

Networking the African city: the challenges of electrifying urban informal settlements in Cape Town

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Two parts to this research:

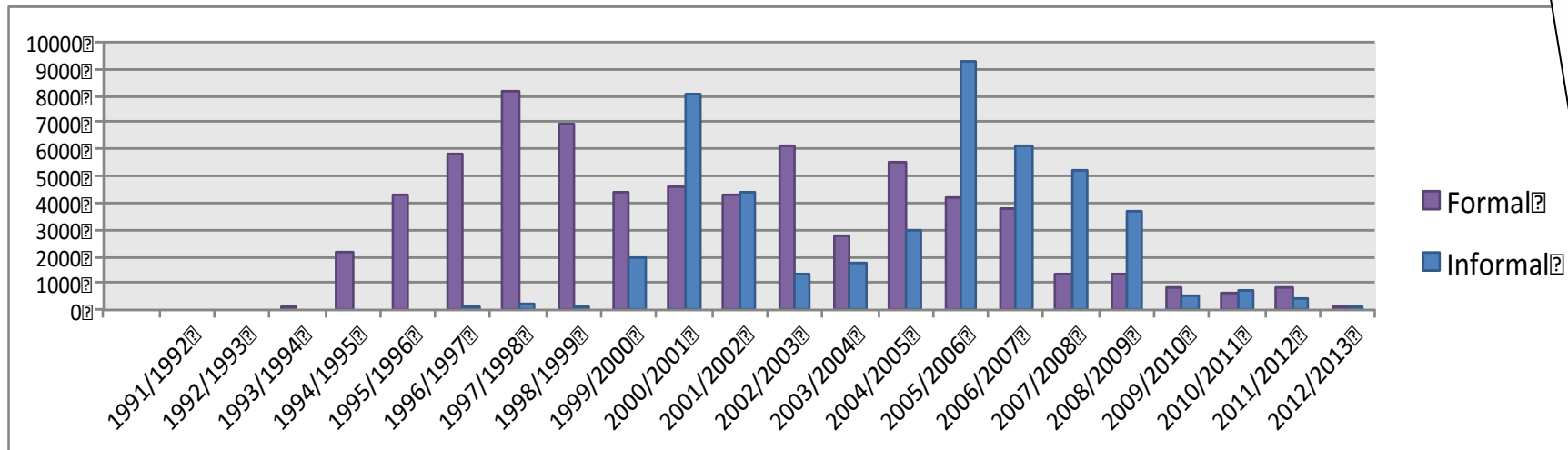
- ◆ First, why cant we electrify informal settlements in Cape Town - what are the range of barriers that they present to the current modes of electricity distribution? What are the tensions that arise between the ideal that Cape Town has of a networked city and informality.
- ◆ Secondly, if we cant electrify informal settlements - why hasn't a more diversified supply option developed? What are the dynamics within this sociotechnical delivery configuration that prevent a transition to a more inclusive energy system



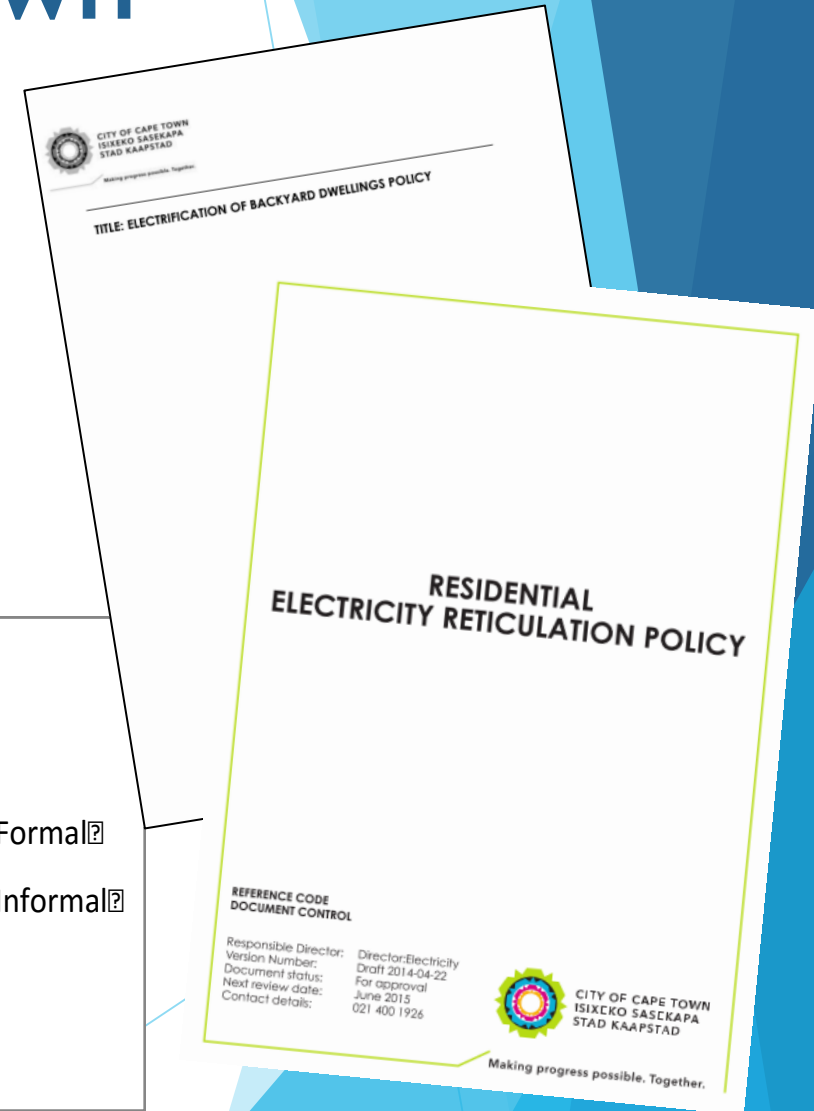
Informal settlements in Cape Town

- ◆ Cape Town's electrification backlog concentrated in informal households
- ◆ Two groupings:
 - ◆ Illegal land occupations
 - ◆ Backyard shacks

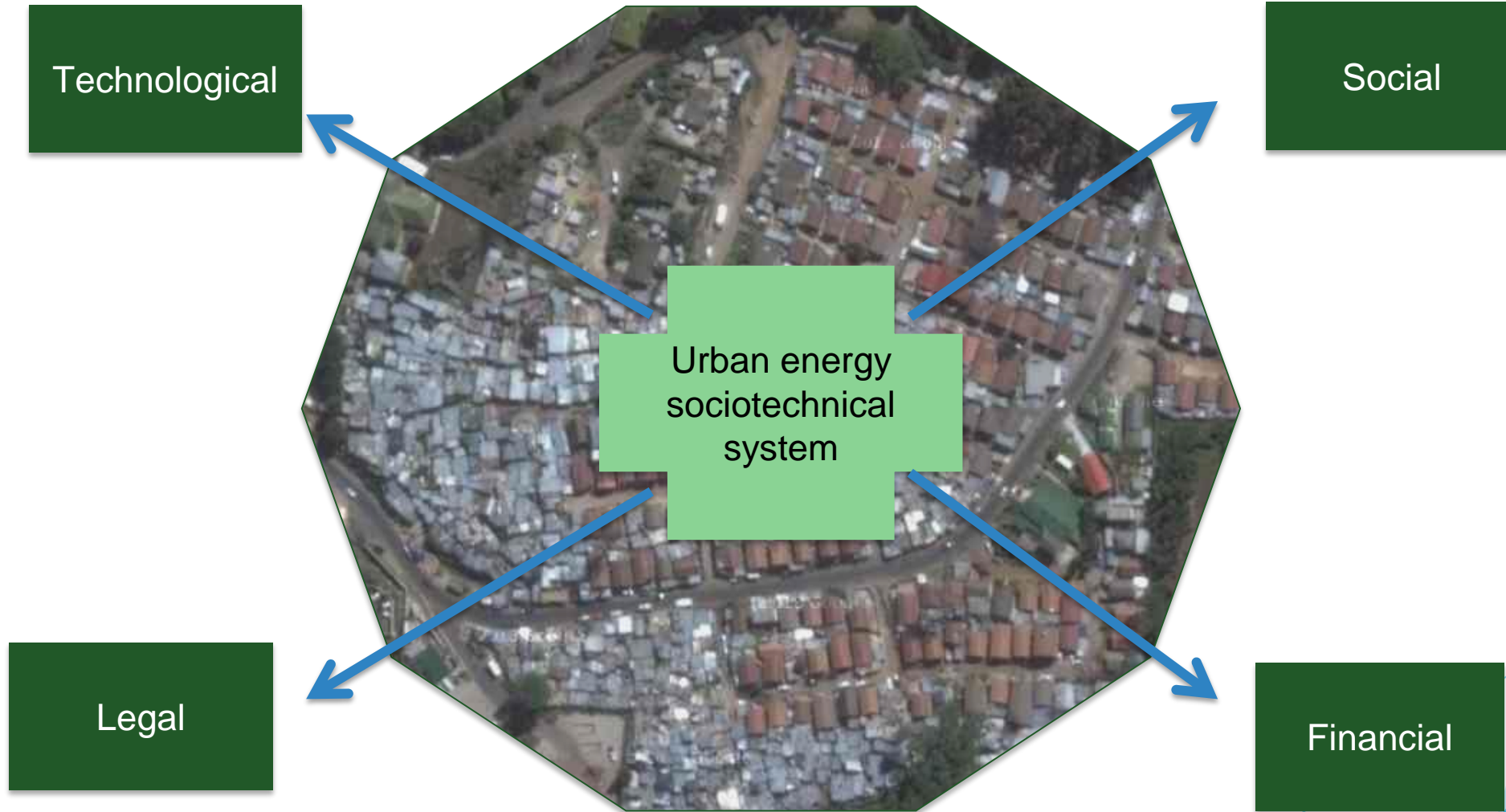
Figure 1: Annual electrification rates in Cape Town – formal and informal



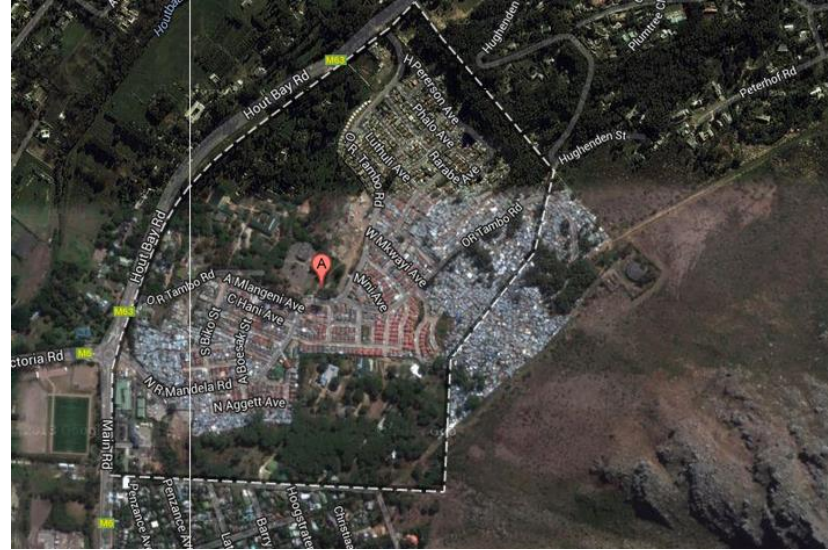
Source: City of Cape Town



Barriers to electrification



Urban planning and legal barriers



Technical barriers



Financial barriers

- Where site constraints raise costs that reduce financial viability
- Average costs of electrification exceed national subsidies

Social barriers



Planning for heterogeneity

Diversity of barriers that extend across the sociotechnical system:

- ▶ Urban planning considerations - e.g. servitudes
- ▶ Land ownership
- ▶ Health and safety risks to populations
- ▶ Geotechnical site issues
- ▶ Financial constraints
- ▶ Distance from existing infrastructure
- ▶ Existing network capacities
- ▶ Complex community dynamics



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- ▶ High-level planning classifications obscure the implications for planning

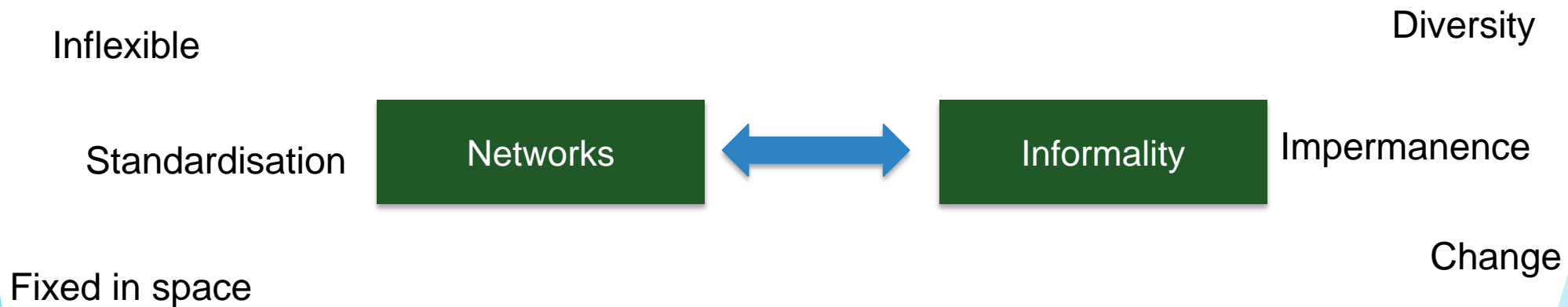
- ▶ E.g. Backyarders

- ▶ City owned versus privately owned land
- ▶ Network capacities
- ▶ Timelines for upgrades



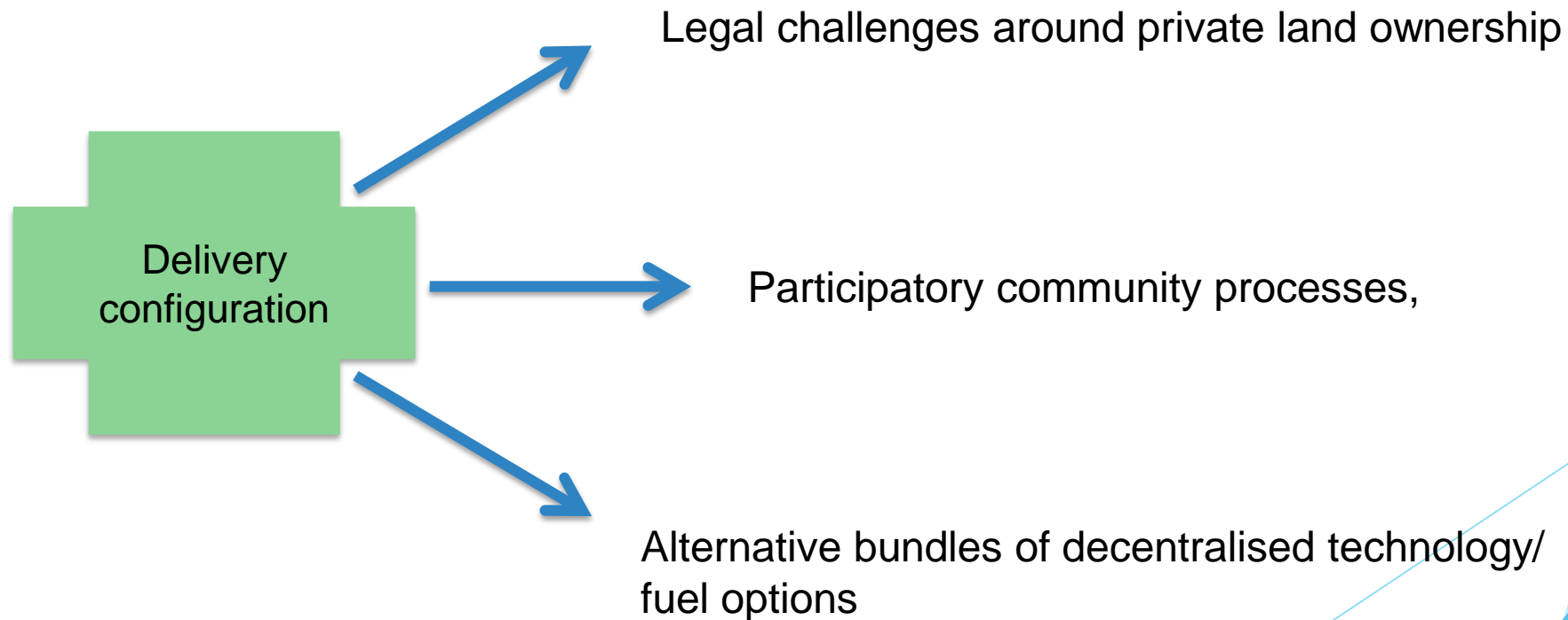
Tensions between networks and informality

- ▶ Fundamental tension apparent between a standardised and homogenous supply response against the tremendous diversity in contextual conditions that informal settlements present



What would a transition look like?

- ▶ Introducing flexibility and diversity into delivery configurations
- ▶ Flexibility would be achieved in different ways in different spaces



Dynamics of lock-in

- ◆ Infrastructure has been a tool of both repression and redistribution at different periods of South Africa's history
- ◆ In the democratic era re-establishing equality in service delivery has been an important objective
- ◆ Political resistance to differentiation in supply options

An emerging transition...

Thank you

The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. These shapes are primarily located on the right side of the frame, creating a modern, layered effect against the white background.