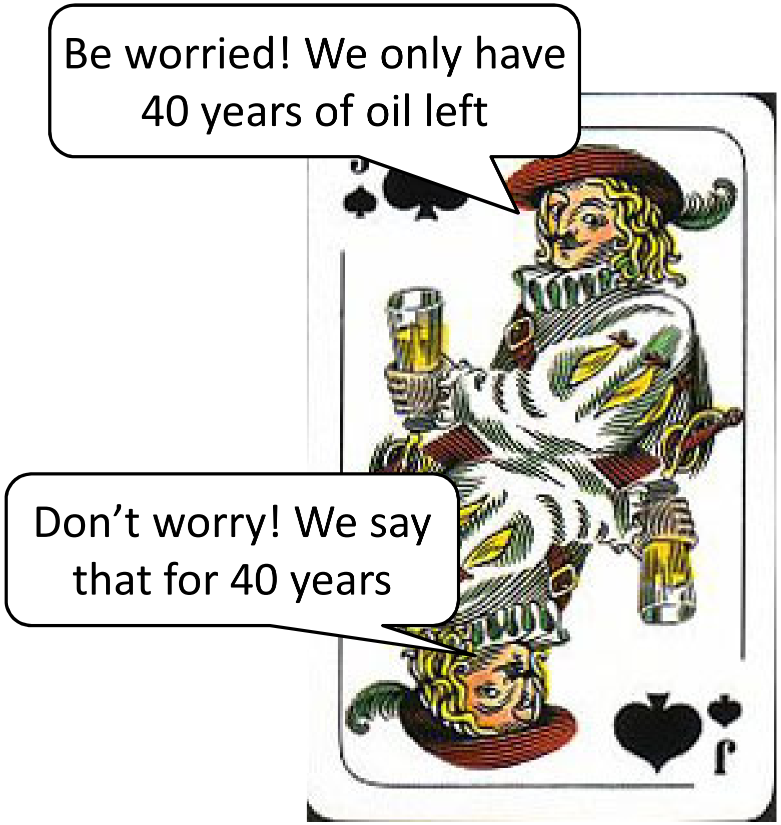
The unsuspected peaking of conventional oil: When reserve definitions distort the perception of scarcity.


Be worried! We only have 40 years of oil left
Don’t worry! We say that for 40 years

Patrick Brocorens

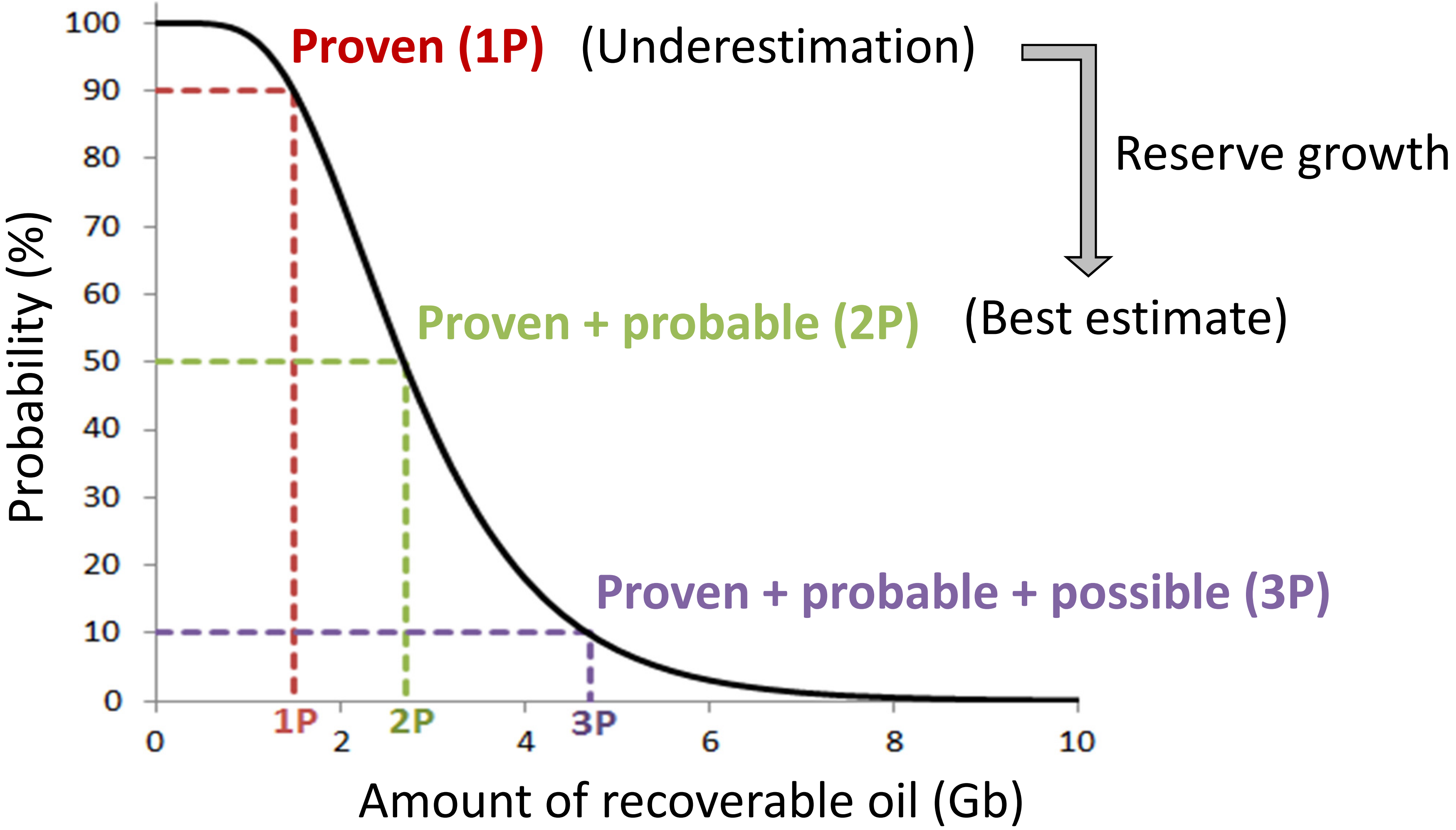
Laboratoire de Chimie
des Matériaux Nouveaux

30 january 2016
Mons

ASPO.be

UMONS
Université de Mons

SPE: Probabilistic definition of 1P, 2P, 3P reserves.



Proven (1P) (Underestimation)

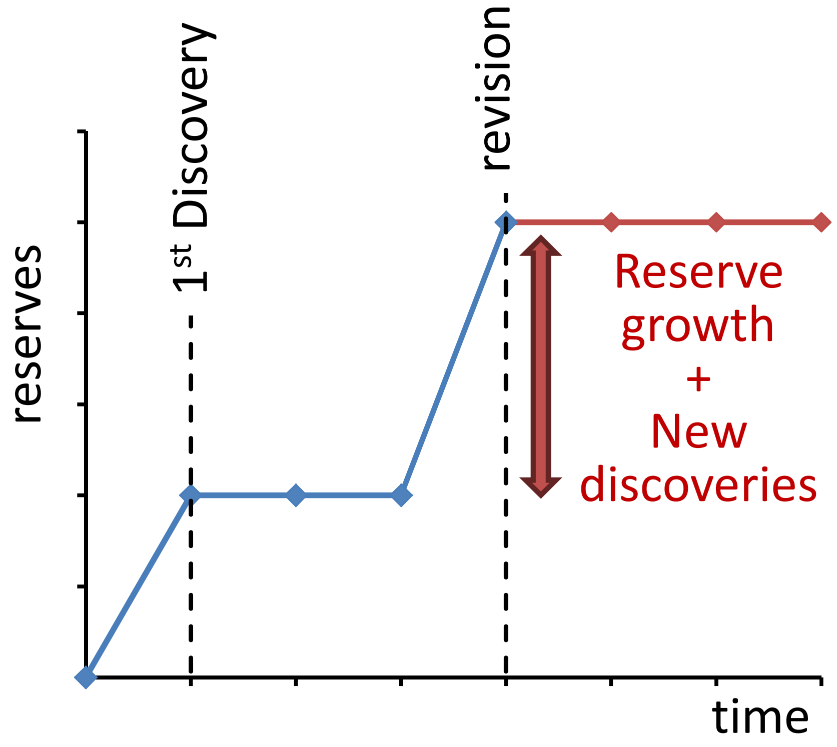
Reserve growth

Proven + probable (2P) (Best estimate)

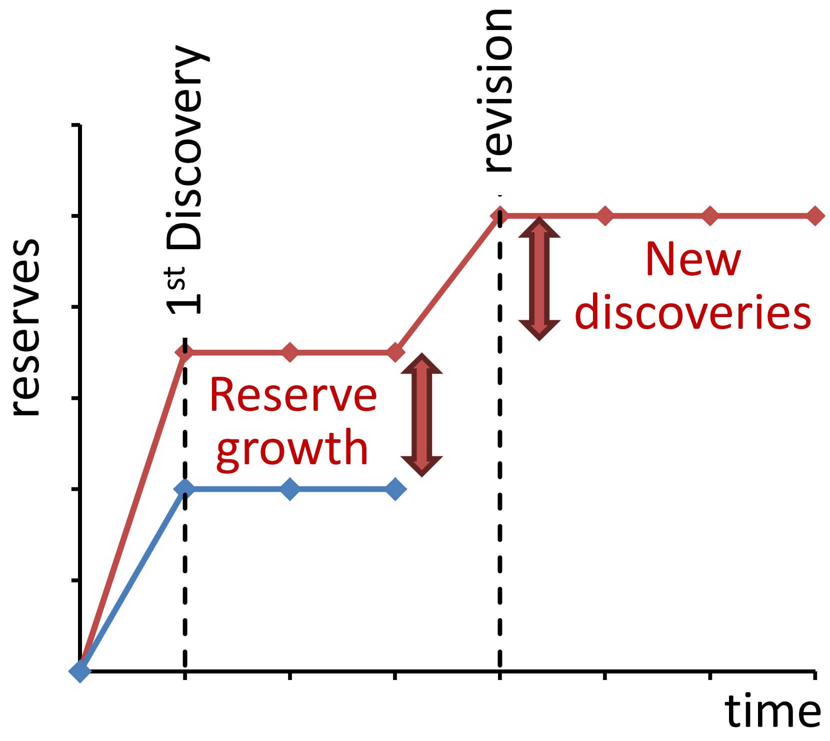
Proven + probable + possible (3P)

How to book the revisions?

1P: current

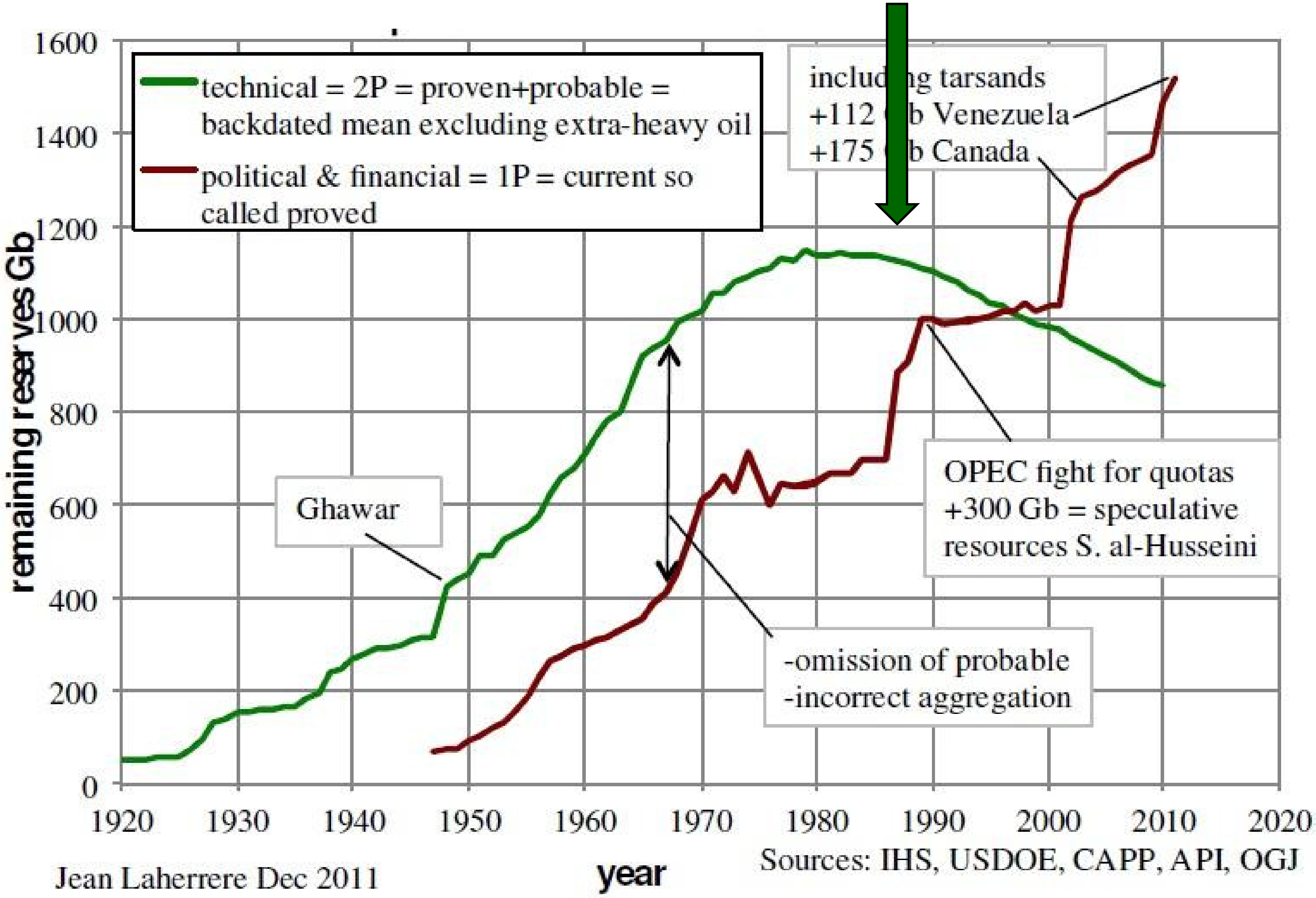


2P: backdating



1P and 2P, two different visions.

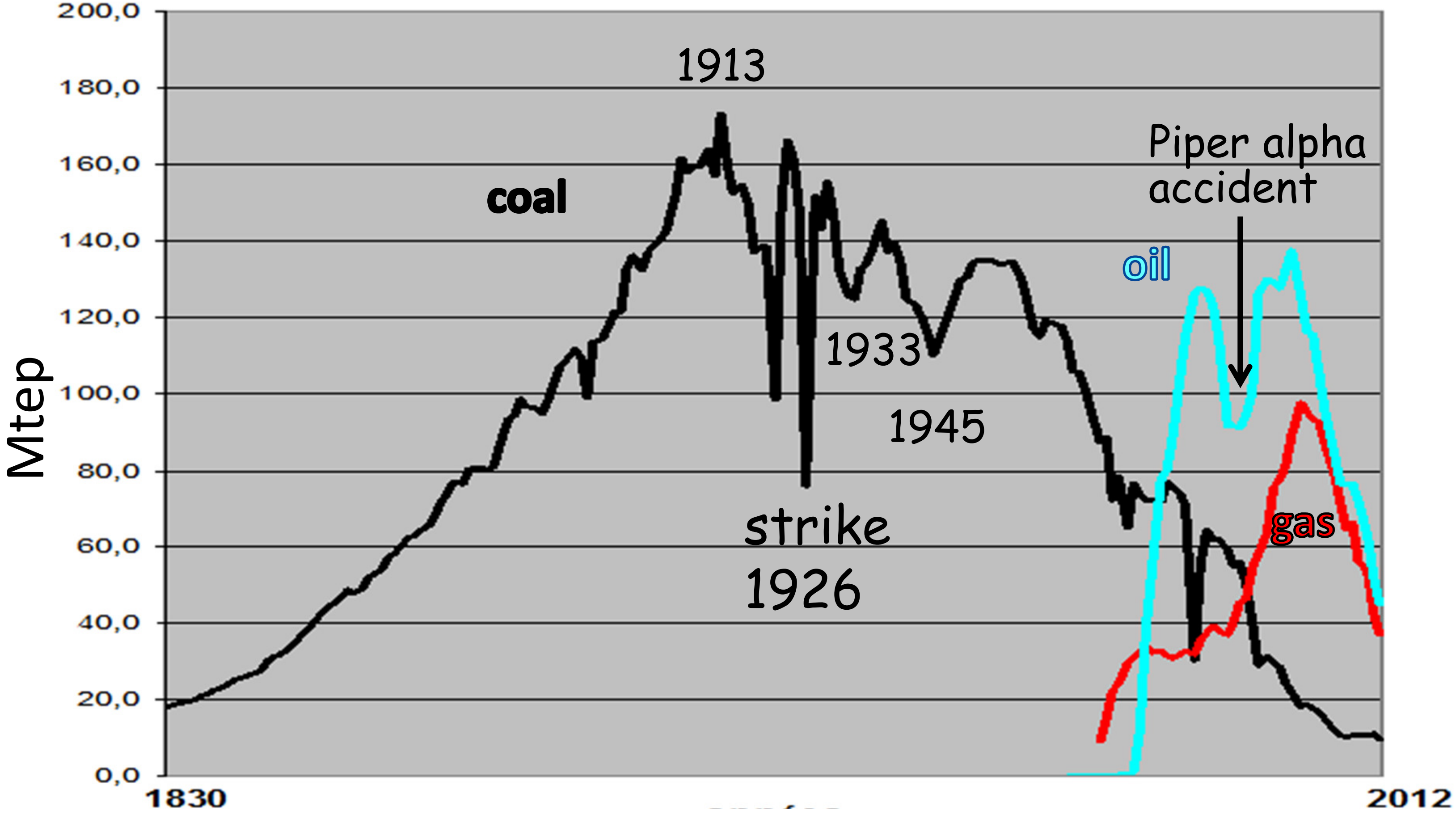
New discoveries do not replace what is extracted



Jean Laherrere Dec 2011

Sources: IHS, USDOE, CAPP, API, OGJ

The flow rate, more important than the stock.



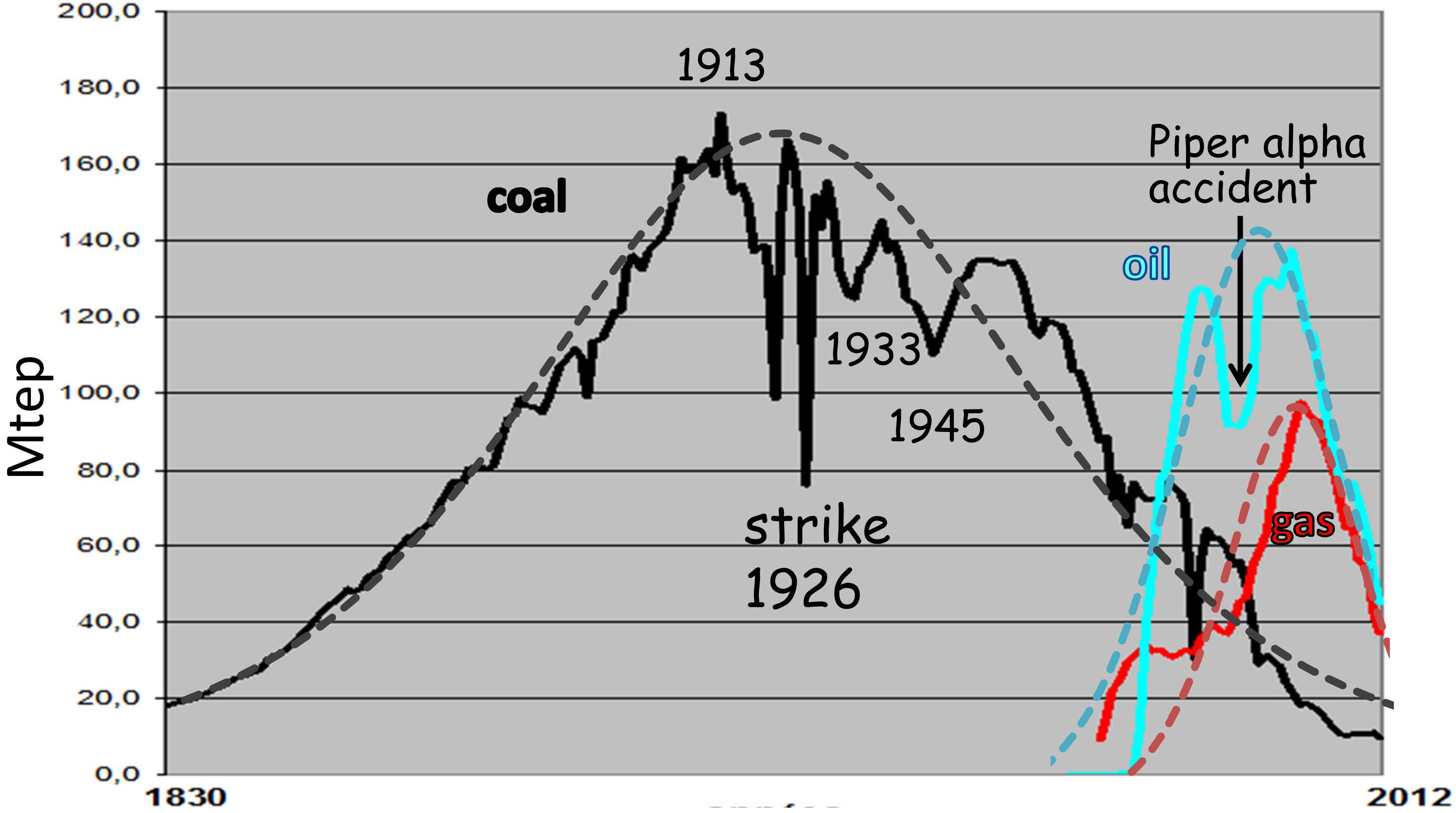
UK: production of fossil fuels from 1830 to 2012

Source: B. Durand from D. Rutledge, E. Mearns, BP

The flow rate, more important than the stock.

A bell-shape curve, a simple fit.

UK: production of fossil fuels from 1830 to 2012



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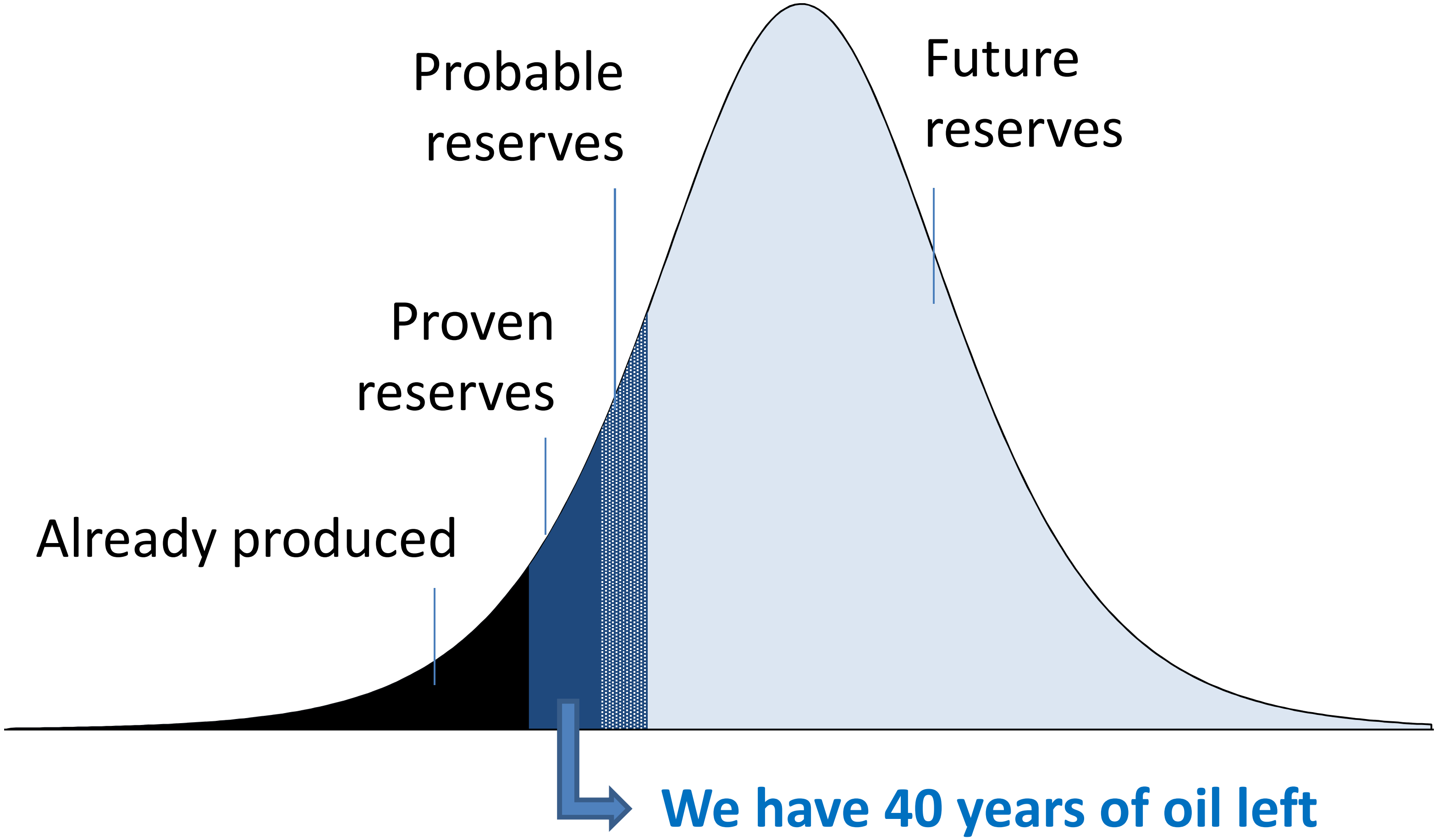
Identified reserves, a bad indicator for predicting oil availability.



Probable reserves

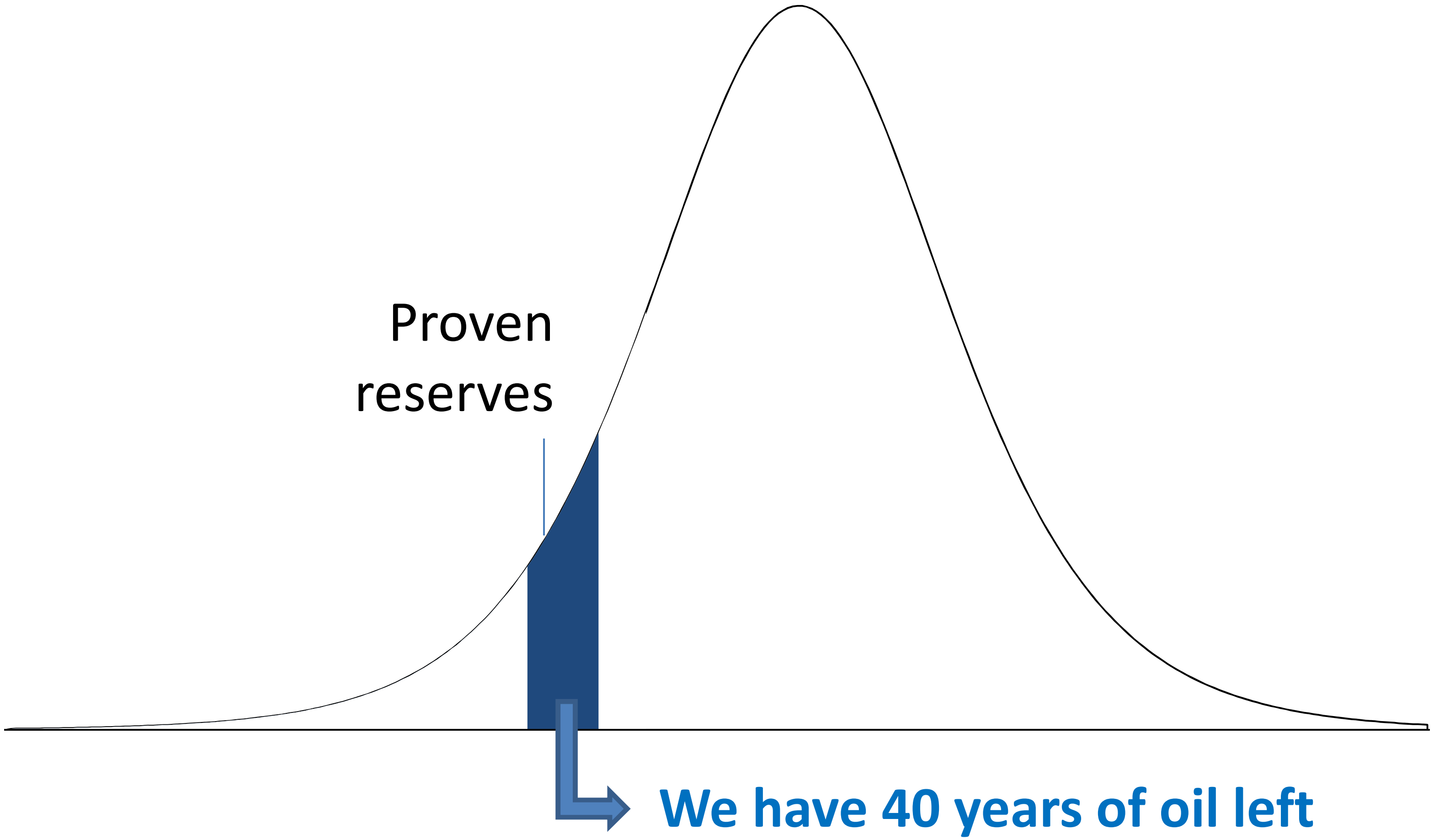
Future reserves

Proven reserves

Already produced

We have 40 years of oil left

Identified reserves, a bad indicator for predicting oil availability.


Proven
reserves
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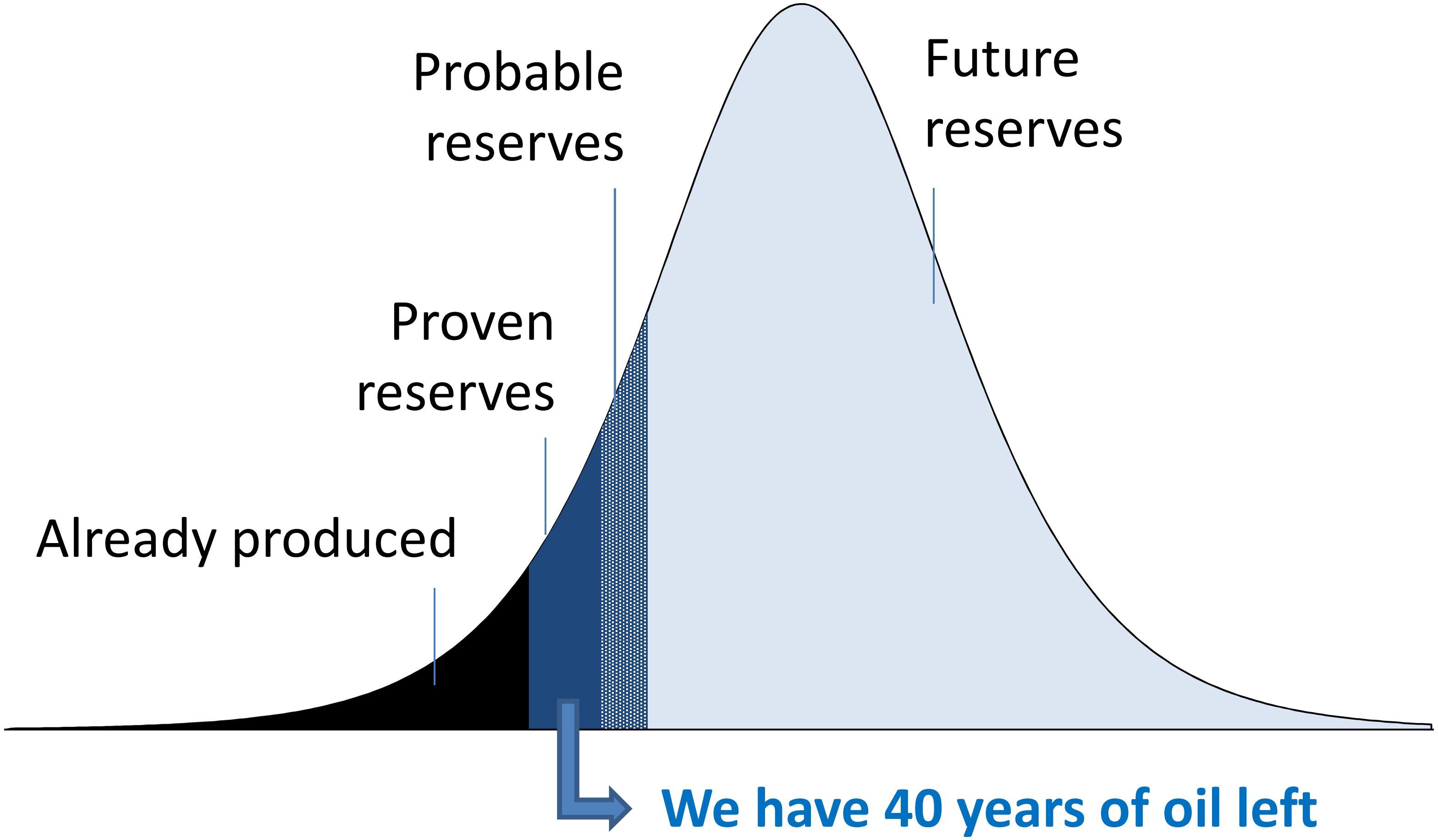
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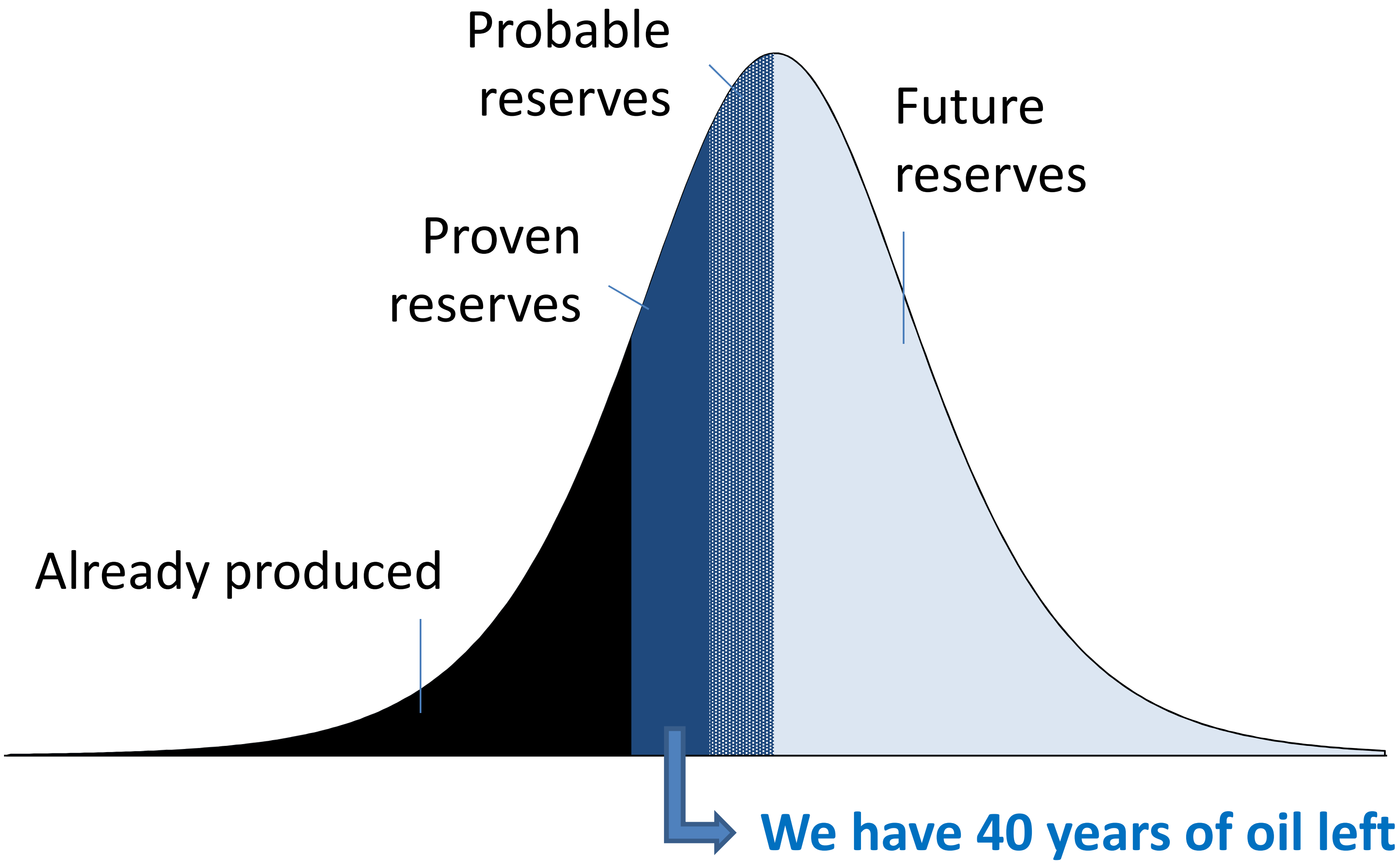
Probable reserves
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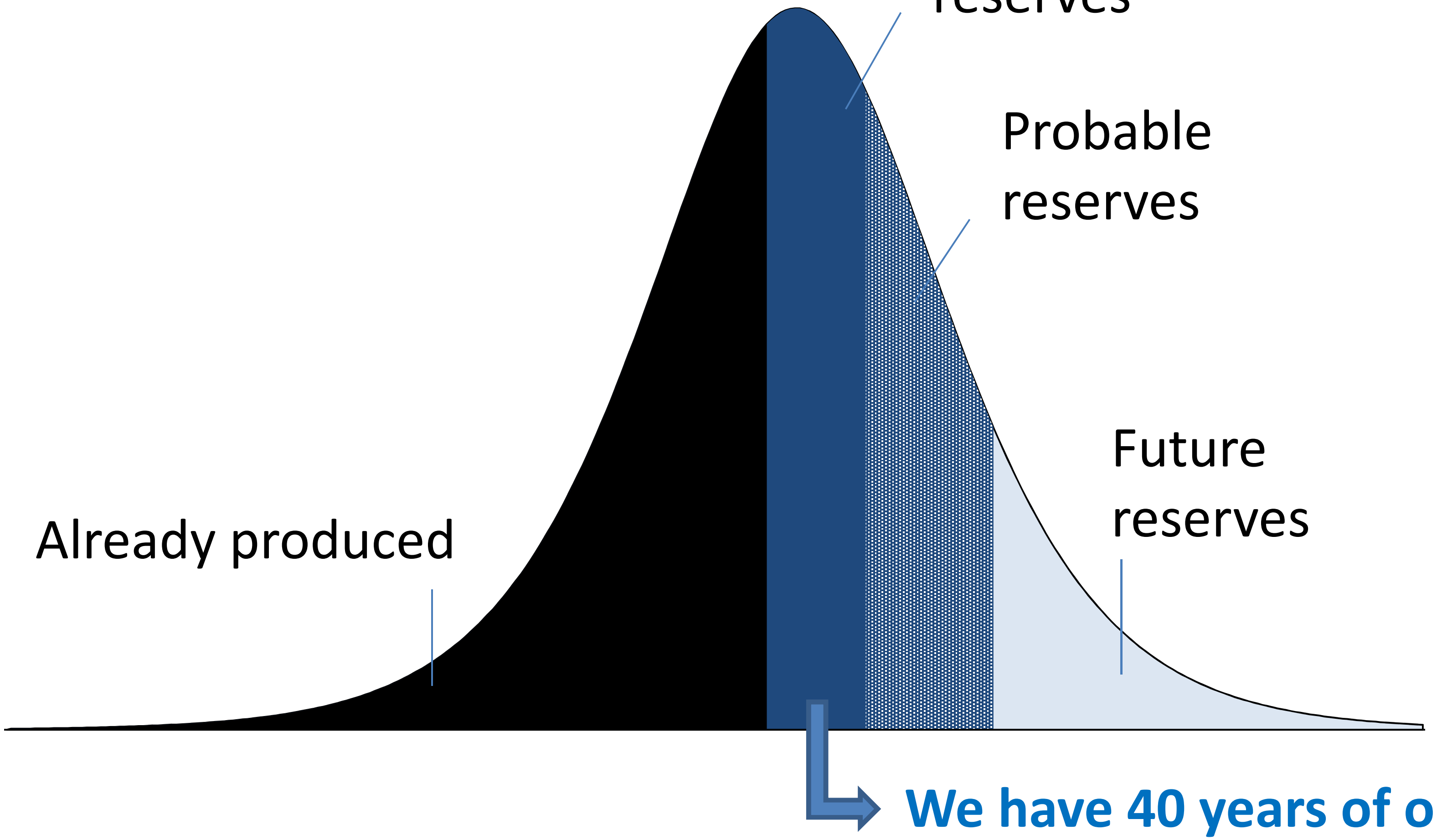

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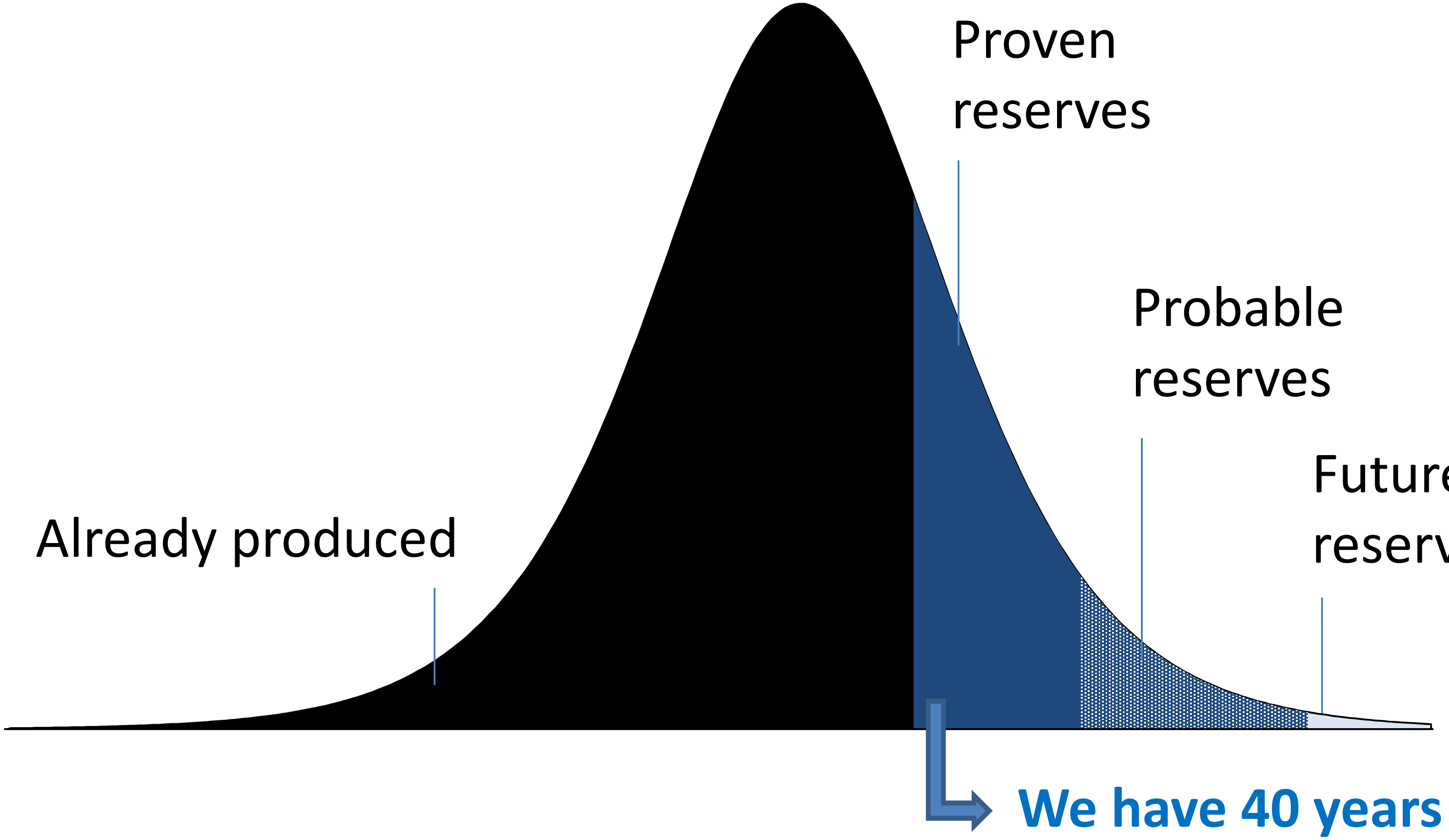
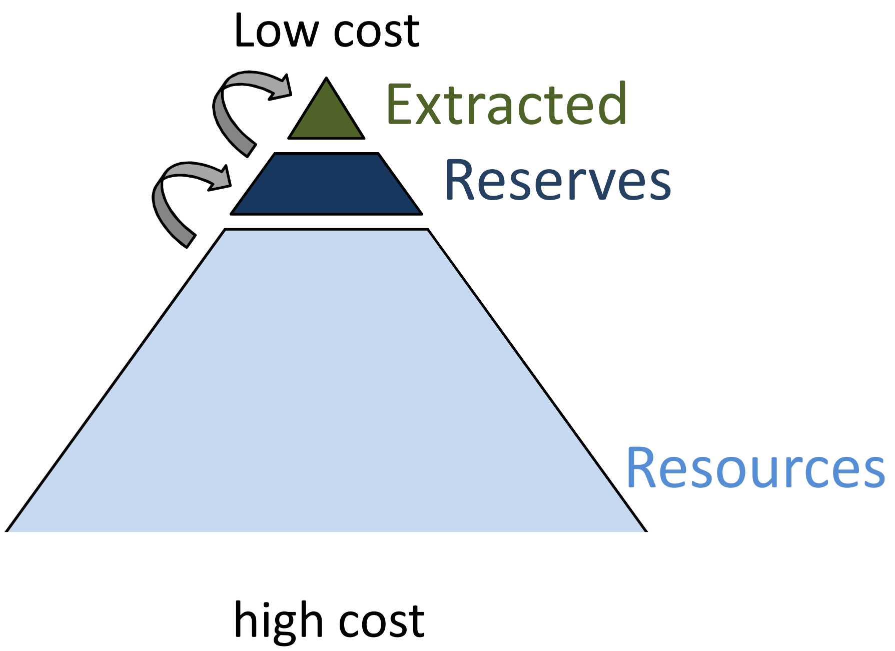

Proven reserves
Probable reserves
Future reserves
Already produced

We have 40 years of oil left

Can we estimate future discoveries ?

Some say "no"


Low cost
Extracted
Reserves
Resources
high cost

Can we estimate future discoveries ?

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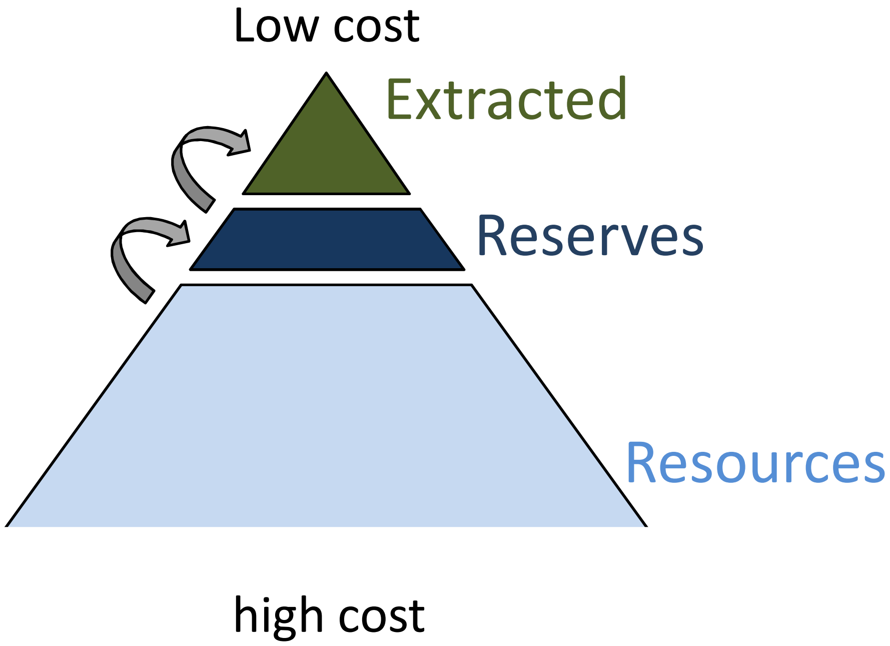
Low cost
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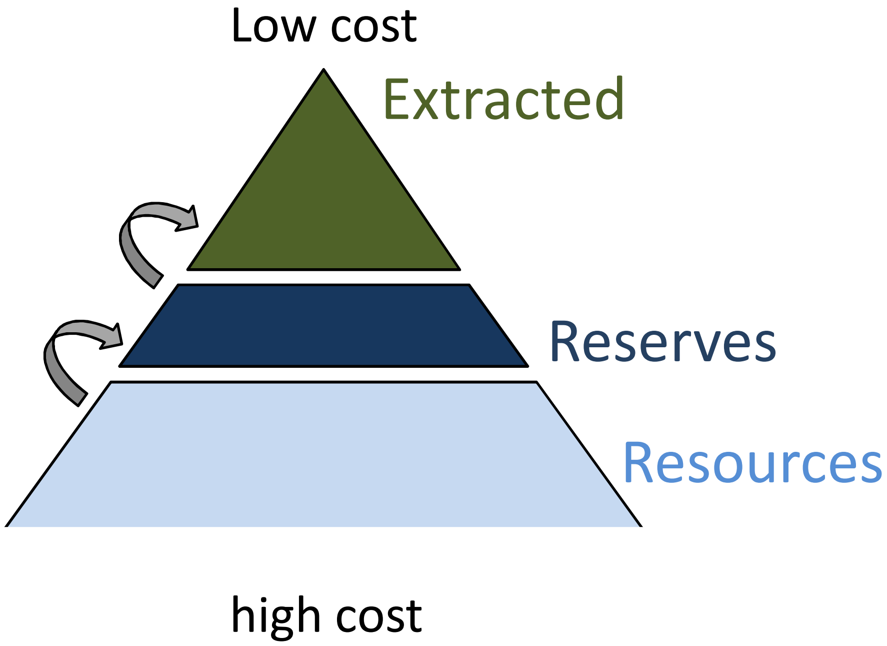
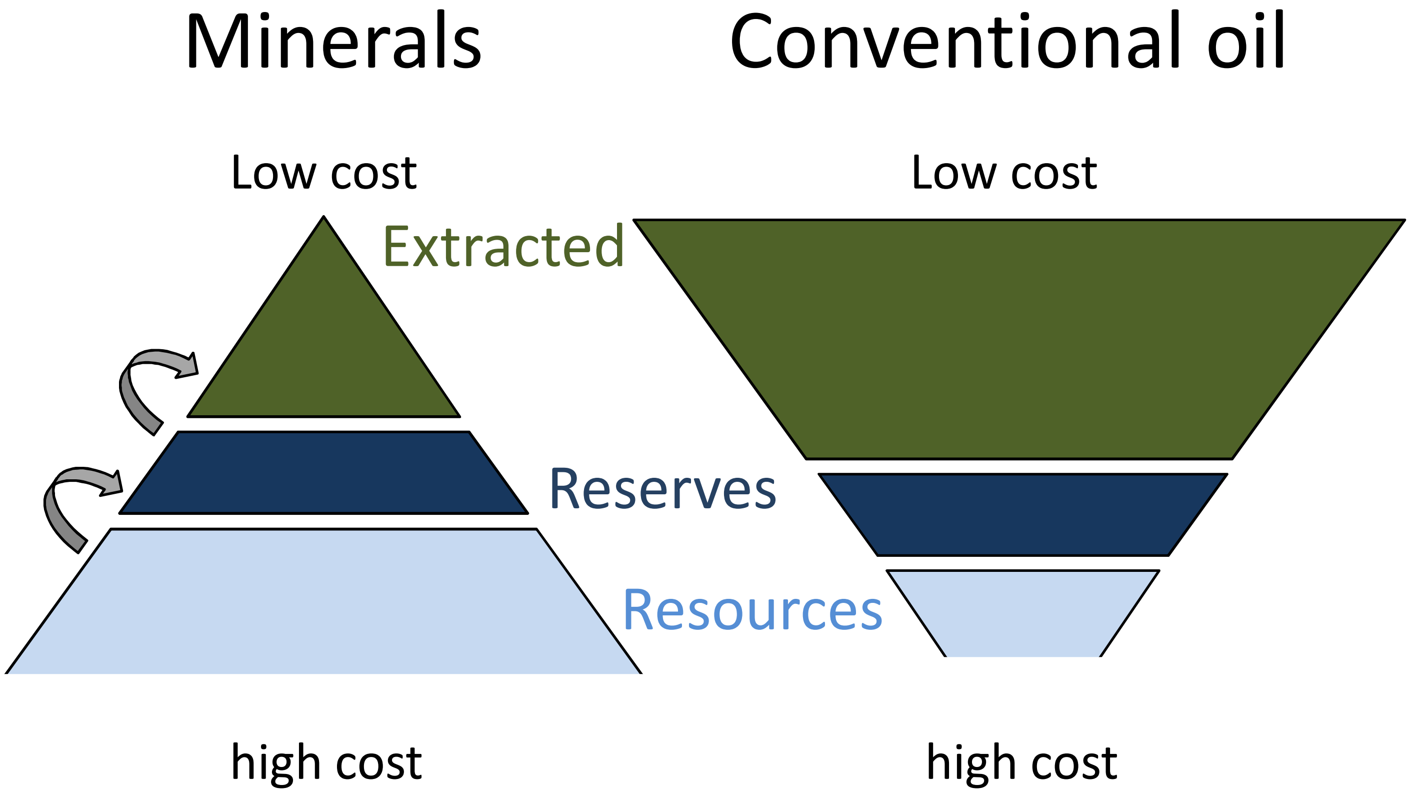
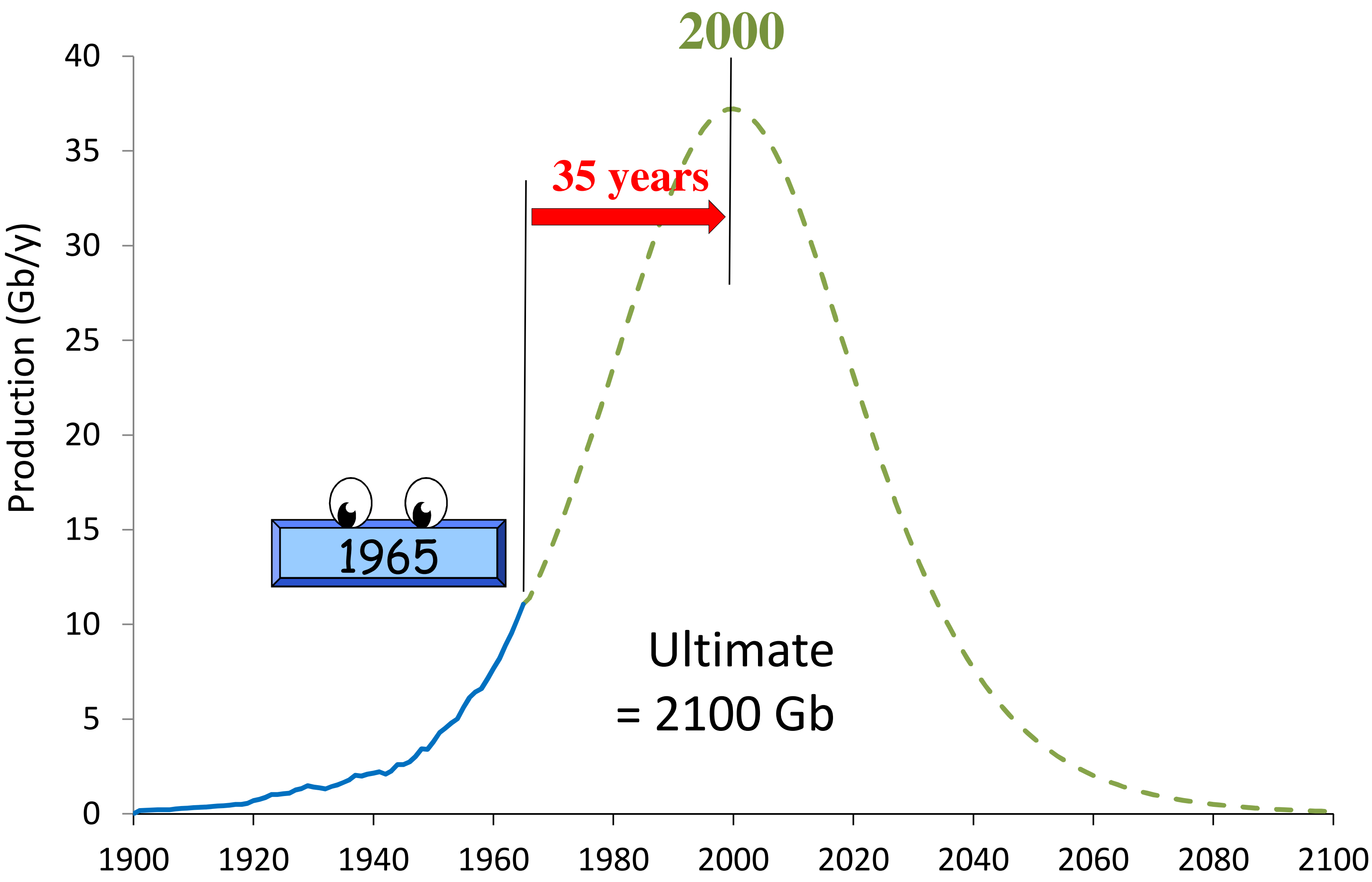

Low cost
Extracted
Reserves
Resources
high cost

Can we estimate future discoveries ?

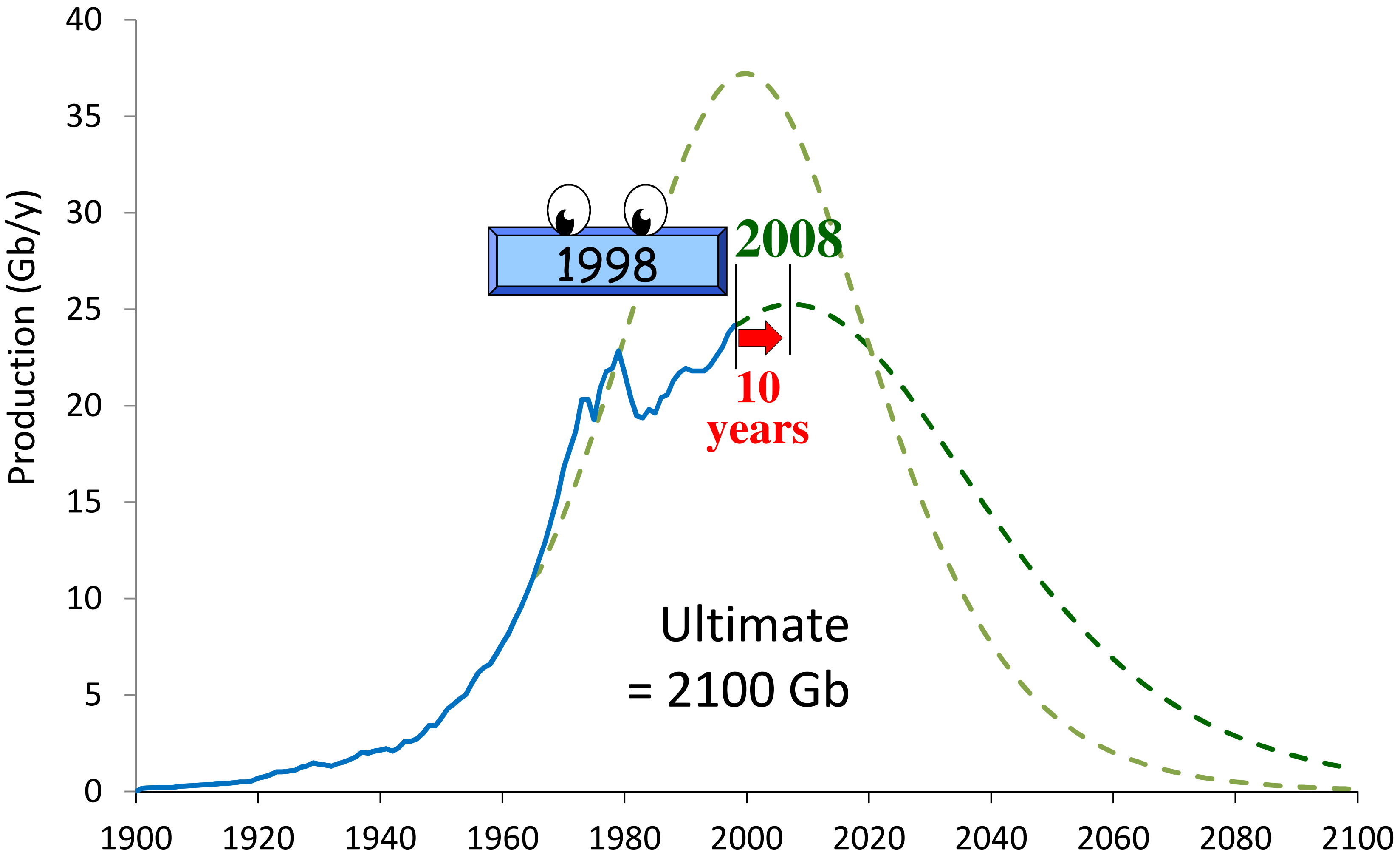
Some say “yes”, due to the specific characteristics of oil accumulations.


Minerals
Conventional oil
Low cost
Low cost
Extracted
Reserves
Resources
high cost
high cost

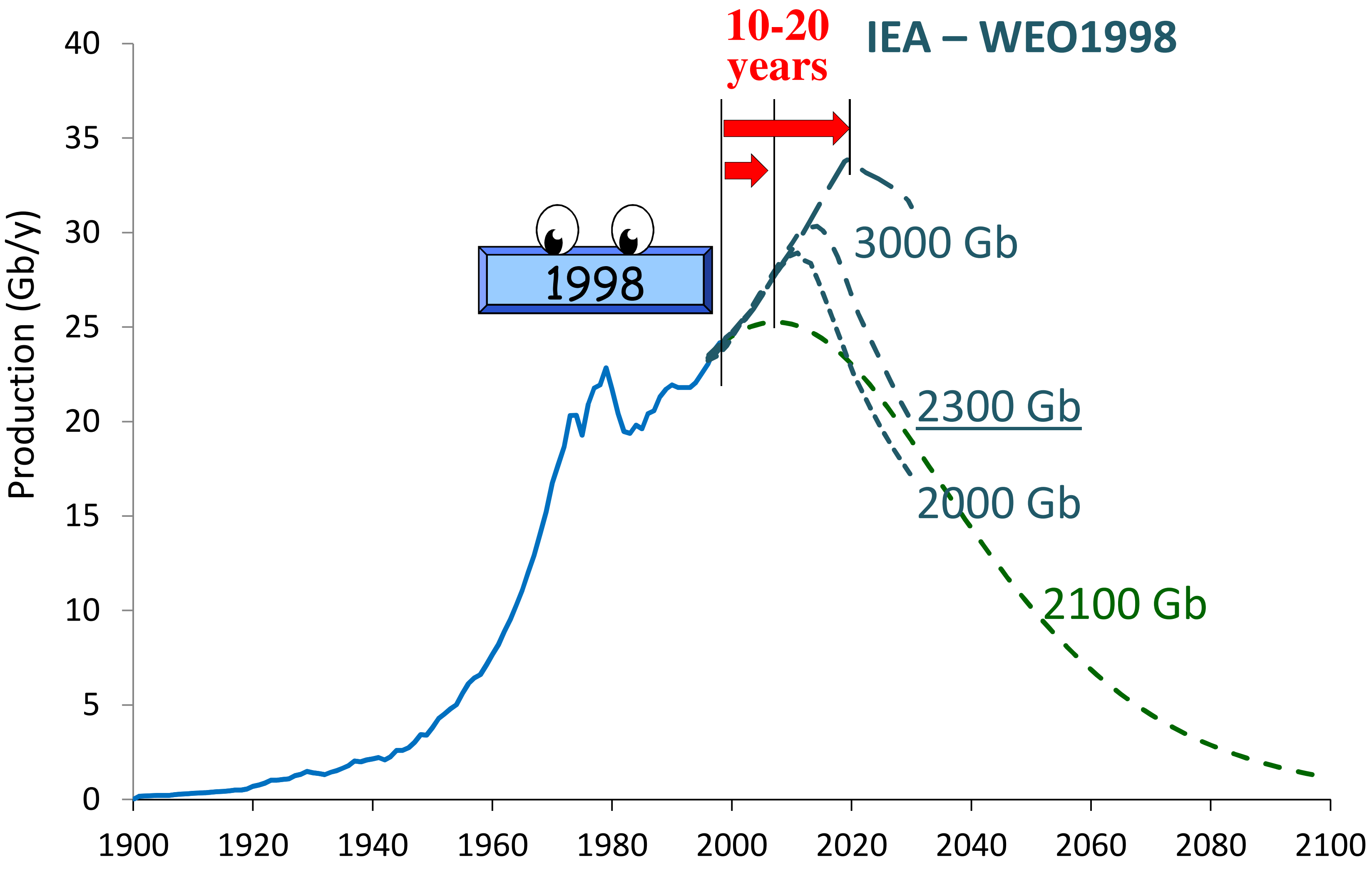
The peaking of conventional oil



The peaking of conventional oil



The peaking of conventional oil



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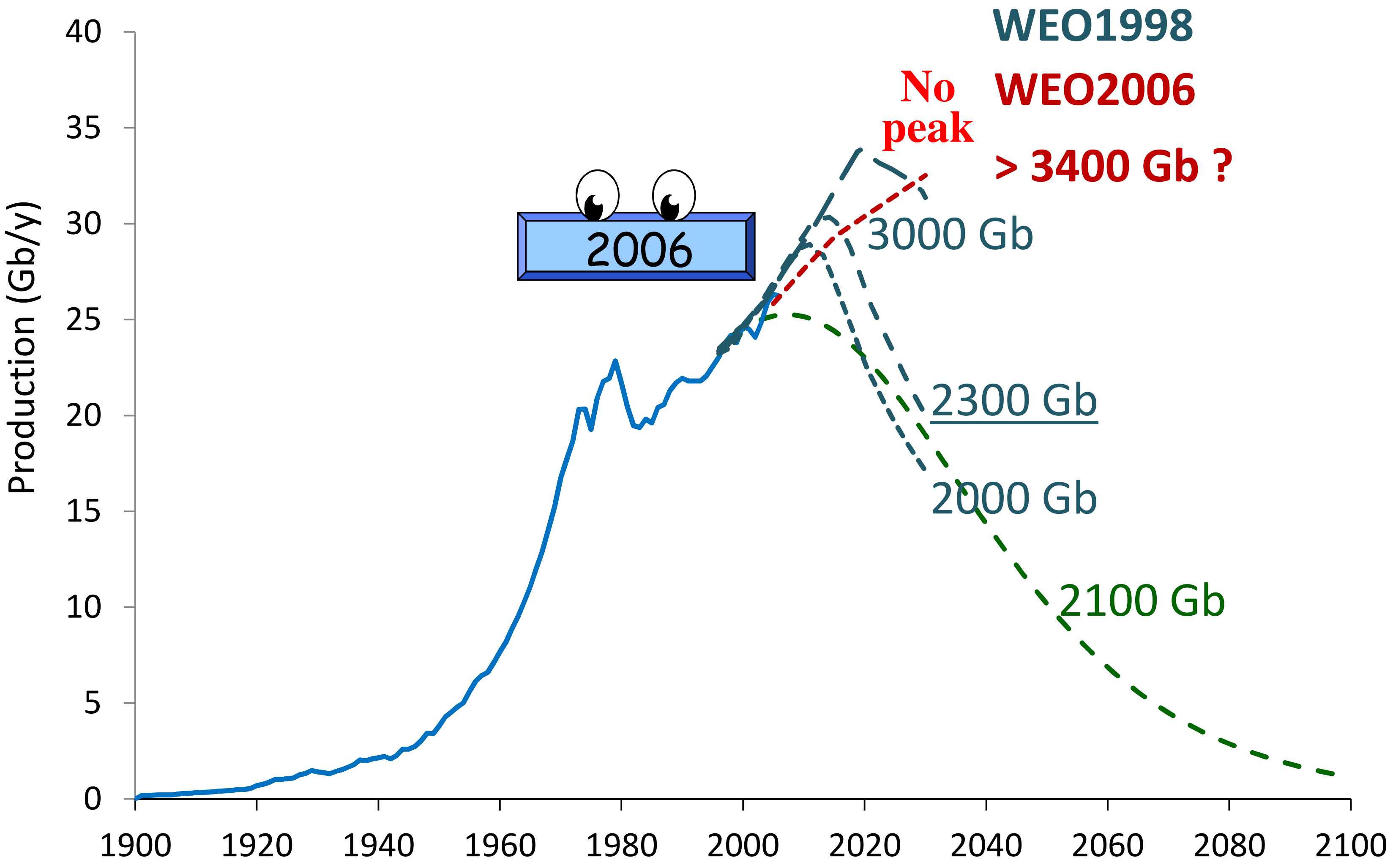
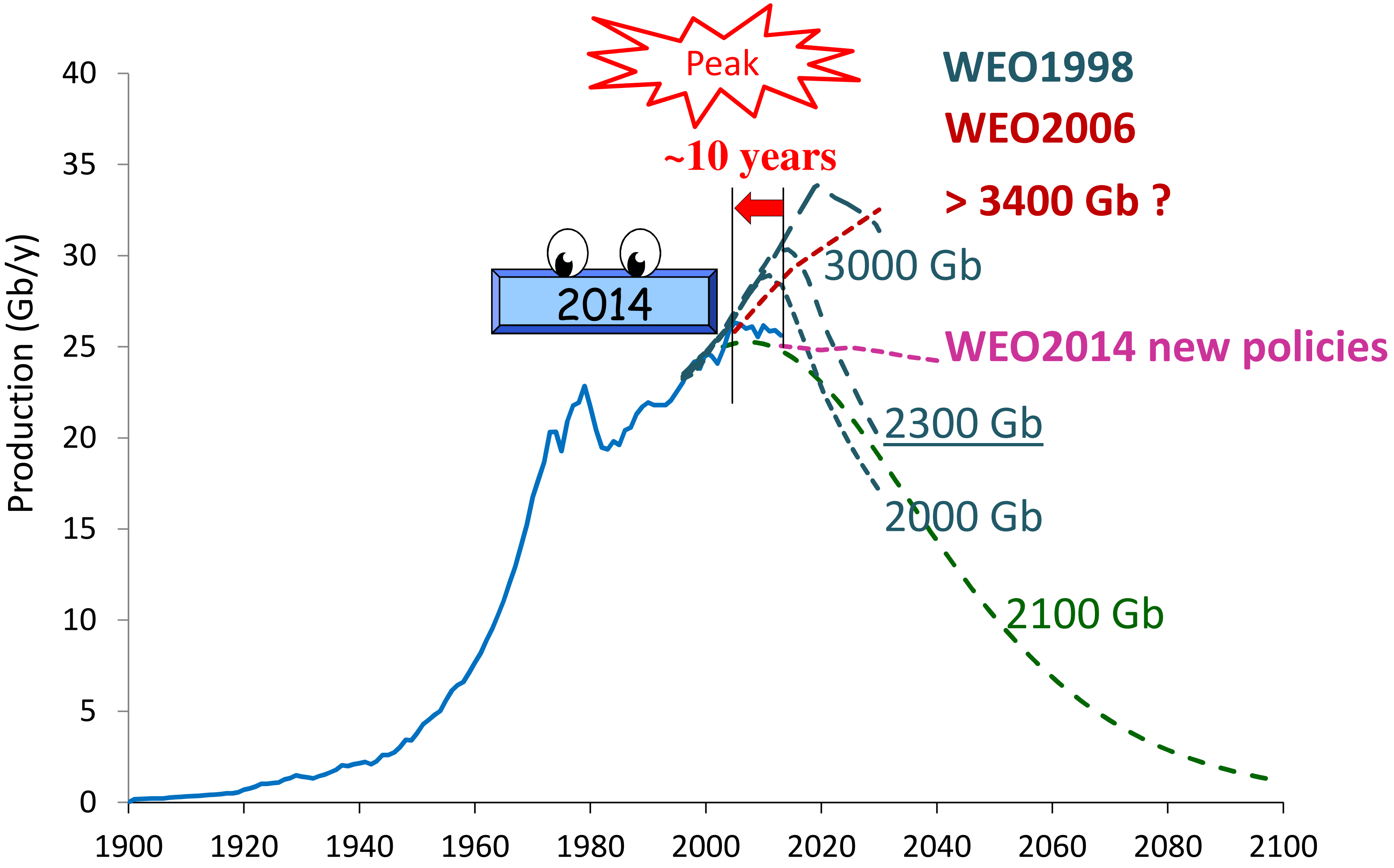
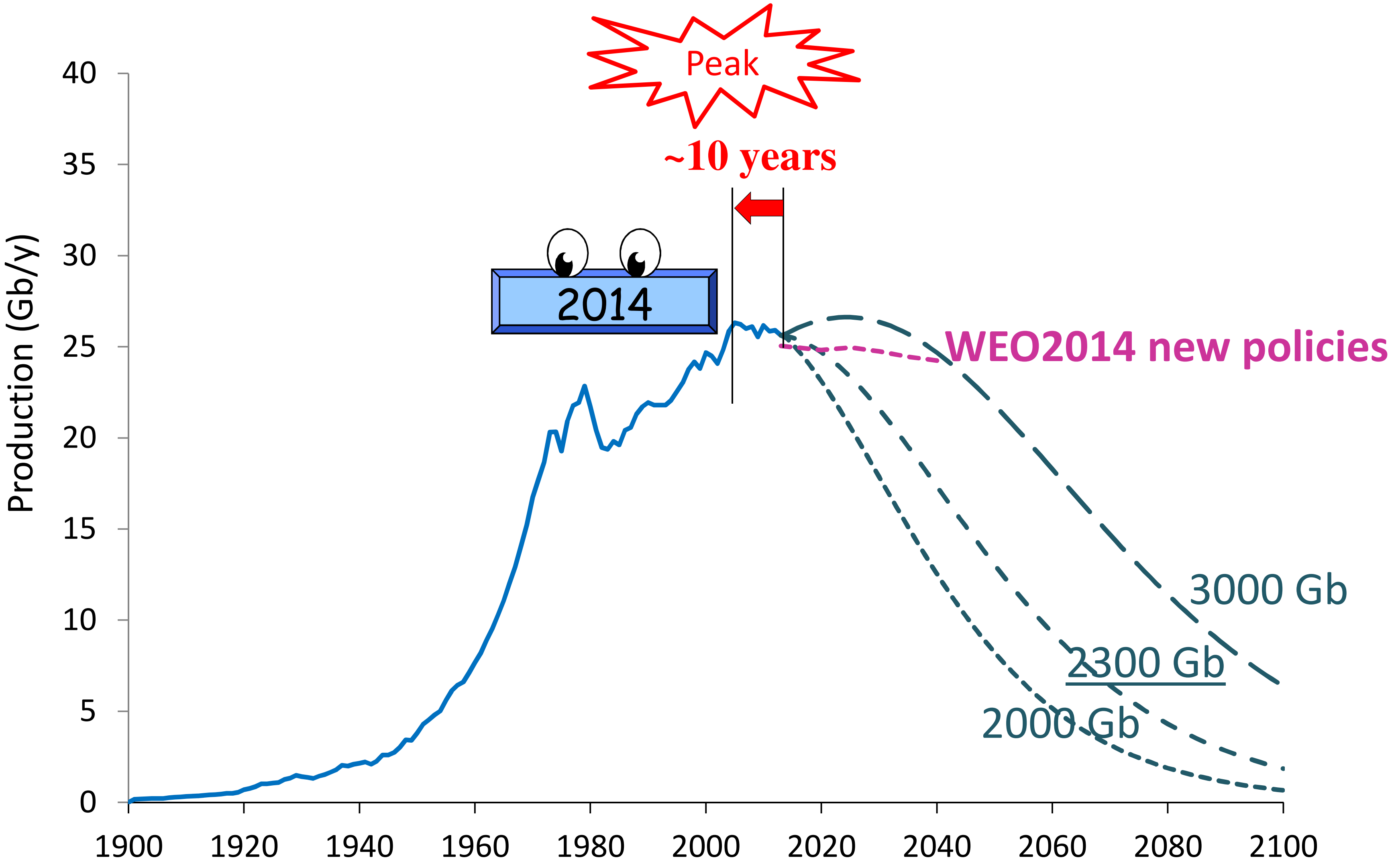
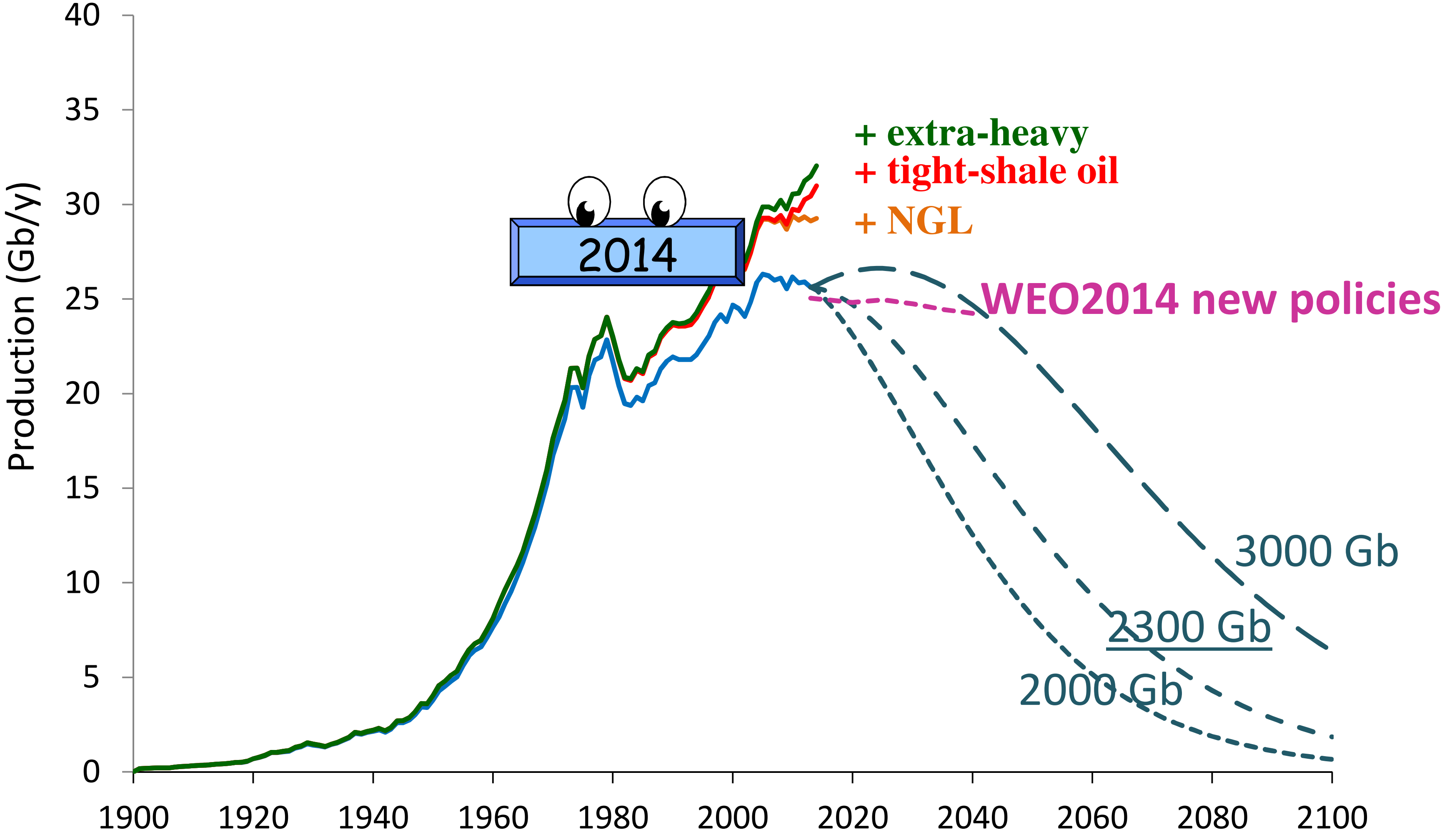


The peaking of conventional oil



The peaking of conventional oil



How long can we compensate the decline of conventional oil ?