Net Zero Terrace Streets

UtilityWeek AWARDS /2024 ★ FINALISTS ★

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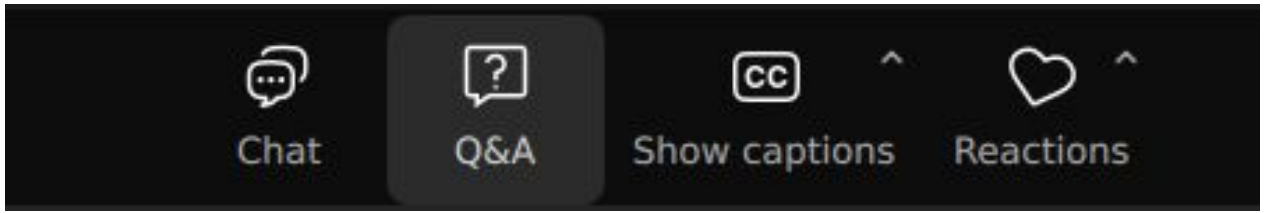
Housekeeping

- This webinar is being recorded
  - We'll share the recording and slides afterwards
- Please only **ask questions using the Q&A button** (not the chat)
  - Upvote questions you like
  - Check if anyone else has already asked a similar question



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Agenda

- NZTS in a nutshell - what is it?
- Catch-up on progress
  - Spotlight on Rossendale Borough Council
  - Spotlight on Demonstrator
  - Techno-Economic Model & Customer journey
- Q & A
- Next webinars 2025 how to get involved in NZTS

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Net Zero Terrace Streets in a nutshell

How do you decarbonise terraced streets?

- 6 million 2-3 bed terraced homes in the UK
- Rossendale 14,000 terraced homes
- Older homes, hard to treat, mixed tenure
- Local area energy plans don’t cover delivery in terraces
- Not getting district heating
- No external space for ASHP
- Electric boilers cost people much more to run
- Grid pressures
- People are worried about energy costs

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The NZTS solution: healthy warm homes & affordable low carbon heat at no upfront cost

- Street by street engagement with Fairer Warmth App/Platform & Energy Champions
- Identify clusters of interest
- Optimal home retrofit
- Shared ground loop boreholes (GSHP)
- Heat pumps, hot water tank, radiators
- Solar panels
- Smart local energy system – flex ready
- Payment by a standing charge fee

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Principles

- No up-front costs for residents & **affordable**
- Community engagement & support
- Enable Demand Side Response
- Using local and community energy
- Investment in the infrastructure with standing charge repayments over long term
- Grant-free **investable** place-based model
- Non-extractive – community-based service
- **Standardised, replicable and scalable - streamlining process and aggregating investment**

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Net Zero Terrace Streets Project - Partners

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ROSSENDALE BOROUGH COUNCIL

CEE Centre for Energy Equality

BURO HAPPOLD

Cynger Bwrdeistref Sirol Pen-y-bont ar Ogwr BRIDGEND Borough Council

Community Energy England

WOMBLE BOND DICKINSON

Kensa Group

SPENCER WEST

Challoch ENERGY

UrbanChain

Coleg Penybont Bridgend College

INFRASTRUCTURE BANK

nuVision ENERGY(WALES)LTD

IoT Horizon
SMART SOLUTIONS FOR THE FUTURE

Funding

Department for Energy Security & Net Zero

north west net zero hub

UKRI

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Spotlight on Rossendale Borough Council

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ROSSENDALE BOROUGH COUNCIL

Why is RBC involved?

- Climate change strategy
  - Net Zero operational emissions by 2030
  - Council operation emissions 0.6% of borough
  - 33% of borough's emissions from domestic buildings
  - Small council, benefits to partnership working
- Housing challenge
- Working for best outcomes for our residents - local, targeted action
- Good for the local economy, jobs and skills

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ROSSENDALE BOROUGH COUNCIL

Actions and Outputs

- Supply chain and skills mapping
- Policy analysis
- Guide for LAs
- Stakeholder engagement including PRS
- Facilitating and supporting demonstrator homes

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Spotlight on Demonstrator

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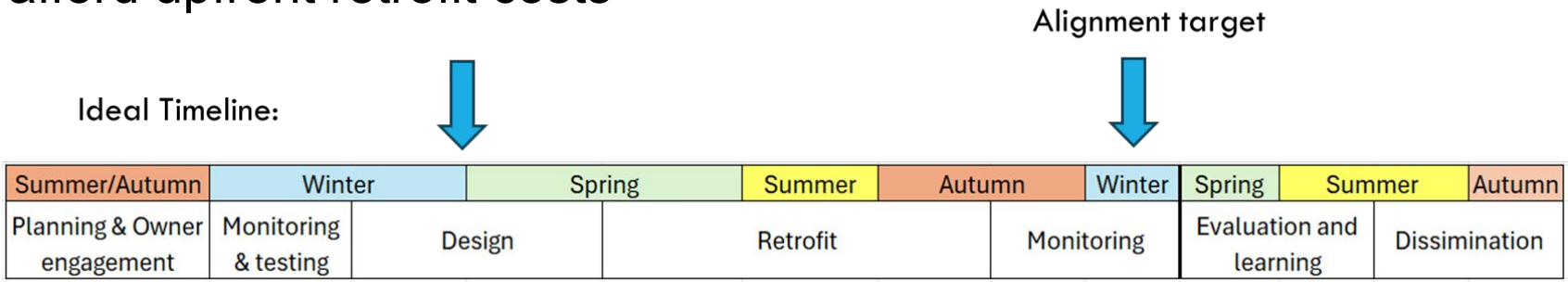
Time is of the essence - Timing is of the essence

- Climate emergency
- Cost-of-living crisis
- NHS crisis

- Timeframe restrictions on funded projects
- Retrofit and heat loss tests are seasonal

Urgent: creating warm healthy homes for those who cannot afford upfront retrofit costs



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Three demonstrator homes
Archetypal design

- Used in large-scale retrofit schemes
- 1 design per archetype - adjusted to each individual property
- Rossendale: stone terraces, 4 main archetypes:
  - Mid-terrace (2 in same street)
  - End-terrace
  - Back-to-back mid-terrace
  - Back-to-back end-terrace (1)

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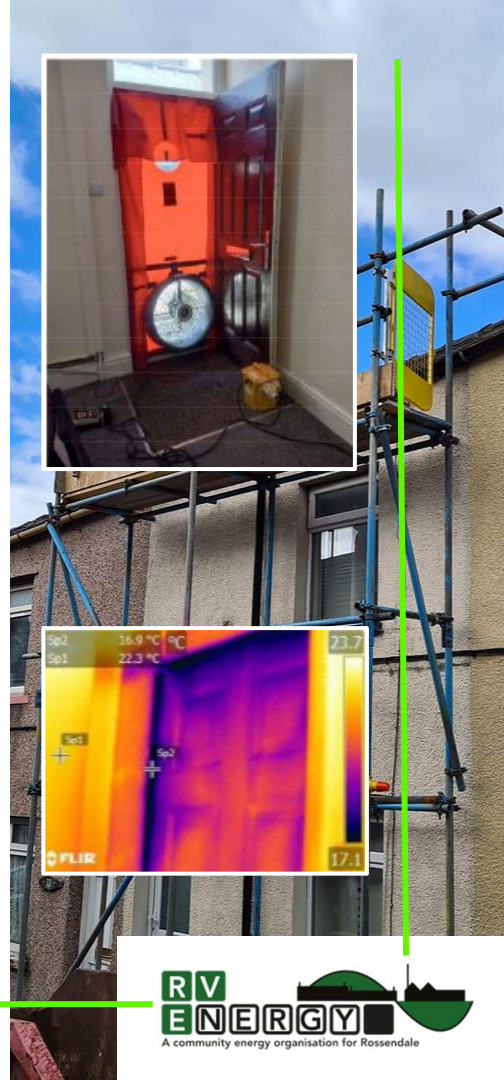
Three demonstrator homes Assessments & Monitoring

- Gold-plated approach for assessments
- Next year: evaluation in terms of
  - Cost-effectiveness
  - Scalability
  - Disruption for the householder
  - Educational potential (installer/householder)

- Monitoring: Temperature, humidity, pressure, CO_2, particulates, outdoor weather data, sensors for windows and doors, occupancy questionnaire
- BS 40101:2022
- 5 year occupancy - long-term monitoring



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Three demonstrator homes Retrofit Standard

- Most/all retrofit standards = Fabric First
- Fabric first is great, but not always affordable
- Create our own standard
- Design a shallow retrofit to accommodate a pre-sized GSHP (incl. considerations for whole-house retrofit, PAS 2035)

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Three demonstrator homes Learning

- Low risk, high quality - Traditional buildings - QA
- Procurement: Large scale + “direct to consumer”
- Vulnerable households
- Early engagement is key
- Credit meters vs prepayment meters - Energy justice
- Sequence of works, working with several contractors, heat pump journey
- Complexities of planning applications, road closures, usage of hydrants for the drilling - good relationship with LA

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Behind the scenes: Customer journey & Techno-Economic Model and Financial Model

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Work streams

- **Three home demonstrator**
- **Service Model & Service Blueprint**
- Building Energy Model & **Techno Economic Model**
- **Financial Model**
- NZTS deployment plan - governance and legal forms
- Legal templates/ contracts
- Supply chain engagement
- Procurement research and strategy
- Working with Bridgend and Future Partners including **Local Authorities**

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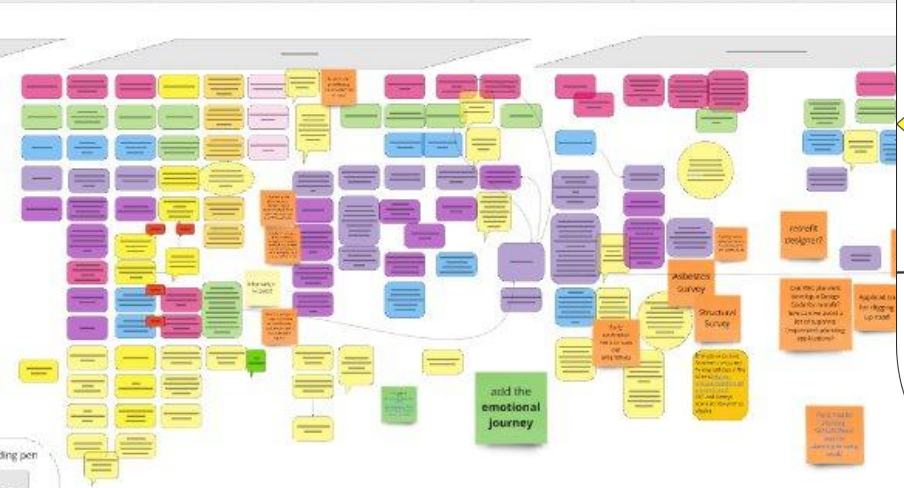
Customer journey, Service Model & Service Blueprint

Service Blueprint analysis to inform Organisational Governance, Operational Governance, Procurement, Contracts & Contract Management



KEY

d — tag : digital

local SPV — Actor

p — tag : physical (non-digital) or in person

P — Inhouse /Proc — Procure or in-house

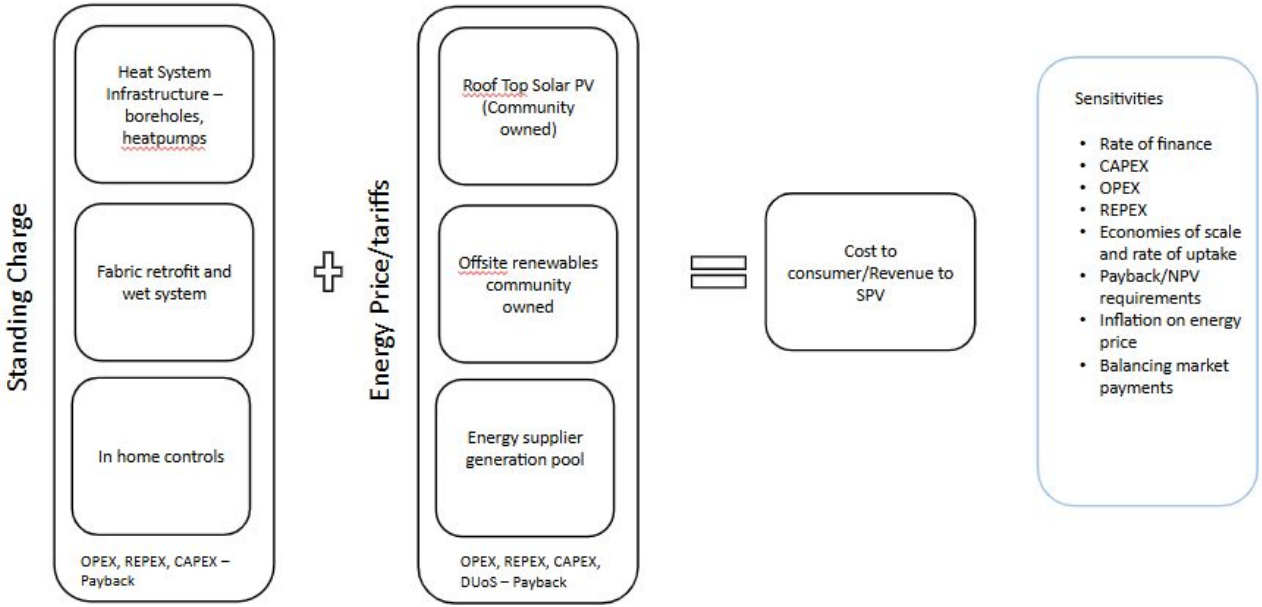
Quality Assurance — Function *(attached to actor and maybe to transaction)*

C — Contract

meter reading sent → Direction of transaction between actors (will have description attached)

Possible KPIs for Quality Assurance and Contract Specification and Management

Techno-Economic and Financial Models



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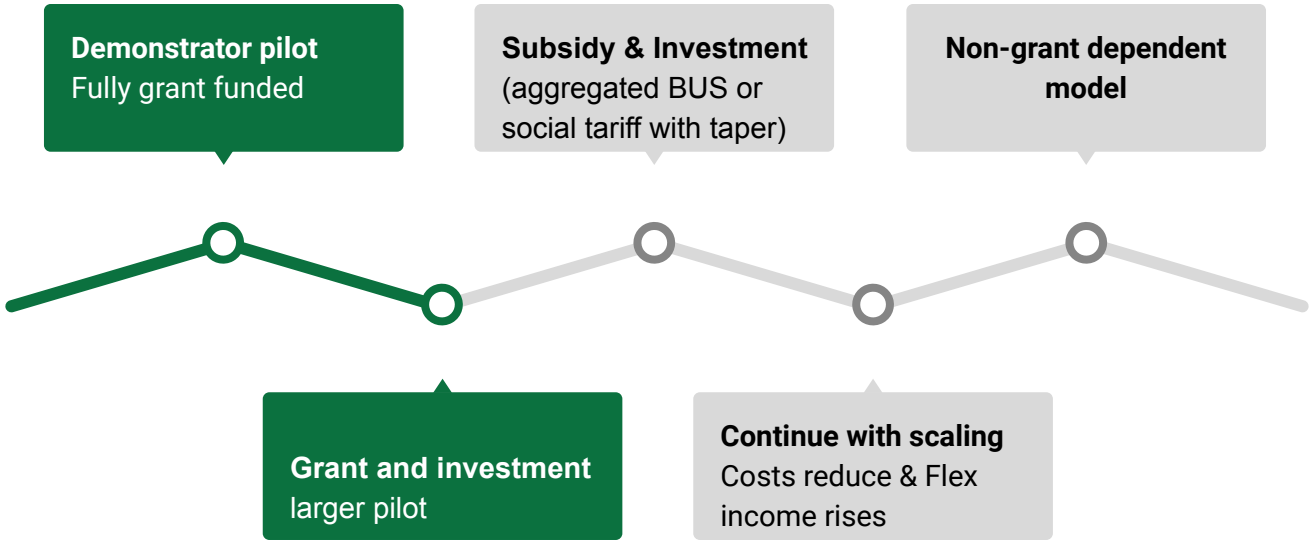
Stages of grant vs investment



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Questions

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What next?

Keep in the loop: follow progress and subscribe to the newsletter at https://nzts.info

Two Deeper Dive webinars in Feb 2025:

- **Local Authorities: Thurs 13 Feb 1-2pm** https://bit.ly/NZTSforLAs
- **Community Organisations: Thurs 27 Feb 1-2pm** https://bit.ly/NZTSforCommunity

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