CReDo+

Extension to new climate risks
Alpha phase mid-point review

11/12/2023

AGENDA

Key Updates

- Overview Plan
- Successes
  - Agile working, engagement and delivery
- Problems
  - Collaboration agreements and Beta Phase templates
- Key risks

Work Package Review

- Work package breakdown
  - Status updates, risks and barriers

Governance

- Project specific conditions
- Scheduling

AOB

KEY UPDATES

Overview plan

Successes

Problems

Key risks

OVERVIEW PLAN

High level – see appendix for full Gantt submitted with application

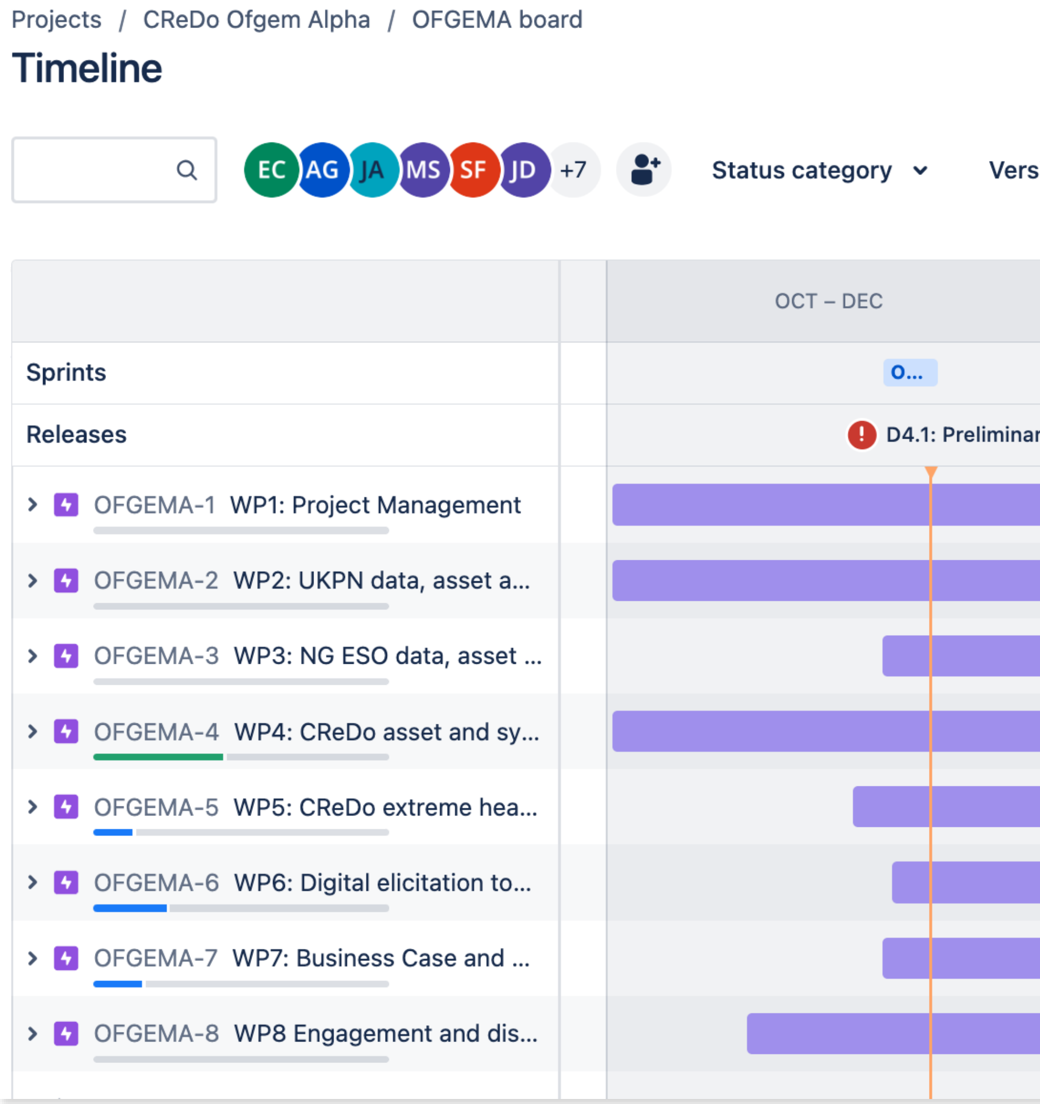
Mid-point review meeting

Purpose	WP	Task	Lead	Supporting	Dependency	1 02/10/23	2 16/10/23	3 30/10/23	4 13/11/23	5 27/11/23	6 11/12/23	7 25/12/23	8 08/01/24	9 22/01/24	10 05/02/24	11 19/02/24	12 04/03/24	13 18/03/24	14 01/04/24
Project Enablement:	WP1 Project Management	D1.1: Project closure	CPC																♦
	WP2 UKPN data, asset and testing support	D2.1: UKPN engagement and data gathering	UKPN															♦	
	WP3 NG ESO data, asset and testing support	D3.1: NG ESO engagement of user research, design validation and prototype testing	NG ESO															♦	
Minimum Viable Data & Modelling	WP4 CReDo asset and system modelling	D4.1: Preliminary asset, system, and climate data and models	CPC						✔										
Prototype Delivery		D4.2: Asset, system, and climate data and models	CPC														♦		
	WP5 CReDo extreme heat prototype	D5.1: Extension of CReDo ontologies for asset and hazard data for extreme heat scenario	CMCL		D4.1								♦						
		D5.2: CReDo extreme heat demo	CMCL															♦	
	WP6 Digital elicitation tool small scale prototype	D6.1: Digital elicitation tool prototype	STFC		D4.1												♦		
Business Case and Engagement	WP7 Business Case and Cost Benefit Analysis	D7.1: Cost Benefit analysis and business case	CPC															♦	
	WP8 Engagement & Dissemination	D8.1: Project report	CPC																♦
		D8.2: Workshop to showcase project with key representatives	CPC	CMCL, Sarah H															♦

SUCCESSES

Agile Ways of Working and Jira

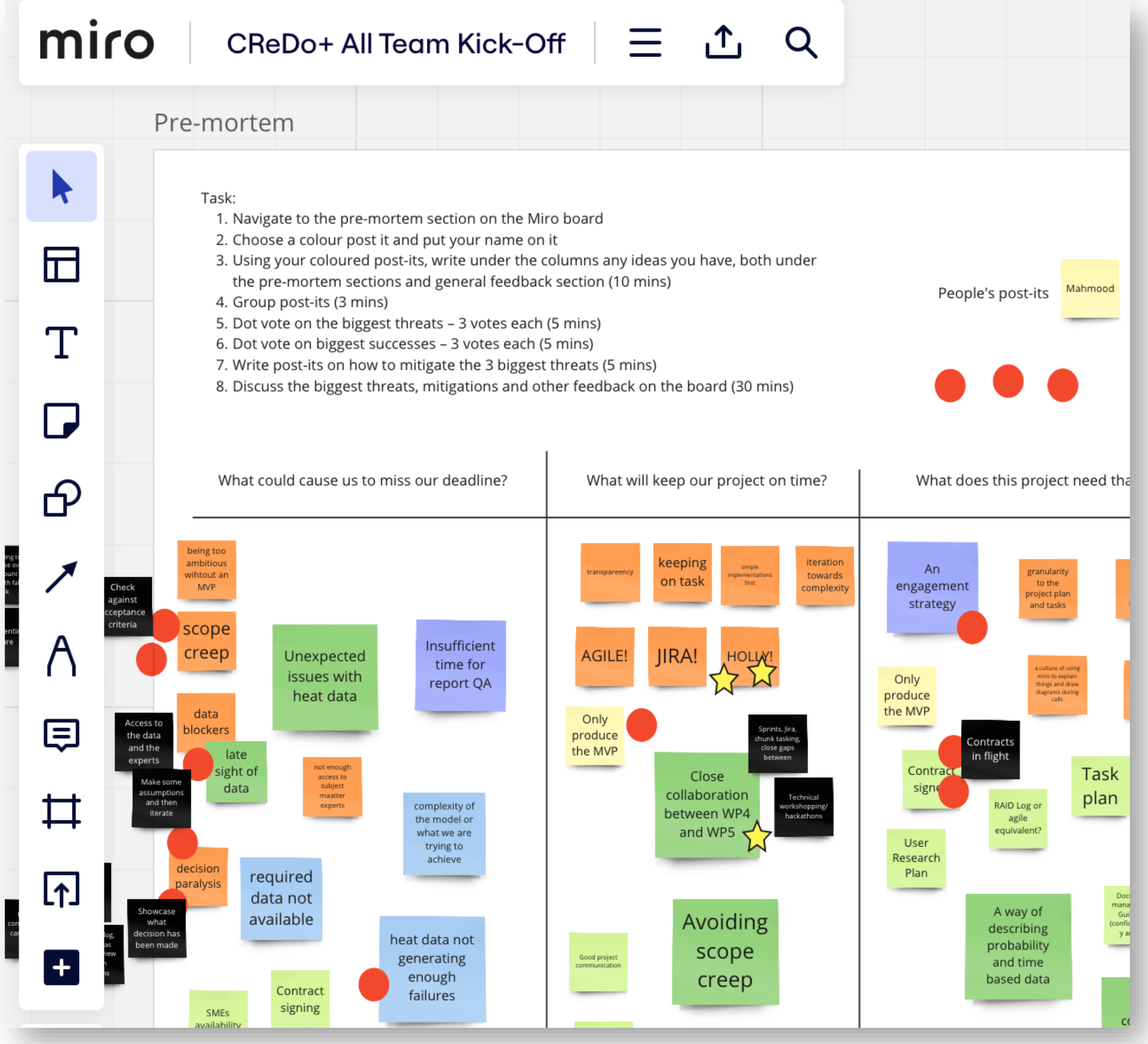
- Jira (product management software) has been successfully embedded into the team's day-to-day ways of working. All contributors to the work packages have licenses and are working in real time to keep the project's workflows, dependencies and blockers up to date and transparent for all to see.
- Teams chats have been set up to support the work packages for clear and efficient communication. Daily standups and ease of communication around questions within and across work packages are live.
- Regular cadenced meetings according to Agile ways of working based on Scrum principles have been set up. First full two week cadence has now been completed successfully including Sprint Planning, Retrospective and Backlog Prioritisation.
- Fostering open behaviour of transparency including demonstrations of work in progress across work packages to reduce silos and course correct as we go.



SUCCESSES

In person kick off meeting

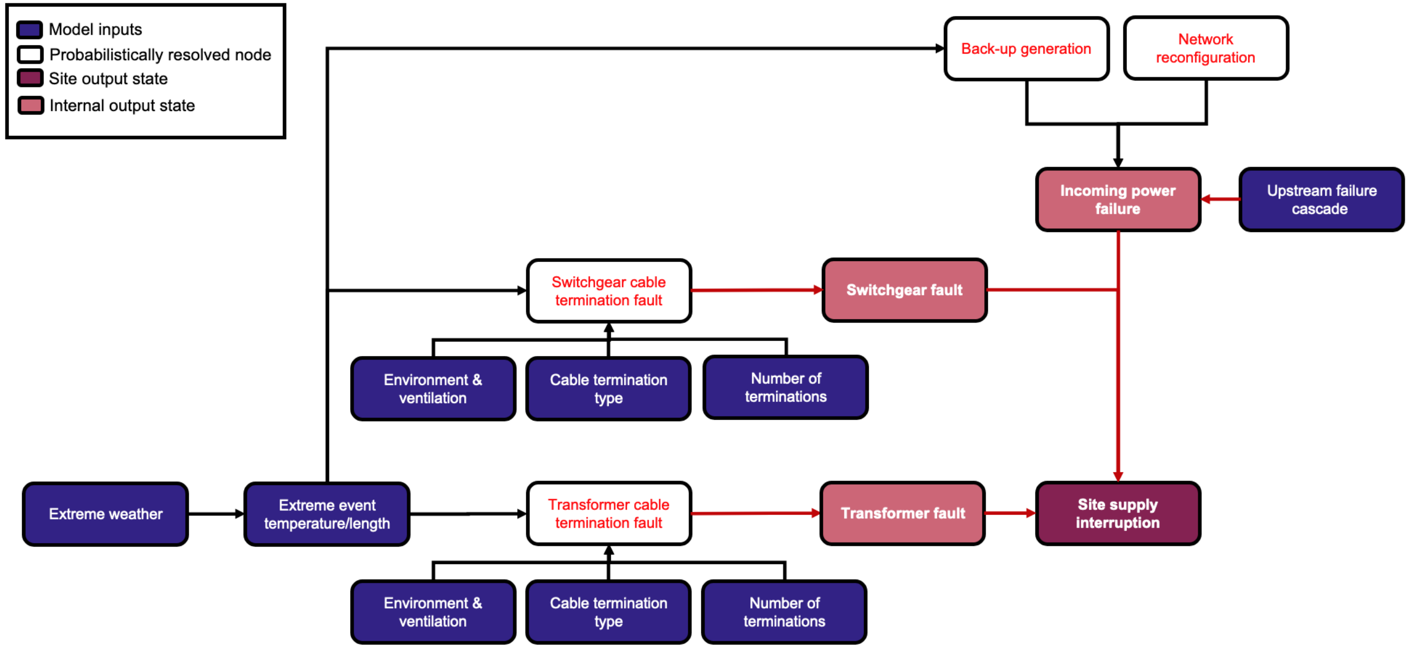
- In-person meeting at Connected Places Catapult (CPC) office to bring whole team together to collaborate and foster closer working relationships.
- Definition of roles against the standard classification of Responsible, Accountable, Consulted, Informed (RACI) in a workshop to also define project activities and ownership of outside of work package specific tasks.
- Utilised Miro as a tool to bring clear structure to the deliverables and tasks ready for input into Jira for daily usage.



SUCCESSES

Preliminary phase delivery: D4.1 **Preliminary asset, system, and climate data and models**

- D4.1 was completed on time to scope.
- Utilising Agile ways of working and Jira, the team for Work Package 4 successfully defined, mapped and adjusted their activities and tasks to complete the deliverable on time.
- Work Package Lead was empowered to enable the team to complete the work using Agile sprint structure, with clarity of blockers and dependencies.
- Workflow of statuses of tasks was adhered to including QA processes.



SUCCESSES

Engagement

Engaged with all network operators at Energy Innovation Summit

- Built support and contacts for our CReDo+ Resilience Working Group at Energy Innovation Summit (EIS) and other engagements
  - To share more detailed insights into CReDo+
  - To share learnings between SIF resilience projects
  - Drive interest and partners for CReDo+ Beta
  - Promote collaboration and prevent duplication
- Finalised terms of reference and shared with networks
- Currently nine network operators signed up to our working group, first session 14th Dec. Further sessions planned: Jan, Feb, Mar
  - UK Power Networks (UKPN), National Grid Electricity Transmission (NGET), Northern Gas Networks (NGN), Cadent, National Grid Electricity Distribution (NGED), Scottish and Southern Energy Transmission(SSEN-T), Electricity Northwest, National Gas, SP Energy Networks (SPEN)
- Speaking slot at ENA Resilience Working Group (Feb)
- Intro meeting with NIMBUS (see conditions)
- Monthly CReDo+ cross-sector feedback meeting with UK Power Networks, Anglian Water and BT Group
- Overview presentation to IUK Board (30th Dec)

PROBLEMS

Areas of concern

- Collaboration Agreement has been delayed due to the following:
  - It is a time-consuming exercise with multiple partners
  - A change in legal representative led to multiple responses from one partner
  - Specifically, Confidentiality and IP liability clauses caused additional time for negotiations
  - We have the buy-in from all partners and we have a plan to close this as soon as possible

- Running a risk that Work Package 7 - Business Case and Cost Benefit Analysis is not in Beta Phase Template Format:
  - Template for CBA is not available until January 2024 and may result in duplication of effort for this work package.
  - Focus priority on:
    - Identifying the baseline and method costs
    - Identifying the scalability across UKPN and across GB (how many sites / devices / schemes)
    - Identifying the benefit types (e.g. incentive revenue, TOTEX savings, social benefits and so on)

KEY RISKS

Risk Description	WP	Internal(I) / External (E)	Likelihood	Impact	Severity	Mitigation Plan
Delay in contract signing may result in delayed project start	WP1	E	3	5	15	Escalated with relevant senior managers in particular partner. Work at risk and proactive engagement with legal teams to encourage a swift turn around. Contract terms now agreed and has been submitted awaiting signatures.
Resources unavailable to test models and prototypes within the timescales	WP4-6	I	3	4	12	Stakeholder planning is in place with senior stakeholder support from UK Power Networks obtained. User research sessions are planned and being organised. We need to continue to monitor this.
User research conducted to design the models is missing questions or we misunderstand certain answers that lead to incorrect model outputs	WP4	I	3	4	12	The process includes material documentation, playback and is iterative to ensure that what we hear from users is correctly captured and validated. Monitoring the risk.
Data or information is shared outside of the intended purpose and breaches confidentiality from personal or commercial sensitivity	WP2	E	3	4	12	The data management processes in UK Power Networks provides a framework to ensure that all data is assessed prior to being shared. Communications and awareness for all partners will be created to make everyone aware of responsibilities. Updated risk register in Science Technology Facilities Council (STFC) for the CReDo Data & Analytics Facility National Infrastructure (DAFNI) solution. As an outcome of that implement further controls to better protect the data when in operation. Monitoring this risk.
External parties in DNOs and GDNs do not engage to provide meaningful insight to support design of the Beta Phase proposal	WP8	E	2	5	10	Engagement strategy and plan is in place and being executed against. Initial responses are positive. All relevant organisations are proactively consulted and engaged. Defining criteria for Beta Phase bid participation for other licensees.
There is a risk that the CBA template that gets supplied by UKRI for the Beta Phase will require material rework of business case and CBA work through Alpha Phase WP7	WP7	E	3	3	9	Take a standards based approach by reviewing the CBA approach in UKPN, and green book standards. Monitor the release of the UKRI template and assess for impact as soon as possible.

WORK PACKAGE REVIEW

Work package breakdown

Risks and barriers

WP1: PROJECT MANAGEMENT

02 October 2023– 29 March 2024, Lead: CPC

Details

Objectives:

- Coordinate delivery of the project across all partners, ensuring progress against milestones and delivery objectives.
- Ensure transparency across all delivery and engagement work packages through agile ways of working and transparency using Jira.

Risks, Issues & Barriers:

- **Work started at risk as contract signing is still ongoing –** CPC is the main contributor to initial project tasks and has worked at risk. Other partners are working at risk in the final stages of signing. See slide 21 on this.
- **Risk management** - a register of risks is maintained at start of each two-week sprint.
- **Project planning** - A detailed Jira project plan has been created, including Gantt chart, dependencies, responsibility and ownership, acceptance criteria and deadlines of concurrent activities. Reviewed in fortnightly sprint planning.
- **Documentation management** - A collaborative working space has been established on the UKPN SharePoint
- **Budget control** – Project Manager and each Work Package owner will maintain oversight on project spend. Each partner will flag discrepancies from the spend trajectory.
- **Tight timeline** - Split the work in smaller, two-week sprints for better progress monitoring. Multiple shorter weekly progress meeting to catch issues and blockers early, with transparency of work and progress easy to see on Jira.
- **Short month (December) -** Re-organised sprint structure to avoid having more than 1 Bank Holiday in any given sprint. Planning to avoid any deliverables last week of December
- **Partners under sourcing of staff on the project** – all partners have assured staff availability and ringfenced resources for the project.

Project Tasks, Deliverables & Milestones

Status	Description	Start	End	Comments
☑	Draft, update and maintain 2nd Level Plan	02/10/2023	30/10/2023	
☑	Kick-off meeting	02/10/2023	16/10/2023	
☑	Team onboarding	02/10/2023	16/10/2023	
●	Project management	02/10/2023	01/04/2024	
●	Project governance documents in place	30/10/2023	13/11/2023	Signatures imminent
●	Risk and Issue Management	02/10/2023	01/04/2024	
●	Technical oversight	02/10/2023	01/04/2024	
●	Delivery oversight	02/10/2023	01/04/2024	
●	**D1.1: Project closure**	02/10/2023	01/04/2024	
●	**M1.1: Project completion**	02/10/2023	01/04/2024	

Summary

●	Overall	Project delivered as per plan.
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WP2: UKPN DATA, ASSET AND TESTING SUPPORT

02 October 2023– 01 April 2024, Lead: UK Power Networks

Details

Objectives:

- Support in general coordination of delivery of the project and direction of non-technical aspects of project and reporting in accordance with funder guidelines.
- Ensure access to data and/or expert advice in the areas of corporate data, asset/process management and operation and project output testing.
- Provide support via introductions, organisation, content creation and/or delivery of strategic engagement sessions.

Risks, Issues & Barriers:

- **Availability of UKPN stakeholders** - PM to support in accessing stakeholders. Strong level of support from senior management achieved during Discovery Phase.
- **Availability of UKPN data** – phased approach to requests, data agreements covered in collaboration agreement (signing in progress). Discovery phase identified data shortlist.

Project Tasks, Deliverables & Milestones

Status	Description	Start	End	Comments
●	Project management	02/10/2023	18/03/2024	
●	Data support	02/10/2023	18/03/2024	
●	Asset support	16/10/2023	18/03/2023	
●	Testing support	13/11/2023	18/03/2024	
●	Strategic engagement support	13/11/2023	18/03/2024	
○	**D2.1: UKPN engagement and data gathering**	18/03/2024	01/04/2024	
○	**M2.1: UKPN engagement and data gathering**	18/03/2024	01/04/2024	

Summary

●	Overall	Project delivered as per plan.
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●	Scope	Project delivered the agreed scope.
●	Cost	Project delivered within allocated budget.

WP3: NG ESO ASSET AND TESTING SUPPORT

27 November 2023– 01 April 2024, Lead: NG ESO

Details

Objectives:

- Support in general coordination of delivery of the project and direction of non-technical aspects of project and reporting in accordance with funder guidelines.
- Ensure access to expert advice in the areas of corporate data, asset/process management and operation and project output testing.

Risks, Issues & Barriers:

- **Contract not signed so have not mobilised**
- **Availability of NG ESO stakeholders** – PM to support in accessing stakeholders.
- **Demonstrator testing delays** – plan enough time allocation for testing.
- **Partner under sourcing of staff on the project** - partner assurance of staff availability and ringfenced resources for the project.

Project Tasks, Deliverables & Milestones

Status	Description	Start	End	Comments
	Project management	27/11/2023	18/03/2024	Delayed due to contract signing
	Asset support	25/12/2023	18/03/2024	Delayed due to contract signing
	Testing support	22/01/2024	18/03/2024	Delayed due to contract signing
	D3.1: NG ESO engagement of user research, design validation and prototype testing	18/03/2024	01/04/2024	Delayed due to contract signing
	M3.1: NG ESO engagement of user research, design validation and prototype testing	18/03/2024	01/04/2024	Delayed due to contract signing

Summary

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WP4: CReDo ASSET AND SYSTEM MODELLING

02 October 2023– 18 March 2024, Lead: CPC

Details

Objectives:

- Obtain preliminary versions of asset, network and climate data to be handed over to leads on WP5 and WP6 to enable early start of those streams.
- Process subject matter expert knowledge into a preliminary modelling framework for both assets and system cascade. This is to be handed over to leads on WP5 and WP6 to enable early start of those streams.
- To obtain final versions of above items and hand over to WP5 and WP6 leads to enable latest part of their development work.

Risks, Issues & Barriers:

- **Appropriate climate data not available** - Elicitation process should uncover the heat conditions which lead to increased risk of asset failure so tool can be designed in absence of actual data. Fictional data could be used as illustrative for demonstration purposes in CReDo in the absence of real data
- **Challenges with extreme heat asset modelling** – Discovery concluded this was viable. Will continue to monitor progress and deliver through phased approach. Supported by academic researchers with expertise in Bayesian modelling.

Project Tasks, Deliverables & Milestones

Status	Description	Start	End	Comments
☑	Preliminary asset and network data provision and processing	02/10/2023	30/10/2023	Complete
☑	Preliminary climate data provision and processing	02/10/2023	30/10/2023	Complete
☑	Preliminary structural and probability expert elicitation interviews	16/10/2023	13/11/2023	Complete
☑	Preliminary asset and system modelling	16/10/2023	27/11/2023	Complete
☑	**D4.1: Preliminary asset, system, and climate data and models**	02/10/2023	27/11/2023	Complete
●	**M4.1: Preliminary phase**	02/10/2023	27/11/2023	Complete
●	Asset and network data provision and processing	27/11/2023	25/12/2023	
●	Climate data provision and processing	25/12/2023	22/01/2024	
●	Structural and probability expert elicitation interviews	27/11/2023	22/01/2024	
●	Asset and system modelling	22/01/2024	04/03/2024	
●	CReDo electricity generation discovery (with NG ESO)	25/12/2023	19/02/2024	Not started
●	**D4.2: Asset, system, and climate data and models**	27/11/2023	18/03/2024	
●	**M4.2: Full phase**	27/11/2023	18/03/2024	

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WP5: CReDo EXTREME HEAT PROTOTYPE

27 November 2023– 01 April 2024, Lead: CMCL

Details

Objectives:

- Update core CReDo technology to accommodate new input data, modelling outputs and other supporting data needed to develop the extreme heat use case for the energy sector.
- Loading new asset and weather event data into the CReDo prototype.
- Integrate extreme heat failure models into the prototype and update visualisation to show relevant insights.
- Run the prototype for an extreme heat scenario and provide a demo of new functionality.

Risks, Issues & Barriers:

- **Late delivery of sample asset and hazard data (describing extreme heat)** - Delivery of required information has been split to include a preliminary phase to ensure timely delivery of the minimum information necessary to allow dependent activities to commence in a timely manner.

Project Tasks, Deliverables & Milestones

Status	Description	Start	End	Comments
	Update ontology	27/11/2023	08/01/2024	
	D5.1: Extension of CReDo ontologies for asset and hazard data for extreme heat scenario	08/01/2024	22/01/2024	
	M5.1: Extension of CReDo ontologies for asset and hazard data for extreme heat scenario	08/01/2024	22/01/2024	
	Load asset and hazard (i.e. extreme heat) data into CReDo prototype	11/12/2023	22/01/2024	
	Integrate preliminary heat failure models into CReDo prototype	11/12/2023	22/01/2024	
	Integrate heat failure models into CReDo prototype	22/01/2024	19/02/2024	
	Visualisation of hazard and asset data for extreme heat scenario in CReDo prototype	22/01/2024	18/03/2024	
	Run demonstrator of CReDo prototype for extreme heat scenario	05/02/2024	18/03/2024	
	D5.2: CReDo extreme heat demo	18/03/2024	01/04/2024	
	M5.2: CReDo extreme heat demo	18/03/2024	01/04/2024	

Summary

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WP6: DIGITAL ELICITATION TOOL PROTOTYPE

27 November 2023– 18 March 2024, Lead: STFC

Details

Objectives:

- Wireframe digital elicitation prototype concept for initial stakeholder engagement to obtain key feedback for further design.
- Prototype key components of digital elicitation tool (i.e. the model and the questionnaire builder features)
- Put in place preliminary version of required infrastructure between key components to support early prototype of the tool.
- Deliver user testing of prototype and gather/process feedback for future development cycles.
- Deliver and demonstrate capabilities of digital elicitation tool prototype.

Risks, Issues & Barriers:

- **This WP has been at risk as STFC have raised some issues with the contract terms** – However the contract has now been submitted for signature
- **If the key resources are not available for elicitation interviews and consultation within the required time, then the relevant insights will not be created and the quality of the conclusions and feasibility for Beta Phase will be reduced.** - Avoid: The resource planning has been done but will need to be formalised following approval of the funding being awarded. A detailed plan and project governance should ensure that resources are secured and provided ample notice of work commitments.

Project Tasks, Deliverables & Milestones

Status	Description	Start	End	Comments
●	Wireframe for stakeholder engagement	27/11/2023	08/01/2023	Work has been done at risk
●	Model and questionnaire builder prototypes	11/12/2023	05/02/2024	
●	Infrastructure / loose couplings between builders	05/02/2024	04/03/2024	
●	Iterative user testing	08/01/2023	18/03/2024	
●	**D6.1: Digital elicitation tool prototype**	04/03/2024	18/03/2024	
●	**M6.1: Demonstrate prototype tool capabilities**	04/03/2024	18/03/2024	

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WP7: BUSINESS CASE AND COST BENEFIT ANALYSIS

27 November 2023– 01 April 2024, Lead: CPC

Details

Objectives:

- Build a logic model/theory of change output for the CReDo extreme heat use case extension to illustrate key steps in successful long-term development.
- Engage with UKPN to obtain necessary data, information and feedback for the development of the business case and analysis.
- Populate data, assumptions and information to underlying model and perform the cost benefit analysis.
- Write business case and cost benefit analysis.

Risks, Issues & Barriers:

- **CBA template supplied by UKRI for Beta will require material rework of business case and CBA undertaken in this WP** – will take a standards based approach by reviewing the CBA approach in UKPN, and green book standards. Will monitor the release of the UKRI template and assess for impact as soon as possible.

Project Tasks, Deliverables & Milestones

Status	Description	Start	End	Comments
	Logic model / theory of change	27/11/2023	25/12/2023	
	Data gathering & engagement	11/12/2023	22/01/2024	
	Populate model with data	08/01/2024	05/02/2024	
	Cost benefit analysis	22/01/2024	19/02/2024	Template changing
	Write Business Case	05/02/2024	18/03/2024	
	QA and Sense checking	19/02/2024	18/03/2024	
	D7.1: CBA and business case	18/03/2024	01/04/2024	
	M7.1: CBA and Business Case	18/03/2024	01/04/2024	

Summary

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	Cost	Project delivered within allocated budget.

WP8: ENGAGEMENT AND DISSEMINATION

30 October 2023– 01 April 2024, Lead: CPC

Details

Objectives:

- Validate demand and scaling assumptions via input from strategic stakeholders and compare our approach to others being developed internationally.
- Set up a data sharing for climate resilience and robustness groups key stakeholders from the energy sector.
- General dissemination of outputs of both Ofgem funded phases.
- Obtain a good understanding of the requirements for cross-sector data sharing from a legal point of view as an enabler for further work in the Beta Phase.
- Produce a project summary report.
- Deliver a workshop to showcase key aspect of the project to critical stakeholders.

Risks, Issues & Barriers:

- **Limited access to stakeholders** – CReDo is an ongoing programme with significant momentum and interest across stakeholder groups. UK Power Networks and National Grid ESO enable good coverage of wider energy sector stakeholders. Innovate UK have offered to facilitate introductions to other projects.

Project Tasks, Deliverables & Milestones

Status	Description	Start	End	Comments
●	Strategic stakeholder engagement across sector to validate demand and scaling assumptions	30/10/2023	19/02/2024	
☑	Set up data sharing for climate resilience and robustness working group	27/11/2023	22/01/2024	
○	Dissemination of CReDo+ discovery and alpha lessons and findings across sectors	19/02/2024	01/04/2024	
●	**D8.1: Project report**	30/10/2023	01/04/2024	
●	**D8.2: Workshop to showcase project with key representatives**	19/02/2024	04/03/2024	
●	**M1: Engagement and dissemination**	30/10/2023	01/04/2024	
●	**M2: Support on engagement and dissemination across sectors**	30/10/2023	01/04/2024	

Summary

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GOVERNANCE

Project specific conditions

Scheduling

CONDITIONS

Projects Specific Conditions

- **Condition 1:** The Funding Party must not spend any SIF Funding until contracts are signed with the Project Partners named in Table 1 for the purpose of completing the Project.
  - *We have not spend any SIF funding yet, as contracts are not signed*
- **Condition 2:** The Funding Party must report on the financial contributions made to the Project as set out in its Application. Any financial contributions made over and above that stated in its Application should also be reported and included within the Project costs template.
  - *The project is on time and on budget*
- **Condition 3:** The Funding Party must make reasonable endeavours to participate in all meetings related to the Project that they are invited to by Ofgem, UKRI and DESNZ during the Alpha Phase.
  - *Attended Kick off and mid-point as planned*
- **Condition 4:** During the Alpha Phase, the Funding Party must engage with the team behind the round 2 Alpha Phase Project 'NIMBUS' to examine areas of potential commonality and overlap, and how the Projects could inform each other on their findings. Innovate UK can facilitate an introduction if necessary.
  - *Have met with Project Nimbus, planned follow up*
  - *Invited to join the CREDO+ Resilience Working Group and they will present at the second session.*

SCHEDULING

To be discussed

- End of project date: Propose 25/03/24
- Show and tell – Date to be suggested from UKRI
- Beta Phase schedule – open discussion
  - Cost benefit analysis template / project management book

AOB

Any Other Business

THANK YOU