



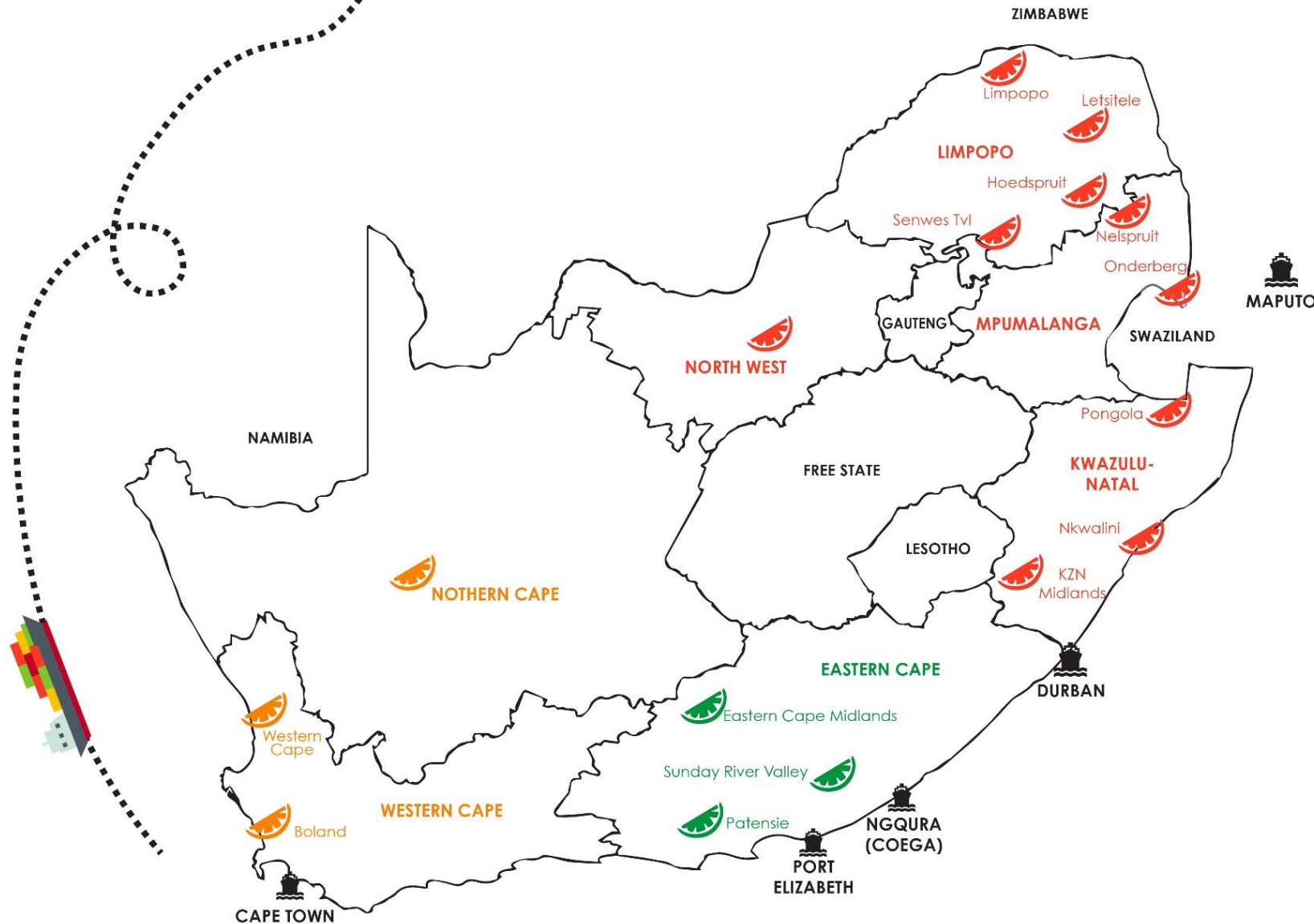
CGA Citrus Summit

Logistics – Road & Rail Transport

Mitchell Brooke



Southern African Citrus Regions and Corridors

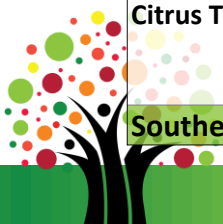


- **Northern Region to Maputo and Durban Ports**
- **Eastern Cape Region to Coega and PE Ports**
- **Western & Northern Cape Region to Cape Town Port**



5-Year Growth Projection

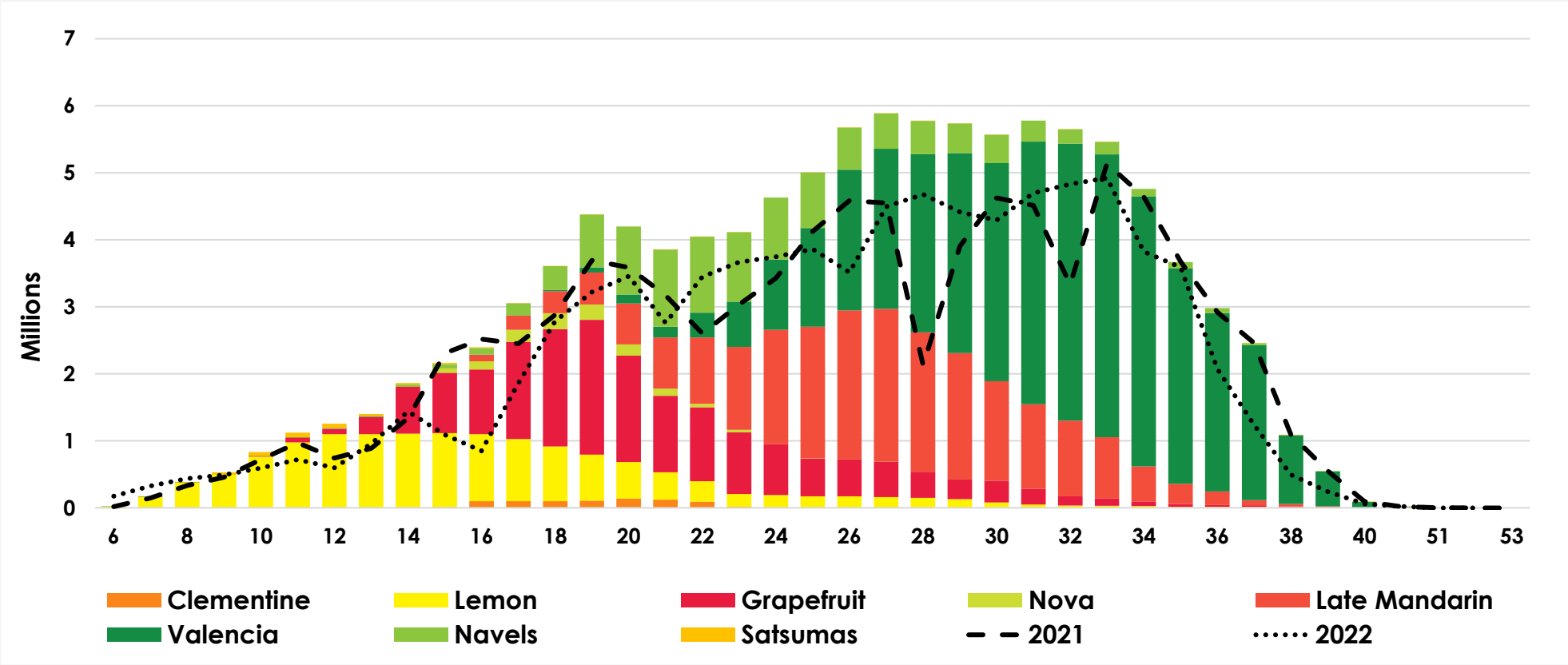
Supplier Region	Citrus Type	Export Cartons			Tree Census Data				0-4 Years / +5 Years	3-5 Years % Growth	5-Year Growth Projection	Carton Volume Growth
		2020	2021	2022	>4 Years	5-15 Years	>16 Years	Total Ha				
Northern Regions (including Eswatini and Zimbabwe)	Clementines	268 394	401 693	273 854	198ha	129ha	46ha	373ha	113%	100%	800 000	400 000
	Grapefruit	14 200 000	15 400 000	14 590 000	1 539ha	2 327ha	4 244ha	8 110ha	23%	10%	17 000 000	1 000 000
	Late Mandarins	5 219 776	9 277 614	9 941 199	5 203ha	2 834ha	360ha	8 397ha	163%	150%	22 700 000	13 700 000
	Lemons	11 126 426	10 851 839	12 521 081	2 106ha	4 042ha	1 651ha	7 799ha	37%	25%	13 500 000	2 400 000
	Navels	8 436 901	10 511 900	8 322 683	750ha	1 743ha	2 815ha	5 308ha	16%	5%	11 000 000	500 000
	Novas	1 069 053	996 431	945 172	119ha	524ha	60ha	703ha	20%	20%	1 200 000	200 000
	Satsumas	149 565	236 380	171 959	30ha	41ha	74ha	145ha	26%	25%	300 000	65 000
	Valencias	38 300 000	40 500 000	36 970 000	3 582ha	7 126ha	12 328ha	23 036ha	18%	10%	43 500 000	3 000 000
Northern Regions Total		78 770 115	88 175 857	83 735 948	13 527ha	18 766ha	21 578ha	53 871ha	34%	25%	110 000 000	21 265 000
Eastern Cape Regions	Clementines	736 962	921 591	720 770	385ha	217ha	309ha	911ha	73%	70%	1 600 000	580 000
	Grapefruit	562 751	482 555	382 119	64ha	94ha	87ha	245ha	35%	30%	650 000	120 000
	Late Mandarins	2 914 613	3 571 955	4 062 984	1 455ha	1 700ha	230ha	3 385ha	75%	70%	6 050 000	2 400 000
	Lemons	14 832 591	16 103 615	17 511 223	1 733ha	3 969ha	1 825ha	7 527ha	30%	25%	20 200 000	3 900 000
	Navels	10 403 671	10 050 959	11 338 911	971ha	2 139ha	3 381ha	6 491ha	18%	10%	11 000 000	950 000
	Novas	2 504 728	2 512 563	2 876 154	515ha	792ha	271ha	1 578ha	48%	40%	3 500 000	1 000 000
	Satsumas	1 018 770	873 549	860 227	178ha	185ha	290ha	653ha	37%	30%	1 200 000	320 000
	Valencias	8 896 176	8 244 007	10 012 358	707ha	955ha	2 836ha	4 498ha	19%	20%	10 500 000	2 000 000
Eastern Cape Regions Total		41 870 262	42 760 794	47 764 746	6 008ha	10 051ha	9 229ha	25 288ha	31%	28%	54 700 000	11 270 000
Western and Northern Cape Regions	Clementines	3 241 422	3 886 400	3 080 238	1 496ha	682ha	870ha	3 048ha	96%	85%	7 000 000	3 400 000
	Grapefruit	1 223 034	1 619 180	1 556 947	95ha	395ha	106ha	596ha	19%	15%	1 800 000	180 000
	Late Mandarins	6 529 154	8 545 171	8 025 698	2 616ha	3 028ha	590ha	6 234ha	72%	70%	14 500 000	6 000 000
	Lemons	3 507 355	3 865 966	4 691 701	737ha	1 429ha	566ha	2 732ha	37%	30%	5 000 000	1 200 000
	Navels	8 288 954	7 810 914	7 794 211	295ha	748ha	3 040ha	4 083ha	8%	5%	8 200 000	390 000
	Novas	348 620	372 436	330 024	88ha	212ha	83ha	383ha	30%	25%	465 000	90 000
	Satsumas	883 085	701 770	554 995	21ha	76ha	245ha	342ha	7%	5%	735 000	30 000
	Valencias	6 088 336	6 134 129	6 657 556	710ha	744ha	1 938ha	3 392ha	26%	20%	7 360 000	1 200 000
Western & Northern Cape Regions Total		30 109 960	32 935 966	32 691 370	6 058ha	7 314ha	7 438ha	20 810ha	41%	37%	45 060 000	12 490 000
Southern Africa Totals by Citrus Type	Clementines	4 246 778	5 209 684	4 074 862	2 079ha	1 028ha	1 225ha	4 332ha	92%	85%	9 400 000	4 380 000
	Grapefruit	15 985 785	17 501 735	16 529 066	1 698ha	2 816ha	4 437ha	8 951ha	23%	18%	19 450 000	1 300 000
	Late Mandarins	14 663 543	21 394 740	22 029 881	9 274ha	7 562ha	1 180ha	18 016ha	106%	97%	43 250 000	22 100 000
	Lemons	29 466 372	30 821 420	34 724 005	4 576ha	9 440ha	4 042ha	18 058ha	34%	27%	38 700 000	7 500 000
	Navels	27 129 526	28 373 773	27 455 805	2 016ha	4 630ha	9 236ha	15 882ha	15%	7%	30 200 000	1 840 000
	Novas	3 922 401	3 881 430	4 151 350	722ha	1 528ha	414ha	2 664ha	37%	28%	5 165 000	1 290 000
	Satsumas	2 051 420	1 811 699	1 587 181	229ha	302ha	609ha	1 140ha	25%	20%	2 235 000	415 000
	Valencias	53 284 512	54 878 136	53 639 914	4 999ha	8 825ha	17 102ha	30 926ha	19%	17%	61 360 000	6 200 000
Southern Africa Total		150 750 337	163 872 617	164 192 064	25 593ha	36 131ha	38 245ha	99 969ha	34%	28%	209 760 000	45 025 000



2027 Forecast – Northern Regions

Produced 2022
83.7mil 15kg cartons

Forecasted 2027
110mil 15kg cartons



Tree Age	Area
>4 years	13 527ha
5-15 years	18 766ha
>16 years	21 578ha
Total Area	53 871ha
Growth rate	34%

Transport Flow

2021/22 average 2 150 trucks per week

2027 projection 2 900 trucks per week

Additional 750 trucks per week



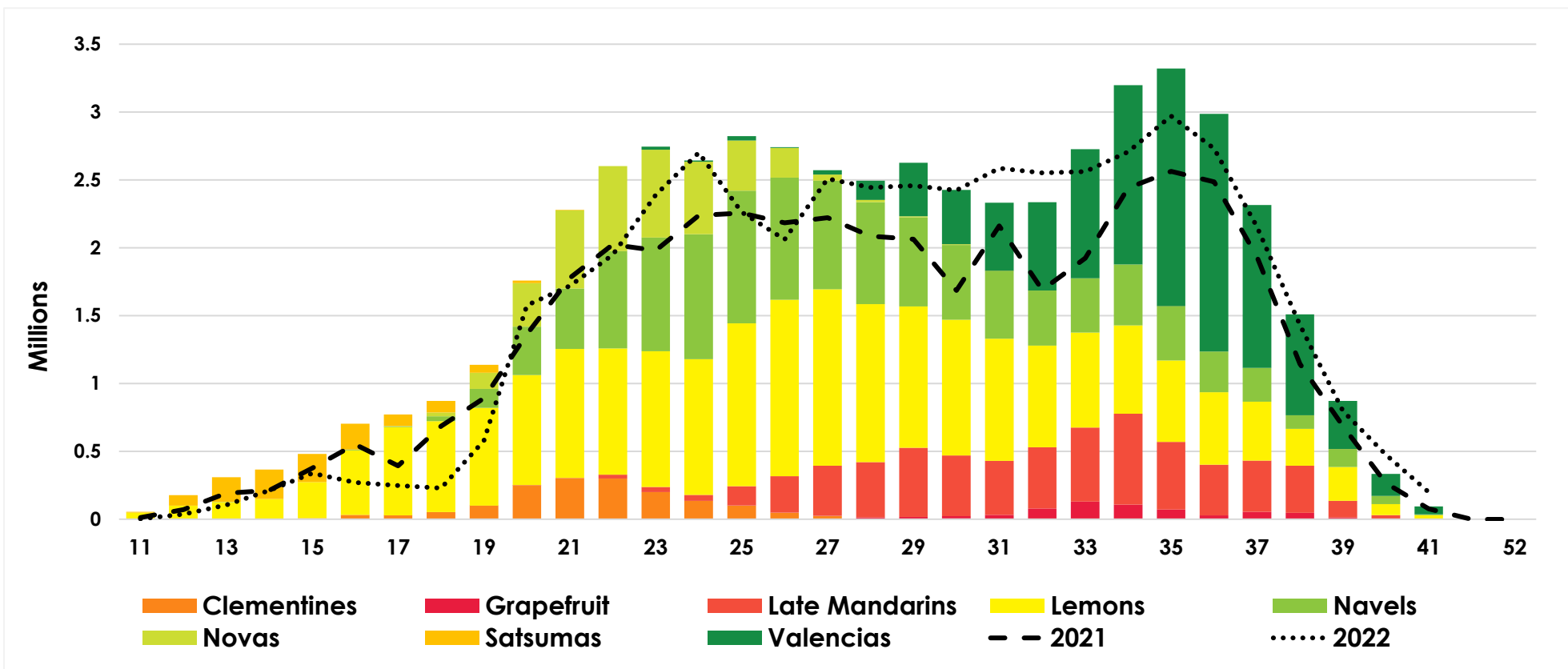
Data source: PPECB/CGA



2027 Forecast – Eastern Cape Regions

Produced 2022
47.8mil 15kg cartons

Forecasted 2027
54.7mil 15kg cartons



Tree Age	Area
>4 years	6 008ha
5-15 years	10 051ha
>16 years	9 229ha
Total Area	25 288ha
Growth rate	31%

Transport Flow

2021/22 average 1 100 trucks per week
 2027 projection 1 500 trucks per week
Additional 400 trucks per week



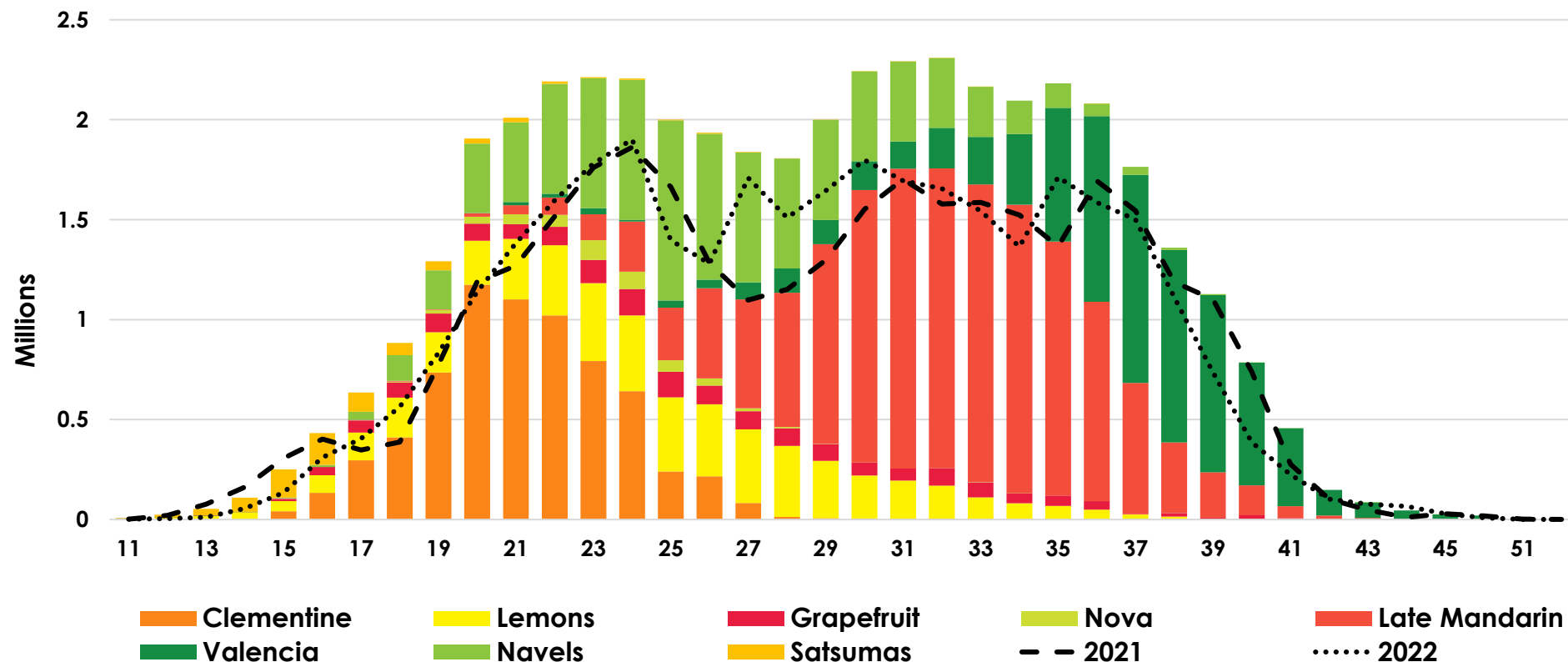
Data source: PPECB/CGA



2027 Forecast – Western & Northern Cape Regions

Produced 2022
32.7mil 15kg cartons

Forecasted 2027
45.1mil 15kg cartons



Tree Age	Area
>4 years	6 058ha
5-15 years	7 314ha
>16 years	7 438ha
Total Area	20 810ha
Growth rate	41%

Transport Flow

2021/22 average 800 trucks per week

2027 projection 1 100 trucks per week

Additional 300 trucks per week



Data source: PPECB/CGA



Research Project

Evaluating citrus production and export growth, modelling logistics, transport, capacity, infrastructure and shipping demands

Project Scope

- Evaluate citrus production growth by corridor region by citrus type – project deadline 9 February 2023
- Evaluate cold store capacity requirements in each corridor region to determine future capacity requirements linked to production growth (non-temperature sensitive markets and temperature sensitive markets)
- Evaluate citrus export growth by corridor region by commodity group by export markets
- Determine shipping capacity demand and reefer container demand by corridor region by trade lane / market
- Determine DALLRD and NPPO preclearance inspection demand by corridor region by export market



Energy Mix for Fast-Tracking Innovation

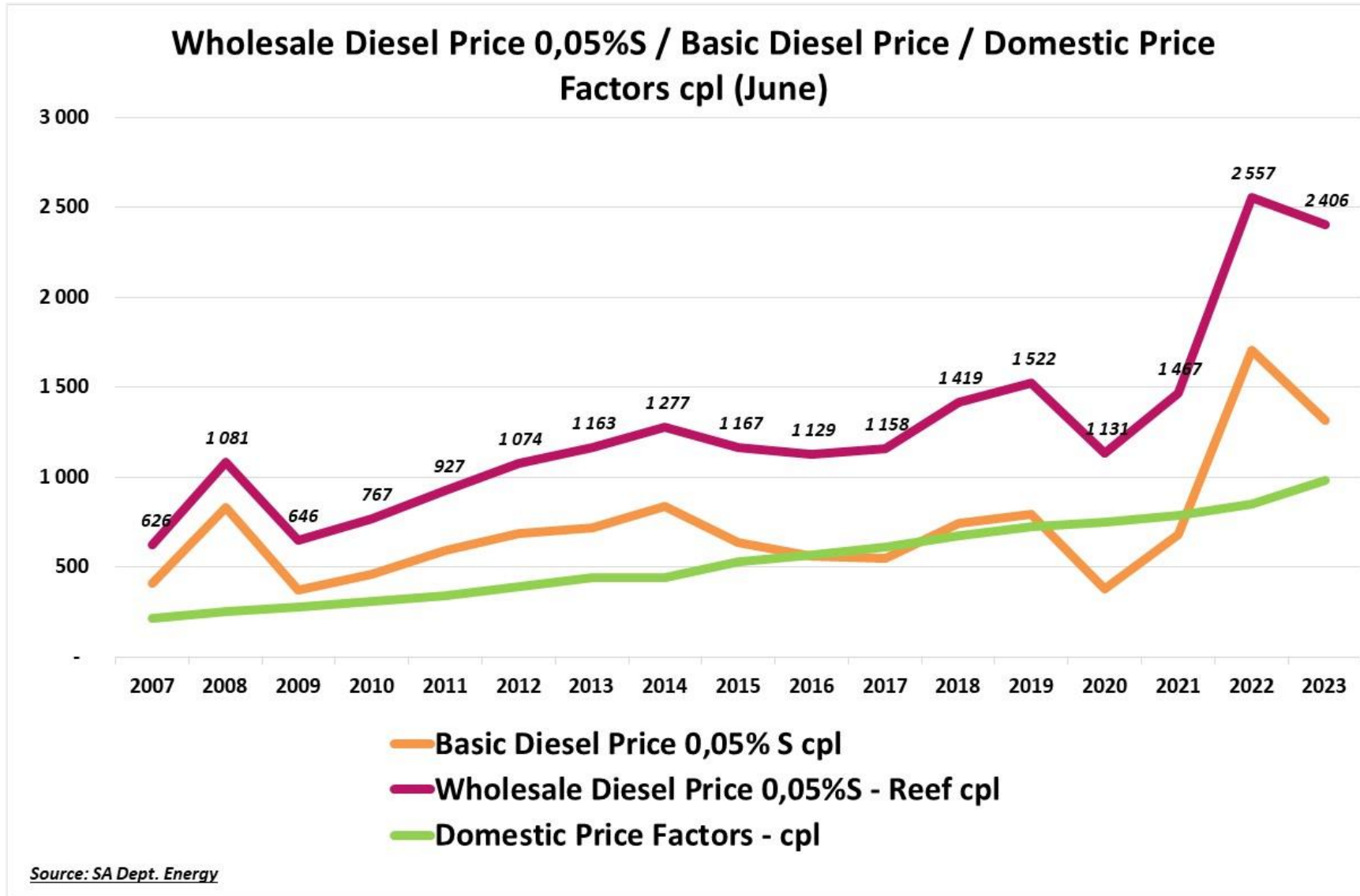
Food for Thought: From when a crop is set to harvesting, to production, to transportation, to cold storage, to terminal handling, to shipping, to receiving in destination market, to retail and to end-consumer, fresh produce requires high amounts of fossil fuel energy.

Dual energy requirement due to logistics and cold chain demands:

- Energy cost impact
- Energy supply impact



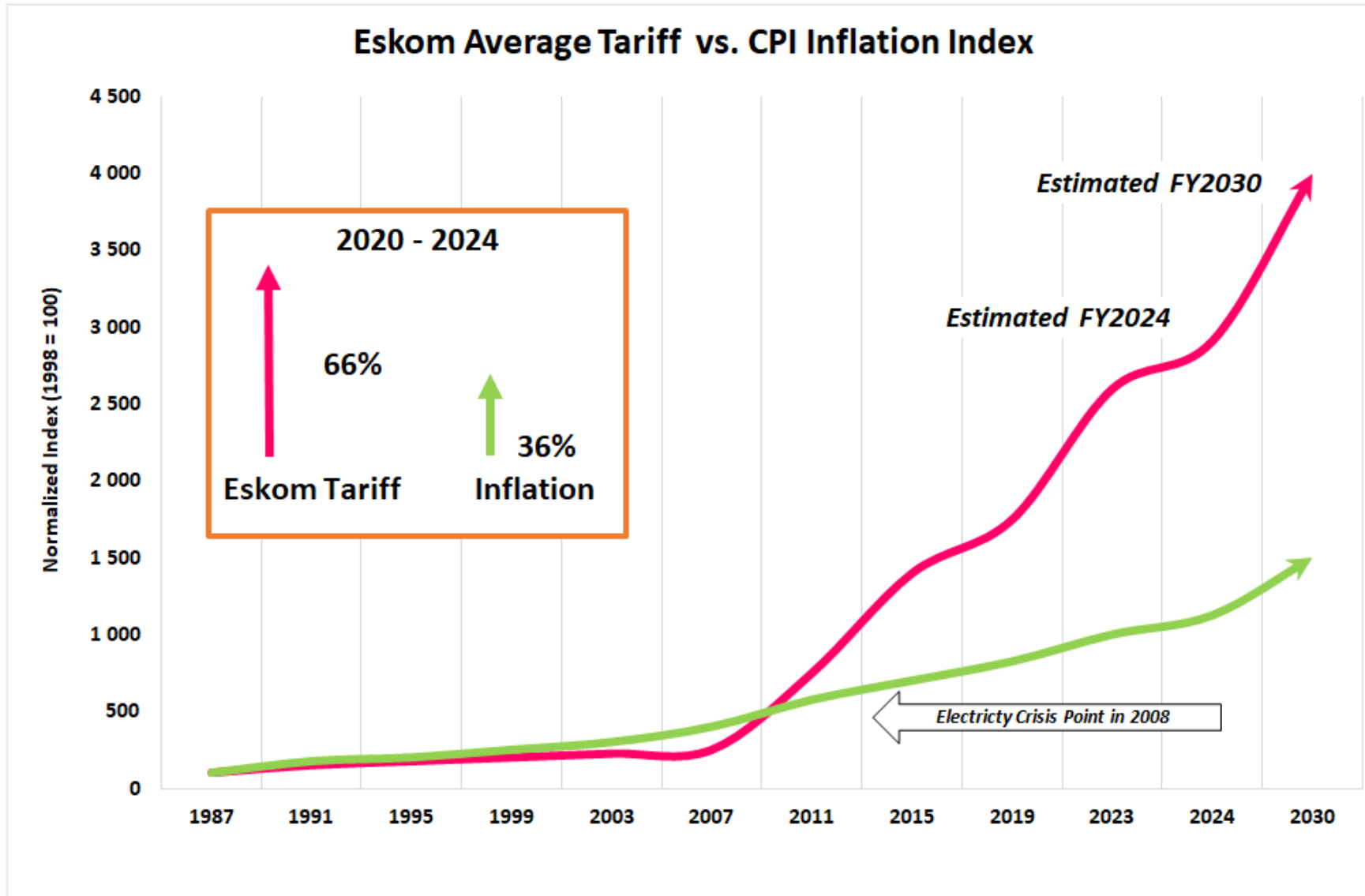
SA Diesel Price Inflation



- ✓ Harvesting
- ✓ Production
- ✓ Rail Transport
- ✓ Road Transport
- ✓ Container cartage
- ✓ Container staging
- ✓ Reefer container power supply on ships



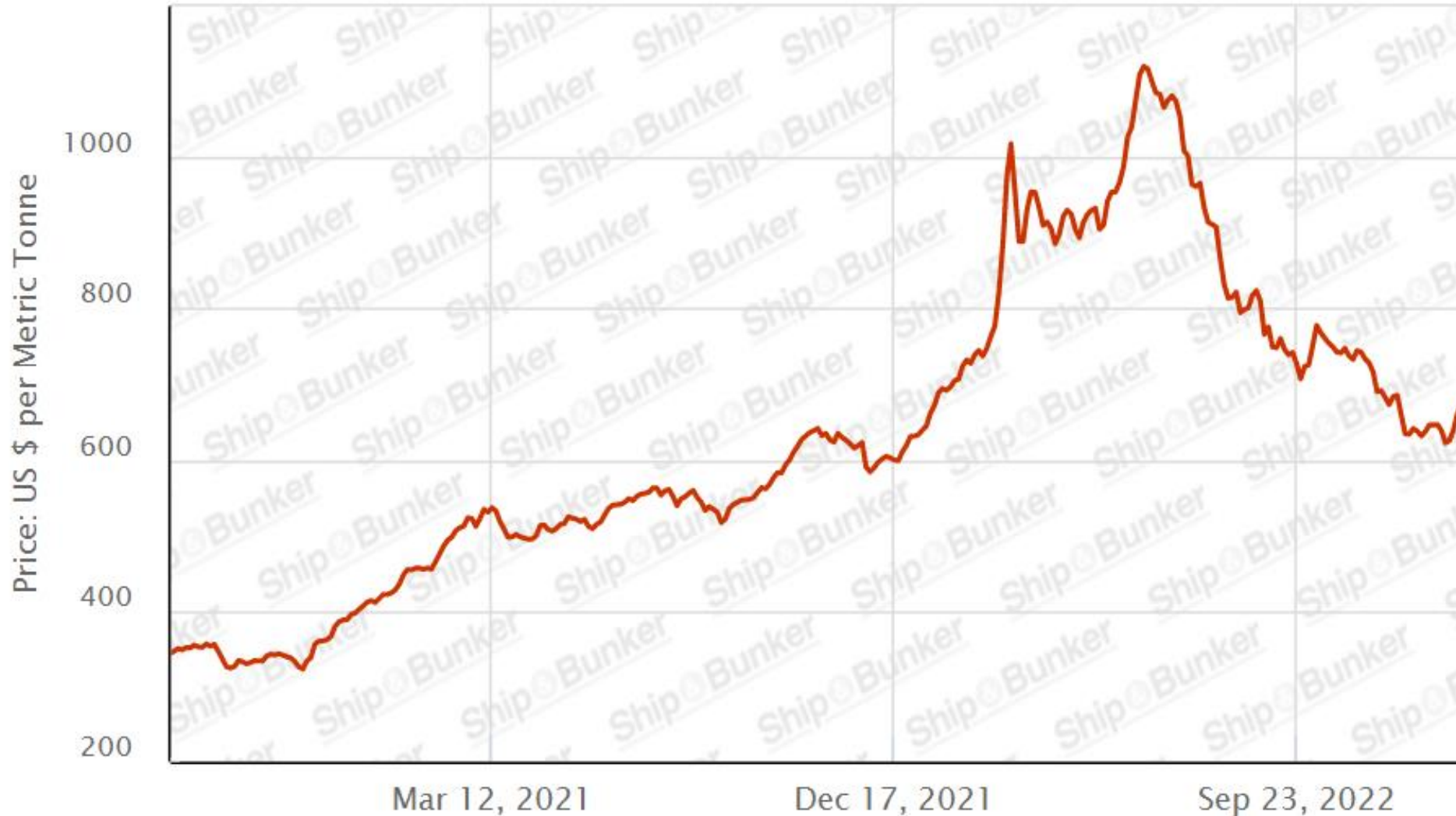
SA Electricity Price Inflation



- ✓ Harvesting
- ✓ Production
- ✓ Rail Transport
- ✓ Container storage
- ✓ Pre-cooling
- ✓ Reefer power supply in terminal stacks



Global Ship Bunker Price Inflation



Data source: shipandbunker.com

IMO Regulations

- ✓ Sulphur cap 0.5%
- ✓ Carbon intensity indicator (CII)
- ✓ Slow steaming

Transition from heavy oil to:

- ✓ VLSFO
- ✓ Nuclear
- ✓ Methanol
- ✓ LNG



Energy Mix for Fast-Tracking Innovation

- **Energy cost impact**
- **Energy supply impact**
- **Sustainability**



Road Transport in Context

- **Bulk commodity transport in boom, many arterial routes under severe pressure, roads starting to collapse**
- **Due to downward trend on rail, high demand for road transport across all sectors – demand vs supply**
- **Deteriorating road surface conditions –**
 - ❖ Safety and mechanical condition of trucks
 - ❖ Safety, security and condition of cargo
 - ❖ Safety of people



Road Transport in Context



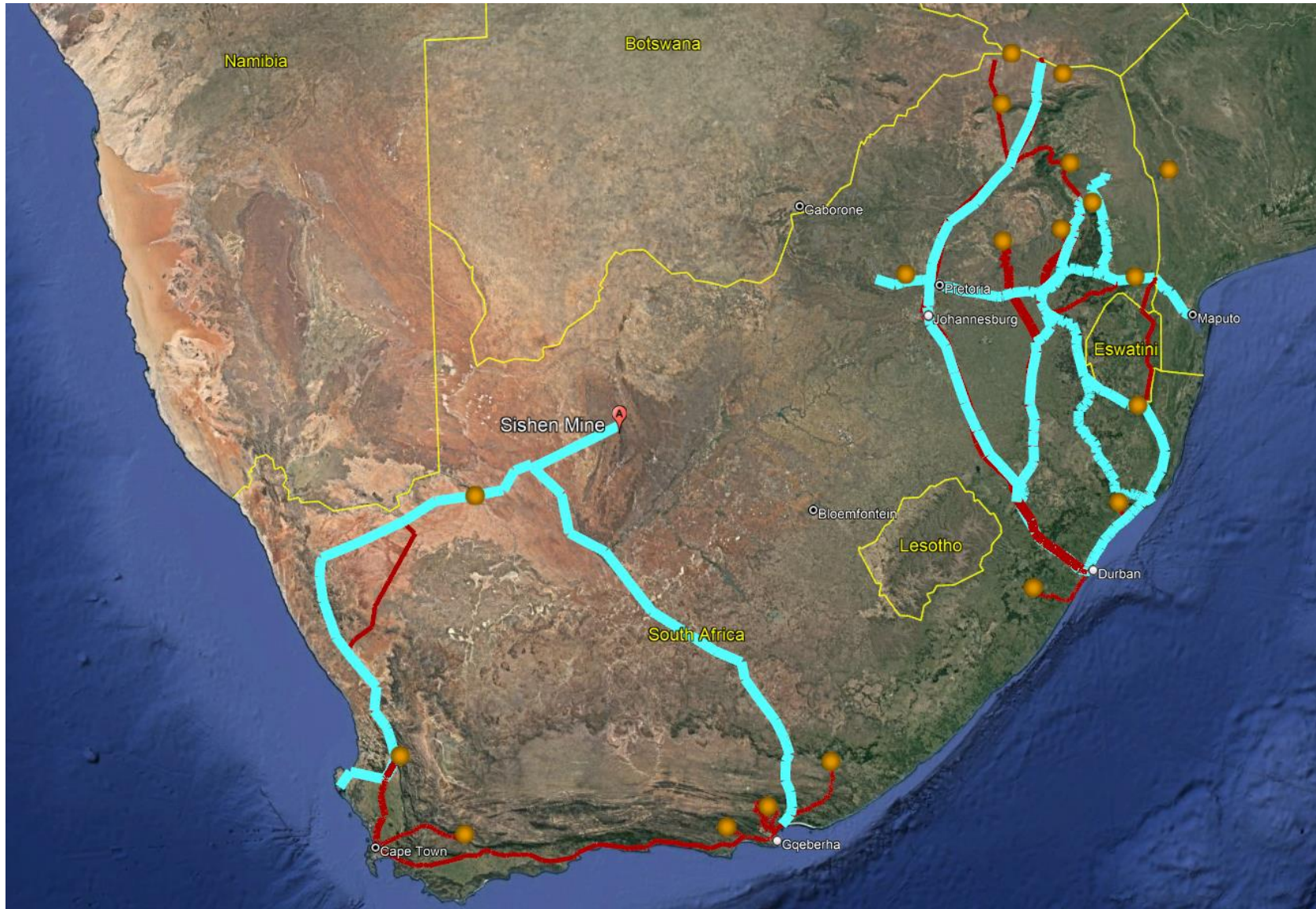
Road Transport in Context



Citrus Exports Road Transport Routing Map



Bulk Road Transport Routing Map

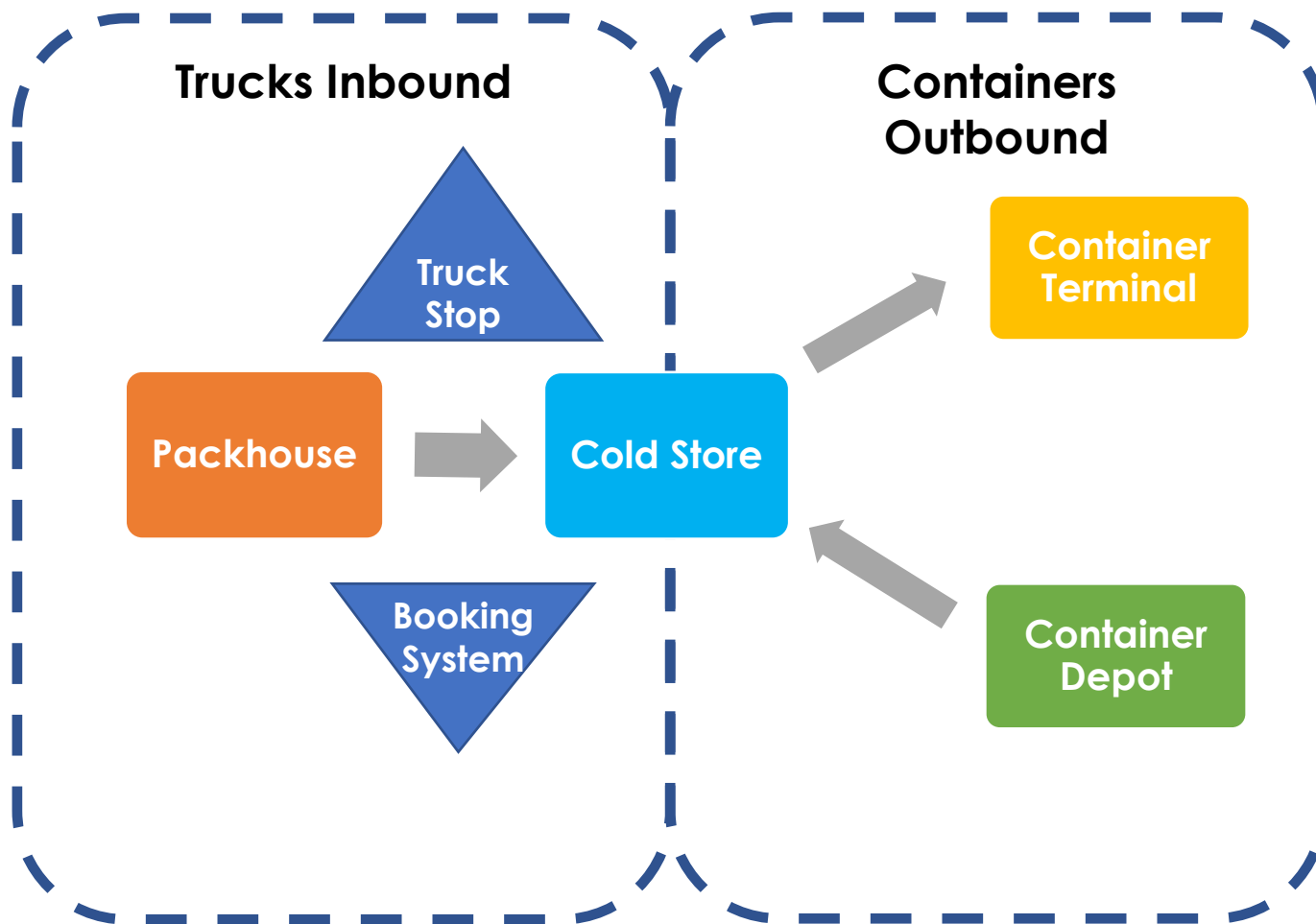


Citrus Exports Road Transport – Arterial Routes

Citrus Export Road Transport Routing to Port				
Province	Region	Port	Routing	Condition
KwaZulu Natal	Eshowe	Durban	R66 / N2	ROAD NOT FIT FOR HEAVY TRUCKS
	Ixopo	Durban	R612 / N2	
	Pongola	Durban	N2	
Mpumalanga	Malelane / Komatipoort	Durban	N4 / R38 / R36 / N11 / N3	R36 / N11 UNDER PRESSURE ROADS COLLAPSING
	Nelspruit / White River	Durban	N4 / R38 / R36 / N11 / N3	R36 / N11 UNDER PRESSURE ROADS COLLAPSING
Limpopo	Groblersdal / Marble Hall	Durban	N11 / N3	
	Orichstad	Durban	R37 / R36 / N11 / N3	R36 / N11 UNDER PRESSURE ROADS COLLAPSING
	Letsitele / Hoedspruit	Durban	R36 / N11 / N3	R36 / N11 UNDER PRESSURE ROADS COLLAPSING
	Musina / Weipe	Durban	N1 / N3	
	Vivo	Durban	R521 / N1 / N3	R521 UNDER PRESSURE ROADS COLLAPSING
Zimbabwe	Beite Bridge	Durban	N1 / N3	
eSwatini	Ngonini / Big Bend	Durban	MR8 / N2	MR8 POTHOLES
Eastern Cape	Fort Beaufort	Coega	R67 / N2	ROADS IN EC REGION NOT FIT FOR PURPOSE
	Kirkwood / Addo	Coega	R75 / R336 / R335 / N2	ROADS IN EC REGION NOT FIT FOR PURPOSE
	Patensie / Hankie	Coega	R331 / N2	ROADS IN EC REGION NOT FIT FOR PURPOSE
Western Cape	Ashton / Robertson	Cape Town	R60 / N1	
	Citrusdal	Cape Town	N7 / N1	
Northern Cape	Kakamas	Cape Town	N14 / N7 / N1	



Southern African Citrus Regions and Corridors



To optimise road transport into port cold stores:

- Optimise outbound container loading to create space at cold stores
- Optimise truck booking system into container terminals
- Issue loading instructions timeously
- Operate centralised truck booking and routing system
- Use truck stops to decongest cold stores



Status of Rail Transport

Perceived shortage of locomotives and rolling stock

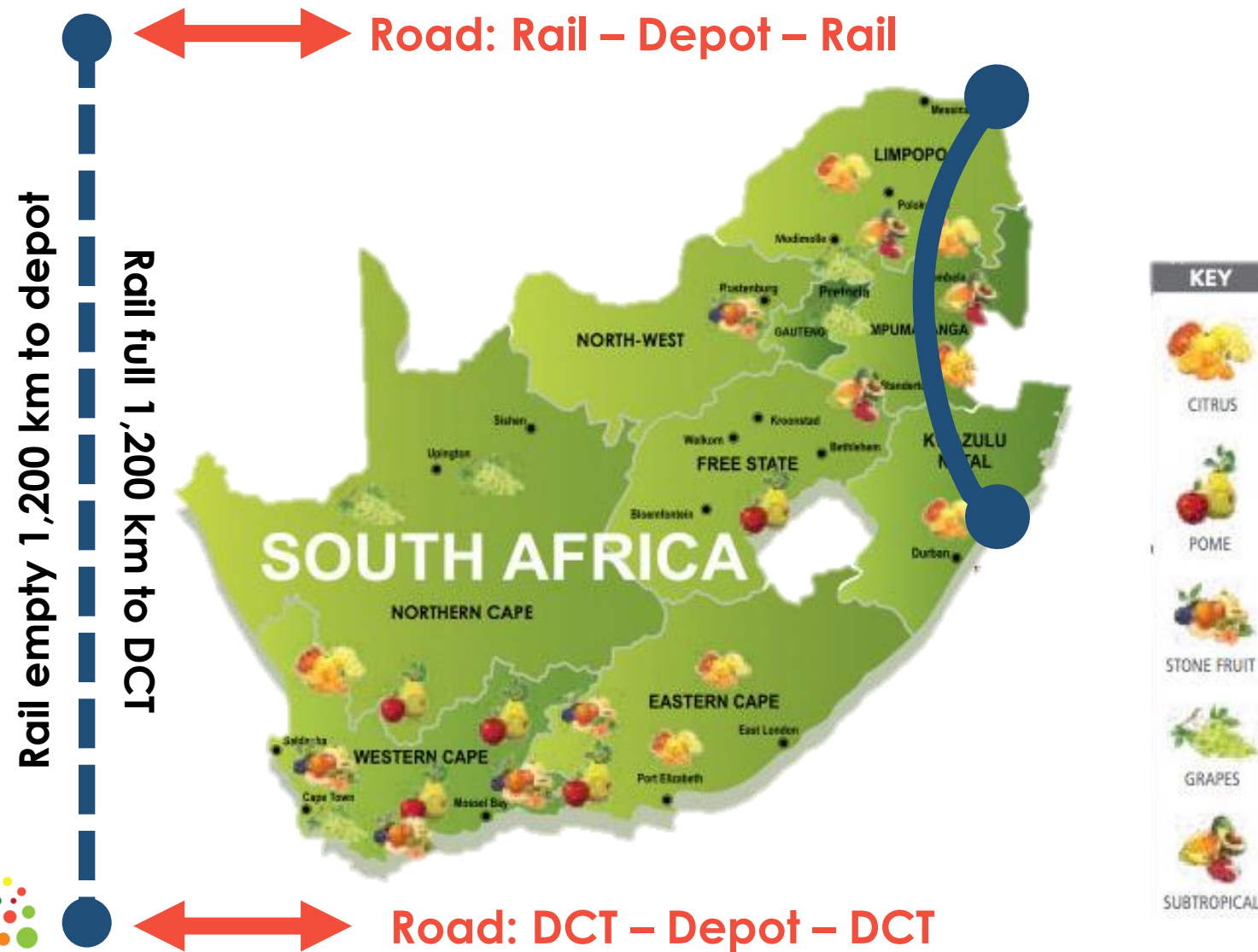


Status of Rail Transport

Overhead cable theft



Present Rail Transport Model

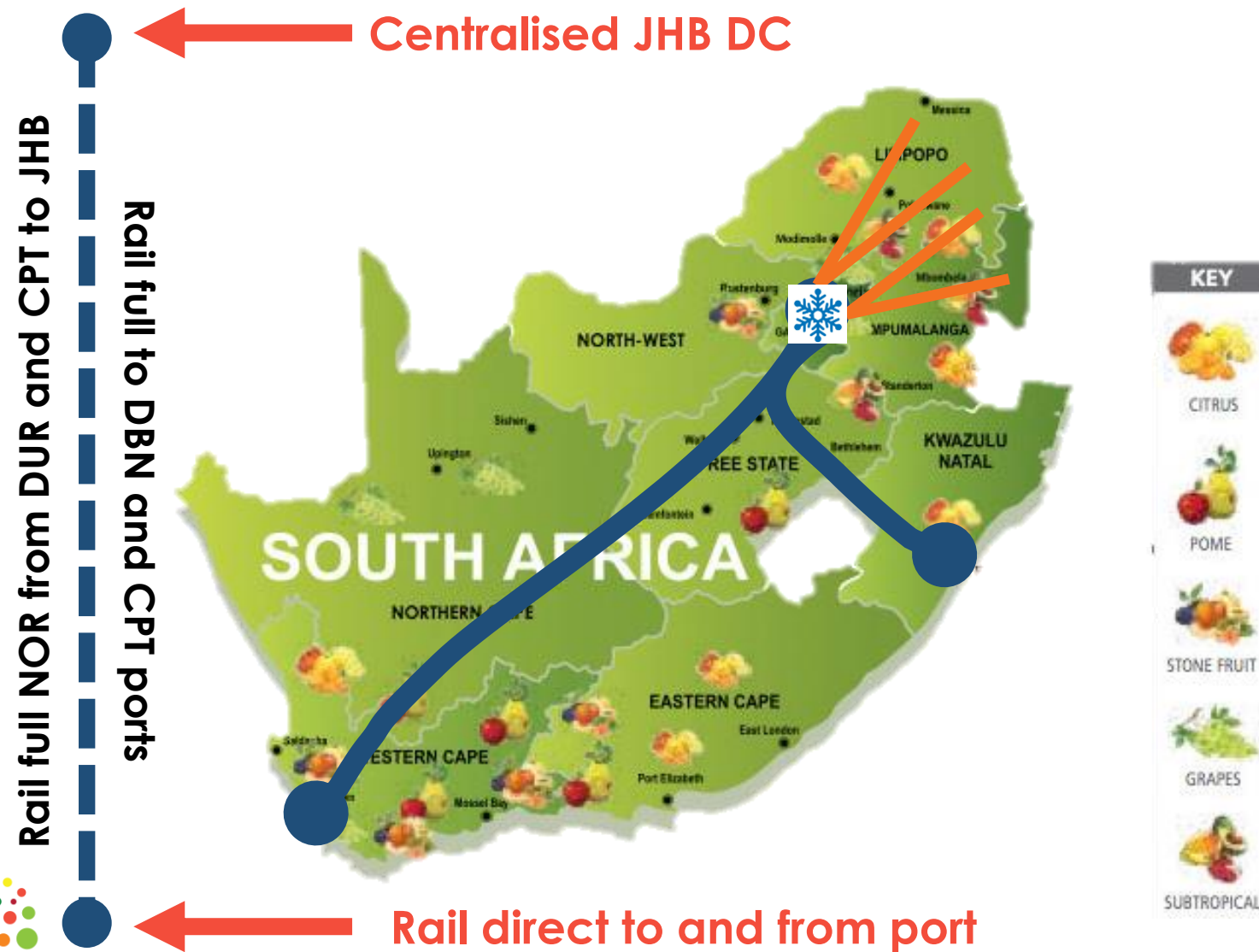


The present model of raiing reefer containers from hinterland to ports is ***not a sustainable, efficient and cost effective approach***

- 2021: ~3 000 containers railed to Durban out of 100 000 in total
- Not impactful and not sustainable
- Cost driven by empty legs, cost of diesel and electricity



Proposed Rail Transport Model



The future sustainability of reefer rail transport will depend largely on zero empty legs, collaboration and coordination with other rail friendly commodities

- NOR from ports railed to JHB DC e.g Auto parts etc
- JHB DC reefer depot PTI
- Perishable exports returned by rail to ports
- Bidirectional flows
- More sustainable



Longer Term Rail Development



South Africa is well positioned to be the global leaders in cool rail transportation

- Nelspruit – Maputo
- Gauteng – Durban
- Gauteng – Cape Town
- Coega – Cape Town
- Northern Cape – Cape Town
- WC interior





CGA Citrus Summit

Thank you!

mitchell@cga.co.za

