We Are Energy
Strategic Implementation Plan: Phases 1-4 (2025-2050)

Executive Summary

We start with people, not tools.

We Are Energy is building a member-owned movement that transforms how people power their lives through genuine energy democracy. At the heart of our mission stand the families, communities, and organisations whose lives we're changing - delivering immediate energy independence while creating genuine cooperative ownership of the systems that serve them.

The Challenge We're Solving

While over 70% of UK households want solar systems, fewer than 4% have them due to prohibitive upfront costs of £8,000-£15,000. Meanwhile, energy poverty affects millions of families who remain trapped in a system designed for corporate profit rather than community benefit.

The Opportunity: Proving Energy Democracy Works at Scale

We Are Energy is developing the UK's first cooperative-owned next generation solar pv gigafactory, demonstrating that when communities control essential infrastructure, everyone prospers. Our strategic implementation plan shows how democratic ownership can scale from 501 founding members to 10+ million cooperative owners by 2050.

Our Revolutionary Solution: The Energy Efficiency Lease Model

Our **energy efficiency lease model** removes every barrier to clean energy access while creating genuine cooperative ownership:

Zero upfront costs - We supply, install, and maintain everything

Immediate 50% discount on all energy used versus Ofgem price cap throughout the 7.7-year lease term

Post-lease energy abundance - Members pay only off-peak rates for imported energy while enjoying free use of all generated and stored power for life

Cooperative dividends - When we achieve sustainable PAT-positive margins, members share in our success through annual dividends and our Energy Democracy Fund

Lifetime member benefits - Free battery replacements, system upgrades, and democratic participation in energy system decisions

Our Inclusive Community Approach

We serve diverse community needs through the same cooperative ownership structure - from individual households to shared roof communities, small businesses, and public organisations. Each member receives tailored solutions while participating in collective ownership and democratic governance.

Phased Implementation Plan

Phase 1 (2025-2027): 501 founding member-owners proving energy democracy works

Phase 2 (2028-2030): 6,300+ bill paying members deepening community impact across regions

Phase 3 (2031-2035): 690,000+ member-owners transforming UK energy democracy and 150,000 wholesale customers benefitting from next generation systems made in UK.

Phase 4 (2036-2050) 12+ million people experiencing energy democracy through direct membership and cooperative replication, with 7 million bill paying members enjoying our full energy efficiency lease proposition and democratic dividends, whilst the remaining 5.4 million are indirect wholesale customers

Validated Financial Sustainability

- £6B+ NPV delivering £317bn+ in total value to members through energy savings (£300bn) and cooperative dividends (£17bn)
- Ethical manufacturing with 20% human rights compliance premium funded by member investment
- Tandem perovskite technology achieving 30% efficiency improvements maximising member value
- 12+ million people experiencing energy democracy by 2050 through direct membership and cooperative replication.

Our Vision: Beyond Clean Energy to Abundant Living

When abundant, affordable energy meets community ownership, entirely new possibilities emerge. The homes of 2035 won't just consume less energy - they'll become productive spaces where energy independence enables new forms of prosperity, where cooperative ownership creates regenerative community economics, and where kitchen appliances might grow fresh food powered by member-owned renewable systems.

The Cooperative Difference

Our cooperative structure ensures that all benefits flow directly to members rather than external shareholders, creating a regenerative economic model that grows stronger as it scales. This isn't just about clean energy-it's about transforming how communities can own and control the essential infrastructure that powers their lives.

This plan shows how cooperative principles, applied to energy systems, can eliminate fuel poverty while building the foundation for a future where abundant, democratic energy enables new forms of community prosperity and environmental regeneration.

Phase one Funding Requirement

We are seeking a senior debt facility of **£235 million** to fund Phase One (2025–2027). This facility covers our core CAPEX (£177.3m), OPEX (£13m), and a prudent strategic buffer for supply chain volatility (£45m).

Table of Contents

Introduction: A Factory to Serve the People Who Will Own It

We Are Energy is not just building a factory-we are building the infrastructure for a future where abundant energy meets community ownership. Our mission begins with one core innovation: putting people first.

At the front of our business model stand our members - families, communities, and organisations whose lives we're transforming through energy democracy. Behind them sits our revolutionary proposition: the energy efficiency lease model that delivers instant 50% energy savings with zero upfront costs. Supporting this are our tools - ethical manufacturing, cooperative governance, and community partnerships. At our foundation lies patient capital that serves member needs, not shareholder extraction.

Our Gigafactory is the first of its kind: public-owned, built for the benefit of its members, and designed to deliver energy not as a commodity, but as a tool of liberation, resilience, and regeneration.

Our mission begins with one core innovation: the energy efficiency lease. A model that enables people, businesses and organisations-regardless of income or circumstance-to benefit from world-class solar + storage systems on their buildings, without up-front cost, without complexity, and with full transparency. This lease is not a product; it's a pathway to shared ownership in the energy transition. It is how we bring climate justice, energy equity, and public innovation into a single business model.

This document sets out how we will deliver that vision-phase by phase, role by role, number by number.

At the heart of Phase 1 is a singular goal: to prove our model by delivering our first pilot installs at scale. Not just panels and batteries, but a full-service experience that puts our members' lives at the centre: local jobs, trusted support, measurable savings, and tools that empower families to understand, manage, and benefit from their energy. Every design decision in this plan-financial, technical, staffing, or operational-flows from that ambition.

In Phases 2, 3 and 4 we scale. But we don't just replicate factories - we deepen impact. The systems we build will grow alongside new cooperative services in food, transport, heating and cooling, clothing, and care. Abundant, low-cost energy will power a new circular economy rooted in place, supported by technology, and owned by the many.

This plan is not based on speculative inventions. It is based on what exists today-and on our determination to coordinate it better, deploy it more fairly, and deliver it in service of people, not profit.

Customer focus: Inclusive Solutions for All

At the heart of We Are Energy's business model sits a commitment to inclusivity: ensuring every type of household, business, and community can access the benefits of energy democracy. Our segmentation strategy delivers tailored solutions and fair value across society's full spectrum—not just the easy-to-reach.

We serve:

- Residential owner-occupiers: households living in their own homes—detached, semi, terrace and rural properties—receive zero-upfront-cost solar and battery systems, instant 50% bill savings, and a pathway to full cooperative membership.
- Shared roof customers: landlords, housing associations, local authorities, joint freeholders and tenants of multi-tenancy buildings access our shared systems, typically serving eight resident households per site. Each resident—not just the owner—enjoys real bill savings and the right to join the cooperative, ensuring the urban and social housing sector shares in the energy transition.
- SMEs: from independent shops and small factories to local charities, SMEs benefit from no-capital solar solutions and predictable savings, supporting their growth and community resilience.
- Community and public sector institutions: schools, faith organisations, and local authorities anchor the adoption of clean energy and act as catalysts for local awareness, skills and co-op participation.
- BIPV: institutional landlords and developers integrate solar plus storage directly into new or majorly renovated buildings, joining the co-op as long-term stewards with community and climate alignment at their core.
- Wholesale partners: independent PV and system installers, facility managers, and aggregators, who purchase our market-leading hardware and technology packages to reach customers beyond our direct lease offer. Wholesale is modelled using a weighted mix of the primary segments by 2035, but wholesale customers and bill payers do not become members, nor do their systems contribute to our pooled revenues or flexibility services.

Every segment—across all UK regions—is carefully modelled using weighted averages for adoption and usage, ensuring our projections reflect the real diversity of Britain's housing, business, and social fabric, as detailed in our plan and model appendices. This approach guarantees inclusivity and financial resilience, with measurable impact from North to South across the UK.

Customer First Benefits: The We Are Energy Value Proposition

- Our energy efficiency lease model delivers exceptional value to every segment:
- Immediate Impact: 50% bill reductions from day one across all segments
- Long-term Value: Projected 25-year savings of £19,495–£360,606 per customer installation (modelled by segment)
- Environmental Benefit: 20–450 tonnes of CO_2 savings per customer, measured using the UK government's grid intensity factor
- Zero Upfront Costs: Every eligible customer receives a complete system without the barrier of high initial investment

- Democratic Ownership: Member-builders and bill payers drive our model, ensuring benefits are retained locally and fairly
- Transparency: Every regional, financial, and impact claim in this plan is tied directly to our published model assumptions and market analysis
- Property value / EPC: A building with solar increases in value by up to **14%** and at the same time improves the energy performance (EPC) of the building meaning its more attractive to buyers and more efficient to use.

Our segmentation is mapped to the UK's real households, businesses, and community networks, so our energy democracy delivers both national and neighbourhood-scale prosperity.

Management & Leadership

We Are Energy's leadership combines proven strategic capability with deep commitment to energy democracy, ensuring our cooperative model scales from 501 founding members to 10+ million owners whilst maintaining the democratic principles that differentiate us from corporate competitors.

Paul Phillips – Founder & Chief Executive Officer

Paul leads We Are Energy's mission to build genuine energy democracy through community ownership of essential infrastructure. His strategic vision centres on proving that cooperative principles enhance rather than compromise operational excellence, creating superior outcomes for members, communities, and stakeholders.

As founder, Paul has established the partnerships, governance frameworks, and financial strategies that position We Are Energy to challenge the extractive energy economy through democratic ownership. His leadership integrates rigorous planning with cooperative values, ensuring every strategic decision serves member prosperity rather than shareholder extraction.

"We succeed when our members prosper through genuine ownership of the infrastructure that powers their lives. Our role is building energy democracy that serves people and planet."

Executive Team Development

We Are Energy will attract world-class talent committed to both technical excellence and cooperative transformation. Our leadership recruitment prioritises:

- Proven sector expertise in energy, manufacturing, and infrastructure development
- Genuine commitment to democratic ownership and community wealth creation
- Track record of scaling complex operations whilst maintaining ethical standards
- Leadership capability for the transition from startup to national energy infrastructure

Key Leadership Roles:

- Chief Operating Officer – Manufacturing excellence and community embedding
- Chief Financial Officer – Patient capital stewardship and member-focused finance
- Chief Technology Officer – Innovation leadership and digital democracy platforms

Governance as Competitive Advantage

Democratic governance creates stakeholder loyalty that corporate competitors cannot replicate:

- Member commitment through genuine ownership rather than consumer relationships
- Community resilience ensuring local support and operational stability
- Policy alignment with government objectives for democratic energy ownership
- Long-term perspective driven by cooperative principles rather than quarterly returns

Core Principles:

- One Member, One Vote – democratic decision-making at all scales
- Open Book Finance – real-time transparency through member dashboards
- Community Benefit Priority – surplus serves members, not external shareholders

Implementation Readiness: From Strategy to Action

Strategic Foundation Complete

We Are Energy's comprehensive planning demonstrates how cooperative principles can scale energy democracy from 501 founding members to 10+ million owners whilst delivering superior outcomes for communities, climate, and stakeholders. Our strategic foundation is now complete and ready for implementation.

Community-Centred Development Status

Democratic Governance Framework Established:

- Cooperative governance systems designed for scaling genuine member participation from local to national levels
- 70% local hiring commitment ensuring prosperity flows to communities we serve rather than distant shareholders
- Regional council structure enabling community voice in energy infrastructure decisions affecting their lives

Market Validation Approach:

- Initial community research confirms strong interest in genuine energy ownership over corporate customer relationships
- Founding 501 member recruitment strategy developed with grassroots community engagement principles
- Reserved Roofs campaign with all UK local councils ongoing. This will look to agree a memorandum of understanding between the councils and We Are Energy to reserve council owned roofs across their portfolio to become early founding members with delivery of the Energy Efficiency Lease to as wide a range of segments as possible. Main focus will be on shared roof buildings - averaging 60 units per building - to meet the identified main council stock demand and to reduce fuel poverty across council ratepayers.
- Democratic participation frameworks designed to scale member involvement as cooperative grows

Financial Structure & Investment Readiness

Patient Capital Framework:

- **Phase One Senior Debt: £235 million facility** covering CAPEX (£177.3m), OPEX (£13m), and a £45m strategic contingency buffer. To be developed with UK Infrastructure Bank and ethical lenders aligned with cooperative principles

- **£43M community member equity** structure developed ensuring democratic accessibility through £10k household investment limits
- **£48M ethical bonds** sequenced to construction and scaling milestones
- **£XM grants** identified supporting community benefit rather than private profit extraction

Strategic Partnership Development

Technology Leadership Targets:

- **Oxford PV** identified as preferred partner for 30%+ efficiency tandem cells serving member energy independence
- **Siemens** targeted for automation systems enabling quality manufacturing jobs within cooperative workplace principles
- **Ethical supply chain** framework prioritising community benefit and worker rights over cost reduction

Manufacturing Hub Strategy:

- **Teesworks 12-acre site** identified as preferred location for community-owned manufacturing infrastructure
- Planning strategy developed with community consultation and local economic benefit prioritised
- Site acquisition discussions ongoing and planned following funding confirmation

Immediate Implementation Dependencies

Next 6-12 Months:

- Executive recruitment prioritising cooperative values alongside technical expertise
- Funding completion enabling community ownership rather than corporate control
- Technology partnership negotiations ensuring community benefit in all agreements
- Site acquisition and planning applications with comprehensive community consultation

Phase 1: Foundation & Prototyping (2025–2027)

1.1 Strategic Overview

Phase 1 begins with our founding members - the first 501 households who will prove that energy democracy works. While we establish our 120MW manufacturing capability, our true measure of success is the transformation we create in people's lives: immediate 50% energy bill reductions, cooperative ownership stakes, and the foundation for abundant energy communities.

While we establish our 120MW manufacturing capability, our true measure of success is the transformation we create in people's lives: immediate 50% energy bill reductions, genuine cooperative ownership stakes, and the foundation for abundant energy communities across the UK

Our core fundraising campaign - A £235 million senior debt facility designed to cover core CAPEX (£177.3m), Phase One OPEX (£13m), and a £45 million strategic buffer to mitigate supply chain and commissioning risks. An additional £30M from community equity funding, the start of our ethical bond raise rounds of £16M in 2027 and £XM of grants, where available, from innovate UK / Horizon EU. This enables us to acquire a 12-acre Freeport site and launch our first 120 MW Tandem Perovskite line. This phase includes establishing the Teesside site, deploying our first Tandem Perovskite line, and integrating Oxford PV tandem licensing for future scaling.

Our Founding Members' Journey

Each of our 501 or more founding members will experience the complete energy efficiency lease transformation:

- **Zero upfront investment** - We supply, install, and maintain everything
- **Immediate energy independence** - 50% discount on all energy used from day one
- **Cooperative ownership** - Democratic participation in our governance and strategic decisions
- **Community building** - Connection with like-minded members committed to energy democracy
- **Future abundance pathway** - Clear journey toward post-lease energy freedom and dividend participation

Cooperative Governance Foundation:

Phase 1 establishes the democratic structures that will scale with our membership:

- Member assemblies for key strategic decisions
- Skills-sharing networks connecting members with complementary expertise
- Community engagement programs building energy literacy and cooperative participation

- Regional representation structures preparing for Phase 2 expansion

Target funding sources:

- UK Infrastructure Bank debt initial facility £235M for Phase 1 completion
- Community equity funding £30M
- Ethical bond issuance £16M
- And where regional and local grants become available £XM

Key Phase 1 deliverables:

- Launching the pilot factory on a 12-acre Teesworks site
- Establishing 120 MW/year Tandem Perovskite production capability
- Securing key partnerships with Oxford PV, Siemens, and local composites firms
- Introducing energy efficiency lease model for initial customer cohort starting in 2027
- Creating 91 direct jobs by 2027 with 70% local hiring from Teesside area
- Cooperative governance and member engagement metrics established

Phase 1 Key Facts

Key Metric	2025	2026	2027
Members	0	1	501
Total Revenue £M	£0.00	£0.00	£0.68
Staff Headcount £M	£0.024	£3.2	£5.27
Total OPEX £M	£0.21	£4.54	£8.23
CAPEX £M	£60.04	£61.12	£56.10

1.2 Capital Expenditure (CAPEX)

Phase 1 CAPEX covers all costs for site acquisition, factory build, equipment, automation, digital twin, licensing, and pilot innovation for a 120 MW/yr ethical manufacturing systems ensuring our founding members' energy independence is built without exploitation. A fully automated PV gigafactory at Teesside Freeport. All supply chain partners are UK/EU/Japan/India-based with no Chinese or US exposure. Costings are validated against NREL, Fraunhofer, IRENA, and recent EU/UK gigafactory benchmarks, with a full audit trail.

Our Phase 1 investments in ARM/CRM systems, digital twin, and integrated automation are intentionally front-loaded to enable seamless expansion in Phases 2–3. This approach

reduces future CAPEX, accelerates scaling, and builds a proprietary digital/IP asset base, supporting our long-term growth and resilience.

CAPEX Components:

- Land acquisition (12 acres at Teesside Freeport)
- Factory construction (BREEAM Outstanding standards)
- Manufacturing equipment (non-Chinese, ethical supply)
- Automation & robotics (KUKA/Festo lines at 1,200 modules/hr)
- Digital twin (Siemens Xcelerator suite)
- Oxford PV licensing (for tandem cell technology)
- Material innovation (Victrex composites and recycled aerospace aluminium)
- Battery storage (On-site 5MW PV and 10MWh BESS)

CAPEX Schedule:

Year	Total CAPEX £M	Major Components
2025	£60.0	Site acquisition, factory construction start
2026	£61.1	Equipment installation, automation systems
2027	£56.1	Final equipment, commissioning, pilot line
Total Phase 1 Capex (inc 10% contingency)	£177.20	

Equipment & Materials Detail:

The following systems are included in the CAPEX:

- Ingot-to-Wafer Line: Wire saws, crucibles, and furnaces to process imported polysilicon (ethically sourced from Japan)
- Cell Line Equipment: Doping furnaces, PECVD and ALD machines for Tandem Perovskite layer, metallisation and testing
- Module Assembly: Lamination machines, EVA encapsulation, stringers, glass handling robots
- CFRP and Frame Assembly: Moulding lines, trimming tools, curing ovens
- Glass Supply: Tempered glass sourced from UK manufacturers with inline quality control

- Recycling Streams: End-of-life glass/metal recovery pre-processing lines
- Digital Twin Sensors: Embedded IoT sensors, smart junction boxes, and Siemens Xcelerator backend integration

1.3 Phase 1 Operating Expenditure (OPEX)

Phase 1 operations are focused and practical: we are building our manufacturing capability and preparing for our first customer installations starting in 2027. Our operational expenditure grows from £0.21M in 2025 to £8.23M in 2027, supporting the scaling of our team 91 staff members.

This is not a prototype or test lab. It's the foundation for our energy efficiency lease model deployment, proving that we can source, manufacture, install, and support distributed solar + storage systems that are better for members and better for the places they live and work.

OPEX Breakdown by Year:

Category	2025	2026	2027
Total Staff Cost £M	£0.21	£3.20	£5.27
Staff Headcount (roles)	2	51	91
Total OPEX £M	£0.21	£4.54	£8.23
			£12.98

Staff Development Focus:

- 124 core roles spanning factory, field ops, supply chain, digital systems, and member support
- High-trust, public-facing roles focused on excellent service delivery from day one
- 70% local hiring commitment from Teesside area
- Apprenticeship program partnership with Redcar & Cleveland College

Key Operating Systems:

- Oxford PV R&D Partnership for tandem cell development
- Factory utilities & logistics coordination
- Digital operations via Siemens Xcelerator systems
- Community training and engagement programs

1.4 Financial Confidence: Matching Funding to Our Member-Driven Model

Our cashflow bridge confirms what we already know: building for our members requires upfront investment-but it's structured, disciplined, and focused on delivering immediate value.

We have designed Phase 1 to:

- Invest early where needed (people, infrastructure, key equipment).
- Phase operational costs sensibly to match manufacturing ramp-up.
- De-risk our funding needs by aligning capital sources with spend phases.

Key Financial Takeaways:

CAPEX Commitment is Front-Loaded, Not Open-Ended

- Our total £177M Phase 1 CAPEX is largely committed by end-2026, ensuring the factory, team, and digital infrastructure are in place.
- This front-loads risk into a controlled window, rather than spreading uncertainty over many years and demonstrates disciplined capital allocation.
- **OPEX is a Bridge, Not a Burden**
  The £12.8M Phase 1 OPEX is fully budgeted against real delivery needs, with customer preparation tied to financial returns.
- Unlike many infrastructure projects, our model generates cash inflow as systems come online.

1.5 Key Partnerships

Our Phase 1 partnerships are carefully selected to ensure technical excellence, ethical supply chains, and community integration:

- **Oxford PV:** Exclusive UK license for perovskite tandem cell technology with pathway to 30% efficiency ideally secured
- **Siemens Digital Industries:** Full factory automation and digital twin implementation
- **Tees Valley Combined Authority:** Land, infrastructure, and skills pipeline
- **Victrex:** UK-manufactured advanced composites for lightweight, durable frames
- **Pilkington Glass:** Local supply of specialised solar glass with recycled content
- **Redcar & Cleveland College:** Apprenticeship program and technical skills development

1.6 Automation & Digital Twin Implementation

Phase 1 establishes our digital infrastructure foundation with:

- Full digital line control enabling predictive maintenance, ESG tracking, and customer energy sharing dashboard
- Integration with lease model dividend logic and grid flexibility services
- KUKA KR C5 robotics arms + Festo pneumatic lines (1,200 modules/hr)
- Real-time defect detection (0.01% error rate)
- Predictive maintenance (23% downtime reduction)
- Carbon tracking (Scope 3 ESG)
- Energy sharing dashboard & member dividend logic

1.7 Community & Environmental Value

Our Phase 1 community impact includes:

Local Economic Development

- 40+ direct jobs created in manufacturing, installation, and member services
- 70% local hiring commitment
- Local skills development programs training community members for energy sector careers- 45 apprenticeships/year from local colleges
- Supply chain partnerships with local businesses committed to ethical practices
- Community investment through procurement and hiring preferences

Energy Democracy Education

- Member energy literacy programs empowering informed participation in energy decisions
- School and community presentations sharing cooperative energy model
- Policy advocacy training enabling members to advocate for energy democracy
- Peer learning networks connecting members across different community segments
- Preparation for customer onboarding starting 2027

Additional community initiatives include

- 85% water reuse and 78% recycled materials utilisation
- Foundation for significant CO_2 offset as members come online
- Support for Teesside's green industrial development
- Skills development for local workforce
- Community engagement programs

1.8 Financial Viability

Phase 1 viability is underpinned by a funding model that matches risk with instrument, demonstrating strong IRR and £6B+ NPV flowing back to the members through cooperative ownership over the 25-year projection period. Our funding structure supports the manufacturing build-out phase that prepares us for customer deployment starting in 2027.

Phase 1 Funding Sources:

Source	Amount £M	Purpose
Debt borrowing	£235	Infrastructure and equipment
Community Equity Raised	£30	Member ownership stakes
Bonds	£16	Green finance for ethical manufacturing
Grants when available	£X	Technology development, site preparation

1.9 Risk Mitigation

Key risk mitigation strategies for Phase 1 include:

- Member disconnection from governance: Monthly member assemblies, skills-sharing networks, and democratic decision-making training
- Operational pressures: Cooperative principles embedded in all operational procedures and member oversight of key decisions
- Diversified polysilicon sourcing from Japan
- Tandem parallel line technology hedge
- Local labor pipeline development
- Comprehensive cybersecurity compliance framework
- Technology performance: Conservative projections with performance guarantees to members
- Supply chain disruption: Diversified ethical suppliers with strategic inventory management
- Regulatory changes: Active policy engagement and scenario planning with member input

1.10 Phase 1 Milestones

2025:

- Q1: Land acquisition and planning permissions secured
- Q2: Factory construction begins
- Q3: Equipment procurement and digital systems development
- Q4: Initial team hiring and training begins

2026:

- Q1: Factory shell completion
- Q2: Equipment installation begins
- Q3: Commissioning of first Tandem Perovskite line
- Q4: First test panels produced and certified

2027:

- Q1: Full production capacity (120MW) achieved
- Q2: Member joining experience and systems operational
- Q3: First member installations commence
- Q4: 501 founding member-owners connected by year end

From 501 to Energy Democracy

Our 501 founding members aren't just proving our business model - they're demonstrating that when people control their energy systems, entirely new possibilities emerge. By 2027, these pioneering member-owners will have saved over £500 each on their energy bills in the first year while building the foundation for a cooperative movement that will transform how millions of people power their lives.

Phase 1 succeeds when our founding members experience genuine energy democracy: lower bills, democratic control, community connection, and a clear pathway to the abundant energy future we're building together. In line with our vision these founding members become the foundation for new cooperative services in food, transport, and care-proving that when energy becomes abundant and community-owned, entirely new forms of prosperity become possible.They become the living proof that cooperative ownership delivers superior outcomes while creating the community infrastructure for Phase 2's regional expansion.

Looking ahead: As tandem perovskite technology comes online from early 2029, the cooperative will have the option to consider offering founding members priority access to technology advances, recognising their pioneering role in proving energy democracy works.

This foundation of 501 transformed lives becomes the springboard for energy democracy across the UK - demonstrating that when we start with people, not tools, we create solutions that serve communities rather than extracting from them.

Phase 2 (2028-2029): Deepening Community Energy Democracy

2.1 Strategic Overview

Phase 2 transforms our proven cooperative model from 501 founding member-owners to 5,727 direct members by 2029 experiencing genuine energy democracy across diverse UK regions. This expansion isn't about building bigger factories-it's about deepening our impact by bringing cooperative energy ownership to communities that have been excluded from clean energy benefits.

While we expand manufacturing to 1.2GW capacity and introduce tandem perovskite technology from early 2029, our mission remains unchanged: putting people first by delivering energy independence through genuine cooperative ownership.

In phase 2 we start to deliver solution across nearly all our target customer types. Residential, Shared Roof, SME and Community / Public buildings.

Phase 2 Strategic Priorities:

- Member value enhancement through tandem technology delivering 25-30% efficiency improvements
- Regional energy democracy expansion across new communities and segments
- Cooperative governance scaling via digital democracy platforms
- Community wealth building through local job creation and skills development
- Wholesale partnership introduction supporting ethical installers whilst building direct member base

Phase 2 Key Facts

Key Metric	2028	2029
Members (bill paying)	3,349	6,385
Total Revenue £M	£4.70	£10.70
Staff Headcount (roles)	132	148
Total OPEX £M	£14.46	£18.71
CAPEX £M	£70.80	£142.61

These figures represent more than business growth-**they show 6,385 households achieving energy independence** whilst building the financial foundation for Phase 3's national expansion to over 500,000 members.

We start preparations for delivering our wholesale indirect offer to support installers across the full range of segments from residential to community scale. This enables better

utilisation of factory capacity whilst we build out our direct customer base, maintaining our member-first approach whilst serving broader energy democracy goals.

2.2 Phase 2 CAPEX Summary

Phase 2 builds directly on Phase 1's foundation, expanding factory production capacity from 120MW/year to 1.2GW/year specifically to serve our growing membership whilst maintaining ethical manufacturing standards. Our £196M Phase 2 investment expands capacity to serve member needs rather than speculative growth.

Our Phase 1 investments in automation, digital systems, and member support scale with minimal duplication. What we add in Phase 2 are the assets that enable us to serve more people, with better products, at lower cost-including the first production-ready tandem line, expanded CFRP panel tooling, and enhanced battery assembly capabilities.

CAPEX Components:

- Manufacturing capacity expansion serving member growth from 3,349 to 6,385 member-owners
- First commercial tandem cell production line maximising member energy generation from early 2029
- Expanded material innovation for CFRP frames ensuring system durability for member benefit
- Enhanced battery assembly and logistics hubs improving member energy independence
- Factory energy independence system (20-25MW) demonstrating our commitment to abundant energy

CAPEX Schedule

Year	Total CAPEX	Major Focus
2028	**£70.80**	**Manufacturing expansion, tandem line development**
2029	**£142.61**	**Capacity scaling, automation enhancement**
Total Phase 2 Capex	**£213.41**	

Every pound invested serves a clear member purpose: the phased investment approach ensures manufacturing capacity matches member growth, avoiding wasteful over-capacity whilst guaranteeing system availability for all member-owners.

2.3 Operational Costs (OPEX)

Phase 2 OPEX prioritises member transformation whilst building the skilled workforce that serves our cooperative mission. Our approach combines **caring** member support, **creative** community solutions, and **collaborative** partnerships.

Operating expenditure scales thoughtfully to support our growing member base whilst maintaining cooperative principles throughout our operations. Every operational investment serves member value creation and community development rather than simple business expansion.

OPEX Growth Pattern:

Opex Costs Phase 2 2028-2030

Year	2028	2029
Staff Cost	£7.48	£8.40
Import Energy Cost	£0.14	£0.29
Utilities	£0.25	£0.27
Maintenance + Spares+Cyber Security	£0.40	£0.51
Marketing & Acquisition	£2.66	£4.77
Training & Community Outreach	£0.23	£0.28
Admin, Legal, Insurance	£1.76	£2.21
Facilities & Hubs	£0.21	£0.21
Total Opex 2028-2030 inc 10% contingency	£14.44	£18.63
Total Phase 2 Opex	£33.08	

These operational investments create direct member value: 148 jobs by 2029 provide career pathways in communities we serve, whilst comprehensive support systems ensure every member achieves projected energy savings.

Staffing & Organisation:

- Member Experience Teams ensuring every member achieves projected energy savings
- Site Energy Manager to oversee BESS, EMS, balancing and member facing services for optimal member benefit.
- Sustainability & Community Lead (to manage impact metrics and training).

- Technical Manufacturing: Assembly operators, tandem cell techs, frame specialists.
- Engineering & Automation: Robotics, testing, predictive maintenance staff.
- Installation Support & Logistics: Local deployment hubs, fleet coordination, supply chain.
- Community & Training: Apprenticeship delivery, energy justice engagement.

Staff Development Priorities:

- 70% local hiring commitment from communities we serve
- 28+ apprentices/year via community colleges, creating energy sector career pathways
- Cooperative workplace practices reflecting our values of care, creativity, and collaboration
- Community engagement specialists building energy literacy and democratic participation

2.4 Financial Confidence: Member Value Through Cooperative Scale

Phase 2 economics demonstrate how cooperative principles enhance rather than compromise financial performance, creating superior member outcomes whilst building sustainable community wealth.

Our cashflow bridge confirms that investing in member transformation creates sustainable returns whilst avoiding the extractive practices of conventional energy companies.

Key Financial Principles:

CAPEX Investment Serves Members: All capital expenditure directly enables serving growing membership with enhanced technology and guaranteed service quality

OPEX Creates Community Value: Operating costs fund local jobs, skills development, and member support systems

Revenue Model Sustainability: Energy efficiency lease payments create predictable revenue enabling continued member service and cooperative expansion

Unlike conventional business models, our financial structure ensures surplus flows back to members through dividends and community investment rather than external shareholder extraction.

2.4 Key Partnerships

Phase 2 partnerships are specifically designed to enhance member value and community impact whilst maintaining our commitment to ethical sourcing and cooperative principles:

Technology and Innovation:

- Oxford PV: Tandem cell technology partnership delivering 25-30% efficiency improvements for members from early 2029
- Warwick Manufacturing Group: Advanced materials R&D improving member system performance and durability

Community and Social Impact:

- Regional Distribution Network Operators: Grid integration ensuring member energy security and enabling community energy sharing
- Social Housing Providers: Large-scale shared roof programmes bringing energy democracy to social housing residents
- SME Federations: Supporting local business energy independence through cooperative membership

These partnerships demonstrate our **collaborative** approach-working with organisations that share our commitment to community benefit rather than extraction.

2.5 Automation & Digital Twin Implementation

Phase 2 enhances our digital capabilities to serve growing membership whilst enabling genuine democratic participation in energy decisions:

Enhanced Digital Manufacturing:

- Expanded KUKA/Festo robotic lines across residential and tandem module outputs ensuring consistent quality for member systems
- Integrated EMS (Energy Management System) with live energy/battery balancing optimising member energy independence
- Predictive maintenance systems delivering >25% maintenance cost reduction, protecting member system investments

Member-Centred Digital Democracy:

- Community energy sharing dashboard: Enabling peer-to-peer energy sharing among member-owners
- Democratic participation platform: Real-time member voting on technology choices and community investment priorities
- Member app with energy tracking: Transparent data showing energy generation, savings, and cooperative dividend calculations

Power Forward Member Loyalty System:

- Digital twin tracking: Member system performance and upgrade eligibility for enhanced lifetime value
- Member Upgrade Logic: Digital twin begins tracking lease cohorts' system age, performance, and upgrade eligibility, creating triggers for future panel and battery refresh offers
- Community energy donation logic: Members can choose to share surplus energy with energy-poor households

These systems embody our **creative** approach to technology-using digital innovation to strengthen community connections and democratic participation rather than replace human relationships.

2.6 Community & Environmental Value

Phase 2 demonstrates how cooperative principles create community wealth alongside member energy transformation:

Local Economic Development:

- 148 full-time jobs by end-Phase 2 with career pathways in communities we serve
- 28+ apprentices/year via community colleges building local energy sector expertise
- Regional supply chain development strengthening local economies through ethical procurement
- Community wealth retention through cooperative ownership rather than extractive business models

Environmental Leadership:

- Substantial CO_2 offset from 1.2GW/year ethical production capacity serving member-owners
- Member carbon impact: Each member avoiding 20-449 tonnes CO_2 over system lifetime through maximised renewable generation
- Industrial ecology initiatives: Frame recycling pilot with aerospace partners demonstrating circular economy principles
- Panel reuse/recycling: Pilot reclaim scheme starts in 2029 with modular retrofit design

Energy Justice Advancement:

- Energy poverty reduction: Expanding access to affordable clean energy via cooperative ownership across UK regions

- Democratic energy planning: Members shaping local energy infrastructure development through regional councils
- Community resilience building: Local energy generation and storage enhancing energy security

2.7 Financial Viability

Phase 2 builds on the proven economics of Phase 1, with significant scaling benefits reducing per-unit costs whilst maintaining our commitment to ethical sourcing and member-first principles.

Our cashflow bridge confirms that investing in member transformation creates sustainable returns whilst avoiding the extractive practices of conventional energy companies.

Key Financial Principles:

- **CAPEX Investment Serves Members:** All capital expenditure directly enables serving growing membership with enhanced technology and guaranteed service quality
- **OPEX Creates Community Value:** Operating costs fund local jobs, skills development, and member support systems
- **Revenue Model Sustainability:** Energy efficiency lease payments create predictable revenue enabling continued member service and cooperative expansion

Financial Performance Drivers:

- Improved unit economics through volume procurement and enhanced automation benefiting member pricing
- Enhanced return on invested capital flowing back to members through cooperative ownership structure
- Balancing services revenue development creating additional member dividend potential from aggregated member systems

Revenue Streams Serving Members:

- Energy efficiency lease payments creating predictable revenue for continued member service and expansion
- Grid services revenue from aggregated member systems with surplus shared among membership
- Wholesale partnerships supporting ethical installers whilst maintaining direct member focus

Shared Roofs - Density Resilience & Wholesale Arbitrage:

The sustainability of the 50% price discount for large shared-roof buildings, such as a 60-unit residential tower block, is underpinned by the cooperative's ability to operate as a smart energy aggregator rather than just a solar hardware installer . Even when physical roof space limits solar generation to 20% of total building demand, the financial model maintains viability through a combination of wholesale energy arbitrage, battery-driven demand shifting, and the high efficiency of next-generation technology .

Sustaining the 50% Discount

The core mechanism for the 50% discount is not solely dependent on solar generation; it relies on the Wholesale-to-Retail Arbitrage .

- Wholesale Off-Peak Import: The financial model assumes the cooperative imports electricity from the grid at wholesale off-peak rates, estimated at approximately £0.07/kWh plus a grid use uplift, totalling roughly £0.1274/kWh .
- Ofgem Price Cap Comparison: In contrast, the standard Ofgem Price Cap is modelled at roughly £0.325/kWh . By billing residents at 50% of this cap (approx. £0.1625/kWh), the cooperative maintains a positive margin even on the energy it imports, provided it is shifted to off-peak windows.
- Solar "Bonus" Margin: The 20% of energy generated by the solar array on-site essentially has a marginal cost of zero, which significantly increases the overall weighted average margin and offsets the costs of the 7.7-year lease model.

Large Shared Roof Mechanics

To supply a 60-unit tower block effectively, the model utilises specific distribution and storage technologies to ensure all residents benefit equally :

- Shared Distribution Technology: Use of devices like SolShare, which allows a single central PV system to be shared across multiple individual flat meters .
- Battery Energy Storage Systems (BESS): The model includes centralised battery storage sized to cover the "maximum daily import" requirement, ensuring that the building draws from the grid only during the cheapest off-peak hours .
- Tandem Perovskite Efficiency: 30% efficiency improvement maximises the energy yield from the limited roof space available on high-rise buildings.

Financial highlights:

- Balancing Services revenue stream development..
- Improved return on invested capital.

The financial model demonstrates substantial improvement in unit economics through cooperative scale, proving that member-first principles enhance rather than compromise economic performance.

2.8 Risk Mitigation

Our Phase 2 risk mitigation strategy reflects cooperative principles of mutual support and community resilience:

Technology and Supply Chain Resilience:

- **Grid Risk:** On-site storage mitigating outages and TOU exposure
- **Materials:** Dual-sourcing agreements with ethical suppliers
- **Labour:** Training pipeline expanded to multiple feeder institutions

Member and Community Engagement:

- Democratic participation maintenance: Digital platforms and regional councils preventing member disconnection as scale increases
- Community partnership strengthening: Multiple feeder institutions ensuring local skills development
- Cooperative governance innovation: Structures enabling member control whilst supporting efficient decision-making

2.9 Implementation

Technical delivery for high density blocks includes:

- **Metering & Distribution Control**: e.g SolShare or equivalent that allows a single solar array to be digitally "split" across 60+ individual flat meters without the need for 60 separate inverters.
- **Centralised BESS Scaling:** Enables transition from individual home batteries to Centralised Building Energy Storage Systems (BESS). For example for a 60-unit block, a containerised battery system (e.g., 250kWh+) is used to maximise off-peak import capacity for the whole building.
- **Billing & Data Platform Integration:** Our "Data Platform" delivers the cooperative's software and manages real-time billing for 60 different residents while ensuring the Communal Areas are also powered by the shared system to reduce council service charges.

Summary Table: Installation & Metering Approach

Step	Description
Roof Array	Central PV system sized for all households
Inverter & Battery	Installed centrally, connected to building supply
Distribution Board	Connects solar output to individual flats, using existing wiring where possible
Sub-Metering	Smart meters or sub-meters in each flat for accurate billing
Distribution Control	Device (e.g., SolShare) manages and monitors allocation of solar energy to each household

Step	Description
Data Platform	Provides real-time consumption and savings visibility for all residents

2.10 Phase 2 Milestones

2028:

- Q1: Planning permission secured for Phase 2 expansion
- Q2: Equipment orders placed for capacity expansion
- Q3: First tandem cell trial production
- Q4: Assembly line & CFRP frame production commissioned

2029:

- Q1: 500MW capacity achieved
- Q2: National campaign around energy justice and cooperative principles
- Q3: Enhanced automation systems operational, member app with real-time generation tracking launched
- Q4: Battery storage integration with all new installations, **6,385 members connected**, Power Forward upgrade programme development completed, full 1.2GW capacity operational

From 6,385 Members to National Energy Democracy

Our 6,385 bill paying member-owners by 2029 aren't just proving that cooperative energy scales-they're demonstrating that when communities control their energy systems, superior outcomes emerge for both people and planet. These pioneering members will have collectively saved millions on energy bills whilst building genuine cooperative ownership of the infrastructure that powers their lives.

Phase 2 succeeds when energy democracy becomes a lived reality across diverse UK regions-from individual households to shared roof communities, from small businesses to community organisations-all united by cooperative ownership and shared prosperity. Our 6,385 member-owners become the foundation for Phase 3's ambitious expansion to 700,000 bill paying members by 2035.

Looking ahead: Phase 2 positions us to scale our cooperative model while maintaining member-first principles. By 2030, we'll have proven that **cooperative ownership combined with ethical manufacturing** can deliver energy democracy at scale. Our 1.2GW capacity will serve hundreds of thousands of members through our distributed balancing and grid services - generating revenue streams that flow back to members rather than external shareholders.

The digital infrastructure we build in Phase 2 enables us to optimise energy flows, manage demand flexibility, and capture grid services revenue - all of which strengthens our cooperative's financial foundation and member value proposition.

Phase 3: National Network (2030-2035)

3.1 Strategic Overview

Building on Phase 2's successful expansion to 5,727 member-owners across UK regions, Phase 3 represents the full realisation of our cooperative vision: a member-owned energy system that serves people first. By reaching our full 5GW annual manufacturing capacity, we serve over 650,000 UK cooperative members by 2035, transforming how the UK powers its homes, schools, and workplaces.

This isn't just scaling up - it's scaling our impact. Every additional member strengthens our community-owned structure, creating more shared governance, more local jobs, and more community wealth. At this scale, we demonstrate that ethical manufacturing and mutual ownership can challenge the extractive energy economy whilst delivering superior outcomes for communities across Britain.

Core Mission: Energy Democracy at National Scale

- 1 million+ people served through their cooperative ownership
- £1B+ annual revenue flowing through member-owned infrastructure
- 5GW ethical manufacturing proving alternatives to exploitative supply chains
- National network of regional hubs bringing energy democracy to every community

Phase 3 builds on the digital democracy platforms and regional council structures established in Phase 2, scaling collective decision-making to over half a million member-owners whilst maintaining the personal relationships that define cooperative membership.

Phase 3 Key Facts

Key Metric	2035
Members (bill paying)	700,000
Total Revenue £M	£1,190
Staff Headcount (roles)	4619
Total Phase 3 OPEX £M	£2252
Manufacturing Output GW/year	5

These figures represent the maturation of energy democracy in Britain - proving that mutual ownership values can compete at national scale whilst delivering superior member outcomes and community benefits.

3.2 Capital Expenditure: Building for Members, Not Shareholders

Our Phase 3 capital investment of £655.0M focuses on infrastructure that serves our members' needs whilst maintaining our commitment to ethical sourcing and shared governance. This investment builds directly on Phase 2's 1.2GW foundation, expanding systematically to meet member demand rather than speculative growth.

Key CAPEX Focus Areas:

- Full rollout of tandem manufacturing lines - delivering 30%+ efficiency gains that directly benefit member energy generation
- Expanded battery assembly and integration - enhanced storage systems providing greater energy independence for members
- National installation and service hub network - local teams embedded in communities they serve
- Advanced automation for 5GW annual capacity - maintaining artisan quality whilst achieving industrial scale
- Digital platform enhancement for 1M+ members - tools enabling genuine collective decision-making in energy decisions

Investment Philosophy:

Every pound invested serves member value creation and cooperative resilience, not external investor returns. Our capital deployment prioritises long-term member benefit over short-term profit maximisation, ensuring infrastructure investments strengthen community ownership rather than corporate extraction.

CAPEX Investment Pattern:

The Phase 3 CAPEX schedule reflects systematic scaling that matches member growth, ensuring manufacturing capacity serves actual member needs whilst maintaining our quality and ethical standards.

CAPEX (Phase 3 2030–2035)

year	Phase	What	Spend £M	Yearly totals £M
2030	3	Land Reserve Finalisation	£10.20	£11.22
2031	3	Factory Expansion & Fit-Out	£97.50	
2031	3	Battery Assembly Facilities	£38.40	
2031	3	Battery Storage Rollout (150,000 customers)	£115.00	
2031	3	Digital Twin Infrastructure	£17.50	
2031	3	Upgrade Fund for Phases 1–2 Customers	£40.50	
2031	3	R&D Lab & Training Centre	£9.00	
2031	3	Upgrade Logistics Infrastructure	£16.00	£367.29
2032	3	BIPV & Tooling	£44.00	
2032	3	Robotic Module Assembly	£41.00	
2032	3	Energy Management System Deployment	£18.75	
2032	3	Community Energy Nodes	£15.00	£130.63
2033	3	Smart Module IoT & Grid Sync Tools	£30.00	
2033	3	Tandem Cell Coating Upgrade	£38.00	
2033	3	BESS Factory Microgrid Infrastructure	£24.00	£101.20
2034	3	Mobile Installer Training Fleet	£14.00	
2034	3	National Co-op Marketing Push	£9.00	
2034	3	Final Product R&D (AI tools + materials)	£17.50	£44.55
2035	3	Spare Parts, Line Redundancy	£21.00	£23.10
2036	3	Local Factory Site Prepping (future projects)	£8.00	
2036	3	Carbon-Negative Material R&D	£12.75	£22.83
2037	3	Capex Taper / Maintenance	£18.00	£19.80
Total	Phase3			£655.10

Our Phase 3 capital investment focuses on expanding the infrastructure needed to support national delivery of solar and storage-ethically produced, digitally supported, and member-owned.

3.3 Phase 3 Operating Expenditure: People Led Operations

Our Phase 3 operating costs are structured around delivering lifelong energy service to over 650,000+ members across the UK. This is about building the capability to support every household, school, workplace, and community who trusts us with their power - maintaining the personal service quality that made our Phase 2 expansion successful.

OPEX Structure:

Category	Total Phase 3 Opex £m
People Costs	£825
Marketing (non-staff)	£221
BESS System Non-CAPEX	£486
Import Costs	£112
Site Operations	£150
Install Support & Maintenance	£135
Community Engagement & Training	£37
Utilities (Non-Factory)	£6
Compliance & ESG Reporting	£5
Tech Tools & Services	£275
Total £m inc 10% contingency	£2,478

These operational investments create comprehensive member support systems that scale personal service rather than replace it with automation. Our distributed approach ensures local teams can respond to community needs whilst maintaining connection to our community benefit commitments.

People-Led Operational Structure:

- **Technology, Tools & Services:** Digital platforms for member engagement, factory automation, and governance systems that enable collective decision-making at scale.
- **Site Operations & Logistics:** National delivery network with regional hubs and field service teams rooted in local communities - extending the community-embedded approach proven in Phase 2.
- **Marketing & Community Engagement:** Value-led messaging and community-based acquisition models that build trust through authentic relationships.
- **Maintenance & Warranty:** Field service visits, spare-parts logistics, and module servicing with lifetime support guarantees - ensuring every member receives the service quality promised.

Our operational costs include meaningful staff bonuses, member dividends, governance systems, and community investment programmes.

3.4 Revenue Model & Financials:Distributed Services serving Members

Our Phase 3 revenue model generates £1B+ by 2035 through integrated streams that maximise member value whilst ensuring cooperative sustainability. Building on Phase 2, we scale financial performance through mutual ownership without compromise.

Revenue Breakdown (2035):

- Direct Customer billing income (63%)
- Export sales income (17%)
- Grid Balancing (5%) and Member facing services revenue (3%)
- Optional Up-front member contributions (1%)
- Wholes sale revenues (11%)

Distributed Services Model:

Our balancing and customer-facing services work directly with local DNOs alongside NESO, ensuring local optimisation that serves both grid stability and member benefit. This distributed approach, proven in Phase 2's regional expansion, generates stable revenue streams that support predictable member savings and cooperative dividend distribution whilst strengthening local energy resilience.

The model demonstrates strong financial performance with revenue reaching £1B+ by 2035, driven by our million-member cooperative structure that creates economies of scale whilst maintaining personal service quality.

3.5 Upgrade Programme & Retention: Lifelong Member Value

Our upgrade programme demonstrates mutual ownership values in action - ensuring early adopters benefit from technological advances whilst strengthening long-term member relationships. This builds directly on Phase 2's **Power Forward programme** development, now deployed at national scale.

Programme Elements:

- All member-owners reaching end of lease (8+ years) offered tandem upgrades - technological improvements that benefit members rather than generate corporate profits
- Retention incentive: new terms with enhanced benefits - recognising member loyalty through improved value propositions developed through participatory consultation
- Tandem cells improve generation efficiency, reducing space requirements - members receive more energy from existing installations
- Loyalty dividend pot reaches **£182M** for distributions to re-contracting continuous members - equivalent to average £256 per member per year when paid out in 2036.

This approach ensures we maintain relationships with early adopters whilst continuously improving system performance - creating a virtuous cycle of member benefit and cooperative strength. Unlike corporate competitors who profit from system replacement, our community-owned structure benefits when members achieve greater energy independence.

3.6 Staffing Plan: From Apprenticeship to Leadership

Phase 3 staffing expands to **4600+** team members supporting our national member base while maintaining the personalised service that defines our cooperative approach.

Key elements include:

- Regional installation and service hubs with dedicated teams embedded in local communities - extending the community-rooted approach that made Phase 2 successful
- Enhanced digital support and remote monitoring capabilities that anticipate member needs whilst maintaining human connection
- Expanded manufacturing staff for full 5GW capacity - skilled, well-paid jobs with clear progression pathways and cooperative workplace participation
- Community engagement coordinators for local energy democracy initiatives - building on Phase 2's collective decision-making innovations

Our talent acquisition strategy prioritises development pathways from apprentice to leadership, with 70% of management roles filled through internal promotion. This creates career security and workplace participation throughout our organisation, ensuring community benefit commitments are lived rather than just proclaimed.

3.7 Environmental & Social Impact

Phase 3 delivers transformative environmental and social impact across the UK, proving that community-owned structures can address climate crisis whilst creating community prosperity. This scales the community benefits demonstrated in Phase 2 to national significance.

Environmental Leadership:

- Significant lifetime CO_2 offset from 5GW installed capacity - demonstrating climate action through cooperative ownership rather than corporate greenwashing
- Ethical supply chains with 20% premium ensuring human rights compliance throughout our manufacturing - proving that doing right costs more but creates lasting value

Social Justice Impact:

- Substantial bill reductions for residential, shared roof & BIPV members averaging £750 annually - energy democracy that reduces fuel poverty through cooperative ownership, not charity
- Local hiring mandate: 70% of new roles from within regional areas - creating prosperity in the communities we serve rather than extracting wealth from them
- Member dividend pot: 10% of total revenue income set aside for loyal member-owners where EBIT turns positive (2036) - wealth creation through shared governance
- Dividend distribution **£182M** to 700,000 direct members by 2036 - proving cooperative economics can deliver superior member outcomes
- Priority access for fuel-poor homes via council partnerships - ensuring energy democracy reaches those who need it most, not just those who can pay most

Phase 3 proves that cooperative energy systems create comprehensive community benefits - from immediate bill reductions to long-term career opportunities, from environmental improvement to meaningful participation in essential infrastructure.

3.8 Risk Management & Future Options

Phase 3 risk management focuses on ensuring resilience at scale whilst maintaining our community-centred model and member focus. This builds on Phase 2's risk management systems, adapting them for national operations whilst preserving community focus.

Technology Resilience:

- Supply Chain Security: Long-term contracts with ethical suppliers
- Member Retention: Comprehensive upgrade and loyalty programs

Member Retention & Engagement:

- Comprehensive upgrade and loyalty programmes that reward long-term member commitment whilst ensuring all member-owners benefit from technological advances
- Governance systems that ensure member voice in major decisions - scaling the collective decision-making structures proven in Phase 2

Future Expansion Options:

- Additional manufacturing sites in other UK regions - bringing manufacturing jobs to more communities whilst maintaining ethical standards
- Vertical integration into community-scale storage - expanding member services without compromising mutual ownership values

- International cooperative replication models - sharing our success with cooperative movements globally rather than corporate franchise expansion

3.9 Phase 3 Milestones: Building Energy Democracy

Phase 3 milestones demonstrate the systematic building of energy democracy infrastructure whilst maintaining connection to member communities and community benefit commitments.

2031:

- Q1: Planning and preparation for 5GW expansion - member consultation on community priorities ensuring participatory input into major decisions
- Q2: First regional support hubs established - embedding cooperative presence in local communities based on Phase 2's successful community integration
- Q3: Enhanced tandem production operational - technological leadership serving member value rather than corporate competitive advantage
- Q4: Major member milestone achievements - celebrating collective success and shared governance in energy transformation

2033:

- Q1: "Power Forward" upgrade programme launched at scale - ensuring all member-owners benefit from technological advances through cooperative ownership rather than market access
- Q2: Advanced battery integration systems deployed - enhanced energy security for all members through improved storage capabilities
- Q3: National service network fully operational - comprehensive support from local teams maintaining personal service at national scale
- Q4: Approaching 250,000 member milestone - energy democracy gaining momentum across diverse UK communities

2035:

- Q1: Full 5GW capacity operational - proving cooperative manufacturing can compete at scale whilst maintaining ethical standards
- Q2: 650,000+ customer milestone achieved (77% members & 23% indirect) - energy democracy serving over half a million households
- Q3: Comprehensive cooperative dividend programme - £182M forecast to be set aside and distributed to loyal members demonstrating wealth creation through shared governance in Q1 2036
- Q4: Strategic assessment for post-2035 expansion - member-led visioning for the next decade ensuring cooperative direction remains democratically controlled

From National Energy Democracy to Global Transformation

Phase 3's success - transforming over half a million households through cooperative ownership whilst generating £1B+ in member-controlled revenue - establishes the foundation for our 30-year vision of abundant energy enabling new forms of community prosperity.

By 2035, our 650,000+ member-owners won't just have proven that energy democracy works at national scale - they'll have demonstrated that cooperative ownership delivers superior outcomes for communities, environment, and members alike. £182M in annual member dividends proves that when people control essential infrastructure, wealth flows to communities rather than distant shareholders.

Our 4,600+ cooperative colleagues, working from regional hubs embedded in local communities, will have shown that ethical manufacturing and democratic workplace practices can compete with corporate extraction whilst creating better jobs and stronger communities.

Looking ahead to Phase 4: Our national success becomes the foundation for international cooperative replication - not corporate expansion, but collaborative sharing of energy democracy with cooperative movements worldwide. Phase 3's achievements provide the proven model, financial sustainability, and governance systems needed to support global energy transformation through mutual ownership rather than corporate dominance.

This foundation of over half a million transformed lives, supported by thousands of cooperative jobs and proven financial performance, becomes the springboard for the abundant energy future envisioned in our strategic plan - where energy democracy enables entirely new possibilities for how communities can thrive, prosper, and care for both people and planet through genuine cooperative ownership.

Phase 4 (2035-2055) Regenerative Expansion

4.1 Strategic Overview: National Democracy to International Transformation

Building on Phase 3's remarkable achievement of serving over 650,000 member-owners whilst generating **£1B+ in annual revenue** through cooperative ownership, Phase 4 represents **We Are Energy's** evolution from national energy democracy to global regenerative transformation. Our post-2035 strategy extends beyond simply adding more members-it deepens our impact through technological evolution, community replication, and systemic change across multiple sectors.

This long-term vision positions **We Are Energy** as the foundation of a regenerative energy economy that serves community needs whilst proving that cooperative principles can scale to address global challenges. By 2050, our movement will encompass **10+ million direct and indirect members**, demonstrating that when people control essential infrastructure, entirely new forms of economic and social organisation become possible.

Our post-2035 strategy extends beyond simply adding more members-it deepens our impact through technological evolution, community replication, and systemic change. This long-term vision positions We Are Energy as the foundation of a regenerative energy economy that powers multiple sectors and community needs.

Vision: 10+ million members & indirect customers by 2050 with:

- **£39B annual revenue** (27% CAGR from 2035 levels) flowing through our member controlled infrastructure
- **17%+ household penetration** in our service areas
- **£1,500+ /household annual value** through savings and profit sharing
- **International replication:** Cooperative system sharing with movements worldwide

Extended Financial Projections:

Metric	2040	2045	2050	2055
Members	2,760,0788	6,385,778	10,510,778	14,635,788
Revenue	£4.831B	£9.657B	£38.895B	£54B
Technology	Enhanced Tandem	BIPV Integration	Adaptive AI	Regenerative Networks

Phase 4 transforms the abundant energy vision outlined in our introduction into lived reality-where kitchen appliances become market gardens, where community ownership enables new forms of prosperity, and where cooperative principles prove they can create the post-carbon economy our planet needs.

4.2 Fast Forward Upgrade Programme

A core element of our post-2035 strategy is the comprehensive **Fast Forward upgrade programme-We Are Energy's** commitment to ensuring every member benefits from technological advances throughout their cooperative membership. This initiative systematically replaces older systems with next-generation technology whilst renewing energy efficiency leases and deepening member engagement across decades.

Programme Philosophy:

Unlike corporate competitors who profit from system replacement, our cooperative structure succeeds when members achieve greater energy independence and community wealth. The Fast Forward programme embodies our commitment to lifelong member value rather than planned obsolescence.

Programme Components:

- **Technology Refresh Cycles:** Systematic replacement of Phase 1-2 systems with latest tandem technology achieving 32%+ efficiency
- **Battery Capacity Upgrades:** Enhanced storage systems to maximise flexibility revenue and grid resilience
- **Digital Platform Evolution:** Advanced community energy sharing, predictive maintenance, and autonomous optimisation
- **Member Loyalty Enhancement:** Preferential upgrade terms, enhanced dividend structures, and leadership opportunities

Implementation Timeline:

- **2036-2040:** Begin upgrade cycles for earliest Phase 1 installations
- **2041-2046:** Digital infrastructure, Tandem production and advanced automation upgrades & Regional hub expansion.
- **2046-2050:** Second-generation upgrades incorporating breakthrough technologies. Peak upgrade activity with 700,000+ system refreshes
- **2051-2055:** Third-generation systems with integrated building management

By 2045, over 500,000 systems will have been upgraded through the programme, creating a continuous cycle of renewal that maintains technological leadership while extending member relationships to **20+ years per member**. This ensures sustainable revenue growth aligned with our 27% CAGR projection whilst demonstrating that cooperative ownership delivers superior lifetime value compared to corporate alternatives..

4.3 Technology Evolution Pathway

We Are Energy's long-term technology roadmap ensures we maintain leadership in sustainable energy solutions whilst serving member needs and cooperative values. Each

technological advancement serves our mission of enabling abundant energy to transform how communities live, work, and prosper together.:

2035-2040: Enhanced Performance Era

- Tandem cell efficiency reaches 32% through Oxford PV partnership
- Battery energy density improves 40% while costs decrease 35%
- AI-driven energy management systems optimise household and community-level consumption
- Integration with heat pump and EV charging infrastructure

2040-2045: Building Integration Era

- Building-Integrated Photovoltaics (BIPV) becomes dominant installation method
- Adaptive energy systems respond to weather, occupancy, and grid conditions
- Community-scale micro-grids enable peer-to-peer energy sharing
- Carbon-negative manufacturing through enhanced recycling and bio-materials

2045-2050: Autonomous Energy Era

- Self-optimising energy communities with minimal human intervention
- Predictive energy balancing prevents grid stress before it occurs
- Integration with transport, heating, and industrial energy systems
- Quantum-enhanced energy storage and distribution technologies

2050-2055: Regenerative Network Era

- Energy systems that actively improve environmental conditions
- Closed-loop manufacturing with zero waste streams
- Integration with carbon capture and ecosystem restoration
- Energy abundance enabling new forms of economic and social organisation

This evolution pathway supports lifetime value per member growing from **£1B+ in Phase 3 to £54B by 2055,** whilst continuously improving energy independence, community resilience, and environmental benefits through technologies serving people rather than extracting from them.

4.4 Expansion Levers

Our growth beyond 2035 leverages three primary expansion mechanisms that maintain **We Are Energy's** commitment to democratic ownership whilst enabling global impact through cooperative replication rather than corporate expansion.

1. Technology Leadership

- Continued investment in R&D partnerships with UK universities and research institutions
- 35% efficiency gains in tandem cells through advanced materials and manufacturing processes
- Integration of emerging technologies including perovskite-silicon-CIGS triple junction cells
- Development of next-generation energy storage including solid-state batteries and hydrogen systems

2. Community Replication Model

- Franchise-style expansion enabling new cooperative energy communities
- Open-source technology sharing with other cooperative movements
- Training and support systems for community energy leaders
- Policy advocacy for cooperative-friendly energy regulations

3. Energy Democracy Fund

- 2.5% of annual revenues directed toward member-led climate and community projects (Fund starts to accrue monies when EBIT margin is over 25% in 2040)
- Investment in related cooperative enterprises (transport, housing, food systems)
- Support for energy democracy movements in other countries
- Research and development of post-carbon economic models

4.5 Regional and International Expansion

We Are Energy's expansion strategy embodies cooperative principles of mutual aid and shared prosperity rather than corporate market capture.

UK Regional Strategy (2036-2045):

- Regional cooperative federations with local governance structures
- Adaptation to regional energy needs (offshore wind integration, industrial partnerships)
- Support for rural and island communities with specialised solutions

International Replication (2045-2055):

- Technology transfer partnerships with cooperative movements in Ireland, Denmark, and Germany
- Support for Global South energy democracy initiatives

- Open-source publication of manufacturing processes and business models
- International cooperative development fund

4.6 Governance Evolution for Scale

As we scale beyond 1 million members toward X million by 2050, our governance model evolves to maintain genuine democratic control while enabling efficient decision-making across diverse communities and cultures.

Democratic Innovation:

- Digital democracy platforms enabling real-time member participation
- Regional councils with delegated authority for local decisions
- Youth leadership development ensuring intergenerational representation
- Integration with other cooperative sectors for holistic community development

Operational Excellence:

- AI-assisted decision-making for routine operational choices
- Predictive systems for supply chain, maintenance, and member service
- Automated financial management with full transparency to members
- Continuous improvement systems driven by member feedback

4.7 Financial Sustainability at Scale

Our financial projections demonstrate that We Are Energy's dual growth model - direct membership and wholesale partnerships - creates sustainable revenue whilst maintaining our commitment to democratic ownership and member benefit. Long-term Performance Indicators:

Member and Wholesale Growth strategy:

Customer Growth

Customer growth

Year	Direct Members	Wholesale Customers	Total Customers	Direct %
2035	710,778	0	710,778	100%
2040	1,860,778	900,000	2,760,778	67%
2045	3,485,778	2,900,000	6,385,778	55%
2050	5,110,778	5,400,000	10,510,778	49%

This balanced approach enables factory utilisation through wholesale partnerships whilst prioritising direct member growth that strengthens cooperative ownership and community wealth creation.

Revenue impact:

Revenue Growth

Revenue growth

Revenue Stream £M	2035	2040	2045	2050
Direct Member Leases	£658.2	£3,400.8	£5,939.4	£8,789.8
Wholesale Sales	£122.3	£501.5	£922.4	£852.7
Grid Services	£98.0	£384.2	£1,219.1	£26,600.2
Export Revenue	£311.5	£1,232.8	£2,480.4	£3,974.3
Total Revenue	£1,190.0	£5,519.3	£10,561.2	£40,217.1

Key Financial Principles at Scale:

- Per-customer operational efficiency:Falls to £1,478 (2050) demonstrating economies of scale serving member benefit
- Capital efficiency: Total gross fixed assets grow at 4% CAGR versus 25.4% revenue CAGR, proving cooperative investment discipline
- Member value creation: £2,400+ annual value per household through savings and profit sharing, demonstrating superior outcomes compared to corporate alternatives

Metric	2050	2055
IRR (inception to date)	20%	~25%
NPV (£B, 8% discount)	£6	~£25
Member Dividend (annual)	£590	~£650
EBITDA Margin	71%	~71%

Strategic Investment Programme:

Capex schedule 2036-2050

Enhanced Capital Investment Schedule (2036-2050)

Year	Total CAPEX (£M)	Strategic Investment Components	Amount (£M)	Depreciation Years	Notes & Strategic Rationale
2036	£136.06	Annual facility maintenance and upgrades to sustain 5GW, Local Factory Site Prepping (future projects), Carbon-Negative Material R&D, Smart Module IoT & Grid Sync Tools, Tandem Cell Coating Upgrade and BESS Factory Micro-grid Infrastructure			
2037	£33.77	Annual facility maintenance, Digital platform upgrades, Automation Systems Replacement			
2038	£27.17	Annual facility maintenance, Installation Equipment Expansion, 2026 cohort Battery replacement			
2039	£22.22	Annual facility maintenance, Regional Hub Development (Phase 1), 2027 Cohort Battery replacement			
2040	£54.25	Annual facility maintenance, Manufacturing Line Upgrades, 2028 cohort Battery replacement			
2041	£66.15	Annual facility maintenance, Digital Infrastructure Scaling, 2029 cohort Battery replacement			
2042	£32.58	Annual facility maintenance, Tandem Cell Production Upgrades, 2030 Cohort battery replacement			
2043	£53.88	Annual facility maintenance, Advanced Automation Systems			
2044	£39.80	Annual facility maintenance, Battery Technology Upgrade			
2045	£33.86	Annual facility maintenance, Regional Hub Expansion (Phase 2), 2031 Cohort battery replacement			
2046	£42.28	Annual facility maintenance, Digital Platform Next-Gen, 2032 Cohort Battery replacement			
2047	£52.31	Annual facility maintenance, Automation Replacement Cycle, 2033 Cohort Battery replacement			
2048	£106.35	Annual facility maintenance, Manufacturing Efficiency Upgrade, 2034 Cohort Battery replacement			

2049	£125.83	Annual facility maintenance, Technology Leadership Investment
2050	£129.74	Annual facility maintenance, Future Technology Platform, 2036 Cohort battery replacement

We Are Energy: Complete OPEX Extension Analysis (2035-2050)

The comprehensive operational cost projections demonstrate how systematic efficiency improvements and scale economies enable the cooperative to serve 10x more members whilst achieving per-customer cost reductions. This proves that cooperative principles enhance rather than compromise operational performance.

Total OPEX Growth Characteristics

- 2035 Baseline: £760M serving 0.9M members (£1,151 per customer)
- 2050 Projection: £10,481M serving 10.5M members (£997 per customer)
- Per-Customer Efficiency: 3.0% improvement in operational cost per customer
- Total Growth: 13.4x total OPEX growth vs 15.9x customer growth (efficiency gains evident)

Cost of Goods & Opex Summary

COGS & OPEX Summary to 2050

Year	2035	Scaling Factor %	2040	2045	2050
Total Members	660,778		2,760,778	6,385,778	10,510,778
Total COGS (£M)	£951		£1,363	£1,706	£1,663
Staff Numbers based on 2035 average costs	4,612		13,185	29,980	52,477
Members per Staff	143		209	213	200
People_Costs_£M	£266	50%	£760	£1,727	£3,024
Marketing_non_staff_£M	£102	60%	£327	£771	£1,365
BESS_System_Non_CAPEX_£M	£180	80%	£704	£1,741	£3,132
Import_Costs_£M	£61	70%	£291	£655	£1,174
Site_Operations_£M	£27	40%	£67	£145	£249
Install_Support_Maintenance_£M	£46	90%	£196	£492	£891
Community_Engagement_Training_£M	£9	50%	£27	£62	£108
Utilities_Non_Factory_£M	£1	FIXED	£5	£13	£23
Compliance_ESG_Reporting_£M	£1	FIXED	£4	£9.82	£17
Tech_Tools_Services_£M	£68	30%	£146	£297	£498

Total_OPEX_£M	£760		£2,527	£5,902	£10,481
Opex per customer	£1,151				£997

Strategic Investment Schedule Programme (2036-2050)

The extended capital investment programme demonstrates exceptional efficiency whilst maintaining We Are Energy's commitment to democratic ownership, ethical manufacturing, and member value creation throughout the transformational growth period to 2050.

Strategic Investment Highlights by Period

2038- 2048 Rolling Battery Replacement Programme

Across this period we plan to replace the members' batteries on a rolling schedule for batteries 10+ years in service with new technology batteries that will help maintain their loyalty whilst providing the backbone to support our grid and customer facing services.

2037-2040: Foundation Scaling Phase

This period focuses on establishing the infrastructure for massive customer growth acceleration. Key investments include automation systems replacement, digital infrastructure upgrades, and installation equipment expansion). The regional hub network development begins with investment in 2039, establishing the foundation for national operations .

2041-2045: Capacity Optimisation Phase

Major manufacturing equipment upgrades across this period ensure the 5GW factory operates at peak efficiency . Equipment replacement cycles for the original Tandem production lines to the latest Tandem lines to maintain manufacturing capability whilst incorporating technological advances. Regional hub expansion continues with an additional investment in 2045.

2046-2050: Technology Leadership Phase

The final phase emphasises advanced automation and digital infrastructure to support the mature 10+ million customer base. Investments in next-generation automation systems across 2047-2050 and comprehensive digital platform upgrades ensure the cooperative maintains technological leadership whilst achieving operational efficiency improvements.

Financial Viability and Return Analysis

Capital Efficiency Metrics

The extended capital investment programme demonstrates exceptional efficiency, with total gross fixed assets of £1,133M in 2036 to £1.950M by 2050, representing a compound

annual growth rate of 4%. This growth rate aligns with revenue expansion (25.4% CAGR), ensuring capital deployment efficiency supports revenue generation capacity.

Depreciation expenses grow systematically from £54M in 2035 to £85M by 2050, representing 0.25% of revenue by the end of the projection period . This declining depreciation-to-revenue ratio demonstrates the capital efficiency of the extended investment programme whilst supporting massive operational scaling .

Investment Return Characteristics

The maintenance CAPEX component, representing 1.5% of net fixed assets, provides excellent value through facility optimisation and continuous improvement investments . Strategic investments totalling £1B over the 15-year period enable customer base expansion of 111%, demonstrating efficient capital productivity per additional customer served.

Implementation Strategy and Risk Management

Phased Investment Approach

The extended capital programme follows a carefully structured approach, with peak investment years (2044-2046) aligned with major equipment replacement cycles and capacity expansion requirements . This phasing reduces implementation risk whilst ensuring adequate infrastructure capacity for customer growth targets .

Annual maintenance CAPEX scaling with revenue ensures consistent facility performance and technology currency throughout the growth trajectory . The systematic approach enables predictable capital requirements whilst maintaining operational flexibility for market condition changes .

Technology Integration Framework

Equipment replacement cycles incorporate advanced technologies including enhanced tandem cell production capabilities, AI-driven automation systems, and next-generation digital platforms . These technology upgrades support the projected cost improvements and operational efficiency gains outlined in the cooperative's strategic plan .

Regional infrastructure development follows customer density patterns, ensuring installation and service capacity aligns with market demand whilst optimising capital deployment efficiency . The national hub network provides operational resilience and service quality consistency across the expanded customer base .

The extended capital investment and depreciation schedule provides a comprehensive framework for supporting We Are Energy's ambitious growth trajectory through 2050 . Total capital requirements of £6.2 billion over 15 years enable customer base expansion from 1 million to 20.5 million whilst maintaining the cooperative's technological leadership and operational excellence .

The systematic approach to equipment replacement, technology enhancement, and infrastructure development ensures sustainable scaling whilst preserving the cooperative's financial strength and member value proposition . Depreciation expenses remain proportionally stable relative to revenue growth, demonstrating the capital efficiency and long-term viability of the extended investment programme .

This strategic capital framework validates the exceptional opportunity of maximising the 5GW factory capacity whilst maintaining the cooperative's commitment to democratic ownership, ethical manufacturing, and member value creation throughout the transformational growth period to 2050.

Sensitivity Analysis Results:

Scenario	NPV Range (£B)	IRR Range (%)	DSCR (2040+) Range	Peak Debt £B	Covenant Compliance	Key Risk Factors
Base Case	£6+B	20%	1.35x	£17.6B	91.2%	Central projections maintained
Conservative Case	£2.1B - £3.8B	10.8%-11.9 %	1.08x - 1.25x	£14.9B	74.5%	Customer acquisition -20%, technology delays
Optimistic Case	£5.2B - £6.8B	18% - 23%	1.52x - 1.71x	£21.1B	97%	Accelerated growth, early tech deployment
Stress Test	≥£2.1B+	≥10.8%	≥1.08x+	£17.2B	69.2%	Multiple adverse conditions

Sensitivity and scenario outcomes shown above reflect the regional-optimised base case (North 12%, Midlands 45%, South 43%) and are derived from the latest Monte Carlo simulation (10,000 iterations).

These projections, based on our Monte Carlo Risk Analysis document, confirm that the cooperative model provides exceptional resilience to external shocks while maintaining superior returns to members over multi-decade periods. The gap between deterministic and risk-adjusted outcomes is minimal, demonstrating prudent forecasting and robust financial planning.

Risk Resilience Indicators

- Covenant Breach Probability: 8.3% (worst case) to 0.0% (optimistic scenarios)
- Customer Acquisition Confidence: 89% probability of achieving 95%+ of forecast growth
- Commercial Segment Resilience: 76% probability of achieving 90%+ across SME/ Community/Public segments
- Technology Performance: 94% probability of achieving forecast performance by 2041

Financial Resilience: Monte Carlo analysis shows robust performance even under adverse scenarios, with minimum IRR of 10.8% and DSCR maintaining above covenant levels in 91.2% of simulations (Compliance probability across 10,000 economic scenarios. regional split scenario North 12%, Midlands 45%, South 43%).

4.8 Environmental and Social Impact at Scale

By 2055, **We Are Energy** will have achieved transformative environmental and social impact that proves cooperative ownership can address climate crisis whilst creating community prosperity.

Environmental Impact Scale: 223 $MtCO_2$ cumulative offset by 2050 represents significant climate contribution - equivalent to removing approximately 50 million cars from roads for a year.

Member Value Creation: £300 billion in cumulative savings demonstrates exceptional value creation through cooperative ownership, averaging over £62,000 per member over 25 years.

Environmental Outcomes:

- **223 $MtCO_2$ lifetime offset** from systems installed 2025-2055
- **Carbon negative operations** through enhanced recycling and bio-materials
- **Ecosystem restoration projects** funded through Energy Democracy Fund
- **Circular economy leadership** in solar manufacturing and battery recycling

Social Outcomes:

- **£300 billion in household savings** distributed to members over 30 years
- **52,000+ direct jobs created** with progression pathways from apprentice to leadership. (excludes partnership industry jobs created or retained)
- **Energy democracy movement** replicated in 15+ countries
- **Community resilience enhanced** through local energy ownership and micro-grids

Economic Transformation:

- **Post-carbon economic model** demonstrated at national scale
- **Cooperative sector growth** stimulated through cross-sector partnerships

- **Regional development** driven by local energy ownership and manufacturing
- **International leadership** in sustainable technology and cooperative enterprise

4.9 Implementation Roadmap (2036-2055)

4.1 Regenerative Expansion (2036-2040)

- Second UK manufacturing site operational
- Fast Forward upgrade programme launched
- 2.7+ million members and customers achieved
- Enhanced tandem technology deployment

4.2 System Integration (2041-2045)

- Community micro-grid networks established
- BIPV technology mainstream adoption
- 7+ million members and customers with integrated energy services
- International replication partnerships developed

4.3 Energy Abundance (2046-2050)

- Autonomous energy communities operational
- 10+ million members and customers with full energy independence
- Carbon-negative manufacturing achieved
- Global cooperative energy movement leadership

4.4 Regenerative Network (2051-2055)

- Post-carbon economic model fully implemented
- Energy systems actively improving environmental conditions
- Global network of cooperative energy communities
- Foundation for post-scarcity energy economy

4.10 Cooperative Governance: Democratic Principles at Global Scale

Guiding Principles:

- One Member = One Vote-Democratic decision-making maintained at all scales, ensuring cooperative control remains with communities
- Open Book Finance-Real-time financial transparency through member dashboards, maintaining accountability to member-owners

- Ethical Procurement Pledge-Annual independent audit of supply chain practices, ensuring values consistency throughout operations
- Intergenerational Council-Youth advisory board shaping long-term decisions, embedding stewardship for future generations
- Community Benefit Priority-Member value prioritised over external shareholder returns, ensuring surplus serves community transformation

Funding Strategy:

- 75% Debt: UK Infrastructure Bank and ethical lenders (4.5% over 18 years)-patient capital serving long-term community benefit
- 25% Equity: Ethical Bonds and Member community shares (capped at £10k/household)-ensuring democratic ownership remains accessible to all income levels
- X% Grants: Innovate UK, EU Green Deal, and regional development funds-leveraging public investment for community benefit

Democratic Innovation at Scale:

- Regional member councils with delegated authority-maintaining local democratic control whilst enabling cooperative coordination
- Digital participation platforms for policy decisions-ensuring every member voice contributes to strategic direction
- Member education programmes on cooperative principles-building capacity for democratic participation and leadership development
- Integration with broader cooperative movement-strengthening solidarity with other democratic enterprises and social movements

Conclusion: A 30-Year Vision for Energy Democracy

This extended roadmap demonstrates how We Are Energy's cooperative model can scale to transform not just energy systems, but economic and social relationships across the UK and beyond. By maintaining our commitment to democratic ownership, ethical manufacturing, and technological innovation, we create a pathway to genuine energy democracy that serves as a model for other sectors and societies.

The financial projections confirm exceptional viability across all timeframes, whilst the environmental and social impact creates lasting value for members and communities. This vision requires sustained commitment to cooperative principles whilst embracing technological and organisational innovation at scale.

Looking ahead from 2055: We Are Energy will have proven that cooperative ownership, ethical business practices, and technological leadership can combine to create an energy system that truly serves people and planet. Our 30-year journey from 501 founding members to global energy democracy movement provides a roadmap for fundamental economic transformation in the 21st century.

By 2055, when abundant energy powers homes that grow food, communities that control their infrastructure, and economies that serve ecological regeneration, **We Are Energy** will stand as proof that when we start with people, not tools, we can create solutions that transform rather than extract, empower rather than exploit, and build community wealth rather than concentrate it.

This foundation of cooperative success-serving 10+ million member-owners through democratic governance, ethical manufacturing, and abundant clean energy-becomes the springboard for post-carbon economic transformation that serves both human flourishing and planetary restoration. The abundant energy future envisioned in our strategic plan becomes the lived reality for millions of people who chose cooperative ownership over corporate extraction, proving that another world is not only possible-it is inevitable when communities control the essential infrastructure that powers their lives.

Cooperative Governance Systems

We Are Energy's governance systems scale genuine democratic participation from 501 founding members to 10+ million cooperative owners, ensuring community voice remains central whilst achieving operational excellence at national scale.

Core Cooperative Principles

Guiding Principles:

- One Member = One Vote Democratic decision-making maintained at all scales
- Open Book Finance - Real-time financial transparency through member dashboards
- Ethical Procurement Pledge - Annual independent audit of supply chain practices
- Intergenerational Council - Youth advisory board shaping long-term decisions
- Community Benefit Priority - Member value prioritised over external shareholder returns

Funding Strategy

Capital Structure:

- 75% Debt: UK Infrastructure Bank and ethical lenders (4.5% over 18 years)
- 25% Equity: Ethical Bonds and Member community shares (capped at £10k/household)
- X% Grants: Innovate UK, EU Green Deal, and regional development funds

  This funding approach ensures democratic ownership remains accessible whilst providing the patient capital needed for gigafactory development and member value creation.

Democratic Decision-Making Architecture

Member Democracy Platforms:

- Annual General Meetings with full member participation and digital accessibility
- Quarterly member consultations on major technology and investment decisions
- Real-time voting systems enabling democratic participation across millions of members
- Regional member councils with delegated authority for local decisions

Governance Evolution by Phase:

- Phase 1-2: Foundational democratic structures supporting 5,727+ members
- Phase 3: Regional councils enabling participation across 660,000+ member-owners
- Phase 4: Digital democracy platforms supporting 10+ million global members

Transparency and Accountability Systems

Open Book Finance Implementation:

- Member dashboards providing real-time access to all financial and operational data
- Quarterly reporting with full transparency on revenue, costs, and member value creation
- Independent auditing ensuring cooperative compliance and ethical standards
- Democratic budget processes enabling member input on community investment priorities

Democratic Innovation at Scale

As we scale, our governance evolves to maintain democratic control whilst enabling efficiency:

- Regional member councils with delegated authority for local priorities
- Digital participation platforms for policy decisions and strategic consultation
- Member education programmes on cooperative principles and democratic participation
- Integration with broader cooperative movement sharing governance innovation globally

Board and Committee Governance

Board Composition:

- Member-elected representatives ensuring democratic accountability
- Independent directors providing sector expertise whilst maintaining cooperative principles
- Intergenerational Council representatives ensuring youth voice in long-term decisions

Committee Structure:

- Audit & Risk Committee providing independent oversight and ethical compliance
- Member Engagement Committee ensuring effective democratic participation
- Community Impact Committee monitoring local benefits and cooperative values delivery

This governance framework ensures We Are Energy maintains democratic accountability whilst scaling to serve millions of members, proving that cooperative principles create rather than compromise competitive advantage in essential infrastructure delivery.

Enhanced Security & Risk Framework

Development Finance Structure

We Are Energy Cooperative requires patient development capital during the 11-year build and scale phase (2025-2036), followed by strong cash generation supporting debt service from 2037 onwards. This structure aligns with government policy objectives for community energy whilst delivering sustainable returns.

Multi-phase debt financing programme:

- Phase 1-2 (2025-2029): £583 million development capital
- Phase 3 (2030 - 2-35) £3.9 billion creates 5GW capacity
- Phase 4 (2030-2050): £12.4 billion national expansion financing
- Our initial debt facility of £235 million is sized to ensure the cooperative remains fully funded through Phase One. This includes £177.3m for manufacturing infrastructure (CAPEX), £13m for operational ramp-up (OPEX), and a £45m strategic buffer to protect against supply chain volatility.

Primary Security Elements

Asset-Backed Security:

- Manufacturing infrastructure: £1.95B gross fixed assets by 2050 providing tangible collateral
- Member system portfolio: 660,778+ installed systems by 2035 with contracted energy efficiency lease payments
- Intellectual property: Oxford PV tandem cell licensing and proprietary digital twin systems
- National service network: Regional hub infrastructure providing geographic diversification
- Member-Backed Revenue Security:
- Contracted revenue streams: 7.7-year energy efficiency lease terms with 85%+ renewal rates through Power Forward programme
- Democratic ownership commitment: Cooperative members invested in long-term project success beyond commercial relationships
- Diversified customer base: Residential (63%), commercial (25%), wholesale (12%) reducing concentration risk

Financial Performance Trajectory

Development Phase (2025-2036):

- Revenue growth: £0 (2025) → £1.55B (2036)
- Asset accumulation: £65.7M → £811M net fixed assets
- Member base expansion: 0 → 910,778 customers providing revenue foundation
- Development phase asset coverage never below 1.4x except in worst-case scenarios

Revenue Generation Phase (2037-2050):

- Operating cash flow: £375M (2037) → £26B (2050)
- EBITDA margins: 10% (2037) → 70% (2050)
- Revenue CAGR: 26% (2035-2050) demonstrating exceptional scalability
- DSCR exceeds 1.2x in 91% of cases after 2037

Covenant Structure

Milestone-Based Covenants (2025-2036):

- Member acquisition targets: 501 founding members (2027) → 660,778 (2035)
- Manufacturing capacity milestones: 120MW → 5GW ethical production capability
- Community engagement metrics: 70% local hiring commitment and skills development targets

Financial Performance Covenants (2037-2050):

- Revenue growth maintenance: 26% CAGR sustainability
- Member retention rates: Minimum 85% ensuring revenue predictability
- Cooperative dividend distribution: Balanced member returns with debt service capacity

Risk Mitigation Advantages

Cooperative Structure Benefits:

- Government policy alignment: Support for community ownership and energy democracy
- Member loyalty superior to commercial relationships: Democratic participation creating retention above market rates
- Community stakeholder support: Local economic development ensuring project commitment

Operational Resilience:

- Ethical supply chains: UK/EU/Japan sourcing eliminating geopolitical risks
- Automation systems: Predictive maintenance and digital twin technology reducing operational disruption

Strategic Alignment for Government/GB Energy

Advancing Public Energy Ownership at National Scale

We Are Energy Cooperative directly advances the UK Government's commitment to public energy ownership through genuine community control of essential infrastructure. As GB Energy develops its mission to deliver clean, affordable energy under public ownership, We Are Energy demonstrates how cooperative principles can scale from local communities to national energy transformation whilst maintaining democratic accountability and community benefit.

Our **30-year strategic plan proves that public benefit and commercial excellence are mutually reinforcing** when communities own the infrastructure that powers their lives. Unlike conventional energy companies focused on shareholder extraction, We Are Energy's cooperative model ensures surplus flows back to members and communities, creating the community wealth and energy security that underpin government policy objectives.

Direct Policy Alignment & Public Value Creation

Energy Security Through Distributed Generation

We Are Energy's 5GW manufacturing capacity and 10+ million member systems by 2050 create substantial energy security benefits through distributed renewable generation:

- Reduced import dependency through domestic solar manufacturing and deployment
- Grid resilience enhancement via distributed battery storage and demand flexibility
- Community energy independence reducing vulnerability to price volatility and supply disruption
- Local energy sharing through community-scale micro-grids strengthening regional resilience

Our cooperative model **ensures energy security serves community prosperity rather than corporate profit**, aligning with government objectives for energy independence whilst building local economic resilience.

Skills Pipeline & Green Economy Transition

We Are Energy's employment strategy directly supports government skills and levelling-up objectives:

- 70% local hiring commitment across all regions, creating prosperity in communities we serve
- 65+ apprentices per year by Phase 2, scaling to hundreds annually through Phase 3-4
- Career progression pathways from apprentice to leadership level within cooperative framework

- 4,600+ skilled manufacturing jobs by 2035, demonstrating that green economy transition creates quality employment
- Democratic workplace practices showing how cooperative principles enhance rather than compromise productivity

Skills Development Impact:

- Manufacturing expertise in tandem cell technology, advanced automation, and ethical production
- Digital democracy capabilities preparing communities for participation in energy planning
- Cooperative leadership training building capacity for community ownership across sectors
- Green technology innovation through partnerships with UK universities and research institutions

Regional Development & Levelling-Up

We Are Energy's community-embedded approach delivers measurable levelling-up impact:

- Regional wealth retention through cooperative ownership rather than extractive business models
- Local supply chain development strengthening regional economies through ethical procurement
- Community investment programmes funded through cooperative surplus rather than external charity
- Democratic participation infrastructure enabling communities to shape their energy futures

Quantified Regional Impact:

- £300 billion cumulative member savings over 25 years, retained in local communities
- Regional hub network providing high-skill employment across diverse UK regions
- Community energy sharing enabling peer-to-peer support and local resilience
- Democratic energy planning giving communities genuine voice in infrastructure development

Climate Leadership & Environmental Justice

Carbon Impact at National Scale

We Are Energy's environmental contribution supports UK Net Zero commitments:

- 223 $MtCO_2$ cumulative offset savings from systems installed 2025-2050
- Carbon-negative manufacturing by 2045 through enhanced recycling and bio-materials
- Ethical supply chain standards ensuring human rights compliance throughout manufacturing
- Circular economy leadership in solar manufacturing and battery recycling

Energy Justice & Community Access

Our cooperative model addresses energy poverty through democratic ownership rather than market mechanisms:

- Priority access for fuel-poor homes via council partnerships and community programmes
- Affordable clean energy through cooperative ownership eliminating shareholder extraction
- Community resilience building through local energy generation and democratic control
- Energy democracy expansion proving alternatives to corporate energy monopolies

Policy Integration Opportunities

Community Energy Programme Synergy

We Are Energy provides the manufacturing and democratic governance infrastructure to support government community energy initiatives:

- Community Energy Fund alignment through cooperative ownership structures
- Local Area Energy Planning integration via regional councils and democratic participation
- Community Energy Coalition support through proven cooperative governance models
- Rural and island community solutions adapted to diverse regional energy needs

GB Energy Partnership Potential

Strategic collaboration opportunities between We Are Energy and GB Energy:

- Public-cooperative partnerships combining government policy support with community ownership
- Technology sharing agreements advancing UK leadership in ethical solar manufacturing
- Democratic governance innovation showing how public ownership can scale whilst maintaining community accountability

- International cooperation demonstrating UK leadership in energy democracy globally

Regulatory Innovation Support

We Are Energy's believes there is practical evidence for policy development:

- Cooperative-friendly energy regulations based on proven democratic governance at scale
- Community energy market mechanisms enabling peer-to-peer trading and local balancing
- Ethical sourcing standards demonstrating viable alternatives to exploitative supply chains
- Democratic participation frameworks for community involvement in energy infrastructure planning

Economic Transformation Through Democratic Ownership

Alternative Economic Model Demonstration

We Are Energy proves that public benefit and commercial viability are mutually reinforcing:

- Member value creation generating £2,800+ annual household value through cooperative ownership
- Community wealth building rather than wealth extraction through democratic control
- Stakeholder capitalism in practice showing how businesses can serve multiple constituencies
- Post-carbon economic models demonstrating sustainable prosperity through cooperative principles

International Leadership Opportunity

We Are Energy positions the UK as global leader in energy democracy:

- Technology transfer partnerships with European cooperative movements
- Governance model replication supporting Global South energy democracy initiatives
- International cooperative development through shared knowledge rather than corporate expansion
- Climate diplomacy enhancement through practical demonstration of just transition

Government Investment Value Proposition

Public Return on Investment

Government support for We Are Energy generates measurable public benefits:

- Energy security enhancement through domestic manufacturing and distributed generation
- Regional economic development creating prosperity in communities beyond London and South East
- Skills development building UK capacity in critical green technologies
- Democratic participation strengthening community resilience and social cohesion
- Climate leadership advancing Net Zero objectives through community-owned renewable energy

Risk Mitigation for Public Policy

We Are Energy's cooperative structure reduces policy implementation risks:

- Community embedding ensuring local support for renewable energy infrastructure
- Democratic accountability maintaining public trust through transparent governance
- Financial sustainability through member ownership rather than subsidy dependence
- Political resilience via community commitment transcending electoral cycles

Conclusion: Energy Democracy as Government Policy Success

We Are Energy Cooperative offers government the opportunity to support genuine energy democracy at national scale whilst achieving energy security, economic development, and climate objectives through community ownership rather than corporate extraction.

Our stress tested financial model, democratic governance systems, and community embedding demonstrate that public policy objectives are best achieved when communities control the essential infrastructure that powers their lives.

For GB Energy and government stakeholders, We Are Energy represents the practical realisation of public energy ownership - proving that democratic principles enhance rather than compromise commercial excellence whilst building the community wealth and energy security essential for national prosperity.

Through partnership with We Are Energy, government can demonstrate that energy democracy works at scale, creating a model for global replication whilst delivering immediate benefits to UK communities through genuine cooperative ownership of their energy infrastructure

Notes for the document.

We start with people so not tools, systems teams but the people first. Think of the business as an equilateral triangle with its people at the point facing out to the members. The triangle behind them is our propositions designed to meet their needs guided by our values and vision. Behind that are the tools - partners, systems and services we need to deliver our propositions. And behind that the finances needed to deliver those things ahead - capital and operational costs. This then drives our revenues which fall out of the bottom of helge triangle to feed into the circle from our members at the tip.

We need to put our members first and at the firm centre of our thinking and the way we talk about this business. It's why we are trying to start it. It's a member cooperative. (please read our current website fully at https://Weareenergy.coop to appreciate our values and what drives us). We are building a cooperative that has its members centrally represented so that our strategy comes for this desire to serve them better than they are served now and going forward. It acknowledges that when we live in a world where abundant energy is at the heart of our society then not only fuel poverty will be a thing of the past but a whole new world of possibilities opens up that enables both a regrowth of our natural world and u but also a new world of services that can deliver jobs and prosperity for future generations. Eg with abundant affordable energy being generated, stored and shared on the building and places where we all live and work new ways to eat, sleep, breathe, dress and live will prosper and thrive. Imagine the fridge in your kitchen in this future world? Instead of just housing products packaged and grown in distant lands that it has become your own market garden machine. Growing fresh food to set the needs of your family within its hydroponic fungal driven systems? Do you see that we need to embed this into our operations. Our "brand" with this vision delivered through our energy efficiency lease model is the mission of the factory. Let's make sure that or people, their behaviours, the tools and service we make and the way we communicate all come together to serve the needs of our members. In truth our plan at its heart is about a business model that innovates. We are not looking to rely on new technology or inventions but to build on existing technology. Yes in the future no doubt we will drive ip and new innovations in tech and science but we'll want to share those across the world for the benefit of our members. So let's see how this impacts this plan and keep reading back to it to guide us. Also maybe we need to review of one page strategy document to see how this can be included too?

Appendix and notes:

Cooperative Governance Systems

Sources

[1] Governance of your energy community https://energycommunityplatform.eu/resources/guidelines-on-community-led-heating-and-cooling/start-your-project/governance-of-your-energy-community/

[2] [PDF] Community energy governance guide https://www.gsenetzerohub.org.uk/wp-content/uploads/2025/05/GSENZH-Community-Energy-Governance-Guide.pdf

[3] Co-operative Governance Expert Reference Panel - Co-ops UK https://www.uk.coop/about-us/our-governance/member-groups/co-operative-governance-expert-reference-panel

[4] Business & governance | Community Energy England https://communityenergyengland.org/how-to-pages/operating-a-business

[5] Governance advice and support | Co-operatives UK https://www.uk.coop/support-your-co-op/governance

[6] Scottish Government Good Practice Principles for Shared ... https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2019/05/scottish-government-good-practice-principles-shared-ownership-onshore-renewable-energy-developments/documents/scottish-government-good-practice-principles-community-benefits-onshore-renewable-energy-developments/scottish-government-good-practice-principles-community-benefits-onshore-renewable-energy-developments/govscot:document/scottish-government-good-practice-principles-community-benefits-onshore-renewable-energy-developments.pdf

[7] Plug-in Public Power: The Case for Community Energy Democracy https://www.common-wealth.org/publications/plug-in-public-power-the-case-for-commnunity-energy-democracy

[8] EU Directives on the internal governance of energy communities ... https://academic.oup.com/jwelb/article/17/3/147/7616653

[9] Community Engagement Good Practice Guidance https://solarenergyuk.org/wp-content/uploads/2024/07/CGPG2024.pdf

[10] The Community Energy Organisation – an Energy Co-operative https://www.brightonenergy.org.uk/energy-coop/

[11] The 7 cooperative principles https://energycommunityplatform.eu/resources/guidelines-on-community-led-heating-and-cooling/start-your-project/governance-of-your-energy-community/the-7-cooperative-principles/

[12] Coop Principles https://energy4all.co.uk/coop-principles/

[13] 7 Cooperative Principles - Values of a Co-op | NCBA CLUSA https://ncbaclusa.coop/resources/7-cooperative-principles/

[14] The 7 cooperative principles with examples from energy ... https://www.rescoop.eu/toolbox/the-7-cooperative-principles-with-examples-from-energy-cooperatives

[15] Implications for renewable energy companies https://baselgovernance.org/sites/default/files/2024-09/WP53.pdf

[16] Why a Co-op - The Clean Energy Coop https://www.cleanenergy.coop/why-a-coop

[17] Effective Corporate Governance in Energy https://www.numberanalytics.com/blog/effective-corporate-governance-in-energy

[18] Assembling community energy democracies https://shura.shu.ac.uk/25547/3/Eadson%20Assembling%20Community%20Energy%20Democracies.pdf

[19] Full article: Seven pillars of energy cooperation https://www.tandfonline.com/doi/full/10.1080/02646811.2025.2455853

[20] Best Practice Guide https://www.rescoop.eu/uploads/rescoop/downloads/D4.1.1_Best_Practice_Guide.pdf

[21] Four Pillars of Cooperative Governance - Columinate https://columinate.coop/four-pillars-of-cooperative-governance-cg/

[22] What is good governance? - Co-operatives UK https://www.uk.coop/support-your-co-op/governance/what-good-governance

[23] Co-operative Governance Fit to Build Resilience in the Face of ... https://ica.coop/en/co-operative-governance-fit-build-resilience-face-complexity

[24] Corporate Governance in Cooperatives - Interact Solutions https://www.interactsolutions.com/en/corporate-governance-in-cooperatives/

[25] [PPT] Cooperative governance https://ec.europa.eu/programmes/erasmus-plus/project-result-content/08bb5c79-4ade-4e6a-ac10-6c50e5d36edc/COPE-IO1_Module3_Classroom.pptx

[26] [PDF] Four Pillars of Cooperative Governance https://www.citymarket.coop/sites/default/files/files/Four%20Pillars%20of%20Cooperative%20Governance.pdf

[27] [PDF] Co-operative Corporate Governance Code - Co-ops UK https://www.uk.coop/sites/default/files/2020-10/co-op_corporate_gov_code.pdf

[28] Understanding the Seven Cooperative Principles https://www.electric.coop/seven-cooperative-principles%E2%80%8B

[29] Corporate Governance: Definition, Principles, Models, and Examples https://www.investopedia.com/terms/c/corporategovernance.asp

[30] Co-operative Values & Principles | Westmill Solar Park https://westmillsolar.coop/co-operative-values-principles/

[31] Trade and Cooperation Agreement Partnership Council Declaration ... https://www.gov.uk/government/publications/trade-and-cooperation-agreement-partnership-

council-declaration-number-1-for-2025-energy/trade-and-cooperation-agreement-partnership-council-declaration-number-1-for-2025-energy-html

[32] Structure and Governance - Great British Energy https://www.gbe.gov.uk/structure-and-governance

[33] Clean Energy Industries Sector Plan - GOV.UK https://www.gov.uk/government/publications/clean-energy-industries-sector-plan

[34] Co-op Party Launches Community Power Report https://www.independentlabour.org.uk/2025/06/09/co-op-party-launches-community-power-report/

[35] Government seeking to unlock community energy at scale https://www.thriverenewables.co.uk/news/2025/03/government-seeking-to-unlock-community-energy-at-scale

[36] Energy Cooperatives 101 - Number Analytics https://www.numberanalytics.com/blog/energy-cooperatives-101

[37] Energy Co-op recommits to member engagement https://www.theenergy.coop/blog/ecap-recommits-to-member-engagement/

[38] Co-operatives are building a better world in 2025, the UN Year of Co ... https://cwmpas.coop/latest/co-operatives-are-building-a-better-world-in-2025-the-un-year-of-co-operatives/

[39] Board of Directors – Schools Energy Coop https://schools-energy-coop.co.uk/about-us/directors/

[40] The power of member engagement https://www.okl.coop/commentary/the-power-of-member-engagement/

[41] Energy Governance Essentials https://www.numberanalytics.com/blog/ultimate-guide-energy-governance-energy-systems

[42] Energy governance: Four ways to succeed https://www.undp.org/blog/energy-governance-four-ways-succeed

[43] Why good governance in the energy sector in 2023 is more ... https://www.ocorian.com/knowledge-hub/insights/why-good-governance-energy-sector-2023-more-important-ever

[44] Energy Governance: Definition & Examples | Vaia https://www.vaia.com/en-us/explanations/architecture/urban-studies-in-architecture/energy-governance/

[45] Corporate Governance Features in the Energy Sector https://corpgov.law.harvard.edu/2018/10/11/corporate-governance-features-in-the-energy-sector/

[46] Energy Governance in Developing Countries https://thepolicypractice.com/sites/default/files/2021-06/Energy%20Governance%20Tech%20Brief%206.10.21.pdf

[47] Models of governance for energy infrastructure https://ukerc.rl.ac.uk/cgi-bin/publicationsDiscover.pl?Action=detail&publicationid=b53a1680-73b6-48c8-b81b-8ab1051924d4

[48] Governance https://www.devonenergy.com/sustainability/governance

[49] DECC Overview on co-operative societies and community benefit ... https://www.gov.uk/government/publications/community-energy-strategy-update/decc-overview-on-co-operative-societies-and-community-benefit-societies

[50] Engineering alternative socio-technical configurations https://www.sciencedirect.com/science/article/pii/S221462962100445X

[51] Cooperative Energy: A Sustainable Future https://www.numberanalytics.com/blog/cooperative-energy-sustainable-future

[52] Unlocking community energy democracy - Stir to Action https://www.stirtoaction.com/articles/gb-energy

[53] Why the community energy movement needs support from local ... https://www.bwce.coop/the-community-energy-movement-needs-support-from-local-politicians-and-national-government/

[54] Barriers to community energy projects https://energysavingtrust.org.uk/report/barriers-to-community-energy-projects-response/

[55] Practical Hope: Brighton Energy Coop https://www.tcpa.org.uk/resources/brighton-energy-coop/

[56] How Local Authorities can encourage citizen participation in ... https://ukerc.rl.ac.uk/publications/research_report/HafRobison_LAs-and-citizen-participation_published.pdf

[57] Organisations and ownership - Energy Democracy https://energydemocracyguide.org.uk/contents/organisations-and-ownership/

[58] Good practicesfor engaging stakeholders, fostering ... https://www.nature.org/content/dam/tnc/nature/en/documents/Enabling_a_Community-Powered_Energy_Transition.pdf

[59] Co-op values and principles https://www.uk.coop/understanding-co-ops/what-co-op/co-op-values-and-principles

[60] Renewable energy communities: Democratically legitimate ... https://www.sciencedirect.com/science/article/pii/S2214629624003232

[61] Guidance Notes to the Co-operative Principles https://ica.coop/sites/default/files/basic-page-attachments/guidance-notes-en-221700169.pdf

[62] A report on the UK's democratic economy #CoopEconomy https://www.uk.coop/sites/default/files/2023-10/Economy%202023_compressed%20(2).pdf

[63] Good Governance Practices for Utilities and Energy ... https://www.mossadams.com/articles/2024/09/governance-for-utilities-and-energy-companies

[64] Cooperative Governance | Farmers' Corner - NDDB https://www.nddb.coop/farmer/dairying/Cooperative-Governance

[65] Co-Op calls on Government to provide SMEs with advice and low ... https://energy-now.co.uk/featured/co-op-calls-on-government-to-provide-smes-with-advice-and-low-cost-loans-for-renewables

[66] Build Trust & Grow Engagement with Your Electric Co-op ... https://themarketingdeptco.com/how-marketing-communications-can-build-trust-and-engagement-in-electric-co-op-member-owners/

[67] Co-op Congress 2025 | Co-operatives UK https://www.uk.coop/events-and-training/co-op-congress

[68] Our governance | Co-operatives UK https://www.uk.coop/about-us/our-governance

[69] Co-operative Research Project https://www.repowering.org.uk/co-operative-membership-research/

[70] News - Elexon https://www.elexon.co.uk/news-insights/

[71] Co-op Values - Schools Energy Coop https://schools-energy-coop.co.uk/co-op-values/

[72] Member participation https://www.uk.coop/support-your-co-op/membership/membership-strategy/member-participation

[73] Energy4All - Supporting Renewable Energy Co-ops in the UK https://energy4all.co.uk

[74] [PDF] Unlocking community energy at scale - UK Parliament Committees https://committees.parliament.uk/writtenevidence/134224/pdf/

[75] Global energy governance: a review and research agenda https://www.nature.com/articles/palcomms201547

[76] [PDF] Co-operative renewable energy in the UK - Rebecca Willis https://www.rebeccawillis.co.uk/wp-content/uploads/2011/12/Co-operative-Renewable-Energy-in-the-UK-FINAL-web.pdf

[77] Energy governance models https://pure.psu.edu/en/publications/energy-governance-models

From Phase 4:

COG's assumptions:

Tandem Cell Technology: 25% reduction in PV material costs through 30% efficiency improvements

Battery Cost Deflation: Estimates 2030 at $80/kWh dropping linearly from 2025 price of $133/kWh and onto in equal increments to 2040 then reducing by 2.5% thereafter

Scale Economies: 2% annual reduction in overhead costs per customer

Freight Optimisation: 15% improvement through route optimisation and bulk delivery

Combined Effect: ~3.5% annual COGS per customer reduction

Opex assumptions:

Scaling Methodology by Category

People Costs (£266M in 2035)

- Customer Growth Impact: Scales with customer base growth from 0.9M to 10.5M
- Automation Efficiency: 10% improvement every 5 years (2040, 2045, 2050)
- Staff cost: Members served per staff numbers improves from 154 (2035) to 215 staff per customer (2050)
- Inflation Adjustment: 2.0% annually applied to base salary costs

Marketing (Non-Staff) (£102.50M in 2035)

- Customer Acquisition Cost: Decreases per customer through referral model efficiency
- Scale Economics: 15% efficiency improvement through proven marketing channels
- Brand Investment: Increased investment in national brand presence
- Digital Marketing: Transition to cost-effective digital channels

BESS System Non-CAPEX (£180.06M in 2035)

- Operational Scaling: Scales with battery systems installed and maintained
- Technology Efficiency: 20% cost reduction through improved battery management systems
- Service Contracts: Economies of scale in battery maintenance and monitoring
- Grid Services: Enhanced revenue from grid balancing services offset costs

Import Costs (£61M in 2035)

- Energy Requirements: Scales with total customer base energy needs
- Tandem Cell Impact: 25% reduction in import requirements per customer
- Grid Optimisation: Smart grid integration reduces peak import costs
- Scale Procurement: Volume purchasing advantages for energy imports

Site Operations (£26.58M in 2035)

- Facility Scaling: New regional hubs and service centres
- Operational Efficiency: 2% annual improvement through automation

- National Network: Investment in comprehensive national infrastructure
- Remote Monitoring: Digital systems reduce physical site requirements

Install Support & Maintenance (£45.90M in 2035)

- Field Service Scaling: Proportional growth with customer base and installations
- Predictive Maintenance: 25% cost reduction through AI-driven maintenance
- Regional Hubs: Optimised service delivery through strategic location planning
- Technology Integration: Digital twin technology reduces maintenance needs

Community Engagement & Training (£9.49M in 2035)

- Member Education: Enhanced programs for larger member base
- Training Programmes: Scaled apprenticeship and skills development
- Community Investment: 5% of revenue dedicated to community programs
- Cooperative Development: Investment in democratic participation systems

Utilities (Non-Factory) (£1.14M in 2035)

- Facility Growth: Scales with additional operational facilities
- Energy Efficiency: On-site renewable generation reduces utility costs
- Smart Building: Automated systems optimise energy consumption
- Grid Independence: Increased self-sufficiency reduces external utility costs

Compliance & ESG Reporting (£1M in 2035)

- Regulatory Scaling: Increased compliance requirements for larger organisation
- ESG Investment: Enhanced environmental and social impact reporting
- Certification Costs: Maintaining ethical supply chain certifications
- Audit Requirements: Independent verification of cooperative principles

Tech Tools & Services (£68M in 2035)

- Digital Platform: Massive scaling for 10+ million member management
- AI Integration: Advanced analytics and automation systems
- Cybersecurity: Enhanced security for larger digital footprint
- Innovation Investment: Continuous technology advancement and R&D

Key Efficiency Assumptions Applied

Automation Benefits

- Manufacturing: 15% efficiency improvement through robotics
- Customer Service: 20% cost reduction through AI-powered support
- Administration: 25% efficiency gain through digital automation
- Field Operations: 10% improvement through predictive maintenance

Scale Economies

- Procurement: 2% annual cost reduction through volume purchasing
- Shared Services: 15% efficiency through centralised operations
- Technology Platforms: 30% per-customer cost reduction through scale
- Training & Development: 20% efficiency through standardised programs

Technology Integration

- Digital Twin: 23% reduction in operational complexity
- Predictive Analytics: 15% improvement in resource allocation
- Automation Systems: 12% annual productivity improvement
- Smart Grid Integration: 8% reduction in energy management costs