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The 4th Industrial Revolution (“4IR”) | *Building the Power Utility of the Future, Today*

Understanding Solar PV investment decisions in the residential sector: A technical analysis

Presenter: Nikkie Korsten
Researcher Stellenbosch University
Centre for Renewable and Sustainable Energy Studies & WWF-SA

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Understanding Solar PV investment decisions in the residential sector: A technical analysis

Nikkie Korsten
Karin Kritzinger
Louise Scholtz

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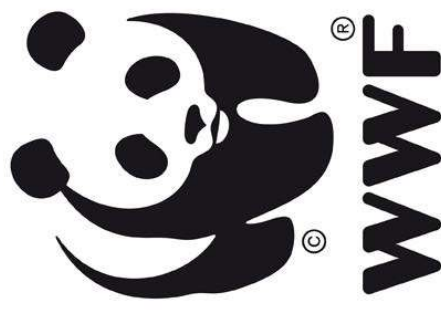
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Outline

1. Flashback
2. Understanding the complexity
3. Example of typical Municipality
4. Visionary Dialogue: the common goal

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Survey results

Social and financial factors most important, environmental factors not critical

Upfront investment costs most significant barrier

Social influence: mushroom effect in neighbourhoods

Lack of trust in government

Only 25% of PV owners registered their systems

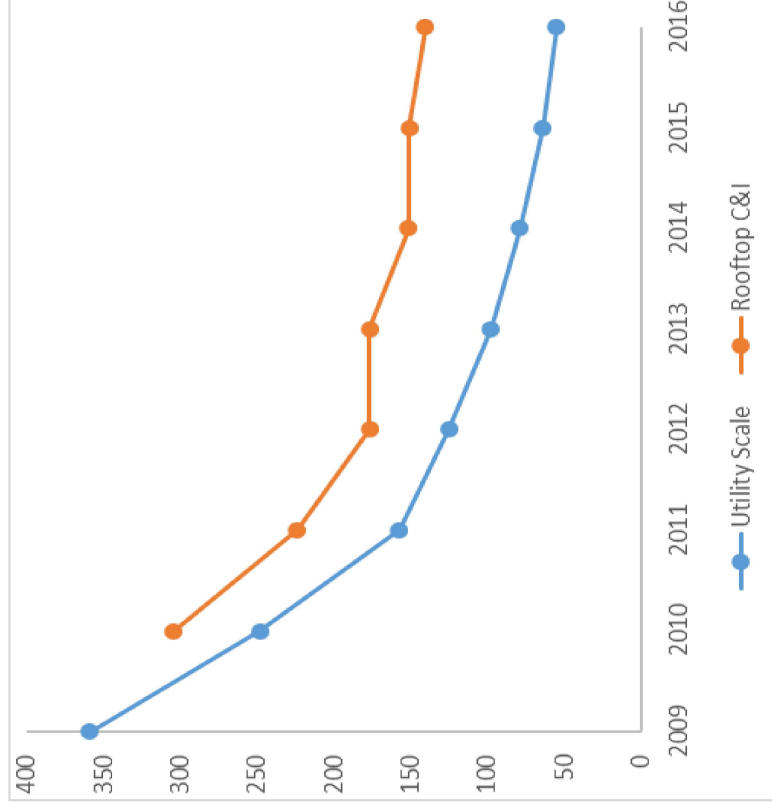
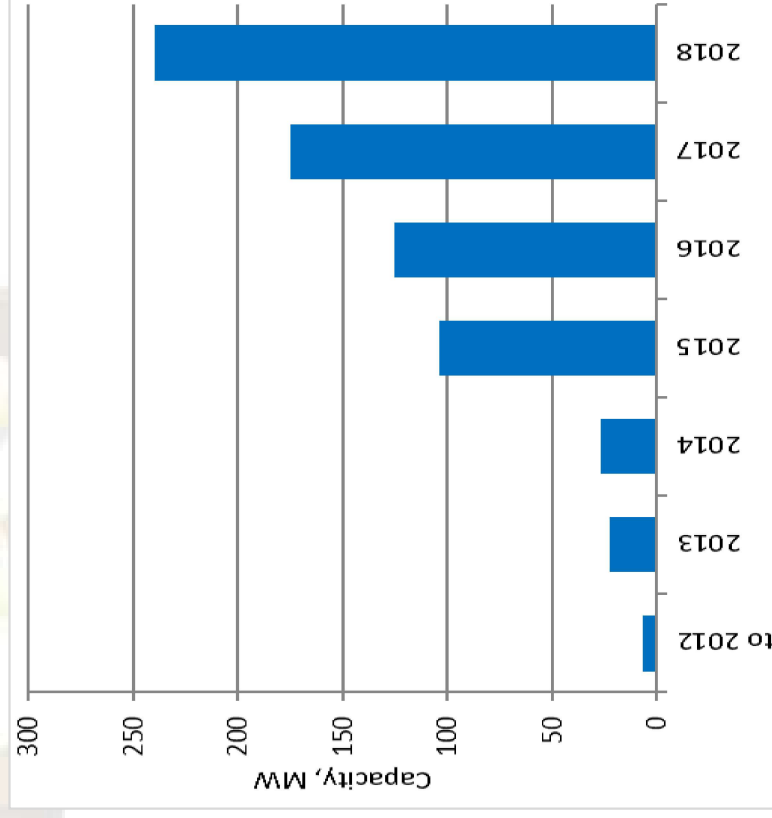
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Additional PV installed and LCOE in South Africa



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Block Inclined Tariff

Residential Meter Rates	
Consumption Bracket	Rate (c/kWh)
< 50 kWh	103.39
51 - 300 kWh	132.62
301 - 600 kWh	187.09
> 600 kWh	220.32
Fixed Charge per Month	Rate (R/month)
If consumption more than 600 kWh on average in previous municipal financial year	141.78

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SSEG Tariff

- Compulsory to register PV system
- Transferred to SSEG tariff
- Increased fixed monthly charges

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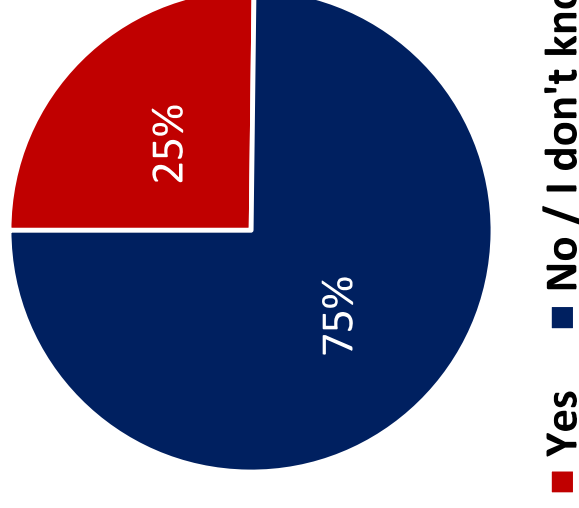
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Consequences of fixed charges

- Municipalities might be able to fill the financial gap

Registered PV systems



But...

- PV investors will be limited to reduce their monthly electricity bill by producing their own electricity or other energy efficiency

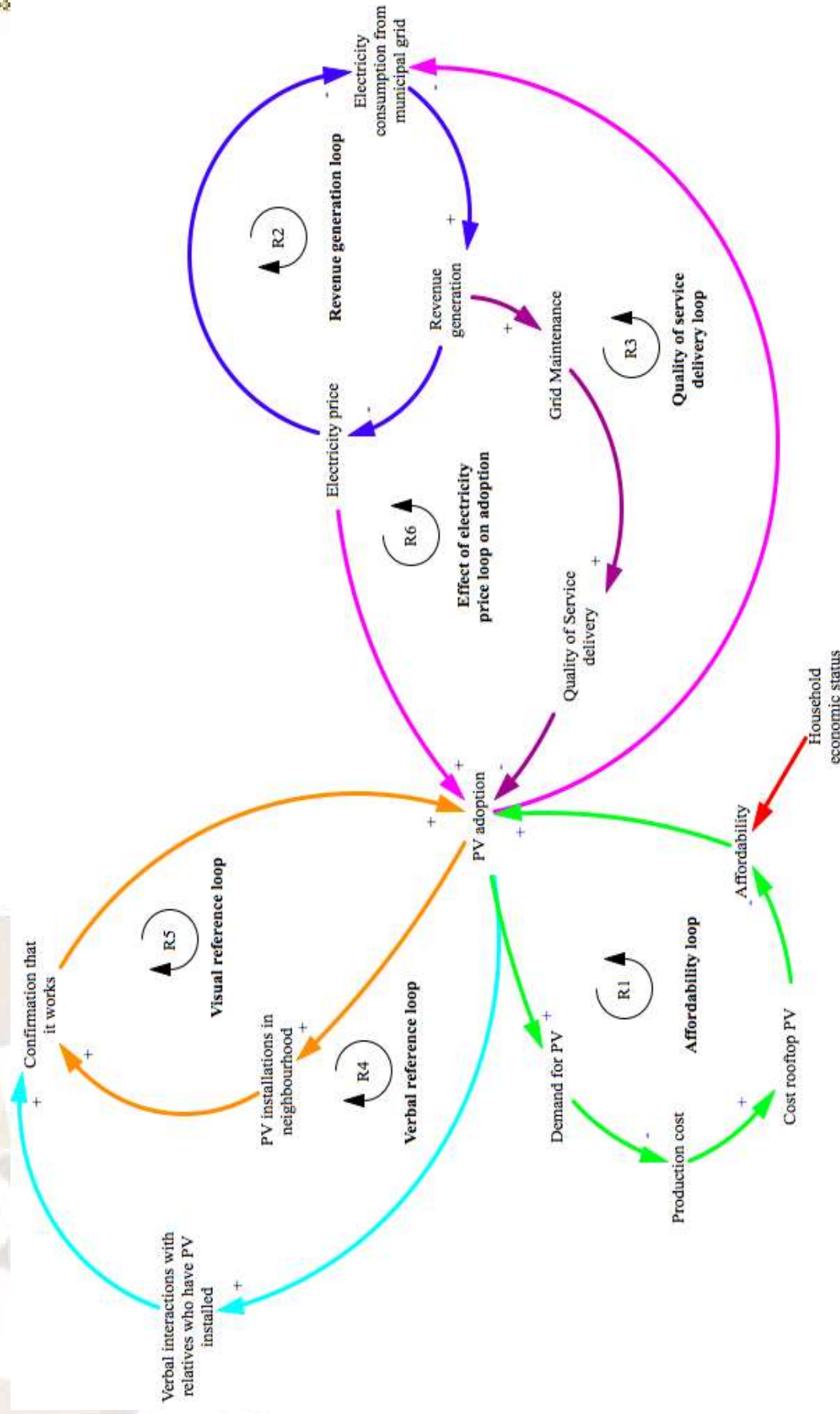
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CLD: Impact PV on municipalities

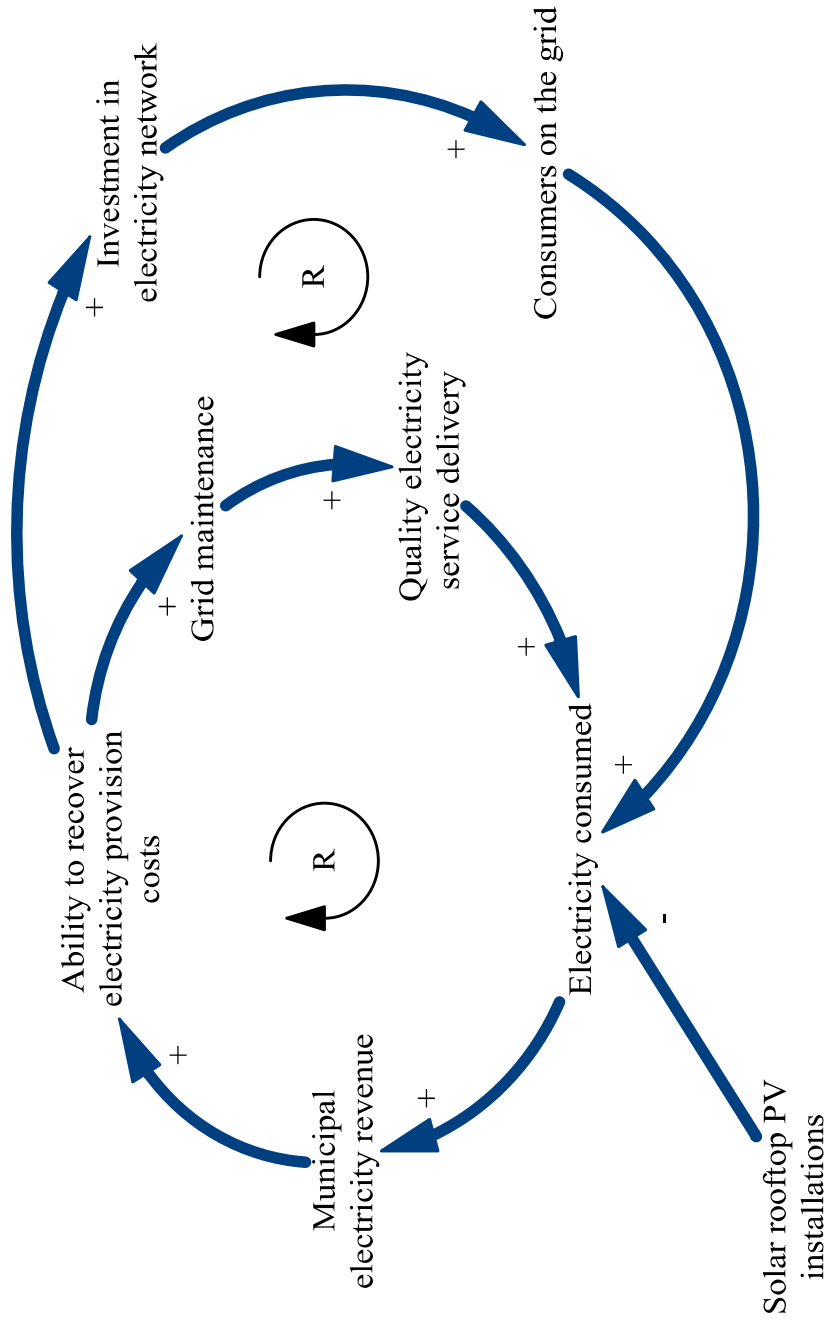


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CLD: Rooftop PV as disruptive force

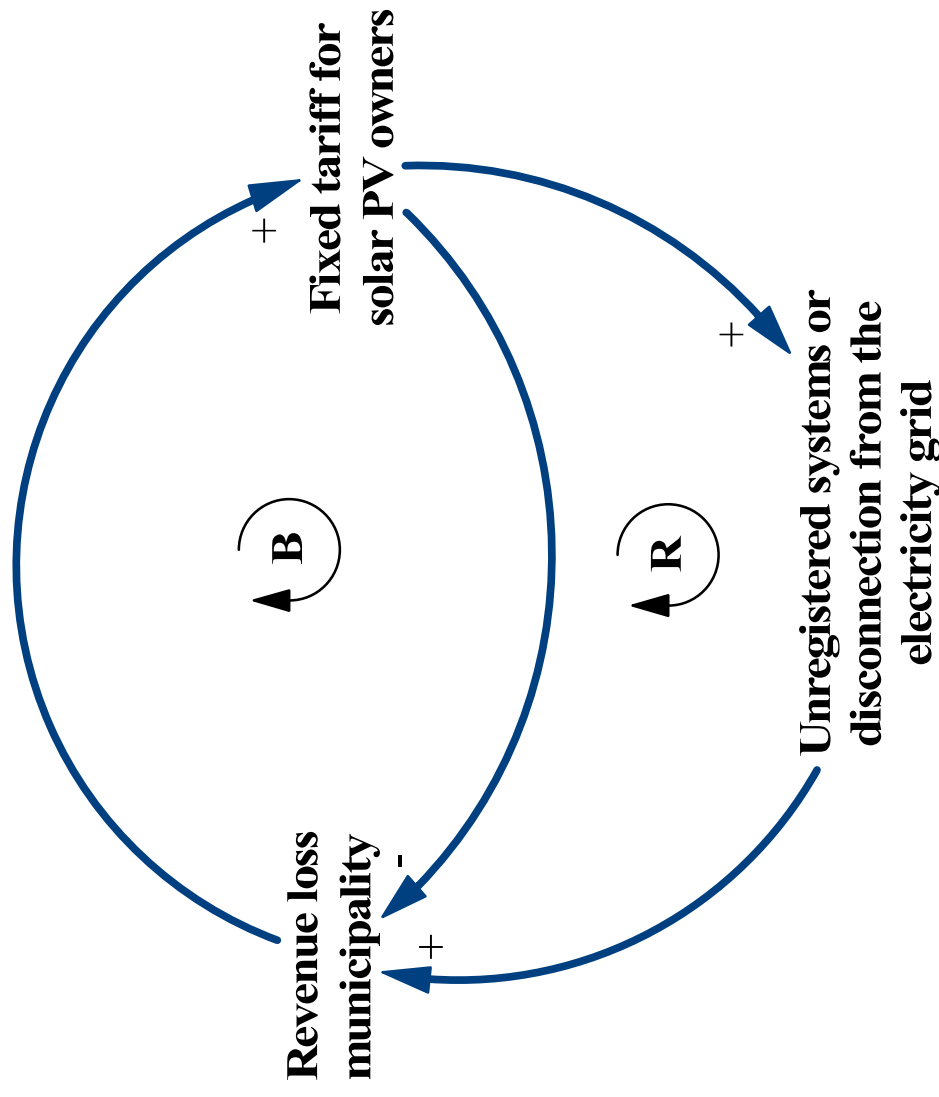


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Fixes that Fail archetype: Unintended consequences



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South African municipal context

Municipal mandate (Constitution,
MFMA and MSA)

Unequal consumption

Cross – subsidisation

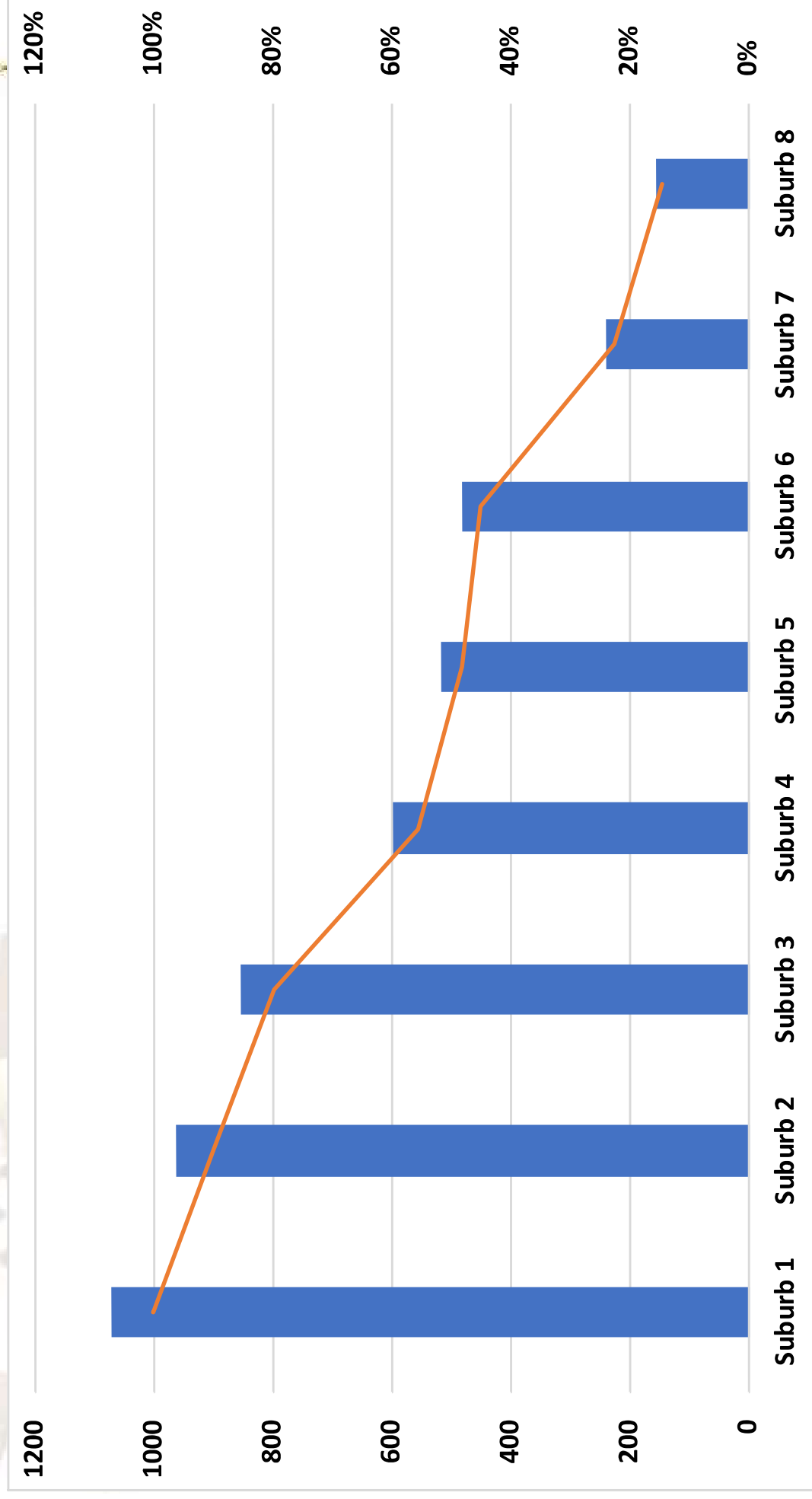
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Average kWh consumption per suburb



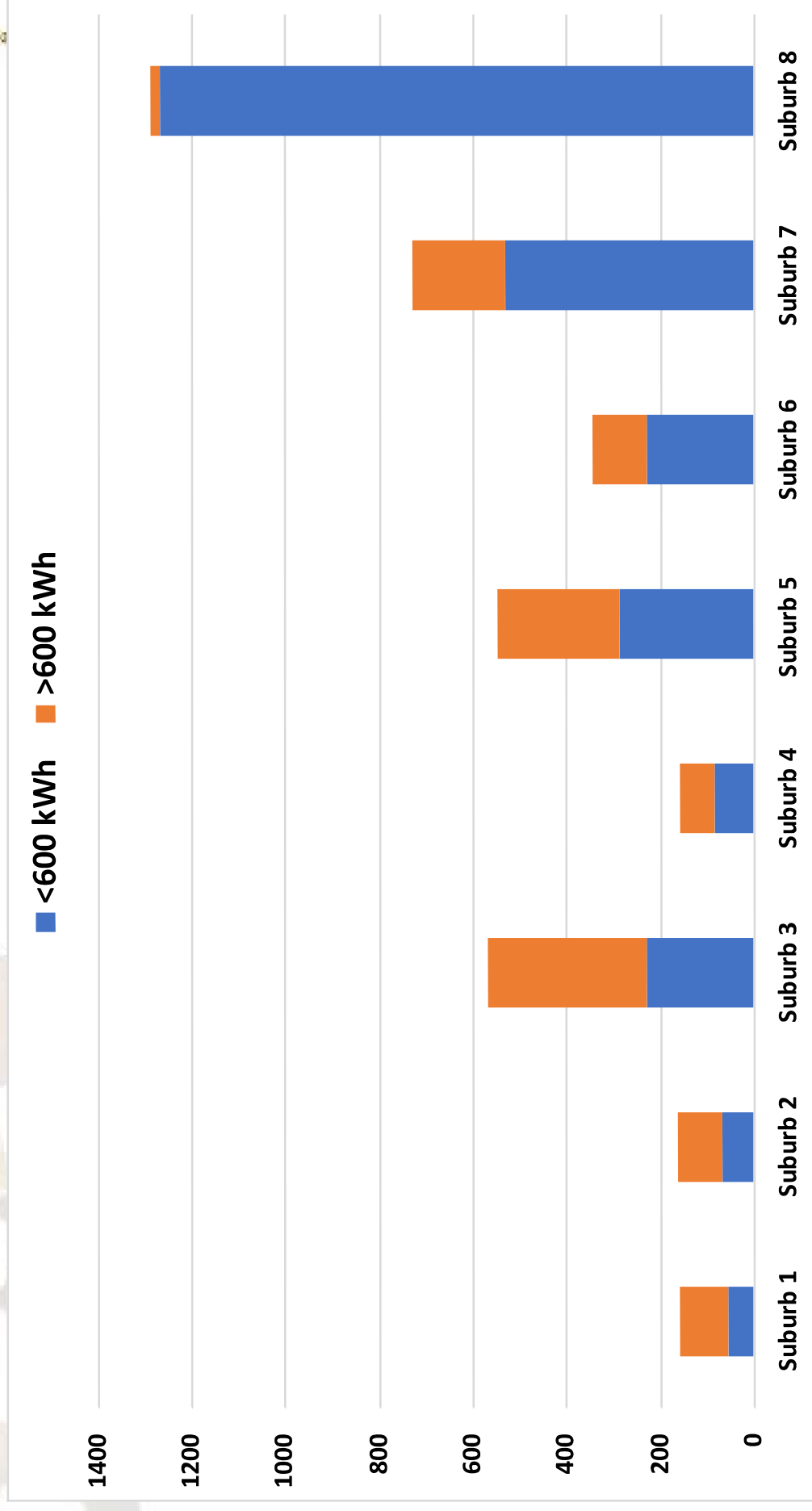
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Electricity meters and usage



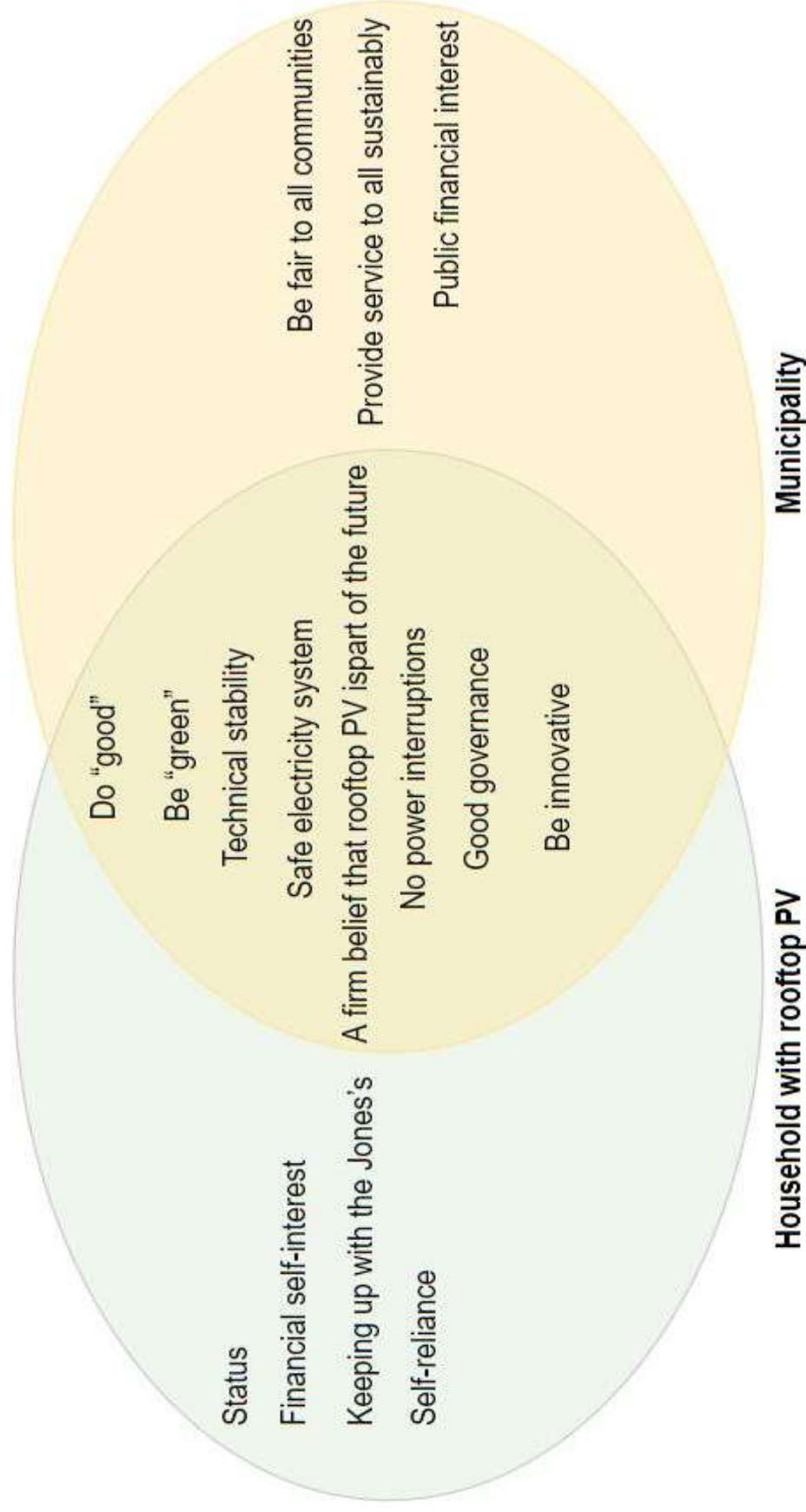
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Visionary Dialogue: the common goal



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Further Research

INTEGRATION OF SOLAR ENERGY INTO THE GRID: TECHNICAL OR SOCIAL CHALLENGE? BUILDING A COLLECTIVE VISION

Karin Kritzinger¹, Louise Scholtz², and Nikkie Korsten³



SASEC2019

6TH SOUTH AFRICAN SOLAR ENERGY CONFERENCE

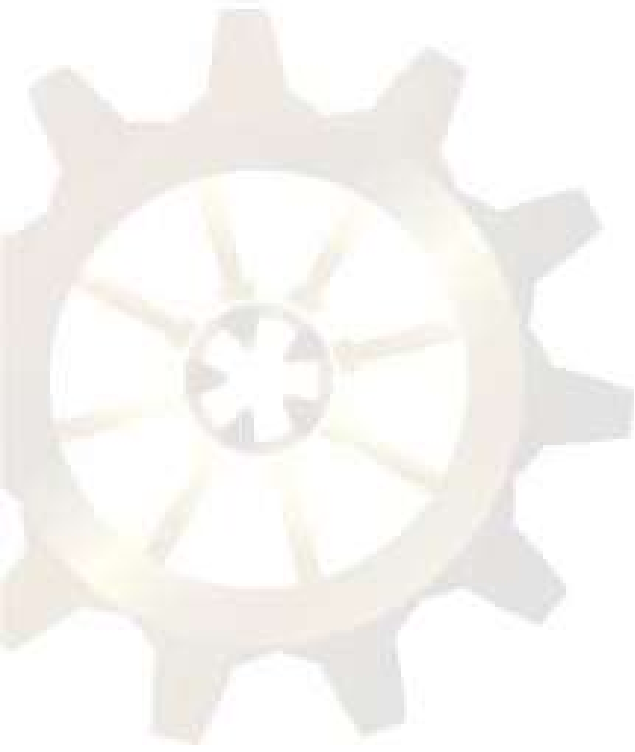
25 – 27 November | East London, South Africa

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Thank you

www.wwf.org.za

www.crses.sun.ac.za

For questions:

nikkiekorsten@sun.ac.za

karink@sun.ac.za



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