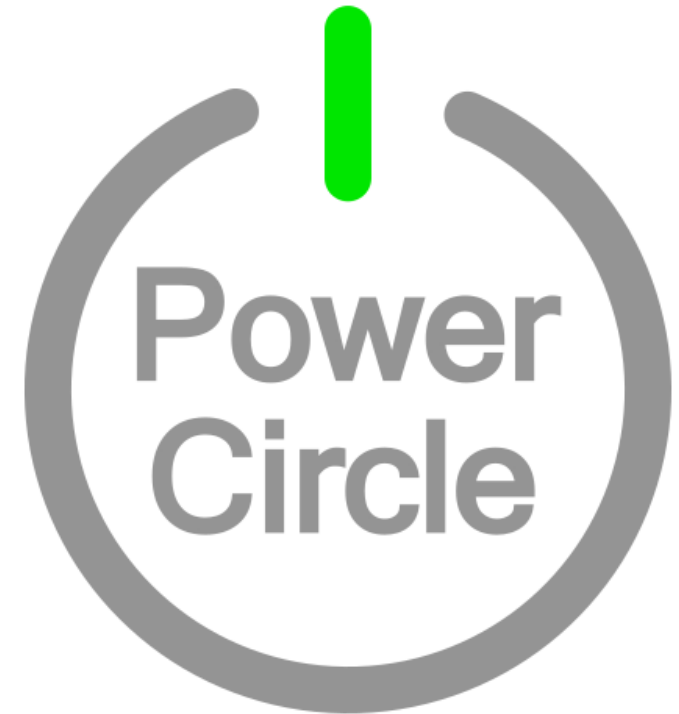# Power Circle SHIELD and Solar Circle

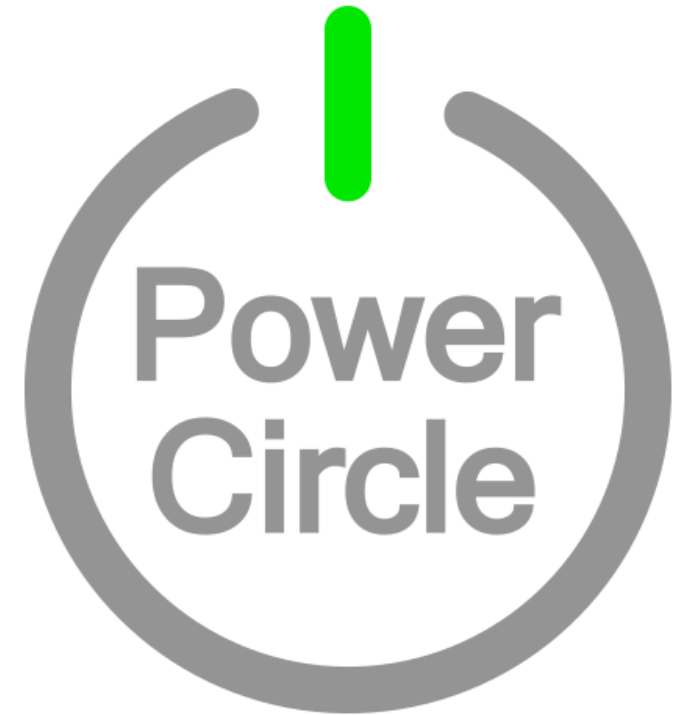# APSE Scotland Climate Change and Renewables Network

Tuesday 25th March 2025

Power Circle – who we are

- Power Circle Projects Ltd develops, manages and, where required, arranges funding for low carbon energy projects. With a focus on smart local energy systems.

- Our Mission is to enable local energy users to access low carbon energy at scale in a way that is affordable, fair and breaks down social barriers.

Power Circle

Power Circle Delivering Local Energy

SHIELD - the problems it addresses

- High levels of fuel poverty, homes often under-heated

- Progress to net zero too slow

- High upfront costs of net zero measures, scarce funds, time and expertise

- Low benefit of shift to heat pumps

- Need for a just and inclusive transition – at scale

…Landlords and homeowners need an effective solution

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SHIELD - how SHIELD solves the problem 1

Technical innovation

- Smart energy system with PV and Battery: cutting electricity bills
- New heating solution using heat from data processing – at each home
- Main revenue is from data services to third parties. Very low cost of heat
- Zero volumetric charge for heat – use all the heat you need
- Helps meet big growth in demand for data centre capacity – with big cuts in carbon
- Also trialing new type of domestic wind – without noise and vibration

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Delivering Local Energy

Ridgeblade - ridge-mounted wind

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SHIELD - how SHIELD solves the problem 2

Business model innovation

- Socially owned energy services company – social esco
  - Develops, funds and manages low-carbon energy systems on behalf of landlords and homeowners.
  - Aggregates these systems for scale economies and to secure patient, low-cost finance from institutional and other funders
- Revenue from grid services and from voluntary carbon market
- New form of project funding – revenue-based finance
- Local energy market – peer to peer trading

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SHIELD - Impact and scaling

- Pilot home customer experience: 'life-changing'

- 40%+ reduction in energy costs for households in fuel poverty

- 90+% reduction in carbon emissions

- SHIELD Beta Phase in Essex over next two years: 300 installs, 100 with Thermify heat solution. Scale up starts 2027.

- SHIELD target: 100,000 installs per year by 2030 (comparison: CCC target 450,000 heat pump installs per year by 2030). Expressions of Interest sought now to support planning for scale up

- Funded PV Programme Solar Circle starts this year

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Solar Circle: funded solar PV proposition

We install PV and in some cases battery storage at no upfront cost to customer

For homes and businesses

Customer signs an Energy Supply Agreement/PPA with us

Monthly billing: twin bill system, keep original supplier. One bill option under review

Long term price fix (CPI-linked)

We will use solar PV and battery to export electricity not used onsite and provide grid services

Scope to establish a Local Energy Market

Customer can buy system at any time

System reverts to customer ownership after 30 years

Pilot outcomes

Currently charging pilot customers in Essex 16.8p/kWh

Ofgem price cap from April 2025: 27p/kWh

Solar Circle: 2025 onwards

Phase 1 fund: £10m.Planning now for Phase 2 £40m and Phase 3 £100m+

Revenue Based Finance for our project company

No fixed term for repayment

There are regular quarterly repayments, based on a % of revenue and multiplier of fund provided (payments continue until that figure is reached)

The problems that Revenue-Based Financing solves

Conventional debt requires fixed payments unrelated to project performance

Conventional risk-sharing finance is equity requiring dilution or elimination of social ownership

Still retains scope for gearing with conventional debt in subsequent phases

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Power Circle project companies

Two established social esco project companies

- Essex Community Energy

- Power Circle Energy Services

Scope for further project companies: Scotland?

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SHIELD and Solar Circle - Contact

Jon Cape

Managing Director

Jon.cape@powercircle.org.uk

07577 564092

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