Introducing Electric Vehicles in Southern Africa

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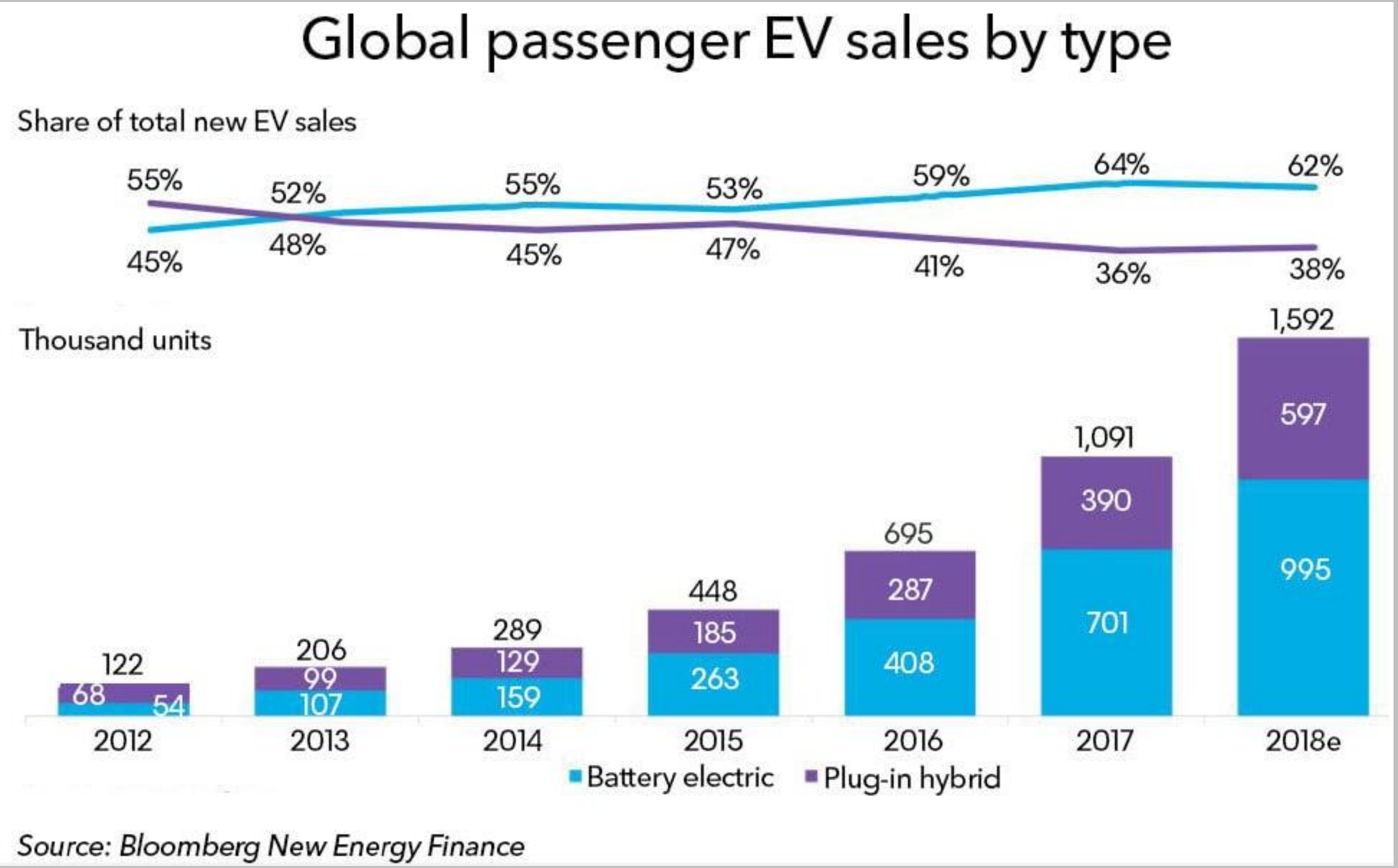
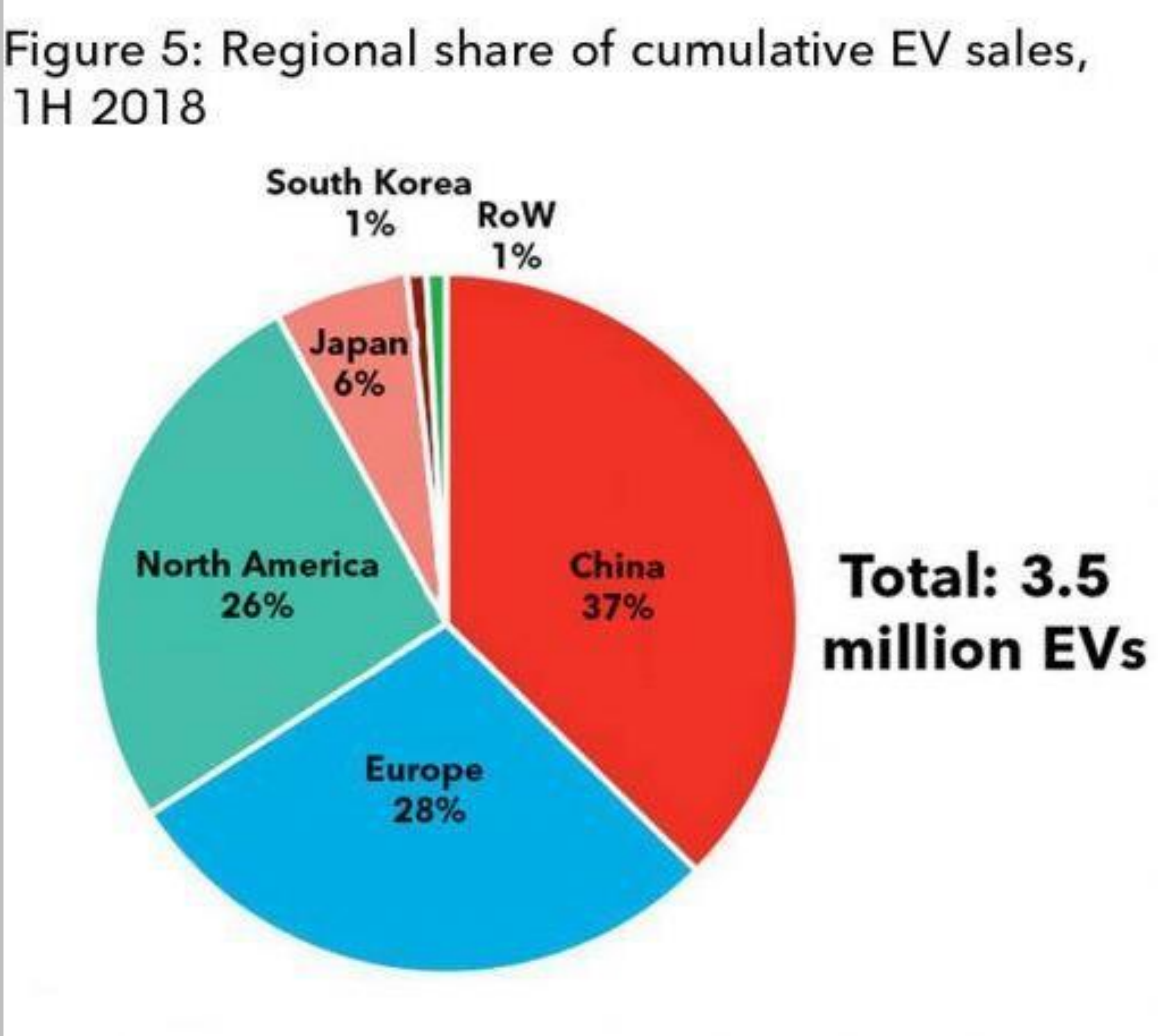
The rate of EV sales has rapidly increased globally

Exponential growth since inception



EV sales has universal uptake



EV has Global take-up

EV Sales by Country

China	4.2%
Europe	2.5%
USA	2.1%

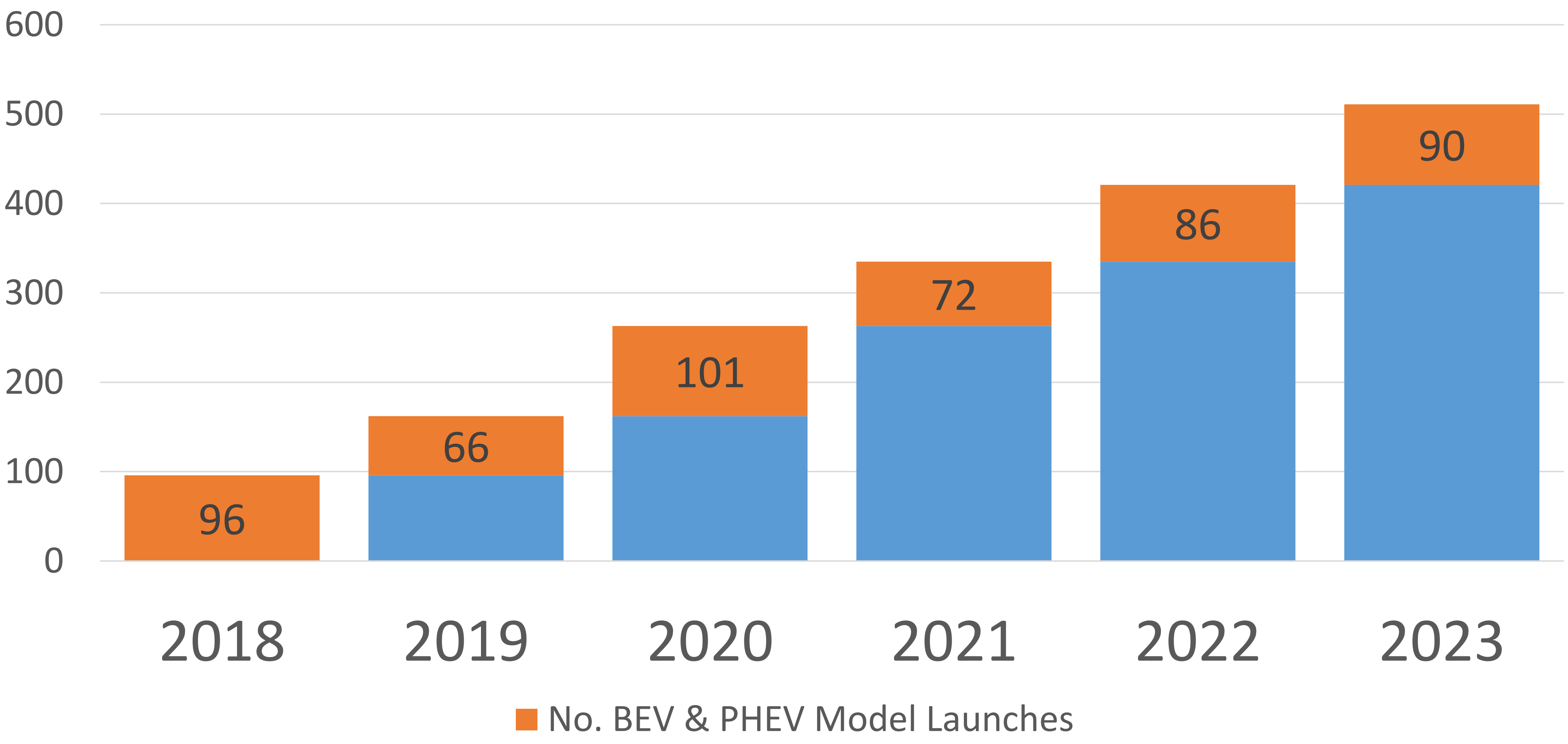
Shift from
“Compliance cars”
to Electric cars that ***deliver*** and ***compete*** against ICE

Mix of ***mass & premium*** Brands

Passenger plug-in market share of total new car sales between 2013 and 2018 for selected countries and selected regional markets

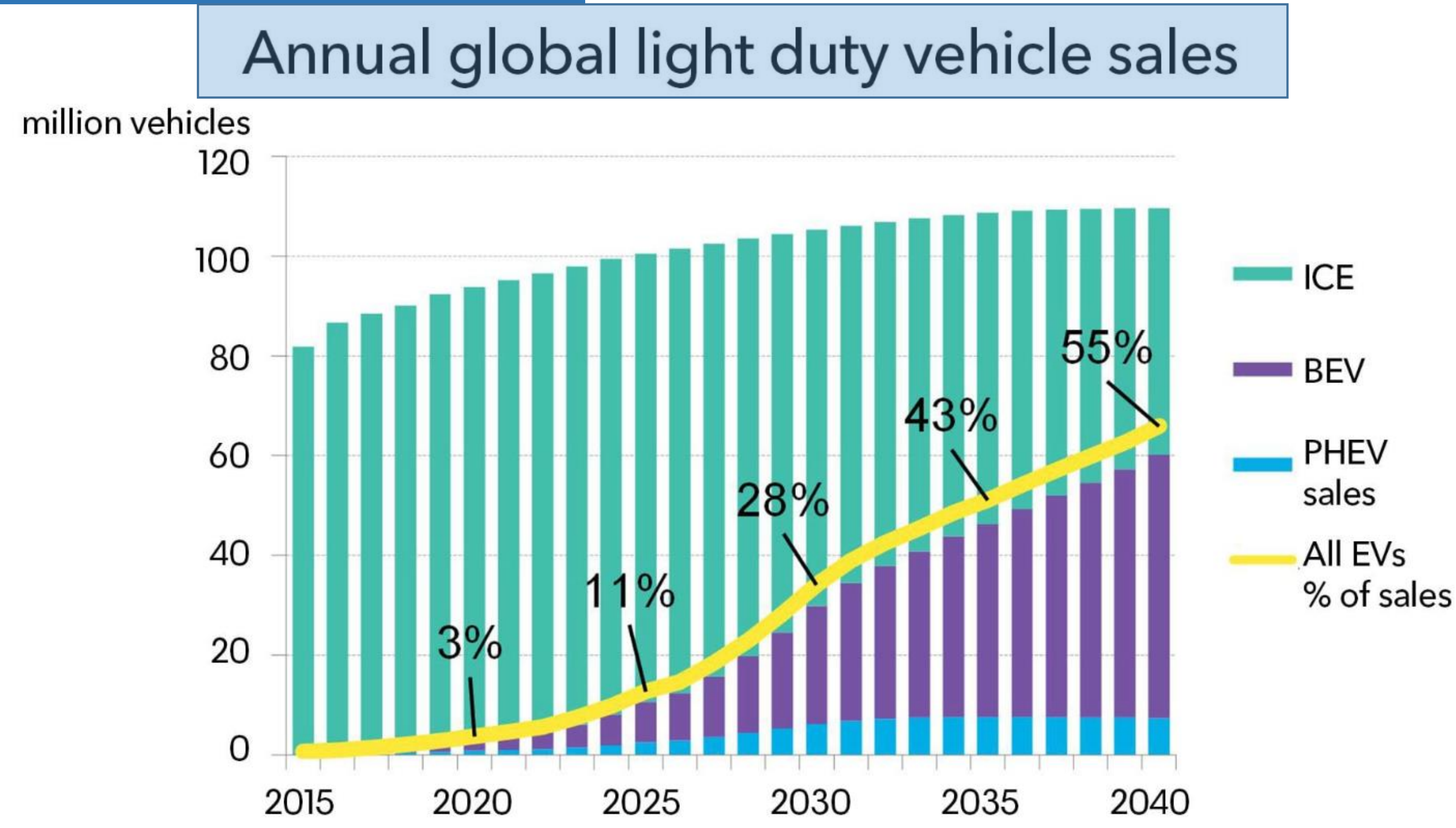
Country	2018	2017	2016[15][74]	2015[75][76]	2014[77]	2013[78]
Norway[50][16]	49.1%	39.2%	29.1%	22.39%	13.84%	6.10%
Iceland[79][80][81][82]	19%	14.05%	4.6%	2.93%	2.71%	0.94%
Sweden[83][84][63]	8.2%	5.2%	3.5%	2.62%	1.53%	0.71%
Netherlands[61][85]	6.5%	2.6%	6.7%	9.9%	3.87%	5.55%
Finland[79][86]	4.7%	2.57%	1.2%	N/A	N/A	N/A
China[77][87][88][23][89]	4.2%	2.1%	1.31%	0.84%	0.23%	0.08%
Andorra[90]		5.6%	0.81%	N/A	N/A	N/A
Portugal[91]	3.6%	1.9%	N/A	N/A	N/A	N/A
Switzerland[79][92]	3.2%	2.55%	1.8%	1.98%	0.75%	0.44%
Austria[79][93][94]	2.6%	2.06%	1.6%	0.90%	N/A	N/A
UK[95][96][54]	2.53%	1.86%	1.37%	1.07%	0.59%	0.16%
Belgium[79][97]	2.5%	2.7%	1.8%	N/A	N/A	N/A
Canada[62]	2.16%[i]	0.92%	0.58%	0.35%	0.28%	0.18%
France[ii][57][58]	2.11%	1.98%	1.4%	1.19%	0.70%	0.83%
USA[98][49][99][100]	2.1%	1.13%	0.90%	0.66%	0.72%	0.60%
Denmark[101][102]	2%	0.4%	0.6%	2.29%	0.88%	0.29%
Germany[77][87][103][60][59][104]	1.9%	1.58%	1.1%	0.73%	0.43%	0.25%
Ireland[105]	1.57%	0.72%	0.48%	0.46%	0.27%	N/A
Japan[2][52][106]	1.0%	1.1%	0.59%	0.68%	1.06%	0.91%
New Zealand[107]	0.96%	0.72%	0.50%	0.23%	0.21%	N/A
Global total						
California[67][108]	7.8%	4.8%	3.6%	3.1%	3.2%	2.5%
Europe[66][79][109][110][111][112][iii]	2.5%	1.74%	1.3%	1.41%	0.66%	0.49%

EV Product to Market



Source: HIS Market, McKinsey analysis

The rapid growth of EV's will continue into the future

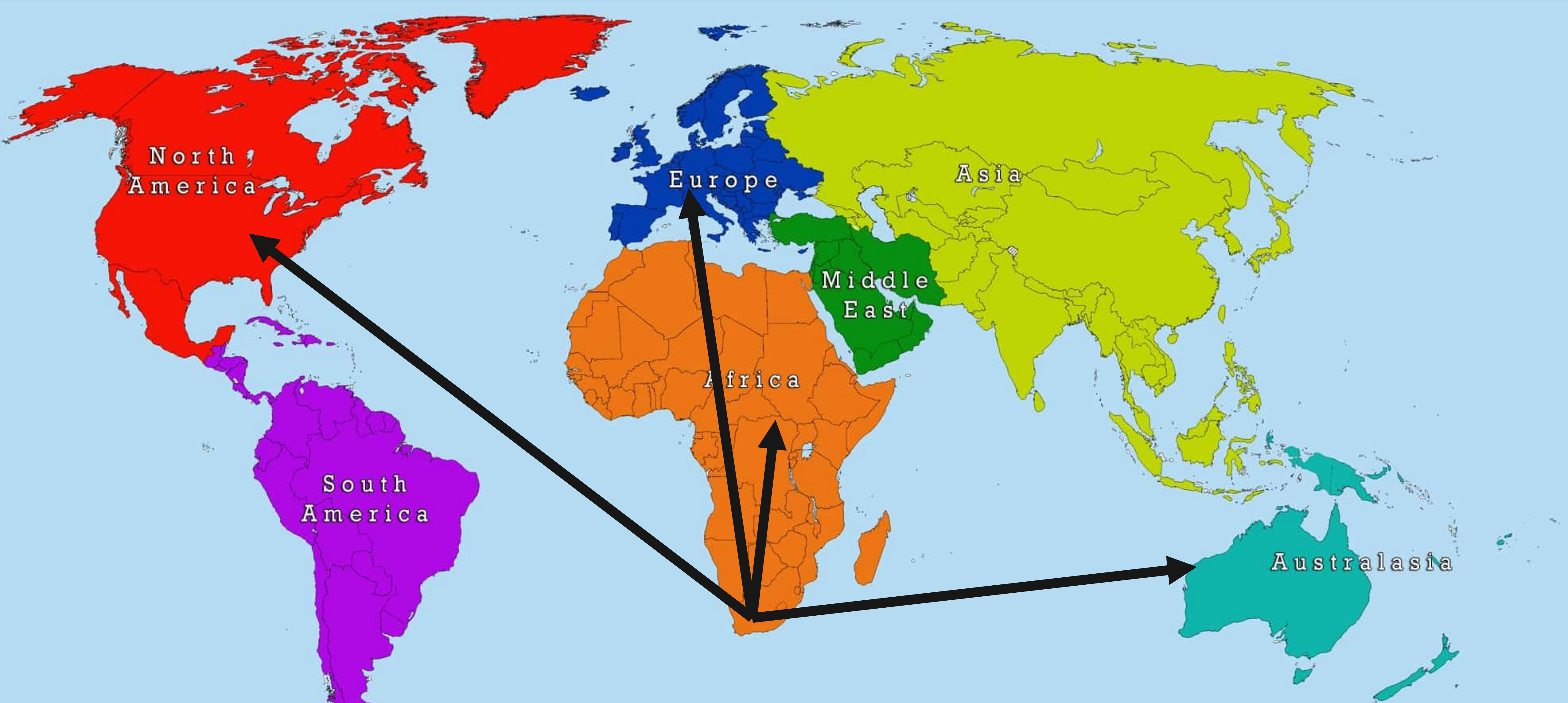


Source: Bloomberg New Energy Finance

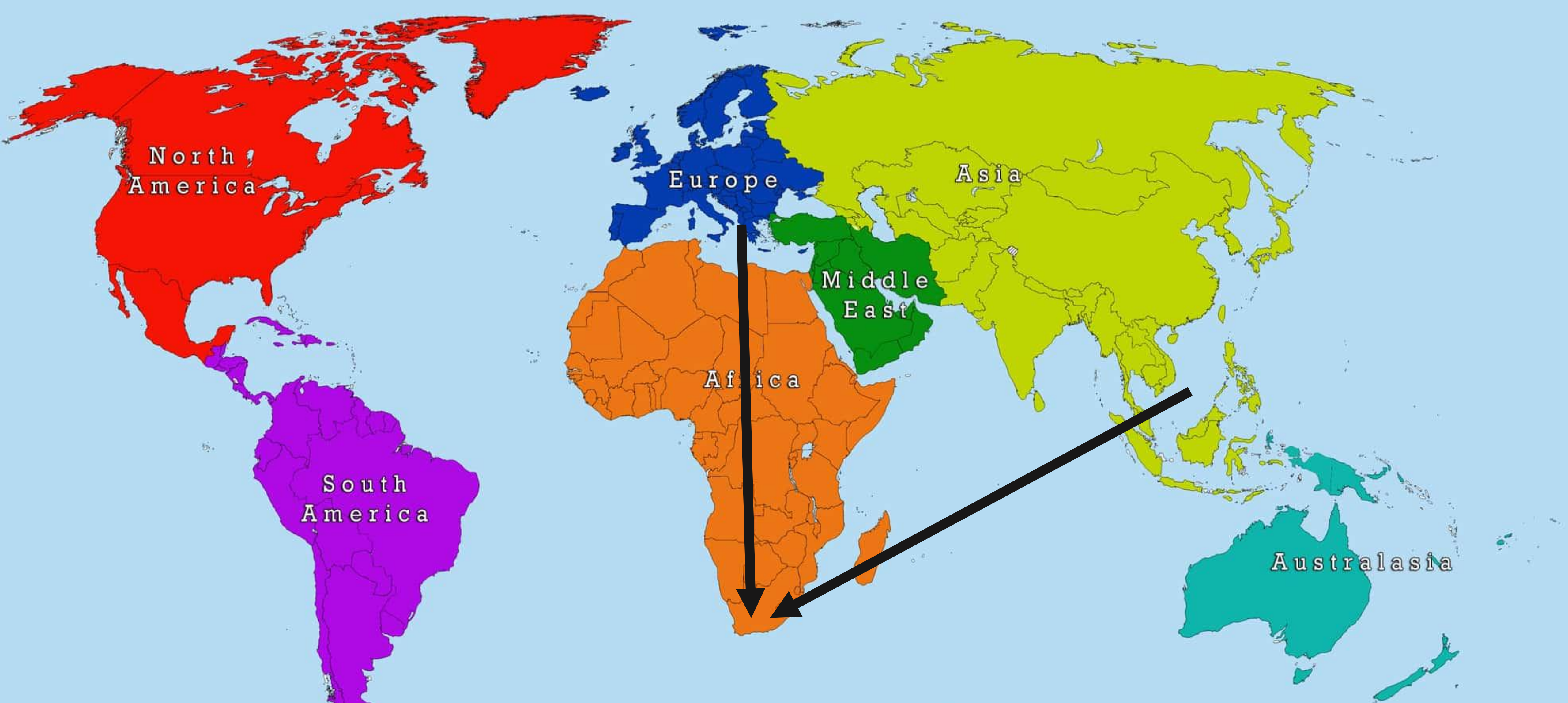
EV sales could reach 60 million by 2040, 55% of all light-duty vehicles.

- Every day, barriers to an EV as a credible daily drive are falling
- The young have bought in to an electrified future

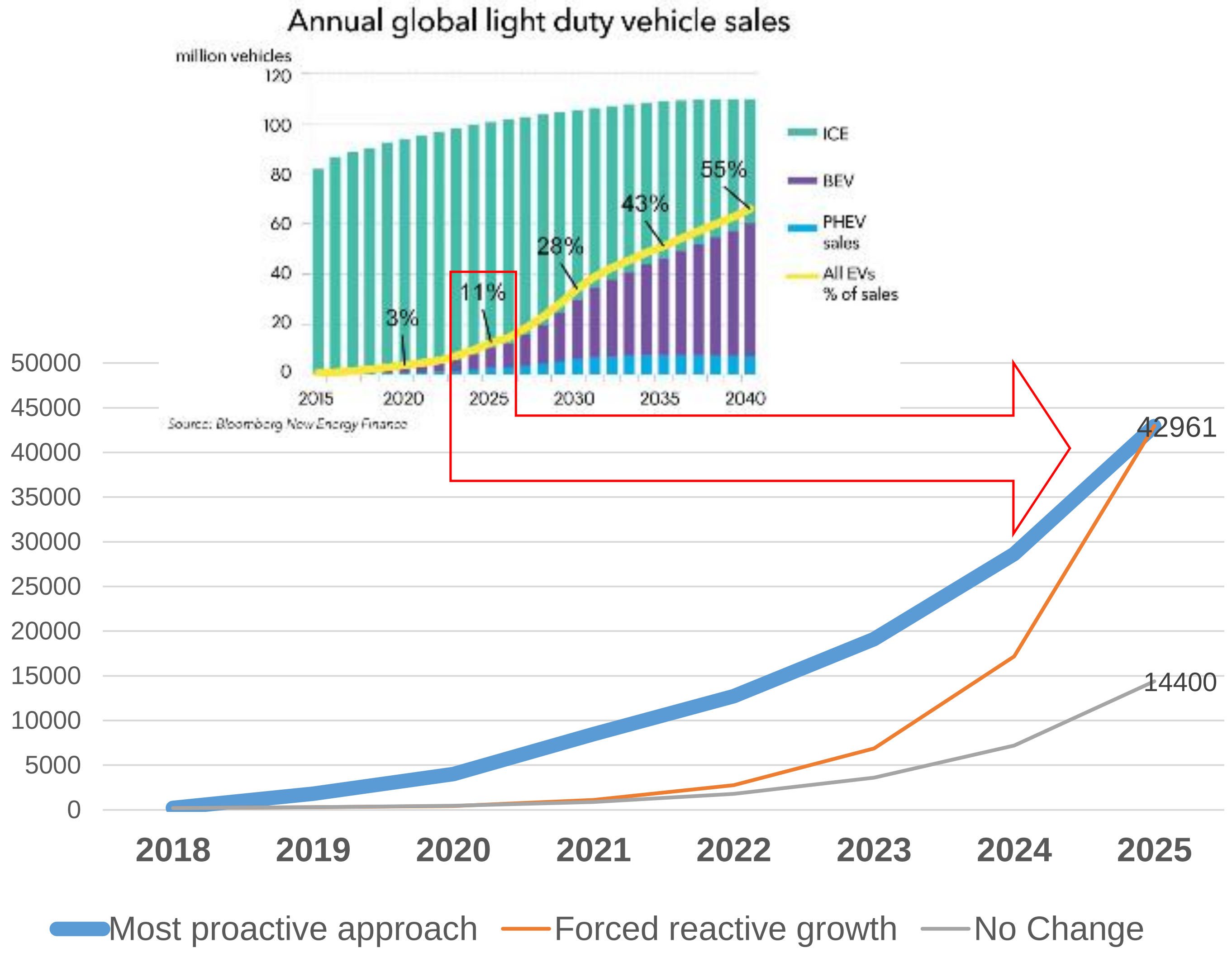
South African manufacture supplies Global markets



South African sales are sourced from worlds major OEM’s



Potential EV Growth



Most proactive approach

- Short term implementation of Vehicle Pricing (incentives)
- Adoption of models available globally
- Fast growth, but manageable in terms of Dealer gearing up & capability
- Steady and viable growth of Public infrastructure

South African Reality

Less than ¼ of available models introduced

Premium only

Token volume

	Brand	Model	Battery (kWh)	
1	Tesla	Model 3	50-75	
2	Nissan	Leaf E-Plus	60	
3	Renault	Zoe (next gen)	50?	
4	BMW	i3	42	In SA since 2015
5	Hyundai	Kona EV	64	
6	Audi	e-tron quattro	95	Expected early 2020
7	Kia	e-Niro	39-64	
8	Jaguar	I-PACE	90	In SA since April 2019
9	Hyundai	Ioniq	39	
10	VW	ID Neo	48	
11	Kia	Soul EV	39-64	
12	Mini	Electric	42	
13	Mercedes	EQC	80	Expected mid/late 2020
14	VW	e-Up!	37	
15	Porsche	Taycan	90	Expected early 2020
16	Skoda	e-Citigo	37	
17	Peugeot	208	60	
18	Seat	e-Mii	37	
19	Opel / Vauxhall	Corsa	60	
20	DS	DS3 Crossback	50	
21	Peugeot	2008	60	

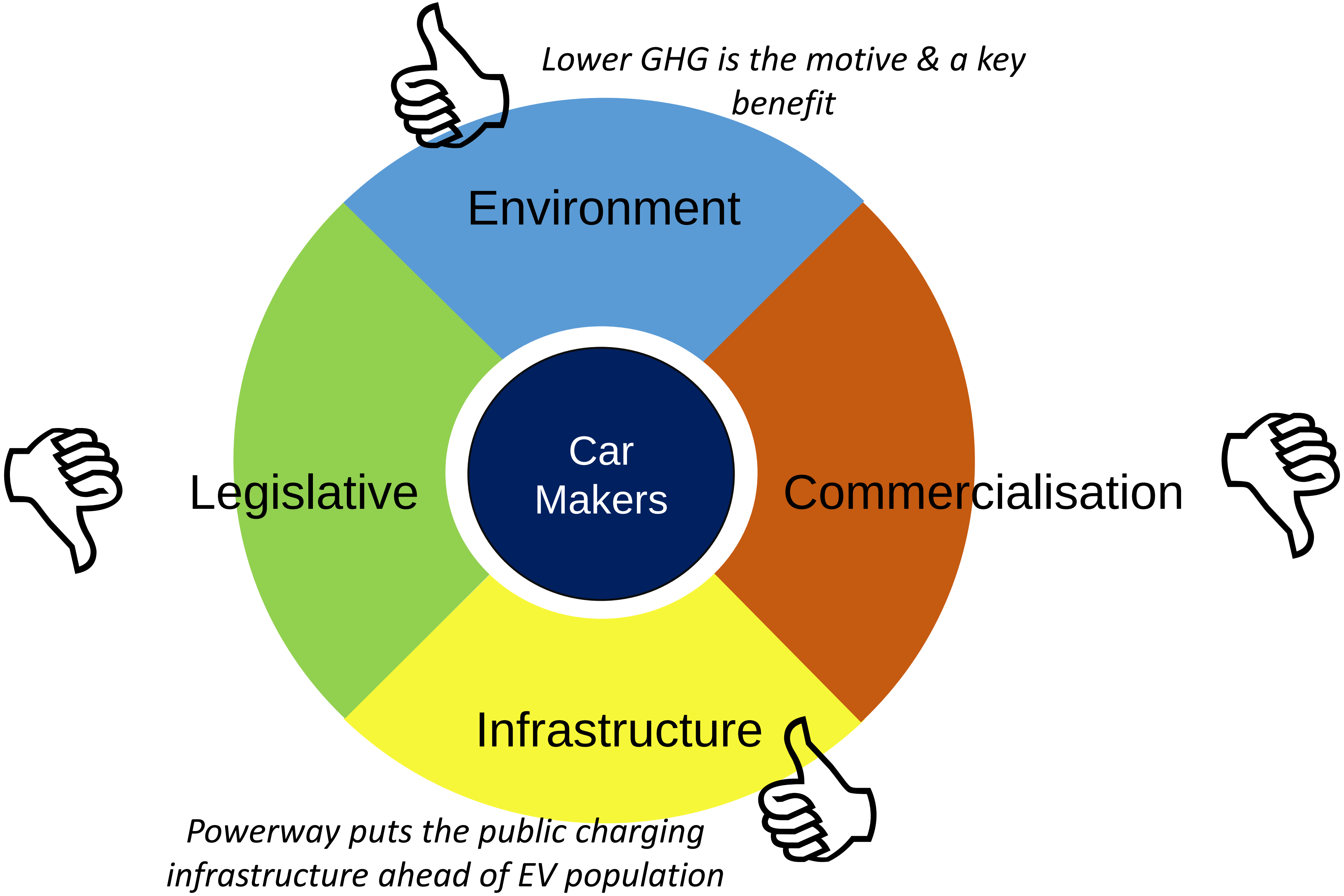
South African Reality

High Import Duties
&
No Incentives

Cost for EV Capability at Retailer

EV Myths & Charging

EV Eco System: South African EV status quo



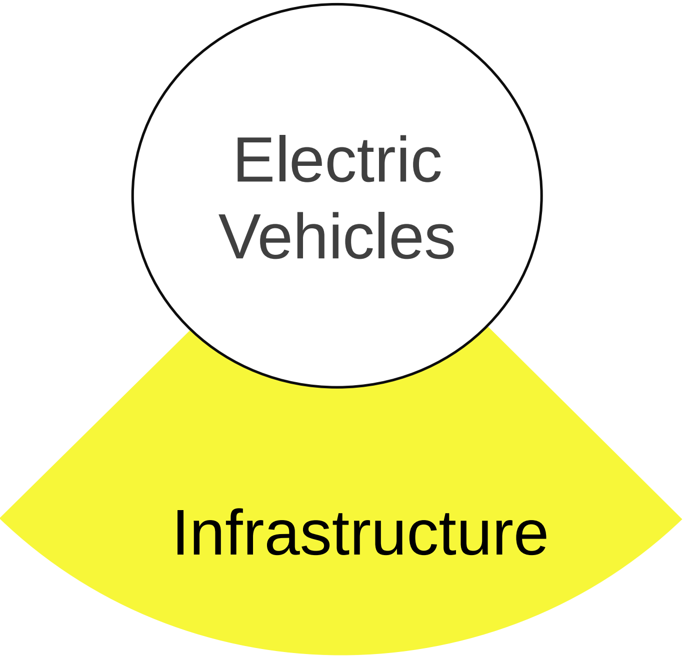
EV Eco System

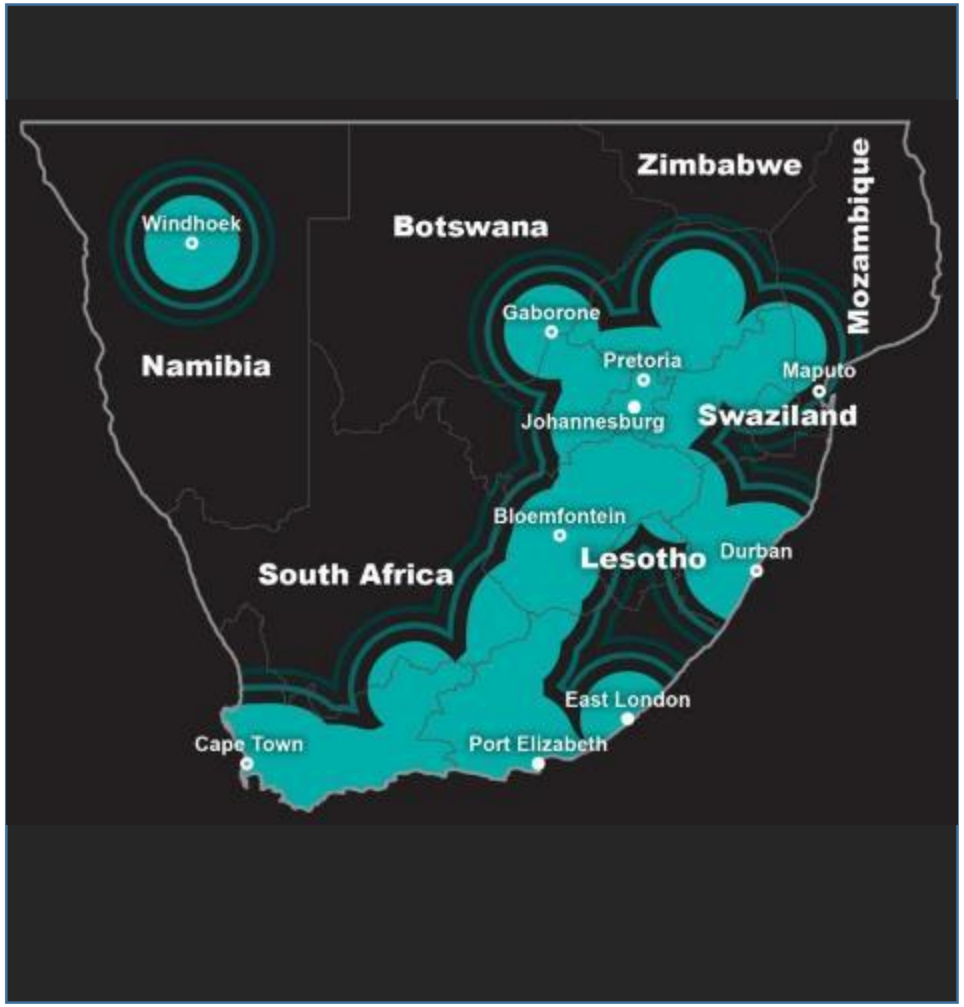
- Overnight Home Charging is the primary method, most cost effective

- A Public Charging connected grid is a necessity for full EV adoption

<u>Key factors</u>:

- Standardisation of Chargers
- One simple payment platform
- Independently operated
- Commercial viability underpinned by volume





Powerway puts the public charging infrastructure ahead of EV population

Powerway Public charging grid – AC22kW & DC60kW Dual Units

Motivation: remove the main purchase objection

Shopping Centre (per Retailer)
Provides “out & about” convenience

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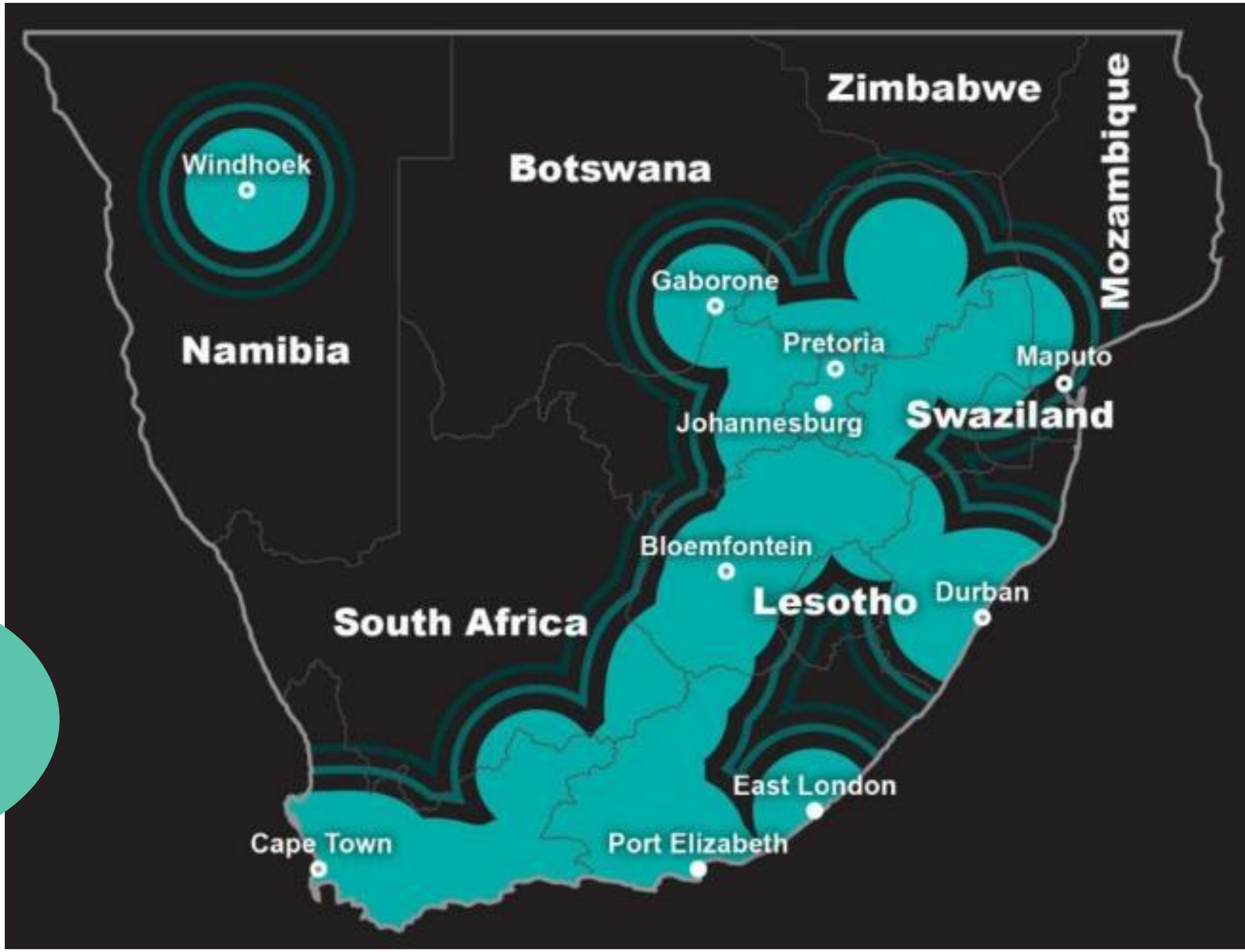
Highway Stopovers
Make long trips possible

Gauteng & Surrounds (West / North / East)

Pretoria To Durban

Garden Route

Polokwane To Cape Town



Compatible with all EV’s

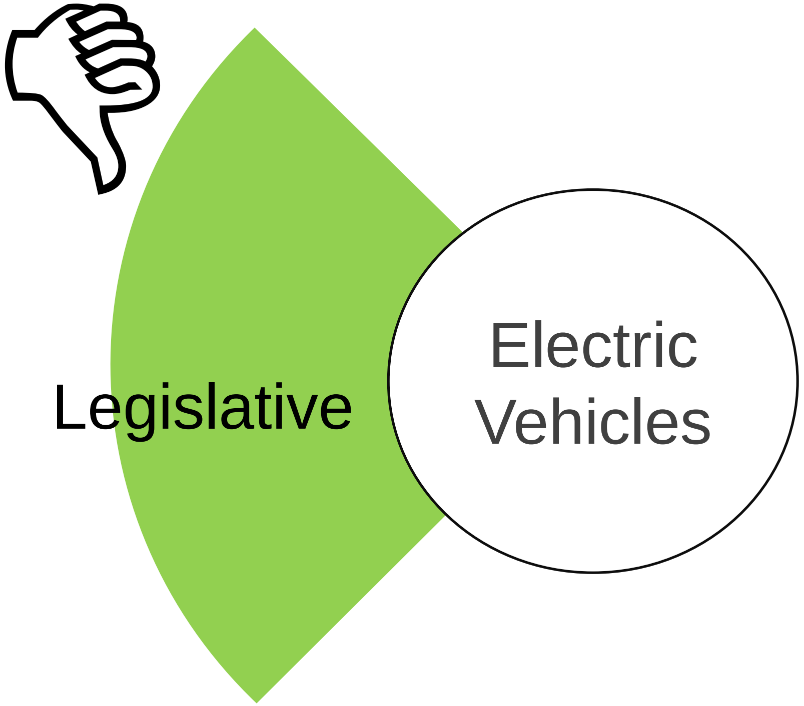
POWERWAY, in partnership with GridCars®

EV Eco System

Higher import duty rate.

No incentives.

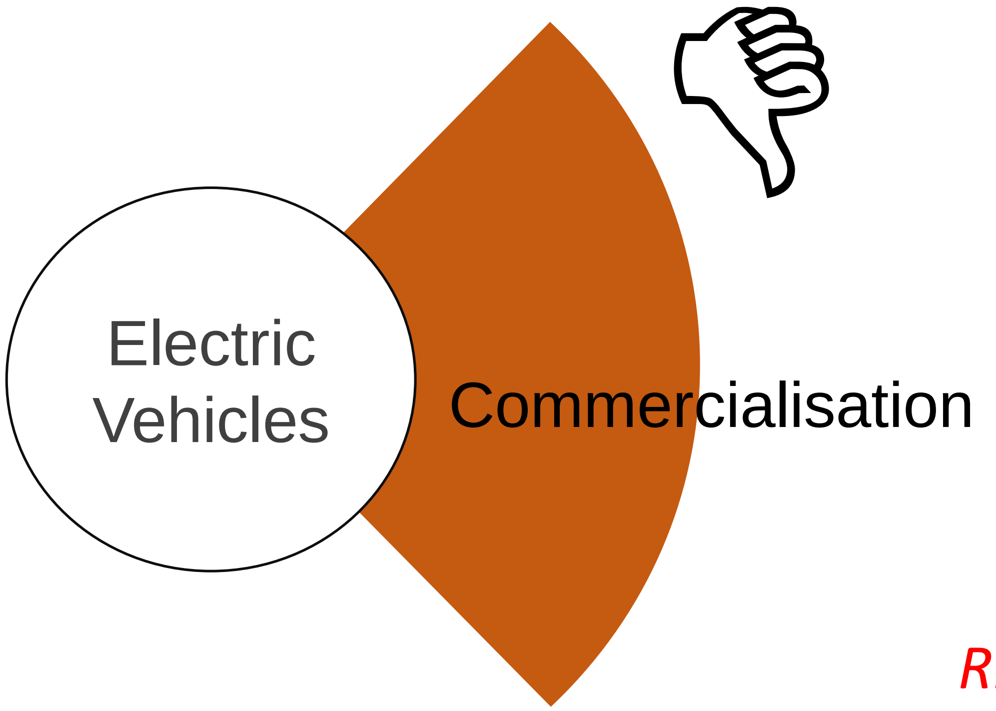
No link to production / components / exports



- No movement on import duty situation since 2015
- EV volume growth / uptake is directly linked to the duty & rebate structure
- Potential rebates:
  - Carbon Tax breaks
  - GTS framework
- Secondary tax streams
  - VAT on Equipment & Chargers
  - Employment for installations & training

EV Eco System

- Higher Costs impact Retail Price
- High Retail Price impacts volume (low uptake)
- Model Range walk imbalance
- EV's are more expensive to market than ICE vehicles
    - Equipment
    - Competency



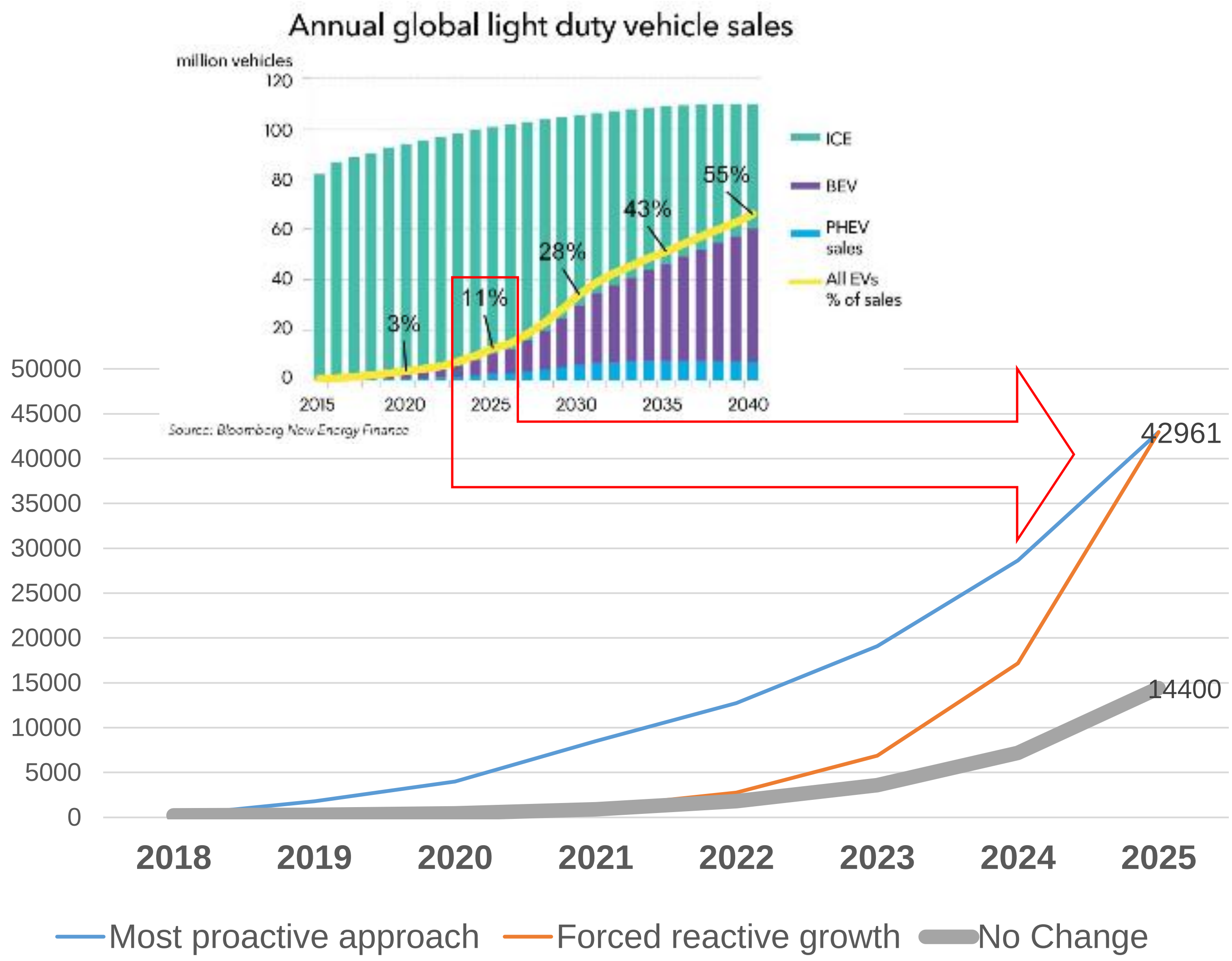
EV's have additional costs

Demand is low

Poor business case for Local OEM/Importer

RISK / OPPORTUNITY
Local Vehicle Manufacture
Local Component Manufacture

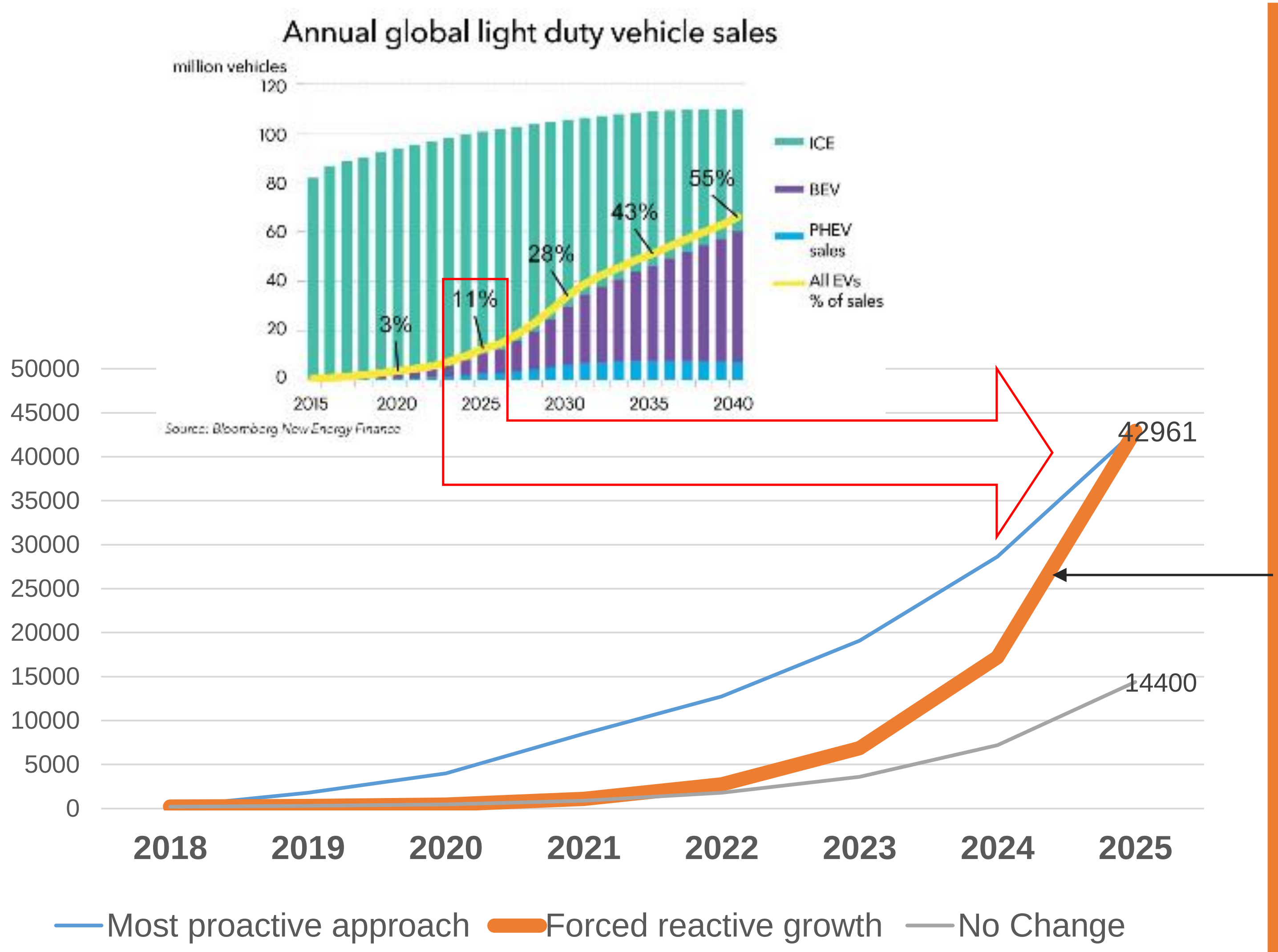
EV Uptake: no change scenario



No change

- Status quo continues in short to medium term, with some growth of EV inevitable
- Existing obstacles and lack of evolution hold back EV potential
- SA consumer has lack of choice, SA industry falls behind global positioning
- Likely to impact relevance of local manufacture

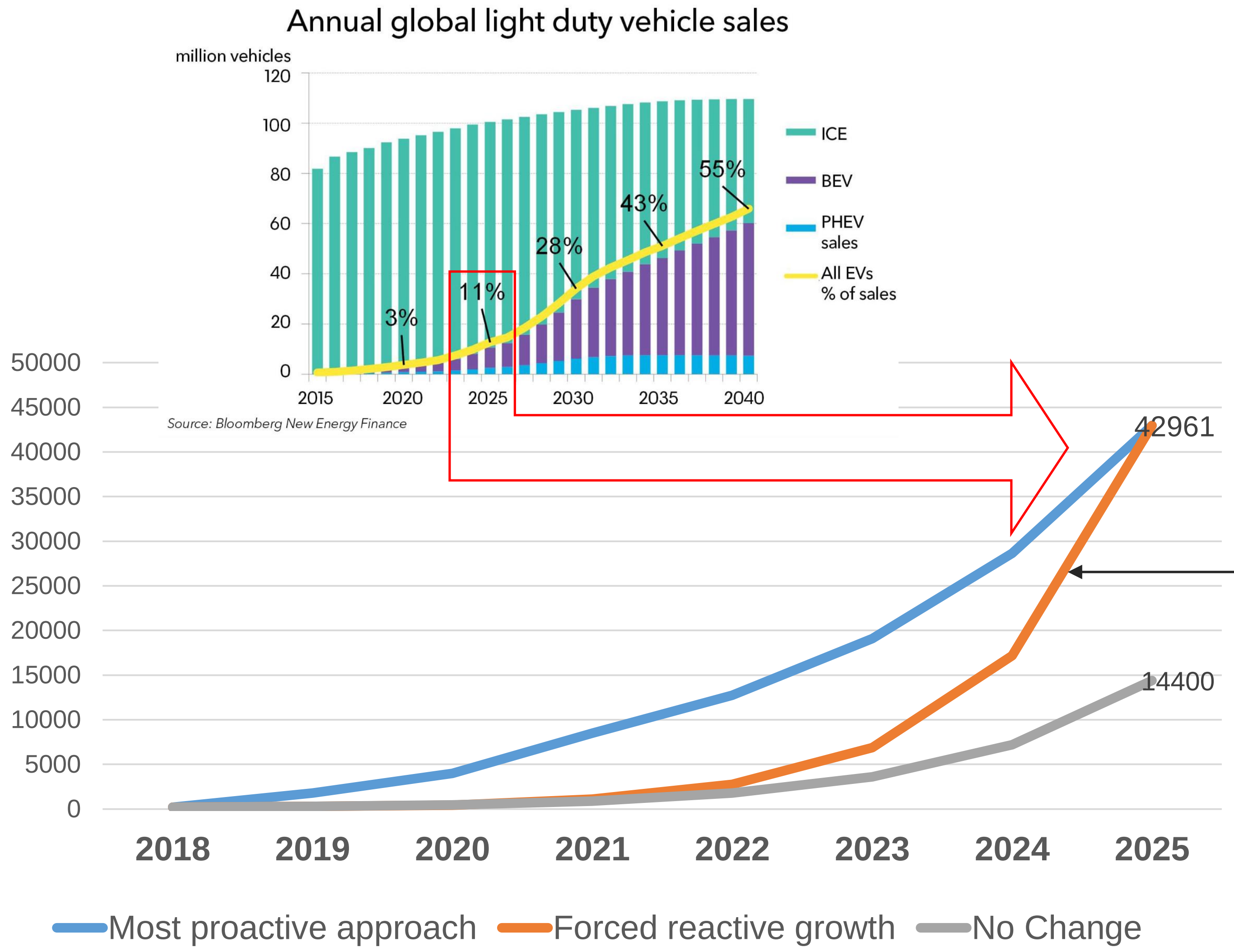
EV Uptake: catch-up scenario



Forced reactive growth

- Status quo continues in short to medium term
- Eventually non-EV options run out and EV's are adopted in a sudden way
- Chaotic environment created by unrealistic demands on capability
- Likely lack of standardisation, poor customer service
- Impact on Brands, further holding back EV growth

Short to Medium term uptake



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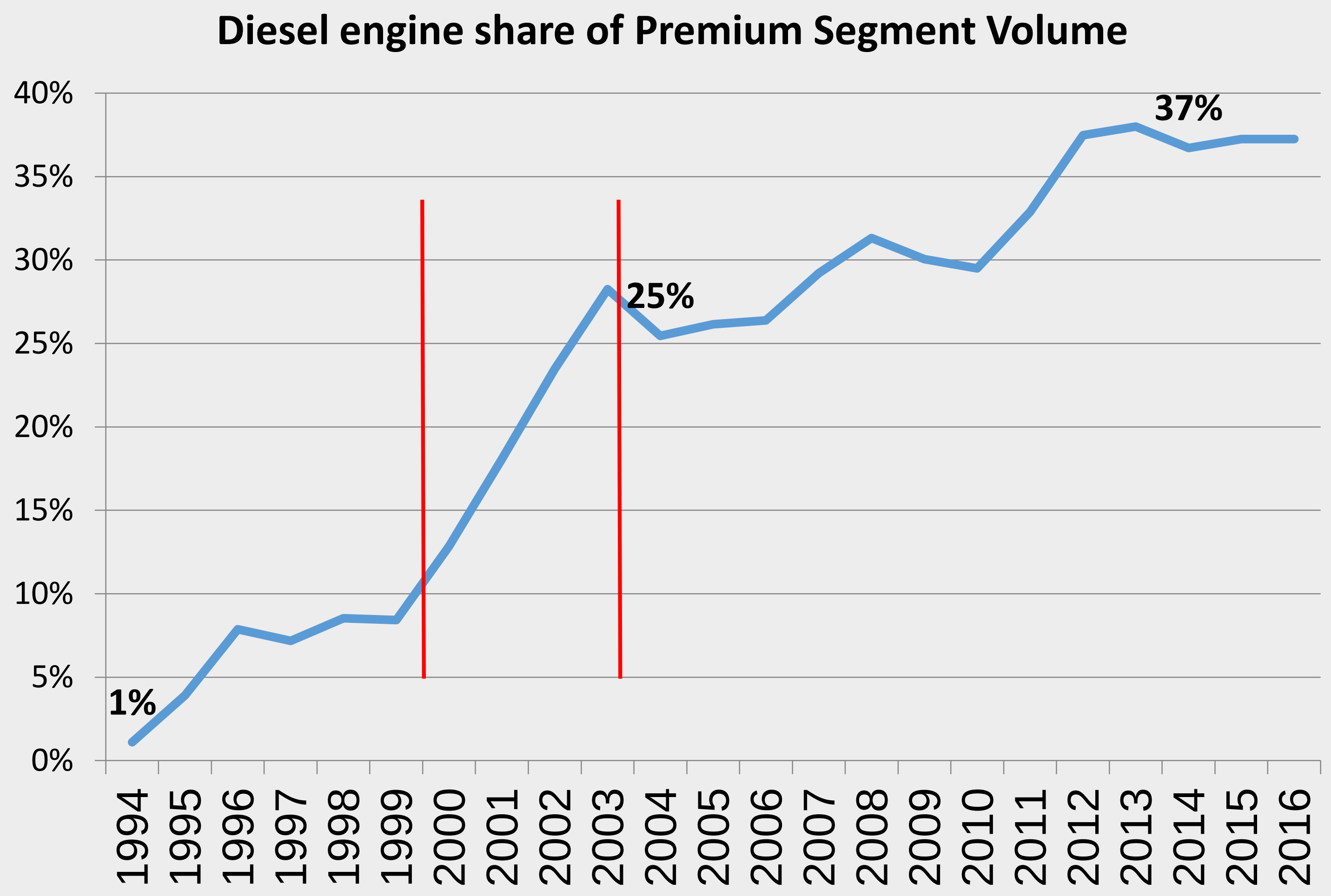
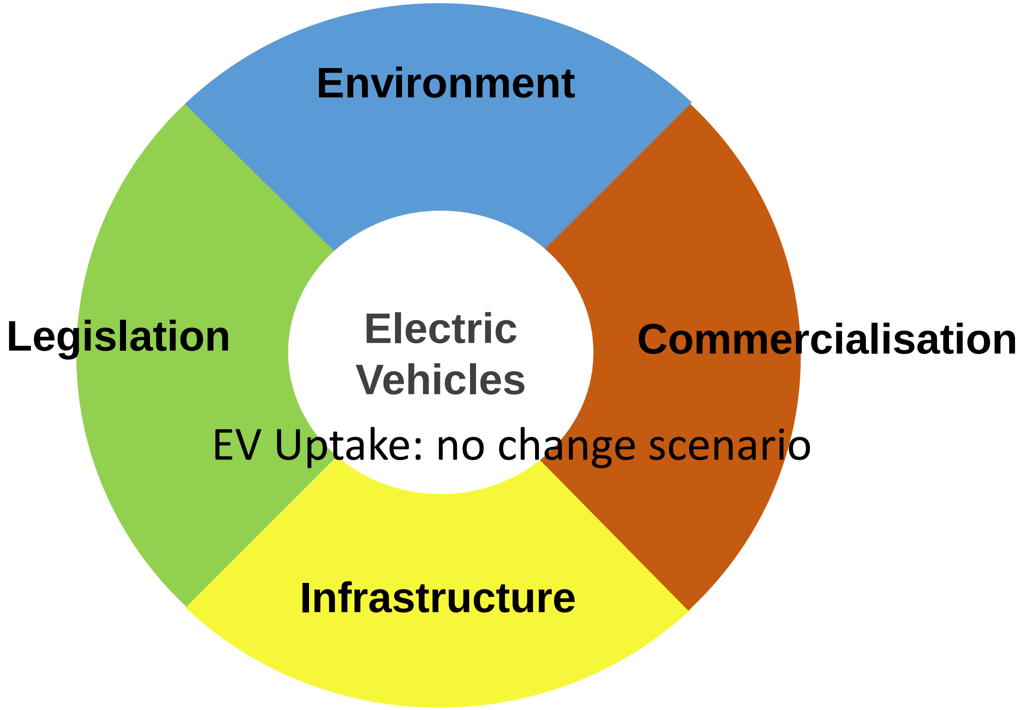
Case Study: The rise of Diesel



Analogy to EV introduction - growth of diesel power in the luxury segment in SA:

- Initial slow start
- Then new technology with enhanced performance launched
- Performance and economy drives popularity

Role Players



EV Uptake: no change scenario

- APDP2
- National Environmental Management Act
- National Transport Master Plan
- Department of Energy - Energy Strategic Plan
- Dept. of Environmental Affairs - National Climate Change Response Strategy
- Department of Science and Technology - 10 Year Innovation Plan
- Department of Trade and Industry - Industrial Policy Action Plan (IPAP)
- Department of Transport - Green Transport Strategy 2050

Motor Industry Strategy

NAAMSA/GOVERNMENT

- Formation of the Electric, Hybrid & Alternative-fuel Vehicle (EHAV) Committee
- Commissioned research into the impact of EV’s, EV “eco-system”
  +
- Other research & insights
- NAAMSA “Position Paper” to be drafted
- Engagement with all Government institutions at all levels

NAAMSA/EV ECO-SYSTEM

- Engagement with institutions
- Alignment, clarification of roles
- Co-operate & deliver