

Justification for Proposing a Study of Large Petroleum Fields

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UNECE Ad Hoc Group of Experts on Supply of Fossil Fuels

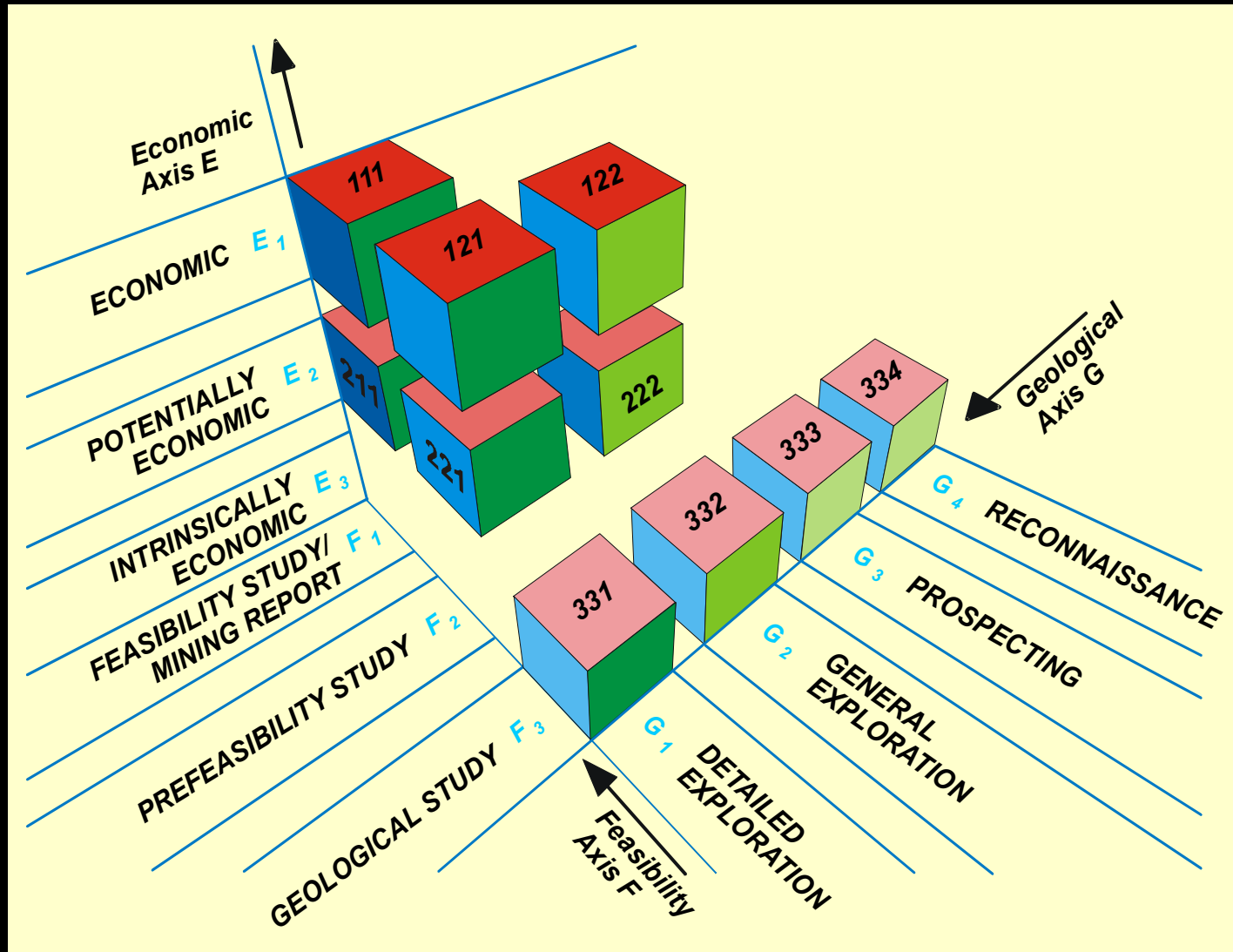
10-11 November 2004

Geneva, Switzerland

Introduction

- Large Fields
 - Much of the world's petroleum
 - Reserves estimates revised upwards
- Recovery processes irreversible
- Maximize economic recovery

UNFC

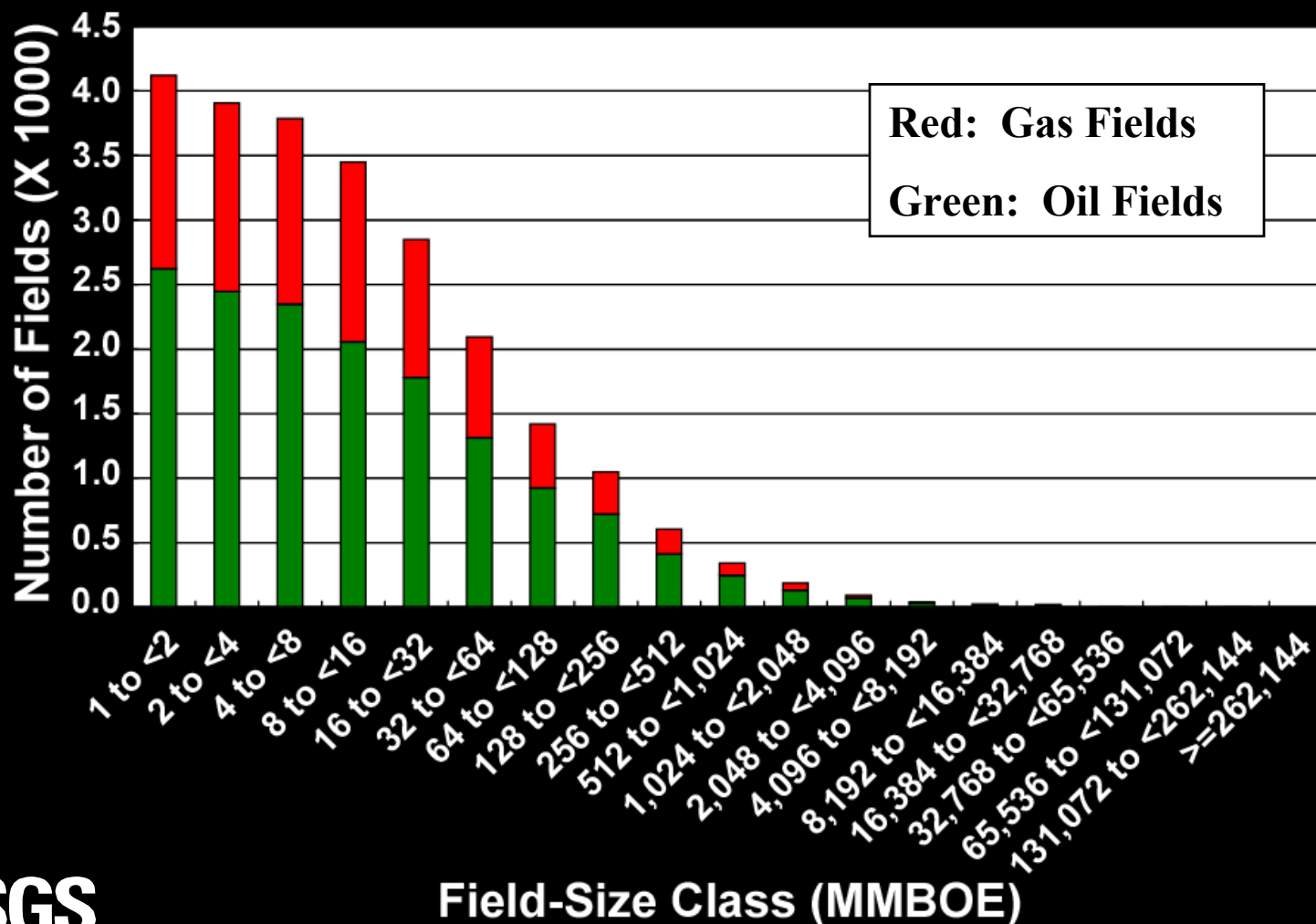


Outline

- Field-size distributions
- Reserve growth
- Giant fields
- Conclusions

Field Size Distributions

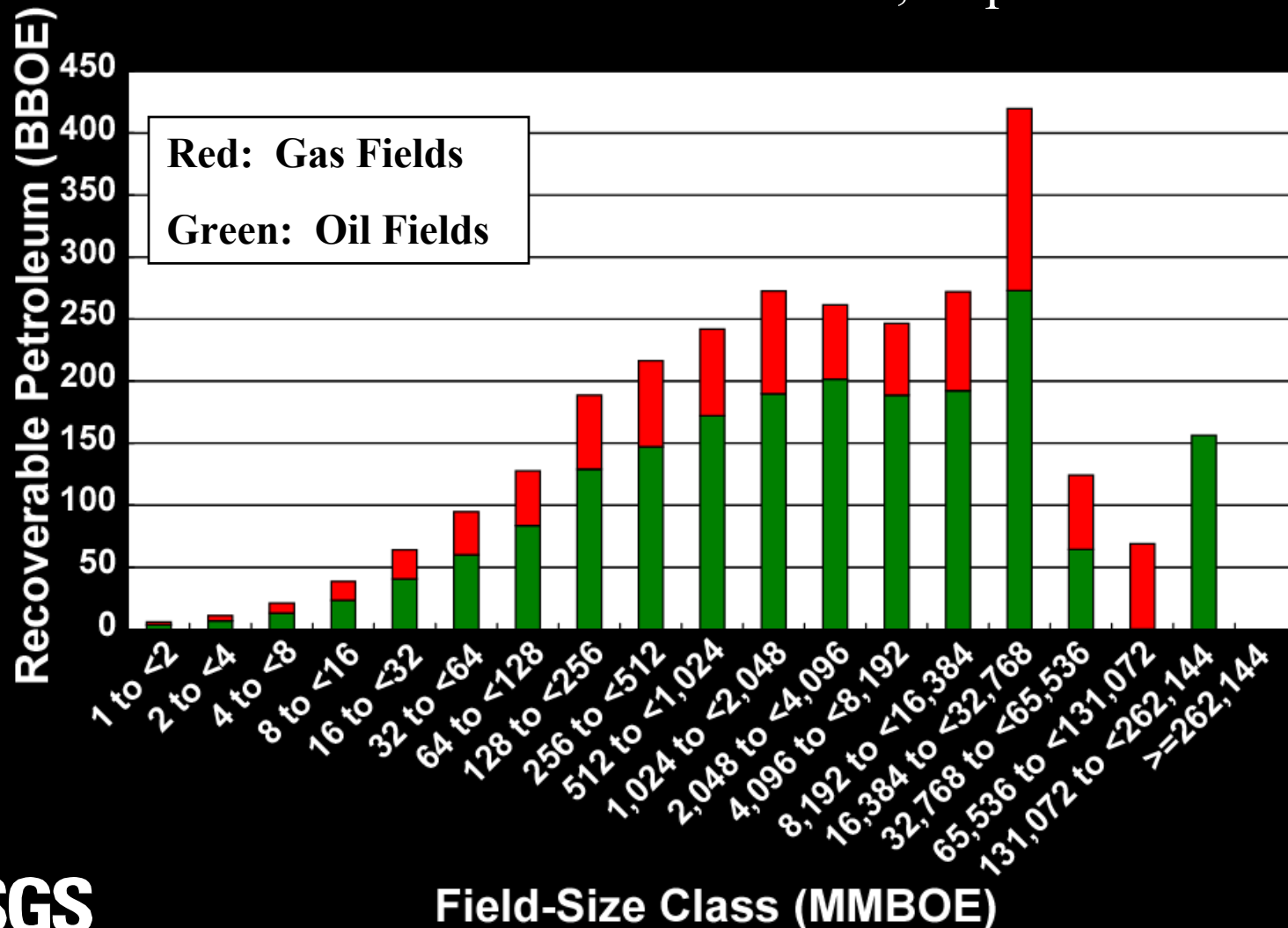
Recoverable Crude Oil and Natural Gas, Reported in 1996



Field-Size Class (MMBOE)

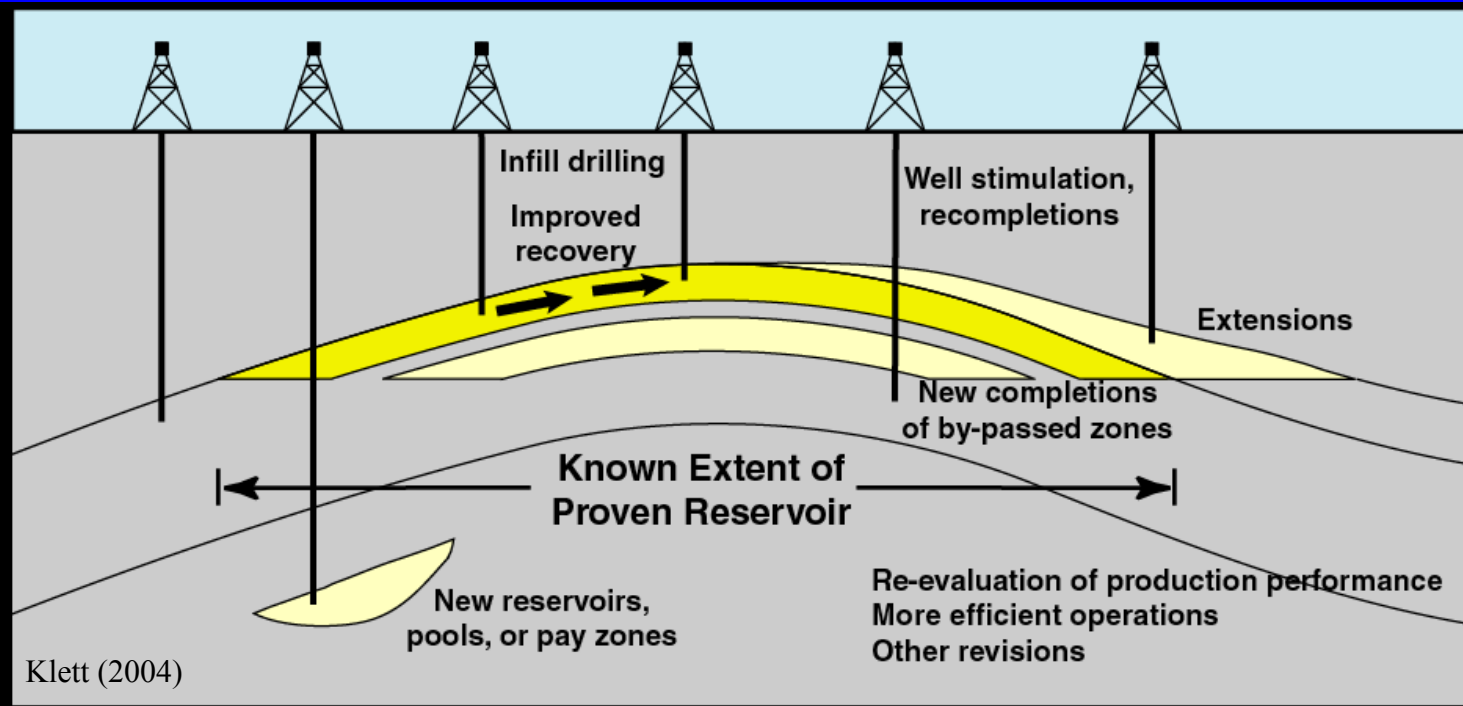
Field Size Distributions

Recoverable Crude Oil and Natural Gas, Reported in 1996



Field-Size Class (MMBOE)

Reserve Growth



Increases in successive estimates of recoverable volumes of crude oil, natural gas, and natural gas liquids in discovered fields

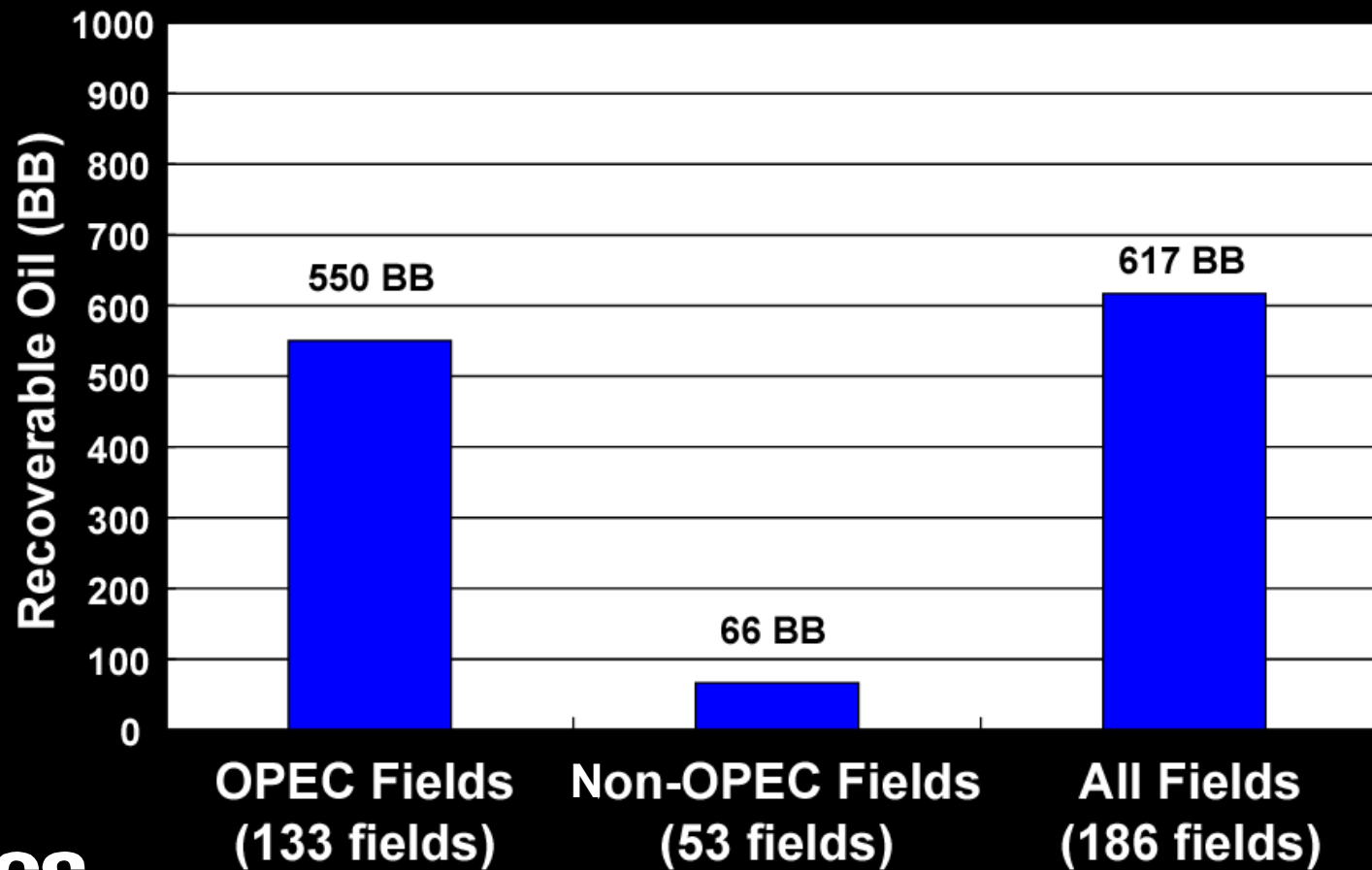
- Delineation of additional in-place volumes (geological)
- Increases in recovery efficiency (technological)
- Recalculation of reserves in dynamically changing conditions (definitional)
 - Economic, operating, political, and regulatory

Recoverable and Reserve Volumes

- Recoverable volumes
 - Estimated periodically
 - Cumulative production and remaining reserves
- Reserves
 - Initially conservative
 - Current conditions
 - Reasonable certainty

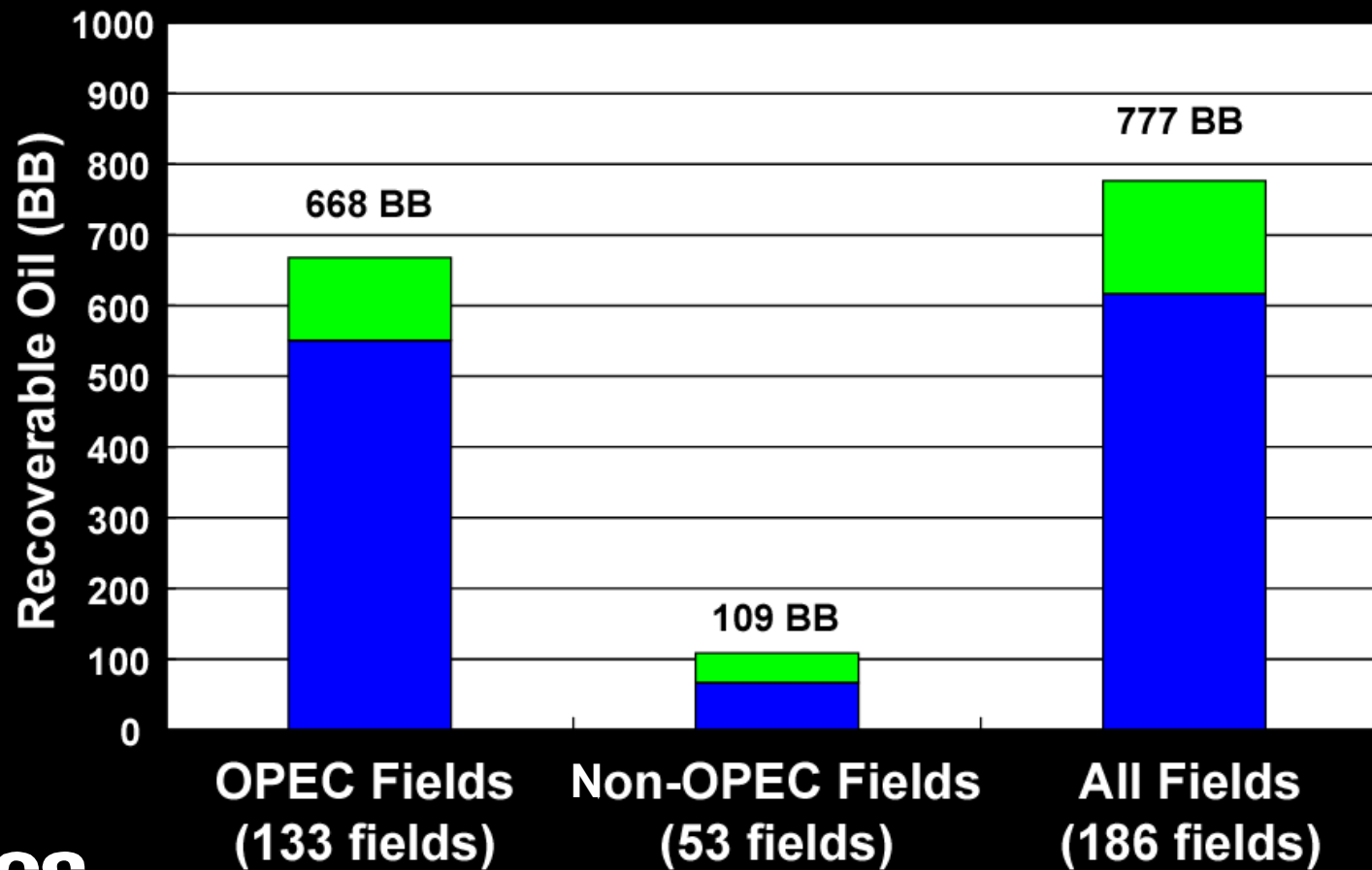
Giant Oil Fields (≥ 0.5 Billion Barrels)

Reported in 1981



Giant Oil Fields

Reported in 1996 (15 years)

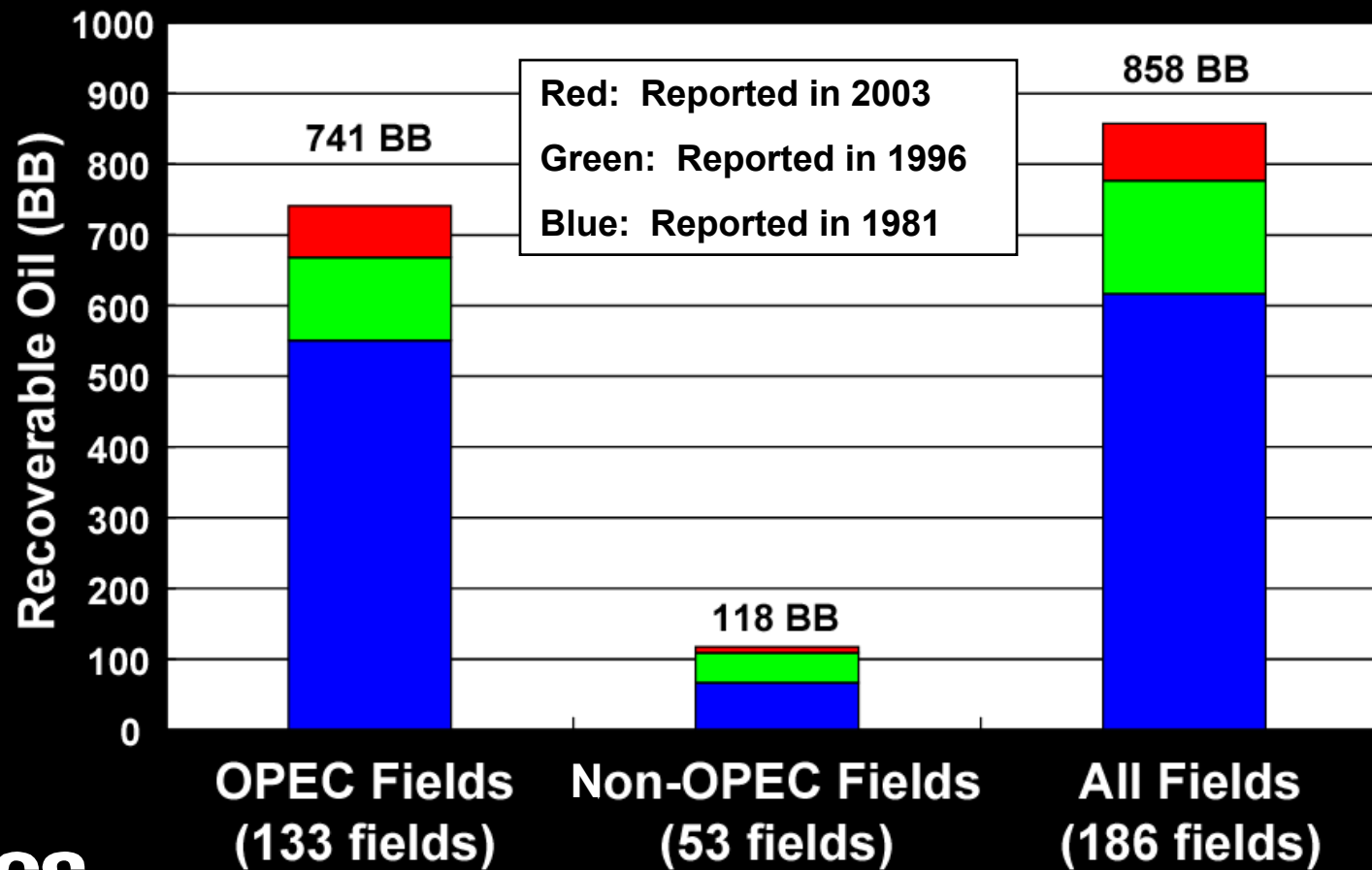


From Klett and Schmoker (2001, 2003); Klett, Charpentier, Schmoker, and Attanasi (2000)

Data from IHS Energy Group (1981 to 2003)

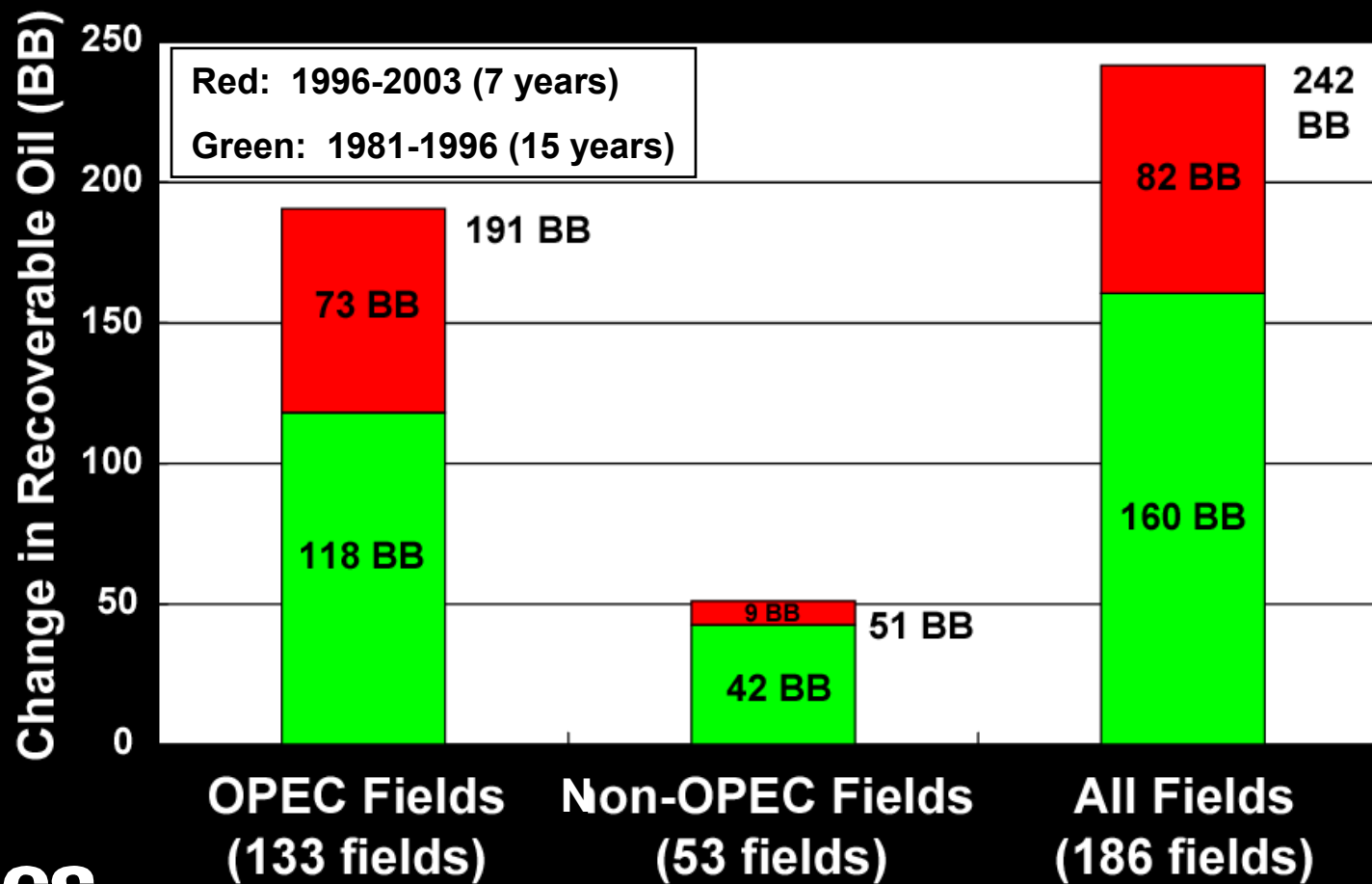
Giant Oil Fields

Reported in 2003 (22 years)



Giant Oil Fields

Net Change 1981-2003

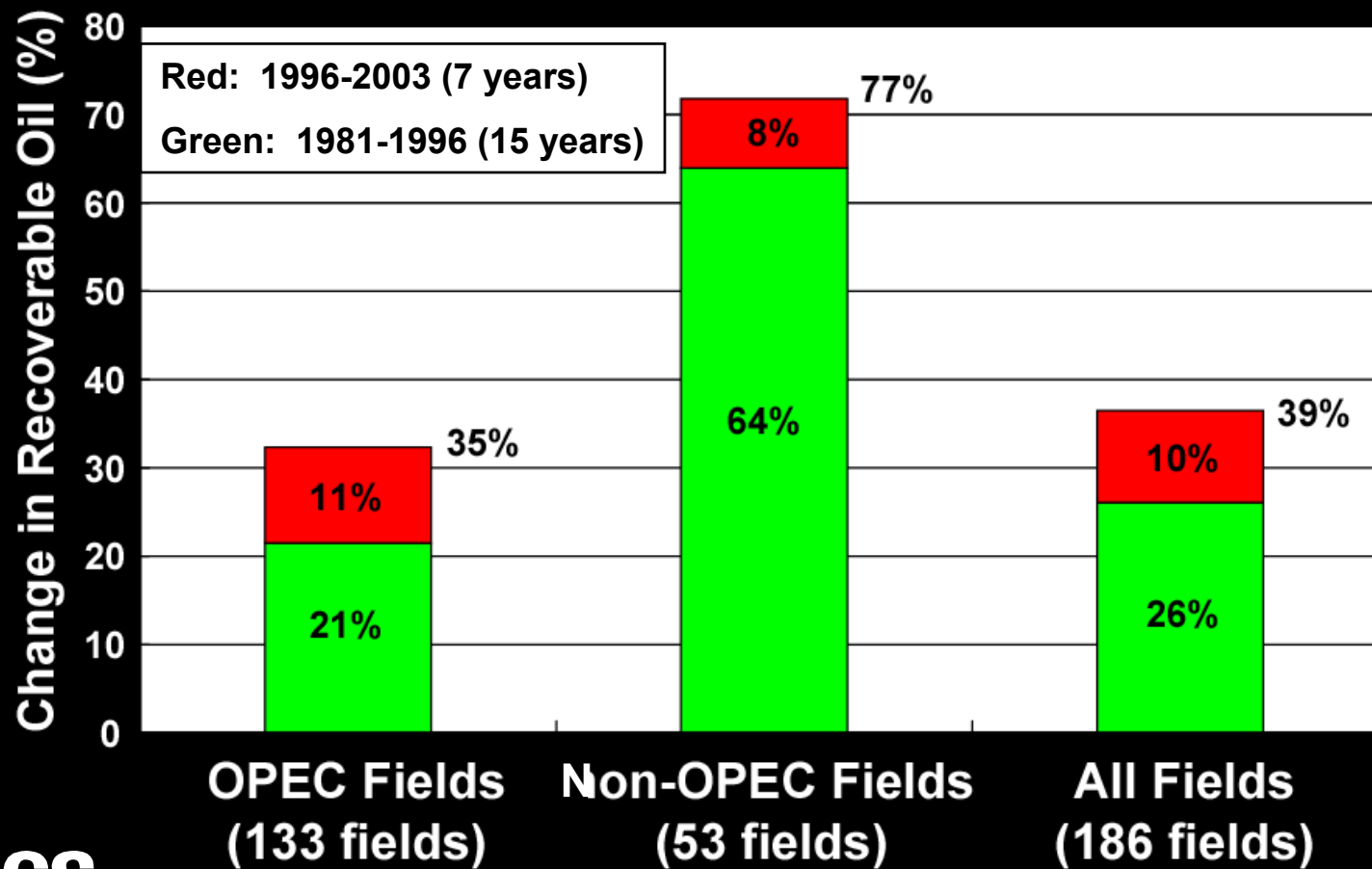


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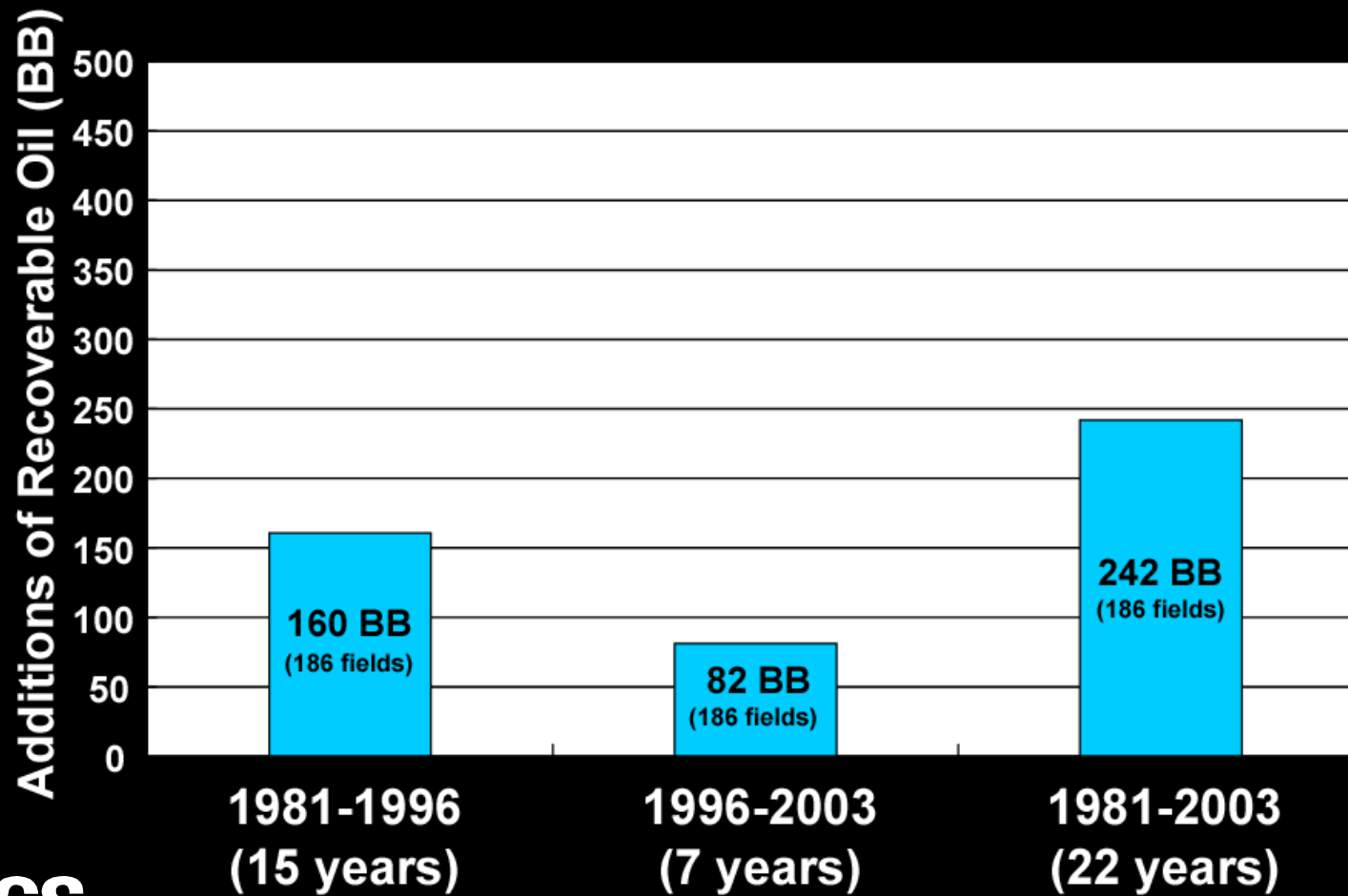
Giant Oil Fields

Percent Change 1981-2003, Reported in 1981



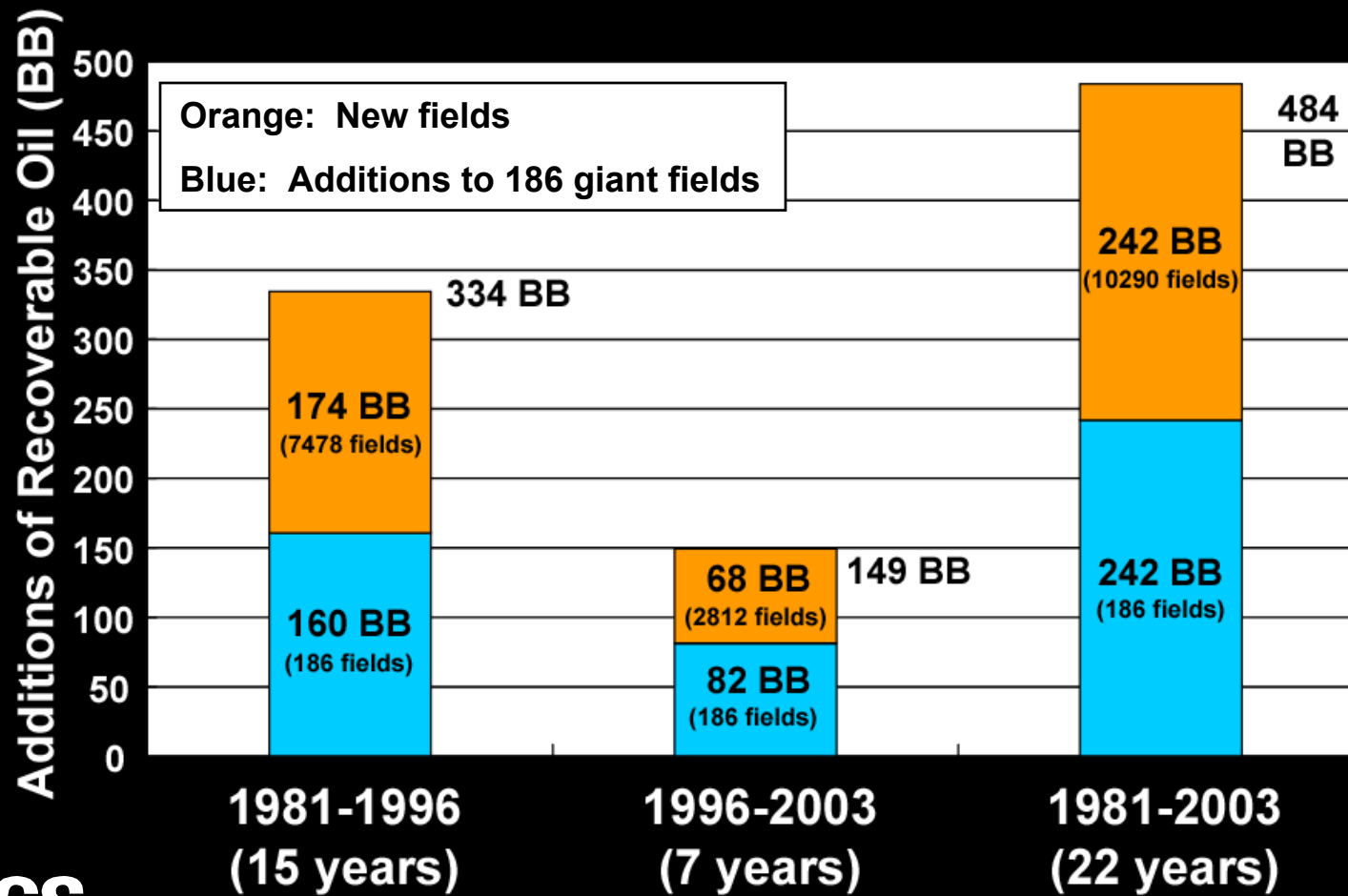
Giant Oil Fields

Additions to Reserves 1981-2003, Reserve Growth



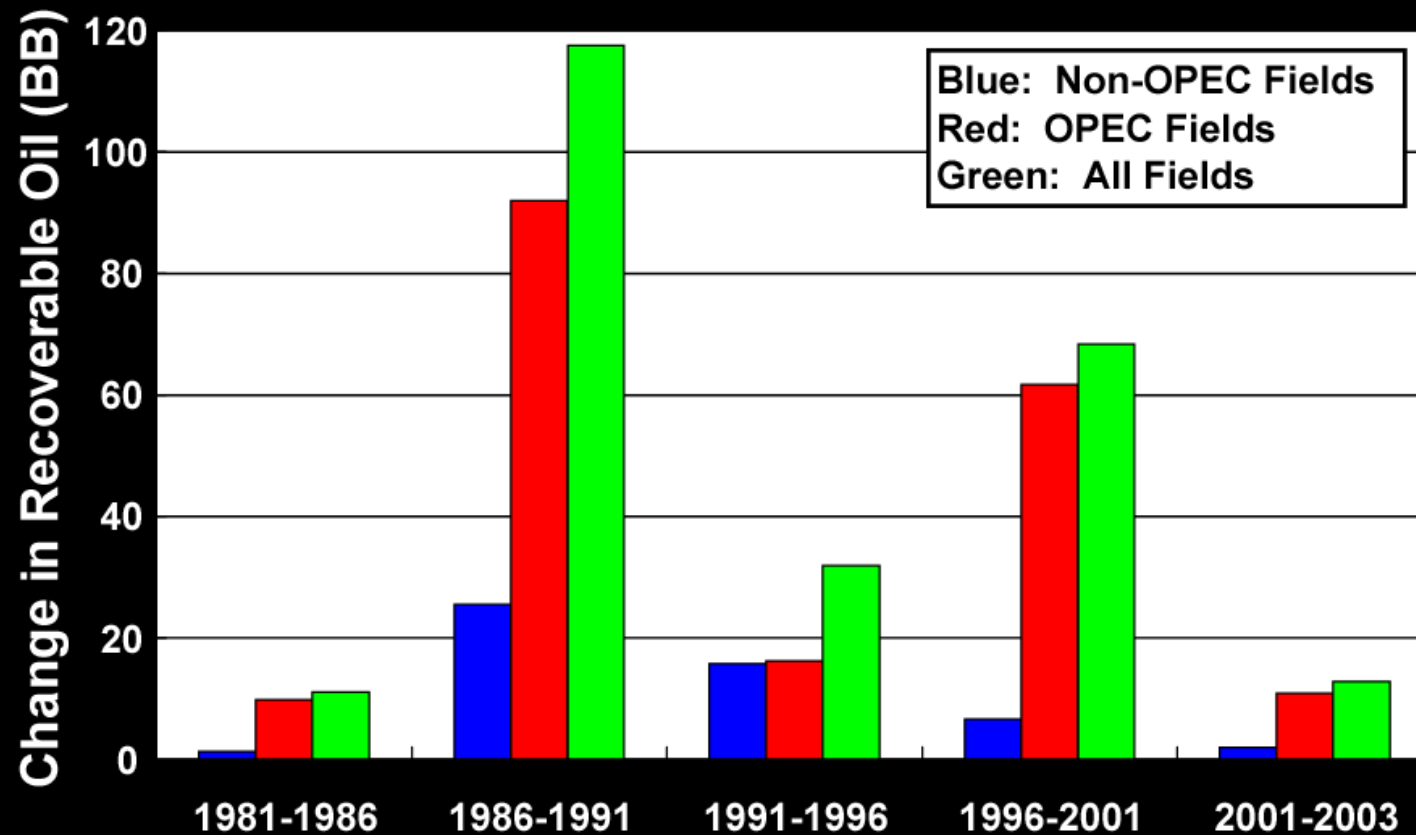
Giant Oil Fields

Additions to Reserves 1981-2003, New Fields



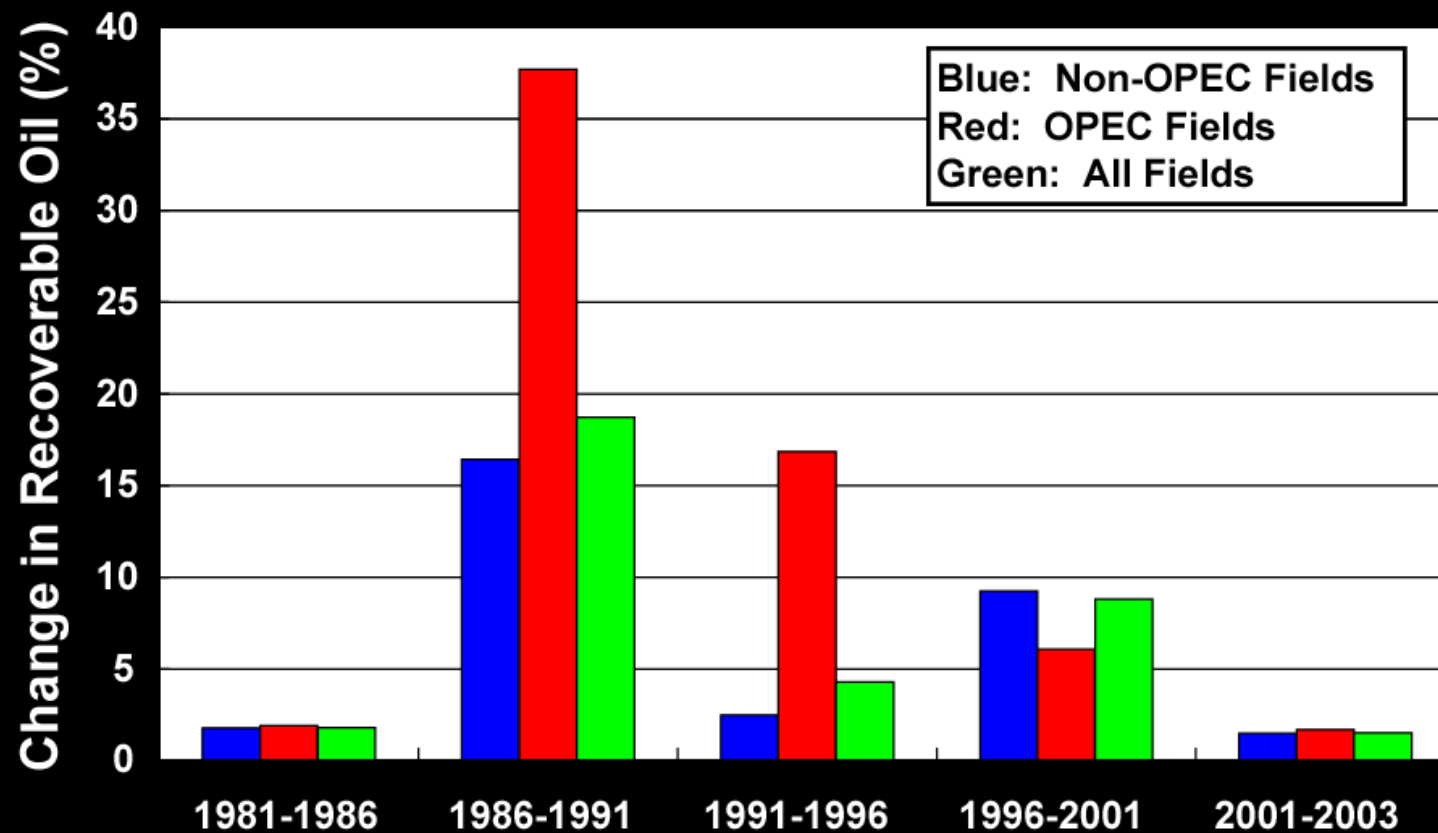
Giant Oil Fields

Change Through Time 1981-2003



Giant Oil Fields

Percent Change Through Time 1981-2003



Conclusions

- Demonstrate use of UNFC
- Large fields, greatest quantities
- Reserve growth is significant
- Maximizing economic recovery

Thank You for Your Attention