



# End of Phase Meeting

## SIF Round 2 Alpha - SHIELD

28 March 2024



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# Agenda for today

- 1 Welcome & introductions
- 2 Project progress update
- 3 Updated plan, costs and risks
- 4 Project specific conditions
- 5 Comms & engagement activities
- 6 Plans for Beta Phase and AOB

# Stakeholders & Introductions

## Scope & Responsibilities



UK Power Networks is the Project Lead. UK Power Networks owns and maintains the electricity network, including substations, cables and overhead lines required for the installation of Low Carbon Technologies. They also procure flexibility services to reduce network reinforcement.



Essex County Council will be leading the project management work package. The proposed trials are located within their region and they can bring together a wide range of parties.



Power Circle Projects will be leading the site, technology, and modelling work package. They are a social enterprise dedicated to supporting social housing providers, private homeowners, communities and have delivered many community-led low carbon projects and designed the Social Energy Services Company (ESCo) model for SHIELD.



Citizens Advice Essex will be leading the tenant engagement. Citizens Advice Essex have the expertise and engagement experience with vulnerable customers on their needs relating to energy and heat.



Eastlight will be leading the commercial agreements and funding structure work package. They are the housing association whose tenants will be participating in the trials



UK Community Works will draft the tenant engagement plan and materials. UK Community Works have extensive experience supporting engagement activities.



UrbanChain will be delivering the Energy Supply and Peer to Peer Trading work package. UrbanChain are the leading provider of Peer-to-Peer energy exchange services in the UK and pioneer of innovative supply arrangements. For SHIELD to develop its route to market, business model and customer proposition in more detail, it needs to interact and operate between consumers, prosumers and generators. UrbanChain will help SHIELD design this.



Thermify will be leading the pilot deployment work package. Thermify are the key technology provider for the SHIELD proposition with their innovative distributed data centre heating product.



Electricity North West will be delivering the Learnings and Scalability work package. They lead projects which are complementary to SHIELD and will be able to provide perspective for how SHIELD can be scaled to their licence area. This ensures SHIELD is designed for wider rollout across GB.



Monitoring Officer and Innovation Lead

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# SHIELD Aims

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## Overall Aims

- SHIELD is a bold new initiative that will revolutionise the way we heat our homes. By using innovative low-cost low-carbon heating solutions, such as distributed data centres, SHIELD will help to decarbonise heat and energy for vulnerable consumers and social housing tenants.
  - SHIELD will use smart energy generation and storage technologies to intelligently balance demand and supply, helping reduce the upfront cost and running costs of consumers' heating and energy. This innovative approach to decarbonisation has the potential to transform the energy landscape and make a real difference to the lives of vulnerable people.
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## Alpha Phase Aims

- By the end of Alpha Phase, SHIELD aims to have validated, qualified, and tested the SHIELD proposition. The purpose is to have completed enough readiness activities to give confidence in the progression to Beta Phase and the scaling and implementing of the solution.
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# Work Package (WP) Updates

# WP1 – Project Management

## Summary

To ensure Alpha Phase delivered in line with UKRI/Ofgem standards

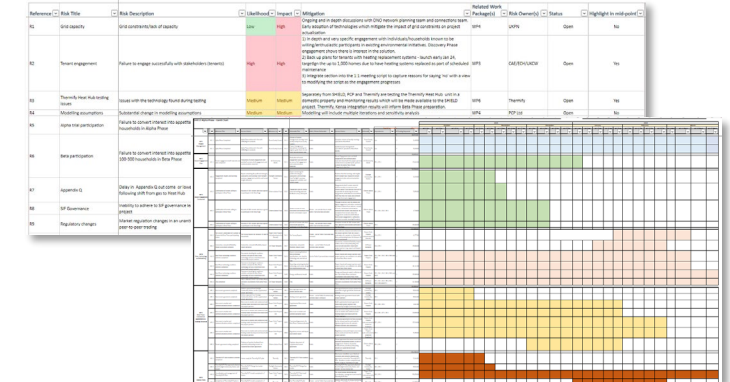
## Key outputs

- Minutes of project management meetings held weekly led by Essex County Council
- Project Management Spreadsheet including risk register, Gantt chart, lessons learnt log and project plan

## Challenges addresses

This work package has not encountered any significant barriers, risks or issues. It has received the support and active participation of all SHIELD partners, benefiting from:

- Exceptional attendance across the partnership at all regular meetings
- Open, positive and professional participation in all discussions from all partners
- Timely and robust responses to all requests to partners in relation to maintaining and updating core documents such as the risk register, work plan etc.



The image shows a screenshot of a project management spreadsheet. The top section is a risk register with columns for Reference, Risk Title, Risk Description, Likelihood, Impact, Mitigation, Related Work, Priority, Risk Category, Status, and Highlight in red page. Below this is a Gantt chart with a grid showing task durations across a timeline. The Gantt chart uses color coding: green for completed tasks, yellow for tasks in progress, and orange for upcoming tasks.

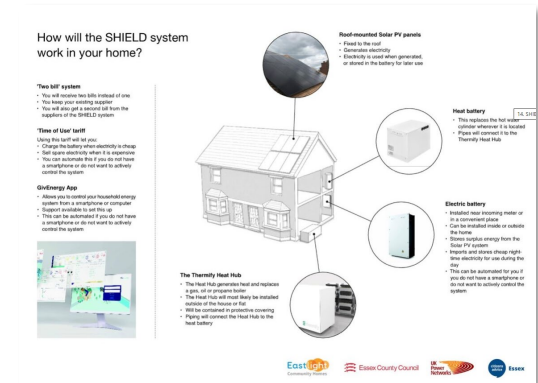
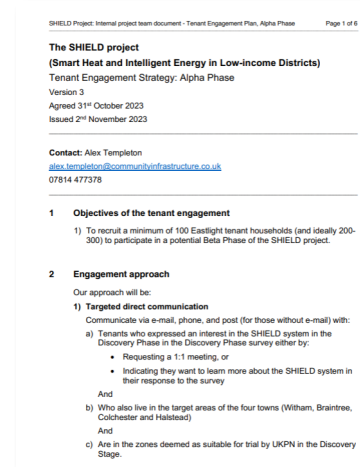
# WP2 – Tenant Engagement Plan

## Key outputs

- Revised Tenant Engagement Plans agreed with Eastlight
- Tenant engagement materials completed
- 1:1 Engagement process developed and tested

## Challenges addresses

- Unforeseen challenges regarding GDPR/tenant engagement protocols
- Delays signing the Collaboration Agreement
- Delays with Thermify HeatHub required revision of tenant engagement strategy (concerns around raising tenant expectations)
- Mitigations implemented:
  - Eastlight approached tenants with heating systems due to be replaced during 2025/26 (Beta Phase timing) with PV/storage solution as an alternative
  - Developed the capacity to do the 1:1 engagement online to speed up the process
  - Broadened out engagement to Essex-based residents in fuel poverty (Citizens Advice leads)





# WP4 – Sites, Technology and Modelling



## Summary

Completion of preparation for Beta Phase in relation to:

- Mix, location of technologies at sites and integration of technologies, provision of grid services and grid connections
- Informed by site surveys for a sample set of potential Beta Phase participating homes

# WP4 – Sites, Technology and Modelling



## Key outputs

- Site surveys are being undertaken of a sample set of potential Beta Phase participating homes.
- Connection, network & flexibility impact assessment
- Beta Phase technology readiness activities have been completed and written up in a SHIELD Technology and Communications Design and Implementation Plan Report.
- A detailed energy and financial model has been prepared. This has indicated a sound basis for commercial scale up once the Beta Phase provides the necessary evidence base.

## Challenges addresses

- Site surveys had to be delayed until March due to the revised approach for approaching recruiting tenants participating in the Beta Phase

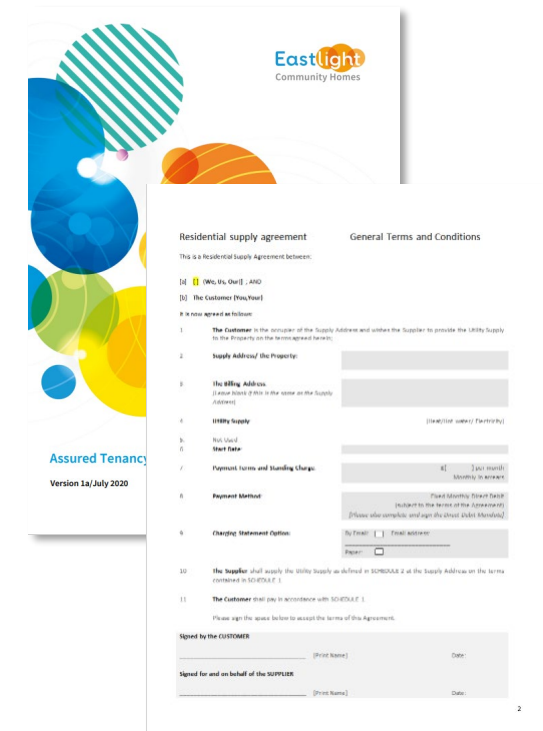
# WP5 – Beta Phase Commercial Agreements & Funding Structure

## Summary

Supplemental tenant agreement drafted to enable tenants to sign up and Beta Phase route to market and the project's operating, funding, and commercial structure & model defined

## Key outputs

- Beta Phase tenant agreements have been prepared and agreed. An explainer document for tenants has also been prepared and used in tenant dialogue. These comprise a supplementary tenancy agreement and an energy supply agreement. Both agreements have been discussed with and signed by the tenants of the two Alpha Phase pilot homes.
- Other agreements have been prepared including an access agreement enabling kit to be installed in Eastlight homes and an agreement with Thermify providing the basis for provision of heat by Thermify
- Beta Phase route to market and commercialisation activities have been completed and written up in a SHIELD Route to market and commercialisation report



# WP5 – Beta Phase Commercial Agreements & Funding Structure

## Challenges addresses

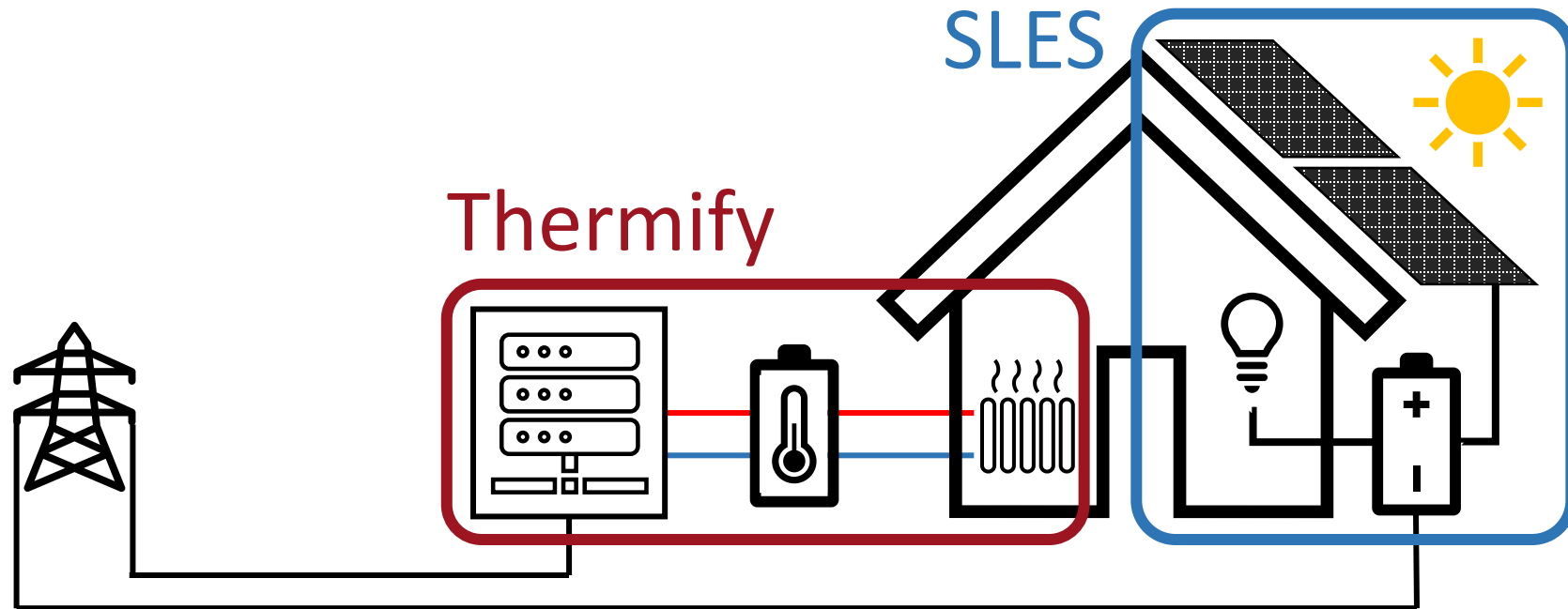
- Whilst agreements have only been entered with respect to the two Alpha Phase pilot homes, the structure and content of the agreements has had to be developed on the basis of their suitability for larger scale rollout in Beta Phase and beyond.
- Legal agreements are designed to protect the interests of each party. For projects such as SHIELD, they are inevitably complex documents. The tenant agreements have been reviewed and made easier to understand for tenants in Alpha Phase. We would wish to do further work in this respect during Beta Phase with the aim of simplifying language further whilst continuing properly to protect each stakeholder's interests.

# WP6 – Deploy Pilots



## Summary

Deploy and test SHIELD technologies in two homes.



# WP6 – Deploy Pilots



## Key outputs

- Defined Outputs are: 'Deploy and test SHIELD technologies in a pilot.'
- Three stages have since been defined for technology deployment for the two pilot homes
  1. Switchee monitoring and heating control equipment: January 2024. This enables heat monitoring both before and after new heating system is deployed. This has been completed
  2. Solar PV and battery deployment. This has been completed in March 2024
  3. Thermify Heat Hub with integrated Sunamp heat storage deployment – descoped from Alpha Phase, see below
- Originally it had been intended that Stage 1 and Stage 2 would be installed at the same time. The two systems are independent, and each provides tenant benefit.
- Due to delay in HeatHub supply timeline, the two installations have been separated. A change request has been approved with the result that Solar PV and battery deployment is taking place in Alpha Phase and Thermify deployment is planned to take place after March 2024 and outside of SHIELD Alpha Phase at no cost to the project

# WP6 – Deploy Pilots



## Challenges addressed

- Due to technical issues discovered during testing, the Thermify HeatHub units were not ready to be installed in the two pilot homes in the timeframes of Alpha Phase.
- The HeatHub prototype's maturity was not at a level that guaranteed reliable operation. All project partners wanted to avoid any negative impact on the two households participating in the Alpha Phase trials and as such it was decided to not deploy the units until the technical issues were fully resolved.
- The activities directly related to the installation of the Thermify units were de-scoped from WP6 and the installation of the Smart Local Energy System (PV and battery) in the pilot homes and associated deliverables continued as planned.
- The project still delivered on the innovation linked to the successful demonstration of the social ESCo commercial model and customer proposition, and safeguarded targeted benefits for the low-income pilot homes.

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# WP7 – Energy Supply and Peer to Peer Trading



## Summary

- Develop the terms and conditions of the private peer to peer market for the project
- Develop legal peer to peer documents that matches with the terms and conditions of the private market, as well as the legal documents in WP6 and WP9
- Run a small pilot

# WP7 – Energy Supply and Peer to Peer Trading



## Key outputs

- Electricity supply and peer to peer contract options have been developed
- Alpha Phase peer to peer pilot delivery will be undertaken by the end of March. The pilot involves presentation to the two Alpha Phase pilot tenants of a peer to peer option for supplying the electricity required through the grid to their homes (this is the balance of electricity needed to meet the home's electricity load after taking account of the electricity that can be supplied by the PV and battery system).
- The option will be presented alongside alternative time of use tariff options. This is only being done once the PV and battery installations have been completed since it would not be in the tenants' interest to switch to a time of use tariff until their PV/battery system is operational.

## Challenges addressed

- Until recently, UrbanChain has only had a single tier residential tariff option. To make best use of the ability of the battery to store low cost overnight electricity, a time of use tariff was needed. A suitable UrbanChain time of use tariff has been presented to the two pilot home tenants.

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## WP8 – Learnings and scalability



### Progress on key deliverables

- Identified projects for shared learning
- Completed learning and scalability report detailing the applicability of SHIELD on the Electricity North West network, any potential barriers and learnings from the Net Zero Terrace project
- The SHIELD project could be scaled on the Electricity North West network to help vulnerable customers in social housing transition to low carbon heating
- Should the SHIELD project progress to Beta Phase, Electricity North West will gain value from maintaining contact with UK Power Networks on how the project progresses

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# WP9 – Alpha Phase Governance



## Progress on key deliverables

- Collaboration agreements in place

## Challenges/changes to plan

- Delays on collaboration agreements presented challenges for SHIELD specifically, as some partners could not work at risk. This necessitated revision of timelines.



# Project Plan, Finances and Key Risks

# Finances

Partner Name	Partner Reference	Total project cost (£)	Project contribution (£)	Total SIF offer (£)	Project contribution (%)	Total forecast project spend (£)
UK Power Networks	Licensee	£95,725	£9,572	£86,153	10.0%	£95,303 **
Essex County Council	Partner 1	£11,635	£1,164	£10,471	10.0%	£11,635
UK Community Works	Partner 2	£32,633	£3,425	£29,208	10.5%	£32,633
Eastlight Community Homes	Partner 3	£22,176	£2,218	£19,958	10.0%	£22,176
Thermify	Partner 4	£19,776 *	£1,978 *	£17,798 *	10.0%	£19,776
Power Circle Projects	Partner 5	£161,894 *	£16,306 *	£145,588 *	10.1%	£161,894
UrbanChain	Partner 6	£30,639	£4,616	£26,023	15.1%	£30,639
Electricity North West	Partner 7	£1,656	£1,655	£1	99.9%	£1,656
Citizens Advice Essex	Partner 8	£78,184	£30,000	£48,184	38.4%	£66,034 **
<b>TOTAL</b>		<b>£454,318</b>	<b>£70,934</b>	<b>£383,384</b>	<b>15.6%</b>	<b>£441,746</b>

\* New costs post PDCR

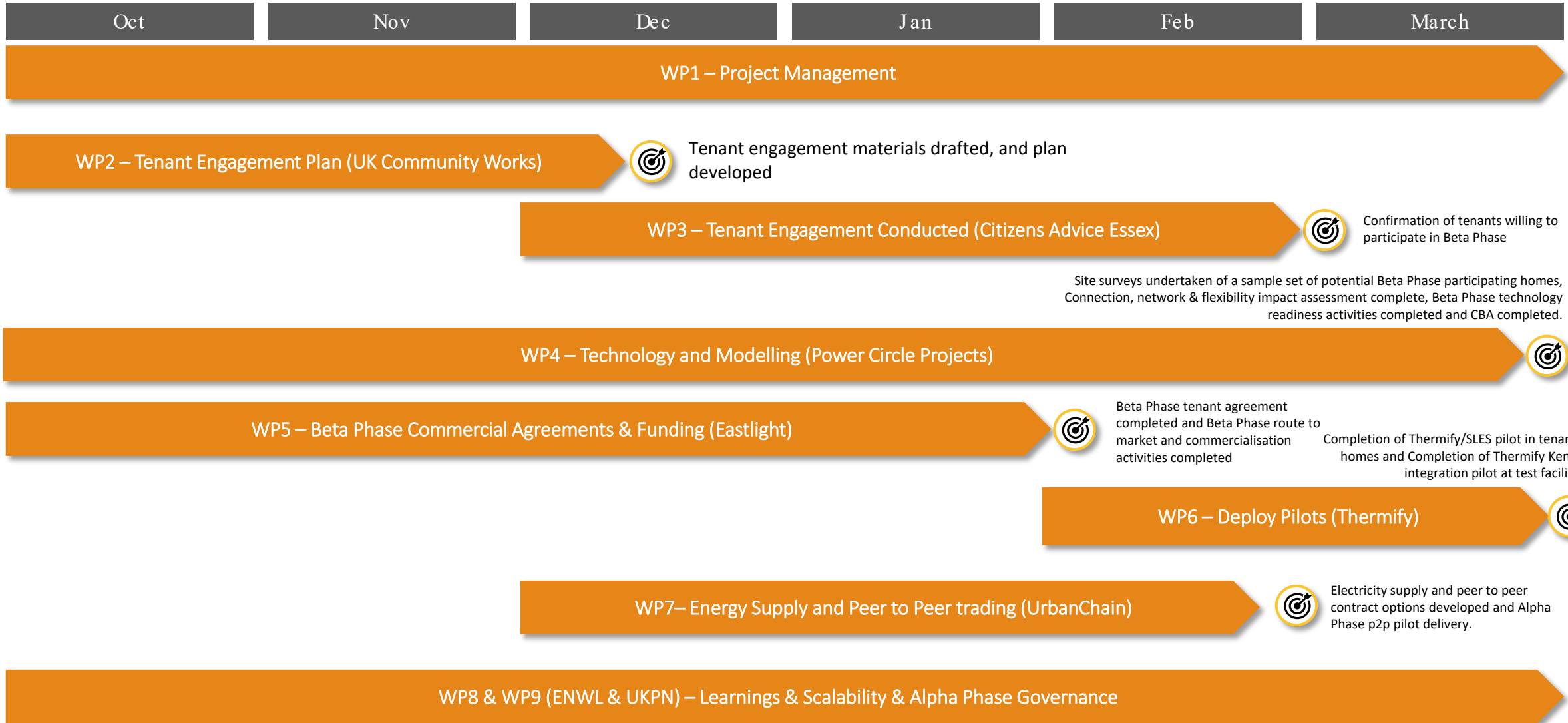
\*\* Projected underspend

*Finances pending UK Power Networks end-of-month reconciliation*

# Updated Project Plan



Milestone



# Key Risks

Ref	Risk Title	Risk Description	Like-lihood	Impact	Mitigation	WP	Owner(s)	Status
R2	Tenant engagement	Failure to engage successfully with stakeholders (tenants)	High	High	<p>1) In depth and very specific engagement with individuals/households known to be willing/enthusiastic participants in existing environmental initiatives. Discovery Phase engagement shows there is interest in the solution.</p> <p>2) Back up plans for tenants with heating replacement systems - launch early Jan 24, targeting the up to 1,000 homes due to have heating systems replaced as part of scheduled maintenance</p> <p>3) Integrate section into the 1:1 meeting script to capture reasons for saying 'no' with a view to modifying the script as the engagement progresses</p>	WP3	CAE/ECH/U KCW	Closed
R3	Thermify Heat Hub testing issues	Issues with the technology found during testing	Medium	Medium	Separately from SHIELD, PCP and Thermify are testing the Thermify Heat Hub unit in a domestic property and monitoring results which will be made available to the SHIELD project. Thermify, Kensa integration results will inform Beta Phase preparation.	WP6	Thermify	Closed
R6	Beta Phase participation	Failure to convert interest into appetite for trial participation 100-300 households in Beta Phase	High	High	<p><b>Initial mitigation:</b></p> <p>1) Resident engagement during Alpha Phase to highlight the benefits of participating and a comprehensive overview of their involvement in the future stages of the project.</p> <p>2) Creation of a back-up plan if conversion rates are not promising after first 20 calls/contacts - open ongoing comms with funder.</p> <p>3) Integrate more RSLs into the Beta Phase bid to spread risk between RSLs and acquire a larger pool of potential tenants</p> <p><b>Final mitigation:</b> Expansion of pool of potential Beta Phase participant by leveraging Citizens Advice Essex' existing database of customers.</p>	WP3	CAE/ECH/U KCW	Closed
R7	Appendix Q	Delay in Appendix Q out come or lower SAP score for properties following shift from gas to Heat Hub	High	High	Early and sustained dialogue with BRE to seek positive and timely outcome. Uncertainty or negative outcome may lead to stage gates in terms of volume of deployment at Beta Phase whilst issues are resolved Possible link to other RSL and off gas households (oil) to mitigate negative impact on EPC of no app Q cert.	WP6	Thermify	Closed
R9	Regulatory changes	Market regulation changes in an unanticipated way. An example is peer-to-peer trading	Low	Medium	Previous and continued liaison by Project Partners outside of the SHIELD scope about regulatory developments with industry experts such from Dr Jeff Hardy of Imperial College.	WP7	All	Closed
R10	Thermify Heathub issues	Delay in Pilot start date due to equipment (Thermify Heathub) manufacturing re-design/delay.	High	High	<p><b>Initial mitigation:</b> Project Plan updated. Pilot will start no later than mid Feb and run until the end of March to maximise the data available for reporting. Reporting will be done at the same time as the pilot running and some wrap up will be done in April. Additional risk has been added by poor quality control at a manufacturer. Mitigation has been to add additional vendors with better turnaround times and improved QC procedures.</p> <p><b>Final mitigation:</b> Project direction change request to descope Thermify installation during Alpha phase.</p>	WP6	Thermify	Closed

# Project-specific Conditions, Communications & Engagement

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# Project-specific Conditions

## Condition 4

The Funding Party must provide to its monitoring officer by the end of the Alpha Phase a summary and explanation as to whether the overall costs of the proposed solution, including the investment costs, will be lower than the counterfactual.

*The energy and financial modelling will be updated in Alpha Phase as well as a full Cost Benefit Analysis (CBA). This will show the benefits and costs against the counterfactual. SHIELD energy and financial modelling indicates costs and benefits in relation to tenants and the energy service provider (social ESCo). The CBA considers costs and benefits in relation to UK Power Networks as the DNO. The SHIELD solution at the project scale has an indicative NPV of £3.41m up to 2030; the exact investment costs required for Beta Phase will be determined during preparation for Beta Phase application.*

## Condition 5

The Funding Party must provide to its monitoring officer by the end of the Alpha Phase a written deliverable which demonstrates consideration for protection aspects of the future business model of the proposed solution, including:

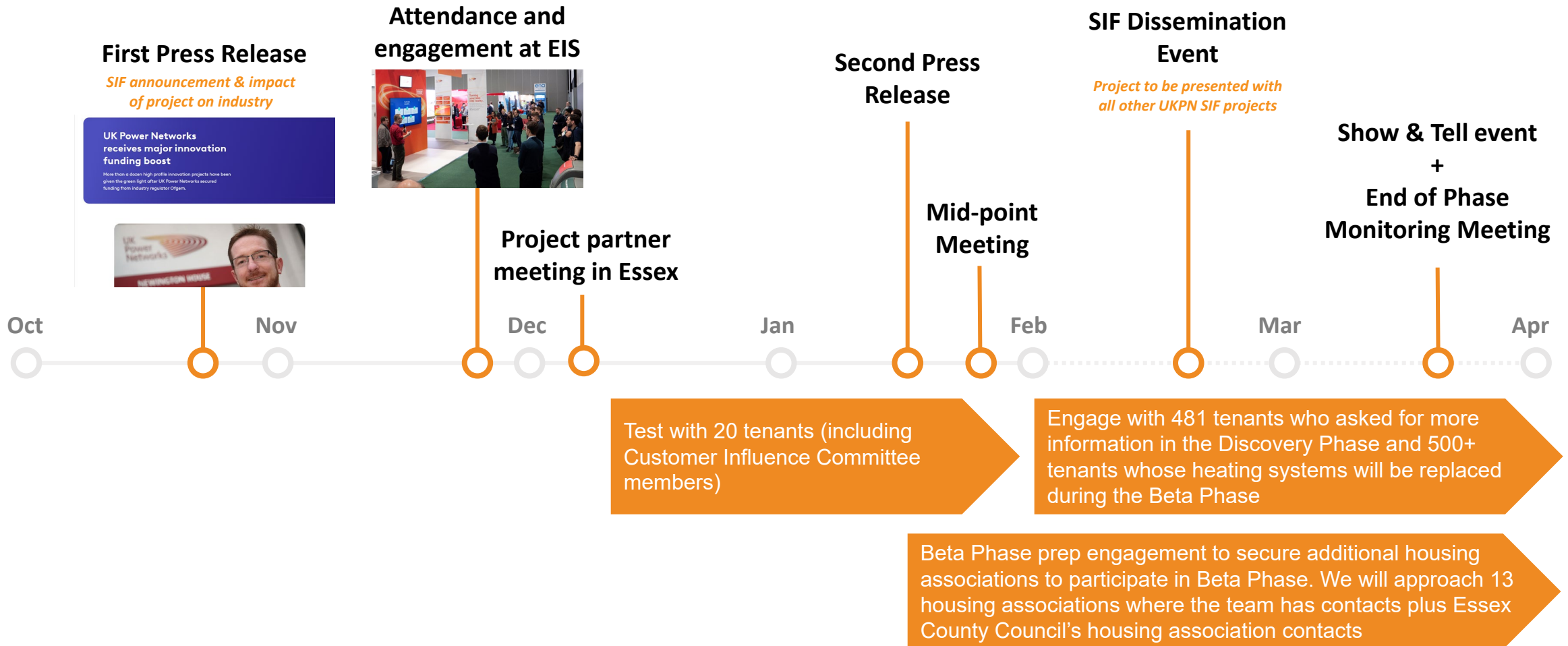
What happens if something goes wrong with the system:

- Whether consumers will be locked into this model on a long-term basis
- What happens in the event of consumers who want to change the heating system. For example, where a new tenant/occupant takes over the property and wants to change the heating system
- What protection do consumers have should the data centre provider ceases to operate? For instance, is any insurance provided for these consumers?

We encourage the Funding Party to work closely with consumer bodies to answer the above questions

*The commercial agreements and tenant agreements will address these above considerations. We will work with Citizens Advice Essex, Essex County Council, Eastlight Community Homes and legal sub-contractors, in particular to ensure consumers are protected and the project remains scalable. The written deliverable has been prepared dealing with each of the above points, referencing the relevant agreements.*

# Communications and Engagement



# Beta Phase & AOB

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# Plans for Beta Phase

All Alpha Phase project partners support a Beta Phase application

## Proposed scope

- Beta Phase is a multi-year programme which will provide demonstration of SHIELD innovations both in business model (social ESCo) and technology (smart energy system incorporating Thermify HeatHub).
- We intend to engage multiple social landlords for deployment during Beta Phase which will provide the best launching point for full scale commercialisation. We may also engage community organisations, homeowners and private landlords since fuel poverty does not lie solely within the social housing sector.

## Notes on Beta Phase

- We are aware that social landlords have key objectives to meet during this decade in relation to improving Energy Performance Certificate ratings for their homes. Government is consulting on changes to the Standard Assessment Procedure (SAP) system since current methodologies do not deal adequately with new smart technology options including battery systems and new heating options such as Thermify. In the meantime, as a temporary measure, Thermify is seeking SAP Appendix Q inclusion as a means of enabling HeatHub installations to enhance SAP and Energy Performance Certificate (EPC) ratings. We envisage a phased scaling of deployment of Thermify HeatHub assets in social landlord homes in Beta Phase as the above issues are clarified.
- A discussion with UKRI/Ofgem is needed on how funding can be allocated/structured for the proposed scaled roll-out of the SHIELD technology components.

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# AOB