

## **VEHICLE CONVERSION TO DUAL GASOLINE/CNG FROM 150 TO 100,000 IN 5 YEARS IN PERU**

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### **Background**

In 1981, the Peruvian Government entered into an exploration contract with Royal Dutch Shell in order to drill exploration wells in a block near Ucayali River, with the aim of finding crude oil reservoirs. In 1984, Shell discovered what is currently known as “Camisea Natural Gas Reservoirs” and since their original contract was focused on potential crude oil findings, they had to renegotiate a new agreement to exploit their discovery.

A few months later, a number of legal complaints to the agreement arose, Cusco claimed for an adequate income for royalties, and there were also technical discussions about the viability of the project because there was no demand for natural gas in Peru. Moreover, if the domestic market did not consume a yearly fixed amount of natural gas, the Peruvian Government would compensate the difference to Shell as forgone profits. These elements, combined with the economic and social crisis facing the country, established the conditions necessary for the State to conclude the negotiation, returning the Camisea field back to Government. At this moment, it was clear that the Government wanted to use the natural gas for local market but it was unclear how to do it.

During the 90's, through a series of legal and tax incentives, the Peruvian Government started an aggressive policy to attract investments in hydrocarbon activities. Under this framework, in 1994, Petroperu (Peruvian Petroleum Company) with the new Consortium Shell - Mobil signed the "Convention for the Evaluation and Development of the Camisea fields" in order to analyze the feasibility of the project, and lately in 1996, signed an “Exploitation Contract”. However, Shell - Mobil decided not to go on with the second phase of the contract because of several disagreements with the Peruvian Government such as fuels prices controls and policies, and specially for the refusal to the Consortium to export the natural gas to Brazil that resulted more profitable, since in Peru there was neither natural gas market nor appropriate mechanisms to develop it, in addition to the refusal of the Government to grant the consortium ownership of all project components (production, transport and distribution). It was the second time that Shell, now in consortium with Mobil, gives Camisea Fields back to the Peruvian Government.

The Camisea fields were held again by Peru for exploiting or bidding it to private companies, but it has to be sure that the basis of the bidding process should be clear that the main objective of the project was to develop a Natural gas market in Peru.

An international bidding process was launched to exploit the block 88 where the participants were Total Elf from France and the Camisea Consortium led by Pluspetrol from Argentina. This

latter won by offering a royalty of 37.24% while its competitor offered 35% and the contract was signed in 2000.

The project consisting of building a cryogenic plant in the jungle of Cusco and transporting the gas to Lima through a pipeline over the Andes, climbing as high as 4,000 meters above sea level and covering over 500 km from start to finish. At the same time, the distribution project in Lima was put out to tender for selecting an experienced company who could build the system not only physically. Furthermore, the Peruvian Government signed 10 initial contracts to ensure that a minimum volume starts operations not only for the distribution business, but also to support production and transportation investments.

Other major challenge in this project was to develop a natural gas market, this means Industries replacing diesel and Fuel oil, residential replacing LPG, but the government put an especial interest in achieving the transformation of the motor vehicle pool, especially taxis, to a dual gasoline/CNG system, not only to save money, but also to reduce gas emissions, since most of the taxis in Lima ran on diesel, the social impact that would come behind.

Once the entire infrastructure was built, the valves that started to send Camisea Natural gas to the pipeline in Malvinas Plant placed on Camisea were opened in September 2004, and the gas arrived in two days to the City Gate in Lurin in the south zone of Lima starting up the change in the Peruvian energy matrix.

Based on the experience of LPG informal growth in the automotive market, the government realized the need to control safety and start up orderly this new market in order to avoid unsafe fuel conversion. Thus, as per Supreme Decree No. 006-205-MS dated 04.02.2005, the "Regulations for installation and operation of Retail Natural Gas (CNG)" were approved, establishing the Loading Control System of CNG in Chapter III, with the purpose to monitor variables ensuring the safe operation of CNG cargo as well as compliance for facilities, equipment and review of necessary equipment used in the conversion of vehicles. Thus, the system monitors all the processes related to acquisition, installation, registration, technical inspection, supply, maintenance and loading of NGV.

The contributors to the project were:

- 1.- Consejo Supervisor del Sistema de Gas Natural (Supervising Council of Natural Gas System).- Governmental Institution created to integrate all facts to be part of the project. This Council is composed of the Hydrocarbons Director from the Energy Secretary responsible for supervising CNG Service stations, the Traffic Director from the Communications Secretary responsible for supervising conversion repair shops, and the Production Director from the Industry Secretary responsible for supervising all the equipments involved.
- 2.- Corporación Financiera de Desarrollo COFIDE ( [www.cofide.com.pe](http://www.cofide.com.pe) ) .- The Supervising Council named COFIDE as responsible for the project implementation and operation.
- 3.- Gas Natural de Lima y Callao.- This is the NG distributor in Lima. They sponsored the project and proposed the system based on the Colombian experience.
- 4.- Pluspetrol Peru Corporation.- As Natural Gas Producers, acted as sponsor of the project, interested in developing a controlled growth of CNG market, and preventing from informality existing in all other hydrocarbon products markets



The Supervising Council of Natural Gas System, appointed COFIDE as System Administrator authorized to develop, implement and manage the operation of the system.

COFIDE suggested that the best way to administrate The Loading Control System was through a trust fund, which should manage not only the information, but also the cash flow in order to ensure loan payment for the conversion to CNG. COFIDE, as Second floor bank, and with the opportunity to manage an electronic collection system, created the “Financing Program for Natural Gas Conversion – COFIGAS. The objective of this program was to promote the conversion of transport units to CNG by granting loans to potential users, but with electronic technology payback system for the structured financial products.

## Aims

To create a CNG motor vehicle pool initially focused on taxis in Lima, but extending, in a second step, to massive public transportation and all over the country through virtual transportation. The objective was to convert 50,000 vehicles in 10 years.

## Methods

From 2000, a successful process of conversion of vehicles from gasoline to a dual Gasoline/LPG system had been started. Five years later, the question was how to explain the advantages and differences between this trend and the conversion to dual Gasoline/CNG.

In order to plan effective actions to develop the motor vehicle CNG market, it was necessary to answer the following questions:

What companies will convert cars to a dual Gasoline/NG system?

What would be the prices for converting a car or buying a new CNG vehicle?

How could a taxi driver afford to pay for conversion to this dual system?

How would car tanks be filled with NG?

How can a dual system automobile be bought while maintaining the manufacturer's warranty?

The answers showed us that we were starting from square one, and the only alternative was to work on different fronts, not only simultaneously, but in an integrated manner, seeking out:

1. Investors willing to go into dual system CNG conversion repair shops
2. Investors interested in going into the CNG service station business
3. Car dealerships interested in going into the CNG or dual system car business
4. Financing programs for taxi drivers to convert or buy CNG cars



5. Reduction of the risk involved in credits for conversion, in order to obtain real warranties and a low default rate on payments

To achieve these goals, a multi-task team worked on the design of a “Gas-Up Control System” that not only combined all market needs, but also helped to create the CNG market and enabled it to grow formally.

### **Gas-Up Control System**

To integrate all the variables involved in creating a CNG market, a centralized database system was developed, connected by a microchip installed in the tank of each converted car. This database gives us real information on the credit granted for the conversion, and calculates a repayment amount with each time a CNG automobile gasses up at a service station.

This microchip transmits the following information:

- ✓ Vehicle data.
- ✓ Data on the dual system equipment installed.
- ✓ Repair shop that performed the conversion. Each repair shop must be certified by the NG Supervisory Authority.
- ✓ Annual checkups of all conversion equipment.
- ✓ Five-year checkups of the CNG tank.

After a car has been converted to dual Gasoline-CNG system, the Supervisory Authority appoints a Certifier to verify:

- ✓ That the Repair Shop is certified.
- ✓ That the equipment installed, including the tank, has been registered with the Authority.
- ✓ That the installation was made in accordance with Peruvian technical laws on NG.

Once the Authorized Certifier completes the previous steps, the microchip is installed in the CNG pump hole, the car's data is entered in the chip, and it is then registered in the centralized system database.

Likewise, all service stations have installed hardware and software that allow the CNG pump to read the microchip data and communicate with the main computer and the centralized system database simultaneously. When a car comes in to fill up on CNG and the hose is connected to the tank, the information from the microchip installed in the car identifies the vehicle and the computer searches for it in the database of the centralized system. The car will receive authorization to pump CNG only if it is registered the database. To the contrary, authorization will be denied.

Additionally, the loan paid out to the taxi driver may be input to the centralized system and an additional amount of money may be calculated that the taxi driver must pay with each CNG gas-up to pay instalments on the loan. This facility not only enables taxi drivers to finance conversion costs, but it also lets car dealers sell new cars that can be paid off with each CNG gas-up.



Other benefits of this system include:

- ✓ Enables traceability of all components of the CNG conversion equipment
- ✓ Prepares statistical information
- ✓ Provides commercial information
- ✓ Any other information the authority may require

This apparently logical and simple system is not that simple. One of the most important issue that allowed the success of the process of change the energy matrix in Peru was the Political, economical and legal stability in the Country and specially in the hydrocarbons sector and the promoting and sponsorship of the Peruvian Government to develop innovative financial programs. It's known that this kind of changes is not possible without the commitment of the Government. Thus, the private sector felt confidence, and shared the risks not only with the already mentioned investments in the process of extraction, transportation and distribution, but also in the conversion, marketing and sale of Natural Gas Vehicles in Peru.

In that sense, the greatest benefits of the program not only focus on economic and environmental aspects, but also introduce simple mechanisms of access to credit for economic operators excluded from the financial system in such a way that promotes social inclusion through the Loading Control System.

On September 30, 2005 was created INFOGAS with the signing of the Trust Fund Management System Load Control NGV. The contract involves: The Supervising Council of Natural Gas System as Settler and Trustee Public, Pluspetrol Peru Corporation SA and Gas Natural of Lima and Callao (GNLC) as Private Trustors and COFIDE, as Trustee.

INFOGAS manages the information and processes generated by all suppliers, consumers and other actors involved in the natural gas vehicle market with the purposes objectives:

- ✓ Follow up to ensure the safety variables in the loading operation of CNG as well as overseeing the processes related to the acquisition, installation, registration, technical inspection, supply, maintenance, loading and even the raising of funding for vehicle conversion to CNG .
- ✓ To facilitate the control and supervision of the System by the different Ministries regarding it's Sectors.
- ✓ Facilitate access to credit for Micro companies, Transport companies and particular drivers.
- ✓ Reduce the costs of follow up and recoverability of loans.

INFOGAS manages through the Load Control System, all the information generated and accumulated from all the companies which are part of the structure of suppliers and consumers of natural gas vehicles, which consist of:

- ✓ Suppliers of complete CNG conversion kits.
- ✓ Certifiers for CNG vehicle conversions.



- ✓ CNG Conversion Workshop
- ✓ CNG Retailers (Service Stations)
- ✓ Financial institutions or companies that provide financing for the conversion and / or purchase of vehicles.
- ✓ New Vehicle Suppliers Suitable for CNG consumption. "

## System Description

The system was built based on a Government contribution, enactment of an appropriate legal framework, and also with an important private contributions, through the capital and know how to operate the computer control system and collection, and the COFIDE fiduciary experience as a development bank to use the regulatory and private experience to create the manage the system

### 2.1 Legal Framework

The existence and success of the Loading Control System, are based on several legal instruments from different sectors, described in the following paragraphs:

- ✓ Article 3 - Law N° 27133 - Law on Promoting the Development of Natural Gas Industry, declares of National interest and public need, the promotion and development of the natural gas industry in the industrial, residential and transportation all over the country.
- ✓ Through Supreme Decree 006-2005-PRODUCE (Production ministry) approves the Technical Regulation for the CNG conversion kit. This regulation establishes the minimum technical requirements and conditions to be accomplished for all kinds of accessories, equipment and parts to be installed in vehicles in order to convert combustion system from liquids fuels to CNG. Accomplishment of the provisions of this regulation is mandatory.
- ✓ Through Supreme Decree N ° 002-2005-MTC, It was established the authorization procedure for CNG conversion workshops. It was determined that conversion kits installation only can be made by the conversion repair shops authorized by the Transportation Ministry.
- ✓ The Regulations approved by Supreme Decree N ° 006-2005-EM established in the Title 5 chapter 3, the creation of the CNG Loading Control System, with the purpose to follow up the variables to ensure safety CNG load and accomplishment of the technical and legal requirements for facilities, equipment and all maintenance of the conversion kit in each vehicle.
- ✓ The Supreme Decree N ° 002-2005-MTC established that every converted vehicle to the dual System Gasoline /CNG must be verify by Transportation Ministry and provide a Certificate of Conversion, then is installed a microchip or electronic device that allows the storage and exchange of information and vehicle data recorded in the Load Control



System of CNG, enabling the converted vehicle for a period of one (1) year, renewable, for loading CNG. Only certified vehicles and with microchip installed can be supplied in CNG stations. Any service station must be authorized by the competent authority to supply the fuel and should have the hardware necessary to proceed with the reading and exchange of information with the microchip installed in each vehicle unit served.

Based on this legal framework, Ministries of Transportation, Energy, and Production had the obligation to supervise and control the system. For this purpose the mentioned ministries and its regulatory areas have the following faculties:

- ✓ Supervision: verifying accomplishment of the legal, contractual and technical obligation by all supervised activities.
- ✓ Rules: Develop, in their respective jurisdictions, regulations, rules and governing procedures related to each sector, and also those related to interests, obligations or rights of all the supervised companies or activities or its users.
- ✓ Control: Determine faults and penalties within their.
- ✓ Dispute Settlement: Solving conflicts between entities or businesses under its purview, between them and their users or to resolve disputes arising between them.

In this way, there was been established the legal framework that regulates the process of NGV's office and regulates the conversion process for the suitable use of this fuel, guaranteed a formal and safety use of this new fuel and protecting the future consumers.

## 2.2 Informatics System

Considering the volume of specialized information, each Ministry required access to an updated Data Base, with information related to the process of vehicles conversion, installed equipments and for installing, specifying the conversion status.

Technically, there were several experiences worldwide, even in Latin America, of the success use of Loading Control Systems, capable of provide reliably, trustworthy and opportunely information to the all supervision and control entity. The international experience in vehicle conversion showed the success of using electronic mechanisms (Loading Control Systems) to make simple the control and supervision of the conversion processes and the CNG vehicles maintenance, being also used to structure the pay back of loans.

In this context, Representatives of COFIDE, the Chamber of Vehicles Natural Gas, Pluspetrol, and Calidda, worked all together in the following aspects:

- ✓ Evaluation of international experiences in the application and implementation of Loading Control system, in his different stages: design, administration of the database and maintenance.
- ✓ Design of an organic and functional structure for the administration of the CNG Loading Control System.
- ✓ Detailed analysis of the macro process of the control of CNG business in the country.



- ✓ Definition of the functionalities and requirements for the bidding process for the service of design, development and implementation of the software of a CNG Loading Control System.

In the following graph it appreciates the scheme of the macroprocess of CNG Loading Control System business that was applied in Peru:



In the matter, this macro process is shaped by the following processes:

P1 - Components checking: process to register the record of brands, models, numbers of series, components registers, complete equipments registers and the movement of components (kit, cylinders and chips) between entities.

P2 - Certification Process: This process consists of the record of certification of the Suppliers of Complete Equipment, Conversion repair shops and maintenance, as well as the record of the CNG service stations in the system.

P3 - Conversion Financing: consists in defining the flow that follows the process that allows the user to access to a finance product to convert the vehicle to CNG.

P4 - Registration and certification of vehicle conversion: Once the conversion is done, the vehicle have to be certified that this has been carried out within specified technical standards and then has to be installed the Loading Control System and registered in the data base. .

P5 - Control and dispatch of CNG service stations: This process begins when the chip give the vehicle information to the Service station before the CNG loading process, and ends when the CNG is already charged in the vehicle and pay for it.

P6 - Vehicle Review: this process indicates the way to do the obligatory annual and every five years controls of the components installed in vehicles, as well as updating the components registers in CNG Loading Control System.

P7 - System Administration: Process control is performed during all stages of macro process. The process involves: registration of players, reporting,



updating of the modules of the database, security, systems auditing, auditing of information, financial module (collection), Administrative vehicles lock / unlock to get CNG and services related.

COFIDE as Administrator of the Loading Control System was commissioned to tender the development and operation of the system designed together with the private entities mentioned before. However, in order to speed up the start of the CNG market growth, was contracted the company CNG from Colombia to implement the same Loading Control system that they were implementing in Colombia.

### 2.3 Financial instruments

Based on the legal framework, and with the technology systems available that allows the collection of credits, a financial product (COFIGAS) focus on taxi drivers, that is the initial market segment, was developed by COFIDE adapting the design taking care on the specific needs of the market and the financial system

The program's objective is to complement traditional financial services with the use of new financial technology recovery process, to actively promote the process of energy matrix change based on intensive use of Gas natural.

These new Financial Products reduce credit risk since they ensure in advance the technical, economical and legal viability of each project through contracts that diversify the own risks of every step in the conversion process and natural gas consumption. Additionally, these products introduce automatic collection mechanisms to pay back the loan at the same time that the customer pays for natural gas consumption. These general characteristics allows to offer an easy access financial product for more potential users of natural gas, even if it is considered a potentially high risk as taxi drivers, making it possible to finance their vehicles conversion under much more favourable financial conditions for them.

The main objectives of the Program are:

- ✓ Encourage the conversion of machinery, equipment and engines using polluting fuels, replacing them with a clean fuel such as natural gas.
- ✓ Take advantage of the use of lower production cost and more efficient fuel as natural gas, to use it as an advantage in comparison with other countries in the region to be a more attractive country for investors.
- ✓ To complement traditional financial services with the implementation of a new technology.
- ✓ Finance private investment for infrastructure construction and Natural gas distribution systems, the same that includes (CNG Service Stations, Regional Distribution centres, transportation Fleet, etc).



- ✓ Introduce better control and supervision practices for the production, distribution and consumption of Natural Gas by Government authorities involved.
- ✓ Introduce automatic collection mechanisms applied to the consumption of natural gas by intelligent loading technology, to pay the loan.
- ✓ Introduce the use of environmental financial instruments, adding value and profitability to the clean business and project evaluation.

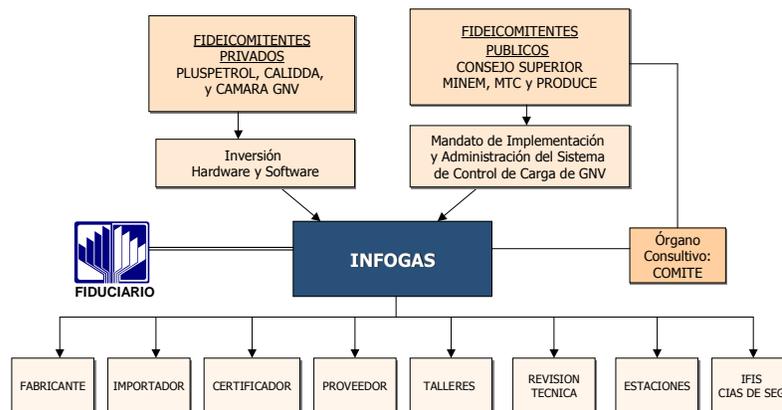
### 3. Service Performance

After describing the original terms that determine the creation of the System, the following is a description of how the main services of the product operate.

#### 3.1 Loading Control System

As noted before, COFIDE was appointed administrator of the CNG Loading Control System or Trustor of the System's Trust Administration Agreement.

The following diagram represents the INFOGAS trust design:



The trust will include:

- ✓ Trustors: MINEM, PRODUCE, MTC, Pluspetrol, and Calidda.
- ✓ Trustors: MINEM, PRODUCE, MTC.
- ✓ Trustee: Corporación Financiera de Desarrollo S.A.
- ✓ Trust assets:
  - Database administration mandate - Loading Control System - obtained and provided by the parties involved in the CNG conversion process the authorized by competent government agencies.
  - Private trustor's contributions to invest in Loading System related hardware and software.
- ✓ Trust committee: COFIDE, MINEM, PRODUCE, MTC, Pluspetrol, and Calidda.

The system works through:

- ✓ A comprehensive information system built on a centralized database.
- ✓ Data and collection capture system installed in every CNG station.



- ✓ Electronic devices – chips- in all CNG converted vehicles.

Through this system, every time a converted vehicle goes to a CNV station, it will be recognized and identified by an interface capturing its technical and personal information. This will be immediately recognized and validated by the CNV station and the centralized databases.

In case there is no suspension or disabling order, the system will authorize the gas up and while the CNG consumption is being recorded, a charge will be applied to be used as a payment for the funding obtained by a financial company for CNG vehicles conversion.

Later, consolidated payments for all converted vehicles will be transferred from the CNG station -collector- to the Trust accounts and in turn to the financing companies to pay for the credit given towards the vehicle CNG conversion. In this case, It was already specified in the agreement with the financing company how the collection and the pre payments are going to take place through the smart charge system.

The following are the main functions COFIDE would have as a trustee for the proposed model:

a) Database administrator

- ✓ Keep a record of all establishments and/or people duly authorized by the official authority and directly involved with providing information to the CNG Loading Control System.
- ✓ Get information provided by the Ministries through the certifiers and bodies involved with the CNG Loading Control System.
- ✓ Develop a database to administer the CNG Loading Control System.
- ✓ Provide with database registered information to the bodies involved with the CNG Loading Control System according to their needs.
- ✓ Keep the CNG Loading Control System information modules updated.
- ✓ Provide security and maintenance to the CNG Loading Control System.
- ✓ Administer the database according to the manuals and information access authorized rules commissioned by MINEM, MTC and PRODUCE.
- ✓ Coordinate strategic aspects, investments, incorporation and withdrawal of database users, disposal of assets according to the trustor's instructions, as well as the service contract and service supply decisions with the trust committee.
- ✓ Design and definition of politics, procedures, processing, information storage and supply, and managerial and supervision control mechanisms.
- ✓ Administer the database, information flow, and report issuing.
- ✓ Provide reliability, maintenance and information system security.
- ✓ Carry out with the entrusted investments, and the database expenses budget and maintenance.
- ✓ Assessment, selection, contracting, and subcontracting specialized operators in charge of the database administration and resources transference.
- ✓ Database management and access services in support of authorized users.
- ✓ Information and charged and/or collected financial resources transfer –financial institutions that channel CNG conversion loans- to be completely applied to pay for the conversion loan until it is paid off.



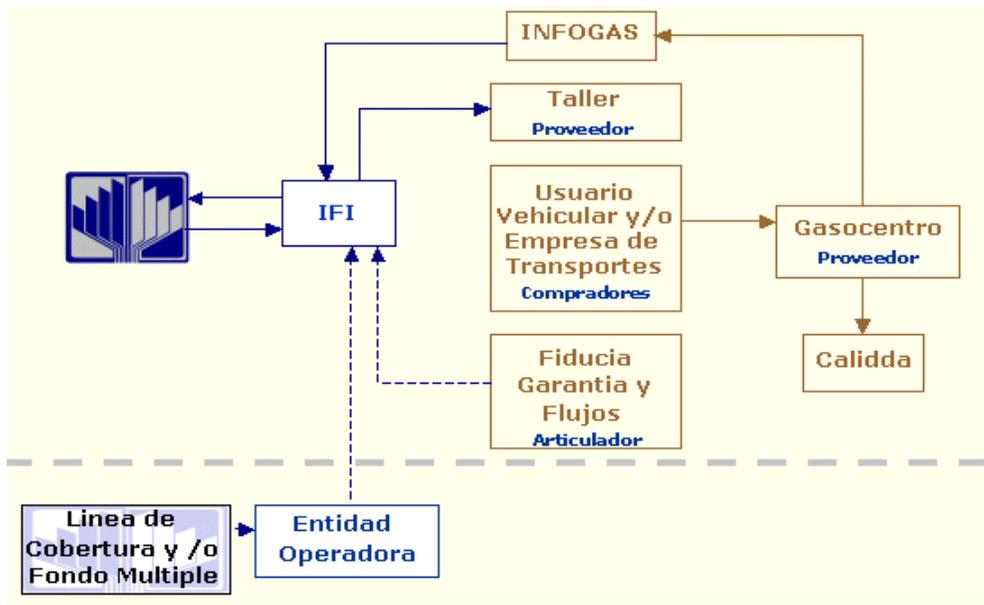
Database access will be permanent to all network users or affiliates. Maintenance and operation expenses will be paid by a membership fee.

b) Collection

- ✓ In case there is no suspension or disabling order, the system will authorize the gas up and while the CNG consumption is being recorded, a charge will be applied to be used as a payment for the funding obtained by a financial company for CNG vehicles conversion.
- ✓ Later, all converted vehicles consolidated payments will be transferred from the CNG station -collector- to the Trust accounts and in turn to the financing companies to pay for the credit given towards the vehicle CNG conversion. In this case, COFIDE will specify in the agreement with the financing company how the collection and the pre payments are going to take place through the smart charge system.
- ✓ The success of the product is based on the fact that the regulation establishes that it is mandatory for all stations to be affiliated with the Loading Control System. Therefore, a vehicle owner who takes on financing for its conversion will make a payment every time he gases up CNG, regardless of the place, time or date. From a financial point of view this dramatically reduces the credit risk since CNG consumption is assured for it generates significant savings. Also, the Loading Control System altogether with the requirement guarantees part of these savings to be initially used for the repayment of the conversion.
- ✓ Transfer of information and charged and/or collected financial resources—financial institutions that channel CNG conversion loans- to be completely applied to pay for the conversion loan until it is paid off.

### 3.2 Financial Product

The next chart shows in graphic form the way the product's financial service works:



The following explains product's financial service functionality. In the first place, the actors involved in the organization are introduced and then follows the sequence of events within the financing process.

### 3.2.1 Actors

The list of actors involved in the structuring of the financing to convert a vehicle to natural gas is provided below.

#### 3.2.1.1 COFIDE

- ✓ Structures the financial product for the vehicle conversion financing.
- ✓ Negotiates and contracts with the Intermediary Financial Institution (IFI) participant in the financing.
- ✓ Provides financing to the selected IFI.
- ✓ Provides coverage in favour of an operative company with charge against the Fondo Múltiple de Garantía -Multiple Collateral Security Fund, in case of MSE - or with charge against the coverage line, in case of medium to large size enterprises and individuals- that in turn underwrites portfolio guarantee agreements with the IFI for the conversion credits.
- ✓ Acts as an INFOGAS trustee by order of the Consejo Supervisor del Sistema de Carga Inteligente (Supervising Council of the Loading Control System) by Supreme Decree No. 006-205-EM, of 04.02.2005.

#### 3.2.1.2 Intermediary Financial Institution (IFI)

- ✓ Provides financing in favour of the vehicle user for a CNG conversion.



- ✓ Obtains as counterguarantee: guarantor or personal guarantee, installed equipment liens, guaranteed means of payment (INFOGAS) and a partial portfolio coverage issued by an operator company with the support of the Multiple Collateral Security Fund or the Line of Coverage.
- ✓ Requests the issuing of a comprehensive insurance policy and/or tax relief with charge against the vehicle user.
- ✓ Is in charge of paying the conversion shops and/or PEC –whole-set equipment provider.
- ✓ Signs a collection agreement with INFOGAS, who will transfer the collected financing payments, obtained through the Loading Control System at every Gas Station the vehicle user gases up.

#### 3.2.1.3 Vehicle User

- ✓ The vehicle is converted to CNG. The conversion will be supervised by INFOGAS according to Supreme Decree No. 006-205-EM, of 04.02.2005.
- ✓ It obtains a IFI loan charged against COFIDE for the vehicle conversion to CNG, accepting INFOGAS' intervention as entity in charge of the loan payments collection.
- ✓ Pays off the loan altogether with gas station payments for the purchase of CNG.

#### 3.2.1.4 Calidda

- ✓ Provides natural gas supply to CNG Service station that is in charge of its sale.

#### 3.2.1.5 Workshop and /or whole-sale equipment provider

- ✓ Converts the unit of transport.
- ✓ Paid by IF in agreement with the shops.

#### 3.2.1.6 CNG Service Station

- ✓ Supplies vehicle user with CNG.
- ✓ Collects the payments for the conversion financing by charging for CNG consumption.

#### 3.2.1.7 INFOGAS trustee

- ✓ Administration trustee for tangible and intangible resources, created with the aim of supervising the natural gas vehicle conversion in Peru by the relevant authorities.
- ✓ Moreover, the trustee is responsible for collecting the financing payments made by vehicle users according to the agreement with the IFIs. Such payments are made altogether with the CNG consumption payments as prefixed rate in addition to the purchase value.

#### 3.2.1.8 Operator Company



- ✓ It signs the portfolio guarantee agreement with IFI in order to consolidate the credits provided to the vehicle users by this entity.
- ✓ It signs the guarantee agreement with COFIDE with charge against Multiple Collateral Security Fund or the Guarantee Line.

### 3.2.1.9 Fondo Múltiple o Línea de Cobertura (Multiple Collateral Security Fund or the Guarantee Line)

- ✓ Signs the guarantee agreement with the Operator Company that guarantees the IFI financed portfolio.
- ✓ It can enter into a partial reinsurance contract in favour of the Insurance Company.

### 3.2.1.10 Insurance Company

- ✓ The Insurance Company issues comprehensive and/or tax relief insurance policies in favor of IFI, and paid for the vehicle user.
- ✓ It may request the Multiple Collateral Security Fund MSE for partial reinsurance.

## 3.2.2 Description of the process

3.2.2.1 Conversion agreement (vehicle- workshop and/or PEC- whole-set equipment provider).- The Vehicle User chooses the vehicle workshop – PEC and agrees on the conversion budget which might include:

- ✓ The conversion value (tank and equipment)
- ✓ 2 gas tanks for consumption as working capital (optional)
- ✓ Other maintenance and repairs expenses required for the vehicle to be in top conditions (optional)
- ✓ Definition of the payment forms in cash or financed.

### 3.2.2.2 Financial Product Structure

Defining the feasibility of the financial product structure and identifying the profiles of the Vehicle Users, the characteristics of the following financing are defined:

- ✓ Financing of COFIDE to the Intermediary Financial Institution (IFI): The loan term should not be less than xx months, payable in monthly payments in US dollars and a interest rate not less than Libor + xx %.
- ✓ Financing of the IFI to the Vehicle User, with the same term and method of payment conditions and an interest rate not greater than xx%.
- ✓ The Vehicle User shall cancel the consumption and the financing awarded jointly through the supply of CNG in the Gasocentros by the IFI-INFOGAS convention.
- ✓ The Vehicle User shall assume insurance payments to all risk and life mortgage insurance.
- ✓ The structure will have the following cover mechanisms:
  - Personal Guarantee or MSEs guarantor.
  - Guarantee of the installed equipments.
  - Method of payment for financing (INFOGAS)



- Partial cover issued by a Operating Entity, applicable to the overdue financing payments through a portfolio guarantee Contract executed with a Operating Entity.
- As guarantee for the Operating Entity, it will count on the supporting guarantee of the Multiple Fund of Guarantee (in case of MSEs) or charge to the Cover Line (medium and big enterprises or individuals).
- All risk insurance and/or credit life insurance policy in favor of the IFI.

### 3.2.2.3 Financing request by the Vehicle User to the IFI

- ✓ The vehicle user requests the financing to the IFI for the conversion of his transport unit to CNG, with charge to resources of COFIDE, supported on the estimate approved by the Conversion Workshop.
- ✓ Once the financing was evaluated and approved by the IFI, this institution informs the approval to the administrator of the Smart Loading System, which will register the financing, so that the workshop can initiate the conversion.
- ✓ It proceeds to sign the contract of financing and guarantee incorporation.

### 3.2.2.4 Disbursement request by the Vehicle User to the IFI

- ✓ The financing contract provides that the disbursement shall be made through a payment by the IFI to the following providers: Conversion Workshop, Repair workshop and Service Station that supplies CNG (2 tanks labour capital) and these places and the certifier of the Ministry of Transportation and Communications (MTC) inform the end of their work.
- ✓ Once the Workshop becomes aware of the financing approval, it proceeds to initiate the conversion.
- ✓ The certifier of the Ministry of Transportation and Communications (MTC) gives conformity to the conversion made and authorizes the entry of the transport unit to the Intelligent Charge System.
- ✓ The IFI proceeds to disburse, once it verifies:
  - The reception and conformity by the vehicle user.
  - The authorization of the converted vehicle in the INFOGAS systems, where it has to be registered:
    - The name of the owner of the transport unit, unit characteristics, numbers of series of the pieces which form part of the conversion kit installed, and also the number of series of the CNG cylinder.
    - The percentage of the gas consumption value that will be collected for the payment of the financing received by the conversion.

### 3.2.2.5 Gas charge (transport Unit – CNG Service Station – INFOGAS)

- ✓ Each CNG service station must be registered in the smart loading system of the INFOGAS.
- ✓ The database of the CNG service station have to be interconnected with the database centralized in the system in order to allow the continuous change of information and maintain the system updated with relevant information for the supervision and security, and the recovery of the granted financings.



- ✓ The transport unit has to go to the CNG service station to receive the gas charge.
- ✓ The system authorizes filling for the transport unit by reading the chip installed inside the unit.
- ✓ The sales ticket, which includes the gas consumption value plus the additional payment for the financing granted by the IFI, is issued and paid off.

#### 3.2.2.6 Financing collection for the conversion (CNG Service Station – INFOGAS – IFI)

- ✓ Gasocentro database registers the collection for the consumption and the amount for the financing payment.
- ✓ Once the information about the consumptions and the financing payments sent by Gasocentro is received, the INFOGAS verifies the information and puts it at the disposal of the IFIS.
- ✓ Gasocentro transfers the collected money to INFOGAS accounts, and this latter provides this information along with the collection being paid in a centralized account of the trust.
- ✓ INFOGAS transferred to the IFI, which financed the conversion of the collected amount for the credit refunding, by the own means of the vehicle user.

#### 3.2.2.7 Compliance of the Portfolio Guarantee

- ✓ In the case of the overdue financing instalments, the IFI through the Trustee may require the compliance of the portfolio guarantee before the Operating Entity.
- ✓ And the operating entity will require the compliance through the contract of supporting guarantee signed with COFIDE, with charge to the Multiple Fund or Cover Line.

#### 3.2.2.8 Recovery of the Portfolio due for payment

- ✓ The IFI is responsible of the recovery actions of the portfolio.
- ✓ The costs associated to the financing and later transferred to the Vehicle User for its cancellation.
- ✓ In the event that the IFI makes the recovery of the amount agreed by the Operating Entity, it will proceed to transfer such amount, minus the costs associated with the recovery, in favour of COFIDE, in his capacity as Trustee of the Cover Line and/or the Multiple Fund.
- ✓ In the event that the IFI agrees payment arrangement with the vehicle user for the overdue payments not covered by the warranty agreement issued by the Operating Entity, it must inform the INFOGAS this agreement, as well as the amount to collect by concept of financing, so that this entity makes the



corresponding registration and continues the credit recovery through the consumption of the CNG.

## Results

### Analysis of the benefits of the Product or Service

1. Why is the product or service successful? Which are the indicators used to measure its success (increase in sales, market participation, utilities, cost reduction, increase of consumers or users, etc.)?

The object of the Product is to put at disposal to the private and public sector a set of services that allow developing quickly and safely the market of CNG in Peru for the advantages of the consumption of this fuel, such as the saving for the potential beneficiary users of a financing for conversion.

This product was released to the market on January 1, 2006 along with the start of the CNG market in Peru, since the system of Charge Control started to operate from that day, authorizing the CNG consumption to the first vehicles registered that had been converted by the first authorized workshops. By November 8, 2006 there are a total of 3,958 vehicles converted, mostly taxis, registered in the System of Charge Control and having all installed the intelligent chip that allows them to receive the charge of CNG in each of the 3 CNG service stations that are operating at present.

#### 1.1 Individual saving of a taxi driver for the CNG Consumption

The monthly saving by taxi driver that converts his vehicle to CNG amounts to S / 1,648.85. Thus, his costs are reduced to 75% and improving his net income (purchasing power). Each year these savings can reach S/. 19,786 and in a period of 10 years to a discounted current value of 15% per year, this savings can be S/. 99,302.



CONCEPTO	GASOLINA		GNV	
	UNIDAD	VALOR	UNIDAD	VALOR
Rendimiento	Km. / Galón	40	Km. / m <sup>3</sup>	12.86
Precio	S/. Galón	13.44	S/. / m <sup>3</sup>	1.0589
Operación al mes	Días	26	Días	26
Recorrido diario	Km.	250	Km.	250

CONCEPTO	GASOLINA		GNV	
	UNIDAD	VALOR	UNIDAD	VALOR
Consumo mensual	Galones	162.5	m <sup>3</sup>	505.38
Gasto mensual	S/.	2184.00	S/.	535.15
<b>Ahorro por unidad</b>			<b>S/. 1,648.85</b>	
<b>% de Ahorro</b>			<b>75.5%</b>	

In the case of a private owner who runs 50 km. a day, these savings amounts allow him to generate a monthly saving of S/. 329.76, a figure that in current value represents a saving of S/. 19,859 to current value discounted at 15%.

CONCEPTO	GASOLINA		GNV	
	UNIDAD	VALOR	UNIDAD	VALOR
Rendimiento	Km. / Galón	40	Km. / m <sup>3</sup>	12.86
Precio	S/. Galón	13.44	S/. / m <sup>3</sup>	1.0589
Operación al mes	Días	26	Días	26
Recorrido diario	Km.	50	Km.	50

CONCEPTO	GASOLINA		GNV	
	UNIDAD	VALOR	UNIDAD	VALOR
Consumo mensual	Galones	32.5	m <sup>3</sup>	101.09
Gasto mensual	S/.	436.80	S/.	107.04
<b>Ahorro por unidad</b>			<b>S/. 329.76</b>	
<b>% de Ahorro</b>			<b>75.5%</b>	

## 1.2 Saving after financing payment

The levels of savings are so significant that enable to pay comfortably the financing in the case of taxi drivers, in just 11 months can pay their conversion debt estimated approximately in S/. 4,858, since the commencement of operations.

This benefit of daily payments of his debts with 30% of the savings, and also, receive the benefit of 70% of the saving (S/. monthly 1,015.95), since the beginning of the conversion, allows you to generate a shared profit for all the persons who participate in the CNG market.



First, the banking of a sector which had no access to a bank financing, because the taxi drivers were not qualified for traditional banking credit, currently they have access to a credit without the traditional requirements, they only have to submit the ownership card and address of the subject of credit, without the minimum initial fee, they have access to the conversion and from that moment their vehicles can be supplied in the stations of Natural Gas Vehicle, paying automatically their credit, saving 70% of their earnings. Then, they cancel their debt within a period of 12 or 18 months, this according to their working day. Since the compliance of their credit debts, the saving for the client is 100%.

Second, since the compliance of the credit debts, the taxi driver became a client that has a positive credit record, because the same chip, allows him to apply to new financings, which will be paid by the same payment and financing system. This makes it possible to increase his capacity of payment, consumption and saving, translating into a line of credit granted, almost permanently, for amounts of S/. 5,000 for people who before were not subjects of credit to the financial system, fulfilling a development role of credits and especially of social inclusion.

Third, with this new consumption capacity, new needs of consumption and improvement in the quality of life are generated, such as saving capacity and access to credit, buy economic housing, renovation of the vehicle, payment of the education of children, affiliation to insurance and pension funds, purchase of consumer goods.

The fourth benefit of this financing system the zero delinquency has been approved (there are not registrations of delays in payments, all credits are prepaid) justifying the fact the system offers a lower rate of interest of the micro finance market 14% than the rates of 50% of all loans to the sector.

To date all these benefits have encouraged the increase of vehicular conversions and these are more than 117,500 at present. Almost 72% of the conversions have been financed by the applied financing model.

### 1.3 Total saving planned to 10 years with the number of CNG estimated

Assuming that taxi drivers and private individuals savings extend to a period of 10 years while incorporating a conservative universe of 150,000 gasoline vehicles to CNG, it is expected to achieve an estimated saving of US \$1, 192'000, 000 in the period. These levels of saving can increase in more than US\$ 4, 000'000. 000 if 12,000 units of buses with CNG engines are purchased, providing users with more economical benefits.

### 1.4 Income obtained by station's investors to NGV

These benefits are also very significant due to conversions success; each car converted consumes in average 10.35 m3 per day, which up to now amounts to 37.8 MM m3 sold and over than S/. 39.4 MM of income for service stations.

### 1.5 Income obtained by conversion workshops to NGV



Conversions success and estimated margins not minor to 20% enable to make a thriving market; so far over than 210 workshops have been opened with low inversions which have created over than S/. 176 MM of conversions with a net margin for shareholders amounting to S/. 35MM.

#### 1.6 Financing granted by financial system

Financing volumes granted by financial system exceed S/. 13 MM with zero delays in payments and the lowest operating costs of supervision, management and assessment which support the lowest interest rate in the market.

#### 1.7 Potential business reached by financial system

Since the addition of almost 85,000 new customers to the financial system, it has been generated about S/. 1,434MM, excluding financing for NGV buses.

#### 1.8 Benefits for COFIDE as Administrator of the system

To participate in gross earnings margin; to receive benefits for managing smart charge trust and the use of all collateral business from the new product exceeding S/. 10 MM over a ten-year period.

Therefore, in order to measure success of this product we can use the following:

COFIGAS is a successful product at different levels of benefit for users, input and service suppliers related to NGV, people from Lima. Since this program was launched, more than 100,000 vehicles have been converted, and the objectives have been achieved hundredfold. This number of conversions would represents a worldwide record.

#### Indicators of success

- ✓ Number of conversions performed in accordance with stated goals.
- ✓ Compliance for credit payment according to amortization schedule
- ✓ Profits generated to Corporation and financial intermediaries
- ✓ Operating costs reduction related to a traditional financing (collection automation)
- ✓ Savings generated for users

## 2. Why and how have consumers or direct users been benefited (quality improvement, consumer or customer satisfaction, increased welfare, etc)?

#### Consumer benefits:

The system means a benefit for users at multiple levels, which collectively, represents a great improvement in their standard of living:

- ✓ Access to financing
- ✓ Financing conditions
- ✓ No down payment



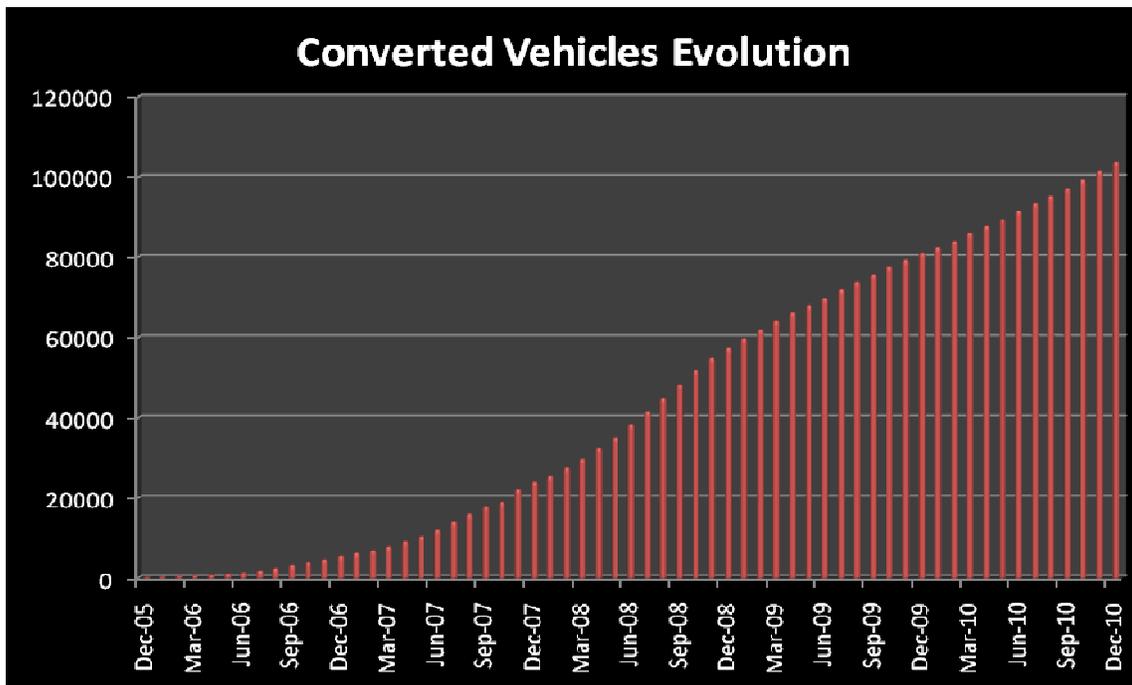
- ✓ Competitive interest rates
- ✓ Automated payment method and obtained from saving flow
- ✓ Available Guarantees
- ✓ Saving exceeding 50%
- ✓ User becomes a credit holder
- ✓ Access to multiple financial services through the system

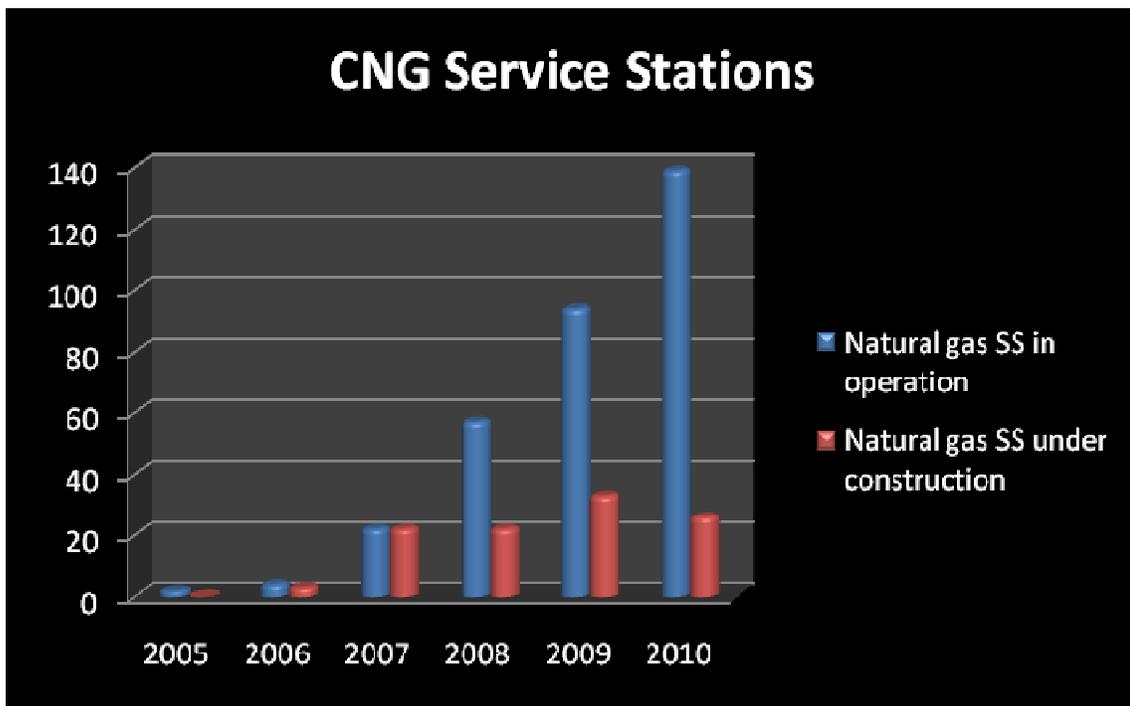
### 3. Why and how has it benefited other people besides consumers or direct users?

#### Other beneficiaries

- ✓ Suppliers: equipments, gas stations, conversion workshops (market development)
- ✓ Financial intermediaries
- ✓ General population
- ✓ Infogas users
- ✓ Program extension: An agreement with the Municipality of Lima in order to renew the fleet of urban public transport will benefit transport users, inhabitants of the city, municipality, and suppliers related to this industry, etc.

In the following pictures we can see graphics that show the most important results in numbers of the Loading Control System implementation:





Other results



## “NGV New Car” Program

This program promotes financing for new vehicles acquisition with dual system (Gasoline-NGV), including an appropriate after-sales service as well as the corresponding manufacturer’s guarantee provided by the brand. The financing structure considers the downpayment amounting to around USD 2,000, as well as average terms of debt repayment up to 60 months, being Charge Control System of NGV – INFOGAS, a very powerful collecting tool for the honouring of micro-entrepreneurs debts, people associated to public transport of passengers and general public. This financing tool has achieved to convince important representatives of vehicle brand to provide their vehicles with factory guarantee including conversion to NGV. It is shown main brands and models on the market NGV at the closing of December 2010.

Brand	Reference model	Source	Licensee	Reference Price (USD)	Vehicles sold
Kia	Rio	Korea	Mass Automotriz	13.990	4.488
Chevrolet	Corsa	Brazil	Autofondo	13.990	4.222
Hyundai	Accent	Korea	Gildemeister	13.990	2.426
Nissan	Sentra	Mexico	Maquinarias	13.000	1.107
WW	Gol SW	Brazil	Ecolinea	14.280	752
Lifan	L520	China	Altos Andes	11.990	683
JAC	A-Class	China	Derco	11,490	411
Zotye	Nomand	China	Novoautos	14,990,	299
Geely	CK	China	Autochina	12,690	158

Palio		Italia	Mass Automotriz	16,990	73
SMA	C-32	China	Motomundo	12,990	50
Acura	N.D.	China	N.D.	N.D.	8
Chery	S 21	China	Mass Automotriz	12,490	4
<b>14.681</b>					

The wide variety of brands and models available, will allow offer diversification in the market, satisfying demand of population, not only in terms of prices but also in quality, design and other characteristics. Likely, another important factor which will boost further the market is the delivery of the Scrap Bond, which validity and implementation is currently under study by the State. This bond, whose value approximately USD 2,500 will be granted to those people who have a vehicle up to 1600 cm<sup>3</sup> operating with diesel at least 10 years of construction, in order to redeem the bond at establishments (suppliers) authorized to receive such vehicles and purchase a new to NGV. Thus, it will be achieved:

- ✓ Improve quality of automotive fleet and reduce accidents caused by car failure.
- ✓ Improve quality of air we breathe.
- ✓ Improve economic conditions of car owners reducing its running cost and strengthen their heritage.

Note that there are several suppliers who are carrying out performing tests in order to proceed to their market entry of new car to NGV. We can mention among them: Chevrolet Aveo, SEAT and Toyota.



## Entry of new Intermediary Financial Institutions (IFI's)

COFIDE is also diversifying the means to increase the conversion and acquisition of vehicles to NGV, in order to promote competence and thus the best service and rate to end customer. So, nowadays the following IFI's operate:

1. Caja metropolitana de Lima 11. Financiera TFC 2. Caja Nuestra Gente 12. EDPYME Raíz 3. CMAC Sullana 13. EDPYME Proempresa 4. CMAC Ica 14. Banco Scotiabank 5. CMAC Cusco 15. Banco de Comercio 6. CMAC Huancayo 16. Banco BBVA Continental 7. CMAC Trujillo 17. Banco Interbank 8. CMAC Arequipa 18. Banco de la Nación 9. CMAC Piura 19. Banco Financiero 10. CRAC Luren 20. EDPYME Acceso Crediticio

## Approvals and Financing Structures of New NGV Bus Fleet

Up to date, credits have been approved for the acquisition of 484 NGV new buses for an amount exceeding S/. 140 MM. Likewise, in its portfolio it has several operations for financing 371 NGV Buses of different brands for an amount exceeding S/. 117 MM.

## Tools of Progress and Sustainable Development For Peru

### Agreement- Provincial Municipality of Callao



The Urban Transport Management of Callao is applying great efforts in the promulgation of standards that guarantee the development of an improvement policy in the service of public transport in its diverse categories, approving access procedures to grant authorizations for ten years, with the purpose of promoting the private investment in the service of public transport, giving them legal stability to those companies of transport operators of the service, which present and approve investment, managerial and operational restructuring projects.

It is worth mentioning that up to date the Provincial Municipality of the Callao has 12,482 vehicles distributed in 198 routes, and operated by 132 different companies, which generates a system of chaotic transport. The Urban Transport Management of Callao municipality has implemented a set of ordinances that make viable the operation and implementation of the Program. Therefore, transport companies of Callao, congregated in a public event on June 20, 2009 demonstrated its interest in starting up to the organization of financings. For this reason, the Provincial Municipality of Callao is working in the implementation of Reclassification program of the Urban Transport in Callao, for which it has implemented an Agreement of Interinstitutional Cooperation for the promotion and implementation of the Program of Rearrangement based on the use of the Vehicle Natural Gas, by the companies of urban transport of its region, through the development of schemes, products and financial mechanisms of the Program.



## Agreement –Provincial Municipality of Arequipa



The Provincial Municipality of Arequipa is working on a Program of rearrangement of the Public Urban Transport, in order to rationalize and modernize the current system, which collapsed due to transport routes in poor condition, environmental pollution caused by very ancient vehicles, the overlapping route of passengers' public transport and the inefficient traffic of more than 25 thousand taxis (mostly Daewoo - Tico), that have turned into one of the most polluted cities of the region. Therefore, from 2007, the Municipal Government signed an agreement of technical cooperation with Common Assessment Framework (CAF), in order to carry out prefeasibility and feasibility studies for the construction of a Segregated Corridor, with BRT's System on it, trying to do the same work done in the Lima. Thus, the Provincial Municipality of Arequipa has requested the implementation of the concepts, models and financing system, applied to the renovation of taxis fleet, as well as, the models of financing for buses purchase under a system that allows the renovation of the whole fleet, which will allow to overcome the current chaotic situation of the transport. Likewise, they have requested its participation as a financial advisor for structure financing and construction of the road corridor, which investment amounts to S/. 278 MM from which S/. 74 MM are needed to be financed based on the own resources of the Municipal and Regional Government. Ratifying the previous thing, in June, 2009 the Framework convention of Interinstitutional Cooperation was signed between the Regional Government of Arequipa and the Provincial Municipality of Arequipa. On Tuesday, June 16, 2009, the Mayor of the Provincial Municipality of Arequipa, showed in public the favourable results of the Feasibility Studies of the project called "Integral and Sustainable Improvement of the public transport services of the city of Arequipa", with SNIP code N° 77545, making its way for a process of financial and technical design for the contracting of works.

On May 13<sup>th</sup> and 14<sup>th</sup>, 2010 in the Chamber of the Municipality of Arequipa, it was carried out the event called THE FIRST DISCUSSION BOARD IN AREQUIPA TO INTRODUCE CARS CONVERTED TO LPG, organized by that Municipality, with the purpose of promoting the renovation of the vehicle fleet and improving the air quality in Arequipa.

It was exposed to the authorities, bus suppliers and new vehicles of LPG, IFI's and public in general, about its successful experience in financing conversions, acquisition of new cars, financing fleet of buses and financing for the construction of NGV Service stations, because it is intended to repeat the same experience in Arequipa. The principal agreements and conclusions of the event were:

- a) The Municipality of Arequipa will establish the regulatory normative framework for the promotion and use of the LPG, giving priority to the participation of all the LPGs Stations in Arequipa into the system.
- B) The Regional Government and the Municipality of Arequipa will called all the LPG stations, workshops of conversion and credit rating companies, with the purpose of moving forward with coordination meetings.
- c) They took the decision to carry out the Association of LPG Arequipa, in which all of them are involved.

d) They took the decision to execute campaigns of awareness in the population to use LPG to vehicle level.

E) Bureau Veritas offered to install an office in Arequipa, with the purpose of supervising and certifying the process of conversion to LPG.

F) A.T.P. Mano de Dios offered endorsement for obtaining credits on behalf of the unionized taxi drivers, as well as their training.

G) To carry out a meeting for the first week of June, this was executed according to the program.

H) Accomplishment of a Motor Show, the MISTIBUS and MISTITAXI program from July 2 to July 4, 2010 in the Centro de Convenciones Juli, which was carried out in accordance with the program and with great concurrence of the citizenship.

By October 27, 2010, it was organized an event named ROAD SHOW BUS FINANCING FOR THE INTEGRATED SYSTEM OF TRANSPORT IN AREQUIPA, in the hotel SONESTA of the above mentioned city. The event is aimed at the bidders who took part in the public bidding of this new system of persons' transport for the city, trying to repeat the experience of the METROPOLITANO of the city of Lima. Likewise, they have foreseen to call for the following institutions, with the purpose that its respective experiences and financial products expose and present:

- ✓ Interbank
- ✓ Banco de Comercio (Commerce Bank)
- ✓ Banco Financiero (Financial Bank)
- ✓ Caja Municipal de Arequipa (Municipality Saving Bank of Arequipa)
- ✓ Caja Metropolitana (Metropolitan Saving Bank)
- ✓ Arequipa's Municipality (Municipalidad de Arequipa)
- ✓ Corporación Financiera de Desarrollo COFIDE( Supervising Council - COFIDE)

### Promotion of the Energetic Matrix Change in Piura



From the second half of 2008 and during 2009, I was been promoted in Piura the process of change of the Energetic Matrix, by means of visits, exhibitions and work meetings with the authorities of the Regional Government, Municipality, Gas suppliers, Workshops of





Conversion, Financial Institutions, Representatives of Brand of New Vehicles and Transporters' Unions (Buses, Taxis and Motorcycle - taxi), confirming the great economic potential that the business of the Natural Gas can generate in the north of our country. Inclusive the system was presented in the I Expo CNG Fair in Piura, on December 03 and 04, 2009. The fair was organized by the Provincial Municipality of Piura through the Transport office, where participated the main companies of the vehicle fleet and suppliers of Natural Gas, workshops of Conversion, Unions of transporters, Banco Continental, Piura Saving Bank and public in general. By 2010-2011 period, we foresee a great dynamism in the transport sector, since this can be the supporting sector for economic and social development of the city and its population. It is clear that one of the important aspects for the cities to prosper is to have rational systems of passengers and load transport. In this sense, the Loading Control System becomes the engine that boots the development of the northern cities, granting sure financings, according to the needs of every sector of the Peruvian economy. In September, 2010, GASCOP Company start the dispatch of CNG, in a virtual manner, to the first CNG Service Station in Piura, named Castilla Station, investing US\$ 14 MM in the installation of a master station of compression and two secondary stations in Piura's city, with which NGV's service began for cars in the north of the country. Therefore, the CNG SS CASTILLA also started dispatch operations of CNG, inside the INFOGAS system, starting up the decentralization of NGV sale in our country.

#### Promotion of the Energetic Matrix Change in Chiclayo

From September, 2009 Municipality of Chiclayo authorities, requested support for the renovation and rationalization of vehicles fleets of passengers' transport. In this sense, The Loading Control System was presented in the I CNG Expo Fair in Chiclayo, which took place from March 26 to 28, 2010, which was organized by the Provincial Municipality of Chiclayo.



The idea of this first fair was to raise awareness in the businessmen of the transport sector of passengers with regards to the economic environmental benefits of the natural gas. Likewise, they invited to the principal companies of fleet sector and suppliers of Natural Gas, workshops of Conversion, Transporters' Unions of Chiclayo, Saving Banks and Banks. In December, 2010, GASCOP company began the virtual dispatch of CNG, by means of a secondary dispatch station located in the city of Chiclayo.

#### Promotion of the Energetic Matrix Change in Ica



During February, 2011, It was organized a conference in the city of Ica, to explain the benefits of using natural gas, as well as of the financing possibilities. The company "Grifos Espinoza" estimates that during the second quarter of 2011, its first CNG station will be inaugurated in Ica (the first one with this type of fuel in the city),



which will start up the development of the market of vehicle natural gas in the city.

Nevertheless, the most important thing of this result is the whole set of companies and processes that have made possible the successful development of the market of Vehicle Natural Gas, operating jointly more than Five thousand five hundred thirty six (5,536 Million Nuevos Soles or equivalent to US\$ 2,000 ' 000,000.00, which has been transferred to the population by means of savings and improvement of per capita income.

Likewise, at the end of 2010, there are 103,712 vehicles converted to CNG (near 15 thousand of them are new), 210 workshops of conversion and 139 Stations of CNG Dispatch distributed by the whole city of Lima, Piura and Chiclayo, being these achievements a record of international magnitude as a whole.

In general, the System has allowed the increase of Competitiveness and Productivity in the market, since there have been created 420 specialized and formal domestic enterprises generating income for worth US\$ 580 ' 000,000.00 and more than 7,000 sustainable formal direct employments. In addition, it is worth mentioning that the renovation of the vehicle fleet is being promoted, since 15 thousand new NGV vehicles have been already financed, under 15 brands of prestige, turning the taxi driver into owner of its assets.

On the other hand, environmentally speaking, the benefits obtained are mainly the Reduction of 30 % in the levels of Divided Material and Sulfur Dioxide in the air of the city and the Mitigation to the Climate change by stopping the emission amount to 1 million MT-CO<sub>2</sub>, with the use of 100,000 NGV vehicles to this date.

At the same time, The system is promoting the Development and the Social Inclusion, by means of the facilitation of the access to the credit to more than 75 thousand taxi drivers' users. To this respect, also the revenue has been increased of more than 100 thousand users, in more of S/. 900 each month (1.5 minimum Salaries). This substantial improvement of the quality of life of more than 75 thousand families has allowed that to this date 45 % of the total of credits granted to 35 thousand users has been cancelled entirely, which opened the option of major and new financings under the concept of products such as insurances, consumer goods, payments of public services, education, health and housing, always from the employment of the INFOGAS platform.

On the other hand, The system has contributed significantly in the contractual and financial structure of the first Segregated Corridor of High Capacity (COSAC) of the system of the Metropolitan Bus Rapid Transit (BRT) of Lima, implementing innovative schemes that made possible the reduction of the risks and financial costs of the business, as general level as the level of each one of the private operators.

It is worth mentioning that these project involves the construction of these projects as the improvement and rationalization of the service of massive public transport of passengers in the city of Lima, which imply a system and specialized infrastructure or BRT (Bus Rapid Transit, for his initials in English), is indicated through the system It was authorized a financing up to for US\$200 MM, of which have been already spent more of US\$ 149 MM in favour of four concessionaires, who was awarded the public bidding of The Metropolitan project, granted by the Municipality of Lima, for the acquisition of 567 New NGV Buses that will work in the BRT vial network and infrastructure, as well as the implementation and coming into operation of the Segregated Corridor of High Capacity - COSAC I in Lima,



which will join the North and the South of our city, providing improvement in the quality of life, saving in time of movement and money to the citizens.

The Metropolitano system began with the process of trial phase on May 01, 2010. Later, about July 20, 2010 it started the commercial operation, beginning in the South – Centre section. At the end of December, 2010, the system extended his route up to the Station North of Naranjal. In this first stage the System uses 30 % of its installed capacity, as 176 articulated buses and 45 feeder buses are circulating, which transports almost 300 thousand passengers every day. It is important to emphasize that all trust agreements of buses, car scrap metal and flows have been signed, in which COFIDE acts as a Trustee, being all of them in its operative stage. Additionally, the Municipality of Lima has determined that the city has nine road basins, one of them is the COSAC I. Thus, the progress and renovation expectations are also boosted to other transport companies, which is why they are requested advising and financing, in order to organize operations of acquisition and renovation of its buses fleets. In this sense, It was approved to this date financial structures for the acquisition of 484 NGV new buses, in favour of diverse companies of public transport of passengers, for an amount exceeding S/. 140 MM.



## Conclusions

- This system helps maintain control over the CNG market, avoiding informal facilities that may be made in violation of safety standards, since the entire conversion chain and CNG gas-up system is online.
- This system enables an extraordinary rate of growth for the car conversion market.
- Needless to say, countless problems were encountered along the way, basically because the growth rate of each actor in the market was different. However, we have already achieved the stability the market needs to continue growing in an orderly and sustainable manner.
- Peruvian Government achieved It's main goal, that was use the Camisea Natural gas Reservoir for the local market and based on it started to change the energy matrix not only saving money to the installed industries in Peru, but also achieving a social impact in the common people with the use of Natural gas in many homes and as explained in this Show Case Work allowing many taxi drivers convert and / or buy their vehicles into Dual System Gasoline / CNG, getting a better lifestyle and supporting the country with a friendly environment fuel.