

POLICY BRIEF: SOUTH AFRICAN CITIES GREEN TRANSPORT PROGRAMME

ACCELERATING THE TRANSITION TO
GREEN TRANSPORT

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25 NOVEMBER 2015

RESEARCH AND POLICY DEVELOPMENT TO
ADVANCE A GREEN ECONOMY IN
SOUTH AFRICA

GREEN ECONOMY RESEARCH REPORT



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



South African Cities Green Transport Programme





This Research Report was prepared under the Research Funding Programme, 'Research and Policy Development to Advance a Green Economy in South Africa'
By:





GREEN FUND

RESEARCH AND POLICY DEVELOPMENT TO ADVANCE A GREEN ECONOMY IN SOUTH AFRICA

GREEN ECONOMY RESEARCH REPORTS

The Government of South Africa, through the Department of Environmental Affairs, has set up the Green Fund to support the transition to a low-carbon, resource-efficient and pro-employment development path. The Green Fund supports green economy initiatives, including research, which could advance South Africa's green economy transition.

In February 2013, the Green Fund released a request for proposals (RFP), 'Research and Policy Development to Advance a Green Economy in South Africa', inviting interested parties with relevant green economy research projects to apply for research funding support. The RFP sought to strengthen the science-policy interface on the green economy by providing an opportunity for researchers in the public and private sectors to conduct research which would support green economy policy and practice in South Africa. Sixteen research and policy development grants were awarded in 2013. This peer-reviewed research report series presents the findings and policy messages emerging from the research projects.

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Please cite this report as:

M Suleman, M Gaylard, S Tshaka and C Snyman (2015). Policy Brief: South African Cities Network Green Transport Programme, Green Fund, Development Bank of Southern Africa, Midrand



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Key Policy Messages

Converting minibus taxis to run on compressed natural gas (CNG) would not only reduce nitrogen and sulphur oxides (which are harmful to public health) and greenhouse gas (GHG) emissions, but also create jobs and provide a stimulus for biogas production. Government can assist in a number of ways, by:

- a) Reducing regulatory uncertainty about CNG as a transport fuel and working with stakeholders in the private sector. The appropriate norms and standards need to be put in place, and CNG taxed as a transport fuel at a suitable level, i.e. that ensures CNG is a competitive alternative to petrol.
- b) The adoption of green transport technologies could be fast-tracked through centralised or transversal¹ procurement mechanisms, thereby encouraging local manufacture of green vehicles. However, in the absence of a clear vision and financial incentives from national government, cities have indicated concerns regarding centralised procurement.
- c) Supporting the formation of an industrial cluster around CNG-powered taxis by the private sector and cities (especially in Gauteng because of the momentum that has been created), through the Department of Trade and Industry's Manufacturing Competitiveness Enhancement Programme (MCEP), and investigating other potential sources of financial and technical support for such a cluster.

Introduction

This policy brief supports the establishment of a South African Cities Green Transport Programme. The initial focus of this study, funded by the Green Fund, was on greening municipal fleets and investigating whether cities would agree to a centralised procurement mechanism in order to make up the required demand to support local production and job creation in the green transport industry. However, this was found not to be a realistic short-term objective around which to build a green transport programme. Therefore, the research team refocused its efforts on investigating how cities could support the conversion of taxis to compressed natural gas (CNG), as well as the regulatory support required for developing green transport in the municipal sector.

Background

South Africa already has all the value chain elements (fuel supply, distribution infrastructure, vehicle technologies, maintenance, support and training) for using natural gas as a vehicle fuel, including a generally supportive policy environment, in place. The challenge is scaling up. In this the public sector, and especially cities, can help drive the market for CNG as a vehicle fuel.

Obtaining consensus among cities and other stakeholders about greening the transport sector proved to be a challenge. Better and more regular communication is needed among stakeholders (government, civil society and private sector) interested in reducing emissions in the transport sector. In particular, cities need to learn from each other's initiatives for greening municipal fleets. For instance, the cities of Johannesburg and Tshwane have lessons to share about their greening journey with other municipalities that operate bus services.

Cities that procure and operate municipal bus fleets could green these fleets, especially as the full lifecycle costs for gas/ethanol/electric vehicles are now converging with those of conventional diesel vehicles. Municipalities are also starting to procure electric or hybrid electric vehicles for their corporate municipal fleets. In so doing, cities can promote green transport technologies and the local manufacture of electric vehicles. At the same time, converting municipal corporate fleets to gas should also be considered as a viable option for reducing GHG emissions and other air pollutants.

¹ A transversal term contract is a contract with one or more suppliers for the supply of goods or services over a period required by more than one department or public entity.



Problem Statement and Research Question

The transport sector, globally and locally, is a significant source of GHG emissions. Switching to cleaner fuels increases the positive impact of the modal shift to public and non-motorised transport. While cities recognise the need for green transport and the consequent impact on mitigating climate change, they face certain problems:

- Funding for green transport projects is a challenge.
- The positive impacts of green transport projects are not adequately measured or communicated.
- The financial benefits derived from green transport are not clearly communicated.
- National government provides no clear financial incentives for municipalities to adopt greener transport.

Research Question: What are the main policy changes or shifts that will accelerate the conversion of municipal fleets to cleaner technologies in order to lower GHG and other harmful emissions in cities?

Methodology

The project sought to create greater certainty and confidence among decision-makers in cities about alternative energy technologies for transport. A two-pronged approach was adopted: (i) To share information on local and international success stories and (ii) To discuss with cities their priorities and obstacles in relation to green transport. The cities played a key role in directing the participatory research process adopted in this study.

Figure 1: Project Implementation



Research methods used

- Workshops with national stakeholders, the private sector and cities to identify research issues and interrogate research findings and recommendations.
- Interviews with stakeholders in development finance institutions, private sector energy companies, bus manufacturers, taxi associations and national departments (National Treasury, and the departments of energy, transport and environmental affairs).
- Data requests to cities and follow-up visits to engage cities on a "crib sheet" on green transport opportunities and targets circulated to them in advance.
- Modelling of the lifecycle costs and emission profiles of a range of technology options for buses.
- Desktop research and a literature review.

Findings

1. The lack of a clear vision and financial incentives from national government means that cities have little appetite for pooling their demand and centralising the procurement of green transport technologies.
2. A fuel levy is not charged on CNG (although value-added tax is), which creates uncertainty and risk for gas companies engaged in taxi conversions and CNG distribution.
3. Given the size of the minibus taxi industry, greening this industry would have a positive impact on emissions and would be further enhanced if biogas were to be introduced as a supplement to fossil-derived CNG. Municipalities are underutilising potential biogas sources such as municipal waste and wastewater treatment plants.
4. Cities are willing to commit to targets for greening municipal fleets, but these commitments will remain relatively conservative in the absence of financial and technical support.

Table 1: A breakdown of the gas price cost recovery mechanisms for taxi conversions to gas

	GAS PRICE KIT FUNDED	GAS PRICE KIT OWNED
	Rand price per L/Eq	Rand price per L/Eq
Details	L/Eq	L/Eq
Retail selling price including VAT	8.99	7.56
VAT	1.10	0.93
Retail selling price excluding VAT	7.89	6.63
CNG kit recovery cost	1.26	0.00
Selling price excluding VAT & kit recovery cost	6.63	6.63
Commissions taxi owner	0.07	0.07
Commission taxi association	0.07	0.07
Total commissions	0.14	0.14

Note: Taxi owners pay a recovery cost per litre/equivalent of gas for funded conversions. The overall cost of conversion is R20,000

Cities can support minibus taxi conversions through:

- a) Working with taxi associations, private sector companies in the gas industry, and financial institutions to raise awareness of the business case for taxi conversions.
- b) Facilitating investments in gas refuelling infrastructure and financing of taxi conversions, and allocating suitable land for CNG filling stations and fast-tracking supporting utilities. Such cooperation could take the form of an industrial cluster.
- c) Entering into a formal joint venture, i.e. a public private partnership (PPP) or a special purpose vehicle (SPV) in which one or more municipalities are shareholders. The business case shows that the costs of converting minibus taxis can be recovered relatively rapidly through the gas price, and so raising finance to support these investments may be possible through the Development Bank of Southern Africa.
- d) Advocating for CNG conversions through the taxi associations, which are core stakeholders that need to be won over to converting to CNG.
- e) Facilitating an informal cross-sector partnership with taxi associations and gas companies, for instance by acting as a neutral broker and platform convener between gas companies and taxi associations.



Image 1: CNG Holdings flagship natural gas station in Langlaagte, Johannesburg – in operation since March 2014 (M. Suleman)



Conclusion

Cities are aware of the role of green transport in sustainable development. However, in the absence of specific direction and vision from central government, cities have different priorities and approaches to greening the transport sector. This is both a strength and a weakness, providing wide – yet shallow – knowledge and experience of implementing green transport. In particular, the different business models and preferred technologies, coupled with political and administrative resistance to centralised procurement, limits the scope and potential for successful procurement and local manufacture. This could be reversed by clear guidelines from national government and full commitment by local government leadership.

At the same time, the private sector has independently begun converting taxis to run on CNG, while introducing gas-powered municipal buses will significantly reduce emissions in cities. National government and cities have not actively impeded this progress, but they have the opportunity to create greater policy certainty, e.g. regulating and taxing CNG as a vehicle fuel. The Department of Environmental Affairs needs to ensure that transport departments within cities are actively engaged as key stakeholders in developing frameworks for monitoring emissions, linked to the national greenhouse inventory, and where necessary provide capacity-building support.

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Acknowledgements:

The establishment of a South African Cities Green Transport Programme is consistent with the commitment of the South African Cities Network (SACN) towards sustainable cities. Sandiswa Tshaka of the SACN played the leading role in setting up this project and in providing guidance throughout its implementation. Godfrey Musvoto and Geoffrey Bickford provided valuable additional and on-going support and insight. Carel Snyman, head of the Green Transport Programme and Kevin Nassiep, the CEO at the South African National Energy Development Institute (SANEDI) gave their time in support of this project as part of their broader commitment to a roll-out of green transportation technologies and infrastructure.

The project required the participation of stakeholders from a number of national and provincial departments, particularly the National Treasury, Department of Transport, Department of Environmental Affairs, Department of Energy, Department of Trade and Industry, Department of Economic Development, Industrial Development Corporation, Gauteng Provincial Department of Roads and Transport, and the Gauteng Provincial Green Economy Directorate. Officials from these departments are acknowledged for the insights that they shared with the project team and for the guidance they provided on green transport challenges, procurement approaches, and institutional mechanisms.

In particular, gratitude is expressed to officials from SACN member cities who assisted the project team in workshops and in data collection. The project team acknowledges the immense amount of work that the cities are doing and the enormous pressure many officials face in fulfilling their multiple reporting obligations.

Most importantly, thank you to the project sponsor, the Green Fund of the Development Bank of Southern Africa (DBSA) for providing funding and guidance to undertake this research at the city level.

Disclaimer:

The contents and views included in this Policy Brief are based on independent analysis and do not necessarily reflect the position of the Green Fund, Development Bank of Southern Africa or Department of Environmental Affairs.

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