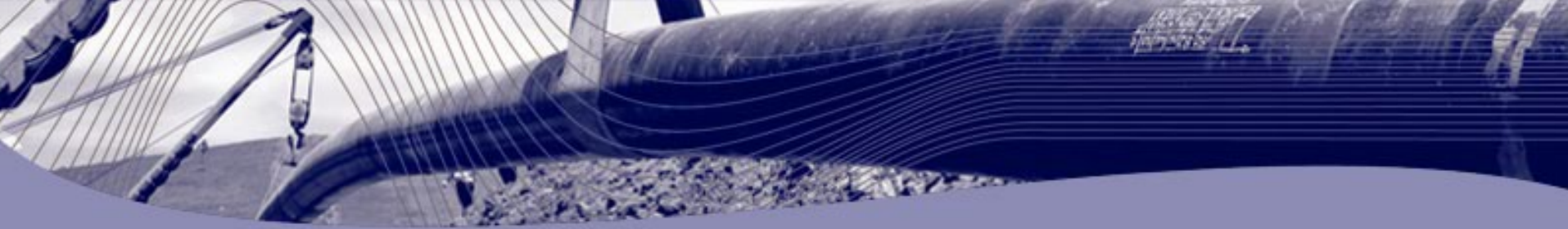


BRAZILIAN ETHANOL PIPELINES



Dublin - OHIO
OCTOBER / 2007

- 1. Background***
- 2. Ethanol Supply Chain***
- 3. Brazilian Ethanol History***
- 4. Petrobras Expertise***
- 5. Ethanol Exportation Corridors***



1. BACKGROUND

Ethanol – BRAZIL

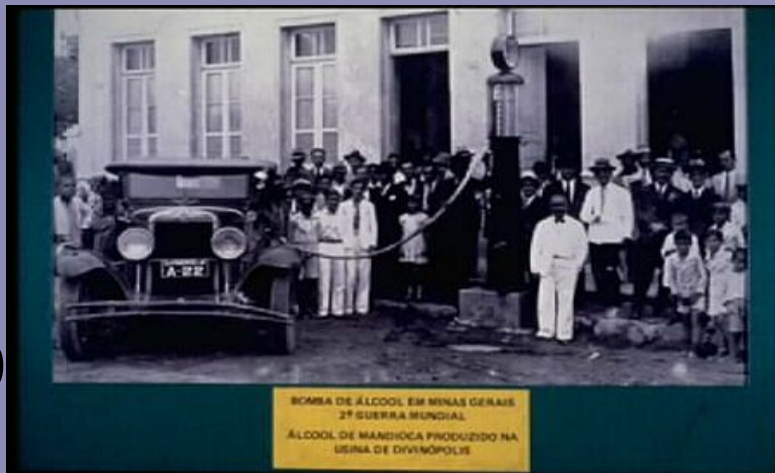
1928



1931



1940



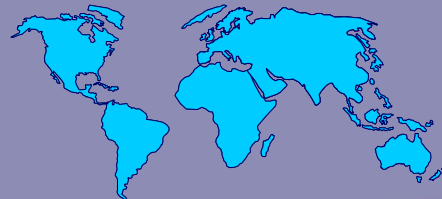
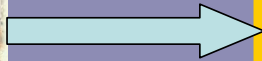
1974





2. ETHANOL SUPPLY CHAIN

Ethanol Export Supply Chain



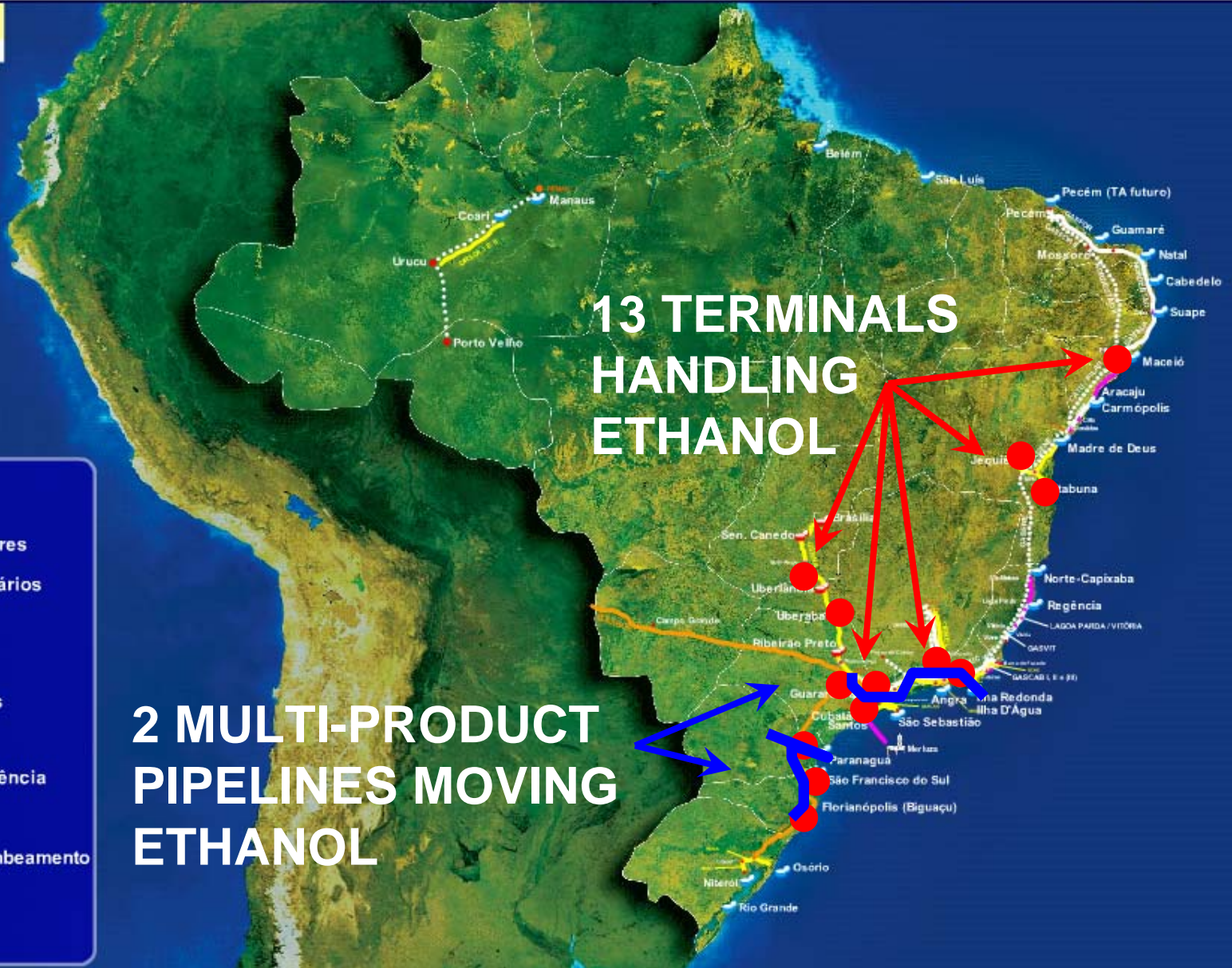
PETROBRAS Multimodal Leadership

- Gathering Centers
- Pipelines
- Terminals
- Shipments



PETROBRAS LOGISTICS TODAY

MALHAS



Plataformas



Terminais Terrestres



Terminais Aquaviários

Oleodutos

Gasodutos

Gasodutos futuros

Gasbol

Dutos de Transferência

Refinarias

Compressão / Bombeamento

City Gates

UPGNs

2 MULTI-PRODUCT
PIPELINES MOVING
ETHANOL

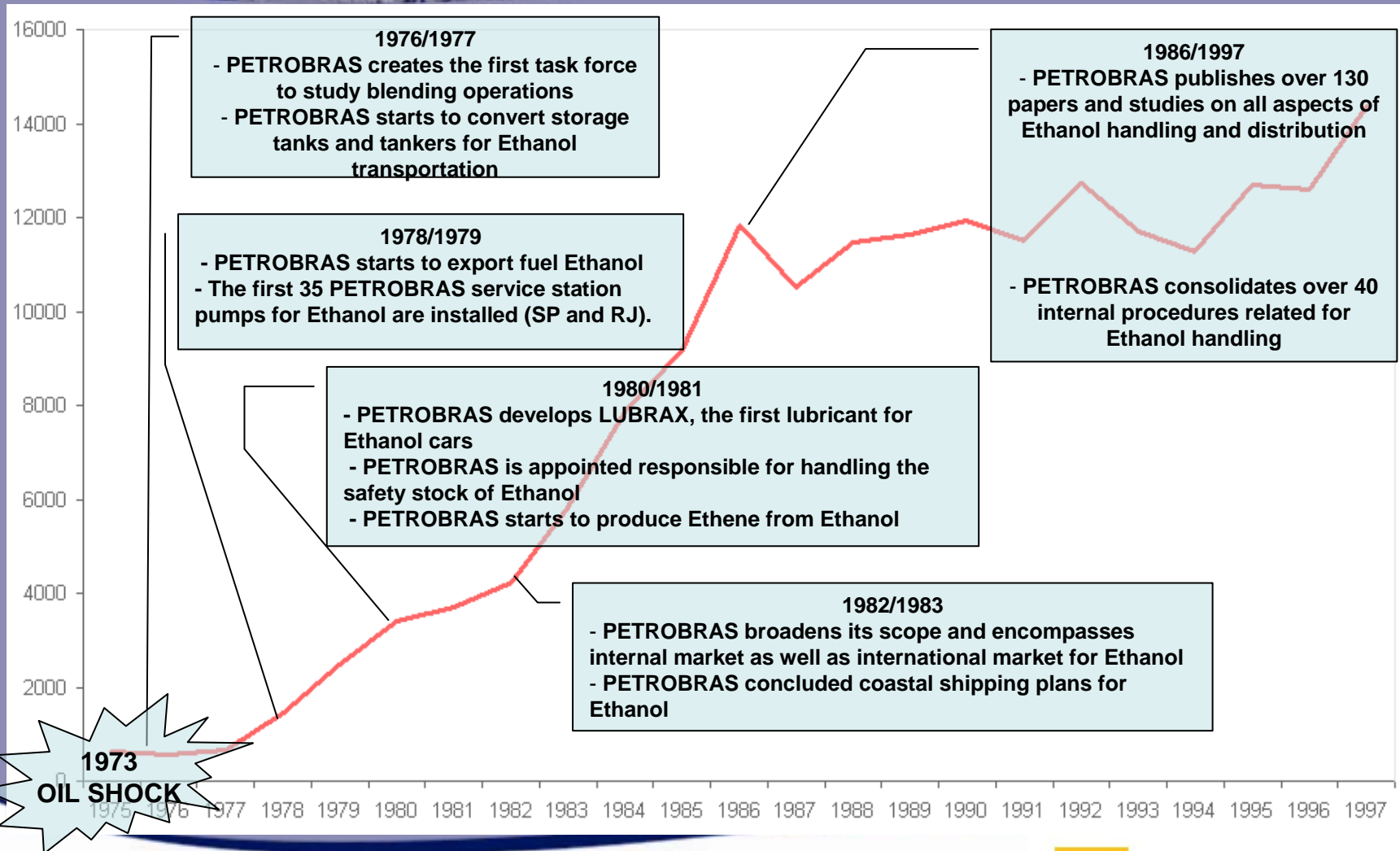
13 TERMINALS
HANDLING
ETHANOL



3. BRAZILIAN ETHANOL HISTORY

A Brief History of Ethanol and Petrobras

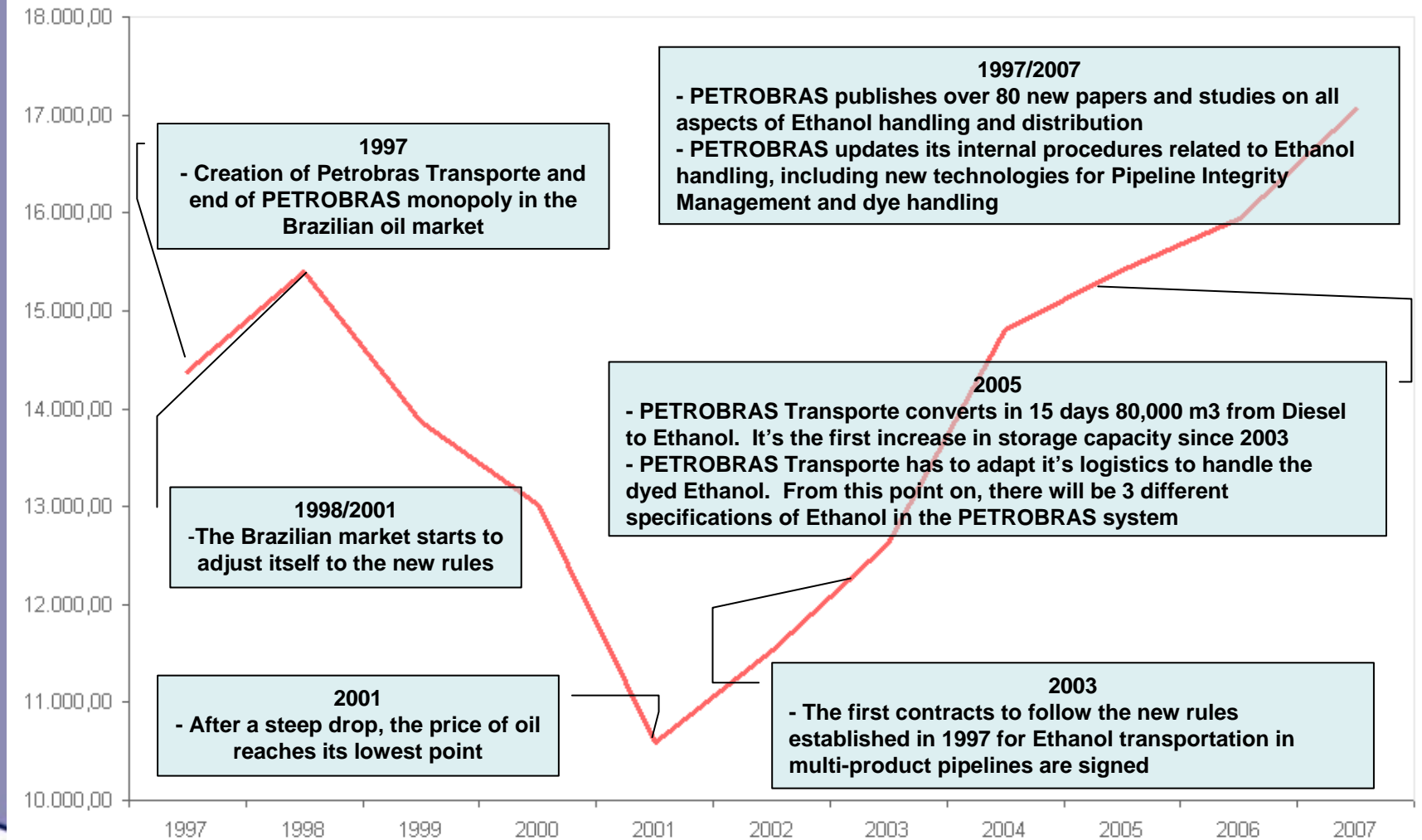
(Before the end of the oil monopoly)



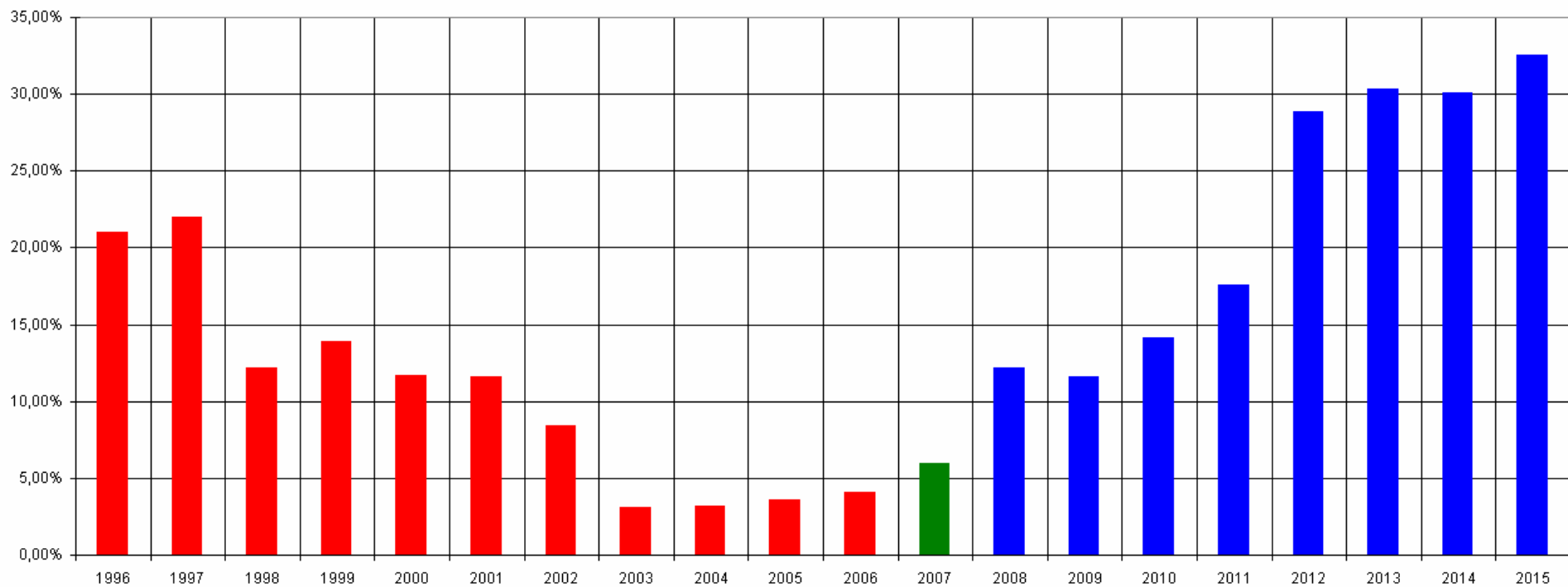
Source of the Ethanol production data: UNICA
Source of the Petrobras developments: PETROBRAS

A Brief History of Ethanol and Petrobras

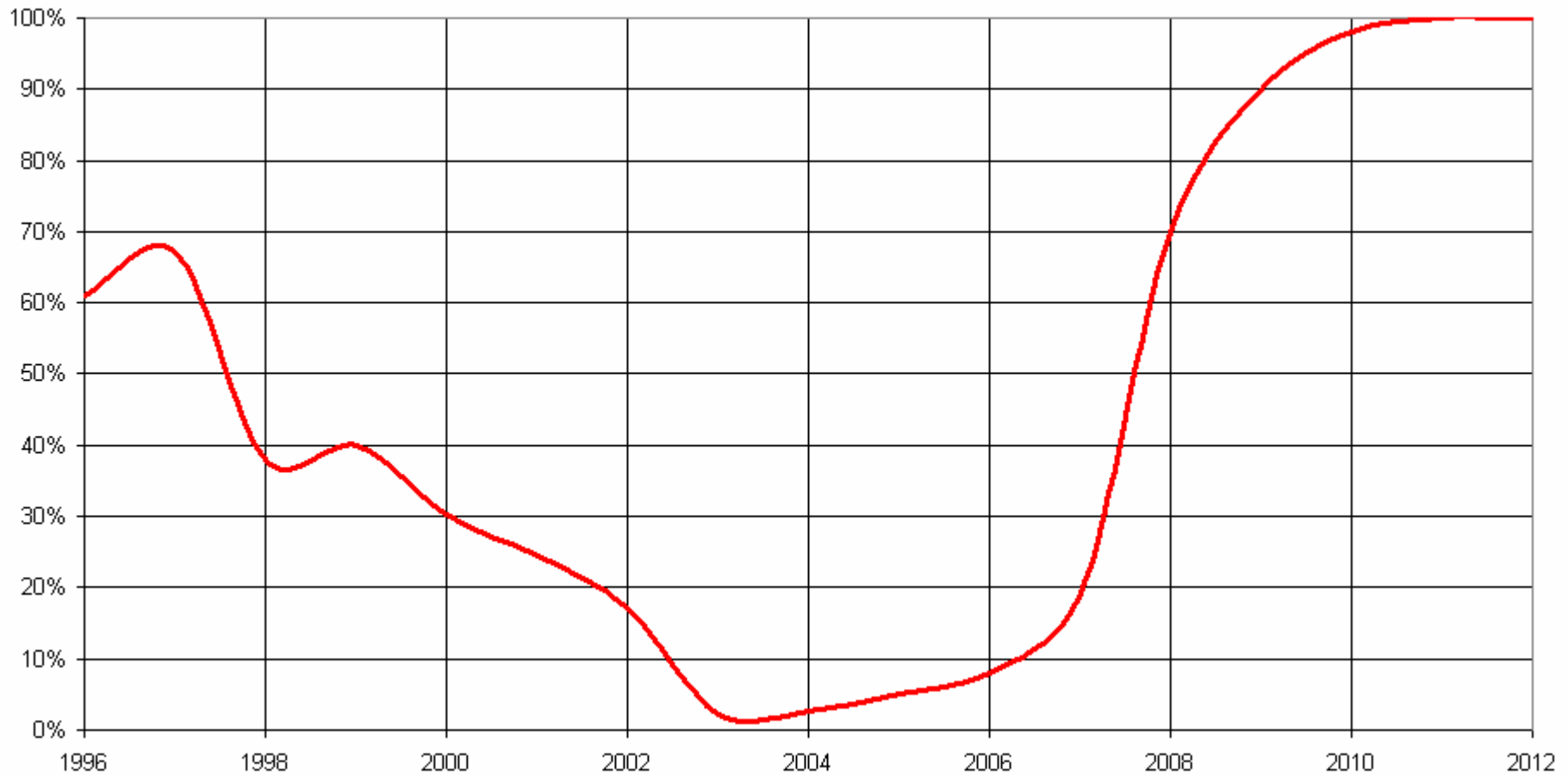
(After the end of the oil monopoly)



% OF BRAZIL'S ETHANOL PRODUCTION SHIPPED THROUGH MULTI-PRODUCT PIPELINE

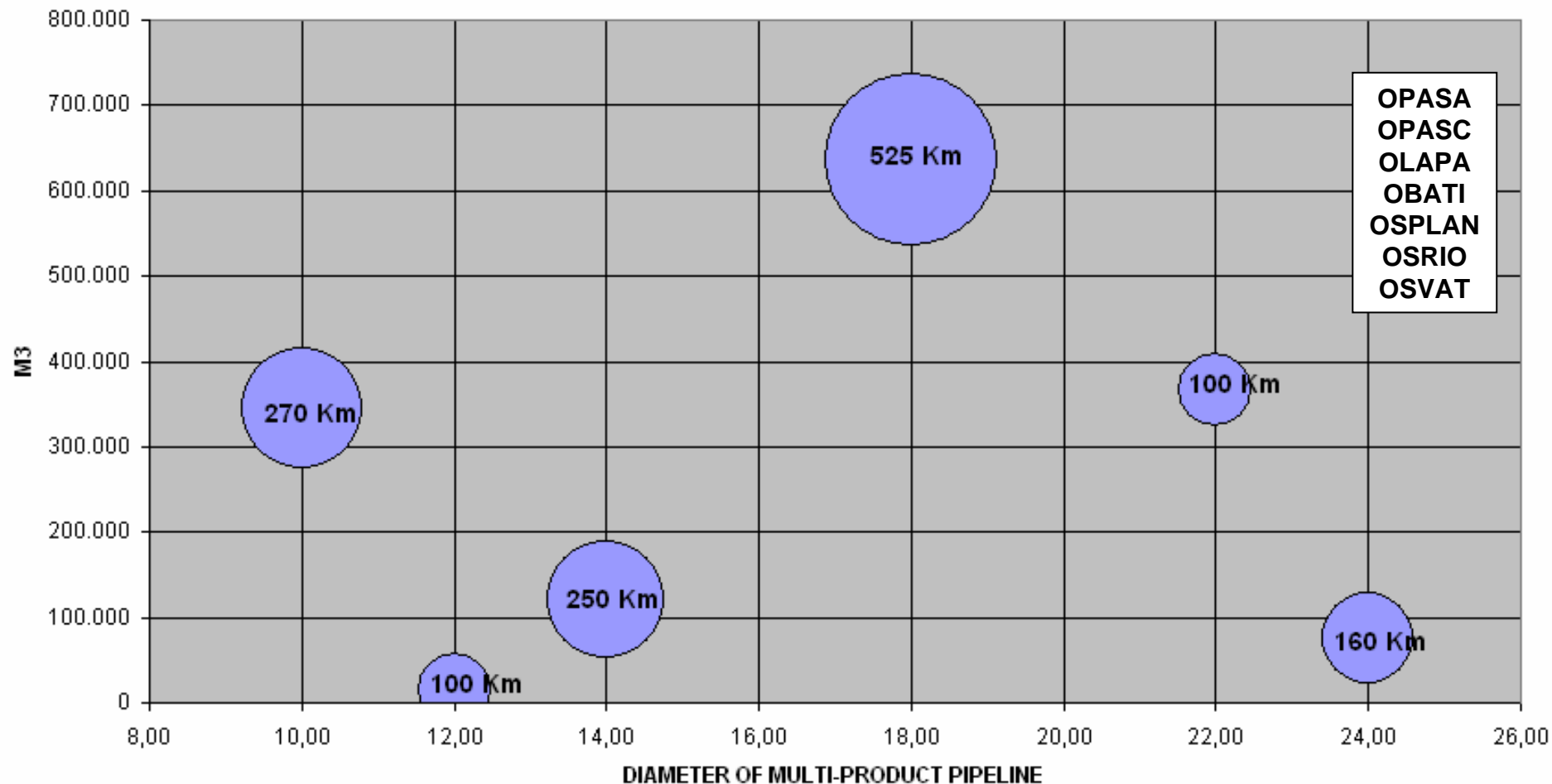


% OF ETHANOL SHIPPED THROUGH MULTI-PRODUCT PIPELINE RIO DE JANEIRO CORRIDOR



Ethanol Movements and Multi-product Pipelines

AVERAGE ANNUAL MOVEMENTS OF ETHANOL IN BRAZILIAN MULTI-PRODUCT PIPELINES
THE AVERAGE LENGTH OF THE PIPELINES IS SHOWN INSIDE THE CIRCLES
(FROM 2000 TO 2006)





4. PETROBRAS EXPERTISE

SINCE PETROBRAS EXPERTISE SPANS A WIDE RANGE OF VERY SPECIFIC ISSUES REGARDING ETHANOL, SOME OF THEM ARE LISTED BELOW:

- 1. *“No-Water” Contamination Procedures***
- 2. *Proper Pipeline Batch Sequencing***
- 3. *Ethanol Corrosion Controls (including SCC) and NACE’s analysis***
- 4. *Development of Tank Covers***
- 5. *Coating Developments for Storage Tanks and Tankers***
- 6. *Quality degradation aspects and solutions***
- 7. *Inert Gas Solutions for Tankers***
- 8. *Develop Blending Operations***
- 9. *Interface Treatment and Handling***
- 10. *Special Firefighting Needs***
- 11. *Materials Compatibility***
- 12. *Pipeline Integrity Program***
- 13. *Corrosion Inhibitors***



5. ETHANOL EXPORT CORRIDORS

Ethanol Export Corridors





THANK YOU !!!

Marcelino Guedes F. Mosqueira Gomes
Director of Terminals and Pipelines
TRANSPETRO