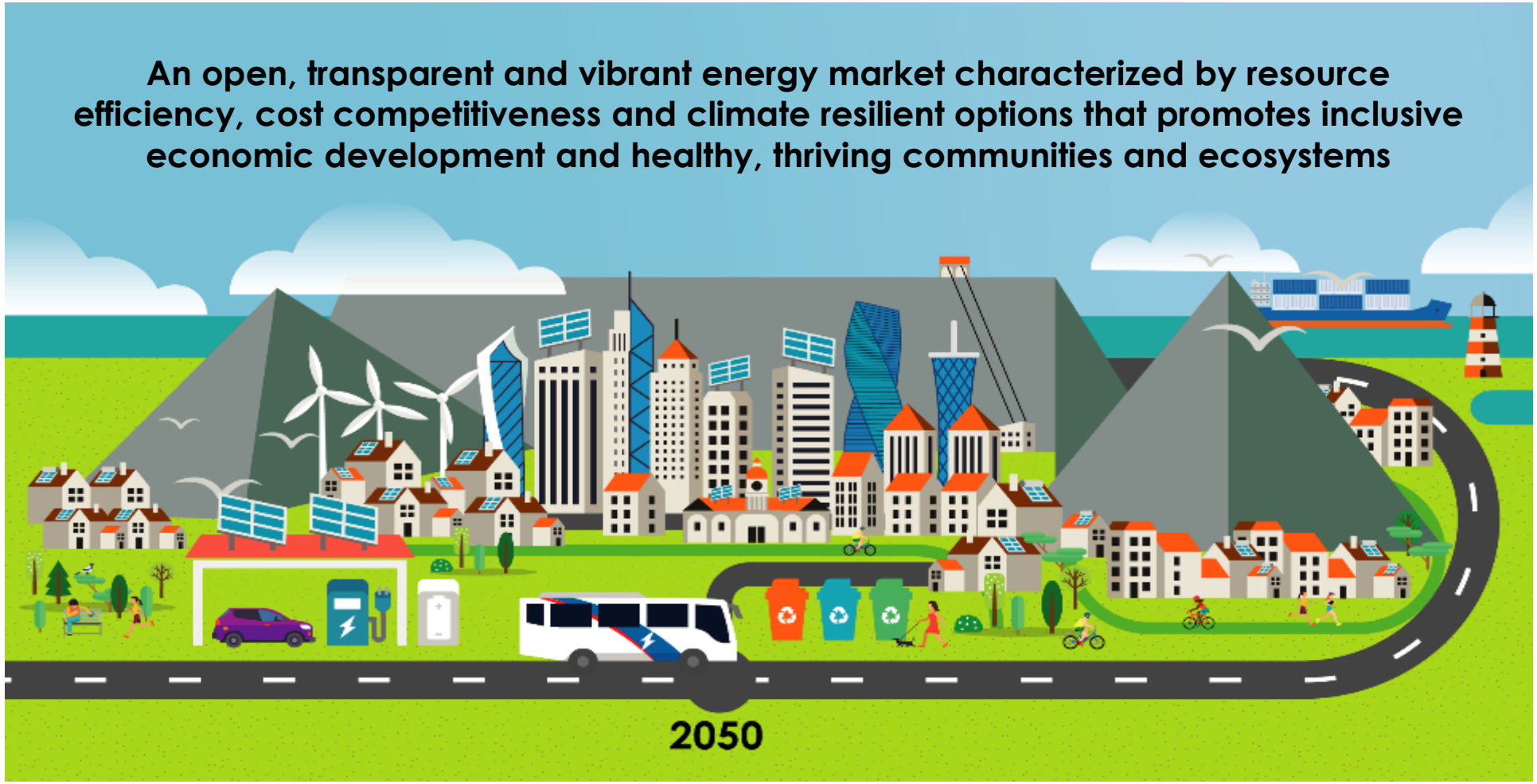
Energy Vision for the City of Cape Town



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Loadshedding Mitigation (Phase I)

Supply and demand steps to mitigate impact of loadshedding (Jan 2022 – Dec2023)

Energy Equation	Mitigation Action	Intended Effect	Comment
Supply Side	Reserve more Steenbras units for loadshedding mitigation; optimise its operating regime to minimize financial impact	Higher Steenbras energy output available for LS mitigation, subject to dam levels	- Requires no capital - Potential financial impact (arbitrage)
	Activate all City-owned RE and other generation (Atlantis; SSEG; LfGtP; Mini-hydro, OCGTs)	Additional energy sources for the City to draw from during periods of low/negative RM	- Can offset Steenbras midday generation need - Daily gen forecast critical
Demand Side	Load curtailment campaign with LPU's to reduce consumption upon request in exchange for tariff reduction / lower levels of loadshedding	Instantaneous demand reduction, localised to industry (most citizens unaffected)	- Short term measure that limits broad impact of LS - Impact on electricity sales revenues
	Power Heroes residential Demand Response programme	Instantaneous reduction in demand	- Potential public opposition - Comms network needed

CoCT network has to be designed/adapted to enable the implementation of the LSMP

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Loadshedding Mitigation (Phase II)

Supply and demand steps to mitigate impact of loadshedding (Jan 2024 – Dec2025)

Energy Equation	Mitigation Action	Intended Effect	Comment
Supply Side	Secure PPA with Solar and Hybrid IPPs (RE, BESS, CCGT) at lowest possible LCOE	- Solar IPP: Non-dispatchable but additional energy source available quickly - Hybrid IPP: Dispatchable power source available quickly (2-3 years post-PPA)	- Solar: Tariff should be lower than Eskom - Hybrid: Tariff will be much higher than Eskom (~ R2/kWh) - Long term agreement required (15-20 years)
	Implement utility scale BESS	Dispatchable power source deployed quickly, can serve multiple uses	- Economics improved when paired with RE - Cannot run long periods - Scalable
Demand Side	Expand EE to high usage CoCT facilities	Lower demand allows more Steenbras pumping	Impact on operations to be carefully managed
	Broaden Power Heroes Programme to reduce Res loads other than geysers	Instantaneous reduction in demand	Large communications network upgrades and customer buy-in needed

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CoCT network has to be designed/adapted to enable the implementation of the LSMP

Phasing of Supply and Demand Levers

- Phasing of supply/demand levers spread over 40month period (Jan ‘22 – Dec ‘25)
- Full suite of options can be available by end 2025 to mitigate LS to agreed extent
- Enabling network projects and associated timelines will impact program

Lever	2022		2023		2024		2025	
	H1	H2	H1	H2	H1	H2	H1	H2
Steenbras								
City-Owned GT								
DR (ILS)								
City-Owned RE								
Enhanced EE Program								
RE IPP								
Hybrid IPP								

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