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FACULTY OF ENVIRONMENT

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Local supply of electricity

Why Local Supply: The whole-system pitch

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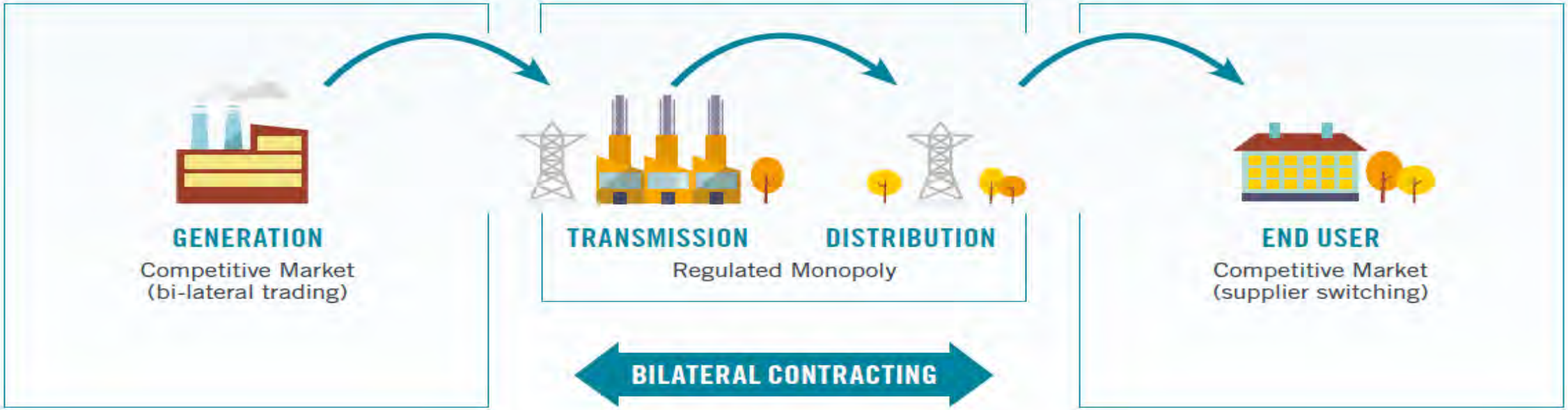
GENERATION
Competitive Market
(bi-lateral trading)
TRANSMISSION
DISTRIBUTION
Regulated Monopoly
END USER
Competitive Market
(supplier switching)
BILATERAL CONTRACTING

The economics of now are not the economics of tomorrow

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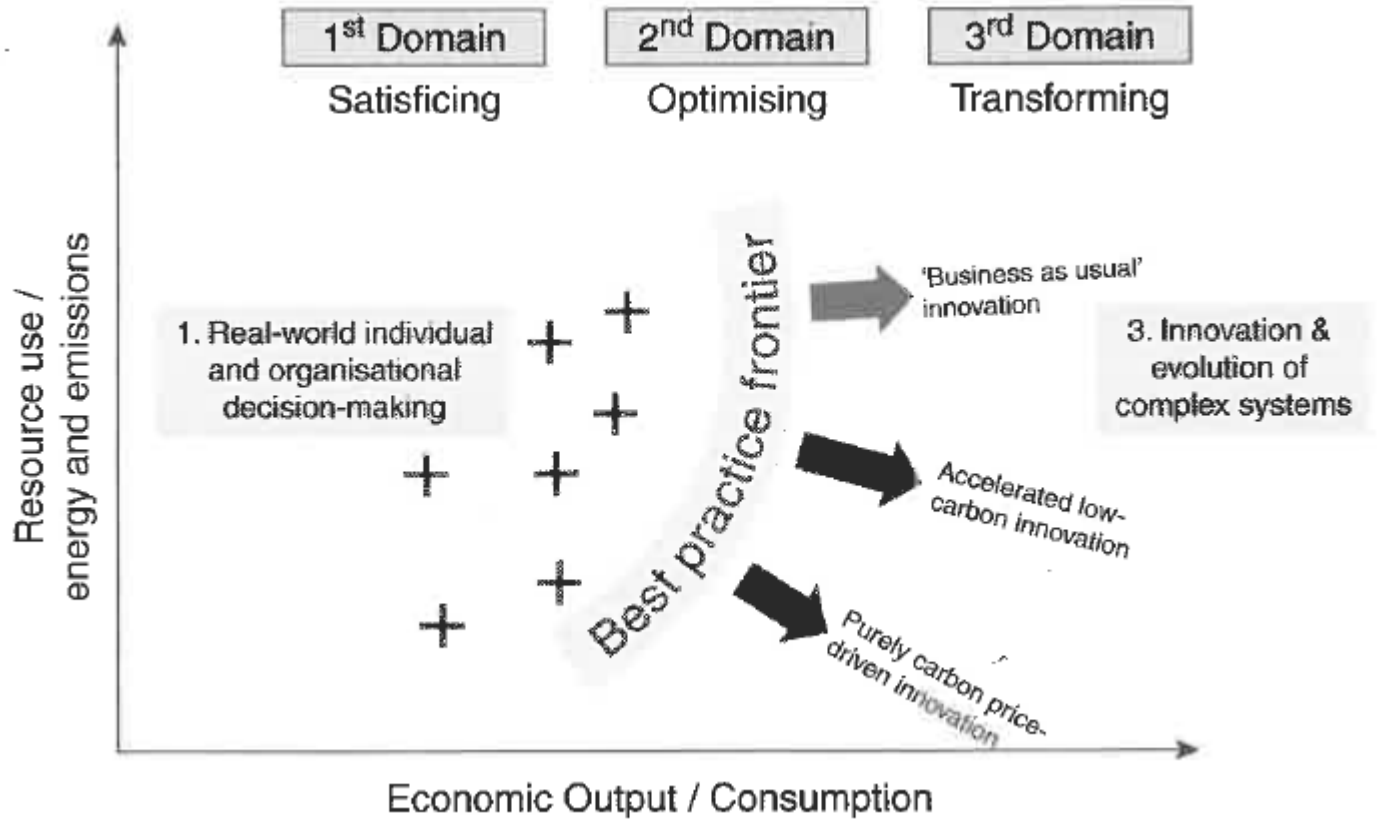
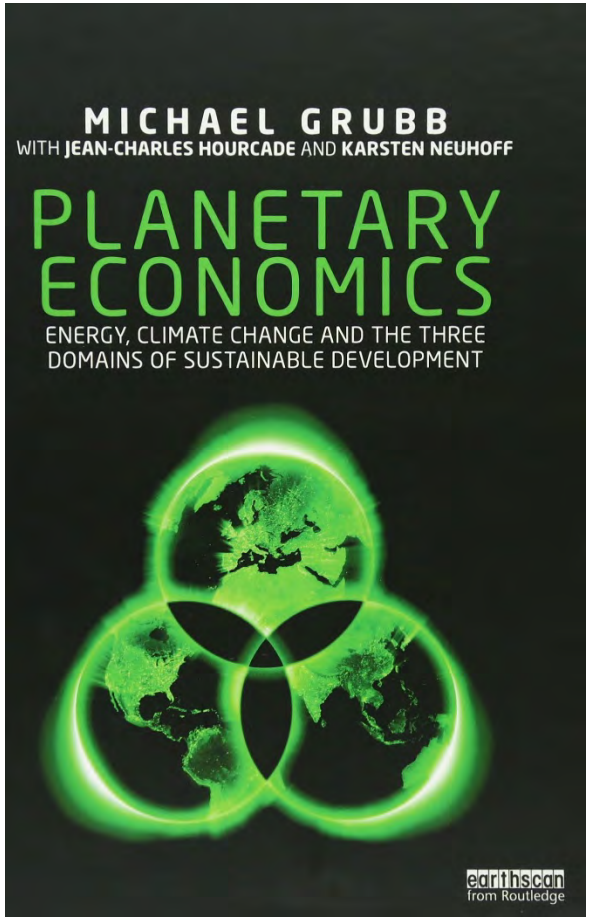
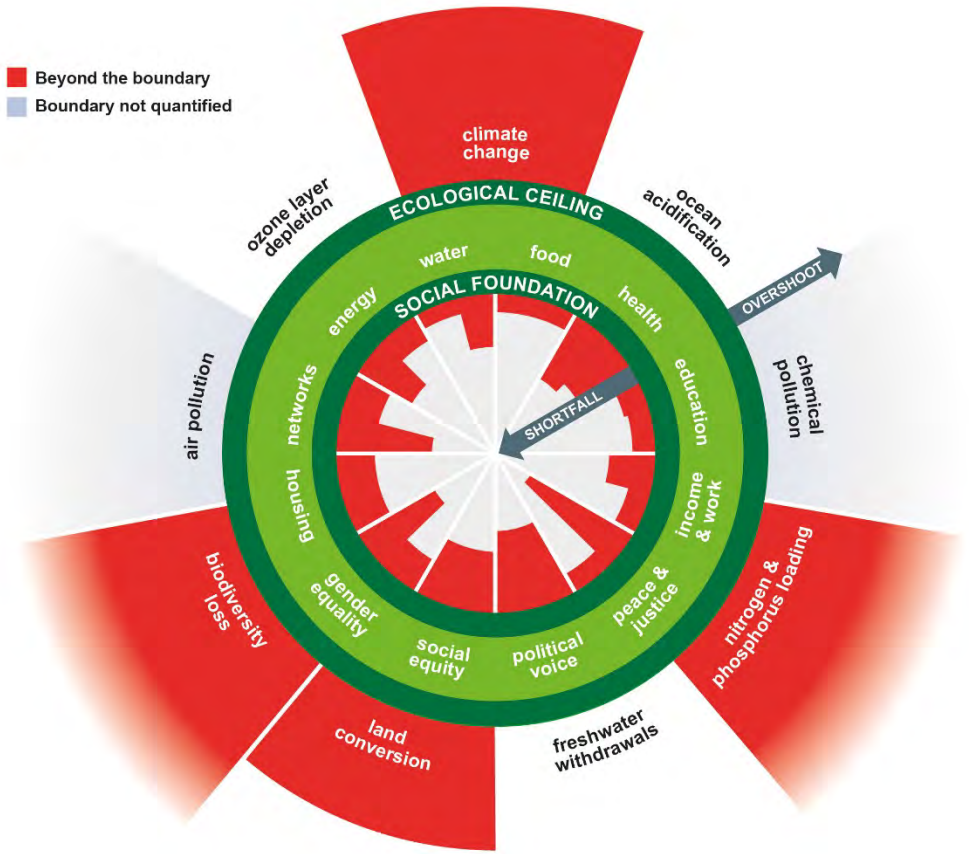
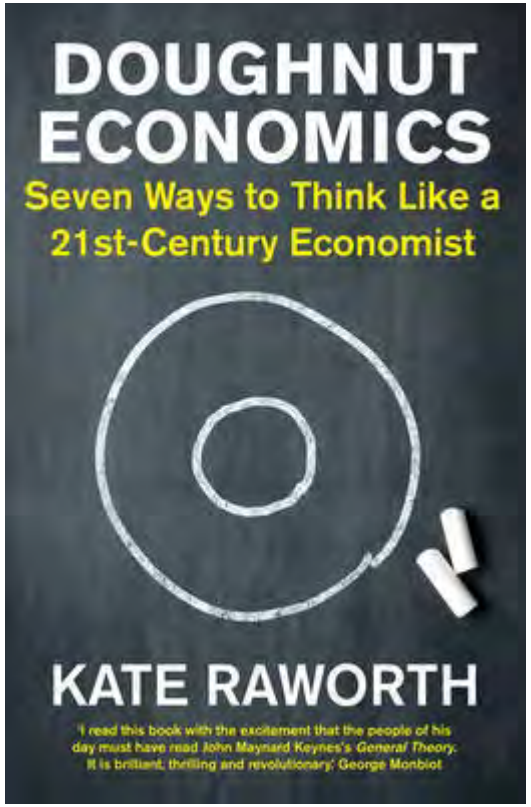




Grubb, M., 2014. *Planetary economics: energy, climate change and the three domains of sustainable development*. Routledge.


Beyond the boundary
Boundary not quantified
climate change
ozone layer depletion
ocean acidification
chemical pollution
nitrogen & phosphorus loading
freshwater withdrawals
land conversion
biodiversity loss
air pollution
ECOLOGICAL CEILING
SOCIAL FOUNDATION
OVERSHOOT
SHORTFALL
water
food
health
education
income & work
peace & justice
political voice
social equity
gender equality
housing
networks
energy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KATE RAWORTH
'I read this book with the excitement that the people of his day must have read John Maynard Keynes's General Theory. It is brilliant, thrilling and revolutionary.' George Monbiot

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Build solutions which enable BOTH centralised and bottom up generation, storage and demand response

What is a business model archetype and why are they useful?

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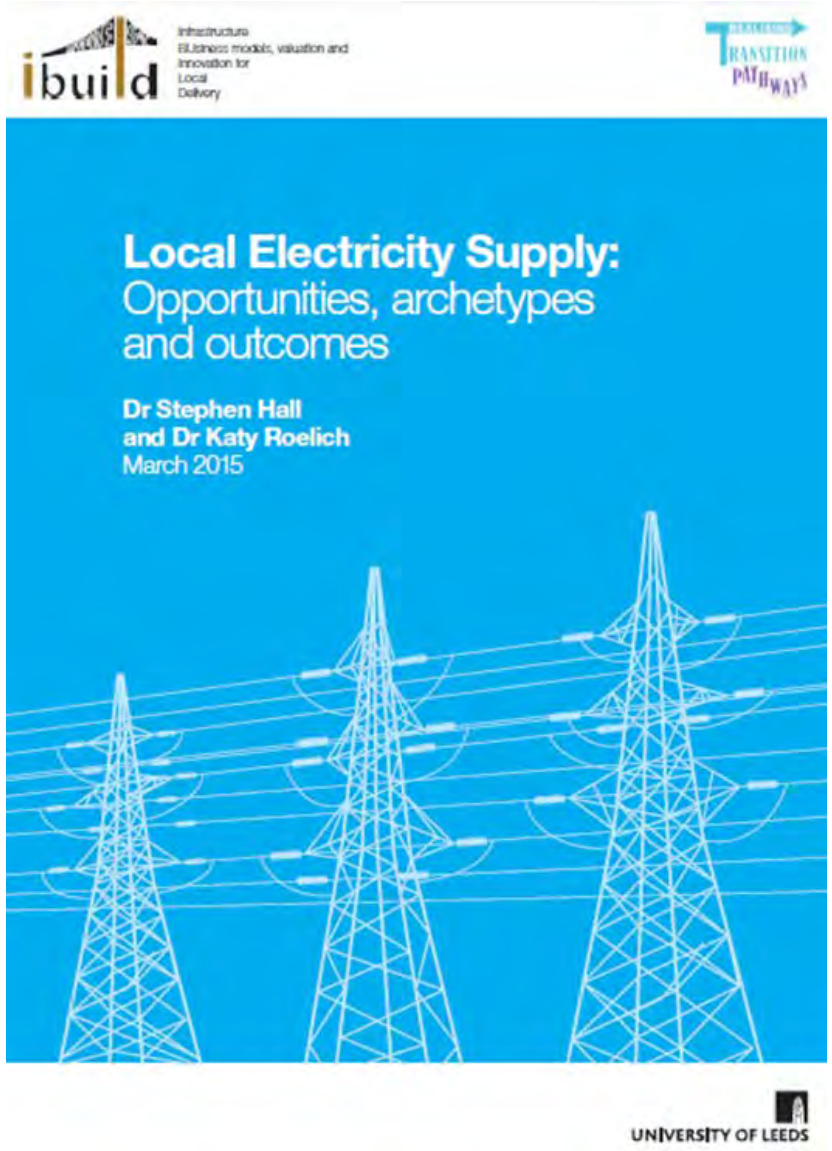

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Business model innovation in electricity supply markets: The role of complex value in the United Kingdom

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HIGHLIGHTS

- Business models of energy supply markets shape energy transitions.
- The British system misses four opportunities of local electricity supply.
- Nine new business model archetypes of local supply are analysed.
- New electricity business models have complex value propositions.
- A process for policy response to business model innovation is presented.

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ABSTRACT

This research investigates the new opportunities that business model innovations are creating in electricity supply markets at the sub-national scale. These local supply business models can offer significant benefits to the electricity system, but also generate economic, social, and environmental values that are not well accounted for in current policy or regulation. This paper uses the UK electricity supply market to investigate new business models which rely on more complex value propositions than the incumbent utility model. Nine archetypal local supply business models are identified and their value propositions, value capture methods, and barriers to market entry are analysed. This analysis defines 'complex value' as a key concept in understanding business model innovation in the energy sector. The process of complex value identification poses a challenge to energy researchers, commercial firms and policy-makers in liberalised markets; to investigate the opportunities for system efficiency and diverse outcomes that new supplier business models can offer to the electricity system.

1. Introduction

To achieve energy transitions, technological and business model innovation must co-evolve with policy and system regulation (Foxon, 2011). However, much of the literature on technical and business model innovation neglects the retail or 'supply' element of the energy value chain. In liberalised markets the dominant supply business model has been the corporate utility, selling units of energy to consumers in national markets (Hannon et al., 2013). Very little has been done by the energy research community to examine challenges to this dominant supply model, or the national scale at which it operates. Supply business models on smaller scales (from city-region to neighbourhood) have the potential to: expand the penetration of renewable energy, accelerate demand management, drive energy efficiency, and re-localise energy value. However, there has been no systematic analysis of the business models that can realise these opportunities, or understanding of why they remain uncommon in liberalised markets. Electricity supply business models that are designed to operate sub-nationally, pose a number of challenges to policy-makers, regulators, and mainstream utilities.

This paper is structured as follows: Section 2 describes the literatures on business model innovation in the energy sector, focussing on the *value proposition* and *value capture* elements of the business model concept to frame four research questions. Section 3 describes the study methodology. Section 4 presents our results. Section 5 considers how the notion of 'complex value' is useful in understanding these business model innovations and describes how a complex value framing poses new questions for energy policy. Section 6 concludes with recommendations for policymakers across liberalised markets.

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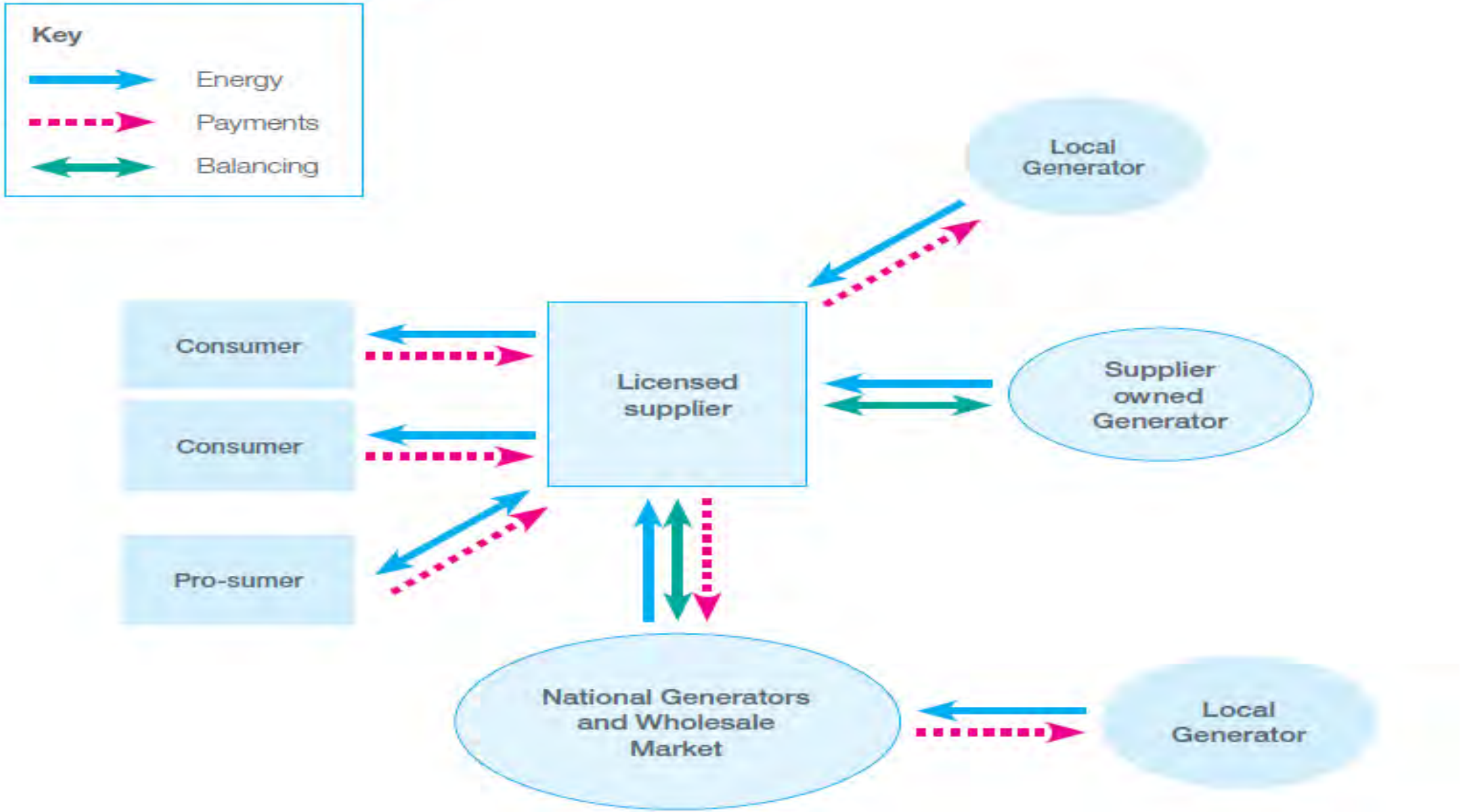
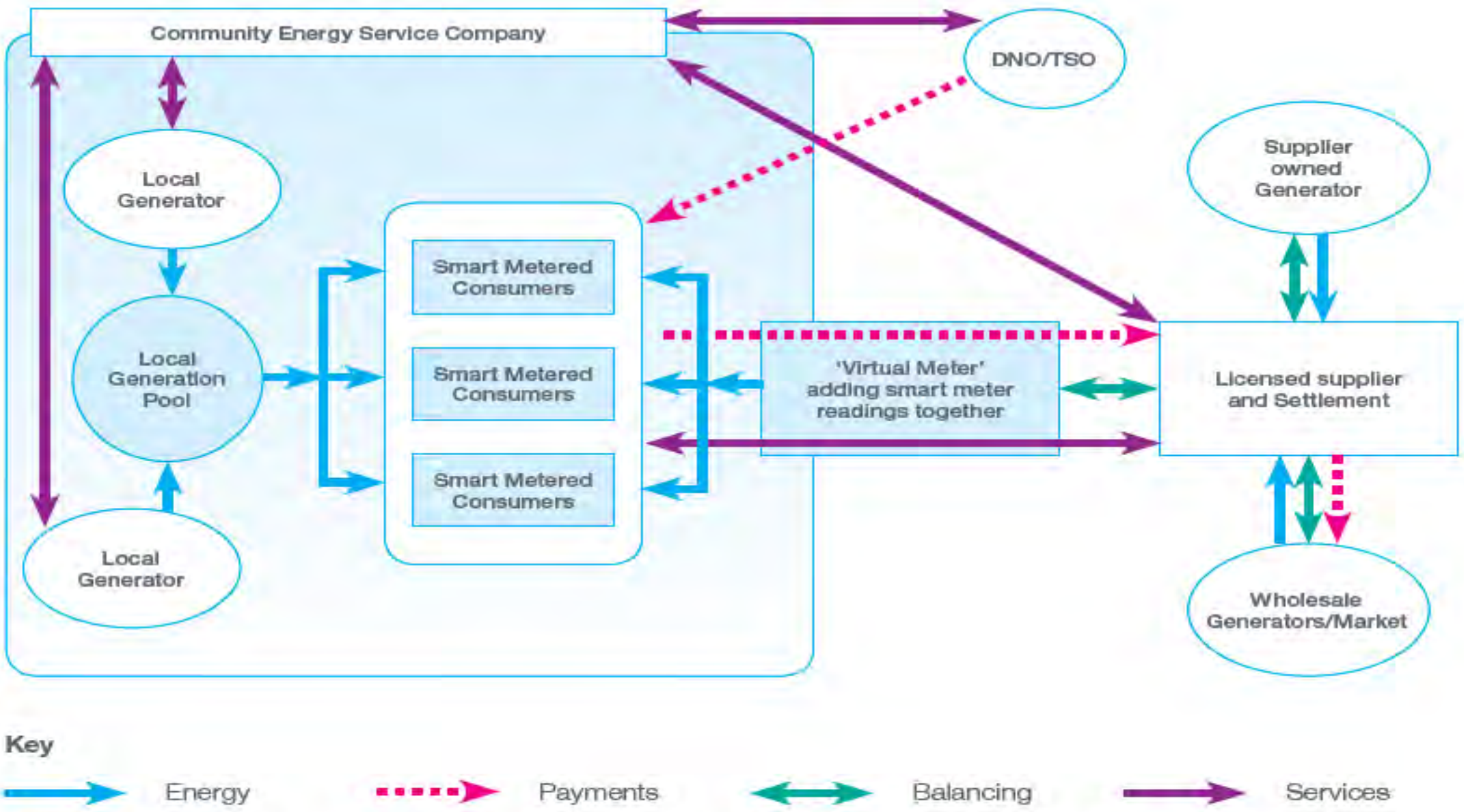
Diagram: The current archetype




Community Energy Service Company
DNO/TSO
Local Generator
Local Generation Pool
Local Generator
Smart Metered Consumers
Smart Metered Consumers
Smart Metered Consumers
'Virtual Meter' adding smart meter readings together
Supplier owned Generator
Licensed supplier and Settlement
Wholesale Generators/Market
Key
Energy
Payments
Balancing
Services

Build solutions which work for BOTH low/ordinary income groups and the energy affluent

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Archetypes	Enabling Mechanisms	Opportunities of local supply			
		Better routes to market for local generation	Fulfilling the potential of the demand side	Real energy efficiency gains	Re-localising energy value
Current Archetype	Full Supply License	--	-	--	---
Local White Labelling	Third Party Licensed Supplier Partnership (TPLSP)	+	-	-	-/+
Local Aggregator	TPLSP	++	+++	+	+
Local 'Pool and Sleeve'	License Lite with TPLSP	+	-/+	-	+
Municipal Utility	Full Supply License	+++	+	---	++
Municipal ESCo	Full Supply License	+++	++	+++	+++
MUSCo	Full Supply License	+++	++	+++	+
Peer to Peer	TPLSP	+++	-/+	-/+	+
Peer to Peer with Local Balancing Unit	TPLSP With local settlement unit	++	++	-/+	++

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Community energy and equity: The distributional implications of a transition to a decentralised electricity system

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Be REALLY specific about what needs to change

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This energy system regulation & governance stuff boggles the mind, but its SO important @exeterepg always edifying 👉 projects.exeter.ac.uk/igov/new-think…

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Be REALLY clear about why we are pursuing local supply

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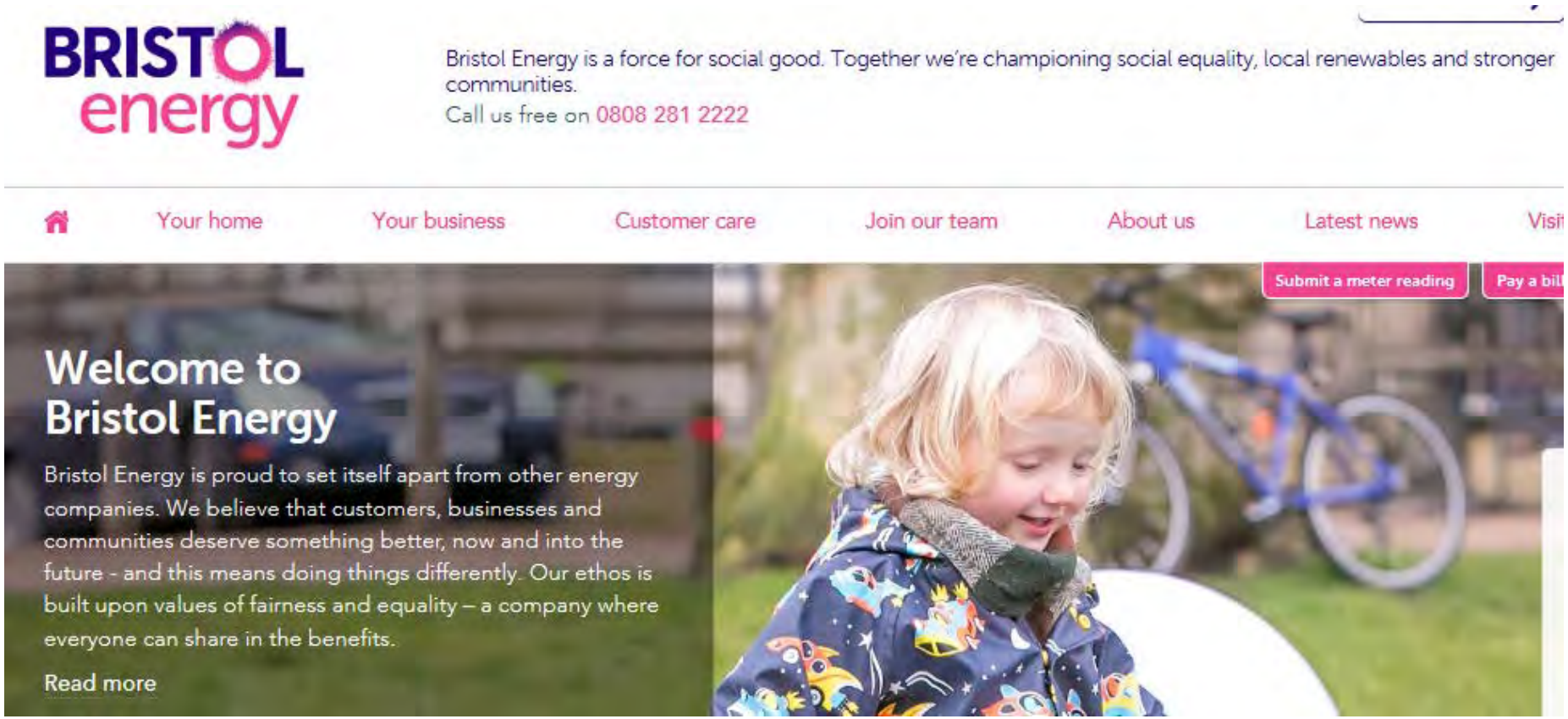

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- Find infrastructure solutions and partnerships that use existing networks
- Get comfortable with consumer subsidy

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- Be confident! The economics of now are not the economics of tomorrow
- Building solutions which enable BOTH centralised and bottom up generation, storage and demand response
- Building solutions which work for BOTH low/ordinary income groups and the energy affluent
- Being REALLY specific about what needs to change
- Being REALLY clear about why we are pursuing local supply
- Finding infrastructure solutions and partnerships that use existing networks
- Getting comfortable with consumer subsidy

Thank You

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