



## The Mexican LPG Carburetion Market, a Good Idea Whose Time Has Come...Again!

## The Newly Born Mexican Petroleum Industry

- The LPG distribution industry develops from the nationalization of the petroleum industry in 1938
- The Mexican Government decided to keep control of the production / import and first hand sales of LPG, while opening the distribution business for Mexican entrepreneurs



President Lázaro Cardenas, during the official nationalization ceremony

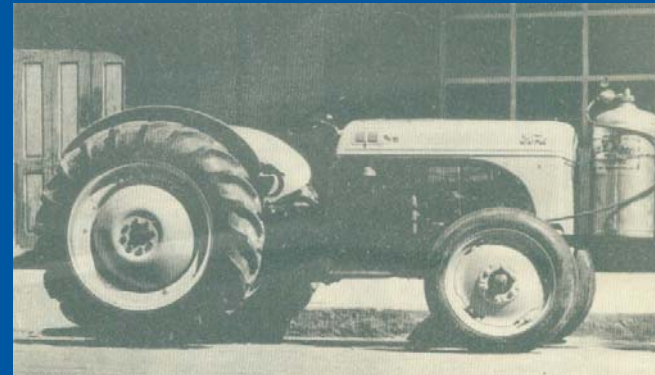
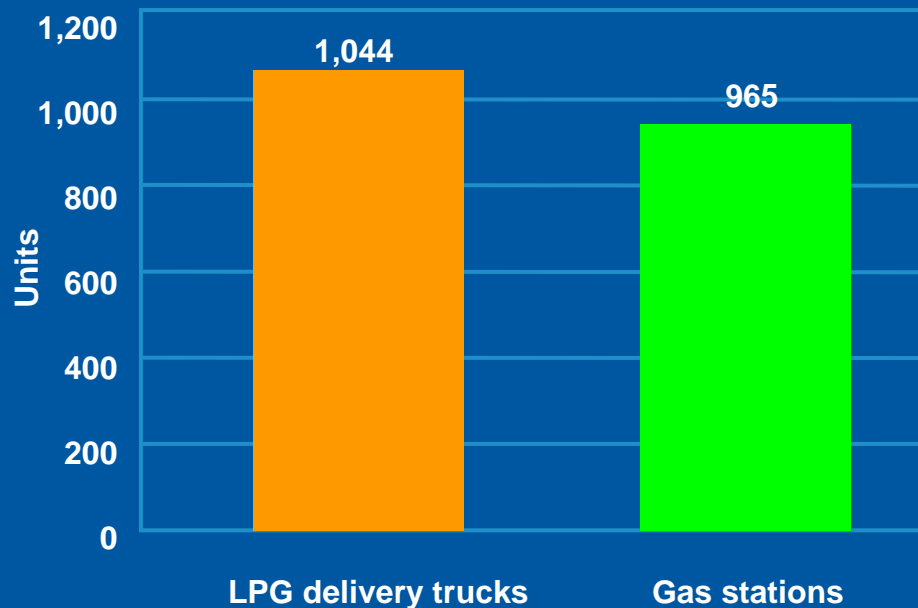
The initial challenge... to create demand



## Fuel Availability, the first LPG Opportunity

- The industry pioneers start to look for ways of adding demand
- In the late 40's, the energy needs of the suburban farm make it a prime target
- By the early 50's, LPG is more readily available than gasoline

LPG Delivery Trucks vs Gasoline Stations (1950)



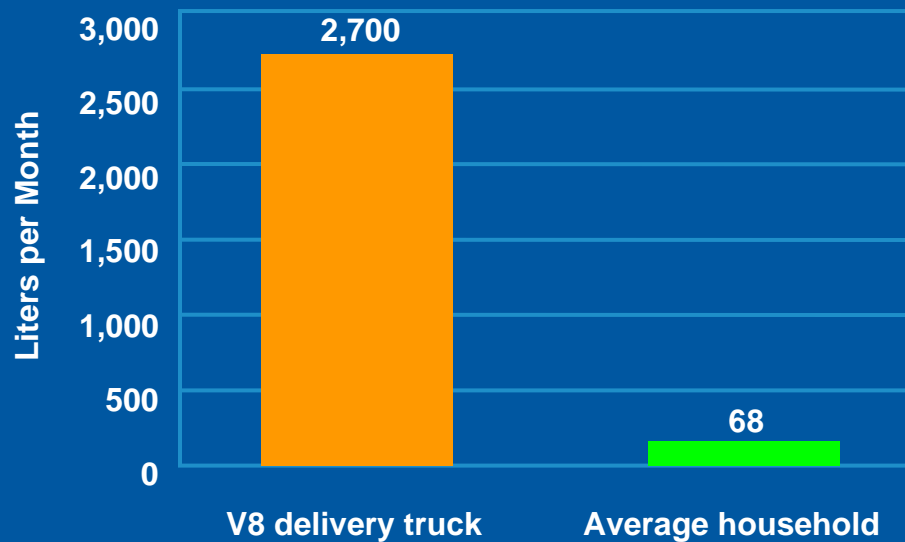


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## From the Farm to the Road, a New Opportunity!

- After the farm tractor success history, the LPG dealer saw the fuel advantages for its own fleet
- By the late 50's the fast-growing LPG delivery fleet had adopted its own fuel as primary source of motor fuel

Fuel Demand Comparison



## Throw Away the Bucket, Material Handling Vehicles are Next

- LPG also has important application advantages, that allow to develop this niche
- Savings and safety!... solid sales arguments during the 60's



## LPG Flexibility and In-House Refueling

- LPG eliminates open – container refueling procedures
- The investment for an in–house refueling station is relatively low
- The possibility of interchangeable LPG cylinders also exists



**Safety First!**

## The Industrial Development Enhanced the Opportunity

- Average fuel demand, 40 to 50 liters per shift, 2 to 3 shifts per day
- By the late 60's, Mexico is 2nd in total soft drink production, and ranks 4th in automotive engine manufacturing



Added value for enclosed work environments

## From Specialty Niches, to the Urban Delivery Fleet

- The urban delivery fleet, provides LPG carburetion with its fastest growth by the late 60's, and the early 70's
- Fuel price is the main driver, with an average 2,5 month payback period



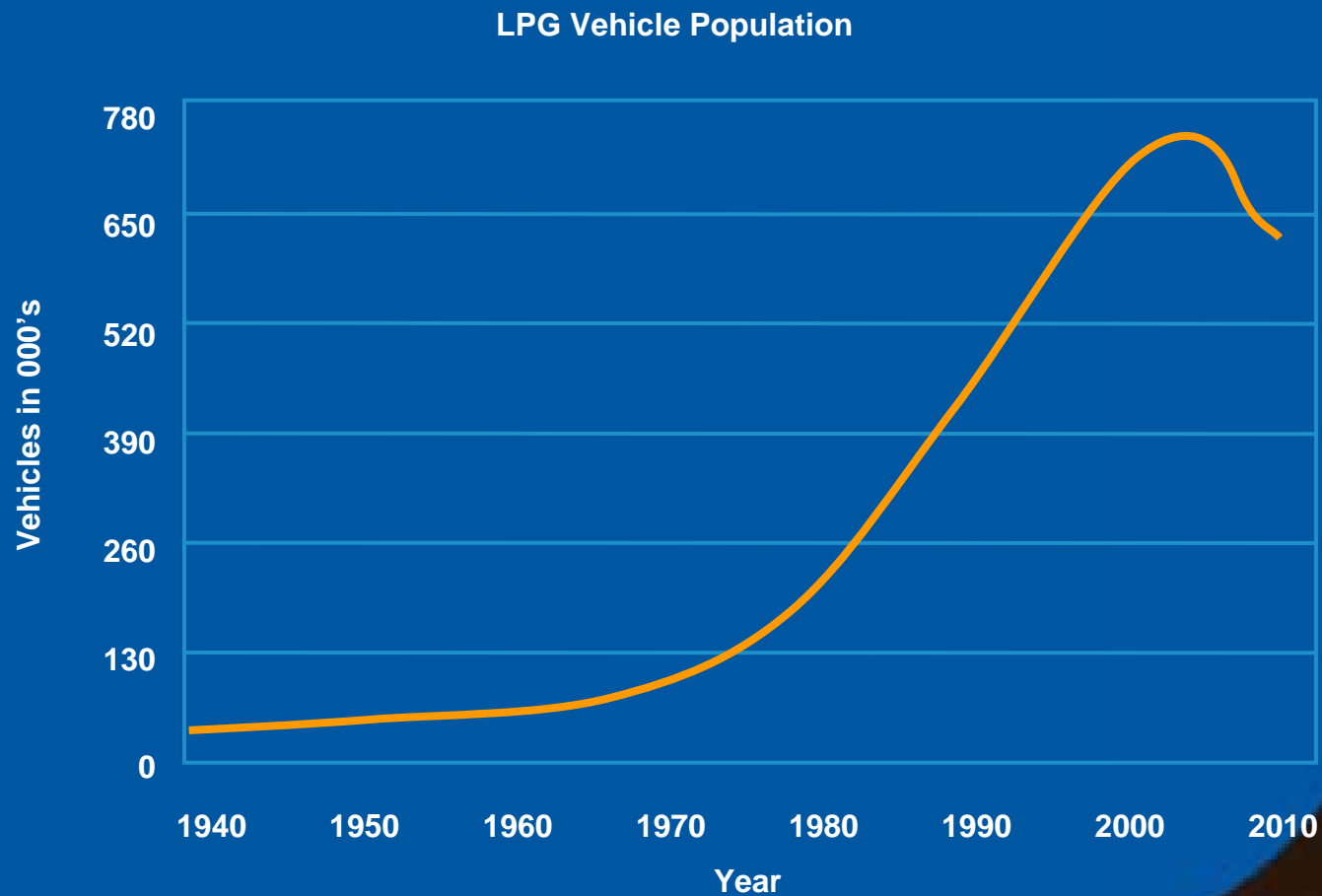
Follow the leader



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## The Growth Effect through the Delivery Fleet

- A sharp increase in the LPG vehicle population starting in the early 70's
- Downturn comes from a performance crisis which was brewing since the late 90's

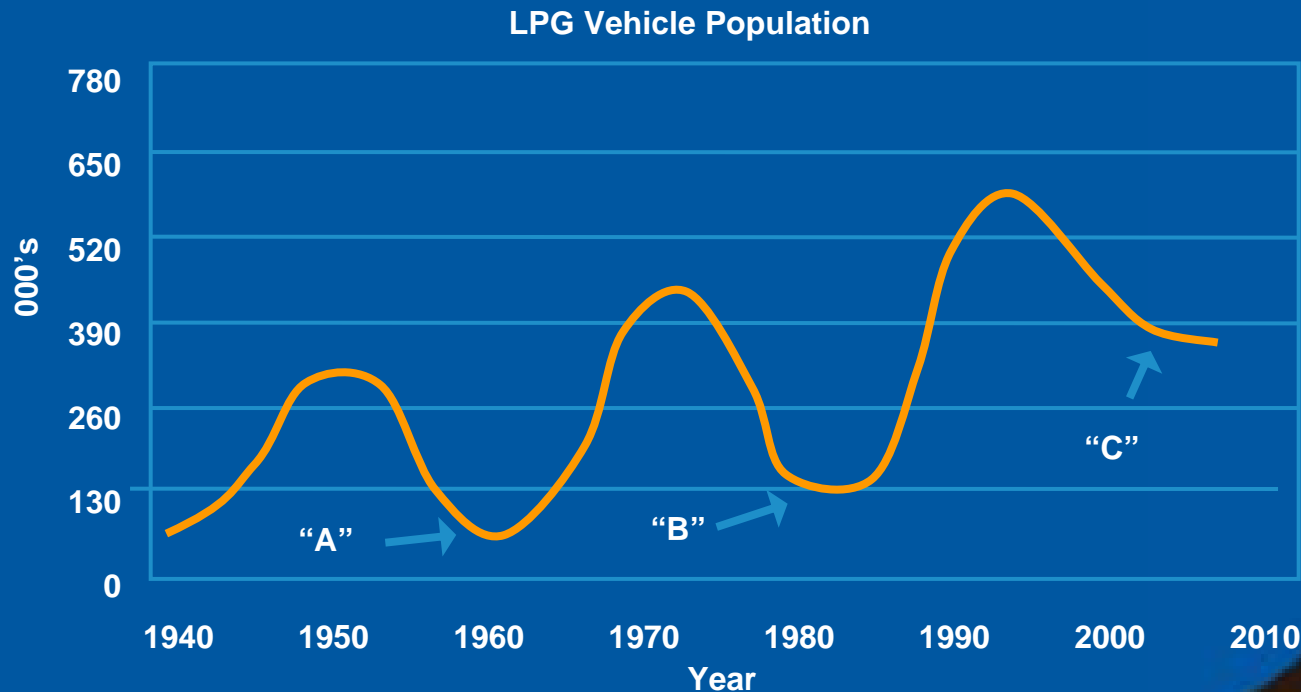




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## Fasten Your Seat Belts!...Growth is a Bumpy Ride

- From a history of “*easy comes, easy goes*” opportunities, the carburetion segment has always been seen as a short term deal, without any industry strategy
- Throughout the years, “*growth*” has shown three main crisis
  - “A” Lack of fuel availability generated governmental restrictions
  - “B” Fuel demand distortion (10% used in “tolerated” LPG vehicles), and the explosion of a main storage center, brought about a “Prohibition”
  - “C” The steady loss of price differential made evident the poor performance of the LPG conversions



## Paint It Green!...Ecological Advantages keep LPG Sales Soaring

- LPG as motor fuel changed its position from “*prohibited*” by the late 70’s, to become a privileged fuel by the late 80’s, this change was due to its ecological advantages

Application Scheme for the  
“Day Without a Car” Program

<b>Hoy no Circula</b>	
<b>5 y 6</b>	<b>Lunes</b>
<b>7 y 8</b>	<b>Martes</b>
<b>3 y 4</b>	<b>Miércoles</b>
<b>1 y 2</b>	<b>Jueves</b>
<b>9 y 0</b>	<b>Viernes</b>



LPG benefits, are certified  
through stringent official  
laboratory tests

## National Fleets Convert to LPG

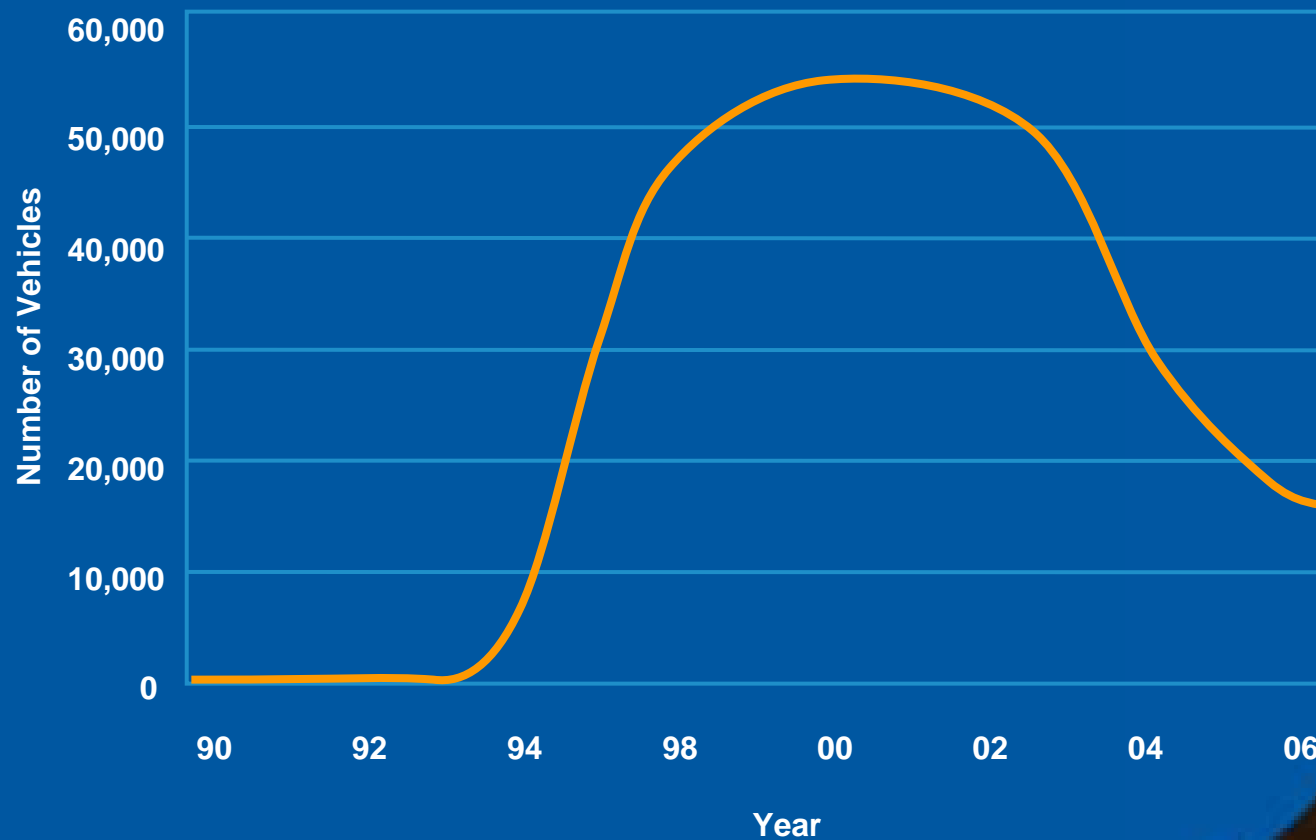
- Government certified tests results lure nation-wide fleets into using LPG
- During the 90's the Mexican conversion market is among the largest in the world



Bimbo pastries  
avoids "*day without  
a car*" with LPG

- For the first time official LPG vehicle records are published

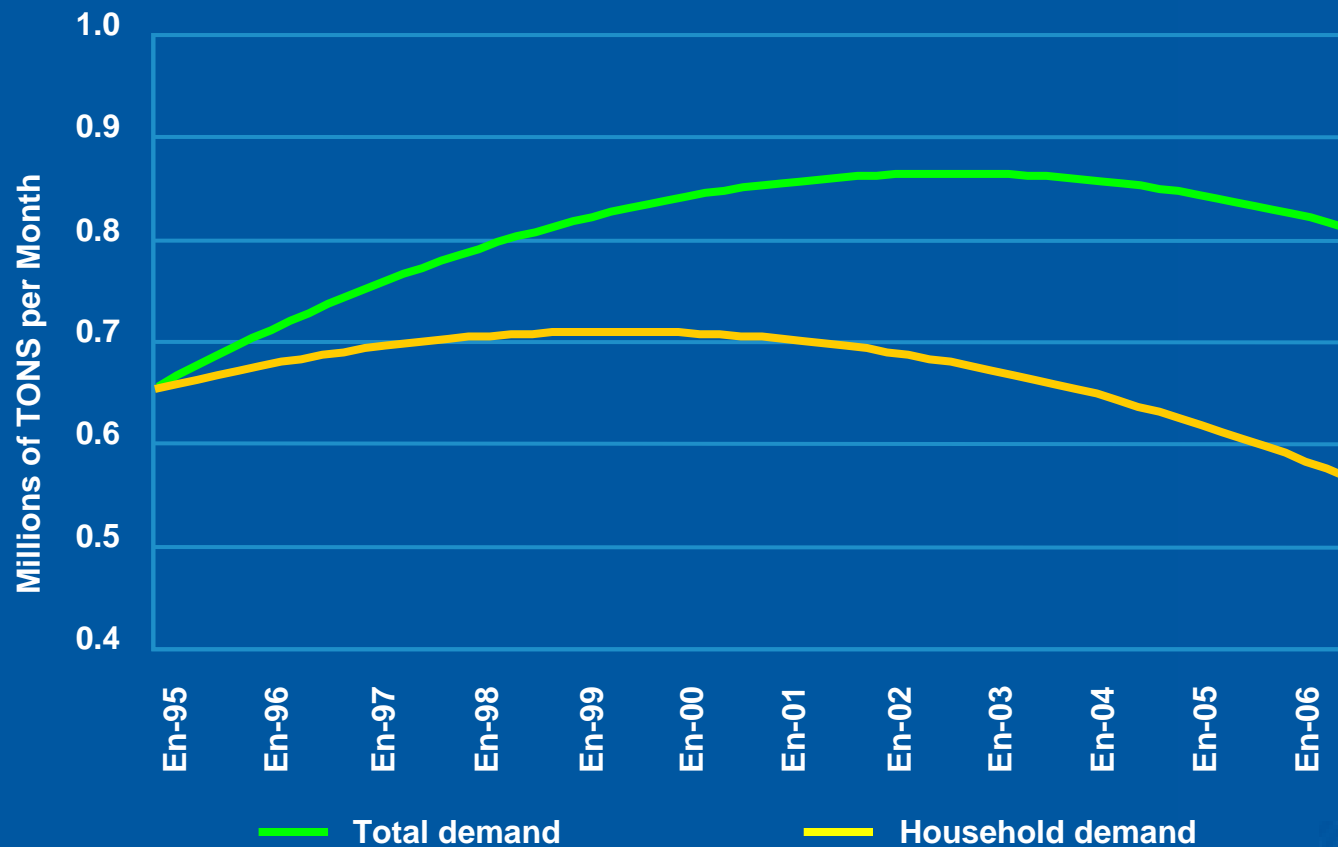
Registered LPG Vehicles in the “Day Without a Car” Program 1993 – 2005



## LPG Carburetion a Blessing in Disguise

- The motor fuel demand kept “*disguised*” the loss of demand in other segments from the late 90’s to the early 00’s

Total and Household Demand Comparative for LPG in México



## The Diesel Effect

- The diesel industry has gained market share from the LPG carburation segment, based on an integrated offering
- From 2003 to 2007 21 new diesel vehicle platforms ranging from class 6 to class 2, have been introduced to the Mexican market

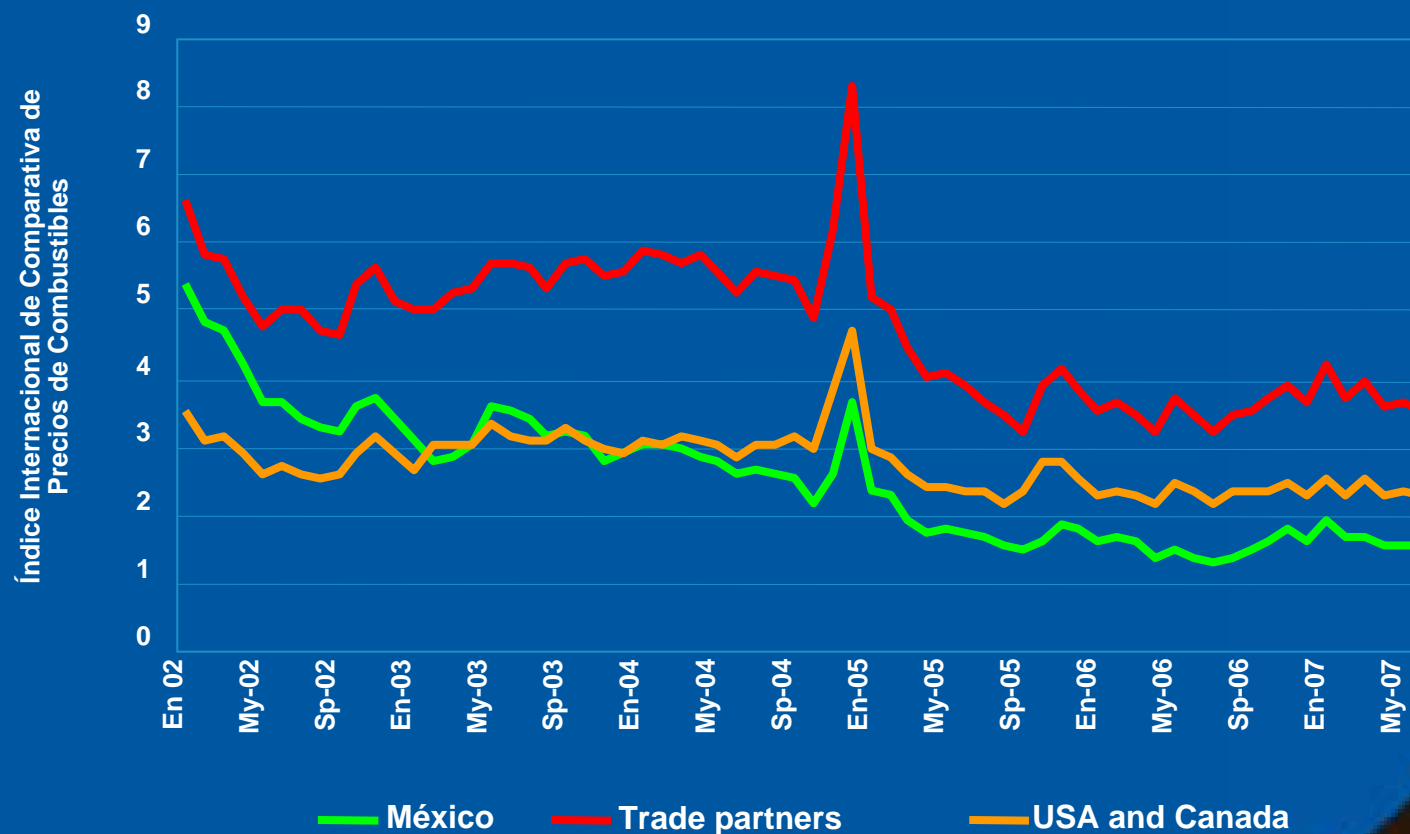
VW diesel truck



Sprinter MB Clase-3

- There is a pressure build-up to increase diesel prices in the short term
  - Abiding new ecological standards EPA-2007 and EURO IV
  - Increasing international demand for Diesel
  - Internal economic needs (special fuel taxes – IEPS)

Diesel Price Comparison- Trade Partners-NAFTA



- The LPG carburetion performance crisis will require an industry integrated offer, at the OEM level, based on the next generation of carburetion systems

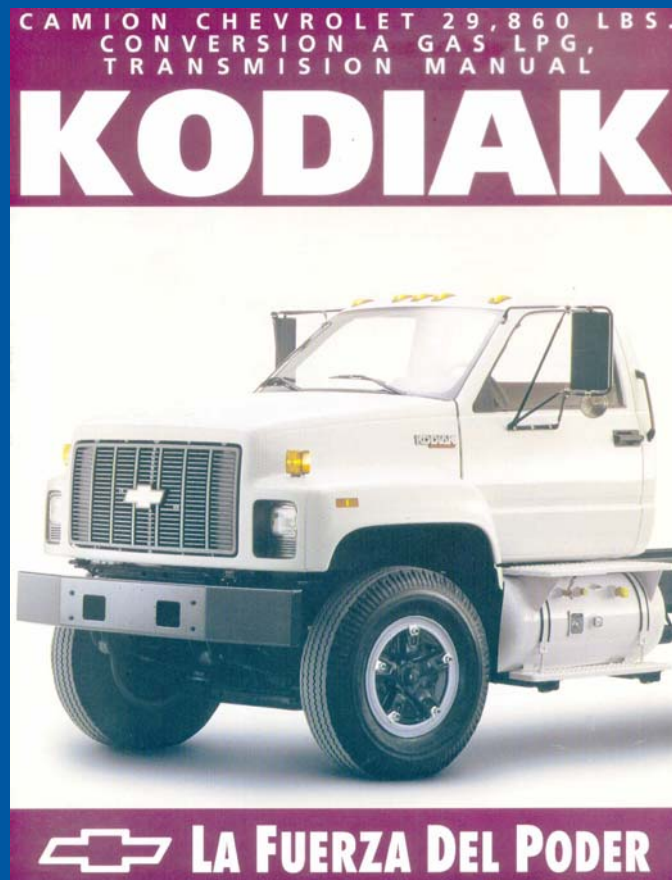




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## OEM-GLP The Path to Follow

- OEM – LPG vehicles (like the Kodiak shown), have been real success histories: 1,000 vehicles produced in two model years, with no warranty claims on the LPG system nor LPG induced engine damages

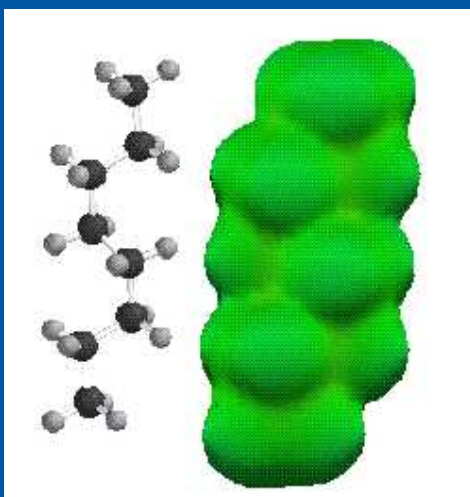


Kodiak GM

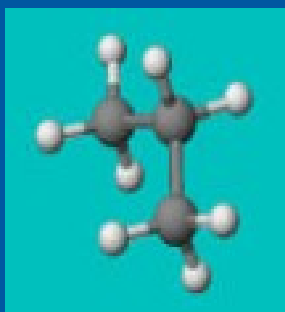
## Climate Change and a Global Opportunity for LPG

- The LPG molecular ratio of *energy / carbon content*, is a clear advantage over that of conventional fuels

Octane molecule



Global warming



Propane molecule

- **Climate adjustment process**

Step	Action	Description
1	Analyze	Study the current transportation problem from a sustainability point of view
2	Dimension	Measure the different parameters affecting sustainability
3	<b>Adjust</b>	<b>Based upon the numerical results, adjust the scheme, looking to achieve sustainability</b>
4	<b>Mitigate</b>	<b>Diminish the effects derived from the transport utilization scheme, getting it closer to achieving sustainability</b>
5	Neutralize	Change the transport utilization scheme in a way in which its former effects get neutralized, thus making it sustainable

**LPG will be the preferred transition fuel, traveling the road to zero emissions**



**¡Gracias Amigos!**