16 9JE	KY16 9PY	KY16 9TX	VKY00446
KY16 8AW	KY16 8HB	KY16 8NB	KY16 8RD	KY16 8XD	KY16 9DA	KY16 9JF	KY16 9QA	KY16 9TY	VKY00448
KY16 8AY	KY16 8HD	KY16 8ND	KY16 8RE	KY16 8XE	KY16 9DB	KY16 9JG	KY16 9QB	KY16 9TZ	VKY00449
KY16 8AZ	KY16 8HE	KY16 8NE	KY16 8RG	KY16 8XF	KY16 9DD	KY16 9JJ	KY16 9QD	KY16 9UA	VKY00450
KY16 8BA	KY16 8HF	KY16 8NF	KY16 8RH	KY16 8XG	KY16 9DE	KY16 9JL	KY16 9QF	KY16 9UB	VKY00451
KY16 8BB	KY16 8HG	KY16 8NG	KY16 8RJ	KY16 8XH	KY16 9DF	KY16 9JQ	KY16 9QG	KY16 9UD	VKY00455
KY16 8BD	KY16 8HH	KY16 8NH	KY16 8RL	KY16 8XJ	KY16 9DG	KY16 9JS	KY16 9QH	KY16 9UE	VKY00457
KY16 8BE	KY16 8HJ	KY16 8NJ	KY16 8RN	KY16 8XL	KY16 9DJ	KY16 9JT	KY16 9QJ	KY16 9UG	VKY00459
KY16 8BG	KY16 8HL	KY16 8NL	KY16 8RP	KY16 8XN	KY16 9DL	KY16 9JY	KY16 9QL	KY16 9UH	VKY00460
KY16 8BH	KY16 8HN	KY16 8NN	KY16 8RQ	KY16 8XP	KY16 9DN	KY16 9LA	KY16 9QQ	KY16 9UJ	VKY00464
KY16 8BJ	KY16 8HP	KY16 8NP	KY16 8RR	KY16 8XQ	KY16 9DP	KY16 9LB	KY16 9QR	KY16 9UN	VKY00466
KY16 8BL	KY16 8HQ	KY16 8NR	KY16 8RS	KY16 8XR	KY16 9DQ	KY16 9LJ	KY16 9QS	KY16 9UP	VKY00467

Table 1: Post Codes applicable for providing flexibility for the St. Andrews trials



## FSR – St. Andrews

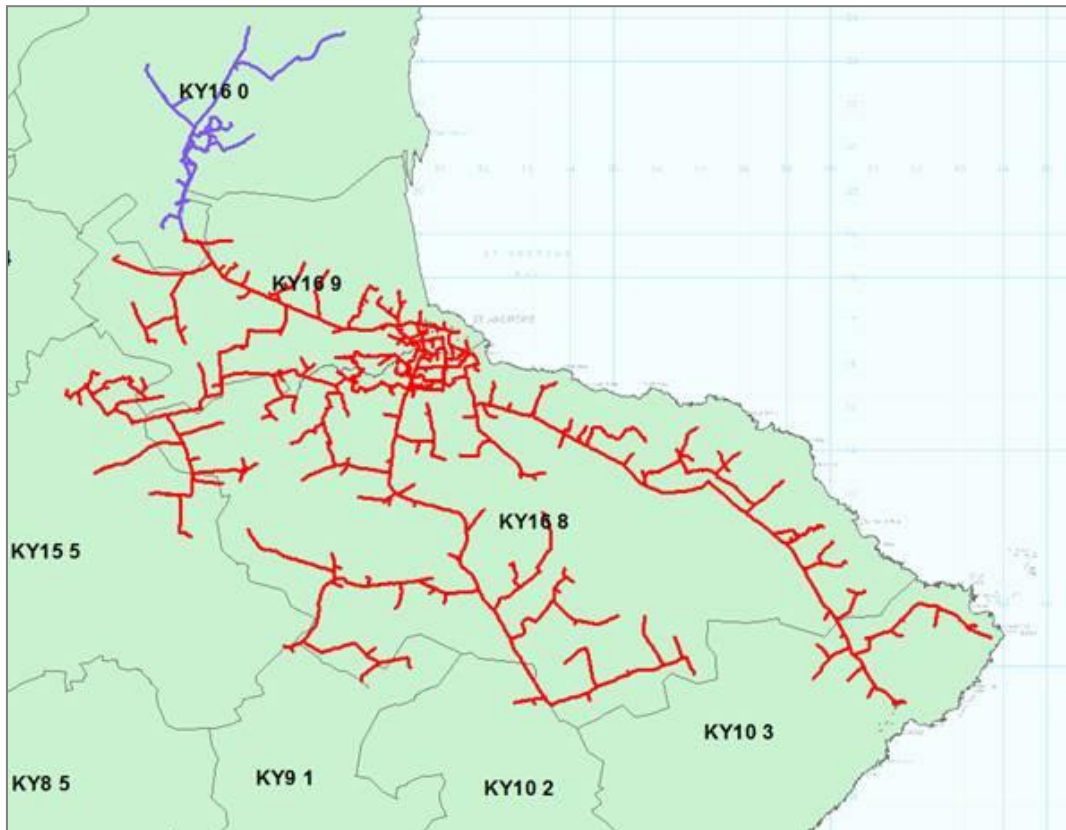


Figure 1: St. Andrews network shown in red.



## FSR – St. Andrews

### Appendix 1 St. Andrews 2021 Flexibility Services Requisition (FSR)

Table 2: Flexibility Service Requisition – Flexibility availability required during the St. Andrews trials

Ref	Year	Response Type (+ is increase demand or export; - is opposite)				Period	Service Window	Days	Service Type	Maximum Response Time	Minimum Run Time (mins)	Maximum Run Time (mins)	Recovery Time * (mins)	Ramp Down Time * (mins)	Ramp Up Time * (mins)	Estimated Runs (No.)
		Demand (kW)	Gen. (kW)	Demand (kVAr)	Gen. (kVAr)											
1	2021	-250	250	N/A	N/A	Oct - Dec	09:00 – 10:30 11:00 – 13:00 15:00 – 17:00	Mon - Fri	Sustain Peak Management	17 hrs	15	60	30	30	30	12
2	2021	-250	250	N/A	N/A	Jul – Sep	09:00 – 10:30 11:00 – 13:00 15:00 – 17:00	Mon – Fri	Sustain Peak Management	17 hrs	15	60	30	30	30	8
3	2021	-250	250	N/A	N/A	Oct - Dec	14:00 - 16:00	Mon – Fri	Secure DSO Constraint Management (Pre-Fault)	30 mins	15	60	30	30	30	12
4	2021	-250	250	N/A	N/A	Jul - Sep	14:00 - 16:00	Mon – Fri	Secure DSO Constraint Management (Pre-Fault)	30 mins	15	60	30	30	30	8
5	2021	-250	250	N/A	N/A	Jun - Dec	14:00 - 16:00	Mon – Fri	Dynamic DSO Constraint Management (Post-Fault)	15 mins *	15	60	30	30	15	20

\* Can be reviewed subject to asset / DER capabilities

Table 2 Identifies the total flexibility requirements for the St. Andrews initial trials;

- Participants shall use the 'ITT response proforma' to indicate the extent to which they can provide all the above services and their technical specifications.
- The service(s) should be delivered from flexible units located within one or more of the postcodes described in section 1.
- The capacities reflected in this FSR have been deliberately kept low to minimise the impact of these trials on the network. (Subsequent flexibility tenders in the FUSION project are expected to procure greater capacities of availability in the same trial area).
- The minimum total aggregate capacity of a group of assets that can qualify for bidding is 1kW.
- The capacity that is called upon to be 'utilized' in any given event may be lower than the total amount of 'availability' procured under this 'availability' contract.
- A summary overview of the service descriptions is provided in Appendix 3 of this document.
- Exact characteristics of these services will be defined in schedule 1 of the Flexibility Services Agreement (FSA) which is scheduled for signing by no later than Feb 2021. A template FSA is available on the Project FUSION website and is also included in the ITT pack.



## FSR – St. Andrews

### Appendix 2 – Summary of Pre-Trial Tests

Table 3: Flexibility Service Requisition – Pre-trial tests during FUSION

Ref	Year	Response Type (+ is increase demand or export; - is opposite)				Period	Service Window	Days	Service Type	Duration (mins)	Indicative Test Windows
		Demand (kW)	Generation (kW)	Demand (kVAr)	Generation (kVAr)						
T1	2021	-250	250	N/A	N/A	Feb - May	09:00 - 17:00	Mon - Fri	Sustain Peak Management	30	09:30 – 11:30 12:00 – 14:00 14:30 – 16:00
T2	2021	-250	250	N/A	N/A	Feb - May	09:00 - 17:00	Mon - Fri	Secure DSO Constraint Management (Pre-Fault)	30	09:30 – 11:30 12:00 – 14:00 14:30 – 16:00
T3	2021	-250	250	N/A	N/A	Feb - May	09:00 - 17:00	Mon - Fri	Dynamic DSO Constraint Management (post-fault)	30	09:30 – 11:30 12:00 – 14:00 14:30 – 16:00

Table 3 indicates suggested utilisation windows to consider for pre-trial testing of end-to-end service delivery.

Pre-trial testing is intended to allow flexibility service providers the opportunity to test the various elements of their service delivery process prior to the commencement of their contracted availability period.

The successful delivery of the contracted availability sought in Table 2, will rely upon tenderers having successfully integrated various constituent elements of the service delivery chain. These necessary elements will include (but not necessarily be limited to) the tenderer:

1. Enabling any necessary flexible **assets in the field** (including the installation of any necessary controls etc and conclusion of necessary contracts with customers)
2. Enabling their **own platform** so that it complies with the [UFTP communications specification](#)
3. **Integrating** their own platform with SP Energy Networks 'FUSION Flexibility Procurement' (FFP) platform (to allow for demonstrative end-to-end delivery of flexibility ahead of commencement of contracted availability period).

The objective of this pre-trial testing window is to allow for successful tenderers to conclude and demonstrate the successful implementation of these necessary elements prior to the commencement of contracted availability period.

The exact timing and nature of the tests would depend on the readiness of the elements and/or interactions being tested.

A suggested approach is provided below for indicative purposes only;

- Feb - Apr: Develop and test communications and processes only; no delivery of flexibility is expected during this time period;
- Apr - May: Integrate platforms and hardware and test various aspects of the service delivery in order to demonstrate full end-to-end readiness in advance of the commencement of the contracted availability period.

Table 3 is not prescriptive. It is intended simply to suggest indicative test windows for your consideration.

There will no availability payment for any of the pre-trial tests shown in Table 3 but SPEN agrees to pay a nominal utilisation fee, the value of which is yet to be determined at SPEN's sole discretion.



## FSR – St. Andrews

### Appendix 3 – FUSION Service Descriptions

Table 4: Service descriptions

Service to be Trialled	Summary of Service
Sustain Peak Management	A service to provide the DSO with a planned reduction in demand or increase in generation in advance of a forecast capacity constraint at peak time, e.g. to reduce the loading on a transformer during tea-time peak.
Secure DSO Constraint Management (pre-fault)	A service to provide the DSO with an immediate reduction in demand or increase in generation during a planned outage of one or more critical assets or in the event of network disturbances to maintain security standards and avoid any customer minutes lost.
Dynamic DSO Constraint Management (post-fault)	A service to provide the DSO with an immediate reduction in demand or increase in generation following an unplanned outage of one or more critical assets to maintain security standards and avoid any customer minutes lost.

