

# Energy Management in Mexico: experiences, lessons and outlook

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Odón de Buen, MsC  
ENTE SC  
México



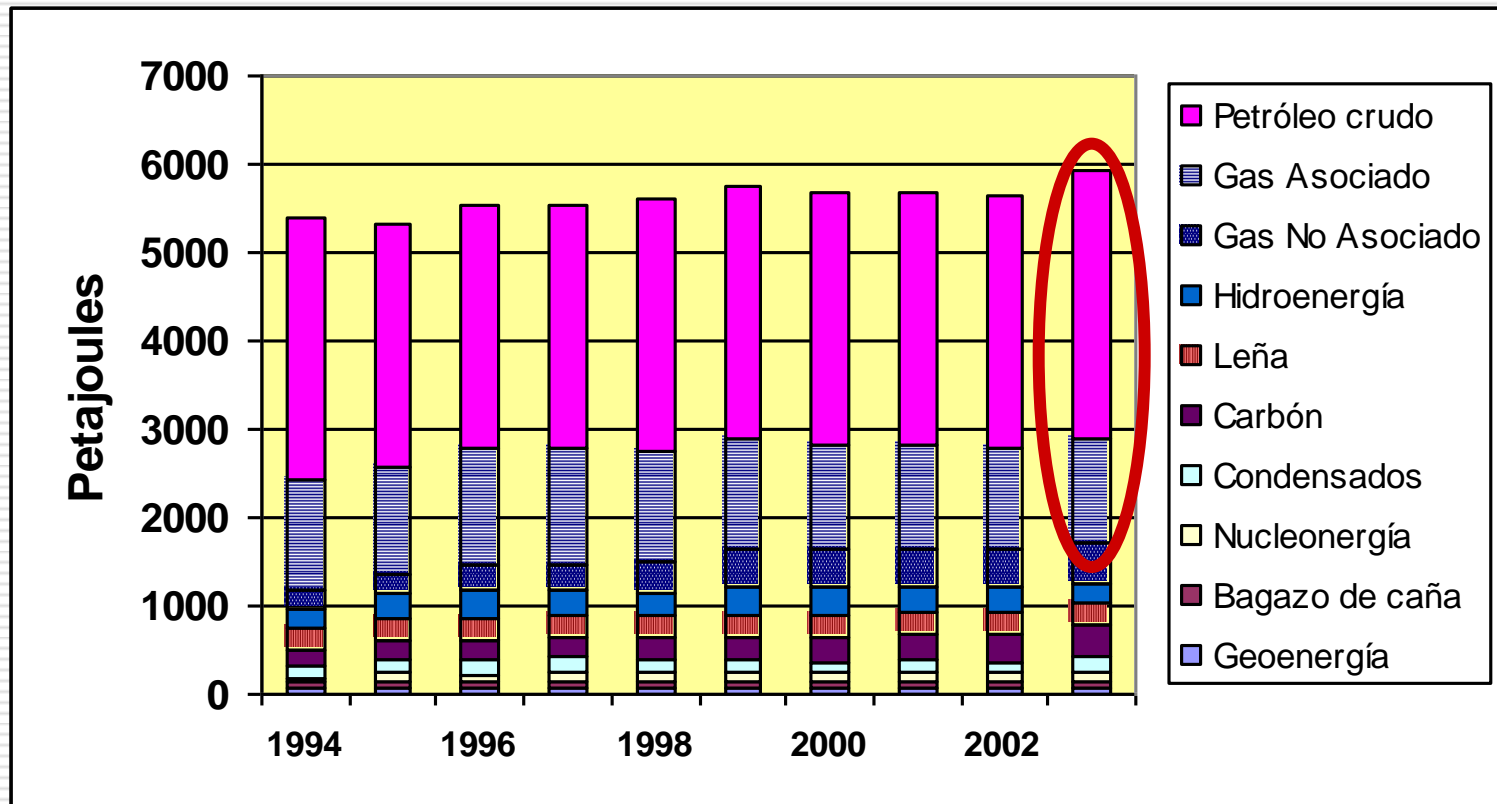
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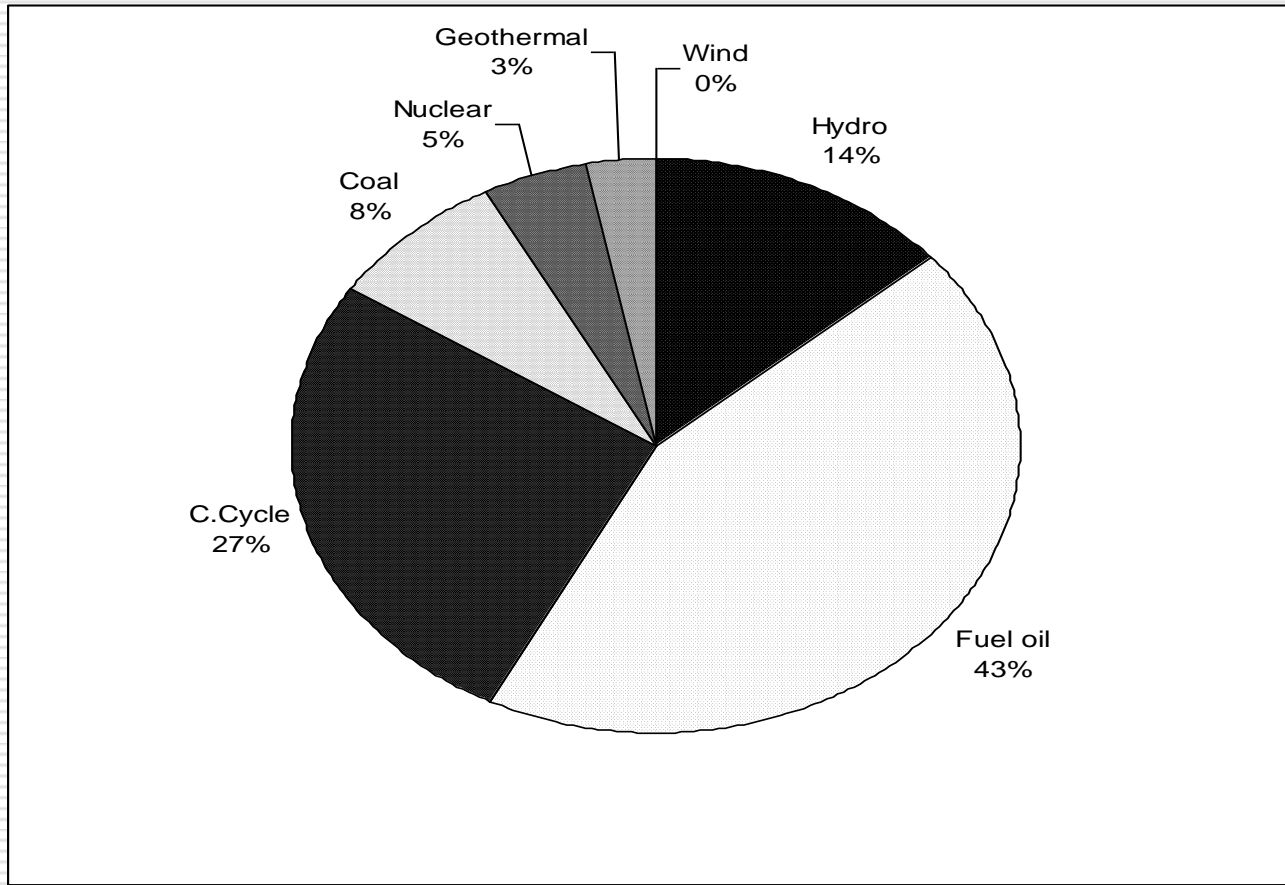
Some contextual aspects

# Primary energy supply is based on fossil fuels



# More than 75% of Mexico's electricity comes from fossil fuels

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# Mexico faces monumental challenges in the near future

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## □ **Oil exports fell 16.8% in 2008**

- **Pemex informed that oil production fell 9.2% in relation to 2007**
- **Cantarell produces 461 thousand less barrels per day**

□ *La Jornada, January 21<sup>st</sup>, 2009 referring to the oil field that represents 60% of México 's oil production.*

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# Mexico's energy system is its main contributor of greenhouse gases

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- México emitted more than 400,000 Tons of CO<sub>2</sub> equivalent in 2002
  - 72% from the energy sector





# The process of energy efficiency efforts in Mexico

# Main aspects

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- Mexico started relatively late
    - In the middle of the 80s
  - The government has been the main driver
    - Through institutions and financial support
  - Energy prices for large users have been a factor in the private sector
    - Mainly those who use natural gas
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# PRONUREE

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- Initiated in 1982 within the national power utility
  - Dedicated to regional seminars and focused on electricity
  - Lasts until 1989
  - Facilitates the creation of a consultants network
    - ATPAE
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# CONAE/CONUEE

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- Starts in 1989
  - Six stages
    - Emphasis on awareness
    - Development of MEPS
    - Promotion of individual audits
    - Organizing large energy management programs within the public sector
    - Facilitating energy management in the private sector
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# CONAE/Public buildings program

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- An important effort to go beyond projects and audits
  - With a centralized supporting organization
    - With guidelines and training of managers
  - Mandates the establishment of institutional arrangements and capacities
    - Officials responsible for sets of buildings
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# FIDE

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- Is the continuation of PRONUREE
  - A private fund under the wing of the national utility
    - Three stages
      - Free audits
      - Individual energy efficiency projects
      - Programs aimed at specific technologies
        - Rebates
    - A general emphasis on projects implemented by external consultants
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# The energy companies

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## □ CFE

- Has an internal program (PAESE)
- With emphasis in individual projects

## □ PEMEX

- Has had several internal programs
  - The largest effort had CONAE's assistance
    - Within an environmental protection/industrial safety program
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# The private sector

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- Has been reactive
  - Large energy intensive industries have been affected by high energy prices
    - Natural gas
    - Electricity
  - Their focus has been on technology, not in organization
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Factors and what and how it  
is being done

# Factors (1)

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- The support of the government via information and technical assistance
  
  - Real energy prices for energy intensive activities
    - Natural gas
    - Electricity
  
  - Best practices by international companies
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# Factors (2)

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- Business interest of energy consultants and technology providers
  
  - The development of energy performance arrangements
    - Heat recovery
    - Energy management systems
  
  - Climate change mitigation
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# Types of companies with significant actions

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- Hotel chains
- Department stores
- Retail
- Cement
- Steel
- National phone company (TELMEX)
- Large bread producer (BIMBO)



# Most common actions

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- Lighting retrofits
- Air conditioning replacement
- High-efficiency electric motors
- Correcting power factor
- Energy management through automated monitoring
- Solar water heating
- Cogeneration
  - As a peak shaver



# The sustainable energy law

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- It is the law that created CONUEE
  - The continuation of CONAE
- Establishes obligations for energy intensity reporting
  - With CONUEE 's oversight



# The GEI initiative

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- ❑ Carbon disclosure
- ❑ A private sector initiative with the support of WRI
- ❑ Companies that represent a significant portion of the industrial CO2 emissions are part of it





# Energy management practices

# Measuring and monitoring has become generalized

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- There is a significant number of companies dedicated to supplying M&M products and services
  
- Some offer performance based contracts
  - Outsourcing of energy management
  
- Carbon disclosure initiatives have been one of the drivers



# Energy managers are not part of the picture, though (1)

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- Only one institution offers training in energy management
  - It is the local chapter of the Association of Energy Managers
  - The rest offer courses on audits and/or specific technologies
  
- There are no trade organizations directly related to either consultants and/or energy managers
  - ATPAE disappeared





# Energy managers are not part of the picture, though (2)

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- Most of what is presented in national/regional seminars involves technologies, not practices
  
- The national EE awards are based on technology implementation, not energy management practices
  - The recognitions are to companies, not to individuals (as energy managers)



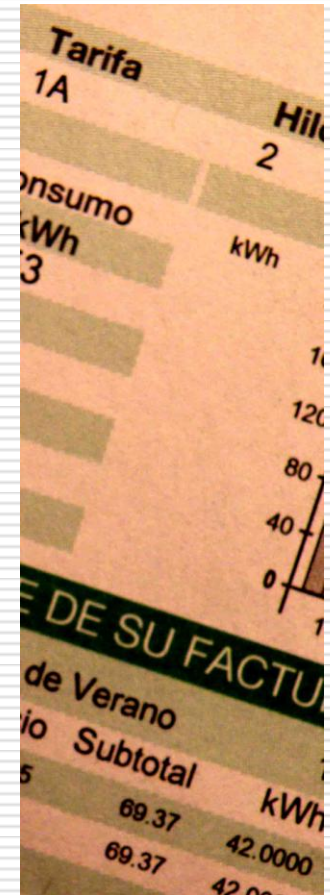


# Lessons learned

# Lessons learned (1)

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- Lack of knowledge and/or trust in specific technologies is not a factor
  - With the help of the government, the market actors have learned how to sell their products/services
  
- Real energy prices have been a good driver
  - Has made decision makers to look at EE as a resource with positive payback



# Lessons learned (2)

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- Information by the government has been useful
  - And a renewed effort could help advance even more
  
- CDM has not been a factor
  
- Investing in energy management capabilities is a good investment
  - As CONAE has shown at a national scale
  - And as some private sector initiatives has shown



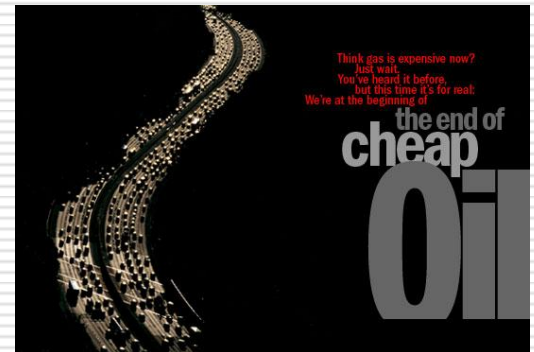


The future

# Factors for the future (1)

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- The need of companies to confront and internalize the growing complexity of the energy options
  - Supply
    - New sources
    - New contractual arrangements
  - Demand
    - Materials
    - Equipment
    - Systems
  
- The quickly evolving energy situation of Mexico
  - Declining oil production/Growing imports
  - Growing international prices



# Factors for the future (2)

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## □ Fighting climate change

- Mexico as part of G8 plus 5
- Mexico as host of COP 16



## □ The sustainable energy law

- A legal obligation to measure and monitor energy use

## □ The evolution of energy efficiency technology and practices

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What is needed in terms of  
energy management



# What is needed (1)

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- ❑ To go beyond projects
- ❑ To strengthen the internal capacities of large energy users to identify, design and operate energy efficiency programs
- ❑ To recognize the importance of well trained individuals



# What is needed (2)

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- To support training and certification initiatives and efforts
- To follow international best practices



# Thank you!

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[demofilo@prodigy.net.mx](mailto:demofilo@prodigy.net.mx)