Incentives and activation of big NGV projects in Asia

- Iran
  - New national plan for CNG sector

- Thailand
  - OEM/variants
  - NGVs’ market share
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New government incentives and activation of big NGV projects in Asia

China
Following article “LNG harbour filling station, an untapped market in China” published in Asian NGV Communications May edition (page 23), China Natural Gas, Inc. (CHNG) informed that its wholly owned subsidiary, Hubei Xilan Natural Gas Co, has launched a demonstration project in order to promote the use of LNG ships in rivers. The demonstration model was presented at a conference sponsored by the China Classification Society (CCS). The CCS used Hubei Xilan Bi-fuel Ferry Tug for this initiative. Since 2006, CHNG has introduced LNG vessels (ships) technology in Hubei. Its chairman and CEO, Qinan Ji, indicated that the experiment is nearly completed, and the LNG vessel is scheduled to be tested by the second quarter 2010.

Korea
Things are looking up for NG-LDV segment in Korea. This country started NGV programme by adopting CNG (MD-HD) buses and later by adopting other CNG or LNG-powered HDVs. But they did not include cars and other LDVs due to concerns about the safety of having the fuelling facility within cities area (due to earlier explosion of LPG car). However, in 2009 a CNG filling station located at the entrance of Seoul City office was opened by Seoul Mayor Lee Myung Bak (now he is the President of South Korea) to prove that CNG stations are safe. Recently, the current city mayor built a nice cafe on top of the Seoul City office station. On a different occasion, the total NGV systems solutions provider NGVI Inc. conducted a tour for some leaders in Korea to the biomethane plant in Seoul. The participants were brought in NGVI’s CNG Chevy Express Van, which they were very surprised about. NGVI is known in Korea as a company that provides good quality products (conversion and repowering system for NGVs). Most of NG-HDVs in this country use NGVI’s products. By the end of the 1st quarter 2010, the Gangwon Province government presented an agreement that offers loans to convert taxis to bi-fuel technology in Gangwon Province. The Gangwon government aims to increase the number of taxis operating on CNG. The agreement was signed in Chuncheon City, the host of NGV2012-IANGVI’s 13th international conference and exhibition. The pact was inked by the Gangwon Credit Guarantee Foundation (GCCF), Provincial Independent Taxi Drivers Council and NGV’s vehicle conversion subsidiary of NGVI. GCCF will secure loans to cover conversion expenses and drivers will be exempt from interest over a certain payback period. Currently, 1,470 of 25,744 NGVs in Korea are cars/LDVs. Around 4,500 independent taxi drivers in Gangwon Province could benefit from this agreement as well as from the fuel savings they will get after the conversion. CNG is 30% to over 50% cheaper than LPG and gasoline respectively. Furthermore, the stakeholder is preparing a proposal to lobby the government to include NGVs as a part of their green growth plan.

Vietnam
Last year PetroVietnam Gas South (PVGas South) expanded its business to CNG and was reported to initially reach positive results, thus becoming the strategic shareholder of CNG Vietnam Joint Stock Co (CNG Vietnam) after buying back 34.02% stake. Annual CNG output of PVGas South and CNG-Vietnam is estimated at 60 million cbm in 2010, 250 million in 2015 and 500 million by 2025. In order to raise investment capital for building CNG stations, Dung Quat LPG project, and add it to its working capital, the company decided to offer 6.5 million shares to increase the value of its charter capital. The shares were auctioned via Hanoi Stock Exchange with the initial price of 25,000 dong per share last April-May.

Thailand
Thai Ministry of Transport will push forward the 4,000 CNG buses leasing programme as the result of Bangkok Mass Transit Authority’s (BMTA) survey shows a rising acceptance of NGV buses among the people. Around 81.06% of the 5,730 survey respondents (BMTA’s bus passengers) are positive about the idea of using new CNG buses. The majority of the respondents expect that the government will set a flat passenger fare at 30 THB/day.

India
According to Bharat Book Bureau, a market research company in India, the number of NGVs in this country is expected to grow at a Compound Annual Growth Rate of 16% during FY 2010–FY 2013 should favour government policies continue. Currently, India has 600,000 CNG vehicles although industry stakeholders believe that there are about 700,000 of these vehicles (including those converted but not yet registered as NGVs) plying in India roads nowadays. In early May, Chief Minister Sheila Dikshit presented 200 modern low-floor CNG buses, which are part of the Express Bus Service launched on the 72 lines of the chartered bus service.

Gujarat state industries minister, Saurabh Patel noted that the municipality plans to convert all the public transport in Gujarat into CNG mode. Accordingly, in the next 2-3 years, the number of CNG stations in Gujarat will double to 150 units. Following Vijayawada, the Road Transport Authority wants the Hyderabad region to adopt NGVs too. Fuel will be supplied to 8 stations in Hyderabad using mother-daughter system. Main target is to convert diesel to CNG buses (initially 500 buses). Only Euro 3 compliance buses can be converted to NGV system. Soon, non-Euro 3 compliance vehicles will be banned from Indian roads.

Pakistan
The Sindh government would soon start the Shaheed Benazir Bhutto CNG Bus Project based on public-private partnership in this Province, and initially 500 CNG buses out of the intended 4,000 would be introduced in Karachi. Over the next five years, the whole 4,000 buses—for 4 million passengers—should already operate in Karachi’s roads, while another 4,000 units will be added in other nine cities. The total investment in the project is about Rs. 21 billion including Government of Pakistan subsidy of Rs. 2.5 billion. Around 20,000 direct jobs plus several other indirect job opportunities would result from this scheme. In April, seven companies submitted proposals to provide 226-294 buses. The Pakistan Muslim League-Quaid legislator Zobia Rubab Malik has submitted an adjournment motion in Punjab Assembly secretariat to criticise Punjab government’s decision to ply diesel buses on city roads and asked the local government to promote the use of CNG in transport. She underlines that Lahore was being turned into one of the most polluted cities in Asia under the garb of providing transport facilities. Pakistan was also among those countries that have been affected by the negative effects of global warming.

Iran
World’s 5th largest gas producer, which has 1.7 million NGVs, has inaugurated yet another CNG cylinder manufacturer last April in Tehran City. The new CNG cylinder production plant is capable of delivering 100,000 cylinders per year and would serve local demand. The products range from 168 to 425 millimetres in diameter with storage capacity from 28 up to 130 litres. Iran government has announced a new NGV programme for the new Financial Year 2010-2011 (see article “The new national CNG plan in Iran” in other pages in this magazine). NGV activities and support remain strong.
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中国
据中国天然气公司《亚洲天然气通讯》五月刊（23页）的文章“LNG港口加气站，中国未开发的市场”报道，中国天然气公司全资子公司——湖北西蓝天然气公司已经启动示范工程以推动河道LNG船的使用。在由中国船舶工业公司（CSS）主办的研讨会上展示了示范船模型。为这艘船在型号上采用了湖北西蓝双燃料动力拖船，因2006年，中国天然气公司已在湖北引进了LNG动力船。技术公司主席兼CEO田泰安表示，此项技术的实验已基本完成，公司预计在2010年第二季度对LNG船进行检测。

韩国
接下来关注韩国轻型天然气汽车。韩国的NGV计划始自于中型公共汽车及其它CNG和LNG重型汽车，由于在市内建造加气站的安全考虑（因为早期发生过LPG汽车爆炸事件），起初并不包括小汽车和轻型汽车。

挪威
挪威的NGV计划始于中型公共汽车及其它CNG和LNG重型汽车，由于在市内建造加气站的安全考虑（因为早期发生过LPG汽车爆炸事件），起初并不包括小汽车和轻型汽车。最近，现任首尔市长又在首尔市政府大楼前加气站开了另一家不错的咖啡馆。由此决定，NGV系统整体方案参与者NGVI Inc.还安排一些韩国领导参观了位于首尔的生物沼气厂进行参观。参观人员乘坐NGVI的CNG动力Chevy商务车来到生物沼气厂，这使他们非常震惊。在韩国，NGVI公司以其产品质量著称（主要生产NGV转换及循环发电系统）。挪威很多轻型天然气驱动汽车都使用NGV的产品。截止2010年第一季度，挪威政府已签署协议提供贷款将该省的出租车全部改装成双燃料系统出租车。同时，挪威政府还计划增加CNG出租车的保有量。此项计划于2010年在国际天然气汽车协会第13届国际会议暨展览会主办城市哥德堡签订。合作单位有挪威清洁能源基金（GCF）、省个体出租车公司协会和NGVI的公司的CNG汽车改装分公司。挪威清洁能源基金将确保改装资金到位，所有司机在贷款偿还期不得承担任何费用，目前，在挪威，CNG车中有1470辆是小汽车或轻型汽车。挪威政府估计约有5400名个体出租车司机从中受益，同时改装后的车将大大降低燃料花费，因为CNG比LPG和汽油的价格低30%到50%。

此外，NGV产业相关单位还准备向政府提案将NGV汽车纳入政府绿色增长计划。

越南
今年，越南南方液化天然气经营股份公司（PVGas South）正式涉足CNG领域，据报导已初步获益。在收购了越南南方液化天然气经营股份公司（PVGas South）48.92%的股份以后，正式成为该公司的战略股东。据估计，越南南方液化天然气经营股份公司（PVGas South）和越南压缩天然气公司（CNG Vietnam）的年均CNG产量2010年可达到6000万立方米，2015年将达到2.5亿立方米，2025年预计达到5亿立方米。

为了募集更多资金建造CNG加气站，Dung Quat LPG工业已将这部分资金全部投资到其他支出中，公司还决定拍卖650万股票以增加其注册资本。今年4月到5月期间该公司股票在河内证券交易所拍卖，起拍价为每股25,000 越币。

泰国
泰国交通部（BMTA）协调结果指出：公众对NGV公共汽车的接受率将持续提高，为此该国交通部计划推进4000辆CNG公共汽车计划。在5373位被调查者（BMTA公共汽车的乘客）中，约81.06%的人认可新能源汽车的使用。同时，绝大多数被调查者希望政府实行单一票制，约30 泰铢/每天。

印度
据印度市场调查公司Bharat Book Bureau透露，从2010到2013财政年度，如果政府继续对NGV产业实行优惠政策，该国的NGV保有量将有望以复合年增长率16%的速度增长。目前，印度拥有CNG汽车600,000辆，但是相关业内人士认为现在印度约有700,000辆CNG汽车（包括改装汽车和注册车辆）在路上行驶。

在印度，印度首部部长狄卡希特展示了200辆CNG低地板公共汽车模型。这是72条特许公共汽车项目中快速公交服务的一部分。古吉拉特邦（Gujarat）工业部长Saurabh Patel指出当地政府计划把古吉拉特邦内所有公共交通工具全部改装成CNG动力驱动系统。因此，在未来的2到3年，古吉拉特邦的CNG加气站将会翻倍达到150座。

维尔雅瓦达的公共交通管理局希望得拉巴地区也采用NGV汽车。燃料将通过得拉巴境内8个加气站供应，采用导弹气体供应。其目的在于将柴油机驱动汽车改装成CNG驱动汽车（起先先改装500辆）。只有欧3排放体系的公共汽车可以改装成NGV系统，印度政府将取消未达到欧3排放标准的车辆。

巴基斯坦
巴基斯坦信德省政府在基于公私结合的基础之上，将很快启动Shahid Benazir BhuttoCNG公共汽车项目，项目计划引进4000辆CNG公共汽车，首先在卡拉奇先引进500辆CNG公共汽车。在未来的5年里，所在4000辆CNG公共汽车将逐步到位。载客量可达到400万。同时在其他几座城市也将新增400辆CNG公共汽车。

算上巴基斯坦政府补贴的Rs. 25亿，该项目的投资额达到Rs. 210亿。共创造直接就业岗位20,000个及其它间接就业岗位。4月，7家公司呈交设计书，预计2013年引进12辆CNG公共汽车。巴基斯坦穆斯林联盟立法长官Zohra Rabbah Malik 向旁遮普省（Punjab）代议会议员表示，巴基斯坦政府计划允许CNG驱动公共汽车在道路上行驶，政府将与当地城市合作推广CNG公共汽车的使用。该政策将有助于缓解交通堵塞，改善交通环境，提高交通效率，降低交通成本，减少环境污染，提高公共汽车的竞争力。巴基斯坦政府将提供财政支持，包括提供资金援助，税收优惠，政策支持等。

伊朗
伊朗政府在2005年推出了CNG汽车计划，该计划的主要目标是通过推广CNG汽车来减少汽油的使用，改善空气质量和降低碳排放。该计划的目标是到2025年，伊朗的CNG汽车保有量达到500万辆。目前，伊朗的CNG汽车保有量约200万辆，占总汽车保有量的20%。伊朗政府已经实施了一系列政策，如提供CNG汽车的优惠价格，提供CNG加油站，提供CNG汽车的生产补贴等，以推动CNG汽车的发展。此外，伊朗政府还在加大CNG汽车的出口力度，以提高CNG汽车的国际竞争力。
아시아, 정부의 뉴 인센티브와 대규모 NGV프로젝트의 활성화

중국
“중국의 LNG 항만 충전소, 미개발 시장” 기사를 아시안 NGV 커뮤니케이션 5월호 (23쪽)에 실었습니다. CHNG(China Natural Gas, Inc.)는 100%투자 자회사인 Hubei Xilan Natural Gas Co.,가 강우역에 LNG 배유 사업을 보급 촉진하기 위한 서면 프로젝트를 시작한다고 밝혔다. 서면모들은 중국선급협(CCS)가 후원한 컨퍼런스에서 발표되었다. CCS는 이 이니셔티브를 위해 Hubei Xilan Bi-fuel 배해 터보기를 사용했다. 2006년대 CHNG는 후베이성에 LNG 선박 개발을 시작했다. 최고 경 대표이사인 “Qinan JI”는 서면모들은 거의 완료되었고, LNG 선박은 2010년 후반까지 테스트할 것이라고 계획을 발표했다.

베트남
 Petrovietnam Gas South (PVGas South)는 지난해 CNG분야 사업을 확장하기 위하여, CNG의 정쟁적인 결과에 도달한 것으로 보고되었다. 정쟁에서 CNG Vietnam Joint Stock Co와의 제휴를 통해, PVGas South는 CNG- 연합의 요구 사항을 준수한다. 2010년 100만백만으로 추정되며, 2015년에는 259만백만, 2025년까지 500만백만으로 추정되고 있다. CNG 제공 사업은 Dung Quat LNG 프로젝트를 위한 투자 자본을 중점시키고, 운전자금을 추가시키기 위해서 이 회사는 정쟁자본금의 가치를 증가시키기 위해 65만미터의 주식을 매각하기로 결정했다. 이 주식은 지난 4월 5일로 가격은 건물가 약 25,000 동(đồng)에 경매 처분되었다.

대한민국

남북대통합과 (BMTA)의 조사 결과, 속도가 시외에서 NGV버스가 인정을 받을 때, 총 4,000대 CNG 버스가 리프트 플랫폼을 계획해 나갈 방향이다. 실증조사 참가자 5,730 (BMTA의 버스 승객) 중 약 81.06%가 CNG 버스를 사용하는 것에 대해 긍정적인 관점을 가지고 있다. 응답자들의 대부분은 정부가 임시 30 THB로 요금을 근거해 결정할 기회를 제공한다.

인도

인도의 시장조사기관인 Bharat Book Bureau에 따르면, 인도의 NGV수어 회계연도에서 2010년 동안 연평균확장률이 16%로 증가할 것으로 기대되며 이러한 성과는 2010년에 인도의 600,000대 CNG차량을 보유하고 있다. NGV개업자들은 LNG에 CNG차량을 축전할 수 있도록 한다. 5월 초, 인도의 주 수상관 Sheila Dixit가 200대의 최신 CNG 자전거를 전제버스서비스의 72노션에서 개시했다고 밝혔다.

구자란투 주산업지판인 “Saurabh Patel”는 지방지자체가 구자란투를 통한 공공운송수단을 CNG를 교체할 계획이라고 밝혔다. 따라서, 양복 2-3년 내에 구자란투 내 충전소의 수가 150개로 투표로 증가할 것으로 예상된다.

도로교통당국의 “Vijayawada”에 따르면 하이데라바드 지역에도 NGV를 활용하는 것으로 알려졌다. 하이데라바드 지역에 있는 M/D 시스템을 사용하는 8개 충전소에서 업무를 공급하였다는 것이다. 주요 목표는 디젤 버스의 CNG 버스로 교체하는 것이다 (초기 500대). Euro 3 버스만 NGV시스템으로 개조 가능하다. 나머지 400개에 유도도 도로에서 운행할 수 있다.

파키스탄

파키스탄의 부정부는 공정한 경쟁을 위해 Shehade Benazir Bhutto CNG버스 프로젝트를 시작할 것이며, 초기 500대의 CNG 버스가 카라지 지역에 도입될 것이다. 2010년도의 전체 3,000대의 버스 운행 중 400만 속도가 이동하는 가 가라지 지역의 도로에서 운행될 것으로 예상된다. 그 외의 지역에는, 4,000대가 추가될 것이다. 이 프로젝트의 전체 투자 규모는 파키스탄 정부의 보조금 25억 Rs.를 포함하여 약 210억 Rs. 이다. 이는 20,000건의 직장직 일자를 제공할 것이다. 4월, 7개의 업계가 226-294대의 버스를 제공한다는 제안서를 제출하였다.

파키스탄 무슬림만두인 Quaid legislator Zobia Rubab Malik는 도로사업에 더하여 버스를 운행하게 하는 정부의 결정을 비판하기 위해 편집부 의회사무국에서 투표 의회를 제출하고, 지방 정부에 선수단의 CNG 사용을 촉전할 것을 요청했다. 또한, 향후 지역은 교통의 요충지로 아이디어에서 가장 오랫동안 심각한 도시 중 하나가 된 점을 강조하였다. 파키스탄은 또한, 지구환경화의 역량을 갖고 있다.

이란

세계 5위의 가스 생산국으로서, 이란은 170만대의 NGV를 보유하며, 지난 4월 테헤란시에 신규 CNG용기재조립업체를 설립하기로 결정하였다. 이 CNG용기생산공장은 연간 100,000개 생산능력을 가지며, 지역 수요를 충족시킨다. 직장 268-435millimetres, 28-130litres의 제품을 생산한다. 이란정부는 회계연도 2010-2011년을 위로 새로운 NGV 프로그램을 발표했다. NGV에 대한 활동과 지원이 여전히 강력하다.
Dana pemerintah dan pengaktifan mega proyek CNG di Asia

Cina


Korea

Keadaan pasar NG-LDVs di Korea sudah mulai membuka. Negara ini menunjukkan tren NGV dengan mengadopsi MD-MD bis berbahan bakar gas alam, kemudian dengan menggunakan LNG atau LPG di tipe-tipe HDV lainnya. Mobil/LDVs tidak diikutsertakan dalam program ini karena mereka kuatir tentang aspek keamanan kendaraan dan tank station. LNG vessel dijadwalkan akan diterjunkan di kwartal kedua tahun ini.

Untuk membuktikan bahwa stasiun LNG aman, di tahun 2009 sebuah SPBU LNG (BBG) dibuka oleh walikota Seoul Lee Myung Bak (sekarang dia Presiden Korea Selatan) di pintu stasiun BBG tersebut (karena sebelumnya ada ledakan dari mobil LPG).

Pada akhir kwartal pertama tahun ini, pemerintah Propinsi Gangwon menggunakan penawaran dana pinjaman untuk mengkomversi taksi ke bifuel teknologi di Provinsi Gangwon. Pemerintah Gangwon bertujuan untuk meningkatkan jumlah taksi CNG. Perjanjian ini ditandatangani di Chuncheon City, tuan rumah konferensi internasional NGV2012 (event ke 13th international conference and exhibition. The pact was inked by the Gangwon Credit Guarantee Foundation (GCGF), Provincial Independent Taxi Drivers Council and NGVS, vehicle conversion subsidiary of NGVI. GCGF will secure loans to cover conversion expenses and drivers will be exempt from interest over a certain payback period.


Saat ini, Korea mempunyai 1.470 mobil/LDVs (dari total 25.744 NGVs). Sekitar 4,500 pengemudi taksi pribadi di Propinsi Gangwon bisa mendapatkan bantuan untuk mengkomversi taksi ke bifuel teknologi. Pemerintah Gangwon menawarkan pinjaman untuk menutupi biaya konversi.

Vietnam


Dalam rangka meningkatkan modal investasi untuk membangun stasiun CNG, Dung Quat proyek LPG, dan menambahkannya ke modal kerja, pemerintah tetap memberikan support/incentive bagi industri ini. Saat ini, sekitar 81,06% dari 5,730 responden (penumpang bis BMTA) memberikan signal positif bagi pengadaan bis CNG baru.

Thailand

Setelah menerima hasil survei Bangkok Mass Transit Authority (BMTA), Menteri Transportasi Thailand menetapkan target untuk mempercepat implementasi dari proyek leasing 4,000 bus CNG. Menurut hasil survey tersebut, sekitar 81,06% dari 5,730 responden (penumpang bis BMTA) memberikan signal positif bagi pengadaan bis CNG baru.

India

Menurut Biro Bharat Books, sebuah perusahaan riset di India, jumlah NGVs di negara ini diharapkan melebihi 16% selama tahun fiskal 2010-2013 jika pemerintah tetap memberikan support/incentive bagi industri ini. Saat ini, India mempunyai segitiga 600,000 kendaraan CNG meskipun...
stakeholder industri ini percaya bahwa sekitar 700,000 kendaraan tersebut (termasuk yang dikonversi tetapi belum terdaftar sebagai NGVs) telah beroperasi di jalanan India.


Setelah Vijayawada, Otoritas Transportasi Jalan (RTA) lokal ingin supaya wilayah Hyderabad mengadopsi NGVs juga. CNG akan disupply ke 8 stasiun di Hyderabad menggunakan sistem ibu-anak (mother-daughter station). Pada awalnya, 500 bus ditargetkan akan dimodifikasi ke sistem CNG. Hanya bus yang memenuhi persyaratan Euro 3 dapat dikonversi ke sistem NGV. Tidak lama lagi, kendaraan yang tidak setara dengan standar Euro 3 akan dilarang dari jalan-jalan India.

Pakistan

Total investasi dalam proyek ini sekitar Rs. 21,000,000,000. Pemerintah akan menawarkan subsidi sebesar Rs. 2,5 milyar. Sekitar 20,000 pekerja akan dibutuhkan bagi pengoperasian seluruh program ini. Pada bulan April, tujuh perusahaan telah mengajukan proposal untuk menyediakan 226-294 bus.

Liga Muslim Pakistan-Quaid legislator Zobia rubab Malik telah mengajukan protes ofisial di sekretariat Majelis Punjab Punjab yang mengkritik keputusan pemerintah untuk tetap memperbolehkan pengoperasian bus diesel di kota dan menghimbau pemerintah daerah untuk mempromosikan penggunaan CNG di sektor transport. Dia mengingatkan bahwa sektor transport juga ikut serta mengubah Lahore menjadi salah satu kota yang paling terceram di Asia. Pakistan juga termasuk di antara negara-negara yang telah dipengaruhi oleh dampak negatif dari pemanasan global.

Iran
Sebagai gas produser terbesar di dunia, yang memiliki 1.700,000 NGVs, Iran telah meresmikan satu pabrik CNG silinder baru di bulan April lalu di kota Teheran. Pabrik ini dapat memproduksi 100,000 tabung per tahunnya dan akan melayani permintaan lokal.

Tabung-tabung berdiameter 168-425 mm yang dapat digunakan untuk menyimpan gas dengan volume ekuivalent air sebanyak 28- 130 liter.

Pemerintah Iran telah mengumumkan program NGV baru untuk Tahun Keuangan baru 2010-2011.

Pemerintah tetap memberikan dukungan kuat bagi segment NGVs.
新たな政府支援とアジアにおける大型NGVプロジェクトの現状

中国
Asian NGV Communication誌5月号

23ページに掲載された「中国の未開拓市場」港湾におけるLNG充填所に続き、China Natural Gas社（CHNG）は完全子会社のHuabei Xilan Natural Gas社が河川におけるLNG船の普及を行うためにデモンストレーションプロジェクトを行うことを発表した。China Classification Society（CCS）が注目する会議でのデモンストレーションモデルが発売された。CCSはHuabei Xilan Natural Gas社のバイフェューエル・リスキーを使用する。CHNG社は2006年から湖北省でLNG船技術を導入した。CHNG社の当社長兼CEOのQian Ji氏は実験がほぼ終了し、LNG船は2010年第2四半期に実験を行なうと予定し示した。

韓国

韓国ではLVDにおけるNGVが注目されている。この国ではNGVプログラムがMDやHDのパスから始め、その後、CNGとLNGのパス以外のHDVへ移って行った。しかし、乗用車や他のLVDは含まれていなかった。これは都市部の充填の安全性に問題があったためである。LPG車の爆発事故があったためである。

しかし2009年にはソウル市府の人口がCNGスタンドがその安全性を示すために現在の韓国大統領である当時ソウル市長の李明博が発表された。現在の市府がCNGスタンドの上に素敵なカネタを設置した。別の機会にNGVシステムの総合コンサルタントであるNGV I社がソウル市内のバイオメタランプにて国の指導者を対象に見学会を行った。参加者はNGV I社が用いたChevy Express Vanに乗り、大変歓迎を受けた。NGV I社は、韓国で高品質のNGV改修キットを供給する会社で知られている。

日本のほとんどどの天然ガスHDVは同社の改修キットを使用している。

2010年11月を経た現在に至るまでに江原道府は江原道のタクシーをバイオエターに改修するためのロールを提供する合意を発表した。江原道政府の目的はNGVタクシーを増やすことにある。この合意はNGV 2012（第3回国際NGV会議・展示会）が開催される道庁所在地である春川市で行われた。Gangwon Credit Guarantee Foundation（GGCF）が江原道タクシー協会、NGV改修会社であるNGV I社子会社であるNGV S社がこの合意に調印した。GCGFは改修のローンを保証し、タクシードライバーは一定の期間の利子を免除される。現在、韓国では25,744台のNGVのうち、1,470台が乗用車やLVDである。江原道の4,500台のタクシードライバーはこの合意のメリットだけではなく、政府に燃料代の恩恵を受けることが可能である。CNGはLPGやガソリンよりもそれぞれ30％、50％安い。

これによりステーキホルダーは'Green growth plan'の一部としてNGVを含むよう政府と協議する提案を用意している。

ベトナム

昨年、Vietnam Gas South (PV Gas South)社はCNGビジネスを拡大した。CNG Vietnam Joint Stock Co (CNG Vietnam)の工場の乗用車や乗用車、同社の略性の利益となると発表された。PV Gas South社とCNG Vietnam社の年間CNG販売量は2010年に6,000m³、2015年に2億5千万m³。そして2025年に5億m³になると推定されている。CNGスタンドは建設の投資を増やすためにDung Quat LPG社は資本金増加を650万の株主に提案することを決定した。4月から5月にかけて株式市場において25,000トンで売買された。

タイ

タイの運輸省はバンコク市交通局（BMTA）の調査結果が人々にNGVバスを受け入れさせていることを示している。DBPはDung Quat LPG社は資本金増加を650万の株主に提案することを決定した。4月から5月にかけて株式市場において25,000トンで売買された。

インド

インドの市場調査会社であるBharat Book Bureauによると、政府による支援策が継続されるならば、10%を2013年におけるCNG普及率は16%で増加すると推測している。現在、インドでは未登録車を含めて70万台が普及しており、これらを業界関係者は見ているが、実際には60万台である。5月初旬にSheila Dikshit政務官長が200台のCNGバスの導入を発表した。これらのバスは貸切バスの72路線で発売Express Bus Serviceの一部として利用される。グジャラート州のSaurabh Patel産業大臣は、グジャラート州のすべての公共交通機関をCNGにする計画があると話した。次の2、3年でグジャラート州のCNGコストは倍の150万円になるだろう。インド南部のコーカサス社はCNGバスを導入する。CNGはマツォー・ドータシステムを採用し、ハイデラーバードでCNGバスを改造することがある。インドの_MET_にCNGバスを改造することはできる。（当初は500台）ユーロ3適合バスのみがNGVに改造できる。まもなくインドからユーロ3に適合していない車両はなくなるだろう。

パキスタン

シンド州政府は政府民間パートナーシップによるShahed Benazir Bhutto CNGバスプロジェクトをまもなく開始する。当初、4千台の内、5千台がCNGバスとしてカリチ市に導入される。次第に5千台に就ってしまう。市で4万人が利用している4千台のバスすべてがCNGバスに、あと4千台が他の9都市で導入される予定である。

このプロジェクトの合計投資金額はパキスタン政府の補助金25億ルピーを含めて約35億ルピーである。このプロジェクトで2万人の直接雇用とそれに問い合わせのある雇用の機会が見込まれている。4月に7社が2万から2千94万ものCNGバスを導入する提案に出した。パキスタン・イスラム教徒連盟のZobia Rubab Malik議員は、パキスタンとイスラム社会に、都市内にディーゼルバスを走らせているバンジャラ州政府の政策を批判し、パキスタン議会議事局にディーゼルバスの廃止とCNGバスの導入を提案した。同議員は市警察局が現在のディーゼルバスではアジアでも最大の汚染源である都市にすることを強調した。パキスタンは地球温暖化対策に消極的な国々の一つである。

イラン

世界第5位のガス生産国で170万トンのNGVのあるイランでは昨年4月にテヘラン市で新しいCNGポンプメーカーが創設された。新しいCNGポンプ生産工場は年間10万トンの生産能力があり、需要に対応する。製品ラインアップは直径168mmから1625mmまで、容量が2リットルから130リットルまでである。

イラン政府は2010－2011年度に新しいNGVプログラムを発表した。

NGV普及活動およびその支援は引き続き強く推進される。
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NGV

June 2010

NGVs are gaining traction in Pakistan, as evidenced by the figures below. In 2010, the number of NGVs sold in Pakistan exceeded 23,000 units, a significant increase from the previous year. This growth is attributed to the rising cost of diesel and the government's efforts to promote the use of clean energy sources.

In terms of market share, LPG-based NGVs (CHNGs) continue to dominate the market, with a share of 90%. However, the share of LPG-HDVNGVs has also increased significantly, reaching 10% in 2010.

The highest demand for NGVs is in urban areas, particularly in Lahore and Karachi, where the government has implemented policies to encourage the use of NGVs.

The future of NGVs in Pakistan looks promising, with plans to further expand the market and reduce reliance on imported fuels.
The China Classification Society (CCS) announced its new classification rules for LNG vessels in March 2010. The new rules are expected to take effect in 2011.

**Key Points**
- CCS announced new classification rules for LNG vessels.
- The new rules are expected to be implemented in 2011.
- CCS plays a significant role in the classification of ships.

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**Article Text**

June 2010

**The China Classification Society (CCS)** announced its new classification rules for LNG vessels in March 2010. The new rules are expected to take effect in 2011. CCS plays a significant role in the classification of ships.

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**Article Text**

The China Classification Society (CCS) announced its new classification rules for LNG vessels in March 2010. The new rules are expected to take effect in 2011. CCS plays a significant role in the classification of ships.
LET’S OPEN THE ROAD TO ECOLOGY

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শিশ্নায় বড় NGV প্রকল্পের নতুন সরকারি উদিপনা এবং সক্রিয়করণ

কেন্দ্র : কেন্দ্রগুলির NG-LDVসেভারের জন্য এই সেভ্যেটে একটি CNG এবং LNGর মধ্যে ফিলিং মডেল MD-MD বা একটি পর্যালোচনা করে অন্যান্য HDVs অবিশ্বাস করে মাঝে ছিলো নগ্ন। কিন্তু ভার গড়ে আছে এবং অন্তঃসরকারি সচেতনতা, Hubei Xilan প্রাক্তন গোল্ড কো. নাজিবের LNG জায়গা করার উপর প্রণয়িত করে অন্যান্য একটি দেশরাজির কল্পনা দেবী। দেবী Xilan Bi-fuel ভারী Tug চালানো হয়। ২০০৬ সালে, CNG LNG পাইপলাইন চালু করার জন্য (স্থানী হুইবিঙিঙ হবিগুলি)। সে সময় একটি CEO, Qinan Ji, নির্দেশ দিয়ে গবেষণা শুরু করা হয়, ১২০০ NAN পাইপলাইন চালু করার জন্য নির্দেশ দিয়ে গবেষণা শুরু করা হয়।

ফেটিকা : CNG Chevy ভালো আছে তাঁহাদের সরকারিকরণ করা হয় নগ্ন। এই প্রকল্পের একটি উন্নয়ন করে প্রশিক্ষণ শুরু হয়। এই প্রকল্পের একটি উন্নয়ন করে প্রশিক্ষণ শুরু হয়।

ফেটিকা : PetroVietnam পাইপলাইন (PVGas পাইপলাইন) CNG সদর পাইপলাইন সম্পাদন করে এবং কল্পনাগত ফ্রাঙ্কলিনিকার জন্য প্রণয়িত করা হয়, এবং CNG সদর পাইপলাইনের জন্য প্রণয়িত করা হয়। CNG সদর পাইপলাইনের জন্য প্রণয়িত করা হয়।

ফেটিকা : পেরিপিয়াল সর্গময় প্রথম প্রকল্পের জন্য প্রণয়িত করা হয়।

ভাবনা : ভারতের Bureau, একটি কম্পানির বিশেষায়িত কারণ অনুযায়ী, এই ধরনের NGVs এর সাথে সামনাস্ত্রীয় FY ২০১০-১১ সালের উন্নয়নের মায়া ১৬%এর একটি Compound সার্বিক স্থিতি হয়ে উন্নয়ন করে আনা করা ভালো আছে।

পরিকল্পনা : Sindh সরকার এই প্রকল্পে public-private অধিভূক্ত Shaheed Benazir Bhutto CNG বাজারের লাইসেন্স প্রদান করা হয়, এবং প্রাক্তন ৫০০ CNG বাজারের লাইসেন্স প্রাক্তন ৫০০ CNG বাজারের লাইসেন্স প্রদান করা হয়।

ফিটাক্টা : World's ৮ম বুদ্ধির প্রোটোটিপ, পটিটা 17 7 শত শত NGVs হয়, ভারতের জন্য একটি CNG cylinder প্রাক্তন ৫০০ CNG বাজারে এর উন্নয়ন ১, ০০০ করে উন্নয়ন করা হয়। পরিকল্পনা করা হয়, দুই হাজার ৪০০ ৪০০ buses—for ৪ শত শত বাজারে-এর একটি ১০০০ সার্বিক সর্গময় প্রদান করার জন্য লাইসেন্স প্রাক্তন হয়। ১০০০ এবং ৫০০ CNG বাজারের লাইসেন্স প্রদান করা হয়।

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The new national CNG plan in Iran

**Short history**

CNG projects in Iran were started in 1977 with the conversion of 1,200 passenger cars in Shiraz. In addition, in 1992, 1,200 passenger cars were converted. Afterwards, a newly established organization, the Iranian Fuel Conservation Organization (IFCO) commenced a major CNG project in 2004.

At present, with more than USD 3 billion invested to substitute gasoline in transport sector with natural gas, Iran is considered as one of the pioneer countries in the field of natural gas vehicles with more than 1,820,000 NGVs and 1,255 filling stations (as per 10 May 2010).

Why Iran is one of the most important markets for CNG equipment & related industries?

It is very easy to understand why Iran is a good market for CNG related industries. Iran NG pipelines network covers a very high percentage of cities and rural areas. Moreover, considering huge NG reserves, rapid growth in Iran’s NGV business is guaranteed.

Currently, 1,255 CNG stations are available, while another 900 CNG stations are under construction or planned to be built. This number is surpassing the government target to have more than 1,800 CNG stations by next Iranian year ending on 20 March 2011.

On the other hand, there is a huge plan to develop medium-size stations in many private and public places such as large residential and commercial centres, taxi terminals, large governmental & non-governmental institutions, etc. During the last six years implementation of the plan, from March 2003 to now, Iran promoted the conversion of about 700,000 vehicles to NGVs. Additionally, Iran Khodro Co. and Saipa Group –the two biggest automotive manufacturers in the country- have produced more than 1,100,000 OEM NGVs during past three years (March 2006 - May 2010). This statistics show how many components are required in Iran annually: CNG cylinders, kits and CNG station equipment.

**Latest alteration in CNG plan**

From January 2010, the Iran minister of oil order has allocated Iranian Gas Khodro Co.-IFCO’s tasks and responsibilities to manage national CNG plan to the National Iranian Oil Products Distribution Company (NIOPDC). NIOPDC has more than 40 years experience in the fields of engineering, procurement, construction and operation of gasoline and LPG stations. Also, the above-mentioned decision was made because NIOPDC has proved that it has successfully managed the construction of 800 dual purpose-CNG and gasoline fuels-stations, and operates more than 550 units of these stations. Nowadays, all duties related to CNG sector such as development and instruction of filling stations and vehicles conversions to CNG system have been given to NIOPDC.

The most important issues that NIOPDC is working on are listed below

1. Within the new plan, the government offers up to 90% subsidies to cover the expenses of converting taxies and public vehicles to CNG system. The subsidy could cover the conversion of up to 150,000 vehicles.

2. In the CNG stations segment by private sector, as before, the NIOPDC will manage the provision of 100% subsidy for the stations’ main equipments, which include dryers, compressors, dispensers, and priority panels.

Furthermore, the government offers dual-purpose (CNG and liquid fuels) stations a long-term loan to cover over 70% expenses of gas and electric as well as civil costs. No interest is imposed on this loan.

3. Price of CNG, at 0.027 Euro/m3 has been stable during the past 18 months. However, Iran parliament has issued a decree that forced the government to stop subsidizing fuel. This new regulation will cause a huge increment in fuel prices and price of CNG is expected to increase up to four times.

4. After successfully using Smart Fuel Cards to lower the purchase of traditional fuels for transport, that led to a decrease in consuming of more than 20 million litre gasoline and diesel per day, the NIOPDC is planning to create ‘Energy Cards’ for NGVs. With the issuance of Energy Cards, drivers, must use this card when refueling in both CNG and gasoline stations.

It can help the government to see the fuel distribution and check the share of consumption of each fuel. The good
news is that the cards will be issued only to legally converted vehicles. This way, the authorities have a control on the safety aspects of the vehicles. Thus, safety for NGV drivers and passengers is more guaranteed.

Nowadays, an NGV database, information net hardware and software system has been developed. Card reader devices are also being installed on CNG dispensers. The system is expected to keep up and running in the immediate future.

5- Finally, one of the most important projects that NIOPDC is working on is the expansion of existing CNG stations in big cities especially in Tehran.

As there is not enough space in Tehran and considering the land allocation rate in big cities, after an investigation on existing CNG stations’ performance versus fuelling demand, 25 CNG stations in Tehran plus another 21 units in other 4 big cities were selected to be further developed. With this, these five cities will increase its fuel dispensing capacity by 25% from 204,000 m3/hr to 256,000 m3/hr.

Iran NGV 2010

Following its 2008-2009 events, Iran will hold “The 3rd International Conference and Exhibition on CNG” on 18-20 September 2010. The event will be organized by Hamayesh Sanat Institute, which also works as the Iranian permanent secretariat of CNG, National Iranian Oil Refining & Distribution Co. (NIORDC). The event is also endorsed by ANGVA and IANGV. Asian NGV Communications, the official media partner of this expo, will also be present and distribute its magazine in this event. It is expected that this conference and exhibition would provide domestic companies with the knowledge of international markets and help foreign manufacturers and investors to enter Iran’s CNG market.

By: Alireza Rahnama, Iranian Permanent Secretary of CNG (Hamayesh Sanat Institute) and Mahmoudreza Bagherbeik, Project Controlling & Planning Expert of CNG Plan / National Iranian Oil Products Distribution Co. (NIOPDC)
Iron ore price increase versus exports of steel-based products

Following an article on iron ore's price increase published in Asian NGV Communications May edition (page 19), stakeholders of steel-related industry around the world are concerned about the fact that the new pricing structure will delay global economic recovery. Iron ore is the main raw material of steel.

As previously reported, global steel prices are anticipated to hike to a third as price of iron ore is expected to go up between 80-100%. In fact, Brazilian iron ore miners Vale has closed a deal with Japan's third-biggest steelmaker Sumitomo for iron ore delivery in April-June at a cost of USD 100-110/tonne. Vale is the world's largest producer of iron ore.

Meanwhile, the second largest iron ore miners, the Anglo-Australian BHP Billiton, is set to tag its product for the April-June quarter at USD 120/tonne. An additional USD17/tonne compared to the average freight differential in the first quarter of 2010.

The third miner, British-Australian Rio Tinto Group, is about to make a formal announcement on this year's supply contracts. The big boost in price will effect producers and consumers of any product that requires (a substantial amount of) steel to be produced. A wide variety of industries will be affected, including automotive industry. This would be a gain of almost 100% compared to the old contract price according to a Merrill Lynch analyst.

As biggest iron ore miners, the three companies have shaken the world with their move towards a new pricing structure: an increased price tag up to 100% and a global pricing strategy (normally, benchmark prices are set annually between the suppliers and individual steel mills). Moreover, despite of the commonly practised annual contract, recent deals with Asian buyers were closed on a short-term basis: in a quarterly period instead of annually.

On the other hand, things are looking up in Asia. Mergers and acquisitions (M&A) during the first quarter 2010 boomed especially in Asia as American and European companies sought for other markets to maintain their businesses. Unlike the slow down in America and Europe, M&A volume in Asia went up, showing a global shift in activity due to the global credit crisis. The value of global M&A in Q1 of this year rose by 6% to USD 442 billion, of which USD 89.4 billion were made with Asia-Pacific excluding Japan, almost 93% bigger than those in Q1 of 2009.

We are yet to see the Asian and global trade-result for Q2 and Q3 after the increase of iron ore price came into effect. The European Steel industry body, Eurofer, noted that three companies controlled almost three quarters of the world market. Eurofer urged EU regulators to respond on this movement based on “unfair competition and excessive pricing” in the iron ore sector in the wake of European economic recovery.

China, which imports around 50% of this raw material of steel, would be highly effected. This is also one of the reasons why China steel makers made a short-term contract for buying this material, anticipating a further price increase.

India, also a big (automotives) producers and exporters, would feel the hit. B. Muthuraman, vice-chairman of Tata Steel, said that Tata is facing a big challenge to curb its end product price increase. Iron ore are 100 percent imported in Tata Steel's European operations, which accounts for roughly 50-55%of its overall turnover.

However, Tata Steel is at lower risk than Chinese steel companies because its operations in India and other Asian countries are self-sufficient or based on waste steel, which generates higher profits than its European operations, he concluded.

The challenge does not only come from the raw material price increase controlled by external factors (companies), but also internally from Indian government. The Indian Steel Ministry is considering creating a uniform 20% levy on all iron ore products to curb the exports of this material.

Recently, the minister imposed a new tax structure: 5% duty on import of iron ore fines and 10% on high-grade iron ore lumps (doubled from its previous duty). The Finance Ministry will maintain the 5% duty difference between the iron ore fines and lumps.

The Federation of Indian Mineral Industries worries that the increase in export tax would have a negative impact on exports. Last year, Indian iron ore exports went up 21% in volume from April-October.

The impact on the NGV segment

How far would it influence our industry?

As mentioned above, on a global basis, Chinese and Indian, even Japanese companies (steel makers) are some of those that will feel the hit.

Moreover, around the world, CNG compressors, dispensers, steel pipes, even valves and other small components utilise steel/iron in their making. In the automotive segment, apart form the vehicle frames/body, engines, and accessories, those using CNG cylinders—especially type 1 and 2—as well as LNG tanks would be highly affected.

We might see price changes in many sectors soon. Nevertheless, some producers are reported to do their best to curb the price increase of their end products.
Good news for gas distribution companies and pipeline builders in India. As per April 9th this year, investors who wish to build gas infrastructure both for pipeline natural gas (PNG) and compressed natural gas (CNG) for vehicles can obtain project financing from the Reserve Bank of India (RBI).

Before this, only construction of pipelines for crude oil and petroleum products were covered under the RBI guidelines for infrastructure lending.

In January, Petroleum and Natural Gas Regulatory Board Chairman, Mr L. Mansingh, had written to the RBI Governor, Mr D. Subbarao, that City Gas Distribution Network needs to be considered as an integral part of the infrastructure facility, aiming at better gas distribution to end users.

In April, RBI amended the definition of “infrastructure lending” to include “pipelines carrying minerals and city gas distribution networks”.

Maharashtra Natural Gas Limited (MNGL) opened its first mother station in Pune City at Pune Mahanagar Parivahan Mahamandal Ltd. (PMPML) depot in Shivajinagar. This took place in May after conducting 10-days trials. Shivajinagar is located in the heart of Pune and is the most important area for the city. Drivers of around 400 PMPML buses will be benefiting from this fuelling facility.

A greater gas pipeline infrastructure for CNG and PNG is being installed at the moment. MNGL is working on a new plan for the distribution of gas from the mother station to other retail CNG outlets (daughter stations) at Shivajinagar and the neighbouring area.

Pimpri, the third fuel dispensing service for NGVs is now available in Shivajinagar. The gas stations in Pune district will cater almost 40,000 CNG autorickshaws.

The Shivajinagar station is equipped with two CNG compressors capable of dispensing from 1,200 Sm3/hour with a total delivery capacity of 48,000 kg of gas per day. With the Chikhali station already having a capacity of 60,000 kg/day and the Sant Tukaram Nagar 25,000 kg/day, the total installed CNG capacity in Pune district would be 133,000 kg/day.
Andhra Pradesh and Gujarat continue to build CNG stations and convert vehicles

Hyderabad to introduce CNG buses

The Andhra Pradesh Transport Department (APSRTC), the largest bus transport system in the world that belongs to the Andhra Pradesh State, is planning to further adopt 500 CNG buses for the Road Transport Corporation (RTC) services, in line with the RTC Vijayawada region that has successfully incorporated NGVs in its fleet.

Soon, 500 diesel buses in three depots of the RTC city region will be converted to CNG mode, aiming at a cheaper fuel cost, smoother ride, and less pollution emission.

After seeing the benefits Vijayawada gains from running NGVs in its public transport, the state’s Road Transport Authority (RTA) wishes the Hyderabad city and surrounding areas to also enjoy the same benefits.

In this case, the Bhagyanagar Gas Company (BGC) will be supplying CNG from Vijayawada to Shameerpet village in Rangareddi district (near Hyderabad district). The gas is delivered starting using Daughter Booster System (DBS) this month. From Shameerpet, the fuel will be transferred to eight private filling stations of the RTC, in Hyderabad city.

Already, there are six other CNG filling stations in the twin cities Vijayawada and Guntur.

Initially, buses to be converted to NGV mode in Hyderabad district are those from the Hakimpet, Ranigunj and Kukatpally bus depots. Only EURO 3 compliance buses can be converted to CNG technology. Non-EURO 3 compliance vehicles are planned to be phased out over a period of time.

Upon a success implementation of this project, the RTA would gradually install CNG kits in 3,000 buses to serve Greater Hyderabad. At a later stage, CNG will be made available in all bus depots in Ranga Reddy.

Training sessions on the CNG system for drivers and mechanics of the RTC will also be organised.

Presently, BGC offers natural gas at Rs 35/litre in Vijayawada. The transport department and BGC signed a MoU regarding gas quota and price for Hyderabad.

Vijayawada is the third largest city in Andhra Pradesh state (south-eastern coast of India). The city is located in the Krishna District, about 275 kilometres from the state capital Hyderabad.

Two new stations from Gujarat Gas

Gujarat Gas currently distributes CNG to over 115,000 vehicles through 33 dispensing stations.

The firm informed that during the first quarter of this year, more than 5,700 vehicles were converted to CNG in its operational areas (Surat, Ankleshwar and Bharuch). Two new CNG stations were added during this period.

Potential NGVs adoption in Maharashtra port

Recently, union minister of shipping GK Vasan announced a plan to make Jawaharlal Nehru Port a green port that would involve the installation of wind and solar power units, usage of CNG vehicles in the port area, water harvesting and forestation, etc.

According to industry and trade people, this would be a big challenge as it could be very difficult to implement this green initiative.

The APSRTC runs a fleet of 19,000 buses, the largest in the world. Hyderabad has the third largest bus station facility in Asia, with 72 platforms for 89 buses to load passengers at a time.
Oil price and gas price update

From the London ICE Brent’s “kitchen”, oil prices auctioned on May 3rd for June 2010 delivery showed high-and-low price of 89.58 - 87.16 USD per barrel (Brent Weighted Average <BWAVE> at 88.55 USD/bbl).

The average/BWAVE for July contract was 89.50 USD/bbl. The price for December 2010 delivery is 92.54 USD/bbl, 93.77 USD for June 2011, 95.16 USD for December next year, 96.55 USD for December 2012, 97.50 USD for December 2013 delivery.

Prices continue to go up and reach the 100.55 USD level for oil delivery in January 2017. Oil for December 2018 contract costs 102.27 USD/bbl.

Below are some examples of other oil prices references*. In the NYMEX market, the June contract for benchmark US light, sweet crudes was sold at 85.17 USD/bbl on April 29th. The July contract increased to 87.25 USD/bbl.

On the US spot market, WTI crude oil price increased by 1.95 USD to 85.17 USD/bbl.

The average price for OPEC’s basket of 12 reference crudes traded on April 29th was up by 1.46 USD to 83.59 USD/bbl. The June delivery traded at London Brent on the same date as above (April) was sealed at 87.08 USD/bbl.

In contrast, the June natural gas contract for the US dropped by 0.368 USD to 3.98 USD/MMbtu on NYMEX. On the US spot market, gas at Henry Hub, was down by 0.105 USD to 4.11 USD/MMbtu.

Unlike oil, there is no official international reference price whatsoever for natural gas according to Flavio Mariani from ENI Gas & Power Division. (So the NG price given above is simply an indication of gas cost in certain markets).

However, as a reference, update figures about the price of gas on subscription basis can be found at www.icis.com/heren or http://www.platts.com/
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Natural gas: the history and progress

The story of natural gas (NG) goes back to thousands of years ago. In 500 BC, the Chinese used NG to turn seawater into drinking water. In Victorian time in England, they used it to power streetlights. In 1860 Belgian inventor Etienne Lenoir created the first NG engine. The Russian and the US introduced NGVs in the 30’s. In Italy, the first FIAT car was converted to NGVs by Tartarini in 1943 in which two small CNG cylinders were installed on top of the car roof. That was the common practice at that time. Interest in using NGVs intensified in the early 1950.

It took around 150 years since its earliest invention in 1860 for NG motor to steal people’s attention and get around 1.3% of all vehicles (equal to 11.3 million NGVs) to be powered by NG in approximately 85 countries around the globe (out of 195 countries worldwide). The number is quite modest compared to the adoption of gasoline and diesel vehicles that took 120 years to get 99% of cars, buses and trucks to run on either of these fuels from its first engines inventions in 1892 (Rudolf Diesel for diesel motor as well as the inventor of gasoline engine Gottlieb Daimler and Karl Benz, all from Germany).

Yet, the future of NGVs is promising. In China, nowadays around 500,000 taxis, cars, buses and trucks use NG engines. In the UK almost 300 MD-HD trucks run on dual fuel diesel-LNG with more vehicles expected to be powered by LNG and CNG (with dedicated, dual fuel, or bifuel mode) especially since biomethane production was started recently. Italy has almost 677,000 NGVs and around 100,000 units are plying in US roads. Germany has 85,000 NGVs. While Greater Asia alone has 6.1 million of these vehicles. According to Pike Research study, oil producing countries could become the largest market for NGVs (Latin America, the Middle East, and Africa). As per IANGV’s projection, Iran would soon be no. 1 nation in this segment.

Looking at the statistics and related trends, Asian NGV Communications believes that the Middle East and Asia will remain as the most attractive markets in the medium term (up to around 10 years), Latin America will remain as a big market. And only with the right support, SOME African countries, especially those with gas fields, hold a good potential too although currently they have a modest 330,200 NGVs in their fleet.

The facts show that not all countries with big gas production capacity have become big adopters of NGVs. In fact, from the world biggest gas producers, only Iran (5th producer with 116.3 billion cubic metres <cbm> gas) and China (11th producer with 76.1 billion cbm) are listed on the top-10 NGV countries.

The biggest gas producer, Russia, is the 14th in the rank with 100,000 NGVs. Second and fourth gas producers, USA and Canada, have around 100,000 and 12,000 NGVs respectively (no. 16 and 27 on the NGV list). Obviously there is a big potential in those 3 countries SHOULD the government and/or private companies support this segment more aggressively. The third gas producer, a compilation of the European Union (excluding UK, the 13th gas producer that has less than 300 NGVs), has 875,000 natural gas vehicles.

In fact, main NGV nations are there mainly because of, first, a sound and sustainable government support which was then followed by strong involvement by private sector—the investors. Later, this would lead to the establishment of manufacturers of related equipment and OEM NGVs for both domestic and export markets (all the top-7 countries: Pakistan, Argentina, Iran, Brazil, India, Italy and China.

With the exception of the 24th country, South Korea, with just over 23,000 NGVs and 157 stations but it produces and
exports a wide range of NGV/station equipment. While its Hyundai bifuel cars are produced and sold in several overseas markets in Asia).

Second, putting aside the chicken and egg problem and investing in sufficient network of filling stations. In this case, “network” refers to number of stations compared to the area covered where NGVs are operated.

Bangladesh has 200,000 NGVs with only 500 stations while USA which has 816 stations and only 100,000 NGVs as the country is much bigger than Bangladesh. All the top-11 countries have more than 400 stations with the exception of Ukraine (no. 9 with 200,000 NGVs) that has 283 stations.

Other exception is Germany which invests a lot in station segment with 863 stations for 85,000 vehicles, aiming at rapid growth in the vehicle sector once the targeted 1,000 stations are in place.

The third one recently emerges; to ensure the sustainability of NGV adoption/business, fuel supply needs to be guaranteed. It applies both for the pressure and quantity of gas. In some countries in Latin America and Asia, NGV adoption slowed down as gas supply went down or insufficient.

The quantity should be enough for all segments: industrial, housing, and transport. In Bangladesh, India and Pakistan, this—and the shortage of power/electricity supply--has led to temporary closure of some CNG filling stations.

As you can read in this edition’s main editorial “New government incentives and activation of big NGV projects in Asia”, various big NGV projects and government incentives in Asian countries continue to be implemented and offered.
The Growth of OEM NGVs in Thailand

**Development of after market’s converted OEM NGVs**

The growth of NGVs in Thailand started with the after market’s converted NGVs of local CNG workshops by piloting an NGV project with five converted CNG buses with no prominent progress during 1984-1992. During 1993-2004, the oil prices were still low. Nevertheless, Thai government has given support to purchase almost 100 OEM dedicated CNG buses and launched the promotional programs for 10,000 converted taxis with the installation of 12 NGV stations. Then, CNG became the alternative fuel of choice to cope with the high and volatile oil prices since 2005. The high world oil price affected the continuous increase in the number of accumulated NGVs in Thailand from 25,000 NGVs in 2006 to 56,000 NGVs in 2007 (55% increase compared to the previous year) to 130,000 NGVs in 2008 (56% increase) and 160,000 NGVs in 2009 (21% increase).

Thai NGV market became the battlefield for many automobile manufacturing companies for selling OEM and retrofitted NGVs (NGV variants). This is also made possible thanks to the high increased in the crude oil price that peaked at 140 USD/barrel by midyear of 2008 (at the time, diesel cost 1.39 USD/litre) from only 51 USD in 2007 (0.71 USD/litre of diesel), while the CNG was sold at 0.25-0.29 USD/kg during 2002-2004 and fixed at 0.26 USD/kg from 2005 until present.

In addition, the government has also given support for tax incentives by exempting import duty for CNG cylinders and conversion kits, dedicated NGVs with new engines, imported Complete Knocked Down (CKD) bus chassis and passenger vans. It also reduced excise tax for OEM passenger cars, minibuses and the making of NGV variants outside manufacturing plants, and reducing road tax for NGVs.

The proportion of OEM in the NGV market share grew tremendously from 2% in 2007, to 11% in 2008, 21% in 2009, and 55% for January – April period of 2010. The current accumulated number of OEM NGVs (as of 31 April, 2010) is 24,000. This indicated the success of OEMs in Thai NGV market.

**Market of OEM LDVs**

Most LDV customers gave importance to safety and warranty from automobile manufacturers, because no warranty is extended for brand new vehicles installed with CNG kits in local CNG workshops (no warranty for NGV variants). While OEM NGVs are offered with warranty for chassis and engine. Like other automobiles from the factories, the auto-manufacturers provide 3 years or 100,000 km warranty for OEM NGVs.

1. Mercedez-Benz, the only luxurious automobile company, pioneered the NGV market. In 2005, Benz E200 NGT was imported to be sold in Thailand. Then, they were manufactured directly in Thailand (OEM) with 4 cylinders (gears), 1,800 cc. gasoline engine, bifuel system with 107 litre water-capacity of four CNG cylinders.

2. Chevrolet CNG started to enter the market in 2007 by working with local CNG conversion workshops. Brand new vehicles produced/assembled in
the factory is sent to conversion centres in the last stage of production to be equipped with CNG kits. Chevrolet became the leader in the segment in which 70% of the total market is held by this firm in 2008 (equal to 5,500 NGVs). They proposed NGVs for 3 models, Optra 4 doors, Estate 5 doors with 1,600 cc. (bifuel system) and Colorado pickup with 4 cylinders, 2,500 cc. common rail diesel engines with DDF (diesel duel-fuel or disel/CNG system).

3. Mitsubishi Lancer CNG variant is also developed by a local CNG company (retrofit centre). Its features consist of 4 cylinders (gears), 1,600 cc., bifuel system, 60 water litre of type 2 CNG cylinders which is covered by fiber (a lighter cylinder than they type 1 steel cylinders).

In March, 2010, the company just unveiled Mitsubishi Triton CNG pickup with a new bifuel system (compatible for benzene or Gasohol E20 and CNG). The new model is available in Single cab (120 water litre cylinder) and Mega cab (100 water litre cylinder) with a lightweight type 2 CNG tank.

4. At the end of 2008, Toyota Corolla Advance CNG, bifuel system (OEM), which is fully manufactured in the factory, initially targeted the taxi market and then extended to the customer segment of cars. Then, Toyota Hilux Vigo Pickup has been developed by a private local company (done by retrofit centre), 2,700 cc. gasoline engine, being the second one in the CNG pickup market in the form of one stop service. They got 37% of the OEM LDVs market share in 2009 and won the highest proportion of OEM at present with approximate 700-800 NGVs/month.

5. Hyundai and Proton also penetrated the market with Hyundai Sonata CNG (retrofit) with Bifuel system in the medium car segment and Proton Persona CNG (Retrofit) from Malaysia in the form of Sport Sedan with Bifuel system. Both Hyundai and Proton were retrofitted by local private companies.

6. TATA Xenon Super CNG (OEM) entered the market at the end of 2008. The Indian pickup Xenon has a dedicated CNG system, 4 cylinders (gears), 2,092 cc. and two CNG cylinders of 60 and 40 water litres placed on a chassis under the pickup.

Market of OEM HDVs

Due to the hike of diesel price in 2008, transport entrepreneurs started to get interested in using CNG. And particularly in the time of economic recession, the interest increased. They underlined the importance of saving in energy expenses. In Thailand, CNG costs only 28% of the current diesel price.

The OEM HDVs in bus, truck and trailer segment were initiated by importing from China. At present, the two manufacturing companies entered OEM HDVs market in Thailand.

1. Hino (OEM) proposed 2 models, FG1JPKA 6-wheels truck with 220 HP and FM1JKKA 10- wheels trailer with 260 HP. Hino approach the market under the concept of SAVE SAFE CLEAN vehicles that have the same power as diesel engine, safety while offering the highest cost efficiency at the same time.

2. Isuzu (OEM) super truck CNG – MPI, 6-wheela truck, putting emphasis on MPI system, is offered 3 models, 4HV1 with 4,570 cc and 130 HP, 6HF1-TCN with 7,790 cc and 220 HP and 6H1-TCS with 7,790 cc and 245 HP.

In conclusion, many OEM companies have shown an increased roles in enhancing the end users confidence in NGV segment. The OEMs offers vehicle owners economic and safety in using CNG fuel itself and vehicle warranties. This has helped the OEM NGVs market in Thailand to make a big leap in adopting NGVs. It is believed that this will continue to progress, especially in commercial and transport sectors.

By: Punnachai Footrakul, Marketing Manager NGV Department, PTT Plc., Thailand
In early May, Bajaj Auto launched two new passenger three-wheelers, RE 205D and RE 205M. Both will be available in CNG variants and sold at Rs.127,300 and Rs.136,840 (ex-showroom Delhi) respectively.

Bajaj Auto also aims to launch a new small-passenger-car within the class of Tata Nano by 2012. The car will have a similar price tag as Tata Nano of around USD 2,500 but better fuel efficiency.

Bajaj Auto will team up with global auto giant Renault Nissan to develop this vehicle.

The target market is three-wheelers owners who would move up to four-wheeler vehicle. For this purpose, Bajaj considers that these consumers will buy four-wheelers on one main condition: the monthly operation cost must be affordable. This represents the price, the mileage and the maintenance.

According to the firm’s experience, to attract those three-wheelers owners to buy a car, the vehicle must offer 50% more efficiency on either power or mileage. Thus, the fuel consumption in this small car class needs to be increased from the currently available 17-18 km/litre to at least 30 km/litre.

Meanwhile, Tata plans to introduce the Nano in the European market by 2011.

The company is also considering rolling out the CNG version of this vehicle.

Russian Onexim to consider another location to produce the future bifuel LDVs

Following the previous article on new OEM NGVs to be made by Onexim Group in Russia, new information from the company revealed that the vehicle would be powered by bifuel gasoline/NG.

Looking at the type of vehicles of choice, which now reported to mainly consist of LDVs (van, sedans, compact SUVs, even the possible light-duty trucks), the fuel to be used in these new OEM NGVs would be CNG instead of the reported LNG.

The company, presided by Mikhail Prokhorov, is now considering other city as the possible location of the manufacturing plant. Apart from the previously chosen city, St Petersburg, now Togliatti (home of automaker AvtoVaz) is mentioned as the second option.

The construction of this plant would be started in 2011 and by late 2012 a full-scale production with a capacity of 10,000 vehicles annually would be attained.

The upcoming bifuel car is expected to have a modest 70 horsepower capacity with a total weight of 1,540 pounds (around 700 kg), which is claimed to be around 40% lighter than any other small vehicles presently produced.

This would be made possible by using 220 pounds (100kg) lightweight aluminum welded frame that would be clad with basalt fiber panels.

The company aims to create a single chassis that could be fitted to the whole vehicle range, from cars to mini trucks, as mentioned above.

Industry analysts believe that Onexim needs to see two main factors to guarantee the success of this project sale. First, the vehicles must have a driving range of 300-400km on one fuelling. Second, those vehicles need to be initially launched in Russia’s largest cities.

Regarding the fuelling infrastructure, there are 249 NG filling stations available in Russia including Moscow City. The total NGV fleet in this nation is 100,020 units.

Asian OEM NGVs in Latin America

Chinese CNG minibuses in Bolivia

Bolivia is set to introduce CNG minibuses soon. These minibuses will be imported from China by Santa Cruz unionized carriers.

During the introduction, the vehicles that will ply Santa Cruz de la Sierra have an automatic transmission, low floor and smart card reader.

With USD 120 million invested in the programme, at least 6,000 units of these vehicles will be ordered to enrich Colombia’s NGV fleet.

The Confederation of Drivers of Bolivia hopes that the government will offer access to credits and zero customs duties.

Meanwhile, the National Program of Natural Gas Vehicle Conversion (NGV) was officially launched in Cochabambina in April. Around 4 licensed workshops and 24 companies will be involved in the re-qualification and replacement of cylinders.

Around 15,000 public and private transport vehicles are expected to benefit from this free-conversion programme.

By May last year, this country had almost 123,000 NGVs and 128 CNG filling stations.

Korean Hyundai in Colombia

The Korean main automaker Hyundai Motors Company has introduced its bifuel Hyundai Atos and Accent in the Colombian market. Local installer will install the CNG kits in these cars. Initially, the vehicles will be used in taxi fleets.

As per the OEM’s estimation, around 50% savings on fuel costs can be gained by operating these taxis on CNG. The fuel savings from the country’s total NGV fleet could reach up USD 5 million in one year.

Presently Colombia has 230 CNG filling stations in the capital city and provinces around it. After some 23 years incorporating NGVs in Colombian roads, nowadays, almost 305,000 of these eco-friendly vehicles are running in this country.

For more information, contact asia@ngvgroup.com or peru@prensavehicular.com for Bolivia and pvcolombia@ngvgroup.com for Colombia.
During the April 2010 SAE World Congress, researchers from the University of Strutgard's Institute of Internal Combustion Engines and Automotive Engineering presented a paper on the optimization of a natural-gas engine for a parallel hybrid powertrain. This is possible by using an oversized turbocharger with and active waste gate control and an EGR.

This kind of research/technology has been initiated by various companies since 2006. IVK, FKFS, Robert Bosch, and Opel were already collaborating with a natural gas hybrid vehicle project funded by the German Federal Ministry of Economics and Technology.

The study aims at achieving lower CO2 reduction while maintaining the good performance of the engine. In this case, the engine operations are shifted to higher loads which in turn also helped to make the machine’s brake specific functions more energy efficient.

By using a hybrid power train layout, possibilities for a turbocharged ICE became broader. This will improve the efficiency of the whole range operation. The active waste gate control also contributes by improving the machines performance on all speeds. The basic underlying principle of the methods that were implemented is this: they minimized the pumping mean effective pressure (PMEP) to increase the engine's fuel efficiency.
Romano’s system gets the homologation for Euro 5 vehicles

Homologations for CNG systems on Euro 5 vehicles were successfully completed. At Romano testing center c/o Romano plant in Pomigliano d’Arco, in the presence of technical staff of Ministry of Transportation, R 115 homologations for CNG systems on Euro 4 vehicles have been carried out on injection cars by Chevrolet, Volkswagen brand.

Romano Srl is the first Italian manufacturer who had his systems homologated for Euro 5 vehicles according to Government directives for all car manufacturers.

The Neapolitan company leads the way with regard to investments on research and development field. Data issued by CED, Electronic Data Processing Centre of Ministry of Transportation, confirm a positive trend in Mr. Antonio Romano’s company growth. Compared to 2009 data, in fact, in the first quarter of 2010 Romano Srl won +5.5% consolidating his third place among the Italian manufacturers.

Via Passariello,195 80038 Pomigliano D’arco (Napoli) Italy - Tel +39 081 884 72 18, fax +39 081 803 83 60 commercial@romanoautogas.it; www.romanoautogas.it

All in one – WEH refuelling sets for natural gas

WEH can now offer complete refuelling assemblies consisting of a fuelling nozzle, hose and breakaway coupling ready for installation at fuelling stations for buses, trucks and cars. The sets can be assembled to customer specification, for example various lengths of filling hose, fuelling nozzles for various applications and breakaway couplings. The breakaway couplings can be assembled for installation directly to the dispenser or as an ‘inline’ part of the hose assembly.

The individual refuelling components feature high flow rates, short filling times and are made from high-grade materials. WEH sets are designed for CNG fast filling of vehicles at self-serve fuelling stations and meet the requirements of the Pressure Equipment Directive PED97/23/EC.

WEH Gas Technology - general information:

WEH has been a pioneer in the field of alternative fuels since 1986. They laid the foundation for the worldwide NGV1 standard by developing a complete range of products for NGV refuelling: from receptacles and check valves in vehicles to fuelling nozzles, filling hoses, break-aways and filters for fuelling stations. Nowadays WEH is a leading manufacturer of refuelling systems and partner to many automotive manufacturers. The products are ideally suited to self-service operation. Safety, ease of operation and the well executed design of WEH products have led to widespread customer acceptance and are a major step in the development of alternative fuels. WEH is certified to ISO 9001.

Contact:
WEH Gas Technology
Siemensstr. 5
89257 Illertissen / Germany
email: ngvsales@weh.com
www.weh.com
Who we are:
▶ Designer, manufacturer, developer and supplier of products and technology for the automotive industry in the field of LPG/CNG/other alternative fuels.

What we offer:
▶ NGV/LPG Parts & Accessories
▶ Sequential Gas Injection System VERSUS
▶ Other GAS accessories for cars
▶ Personalized solutions for B2B customers in the area of Sequential Injection Systems.
▶ Group of engineers’ knowledge in the area of micro-controller’s application
▶ SMD/CNC production services

Targets & mission:
▶ to discover other alternative fuel possibilities to support the environment
▶ to improve the quality of life whilst still offering improving digital application technology

Conoflow® Series HPNGV

Best-in-Class Compressed Natural Gas Regulator for Heavy Engine Applications.

The ITT Conoflow HPNGV2 Series Fuel Regulator has earned a reputation for Best-in-Class reliability and performance. Over a decade of service in the most demanding applications has proven the HPNGV Regulator is the choice for OEM vehicle, engine and fuel systems.

Certified to ECE R110, the HPNGV Regulator is proven to be a safe and reliable pressure control element. The New HPNGV3 Series CNG Regulator incorporates the same robust design and manufacturing characteristics as the HPNGV2 Series, and offers improvements in value with an optional inlet sensor and/or solenoid (high pressure shut-off) integrally mounted into the regulator.

Over a decade of service in the most demanding applications has proven the HPNGV Series Regulator is the choice for OEM vehicle, engine and fuel systems. Certified to ECE R110, ISO15500 and NGV3.1 Certifications are pending.

For more information on products and services please visit www.conoflow.com
ANGVA Board Meeting, 2011 event, and collaboration with Asian NGV Communications

On May the 12th, ANGVA held its Board Meeting in China Automotive Technology and Research Center (CATARC) office in Beijing, China. Through CATARC, China was chosen as the host country for ANGVA2011 conference and exhibition. The event will be held in China National Exhibition Center in Beijing on 18-20 October next year.

Answering Asian NGV Communications question on the appointment of the host country, the ANGVA executive director Lee Giok Seng said,” China is a big NGV market and has an important position in our industry. And this market continues to grow. Already for sometime ANGVA wants to be significantly present in China. But the election was not made based on this reason.

Host country was elected through an inclusive bidding process. And China won this because, amongst others, it is a major NGV country that still holds a lot of potential to grow even further both in terms of market size and technology. Also, it recognises the importance of alternative fuels vehicles including those powered by CNG and LNG. The government—key ministries as well as many municipalities—support the development of this industry in China. The private sector--especially component and NGVs manufacturers--aims to expand their market, both locally and internationally.

We are very glad that CATARC has joined the bid. And we thank them for it.

Private event organizers in China have been holding several CNG related exhibitions for several years. However, this ANGVA2011 will have something more to offer and to distinguish it from those past exhibitions. Focus will be given to having more foreign companies in the exhibition. It will give the opportunity and the right platform for more foreign companies to be present and to display their products in China. Nevertheless, the association also recognises the inevitable importance of having local participants in this event.

We will have an agenda and strategy to accommodate the participants, particularly the exhibitors, and to facilitate them in an excellent manner. As usual, the conference will cover various aspects of the industry as well as update market information from various Asian countries and the region as a whole. This will be an event-to-be for all NGV stakeholders who have interests in Asian and NGV market”

On the other hand, CATARC has booked 110,000 sqm-space to accommodate this event. Willis Guan from CATARC said that major government departments have given their endorsement for the implementation of ANGVA2011. Those government offices which have been supporting NGV industry and/or this event include the Ministry of Science and Technology, Ministry of Industry and Information Technology, and the National Development and Reforming Commission.

The signing ceremony of the appointment of ANGVA2011 host country was done at the same date in the CATARC office in Beijing.

Few days later, and CATARC inked a collaborative agreement to promote this event. ANGVA2011 will be present at the NGV2010 Roma exhibition and conference organized by the NGV Communications Group.
Fuel Systems Solutions’ Q1 revenues and stock value increased a lot

Systems Solutions (FSYS) in May announced that the firm’s stock value has exceeded its expectation (USD 0.92 per share) as the value went up by nearly 300% from the same quarter of 2009, now reaching USD 1.59 per share. Revenues also more than doubled from a year ago Q (quarter) to USD161.70 million.

FSYS is expecting to have another strong quarter due to an increase in demand because of expired Italian subsidies for CNG vehicles, although later it would be leveling off.

The company has made several acquisitions in the recent years, focusing on CNG-related business. Several companies incorporated in its portfolio include BRC, IMPCO Automotive, GFI, TA Gas Technology and Zavoli that offer bi-fuel vehicle conversion technology, in-house capabilities for systems integration, testing and certification.

IMPCO and GFI are claimed as world leaders in alternative fuel systems for the industrial market. These companies have been providing alternative gaseous fuel solutions for industrial use: mobile equipment, stationary engines and power generation.

In the fuelling sector, FSYS has BRC FuelMaker and FuelMaker Inc that provide CNG fuelling management (compressors, dispensers, etc) and home refuelling system, respectively. BRC FuelMaker also offers complete turnkey solutions to fleets as well as individual customers.

Visit: http://www.fuelsystemssolutions.com/default.asp

ANGVA’s priority on the technical issues

During the ANGVA Board Meeting, the Chairman of the Technical Committee of this association, Brenda Smith, raised a question on what members see as the prime issue in the technical segment that needs to be tackled by this committee. The member found that priority should be given to the safety aspect of CNG cylinders.

Brenda Smith, ANGVA Chairman of Technical Committee with her colleague from Gas Advisers while visiting Asian NGV Communications’ stand at NGV China 2010 exhibition

It was then decided that—apart from giving safety workshops to all interested parties (that has been done several times during the recent years)—the association will organize a “Cylinder Manufacturer Forum” on how the manufacturers can improve the safety in relation to CNG cylinders in the industry. On the first day of the forum, manufacturers will be given opportunities to discuss freely and openly among themselves to address and help solving this issue.

On the second day, end users and manufacturers from various countries will be able to exchange information, concerns, and collect ideas to tackle this problem. Engineers and managers from OEM NGVs, conversion workshops, and fleets managers are expected to join the second day forum as end users. To join and get more information about this forum, contact Brenda Smith or Lee Giek Seng at brenda.smith@gasadvisers.com and leegs@angva.org.
## NGV statistics

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<td>202</td>
<td>47</td>
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<td>27.71</td>
<td>December 2009</td>
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<td>101.552</td>
<td>69.971</td>
<td>9,831</td>
<td>19,626</td>
<td>1,924</td>
<td>275</td>
<td>9</td>
<td>266</td>
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<td>28.50</td>
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<td>Turkey</td>
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<tr>
<td>Georgia</td>
<td>3.000</td>
<td>3.000</td>
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</tbody>
</table>

### Fuel Prices

<table>
<thead>
<tr>
<th>Country</th>
<th>Premium Gasoline (Euro/litre)</th>
<th>Regular Gasoline (Euro/litre)</th>
<th>Diesel (Euro/litre)</th>
<th>CNG (Euro/ Nm³)</th>
<th>CNG price equivalent per litre gasoline</th>
<th>CNG price equivalent per litre diesel</th>
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</thead>
<tbody>
<tr>
<td>Armenia</td>
<td>0.67</td>
<td>0.63</td>
<td>0.61</td>
<td>0.32</td>
<td>0.29</td>
<td>0.33</td>
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<tr>
<td>Australia</td>
<td>0.77</td>
<td>0.72</td>
<td>0.78</td>
<td>0.34</td>
<td>0.30</td>
<td>0.35</td>
</tr>
<tr>
<td>Bangladesh</td>
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<td>0.49</td>
<td>0.34</td>
<td>0.18</td>
<td>0.16</td>
<td>0.18</td>
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<td>China</td>
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<td>0.56</td>
<td>0.50</td>
<td>0.34</td>
<td>0.30</td>
<td>0.35</td>
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<tr>
<td>Egypt</td>
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<td>0.23</td>
<td>0.14</td>
<td>0.06</td>
<td>0.05</td>
<td>0.06</td>
</tr>
<tr>
<td>India</td>
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<td>0.27</td>
<td>0.24</td>
<td>0.28</td>
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<tr>
<td>Indonesia</td>
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<td>0.31</td>
<td>0.33</td>
<td>0.18</td>
<td>0.16</td>
<td>0.18</td>
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<tr>
<td>Iran</td>
<td>0.10</td>
<td>0.07</td>
<td>0.01</td>
<td>0.03</td>
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<tr>
<td>Japan</td>
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<td>1.31</td>
<td>1.19</td>
<td>0.68</td>
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<tr>
<td>Korea</td>
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<td>0.34</td>
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<td>Pakistan</td>
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<td>0.23</td>
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<tr>
<td>Russia</td>
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<td>0.48</td>
<td>0.41</td>
<td>0.19</td>
<td>0.17</td>
<td>0.19</td>
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<td>Singapore</td>
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<td>0.63</td>
<td>0.72</td>
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<td>0.77</td>
<td>0.72</td>
<td>0.67</td>
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</tbody>
</table>

### World review

#### Regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Total NGVs</th>
<th>Cars/LDVs</th>
<th>MD/HD Buses</th>
<th>MD/HD Trucks</th>
<th>Others</th>
<th>Fuelling stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>5,977,974</td>
<td>5,583,926</td>
<td>229,674</td>
<td>82,080</td>
<td>81,894</td>
<td>8,419</td>
</tr>
<tr>
<td>Eurasia</td>
<td>207,711</td>
<td>131,821</td>
<td>19,320</td>
<td>54,626</td>
<td>1,944</td>
<td>580</td>
</tr>
<tr>
<td>Africa</td>
<td>329</td>
<td>310</td>
<td>5</td>
<td>14</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Europe</td>
<td>1,094,671</td>
<td>884,994</td>
<td>130,848</td>
<td>77,775</td>
<td>1,054</td>
<td>2,905</td>
</tr>
<tr>
<td>South America</td>
<td>4,003,230</td>
<td>3,979,759</td>
<td>13,820</td>
<td>9,660</td>
<td>0</td>
<td>4,647</td>
</tr>
<tr>
<td>North America</td>
<td>115,177</td>
<td>99,037</td>
<td>11,240</td>
<td>2,500</td>
<td>2,400</td>
<td>920</td>
</tr>
<tr>
<td>World</td>
<td>11,388,701</td>
<td>10,679,847</td>
<td>404,907</td>
<td>226,655</td>
<td>87,292</td>
<td>17,593</td>
</tr>
</tbody>
</table>

In this table, Asia includes Egypt but excluding Eurasian countries (Armenia, Georgia, Russia, and Turkey). Egypt, that has 122,271 NGVs and 119 CNG filling stations is not yet included in Africa listing.
LEADER IN CNG SYSTEMS

SINCE 1975 SAFE HAS BEEN DEVELOPING INNOVATIVE PRODUCTS AND SERVICES FOR CNG STATIONS

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WORLDWIDE SERVICE 24/24 H

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HYDROGEN & HYDROGEN CNG MIXTURES FILLING STATIONS

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An environmentally friendly engine leaves no traces. It opens the road.

Landirenzo® CNG systems have opened new horizons in eco-sustainability. They are following the route of natural and innovative mobility, guaranteeing less pollution, cheaper prices and the chance to move freely. It’s a long road leading to a cleaner world. A world where the traces left are not those which damage the environment, but those which make it better.

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