

Pakistan cng industry

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Compiled by: Mirza Rohail B <http://economicpakistan.wordpress.com/2008/02/10/cng-industry/> Compressed Natural Gas (CNG) is a substitute for gasoline (petrol) or diesel fuel. It is considered to be an environmentally “clean” alternative to those fuels. It is made by compressing methane (CH₄) extracted from natural gas. Argentina and Brazil are the two countries with the largest fleets of CNG vehicles. As of 2005, Pakistan is the largest user of CNG in Asia, and third largest in the world.

The Compressed Natural Gas (CNG) sector of Pakistan by end of 2007 has attracted over Rs 70 billion investments during the last few years as a result of liberal and encouraging policies of the government. Presently, more than 2, 700 CNG stations are operating in the country in 85 cities and towns, and 1000 more would be setup in the next three years. It has provided employment to above 30, 000 people in Pakistan. Over 2 million vehicles were converted to CNG as of march 2009, showing an increase of 35 percent yearly.

On average 29, 167 vehicles are being converted to CNG every month. All Pakistan CNG Association (APA) Sana-ur-Rehman confirms that CNG stakeholders have invested Rs. 90 billion in this sector and another Rs 20 billion investment is in pipeline. The CNG consumers had invested around Rs 60 billion in converting their vehicles to CNG. The CNG was replacing at least 6. 12 billion liters of petrol every year and saving foreign exchange to the tune of billions of dollars. The CNG sector pays 24 percent sales tax and 4 percent withholding tax to the government.

Moreover, the CNG is contributing tremendously towards maintaining their pollution level lower since it emits almost 85 percent less harmful gasses, zero lead and zero particulate matter. Compressed Natural Gas (CNG) Compressed Natural Gas (CNG) is a substitute for gasoline (petrol) or diesel fuel. It is considered to be an CNG has grown into one of the major fuel sources used in car engines in Pakistan, Bangladesh and India. The government of Punjab, Pakistan, the most populous province of that country, has mandated that all public-transport vehicles will use CNG by 2007.

CNG conversion 3rd generation environmentally “ clean” alternative to those fuels. It is made by compressing methane (CH₄) extracted from natural gas. It is stored and distributed in hard containers, usually cylinders. Conversion has been facilitated by a substantial price differential with liquid fuels, locally-produced conversion equipment and a growing CNG-delivery infrastructure. A ‘ Blue-network’ of CNG stations is being developed on the major highways of the Southern Cone (including Chile and Bolivia) to allow for long-haul transportation fuelled by CNG.

According to the International Association for Natural Gas Vehicles, Pakistan has the third-largest number of natural gas vehicles. In the Middle East and Africa, Egypt is a top ten country in the world with more than 63000 CNG vehicles and 95 fueling stations nationwide. Egypt was also the first nation in Africa and the Middle East to open a public CNG fuelling station in January 1996. Brisbane Transport and Trans-Perth in Australia have both adopted a policy of only purchasing CNG buses in future; the former purchasing 216 Scania L94UB and 180 MAN 18. 10 models, with the latter purchasing 451

Mercedes-Benz OC500LE buses, including 58 articulated buses. Brisbane Transport has also ordered up to 30 articulated CNG buses on MAN chassis'. During the 1970s and 1980s, CNG was commonly used in New Zealand in the wake of the oil crises, but fell into decline after petrol prices receded. Technology CNG can easily be used in Otto-cycle (gasoline) and modified Diesel cycle engines. Lean-burn Otto-cycle engines can achieve higher thermal efficiencies when compared with stoichiometric Otto-cycle engines at the expense of higher NO_x and hydrocarbon emissions.

Electronically-controlled stoichiometric engines offer the lowest emissions across the board and the highest possible power output, especially when combined with EGR, turbo charging and inter-cooling, and three way catalytic converters. The octane rating of CNG is far greater than Petrol and if handled correctly it can produce same or more power output from an engine provided the Compressed Natural Gas is compressed properly and accurate amounts of BTU Figures attained. CNG cylinders can be made of steel, aluminum, or plastic.

Lightweight composite (fiber-wrapped plastic) cylinders are especially beneficial for vehicular use because they offer significant weight reductions when compared with earlier generation steel and aluminum cylinders, which leads to lower fuel consumption. CNG may be refueled from low-pressure or high-pressure systems. The difference lies in the cost of the station vs. the refueling time. There are also some implementations to refuel out of a residential gas line during the night, but this is forbidden in some countries. CNG compared to LNG and LPG CNG is often confused with LNG.

While both are stored forms of natural gas, the key difference is that CNG is in compressed form, while LNG is in liquefied form. CNG has a lower cost of production and storage compared to LNG as it does not require an expensive cooling process and cryogenic tanks. CNG requires a much larger volume to store the same mass of natural gas and the use of high pressures. CNG is also often confused with LPG, which is a compressed blend of propane (C₃H₈) and butane (C₄H₁₀). The Advantages of Compressed Natural Gas

The Environmentally Clean Advantage Compressed natural gas is the cleanest burning fuel operating today.

This means less vehicle maintenance and longer engine life. CNG vehicles produce the fewest emissions of any motor fuel. Dedicated Natural Gas Vehicles (NGV) has little or no emissions during fueling. In gasoline vehicles, fueling emissions account for at least 50% of a vehicle's total hydrocarbon emissions. CNG produces significantly less pollutants than gasoline. Tailpipe emissions from gasoline operated cars release carbon dioxide, which contributes to global warming. This is greatly reduced with natural gas. The Maintenance Advantage Some fleet operators have reduced maintenance costs by as much as 40% by converting their vehicles to CNG.

Intervals between tune-ups for natural gas vehicles are extended 30, 000 to 50, 000 miles. Intervals between oil changes for natural gas vehicles are dramatically extended—anywhere from 10, 000 to 25, 000 additional miles depending on how the vehicle is used. Natural gas does not react to metals the way gasoline does, so pipes and mufflers last much longer. The Performance Advantage Natural gas gives the same mileage as gasoline in a

converted vehicle. Dedicated CNG engines are superior in performance to gasoline engines. CNG has an octane rating of 130 and has a slight efficiency advantage over gasoline.

Because CNG is already in a gaseous state, NGV's have superior starting and drivability, even under severe hot and cold weather conditions. NGV's experience less knocking and no vapor locking. The CNG Cost Advantage Natural gas is cheaper per equivalent gallon than gasoline (an average of 15% to 50% less than gasoline). The Safety Advantage Surveys indicate that NGV's are as safe or safer than those powered by other fuels. A 1992 AGA survey of more than 8, 000 vehicles found that with more than 278 million miles traveled, NGV injury rates per vehicle mile traveled were 34% lower than the rate for gasoline vehicles.

There were no fatalities reported—even though these vehicles were involved in over 1, 800 collisions. The Financial Incentive Advantage Some States offers a 50% investment tax credit for each vehicle converted to natural gas. This 50% credit on state income tax features a three-year, carry-forward option. A federal tax deduction is also available for the cost of conversion. Apprehensions in Industry The CNG Stations Owners Association of Pakistan (CSOAP) in January 2009 demanded the government to introduce a separate tariff for CNG to protect the investment by CNG station owners.

An executive committee members meeting of CSOAP Thursday urged the Ministry of Petroleum and OGRA to keep the CNG policy 1992 enforced. The recent steps by the government to increase gas price would damage the CNG industry and would put additional burden on the common man. The

current increase of 10 percent in gas prices is unjustified and uncalled for when the fuel prices all over the world have plunged. The 33 percent steep increase of gas prices in July 2008 by SSGCL and SNGPL was fully absorbed by CNG station owners and dealers by reducing their profit margins.

He said the CNG sector as a whole consumes less than 6 percent of total gas output from SSGCL and SNGPL. The investments of more than Rs 60 billion of middle and lower middle class people who converted their vehicles to use cheap and environmental friendly CNG would go waste if the government does not revert the recent increase of gas price immediately. The CNG industry's efforts to reduce government's burden of foreign exchange payments and huge savings of Forex reserves resulted from shift to CNG use in vehicles.

He claimed CNG has resulted in savings of more than \$250 million per annum of foreign exchange for Pakistan. The recent increase of gas prices would force the CNG vehicle owners to buy CNG at a higher rate forcing CNG stations to close down their businesses leaving 2.1 million vehicle owners including rickshaws and taxis prone to inflation. He said if the government did not meet their genuine demands, they would be forced to shut down their businesses and would not be able to pay their leasing payments and other loans.

All Pakistan CNG Association (APA) in 2008 had also expressed resentment over the government's plan to increase CNG prices equalizing petroleum prices so as to resolve ongoing gas crises in the country. The APA has contacted the planning division for holding a meeting on the issue but the

concerned officials have refused to meet the stakeholders, he claimed. The APA chairman Sana-ur-Rehman claimed that there is an anti-CNG lobby in the planning division. He said that the CNG stakeholders have invested Rs 90 billion in this sector and another Rs 20 billion investment is in pipeline.

He expressed apprehensions that the industry would totally collapse if the CNG prices were equalized with petroleum prices. According to APA Chairman, the CNG sector accounts only for 6 percent of the national gross consumption of the natural gas, where as it is being portrayed as the cause for present gas shortage crisis. The domestic sector consumes 21 percent gas during summer, which rises to 69 percent in winter and that was actually responsible for the gas shortage everywinter season. He informed journalists that gas was provided to industrial sector for a contract of 9 month in a year.

The industries were required to arrange for alternate energy source during the remaining three months of winter, he maintained. However, he regretted that the government machinery wanted to provide supply of gas to industrial sector throughout the year for the last several years against the contractual obligations. CNG Conversions Converting a gasoline-powered car to CNG requires only minor engine modifications. To learn more about converting your car, please contact a certified CNG conversion company. (c) ECONOMIC PAKISTAN