



Pemex's Internal Market for Carbon Emissions Trading

September 3rd, 2008

- **Background**
- **Concepts of Emissions Trading**
- **The Domestic Market for Carbon Emissions Permits**
- **Transaction Registration System**
- **Data Processing Platform**
- **Conclusions**

Petróleos Mexicanos (Pemex) is a state-owned company, responsible for the exploitation of the country's oil wealth.

Engaged in exploration, production and marketing of crude oil and natural gas, also processes and distributes refined products, gas and petrochemicals, which sell in the domestic market and abroad.

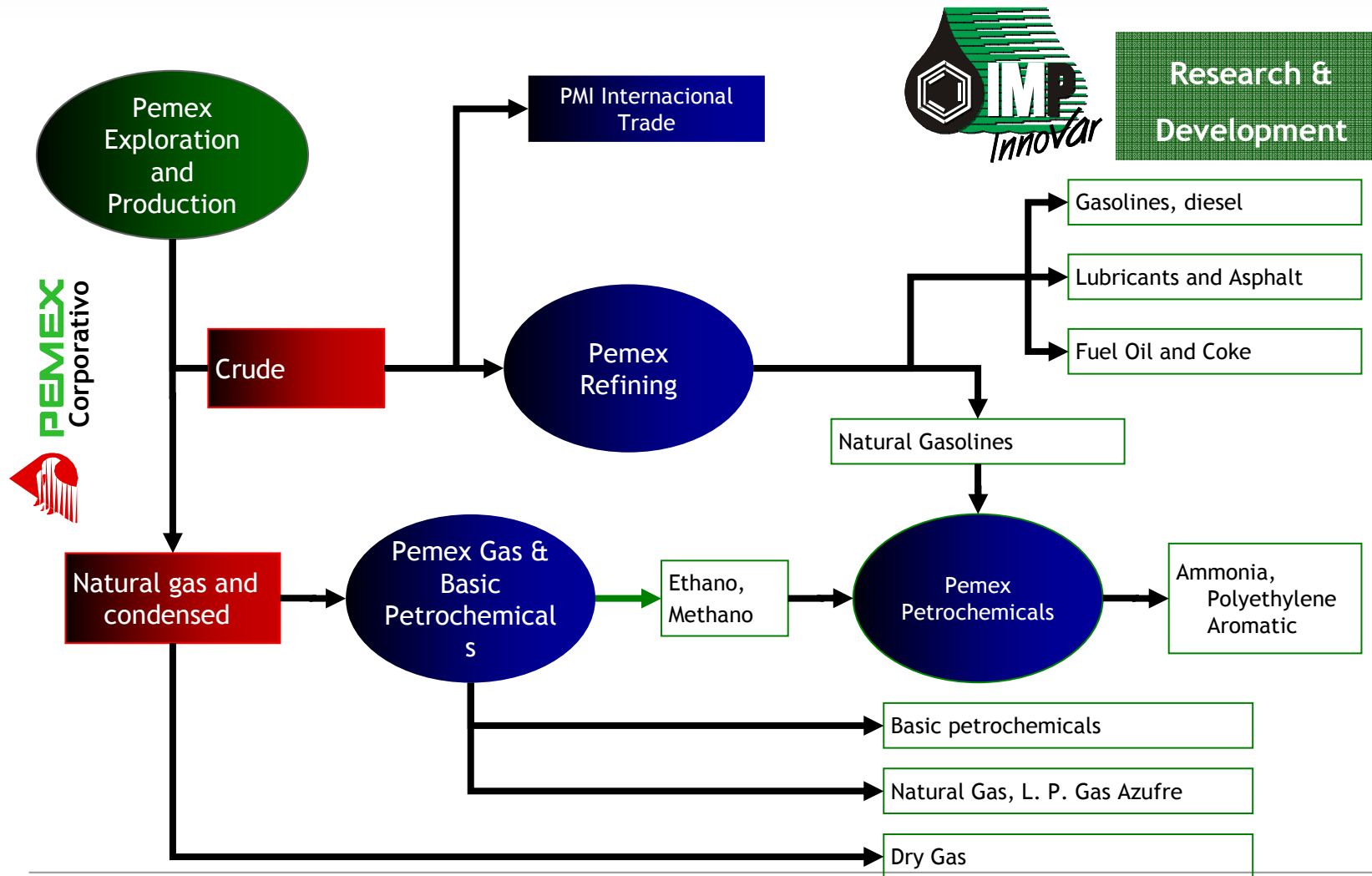
Pemex consists of a corporate and four subsidiary facilities:

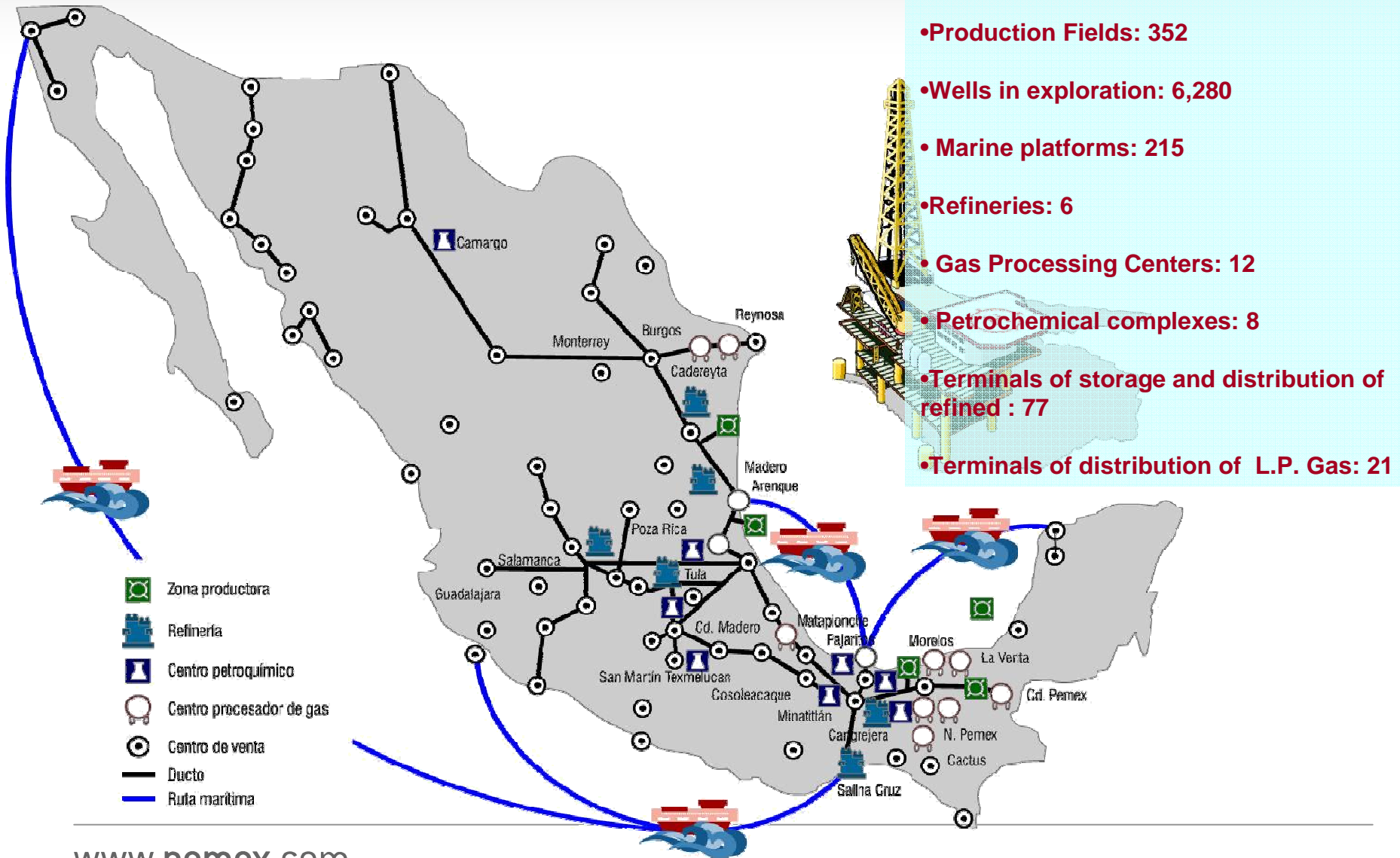
Pemex Exploration and Production (PEP)

Pemex Refining (PREF)

Pemex Gas and Basic Petrochemicals (PGPB)

Pemex Petrochemicals (PPQ)





- Pemex is the largest company in Mexico and Latin America, and the main contributor prosecutor in the country.
- Production of liquid hydrocarbons in 2007: 3486 MBD
- Value of total sales: \$ 1135 billion (U.S. \$ 104.5 billion)

Ranks 11th place in the global oil industry, and specifically is located in the following positions

1° In production of coastal crude

6° In production of crude oil

12° In refinery capacity

12° In production of natural gas

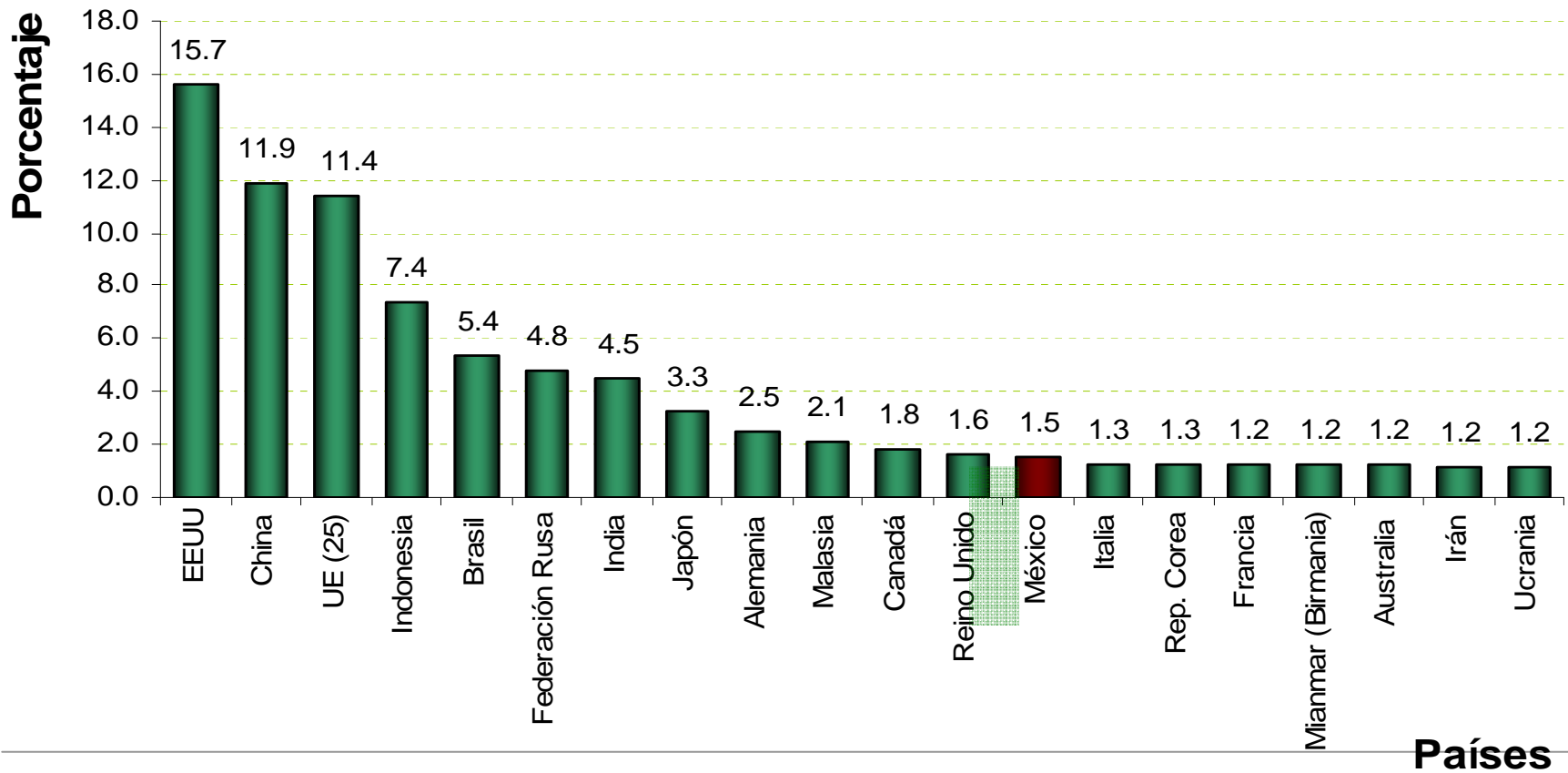
17° In crude oil reserves

35° In gas reserves

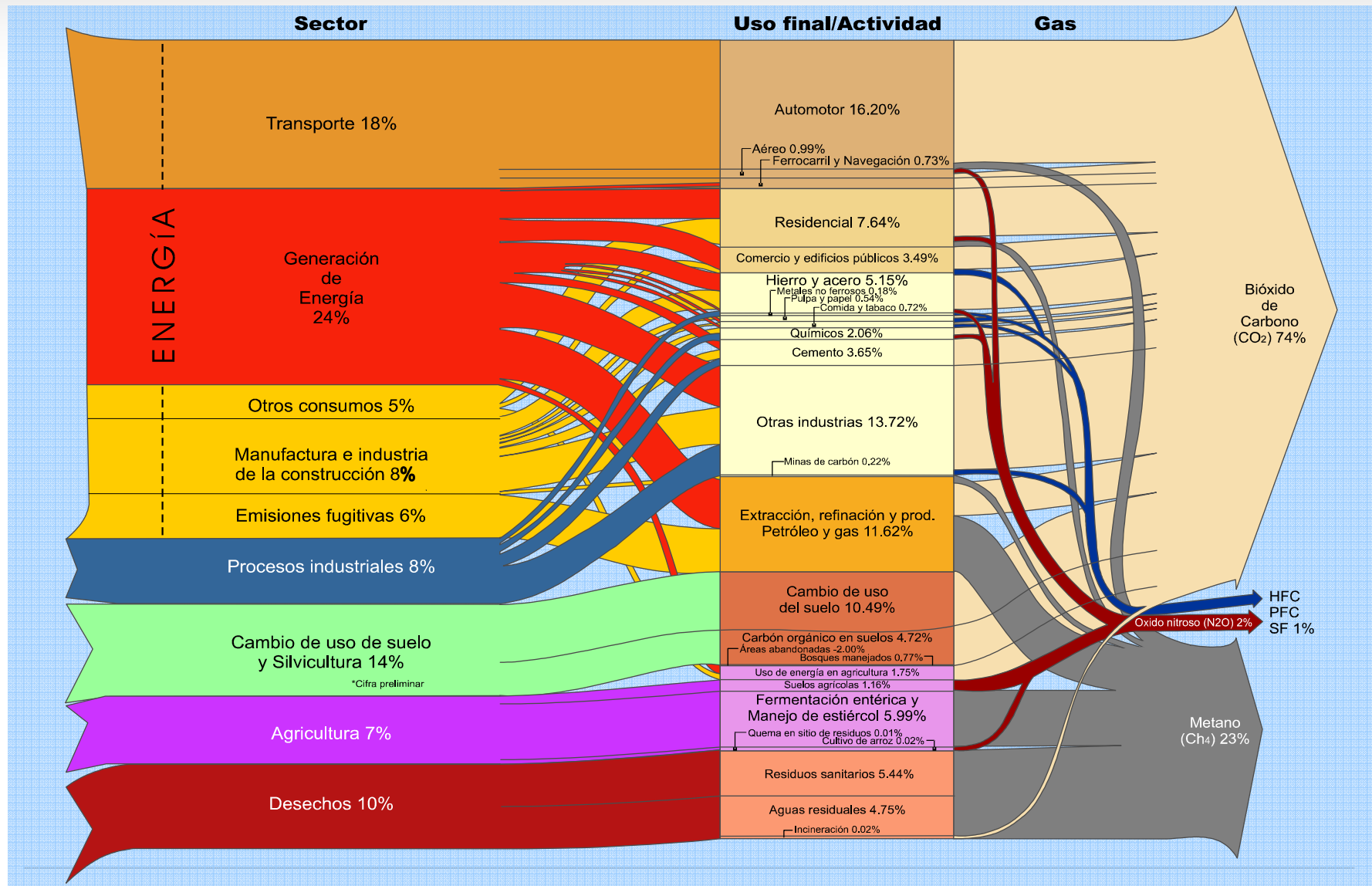
Source: Petroleum Intelligence Weekly.2007

GHG emissions in the world

- In 2000, global emissions of GHGs were of the order of 41 thousand MMtCO₂e.
- The group of 37 developed countries emitted 17 MmtCO₂e
- Mexico issued in the year 622 MMtCO₂e, equivalent to 1.5% of global emissions, occupying the site number 13 among the 20 largest emitters of GHGs in the world.

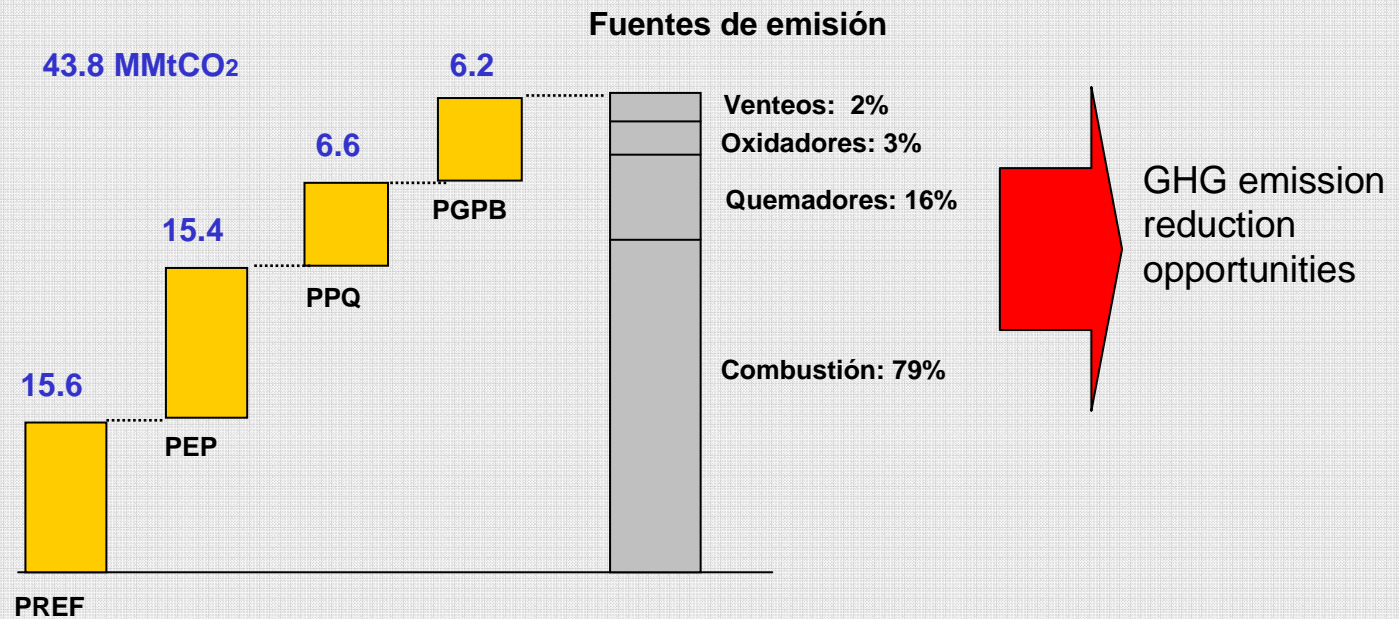


GHG emissions in Mexico



CO2 emissions from Pemex in 2007 (43.8 MMton CO2) equivalent to about 7% of the total emissions of Mexico.

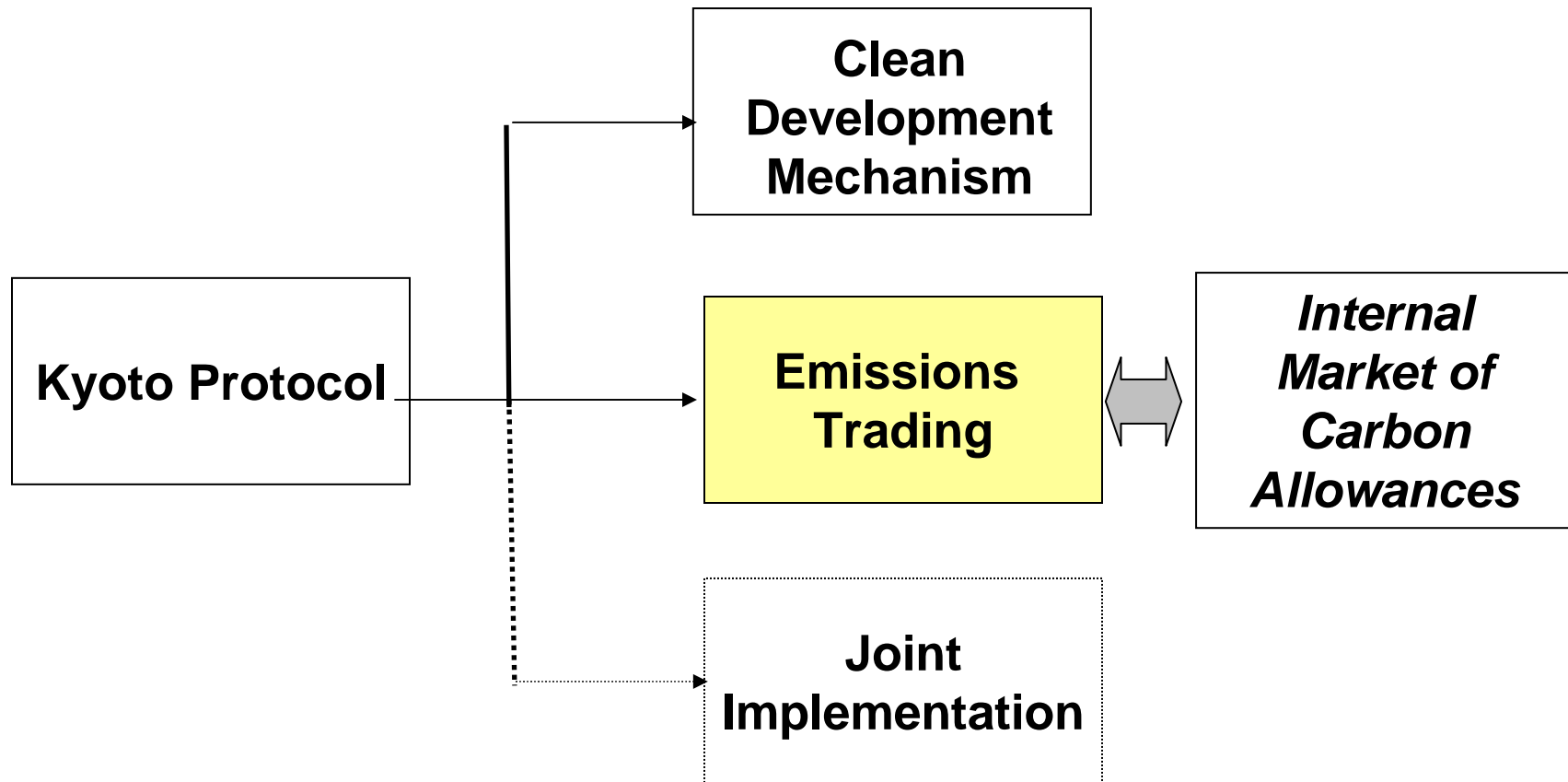
Pemex* CO2 emissions, 2007



Source: Sistema de Información de Seguridad y Protección Ambiental (SISPA)

*No incluye metano

KYOTO PROTOCOL. FLEXIBILITY MECHANISMS



The Internal Market for Carbon Emissions Permits (the "carbon market") was developed by Pemex, with the support of Environmental Defense, and operated from June 2001 to May 2005.

Goal: To reduce CO₂ emissions by 10% in ten years with respect to those recorded in 1999 (41.5 million tons).

-Operation in real time, transparently and verifiably. Market "blind".

Design based on the market for SO₂ administered by the USEPA in the northeastern United States.

Arises from the decision to get into the issue of climate change and market mechanisms. ("Learning by doing").

The aim is to promote energy efficiency projects and emission reduction.

It is a market mechanism applicable to the emission of air pollutants (SO₂) and greenhouse gases (CO₂e).

Operating with virtual currency values.

- A “permit or allowance” corresponds to the emission of one ton of carbon dioxide (CO₂) in a year.
- Each share of emissions reductions must be environmentally and economically effective, quantifiable, verifiable, traceable and auditable.
- The Corporate Audit of Environmental Protection (ACPA), manages the market and allocates annually emission limits for each one.

- It is based on the rules of "Cap and Trade", baseline allocation of emission limits, marketing and incentives and penalties.
- Establishing a "carbon bubble" in Pemex with the 25 participants with the highest emissions of CO₂e (refineries, Regions exploration and production, gas processing facilities and petrochemical complexes)
- Develops System Registry Trading Market.
- The Information System Security and Environmental Protection (SISPA) provides statistical information on emissions.
- The corporate area of Environmental Protection administers the Market.

- **Energy efficiency**
- **Cogeneration projects / gasification in refineries**
- **Fuel substitution**
- **Harnessing natural gas (flaring)**
- **Reinjection of CO₂**
- **Forestry projects**

PEMEX Exploration and Production

1. North Region
2. South region
3. Southwestern Marine Region
4. Northwestern Marine Region

PEMEX Refinery

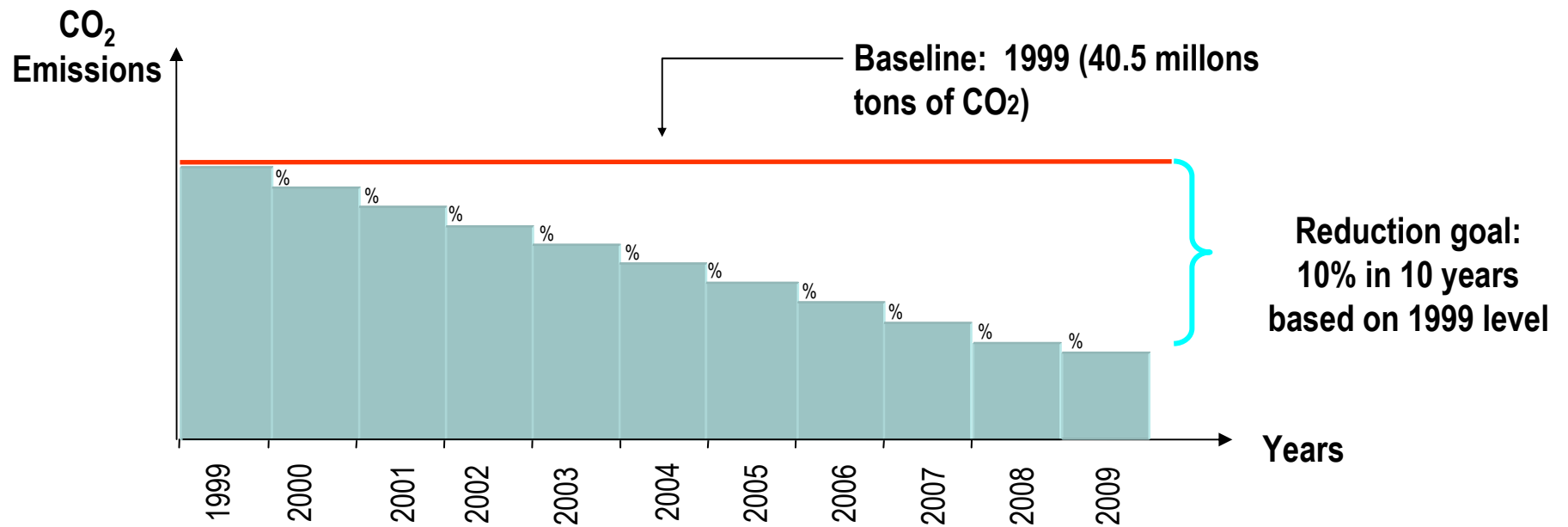
1. Cadereyta Refinery
2. Madero Refinery
3. Salamanca Refinery
4. Minatitlán Refinery
5. Salina Cruz Refinery
6. Tula Refinery

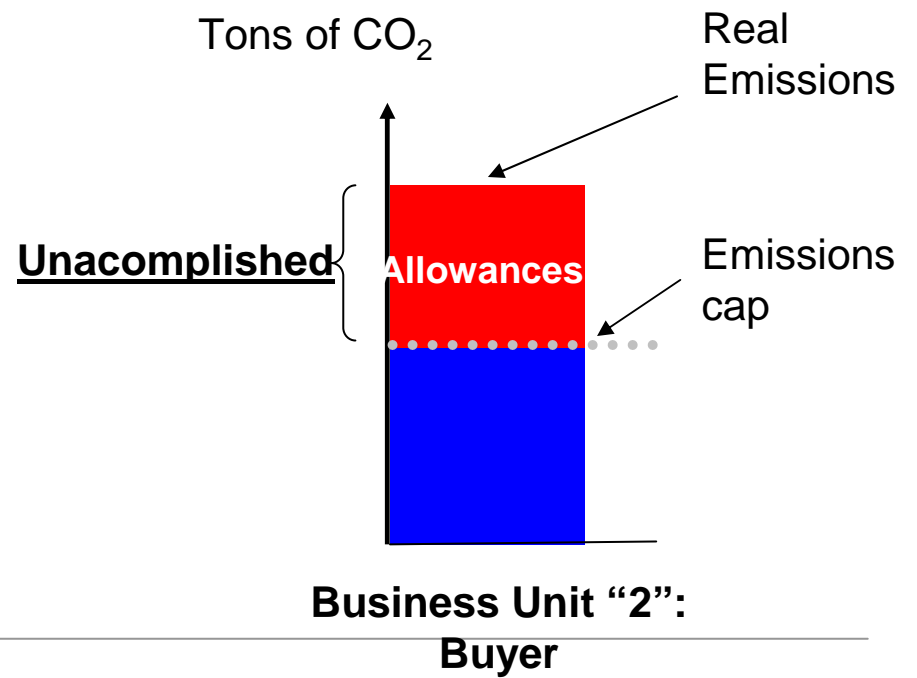
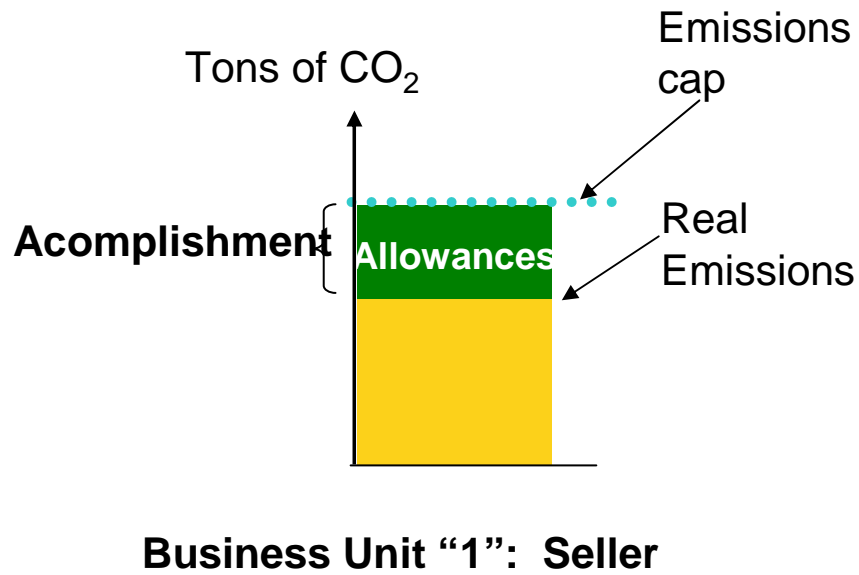
PEMEX Gas and Basic Petrochemical

1. CPG Cactus
2. CPG Cd. PEMEX
3. CPG La Venta
4. CPG Matapionche
5. CPG Nuevo PEMEX
6. CPG Poza Rica
7. CPG Reynosa

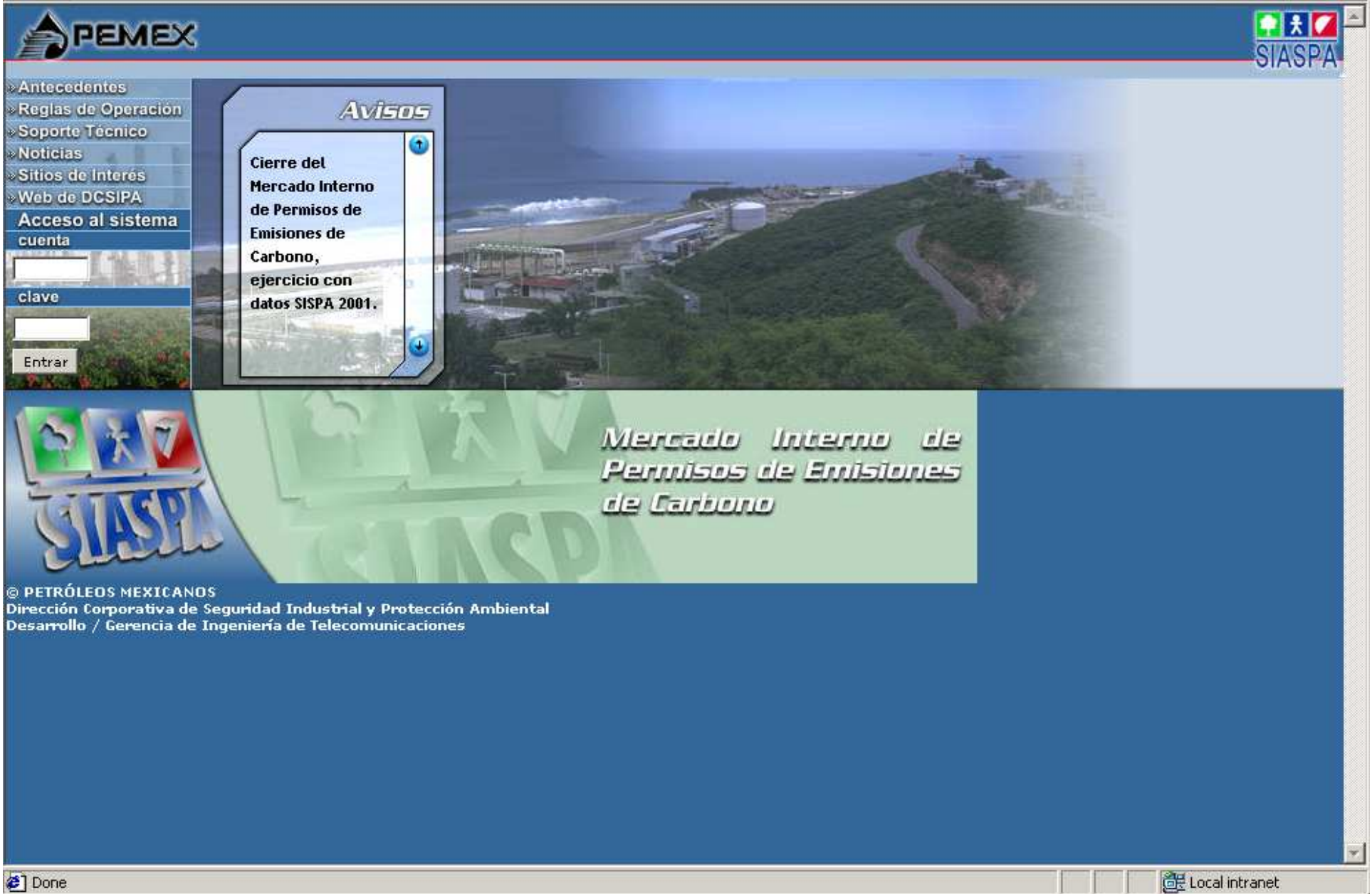
PEMEX Petrochemical

1. CPQ Morelos
2. CPQ Cangrejera
3. CPQ Pajaritos
4. CPQ Cosoleacaque
5. CPQ Escolín
6. CPQ Tula
7. CPQ Camargo
8. UPQ Independencia





- It is a tool for the estimation of CO₂ emissions based on energy consumption introduced by Notifiers located in the workplace for processing, storage and reporting.
- uses emission factors EPA AP-42 for the calculation of GHG emissions per equipment, floor work center and subsidiary
- Database of SISPA contains the configuration of all the facilities of Pemex at the national level and is structured in a hierarchical manner by agencies, regions, directorships, employment centers and facilities (plants) with about 300 points of data capture, localized in the company's facilities:



The screenshot shows a web browser window displaying the SIASPA (Sistema Interno de Asesoría y Seguimiento de Permisos de Emisión de Carbono) interface. The page features a blue header with the PEMEX logo on the left and the SIASPA logo on the right. A navigation menu on the left includes links for 'Antecedentes', 'Reglas de Operación', 'Soporte Técnico', 'Noticias', 'Sitios de Interés', and 'Web de DCSIPA'. Below the menu is a login section with fields for 'Acceso al sistema' and 'clave', and an 'Entrar' button. The main content area is titled 'Avisos' and contains a notice: 'Cierre del Mercado Interno de Permisos de Emisiones de Carbono, ejercicio con datos SISPA 2001.' The background of the main area is a scenic image of an industrial facility. At the bottom, there is a green banner with the SIASPA logo and the text 'Mercado Interno de Permisos de Emisiones de Carbono'. The footer contains copyright information for PETRÓLEOS MEXICANOS and the Dirección Corporativa de Seguridad Industrial y Protección Ambiental. The browser's status bar at the bottom shows 'Done' and 'Local intranet'.

PEMEX

SIASPA

- Antecedentes
- Reglas de Operación
- Soporte Técnico
- Noticias
- Sitios de Interés
- Web de DCSIPA

Acceso al sistema

clave

Entrar

Avisos

Cierre del Mercado Interno de Permisos de Emisiones de Carbono, ejercicio con datos SISPA 2001.

SIASPA

Mercado Interno de Permisos de Emisiones de Carbono


© PETRÓLEOS MEXICANOS
Dirección Corporativa de Seguridad Industrial y Protección Ambiental
Desarrollo / Gerencia de Ingeniería de Telecomunicaciones

Done Local intranet

Reporte de Datos Generales para Petroquímica Cangrejera

Periodo a consultar: Ene 2001 a Abr 2002 Dic 2001

| Emisiones Año Base 1999 | | Emisiones Permitidas Año Actual | | Emisiones Reales Acumuladas en el Periodo | Emisiones Reales Anualizadas | Emisiones Permitidas en el mes |
|-------------------------|-----------|---------------------------------|-----------|---|------------------------------|--------------------------------|
| Fecha | Ton | Fecha | Ton | Ton | Ton | Ton |
| Dic 1999 | 2,640,830 | Dic 2001 | 2,614,421 | 2,257,091 | 2,257,091 | 217,868 |

| Permisos | | | Estado |
|-----------|---------------------------|----------------------|---|
| Guardados | A comercializar en el mes | Actuales (acumulado) | |
| 0 | -6,623 | 157,327 |  |

Emisiones reales para el periodo Ene 2001 a Dic 2001

| Fecha | Cantidad (Ton.) |
|----------|------------------|
| Dic 2001 | 224,491 |



System for Registration of Transactions



DCSIPA

Regresar

Desconectar

Ayuda

Mercado Interno de
Permisos de Emisiones
de Carbono



Bienvenido: **Unidad de Negocio** al Mercado Interno de Permisos de Emisiones de Carbono...

| Precios | Precio mínimo | Precio máximo |
|---------|---------------|---------------|
| Compra | 60 | 60 |
| Venta | 70 | 80 |

| Organismo | Subdirección | Centro de Trabajo |
|--------------------|--------------------|-------------------------|
| Pemex Petroquímica | Pemex Petroquímica | Petroquímica Cangrejera |

Ingreso al Mercado

Seleccione un tipo

Ver Reporte

Emisiones de Carbono a la fecha - Microsoft Internet Explorer

Mercado Interno de
Permisos de Emisiones
de Carbono

Petroquímica Cangrejera

| | |
|--------------------------|----------------|
| Emisiones en Dic 2001 : | 224,491 Ton. |
| Acumulado en el periodo: | 2,257,091 Ton. |

[Cerrar esta ventana](#)

NOTA: Esta página se actualiza automáticamente cada 20 segundos

Mercado de Permisos de Emisiones de Carbono

Pemex Petroquímica

Pemex Petroquímica

Petroquímica Cangrejera

Movimientos para:

Saldo de Permisos: **157,327 T**



| Estado | Fecha Inicial | Fecha Final | Posición | Cantidad de Permisos | Precio | Usuario | Modificar | Borrar |
|--------|---------------|-------------|----------|----------------------|--------|---------|--------------------|--------------------|
| A | 11/4/2002 | 11/4/2002 | V | 40,000 | 80 | FRCOGO | sí | sí |
| A | 11/4/2002 | 11/4/2002 | V | 30,000 | 70 | FRCOGO | sí | sí |

| Resumen | Total Ventas | Total Compras |
|-----------------|--------------|---------------|
| Permisos | 0 | 0 |
| Precio Promedio | \$ 0 | \$ 0 |

| Estado | |
|--------|-----------|
| A | Activo |
| V | Vencido |
| E | Efectuado |

| Tipo | |
|------|--------|
| C | Compra |
| V | Venta |



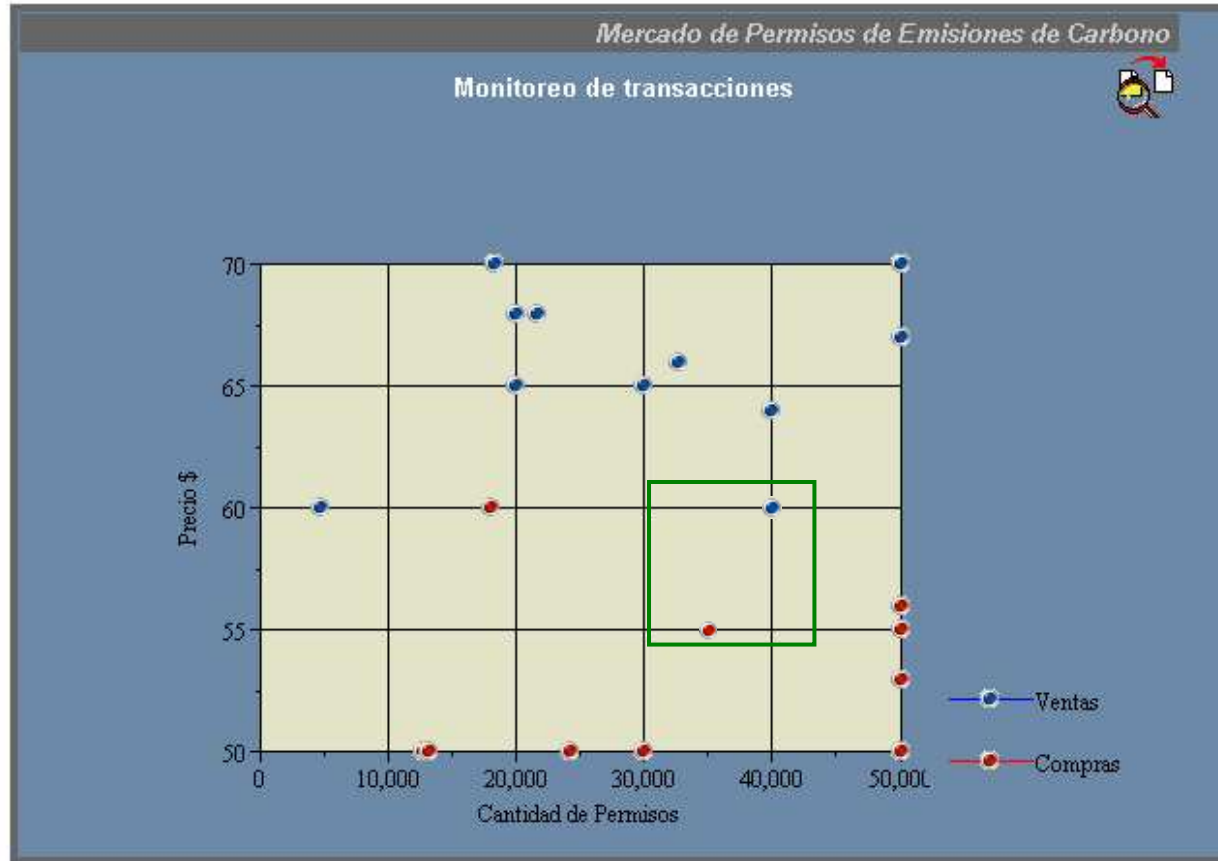
Mercado de Permisos de Emisiones de Carbono

Monitoreo de transacciones

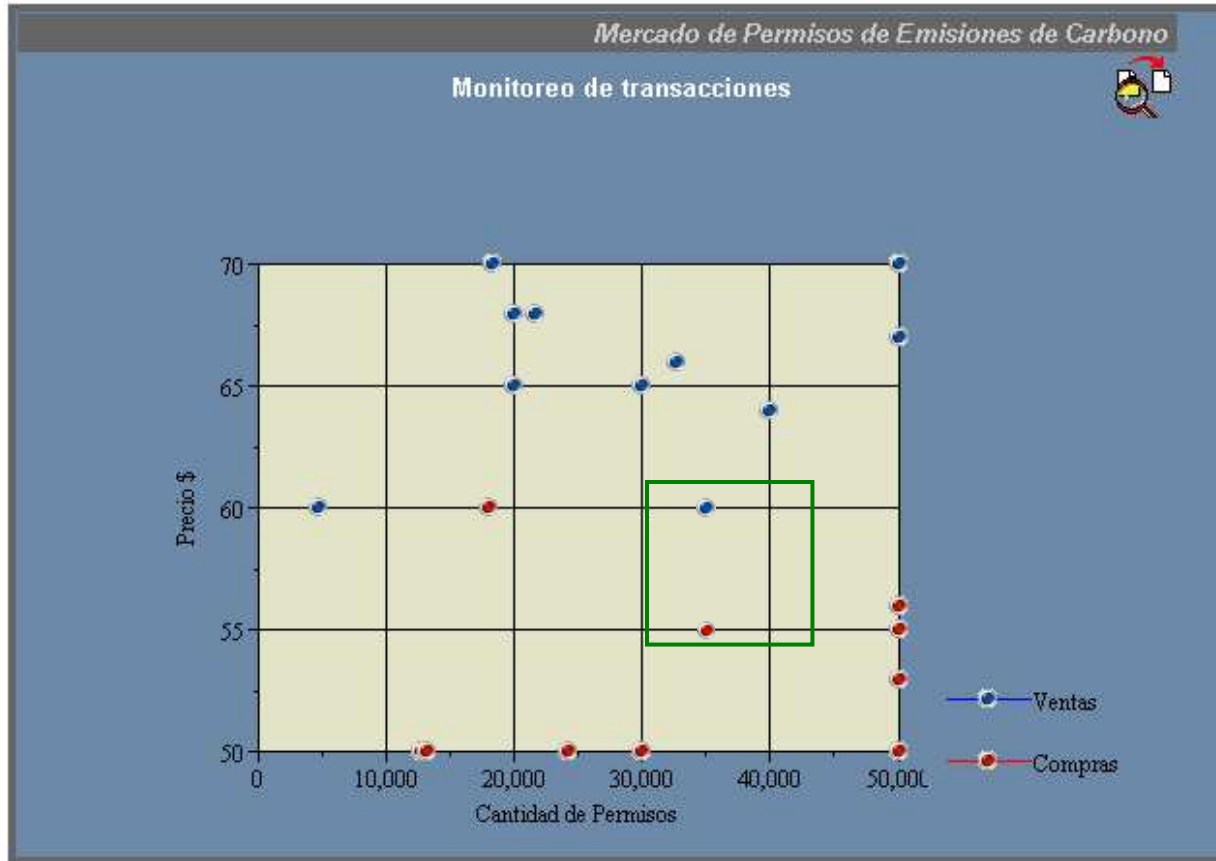


| Tipo | Permisos | Precio | Fecha Inicio | Fecha Término |
|---|----------------------|----------------------|---|---|
| <input type="radio"/> Compra <input type="radio"/> Venta | <input type="text"/> | <input type="text"/> | <input type="text" value="11"/> <input type="text" value="Abr."/> <input type="text" value="2002"/> | <input type="text" value="11"/> <input type="text" value="Abr."/> <input type="text" value="2002"/> |

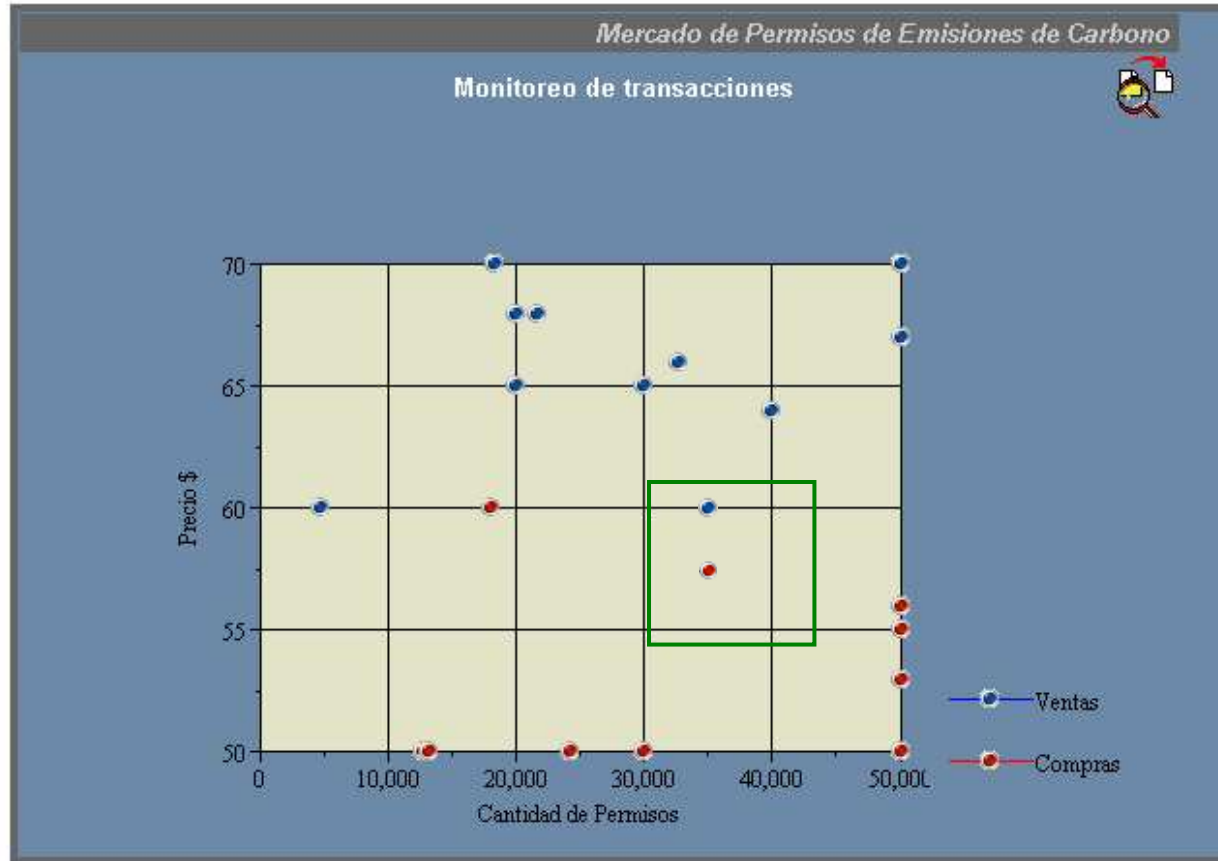
Aceptar



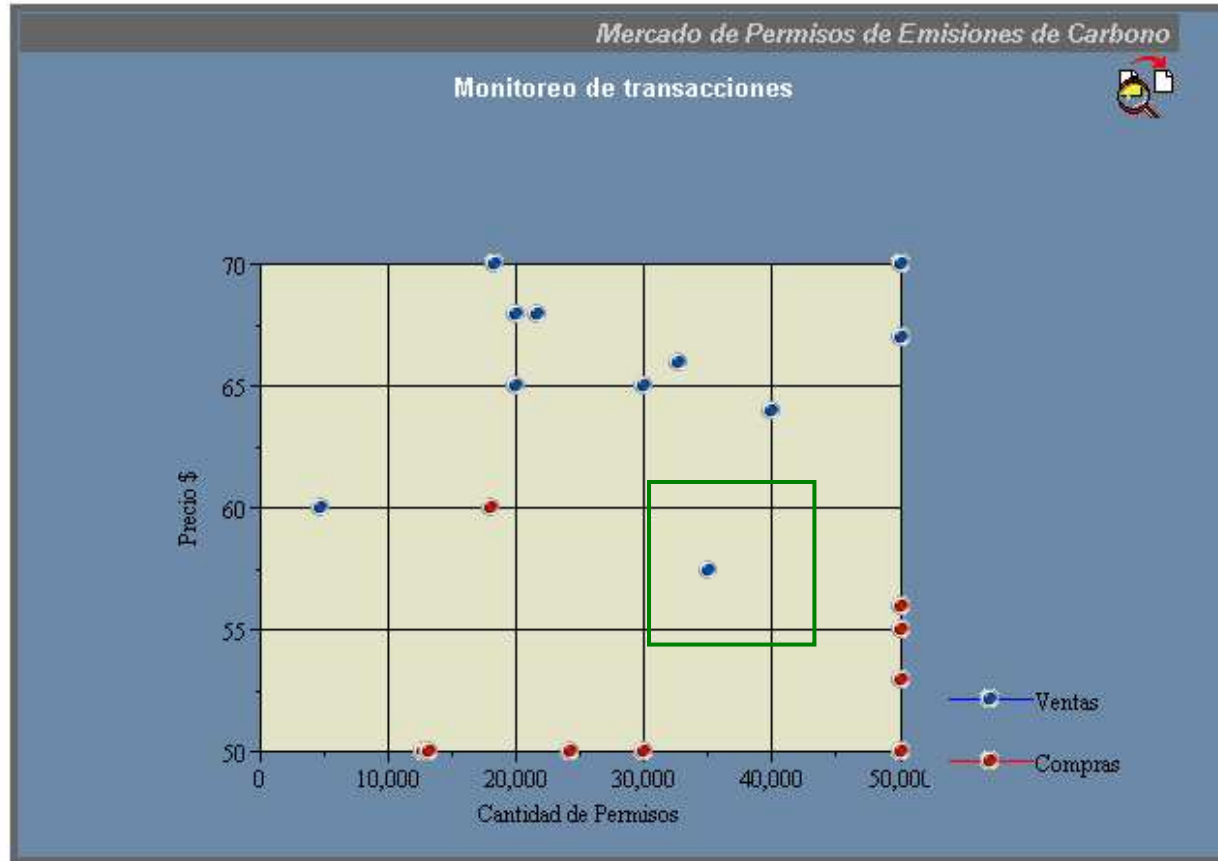
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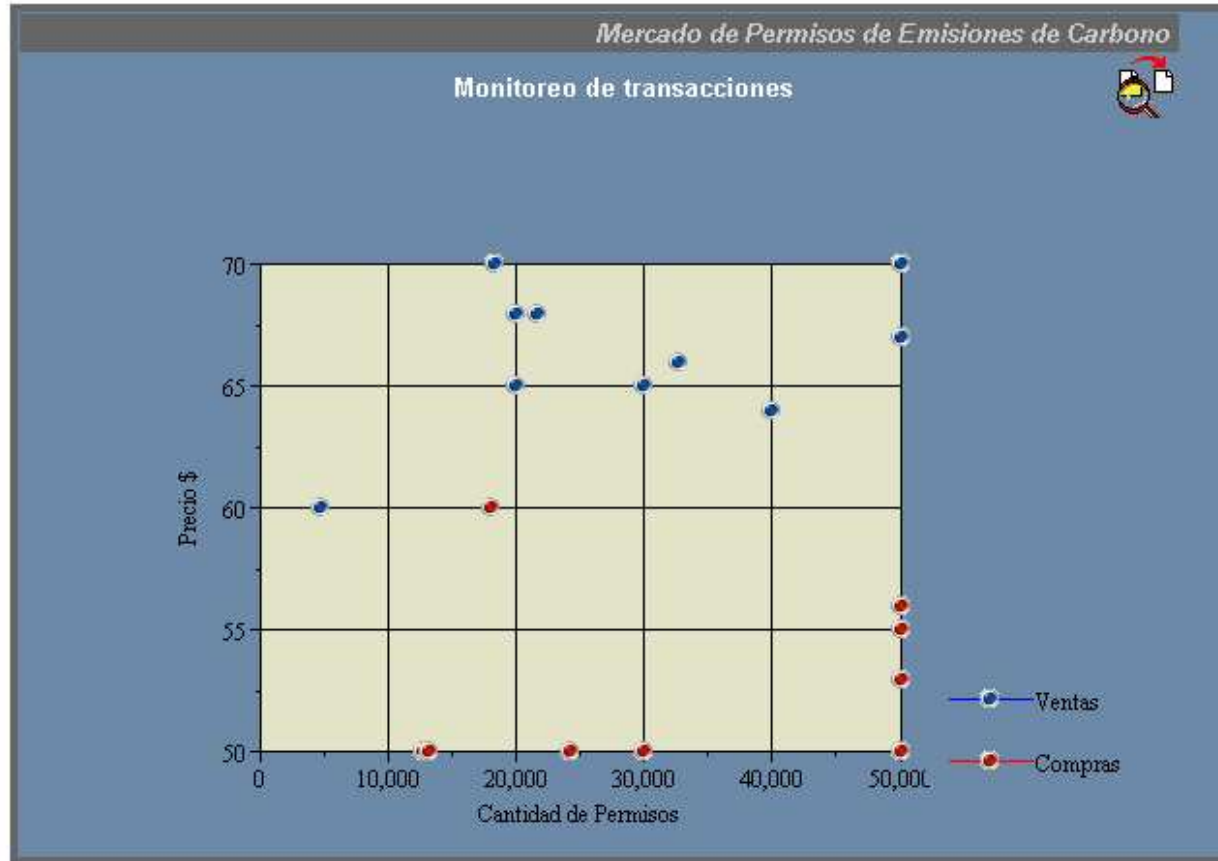
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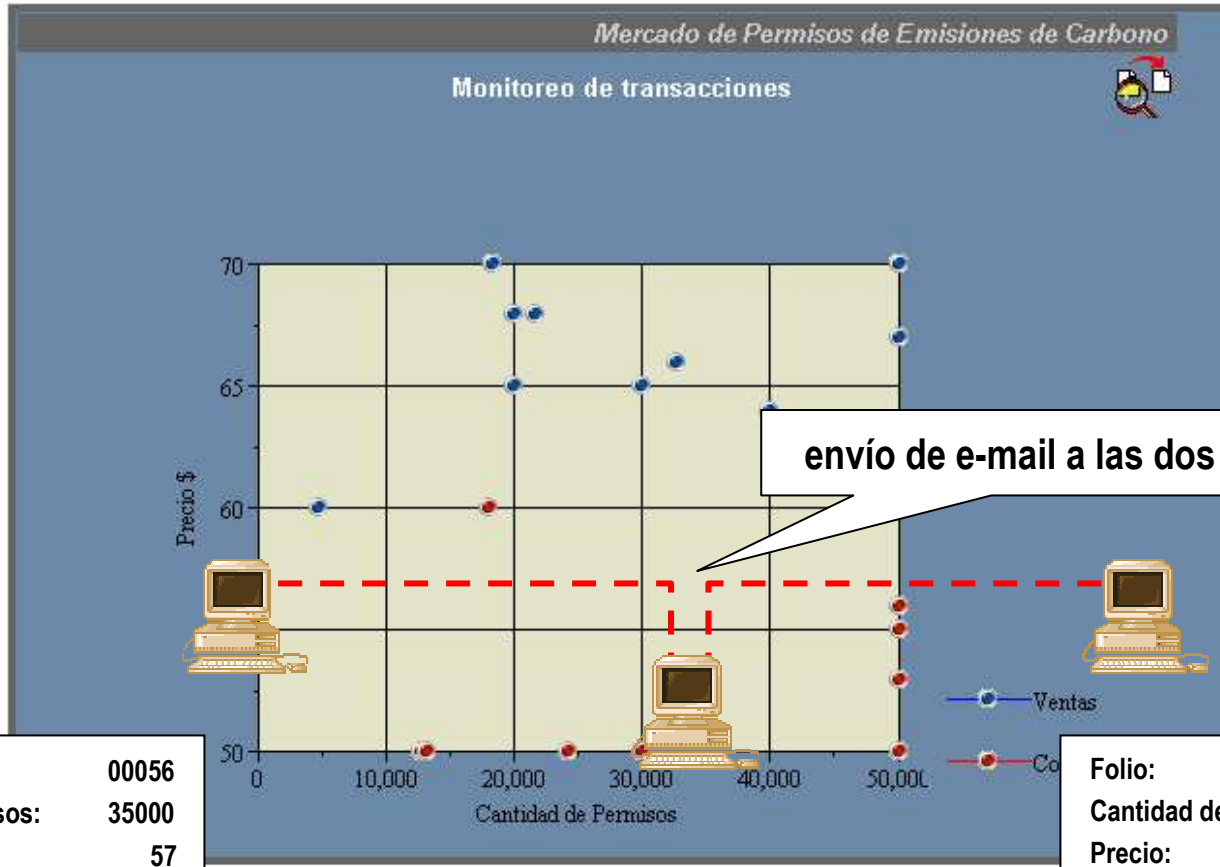
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NOTA: Esta página se actualiza automáticamente cada 20 segundos



| | |
|-----------------------|--------|
| Folio: | 00056 |
| Cantidad de permisos: | 35000 |
| Precio: | 57 |
| Tipo de transacción: | Compra |

| | |
|-----------------------|-------|
| Folio: | 00057 |
| Cantidad de permisos: | 35000 |
| Precio: | 57 |
| Tipo de transacción: | Venta |

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Results

| Market | 2001 | 2002 |
|---|-------------------|-------------------|
| CO ₂ emissions comercialized (Mt) | 3,1 | 2,2 |
| Transactions' virtual value (millons of pesos) | 175 | 145 |
| Potential benefits from the trade of carbon reductions: | | |
| @ 3 dls/ton CO ₂ | 9.19 millons dls. | 6,6 millons dls. |
| @ 10 dls/ton CO ₂ | 31.1 millons dls. | 22,2 millons dls. |

CONCLUSIONS

- **It is an innovative system that can be applied on a widespread basis. He was one of the 3 that existed in the global oil industry;**
- **Developed by specialists from Pemex;**
- **Worked in real time, in a totally transparent and verifiable manner;**
- **The market was a contribution from Pemex to address global climate change;**
- **Guided Pemex subsidiaries towards saving energy and reducing pollutant emissions;**
- **It can serve as a tool for the operation of markets for CO2 and other environmental contaminants.**