



LPG

# LP GAS EXCEPTIONAL ENERGY

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Sustainable LPG Lower Carbon  
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Affordable Efficient Secure Safe  
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Pollution Secure Safe LPG Efficient  
Sustainable Lower Carbon Available  
Low Pollution Secure Safe LPG  
Efficient Sustainable Low Pollution  
Lower Carbon Efficient Safe Secure  
Sustainable LPG Lower Carbon

# LP Gas Exceptional Energy

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# Autogas, the “Viable” Clean Fuel

By **Suyash Gupta**, Secretary General, Indian Auto LPG Coalition

**O**il consumption is responsible for 57% of India’s CO<sub>2</sub> emissions with those from the transport sector increasing at the fastest rate – more than 6% per annum. Read this together with the fact that more than half of Indian cities are choking on critical levels of particulates, one-third have jumped from low to moderately high levels of nitrogen dioxides and lung function impairment is facing over 50% of Delhi’s residents. Meanwhile, the International Energy Agency<sup>1</sup>, has highlighted that India is approaching the tipping point of per capita GDP of \$3,000, at which, historically, vehicle ownership rates begin to escalate rapidly, further compounding the transport emission issues the country is grappling with. It is critical for both the central and state governments to shift to cleaner fuels like auto LPG and make it mandatory for all public transport.

**RIGHT**  
Suyash Gupta.



Use of LPG as an auto fuel was permitted in 2000 through an amendment to the Motor Vehicles Act by the Ministry of Road Transport and Highways. Work began on developing a refuelling infrastructure in 2001 following a notification by the Ministry of Petroleum and Natural Gas.

Since then, the government, aided by a Supreme Court directive, has made serious efforts to curb air pollution in various cities through the mandatory introduction of

gaseous fuels in critically polluted cities. Though much remains to be done, the efforts to introduce auto LPG have had significant success, particularly in cities like Bangalore.

### ■ Emission norms

Initial emission norms were those of idle limits (1989). They were subsequently replaced by mass emission limits for gasoline (1991) and diesel (1992) vehicles. This was followed by the notification of the National Auto Fuel Policy on October 6, 2003, paving the way for a phased, seamless introduction of emission norms, moving to Euro 4 equivalent by April 2010 in the National Capital Region (NCR) of Delhi and 10 additional cities and to Euro 3 equivalent in rest of the nation by the same date (see Table 1).

### ■ State-level measures

Several Indian cities including Ahmedabad, Bangalore, Chennai, Hyderabad and Kolkata, have made use of fiscal measures to address the problem of vehicular pollution and encourage the rapid introduction of clean fuels like LPG.

Though still nascent these policy initiatives have begun to take root. The cities that have taken the lead in this regard

**BELOW**  
Table 1.

<sup>1</sup> World Energy Outlook 2007, IEA.

Emission standards			
Standard	Equivalent	Schedule	Region
India 2000	Euro 1	2000	Nationwide
Bharat Stage II	Euro 2	2001	NCR <sup>1</sup> , Mumbai, Kolkata, Chennai
		2003, April	NCR <sup>1</sup> , 10 cities <sup>2</sup>
		2005, April	Nationwide
Bharat Stage III	Euro 3	2005, April	NCR <sup>1</sup> , 10 cities <sup>2</sup>
		2010, April	Nationwide
Bharat Stage IV	Euro 4	2010, April	NCR1, 10 cities <sup>2</sup>

<sup>1</sup> National Capital Region (Delhi)

<sup>2</sup> Mumbai, Bangalore, Hyderabad, Kolkata, Chennai, Ahmedabad, Pune, Surat, Kanpur and Agra  
Above standards apply to the new four-wheel vehicles sold and registered in the regions.



include Delhi, Chennai, Bangalore and Hyderabad, which have evolved city-specific policy framework models. Key aspects of these fiscal measures are clean fuels, disincentives for older vehicles and the creation of dedicated funds from taxes on polluting fuels to pay for pollution control efforts.

### Bangalore

Significant success has been achieved in Bangalore which launched one of the largest LPG three-wheeler programmes, one of the key elements being a fiscal incentive for conversion. City government offered a subsidy of around Rs.2,000 (€29) to three-wheeler owners to help bear the cost of conversion. With about 40 filling stations, many with twin dispensers, Bangalore now serves more than 75,000 LPG auto rickshaws and is one of the most successful auto LPG markets in the country.

Bangalore also introduced a green tax that is imposed on older vehicles. Introduced on April 1, 2002, tax schemes are different for transport and personal vehicles. Transport vehicles that are more than seven years old pay the green tax at the rate of Rs.200 (€2.90) at the time of the annual renewal of their permits. Two-wheelers and cars that are more than 15 years old are taxed at the rate of Rs.250 and Rs.500 (€3.62 and €7.24) respectively at the time of the renewal of their registration after 15 years from the date of purchase and first registration.

### Kolkata

A High Court order mandates that all 15-year-old public vehicles be replaced on or before July 31, 2009. Out of 32,000 auto rickshaws plying on the streets of Kolkata and its suburbs, 4,000 have been converted to LPG. The High Court had earlier set December 31, 2008 as the deadline for removing these auto rickshaws, but later extended it. Auto emissions account for over 60% of the city's air pollution and close to 50% of the city's residents suffer from major respiratory disorders. Carcinogenic benzene levels in 2006-07, were found to be as high as 36

ug/cum, much higher than Delhi, which has a larger vehicle population. This is against an average limit of 5 ug/cum, specified by the National Draft Ambient Air Standard.

### Chandigarh

Starting September 1, 2009, the Union Territory of Chandigarh will allow only LPG three-wheelers to ply on its roads. Chandigarh has more than 2,000 auto rickshaws operating and almost the same number again come to the city from its satellite towns of Mohali and Panchkula.

### Chennai and Pune

Similarly Chennai and Pune have effectively introduced auto LPG with about 25 and 13 LPG filling stations respectively, and with over 10,000 auto rickshaws already running on auto LPG in Pune.

### ■ Growth

The actual retailing of LPG through a filling station commenced only in late 2002, with the introduction of conversion kits duly approved by the certification agencies. While auto LPG is barely about 2% of the total fuel sales currently, the high growth rate indicates tremendous acceptance of this clean fuel in the country (see *Table 2*). No major marketing efforts have been needed to spur growth given the significant differential with petrol prices.

There was a drop in sales during the last fiscal year due to the spiralling oil price. However, 2009/2010 has started on a very positive note with industry clocking more than 25,000 metric tonnes of monthly sales with an expectation of reaching 320,000 metric tonnes for the

BELOW  
Table 2.

### Growth of Auto LPG in India

Fiscal year/ending	2005-06 31.3.06	2006-07 31.3.07	2007-2008 31.3.08	2008-09 31.3.09
Sales (metric tonnes)	89,584	185,977	282,348	248,194
Stations	182	307	536	738



**ABOVE**  
India is grappling with major transport emission issues.

year. More than 300 cities in India are already covered by a network of close to 750 auto LPG filling stations.

#### ■ OEM support

Acknowledging the fast growing auto LPG market, most leading original equipment manufacturers (OEMs) have started offering factory-fitted models. Suzuki, which was the first entrant in the auto LPG segment, now has three LPG models: Omni, Wagon R and its basic model Maruti 800. Other manufacturers offering LPG versions of their frontline models include Hyundai (Accent and Santro), General Motors (Spark), Tata Motors (Indica V2), Mahindra (Logan three-wheelers), Bajaj (Platina two- and three-wheelers), TVS and Hindustan Motors.

*Suyash Gupta is the Secretary General of the Indian Auto LPG Coalition (IAC) and also the Managing*

**RIGHT**  
With about 40 filling stations, Bangalore now serves more than 75,000 LPG auto rickshaws.



*Director of CleanFUEL India, a CleanFUEL USA company. He has been closely involved with the Indian LP Gas industry since 1993 and has been a consultant to the National Energy Technology Laboratory of the US Department of Energy (DOE) and in-country coordinator for the DOE's Clean Cities International Programme.*

*A founding trustee of IAC, Mr Gupta has a Bachelors degree in Business Administration from Apeejay Institute of Management, New Delhi, and is on the boards of Kosel Industries India Limited and HT Process Controls, manufacturers of electronic carousels for the Indian LP Gas industry.*

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- Centre for Science and Environment ([www.cseindia.org](http://www.cseindia.org))

#### About IAC

The Indian Auto LPG Coalition (IAC) is the auto LPG stakeholders' body committed to promoting a cleaner environment through the use of auto LPG as a clean fuel, ideal for the



Indian transportation sector. IAC is a member of the Central Motor Vehicle Rules – Technical Standing Committee (CMVR-TSC), the Standing Committee on Emission Legislation (SCOE), regulatory committees of the Indian government and a recipient of the United States-Asia Environmental Partnership Leadership Award.

IAC's membership comprises the government oil corporations (Indian Oil, Hindustan Petroleum and Bharat Petroleum), global oil majors (Shell, Total Gaz, Chevron and Super Gas), major private Indian LPG players (RIL, Aegis etc.) and all major kit suppliers, equipment manufacturers etc.

It is IAC's endeavour to promote auto LPG through consistent dialogue with government, OEMs, regulators and all stakeholders to ensure the development of a sustainable auto LPG regime in the country.



## LP Gas, Exceptional Energy

By James Rockall, Managing Director, World LP Gas Association

**L**P Gas is a unique fuel. It can provide access to modern energy anywhere in the world, reaching places that no grid-based energy could ever reach. Its unique physical characteristics allow it to be transported as a liquid yet used as a gas. This gives the benefits of low relative infrastructure costs associated with liquid fuels together with the environmental benefits of gaseous fuels. When it is considered that LP Gas is among the most fuel-efficient options available and has lower greenhouse gas emissions than many other alternative fuels, it is clear that LP Gas is truly an exceptional energy.

**RIGHT**  
James Rockall.

Growing population, economic development and ever-increasing aspirations to a more comfortable life are driving the global demand for energy continuously higher. The demand growth in many parts of the world is greater than the rate that modern, grid-based energy infrastructure can be built. Renewable energy supply, whether grid based or distributed, is often unavailable or unaffordable; with the consequence that consumers have no option but to resort to either the unsustainable use of biomass, leading to deforestation or the use of highly polluting solid or liquid fuels that have an enormous impact on human health. Thank you therefore for LP Gas. With a supply forecast to grow at more than 3% per year in the coming five years and a long horizon of future availability, this natural product can provide comfort to billions of consumers worldwide while offering a low-carbon energy solution.

This publication has brought together our industry to demonstrate not only the unique and exceptional benefits that LP Gas use can bring, but the commitment of a global industry to continuously provide clean energy solutions to all regions in the world. This is made possible through the industry's focus on innovation and customer service, and its success in the face of powerful competition from traditional fossil fuels and emerging renewable energy supplies is a tribute to its resolve to contribute to a cleaner, healthier and more prosperous world.

WLPGA recognizes that because of the uniqueness of all regions in the world, there is no one solution to climate change and many fuels and energy carriers will be required to make up the global

energy mix. However LP Gas has a unique role to play. It is cleaner than many other alternatives; it is portable, efficient, widely available and can be used in literally thousands of applications.

Any nation, city or community wishing to develop a lower-carbon future should seriously consider the role that LP Gas can play.

*James Rockall has been the Managing Director of the World LP Gas Association since August 2004. He is responsible for leading WLPGA, ensuring that the Association delivers on its Mission Statement and delivers value to all members. Mr Rockall has a strong energy and business development background having worked for nine years for Shell International in project management and business development in The Netherlands and Venezuela.*

*Prior to joining WLPGA in July 2003 as Director of Market Development, Mr Rockall worked for two years for the global energy group ALSTOM SA as an e-Business Director. He is a Chartered Chemical Engineer with a Masters degree from the University of Nottingham in the UK and an MBA from the Institute of Management Development in Lausanne, Switzerland.*







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