GAZTRON®
Re-think Energy™

2025

CASE STUDY AUTOGAS

Executive Summary

A leading national courier company partnered with Gaztron to transition part of its delivery fleet from petrol to Liquefied Petroleum Gas (LPG), supported by the installation of two autogas refuelling stations at its Johannesburg and Pretoria distribution centres. This case study evaluates the financial and operational impact of this shift over a 12-month period.

Leveraging detailed refuelling data, this report compares petrol and LPG consumption, cost per kilometre, and overall efficiency for the company's fleet of Nissan NP200 vehicles. The analysis shows that while LPG vehicles consume slightly more fuel per kilometre, the significantly lower fuel cost results in a **47% reduction in cost per kilometre (R/KM)** compared to petrol, with no recorded performance losses or operational setbacks.

These findings affirm the economic and operational viability of LPG for high-mileage fleet applications, particularly in urban delivery contexts.

Table Of Contents

Background

A leading national courier company, with distribution hubs across South Africa, undertook a strategic transition to Liquefied Petroleum Gas (LPG) as an alternative fuel for its urban delivery fleet. As part of its broader efficiency and sustainability objectives, the company partnered with Gaztron to implement a full turnkey solution — including vehicle conversions and on-site autogas refuelling infrastructure.

By mid-2024, dedicated LPG filling stations were successfully installed and commissioned at the company's Johannesburg and Pretoria distribution centres. These stations now support daily refuelling of the fleet's ½-tonne delivery vehicles, ensuring operational continuity while reducing dependence on traditional petrol.

This report presents an in-depth analysis of the company's fuel consumption data and cost metrics over the 12-month period following implementation. The aim is to evaluate the effectiveness of the LPG transition, quantify savings per kilometre, and compare fuel efficiency between LPG and petrol operations across a statistically significant sample of the fleet.

Objective

To accurately quantify and compare the fuel cost efficiency of a logistics fleet operating on **Petrol** versus **Liquefied Petroleum Gas (LPG)**, using recorded operational data over a 12-month period.

Methodology

Data Collection

Fleet refuelling data was captured at each fill-up and included the following fields:

- Vehicle Registration Number
- Vehicle Type
- Odometer Reading (ODO)
- Litres Filled
- Total Filling Cost

Step 1: Petrol Data Processing

Data Set: July 2022 - March 2023 Petrol Vehicle Data (Pre-Conversion Data)

Relevant filters were applied to isolate:

- **Vehicle Type**: Nissan NP200

From this filtered dataset, baseline fuel consumption and cost metrics were calculated as follows:

Fuel Consumption (L/100KM)

- **Total Litres** = Σ(Litres Filled)
- **Total Distance Travelled** = Max ODO − Min ODO
- **L/100KM** = (Total Litres ÷ Total Distance) × 100

Fuel Cost per Kilometre (CPK or R/KM)

- **Total Spend** = Σ(Filling Cost)
- **R/KM** = Total Spend ÷ Total Distance

Step 2: LPG Data Processing

Data Set: July 2024 - May 2025 LPG Vehicle Data (Post-Conversion Data)

The dataset was then filtered to isolate:

- **Fuel Type**: LPG
- **Vehicle Type**: Nissan NP200
- **Site Location**: Johannesburg

The same calculations were performed to enable direct comparison with petrol data.

Results

Petrol Data: Number Of Vehicles: 32

Registration	Make	Model	Start Odo	End Odo	Kms	Litres	Petrol Cost	Avg Price	Km/Litre	Litre/100Km	R/KM
KG08####	Nissan	NP200	24 533	51 679	27 146	2 672	63 786	23.87	10.2	9.84	2.35
HN68####	Nissan	NP200	150 669	184 447	33 778	3 098	73 455	23.71	10.9	9.17	2.17
HN68####	Nissan	NP200	171 447	195 209	23 762	2 296	54 459	23.72	10.4	9.66	2.29
JJ77####	Nissan	NP200	106 883	130 760	23 877	2 325	53 480	23	10.3	9.74	2.24
JJ78####	Nissan	NP200	102 709	120 295	17 586	1 908	43 225	22.65	9.2	10.85	2.46
HY03####	Nissan	NP 200 1.6 8V	155 103	177 380	22 277	2 296	54 003	23.52	9.7	10.31	2.42
HY03####	Nissan	NP 200 1.6 8V	145 891	175 085	29 194	2 797	63 473	22.69	10.4	9.58	2.17
HY03####	Nissan	NP 200 1.6 8V	109 113	128 061	18 948	1 935	43 900	22.69	9.8	10.21	2.32
HN68####	Nissan	NP200	155 505	176 781	21 276	2 143	48 678	22.72	9.9	10.07	2.29
HN68####	Nissan	NP200	187 211	216 198	28 987	2 861	64 475	22.53	10.1	9.87	2.22
KG08####	Nissan	NP200	33 831	72 295	38 464	3 428	78 468	22.89	11.2	8.91	2.04
KG08####	Nissan	NP200	24 849	71 334	46 485	4 382	99 653	22.74	10.6	9.43	2.14
JL17####	Nissan	NP200	140 649	188 324	47 675	4 653	106 115	22.81	10.2	9.76	2.23
JL17####	Nissan	NP200	120 131	149 645	29 514	2 950	66 432	22.52	10	10.00	2.25
JR89####	Nissan	NP200	110 468	151 985	41 517	3 688	84 395	22.88	11.3	8.88	2.03
HY03####	Nissan	NP 200 1.6 8V	155 310	183 496	28 186	2 598	59 530	22.92	10.9	9.22	2.11
HY03####	Nissan	NP 200 1.6 8V	126 694	151 560	24 866	2 360	53 461	22.65	10.5	9.49	2.15
HY03####	Nissan	NP 200 1.6 8V	191 924	225 502	33 578	3 019	68 862	22.81	11.1	8.99	2.05
HN68####	Nissan	NP200	163 595	182 008	18 413	2 301	52 439	22.79	8	12.50	2.85
HN68####	Nissan	NP200	239 362	259 127	19 765	2 117	47 447	22.41	9.3	10.71	2.40
JJ78####	Nissan	NP200	63 655	87 091	23 436	2 090	47 617	22.79	11.2	8.92	2.03
HF14####	Nissan	NP200	211 392	236 153	24 761	2 378	53 870	22.66	10.4	9.60	2.18
JL17####	Nissan	NP200	97 519	120 118	22 599	2 161	49 259	22.79	10.5	9.56	2.18
HZ93####	Nissan	NP200	197 081	260 185	63 104	4 656	109 044	23.42	13.6	7.38	1.73
HR54####	Nissan	NP200	162 166	219 201	57 035	4 311	101 309	23.5	13.2	7.56	1.78
HF14####	Nissan	NP200	166 662	190 142	23 480	2 114	49 732	23.52	11.1	9.00	2.12
JL17####	Nissan	NP200	72 607	86 402	13 795	1 552	35 541	22.91	8.9	11.25	2.58
JF27####	NIssan	NP 200	149 865	170 512	20 647	2 043	46 447	22.74	10.11	9.89	2.25
HN68####	Nissan	NP200	121 460	142 751	21 291	2 275	51 750	22.75	9.4	10.68	2.43
HH39####	Nissan	NP200	124 416	154 999	30 583	2 937	66 924	22.78	10.41	9.60	2.19
HN68####	Nissan	NP200	130 728	161 408	30 680	2 837	66 587	23.47	10.8	9.25	2.17
HN68####	Nissan	NP200	144 299	173 857	29 558	2 803	65 619	23.41	10.5	9.48	2.22
Average:					**29 258**	**2 749**	**63 232**	**22.98**	**10.44**	**9.67**	**2.22**

- **Avg. Fuel Cost (R/L):** 22.98
- **Average Fuel Consumption (L/100KM)**: 9.67
- **Average Cost per KM (R/KM)**: 2.22

LPG Data: Number Of Vehicles:22

Filters Applied:

- Nissan NP200
- LPG
- Johannesburg Site

Registration	Make	Model	Start Odo	End Odo	Kms	Litres	LPG Cost	Avg Price	Km/Litre	Litre/100Km	R/KM
LM54####	Nissan	NP200	13130	36979	23849	2092.43	26373	11.34	11.40	8.77	1.11
LM54####	Nissan	NP200	13230	23483	10253	895.94	9821	10.96	11.44	8.74	0.96
LM54####	Nissan	NP200	15130	45058	29928	3318.96	37659	11.35	9.02	11.09	1.26
LM54####	Nissan	NP200	13230	38818	25588	3389.74	38279	11.29	7.55	13.25	1.50
LM54####	Nissan	NP200	15630	43581	27951	3221.47	36487	11.33	8.68	11.53	1.31
LM54####	Nissan	NP200	9230	28615	19385	2297.17	26036	11.33	8.44	11.85	1.34
LM54####	Nissan	NP200	11830	35964	24134	1851.91	20919	11.30	13.03	7.67	0.87
LM54####	Nissan	NP200	10330	30419	20089	2098.39	23955	11.42	9.57	10.45	1.19
LM54####	Nissan	NP200	13630	39131	25501	3196.08	36332	11.37	7.98	12.53	1.42
LM54####	Nissan	NP200	13630	36165	22535	2399.83	27025	11.26	9.39	10.65	1.20
LM54####	Nissan	NP200	13530	39937	26407	2598.91	29390	11.31	10.16	9.84	1.11
LM54####	Nissan	NP200	13230	49851	36621	3539.12	40314	11.39	10.35	9.66	1.10
LM54####	Nissan	NP200	16430	45851	29421	3258.76	36769	11.28	9.03	11.08	1.25
LM54####	Nissan	NP200	13732	37561	23829	2496.95	28268	11.32	9.54	10.48	1.19
LM54####	Nissan	NP200	15630	46108	30478	3109.36	35183	11.32	9.80	10.20	1.15
LM62####	Nissan	NP200	3130	34135	31005	2602.88	29636	11.39	11.91	8.40	0.96
LM62####	Nissan	NP200	3230	31272	28042	3210.15	36496	11.37	8.74	11.45	1.30
LM63####	Nissan	NP200	7830	25873	18043	1618.38	18032	11.14	11.15	8.97	1.00
LM63####	Nissan	NP200	2830	33697	30867	2935.69	33143	11.29	10.51	9.51	1.07
LM63####	Nissan	NP200	13030	44110	31080	3551.36	40309	11.35	8.75	11.43	1.30
LM63####	Nissan	NP200	3030	45933	42903	4358.28	49463	11.35	9.84	10.16	1.15
LM63####	Nissan	NP200	5730	39212	33482	3373.20	38456	11.40	9.93	10.07	1.15
Average:					**26881**	**2791.59**	**31743**	**11.31**	**9.83**	**10.35**	**1.18**

- **Avg. Fuel Cost (R/L):** 11.31
- **Average Fuel Consumption (L/100KM)**: 10.35
- **Average Cost per KM (R/KM)**:1.18

Conclusion

Metric	Petrol	LPG	% Diff
Avg. Fuel Cost (R/L)	22.98	11.31	**-50.78%**
Avg. L/100KM	9.67	10.35	**+7.07%**
Avg. R/KM (CPK)	2.22	1.18	**-47.01%**

Interpretation:

Analysis of the 12-month operational data confirms the financial benefits of LPG fleet conversion. While the average **fuel consumption (L/100KM)** for LPG vehicles was slightly higher than that of petrol vehicles (10.35 vs 9.67), the significantly lower LPG price resulted in a substantial **47% reduction in average cost per kilometre** (R1.18 for LPG vs R2.22 for petrol).

These results confirm that LPG delivers meaningful cost savings for logistics operations without compromising vehicle performance or reliability. In fact, no performance-related failures were recorded across the converted fleet during the assessment period.

This positions LPG as a financially sound and operationally reliable alternative for courier fleets operating in high-mileage urban environments. While actual savings may vary depending on specific fleet behaviour and fuel price fluctuations, the methodology applied here provides a strong benchmark for evaluating LPG's long-term impact on fleet operating costs.