



# *Pemex classification system*

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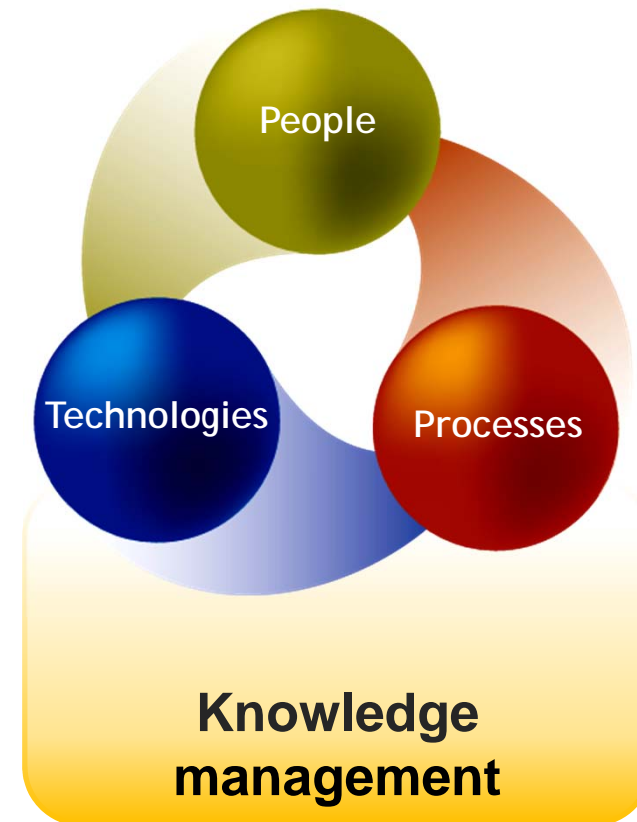
Septiembre 27, 2012

- **Introduction**

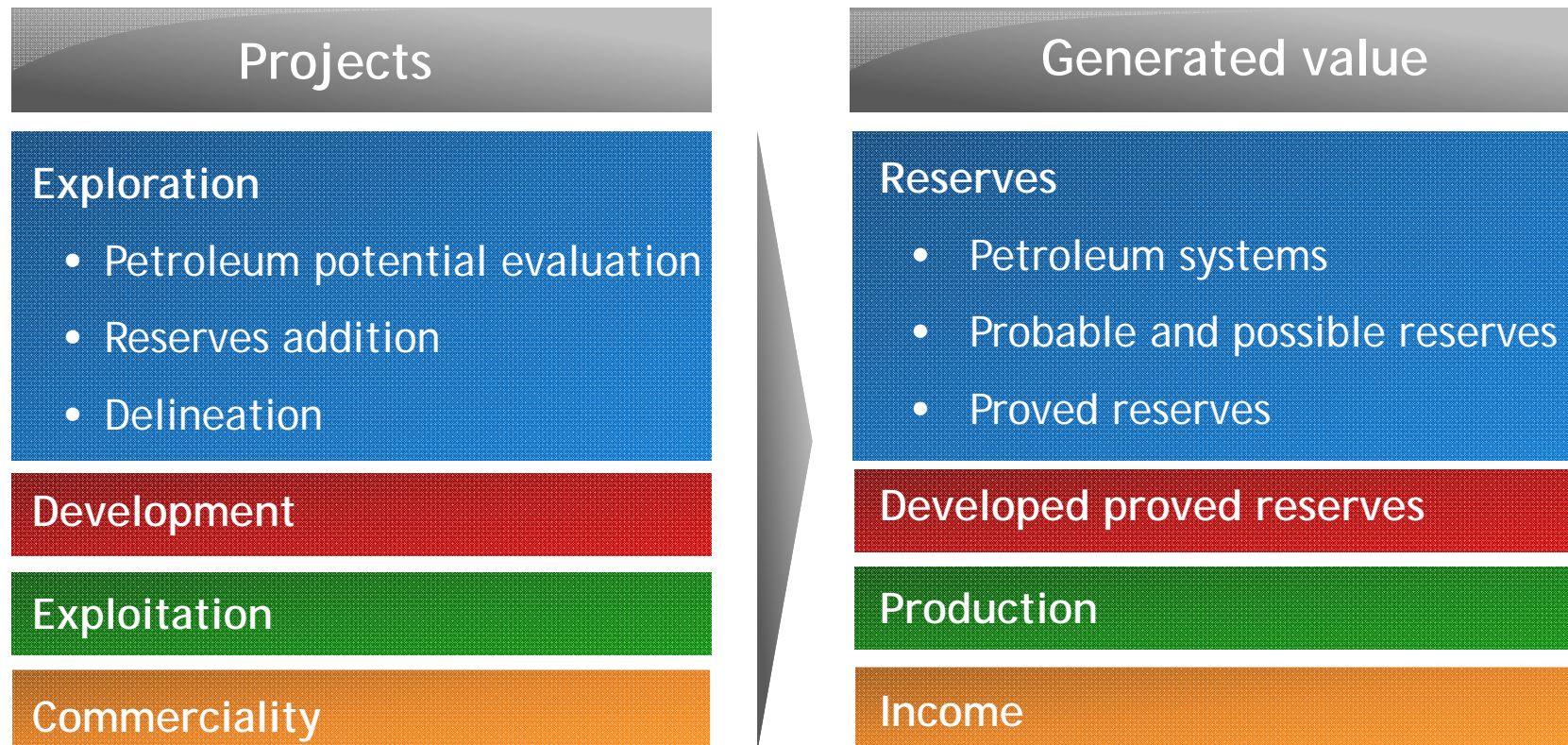
- **Classification system of resources and reserves**
- **Historical behavior of resources and reserves**
- **Final comments**

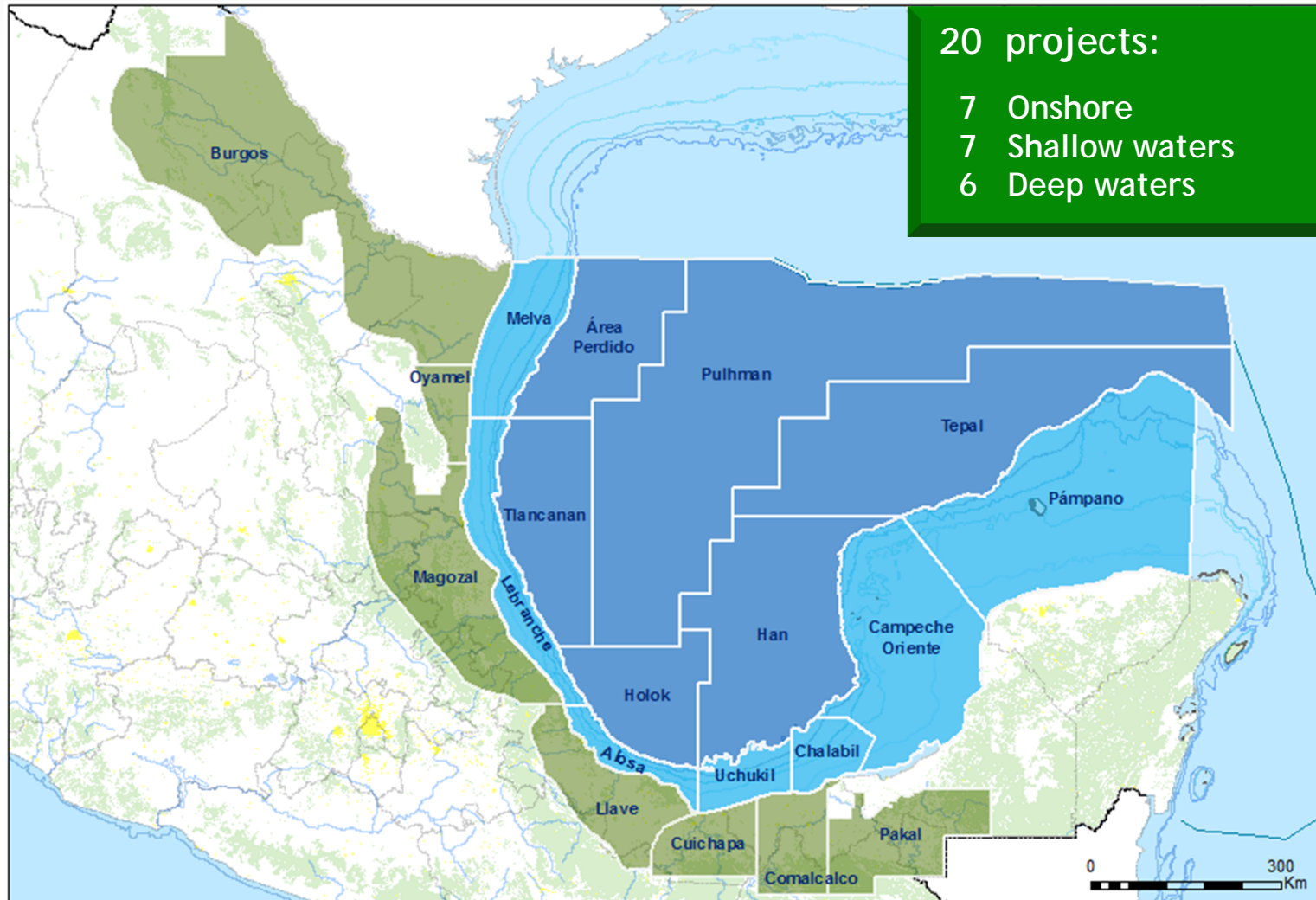
## Strategic challenges

Reserves	1. Increase the Reserves Replacement Rate
	2. Improve the success rate of exploratory wells
Existing fields	3. Increase the ultimate recovery factor
	4. Reduce costs
	5. Reduce decline production
New fields	6. Accelerate the new production coming from development fields



## Each stage of the E&P process generates value







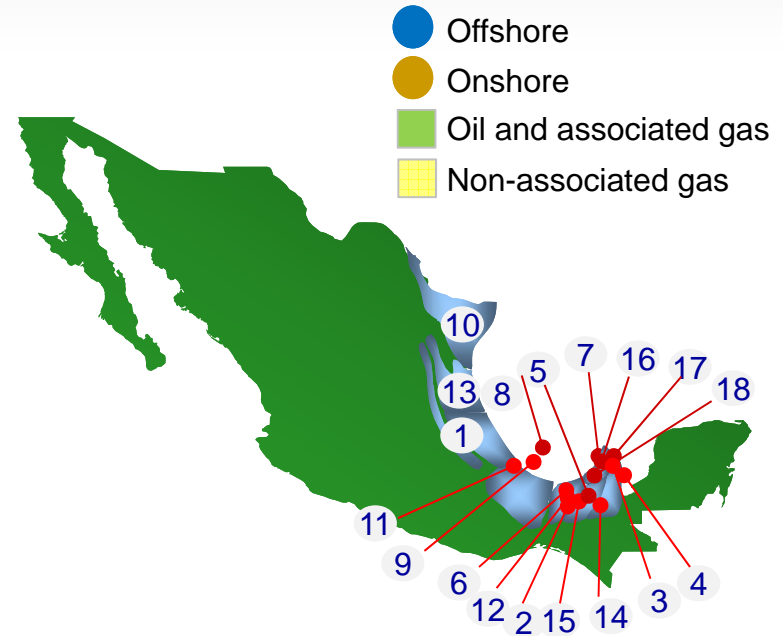
# Main exploitation projects

## Main development projects

- 1. Chicontepec
- 2. Delta del Grijalva
- 3. Crudo Ligero Marino
- 4. Ixtal-Manik
- 5. Yaxché
- 6. Tsimin – Xux
- 7. Ayatsil – Tekel
- 8. Lankahuasa
- 9. Lakach

## Main production projects

- 10. Burgos
- 11. Veracruz
- 12. Cinco Presidentes
- 13. Ébano Pánuco Cacalilao
- 1. Chicontepec ----- Under evaluation process (water, CO<sub>2</sub>)
- 14. A. J. Bermúdez ----- Nitrogen / Steam injection
- 15. Jujo-Tecominoacán ----- Nitrogen
- 16. Cantarell ----- Nitrogen
- 17. Ku-Maloob-Zaap ----- Nitrogen
- 18. Abkatún-Pol-Chuc ----- Under evaluation process (gas, nitrogen)



### Pressure Maintenance

- Introduction
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- Historical behavior of resources and reserves
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## Classification of resources: Billion of oil equivalent

Conventional	Unconventional
P(90) – 45.1	P(90) – 30.4
P(mean) - 54.6	P(mean) - 60.2
P(10) – 64.5	P(10) – 93.0

### Remarks

- Prospective resources are those quantities of petroleum estimated, as of a given date, to be potentially recoverable from undiscovered accumulations
- Currently the resources are classified like conventional and unconventional
- The total resources estimation are based on probabilistic methods and identified the P90, Pmean and P10 calculations
- The conventional resources correspond with onshore and offshore prospects
- The unconventional resources correspond with shale oil and gas mainly



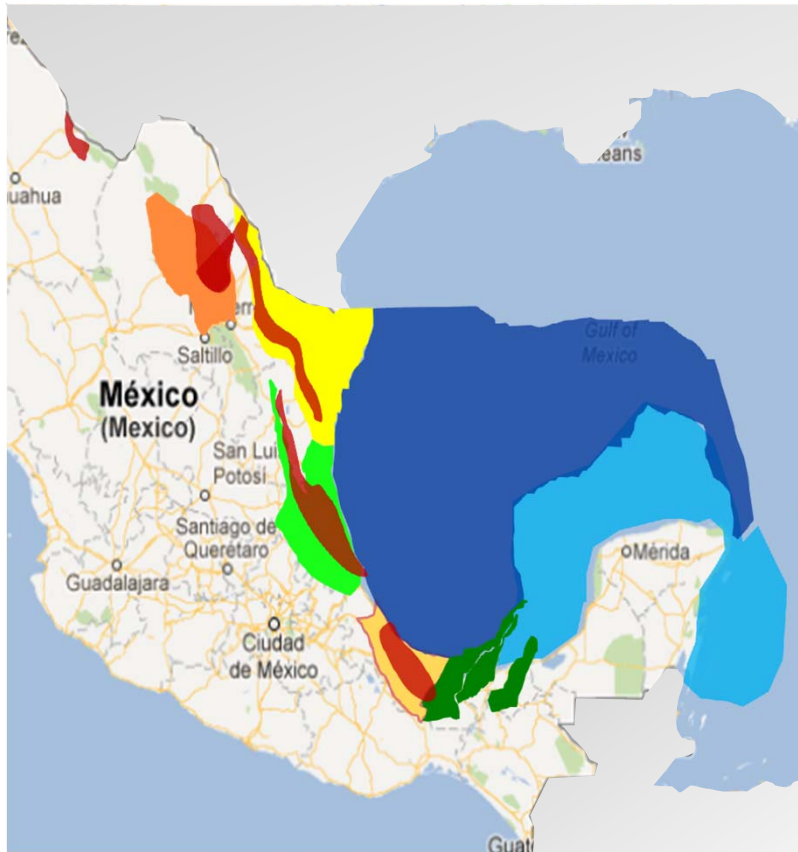
### Classification of reserves: Billion oil equivalent

Proved (1P)	Probable	2P	Possible	3P
13.8	12.3	26.2	17.7	43.8

#### Remarks








- The classification of reserves are based on in the PRMS guidelines
- The PRMS was taken as a reference to estimate the country's reserves since the beginning of its establishment in 1997
- Proved reserves estimation are based on SEC rules since 2002
- In México currently the reserves process take into account internal review, external audit and opinion for approval from regulators
- International companies (Netherland Sewell International, DeGolyer & MacNaughton, and Ryder Scott Company), audit the 1P, 2P and 3P reserves

## Oil and gas basins



 Unconventional resources (*Shale Gas*)

## Billion barrels of crude oil equivalent

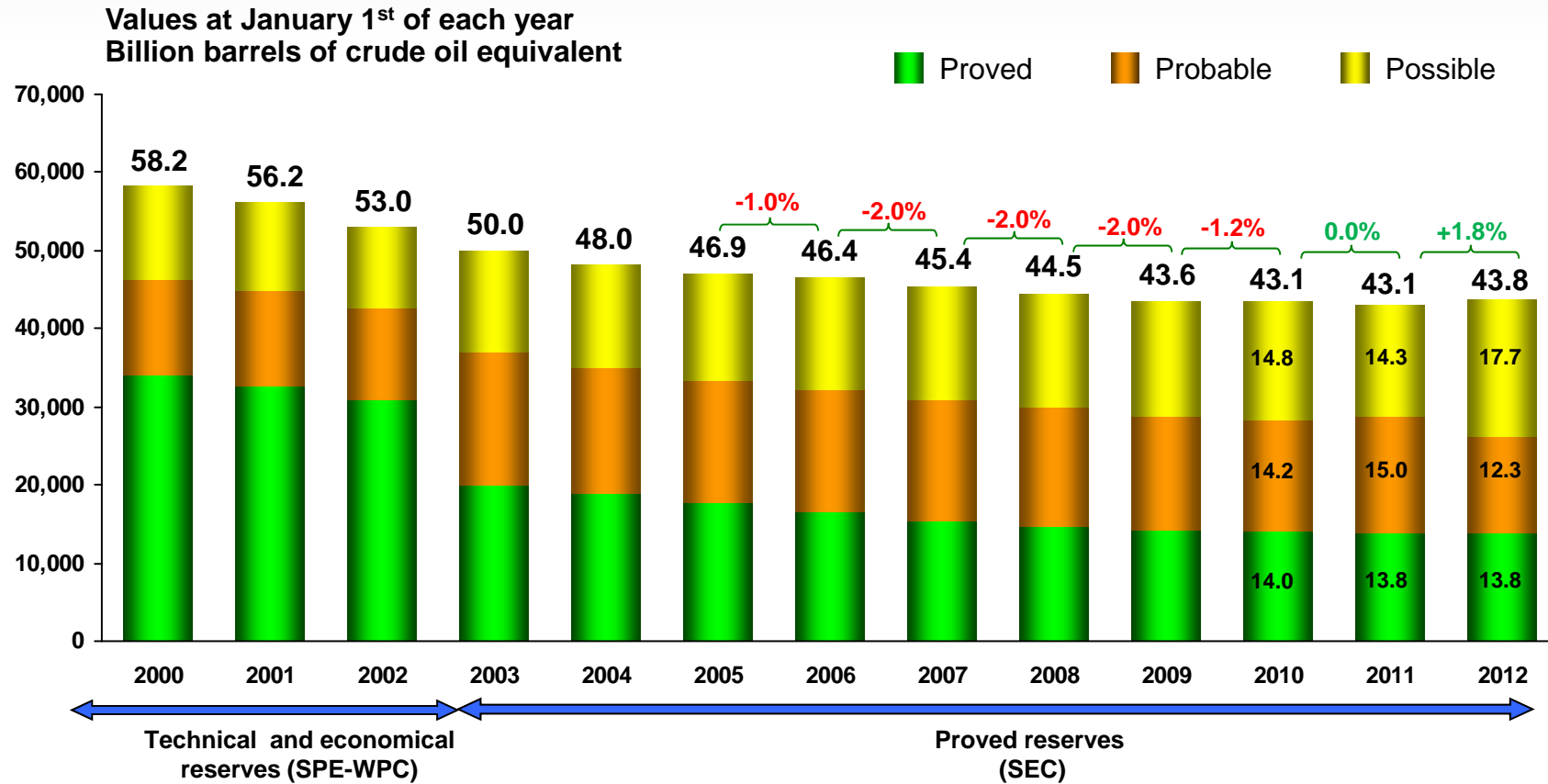
Basin	Cumm. Prod.	Reserves			Prospective Resources	
		1P	2P	3P	Conv.	Unconv.
 Sureste	44.3	12.1	18.2	24.4	20.1	
 Tampico Misantla	6.4	1.0	7.0	17.7	2.5	30.7
 Burgos	2.3	0.4	0.6	0.8	2.9	12.9
 Veracruz	0.7	0.2	0.2	0.2	1.6	0.6
 Sabinas	0.1	0.0	0.0	0.0	0.4	16.0
 Aguas Profundas	0.0	0.1	0.2	0.7	26.6	
 Plataf. Yucatán					0.5	
<b>Total</b>	<b>53.7</b>	<b>13.8</b>	<b>26.2</b>	<b>43.8</b>	<b>54.6</b>	<b>60.2</b>

Exploitation and Development projects

Exploratory projects

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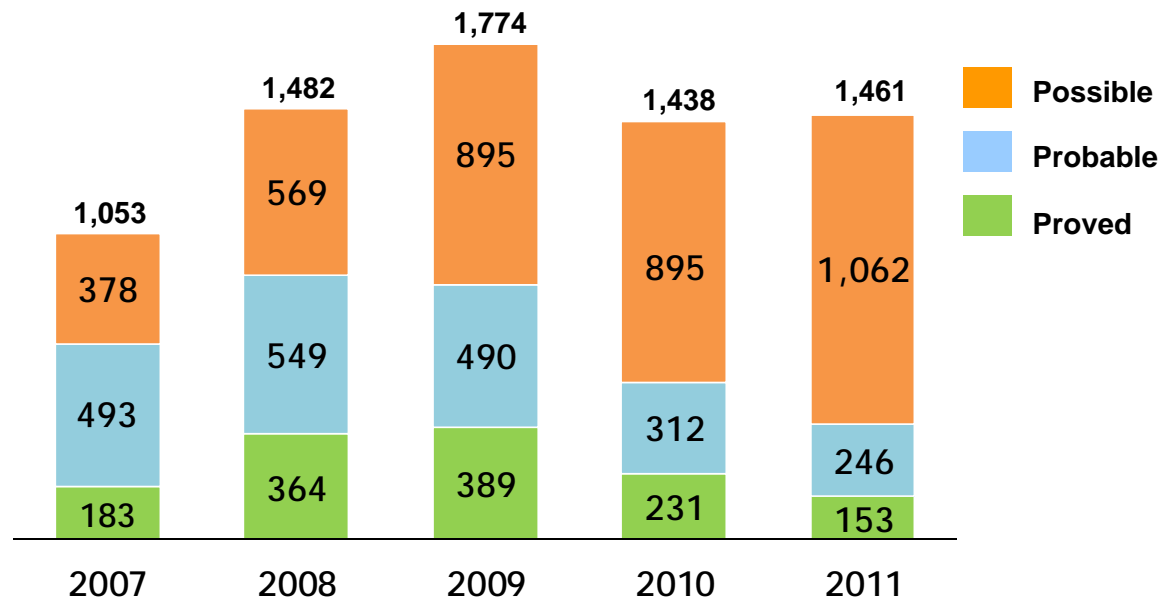
## The historical behavior of reserve values shows a clear change of tendency



This achievement is based on the increases in reserves due to exploratory results as well as increases in higher recovery factors in fields with development schemes supported by exploitation projects

## The reserve addition shows excellent exploratory results based on the level of investment

**3P reserves added through exploratory activity  
Million BOE**

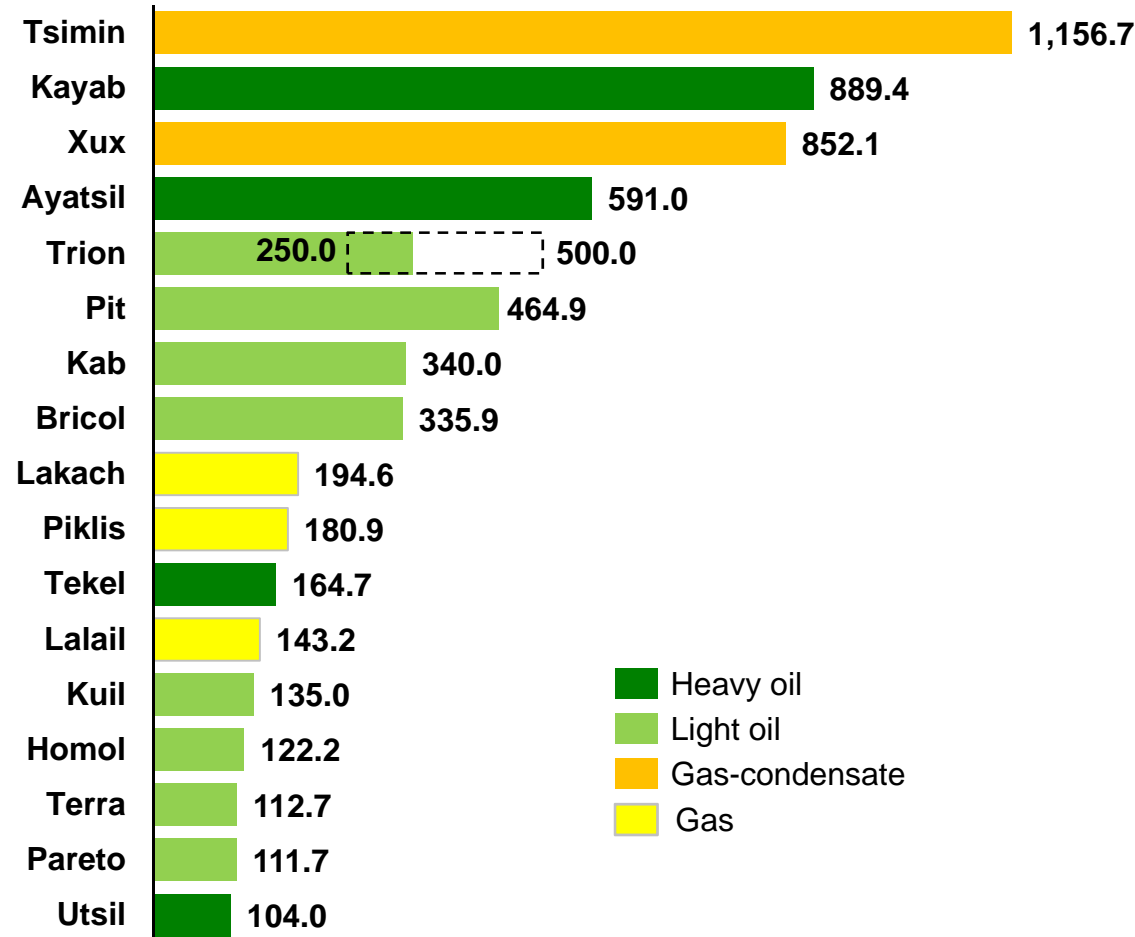


### Results

- From 2007 thru 2011, exploratory activities yielded an annual average above 1 billion BOE in additional 3P reserves
- Discoveries refer to the addition of reserves due to successful exploratory wells drilled in new reservoirs

## Main discoveries 2006-2012

Million BOE

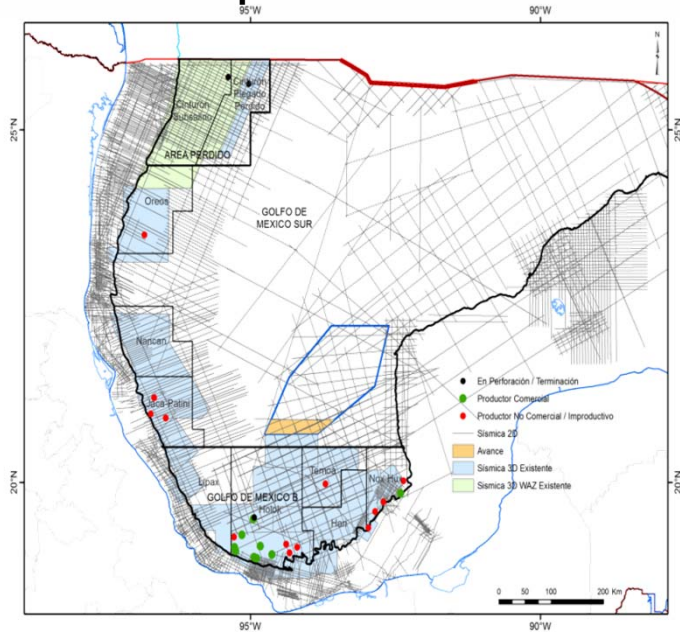


### Results

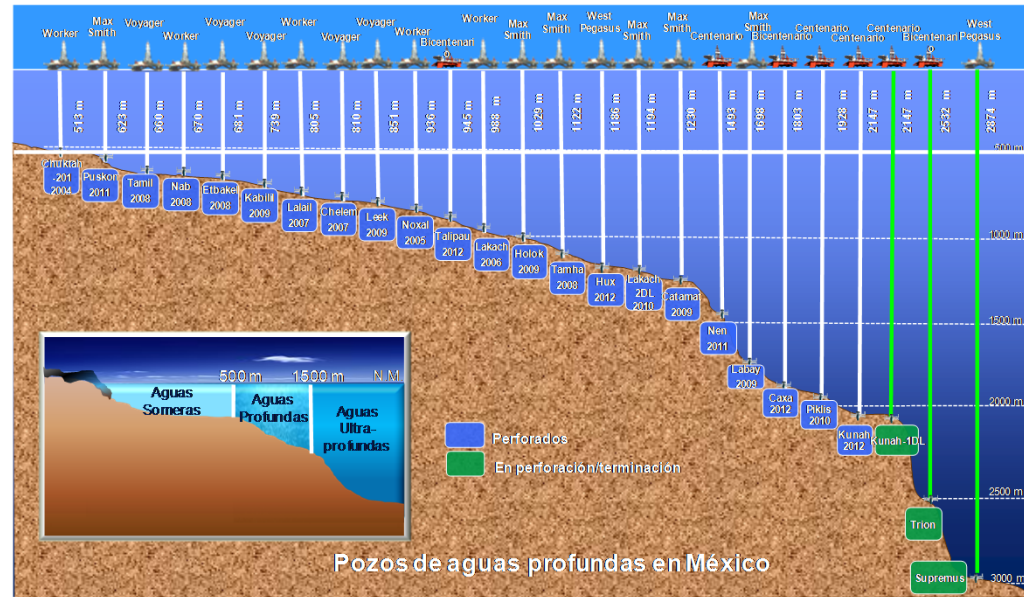
- From 2006 thru 2012, 17 fields have been discovered with reserves over 100 mmboe
- Along this period, the cumulative reserves amounting to **6,249 mmboe**

# Exploration jobs in deepwaters shows competitive results at international level

## Seismic acquisition



## Completed wells



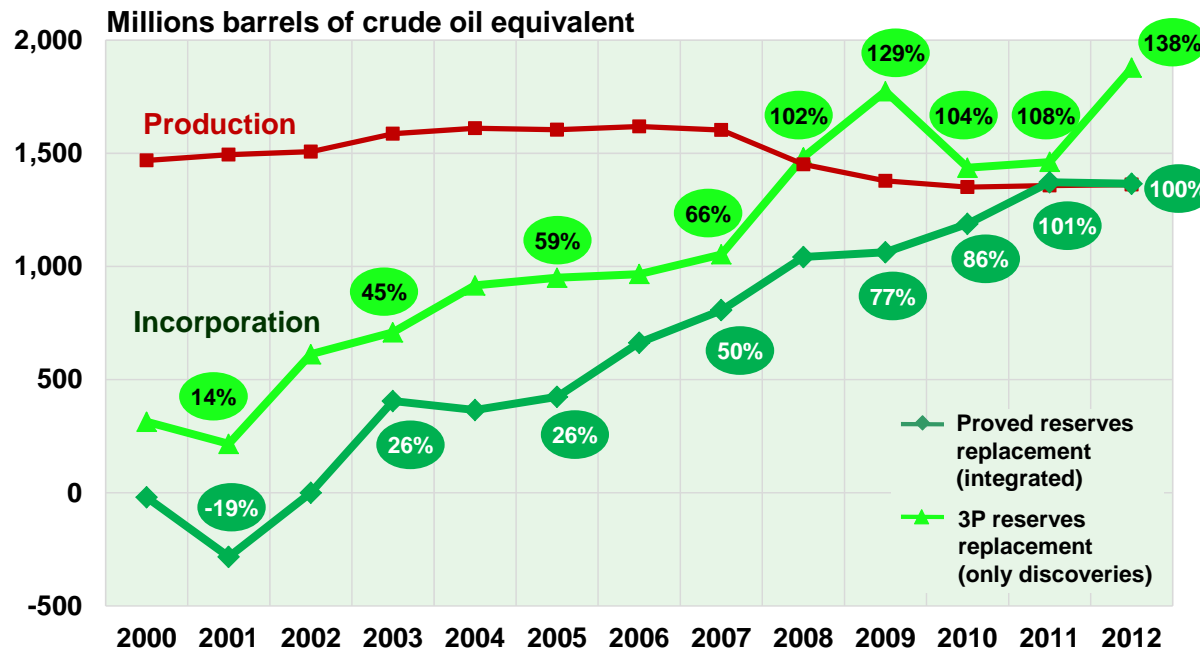
### Exploratory statistics in the GOM

	US Deepwater, West GC	US Deepwater, East GC	México, Pemex
Exploratory wells drilled	150	170	22
Geologic success rate (%)	30	35	55
Commercial success rate (%)	29	29	41
Total reserves (MMboe)	6,192	3,851	1,123
Exploratory investment, (MMUSD)	14,756	18,600	4,075

Note: USA: 2001-2010; Pemex: 2001-2012



# 1P and 3P reserve replacement rates have been sustainably increased



## Results

- The integrated 1P reserves replacement rate is defined by the quotient of the net addition of proved reserves divided by the total production of period
- In 2011, the integrated 1P reserves replacement rate was 101 percent, the highest rate obtained since the adoption of the SEC guidelines
- This achievement of 1P replacement rate over 100 percent has allowed, for the first time, compensate each produced barrel from the proved reserves

Note: Proved reserves replacement based on SEC rules

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- **The resources and reserves classification are based on the PRMS guidelines since 1997 and this process has allowed give consistency and confidence at Pemex's booking**
- **Currently, proved reserves are based on SEC rules and the probable and possible estimation are based on PRMS guidelines**
- **Since 1999 Pemex publish their resources and reserves both editing publications and thru his media portal**
- **Historical behavior of reserves shows good tendency and the target is to maintenance the incremental behavior in the future**
- **Exploratory activity in deep waters and gas – oil shale will be essential in order to achieve the incorporation reserves targets**