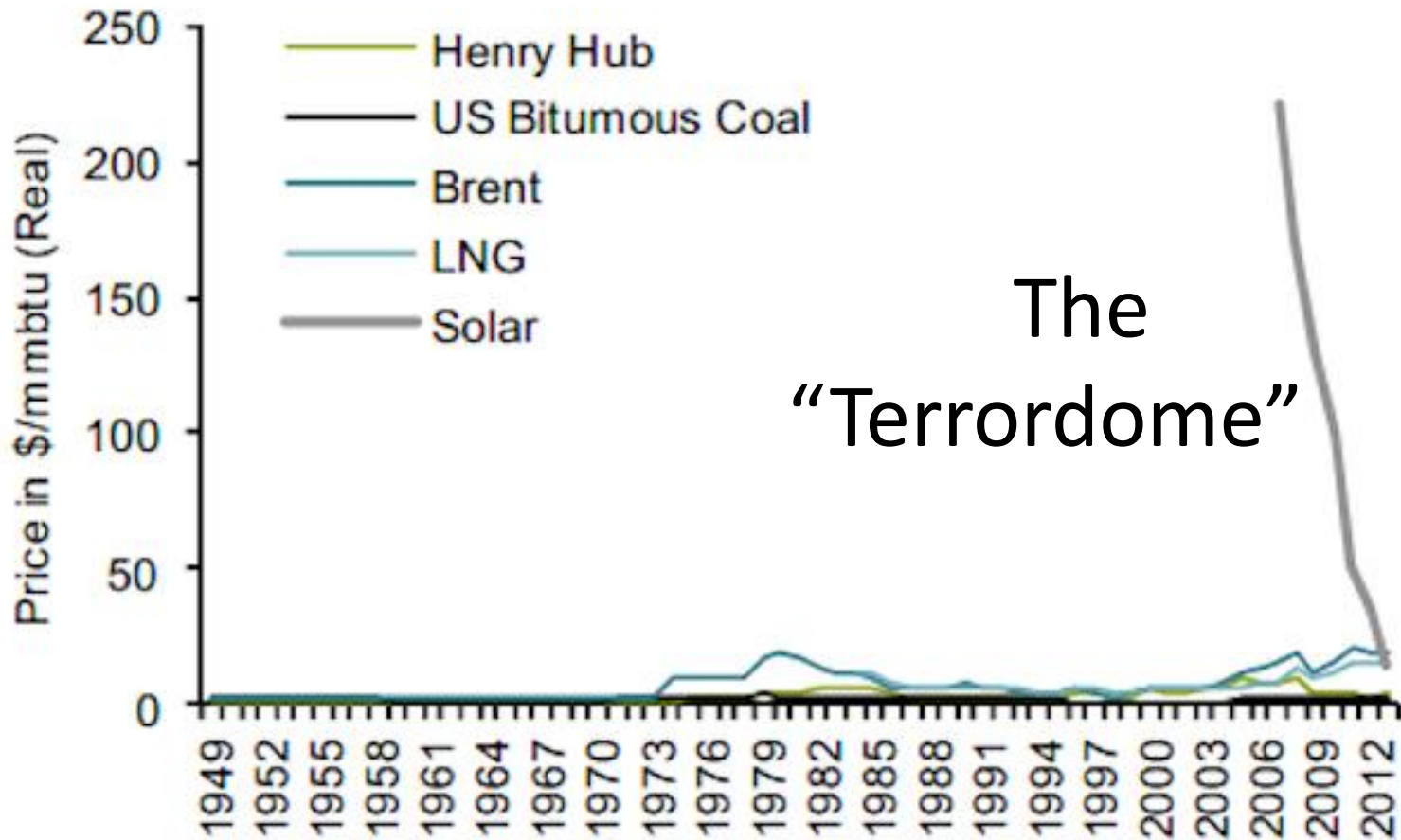


The background of the slide is a photograph of the Golden Gate Bridge in San Francisco. The bridge's towers and suspension cables are visible on the left side, extending into a vast sea of white, fluffy clouds that fill the lower half of the frame. The sky above is filled with dramatic, colorful clouds in shades of pink, purple, and blue, suggesting a sunset or sunrise. The overall mood is serene and expansive.

**Background:
two emerging megatrends**

Solar-and-storage
cost down

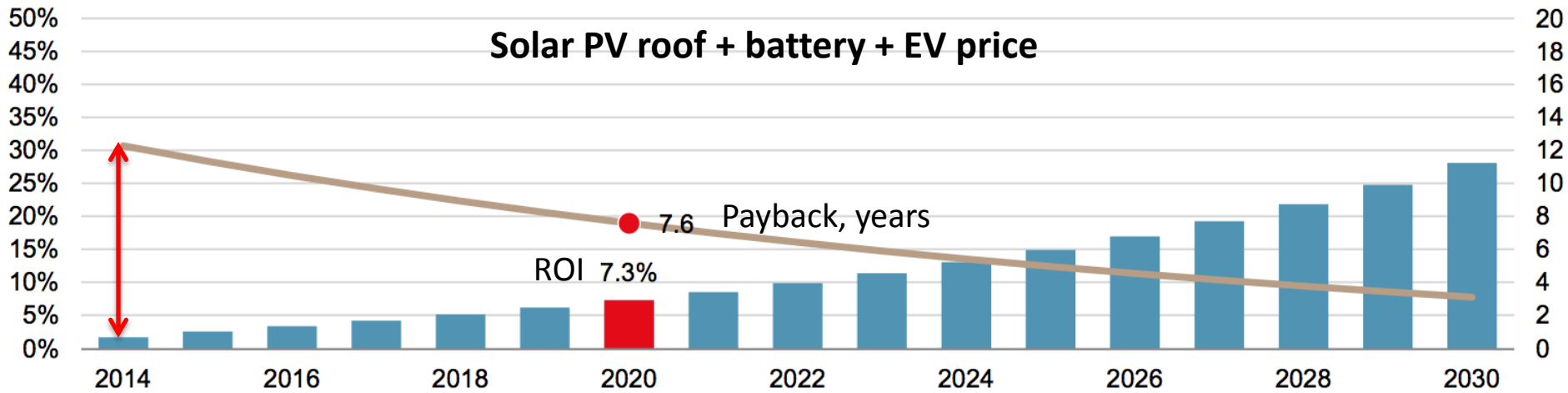
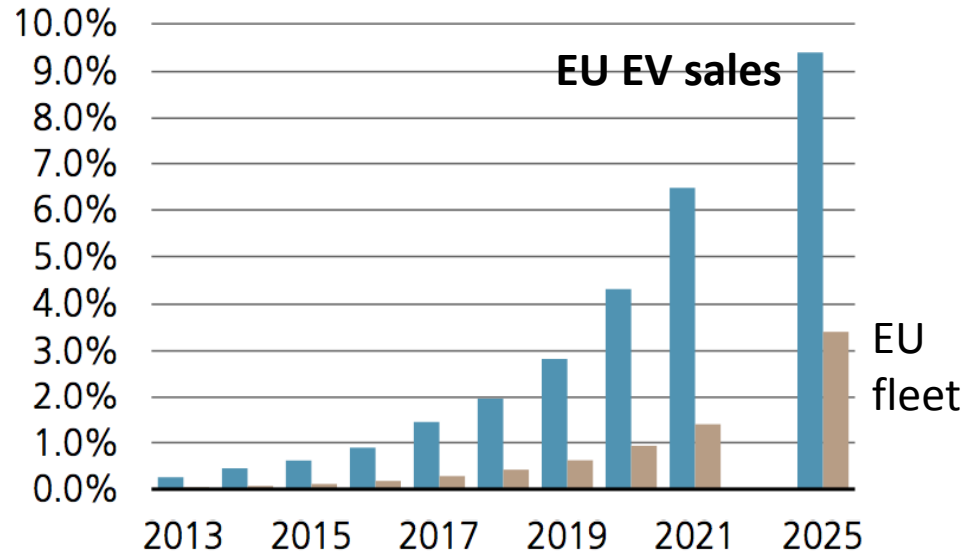
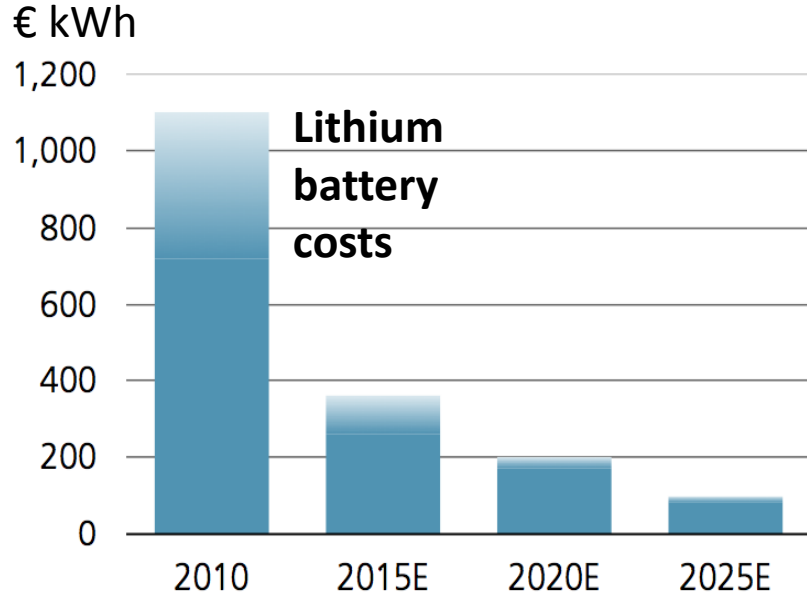
Oil-and-gas capex
cost up



The “Terrordome”

Alliance Bernstein, 14 April

The power of solar and storage





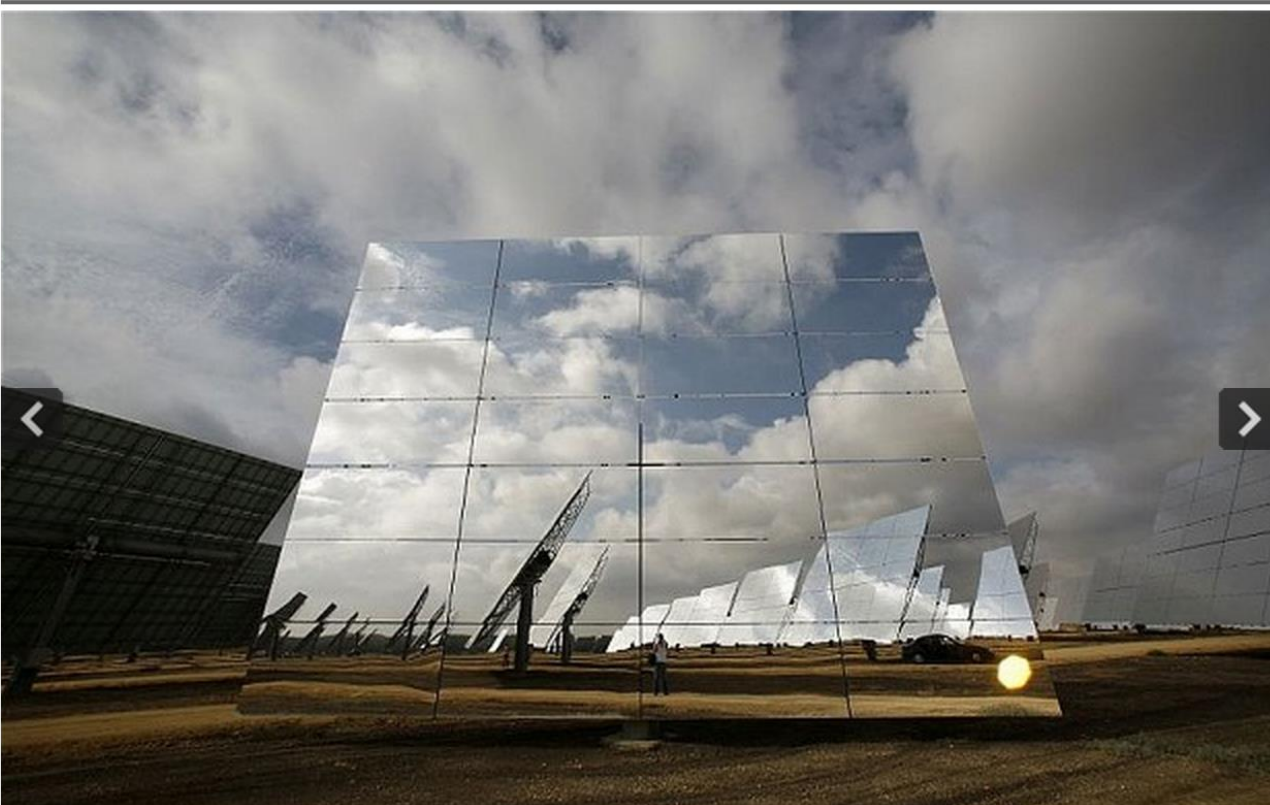
UBS Urges Investors to Join Solar Revolution
Guardian, 27 August 2014



HOME » FINANCE » COMMENT » AMBROSE EVANS-PRITCHARD

Global solar dominance in sight as science trumps fossil fuels

Solar power will slowly squeeze the revenues of petro-rentier regimes in Russia, Venezuela and Saudi Arabia. They will have to find a new business model, or fade into decline

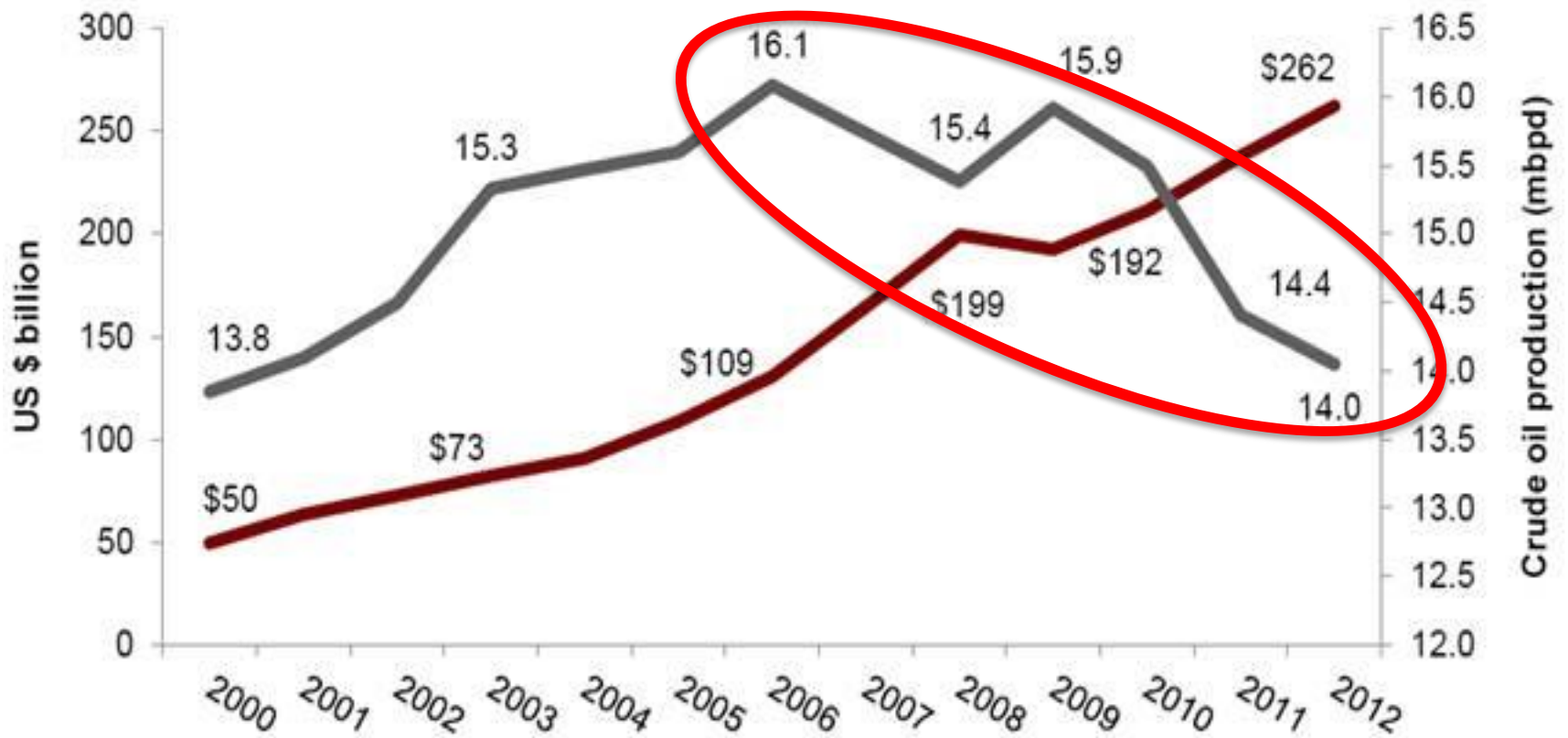


There are some ideas we want every company to copy.

There's one area where we encourage others to appropriate our ideas. Because when everyone makes the environment a priority, we all benefit. We'd be more than happy to see every data center fueled by 100% renewable energy sources. And we eagerly await the day when every product is made without the harmful toxins we have removed from ours.

To be sure, we know we can continue to do better. We've set some pretty ambitious goals for reducing our impact on climate change, making our products with greener materials, and conserving our planet's limited resources. So the next time we come across a great idea that can help leave the world better than we found it, we look forward to sharing it.





Selected listed international oil companies' upstream capex and crude-oil production

BG, BP, COP, CVX, ENI, OXY, PBR, RDS, STO, TOT, XOM

Source: Douglas Westwood, from Bloomberg



HOME » FINANCE » COMMENT » **AMBROSE EVANS-PRITCHARD**

Oil industry **on borrowed time** as switch to gas and solar accelerates

There may be little point battling icebergs to drill in the Arctic, or in trying to extract oil from the ultra-deepwater fields in the mid-Atlantic, beneath layers of salt, three kilometres into the Earth



Tony Hayward
CEO, Genel



Business model:

*We are entering a new age of oil,
shale is a game changer*

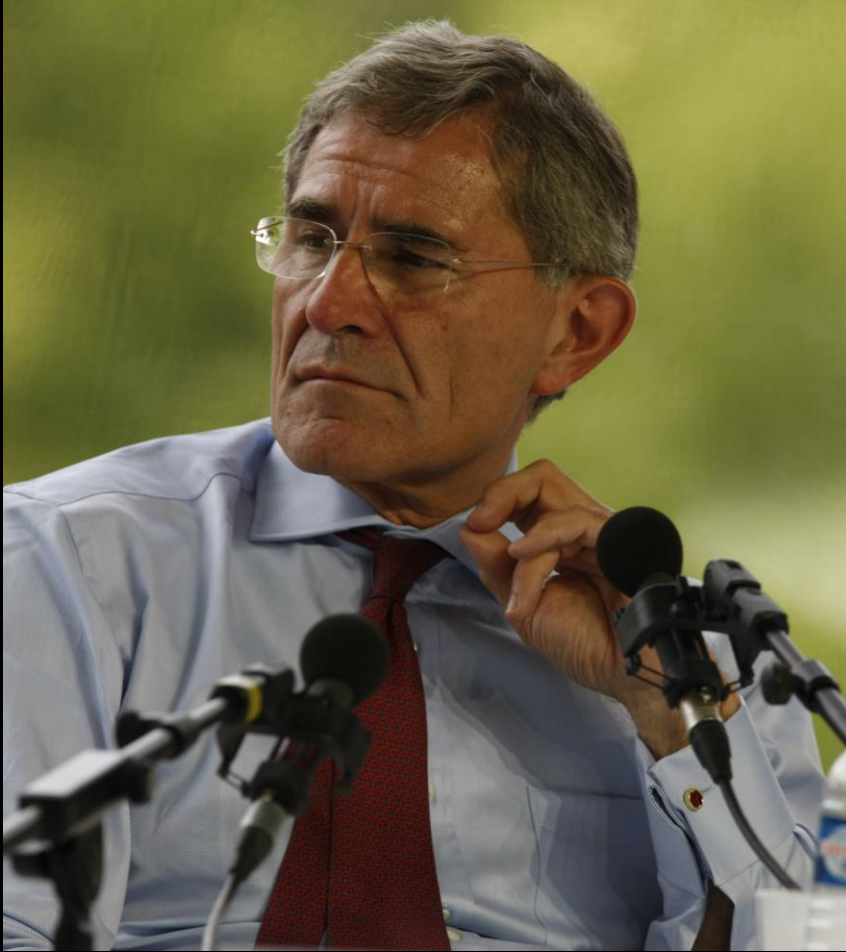
Renewables prescription:

Too expensive

Risk analysis:

*Gas is infinite, oil essentially
infinite*

Gerard Mestrallet
CEO, GDF Suez



Business model:
Gas can do everything we need

Renewables policy:
End all subsidies

Top nation for fracking:
?

Home News World Sport **Finance** Comment Culture Travel Life Women Fashion

Companies Comment Personal Finance ISAs Economics Markets Festival of Business Ho

Ambrose Evans-Pritchard | Jeremy Warner | Allister Heath | Roger Bootle | James Quinn

HOME » FINANCE » COMMENT » **AMBROSE EVANS-PRITCHARD**

Fossil industry is the subprime danger of this cycle

The cumulative blitz on energy exploration and production over the past six years has been \$5.4 trillion, yet little has come of it



Image 1 of 4

Oil and gas investment in the US has soared to \$200bn a year Photo: Reuters



By **Ambrose Evans-Pritchard**

9:03PM BST 09 Jul 2014

Print this article

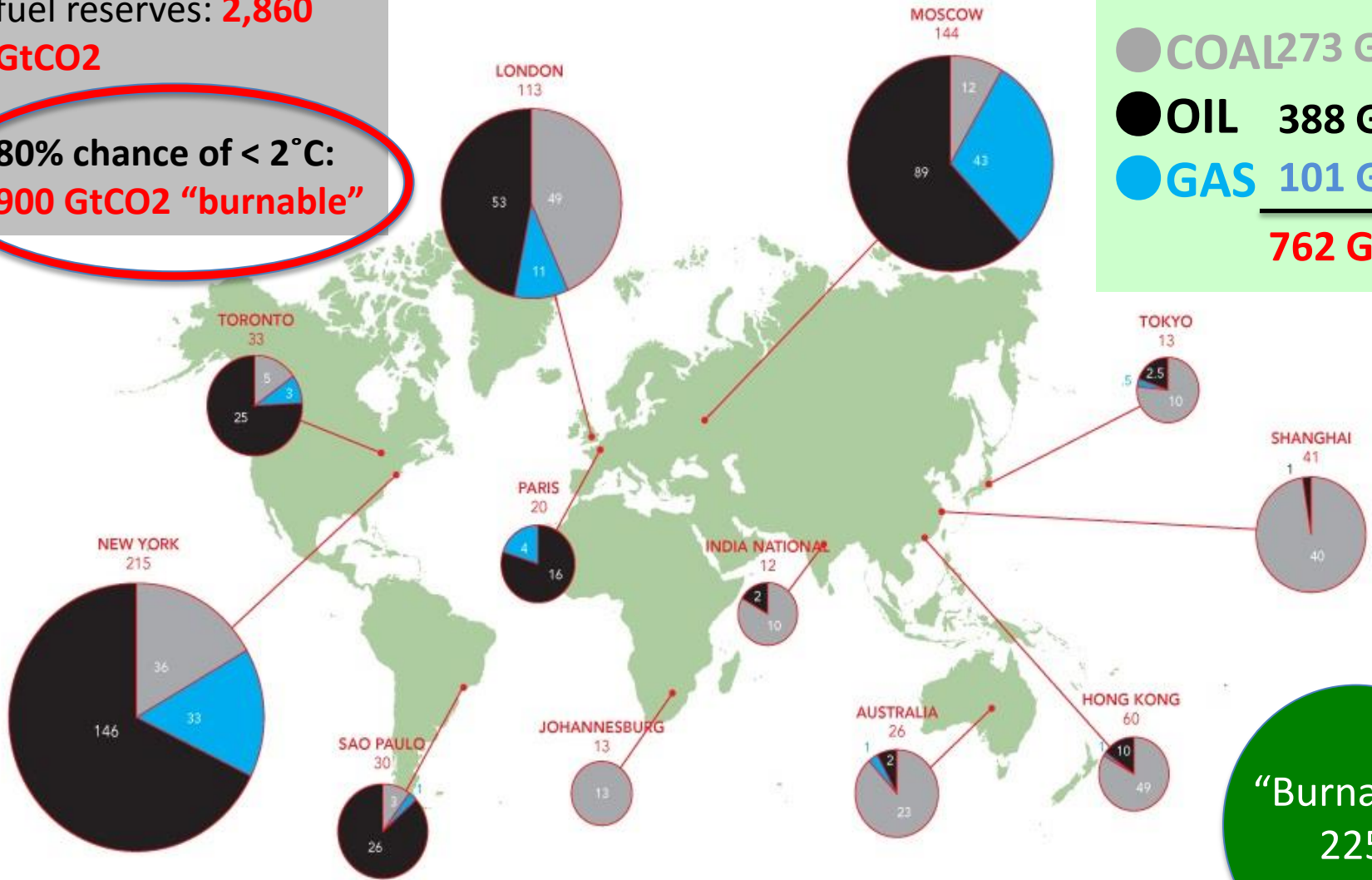
Share 6K

Total carbon in all fossil fuel reserves: **2,860 GtCO₂**

**80% chance of < 2°C:
900 GtCO₂ "burnable"**

Quoted carbon:

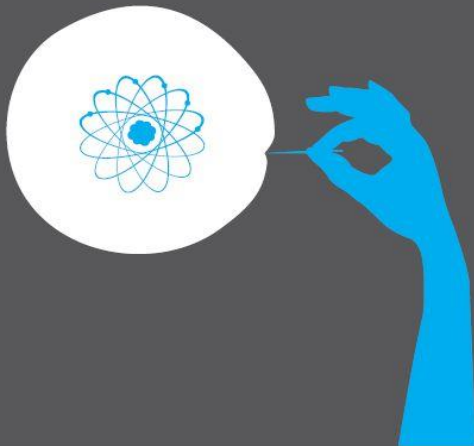
● COAL 273 GtCO₂
● OIL 388 GtCO₂
● GAS 101 GtCO₂
762 GtCO₂



**"Burnable"
225**

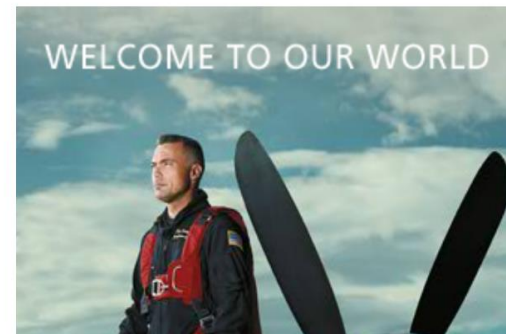


Unburnable Carbon –
Are the world's financial markets
carrying a carbon bubble?



Rockefellers, Heirs to an Oil Fortune, Will Divest Charity of Fossil Fuels

By JOHN SCHWARTZ SEPT. 21, 2014



FINANCIAL TIMES

October 7, 2014 5:59 am

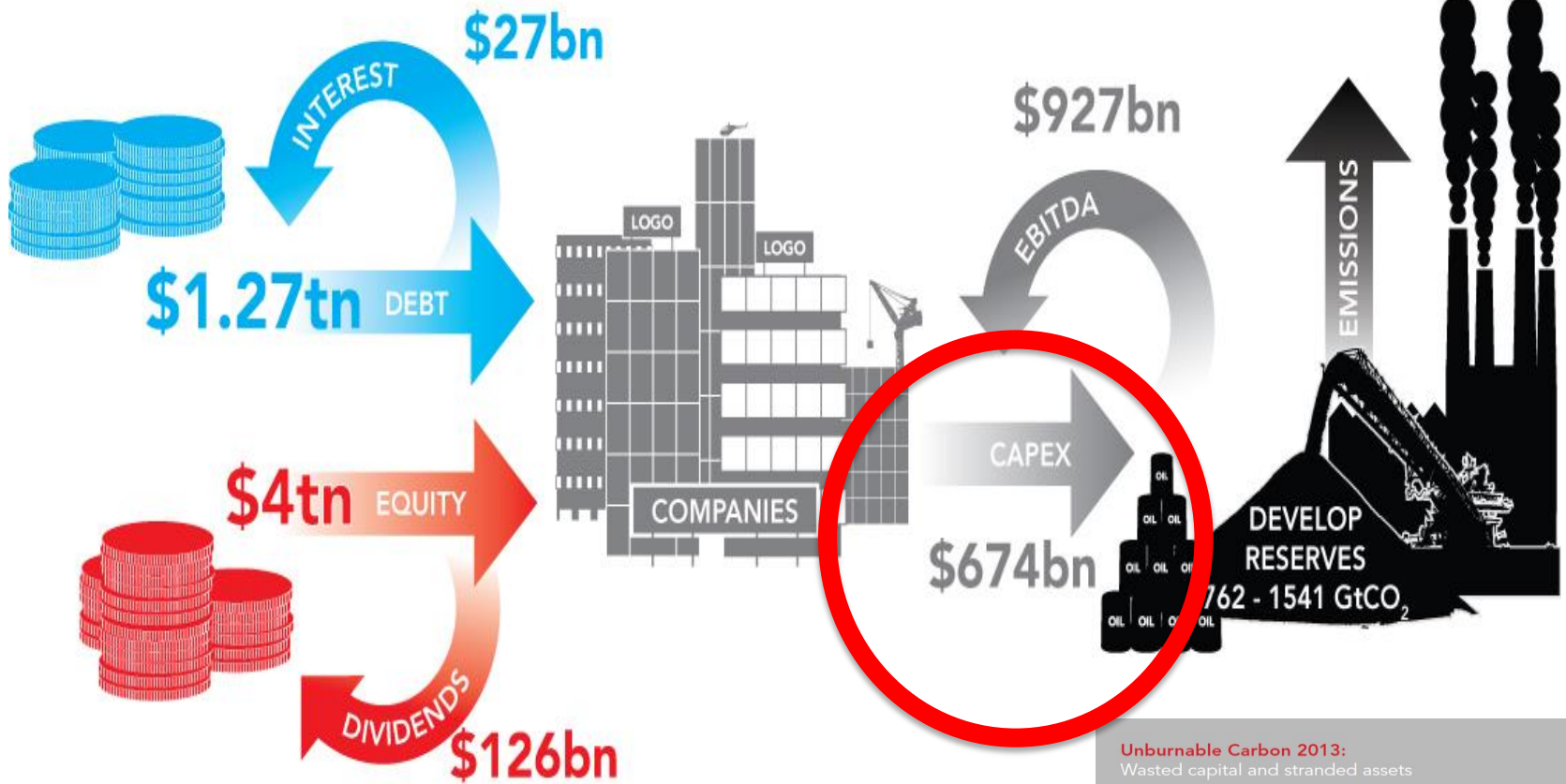
Australian pension fund LGS drops coal assets

By Jamie Smyth in Sydney

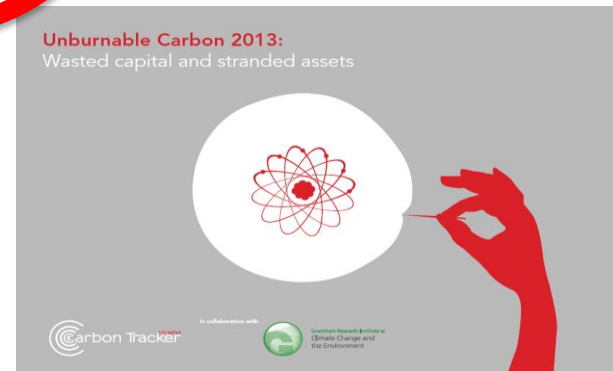
[Author alerts](#) ▾



One of Australia's biggest public sector pension funds is to sell its holdings in coal companies, saying that climate change is an "unarguable scientific reality" and a "very real investment risk".



Unburnable Carbon 2013:
Wasted capital and stranded assets



Shale Drillers Feast on Junk Debt to Stay on Treadmill

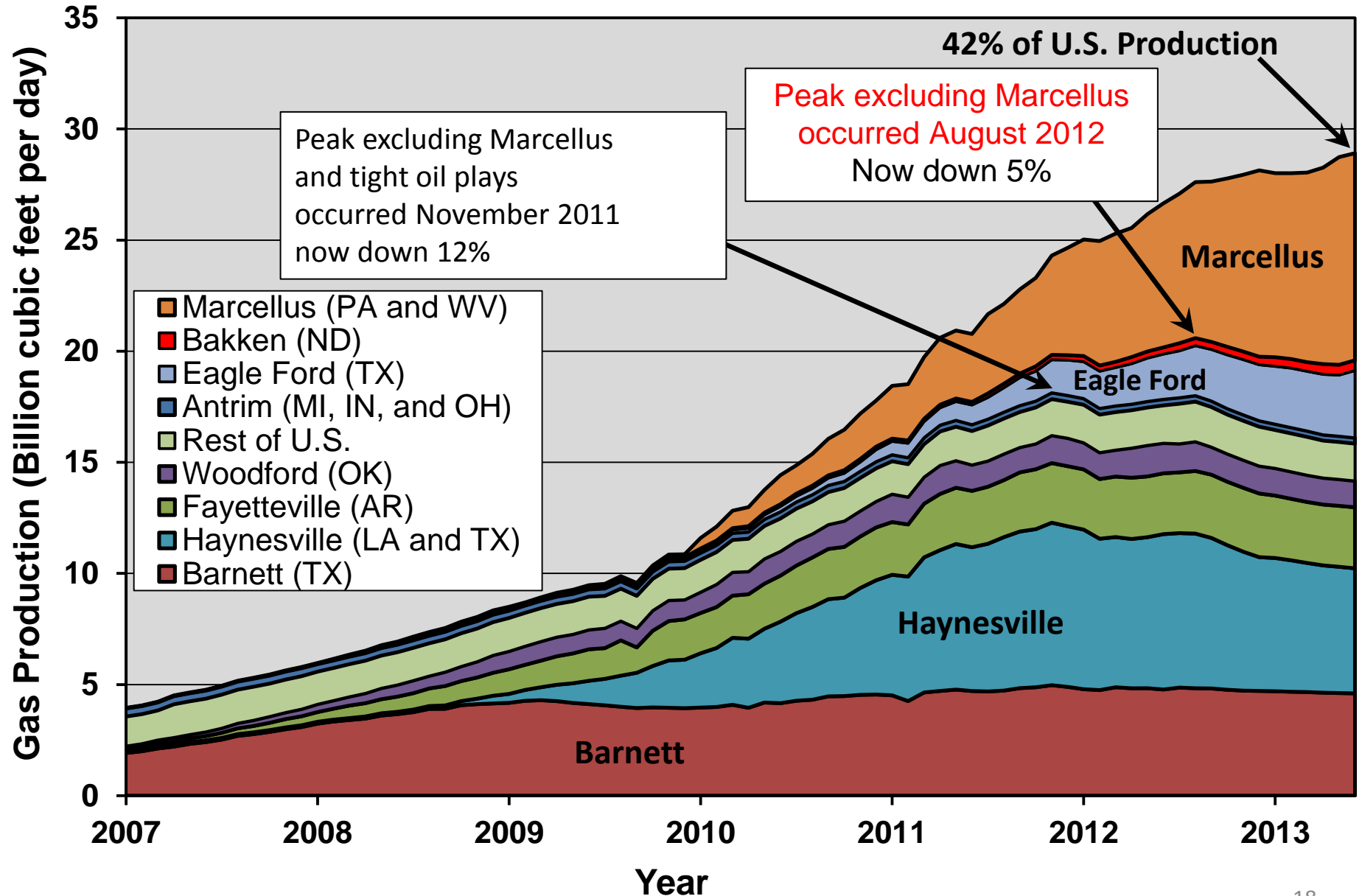
By Asjlynn Loder Apr 30 2014

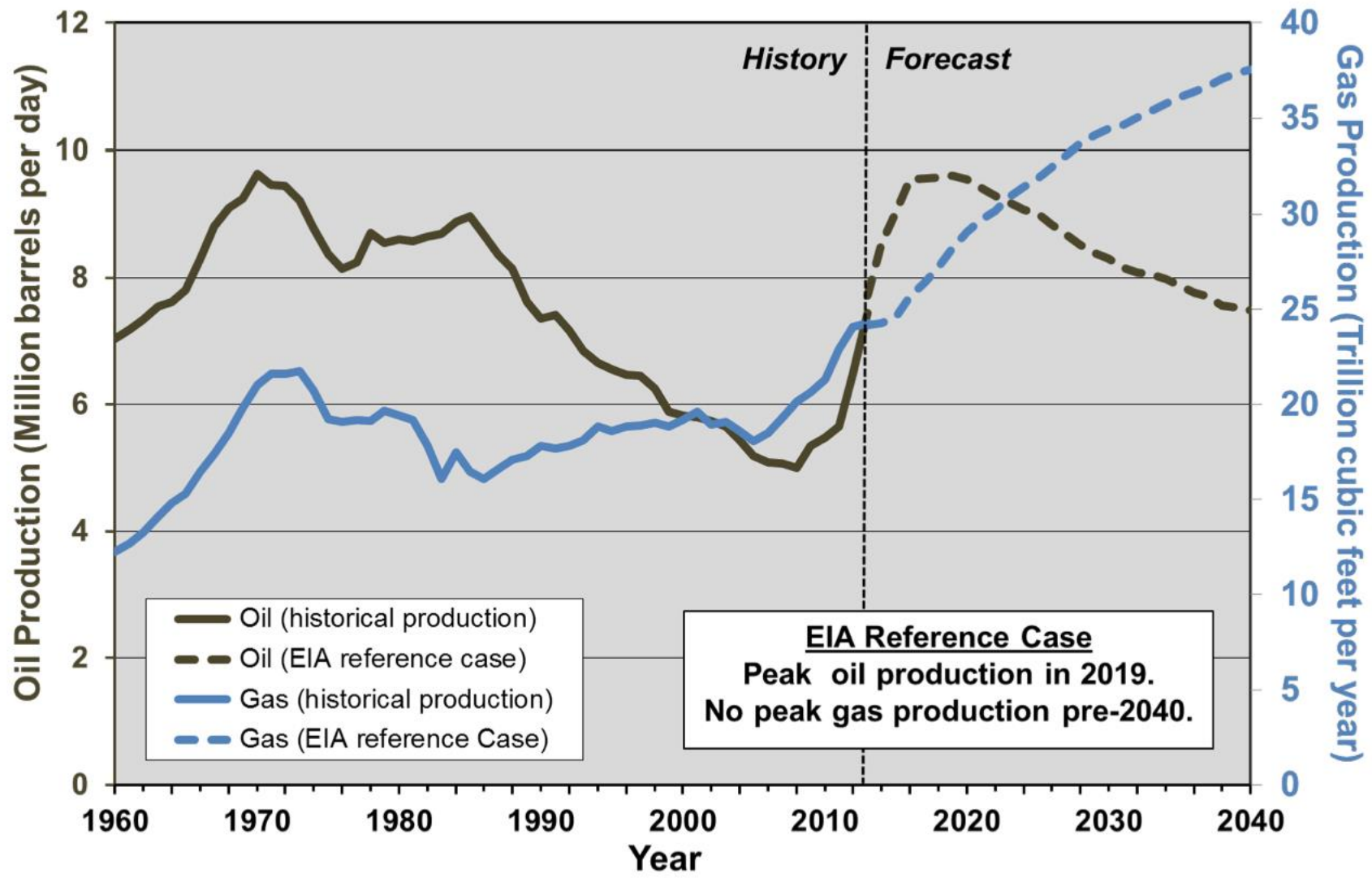
Is the U.S. Shale Boom Going Bust?

By Tom Zeller Jr. Apr 22 2014

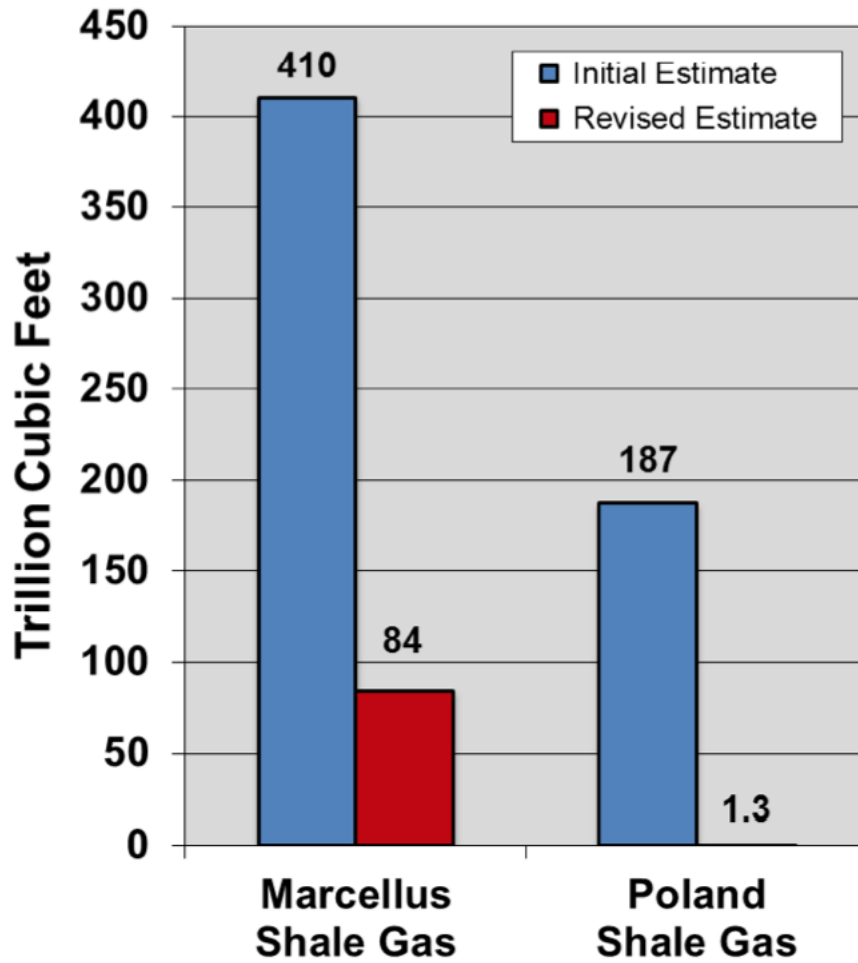
Bloomberg

U.S. shale gas production from EIA data, 2007 - June, 2013

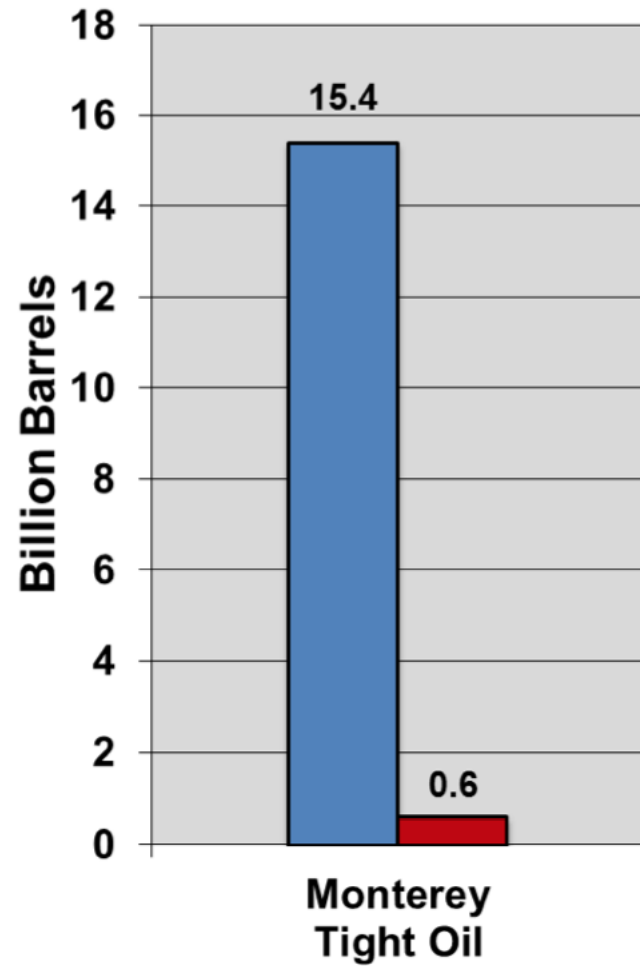




Shale Gas



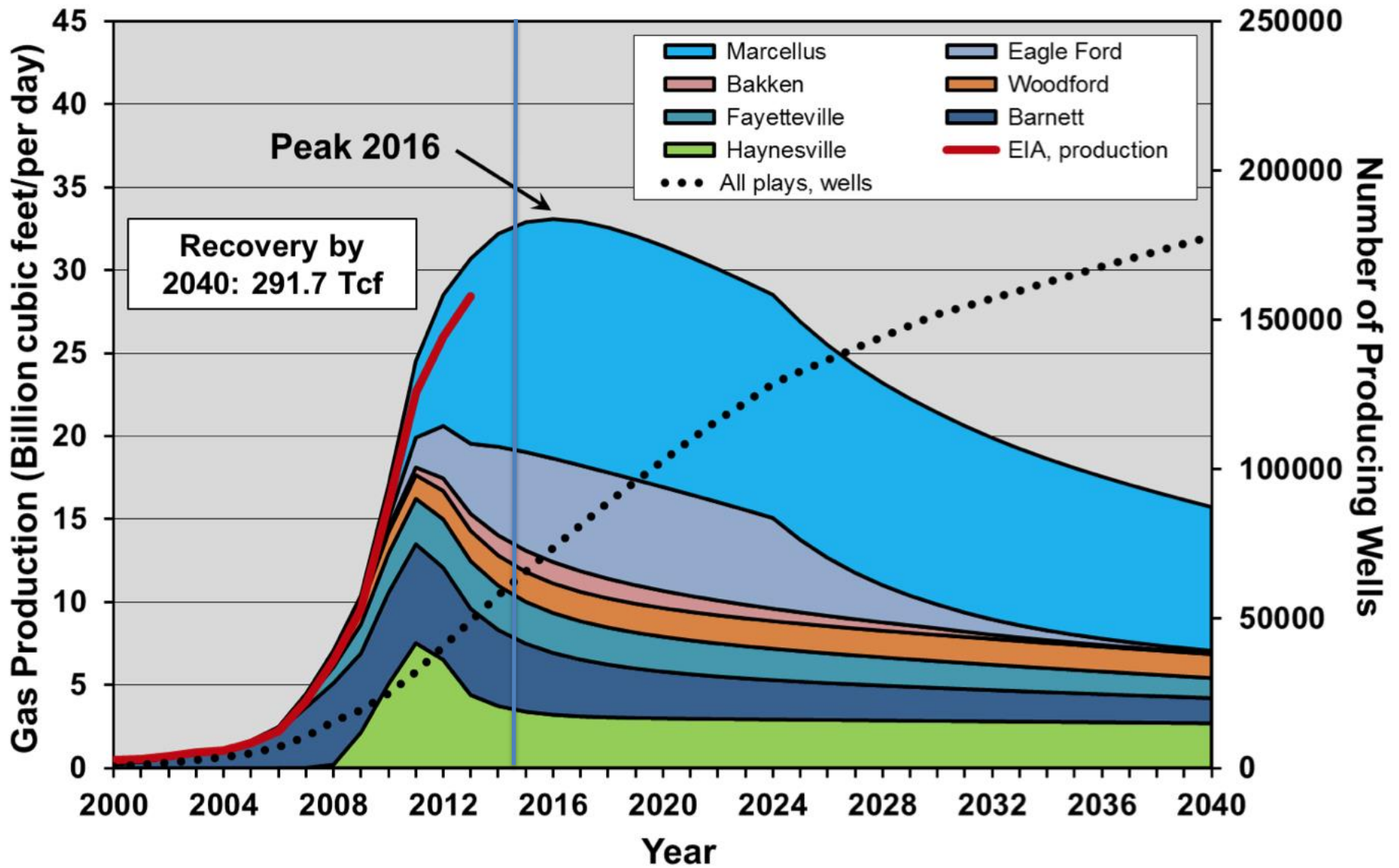
Tight Oil



66%
96%

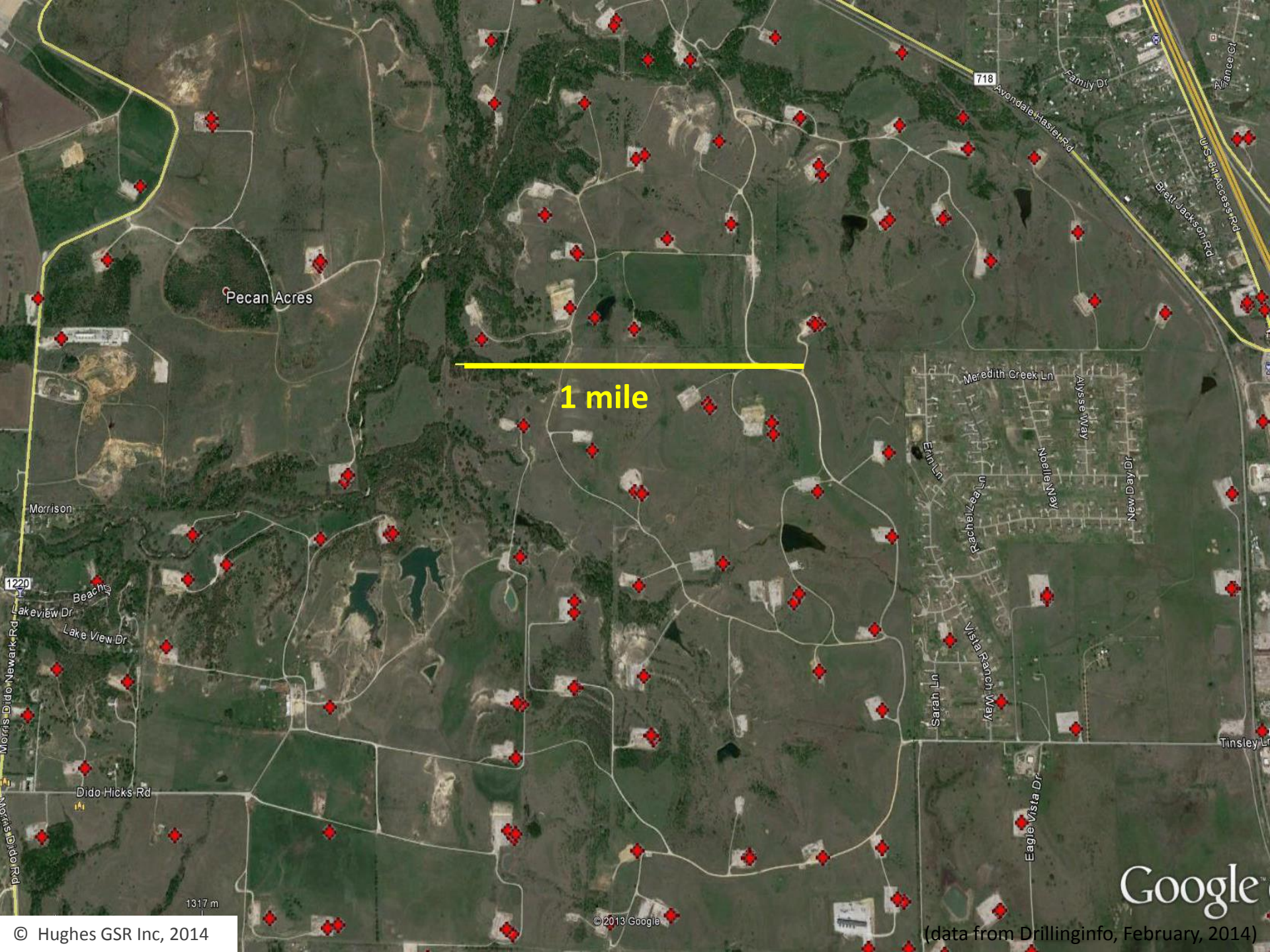


Monterey Shale, California









Pecan Acres

1 mile

Google

(data from Drillinginfo, February, 2014)

1317 m

© 2013 Google

© Hughes GSR Inc, 2014







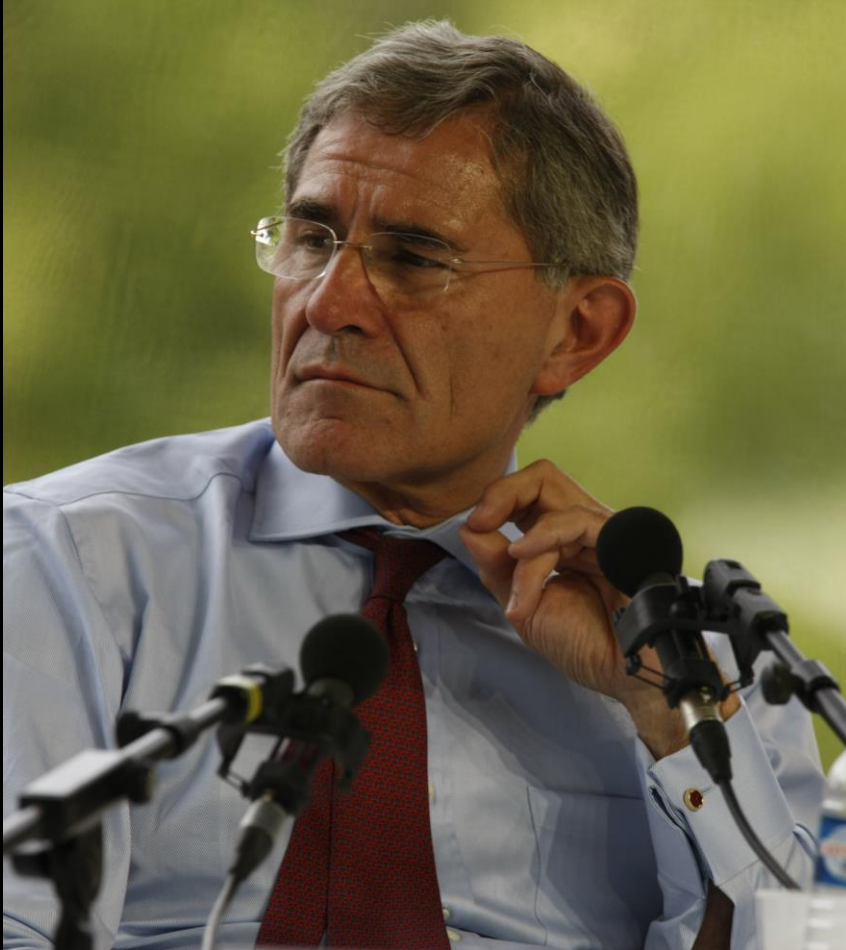
“...one 30-tonne 3-axle truck passing in each direction every 3 minutes, 12 hours a day, 7 days a week, for 20 years”

Prof David Smythe

Testimony to Wisborough planning review



Gerard Mestrallet
CEO, GDF Suez



Business model:
Gas can do everything we need

Renewables policy:
End all subsidies

Top fracking prospect:
UK

BUSINESS | Updated December 2, 2012, 7:43 p.m. ET

Global Gas Push Stalls

Firms Hit Hurdles Trying to Replicate U.S. Success Abroad

Article

Video

Interactive Graphics

Stock Quotes

Comments



By RUSSELL GOLD in Austin, Texas, and MARYNIA KRUK in Lubocino, Poland

Exporting the U.S. shale energy revolution overseas turns out to be far tougher



Chancellor backs gas to fire up Britain

By George Parker, Guy Chazan and Chris Giles

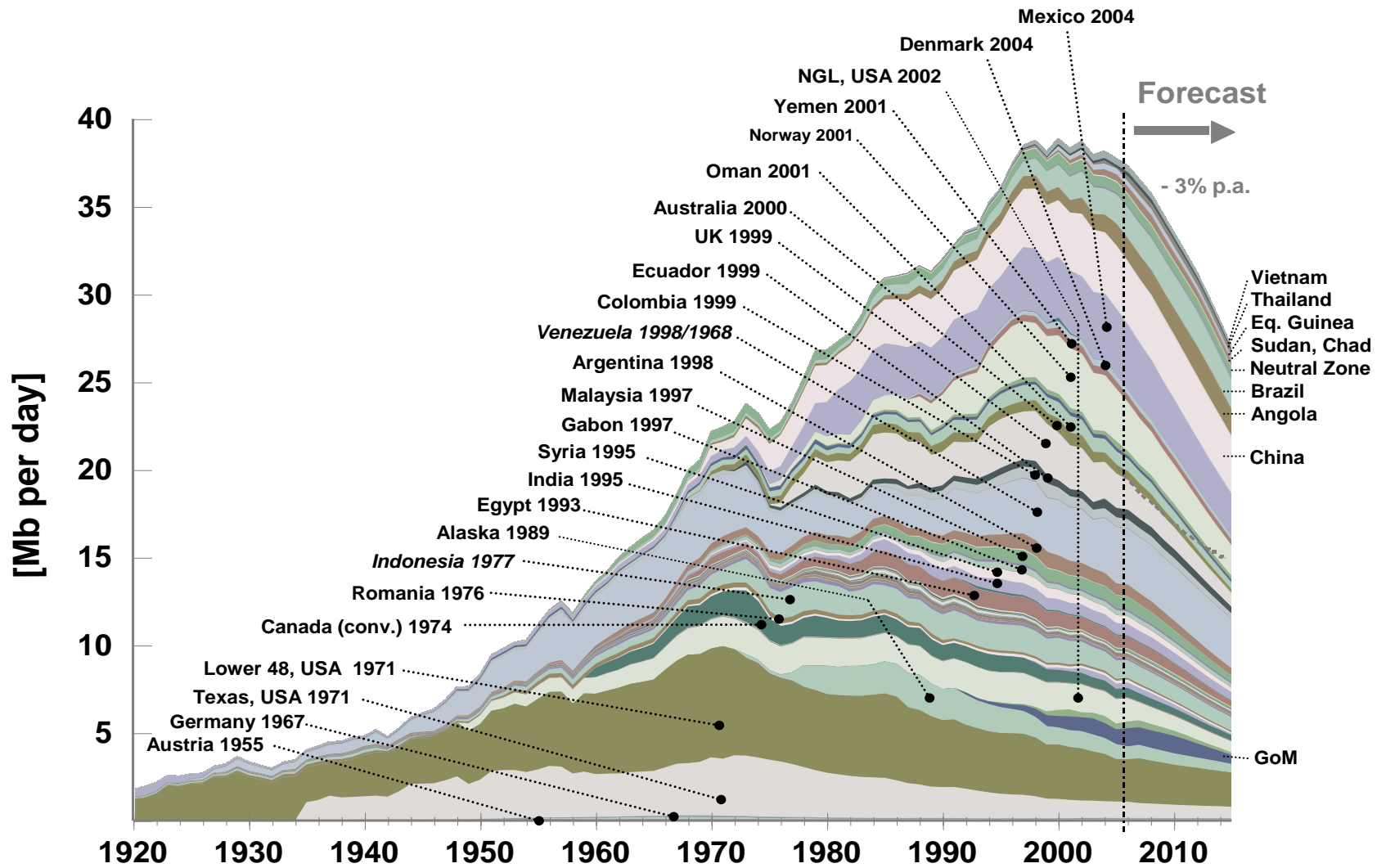
Chancellor George Osborne is to approve up to 30 gas-fired power stations as part of an [Autumn Statement](#) intended to boost private sector infrastructure investment and underpin long-term growth.

Mr Osborne will also announce a relaunch of the discredited private finance initiative to lure private investors into building schools, hospitals and other public projects; new rules are intended to improve transparency and risk sharing and remove excess profits.

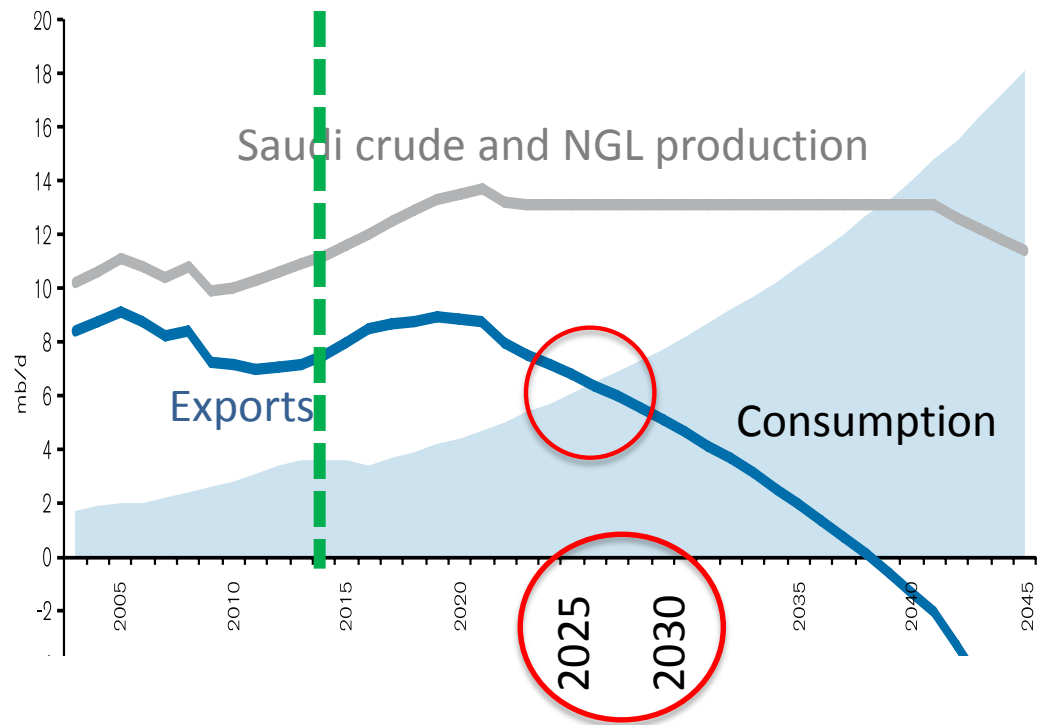


The dramatic expansion of gas – seen by many Tory MPs as a source of cheap future energy – will be

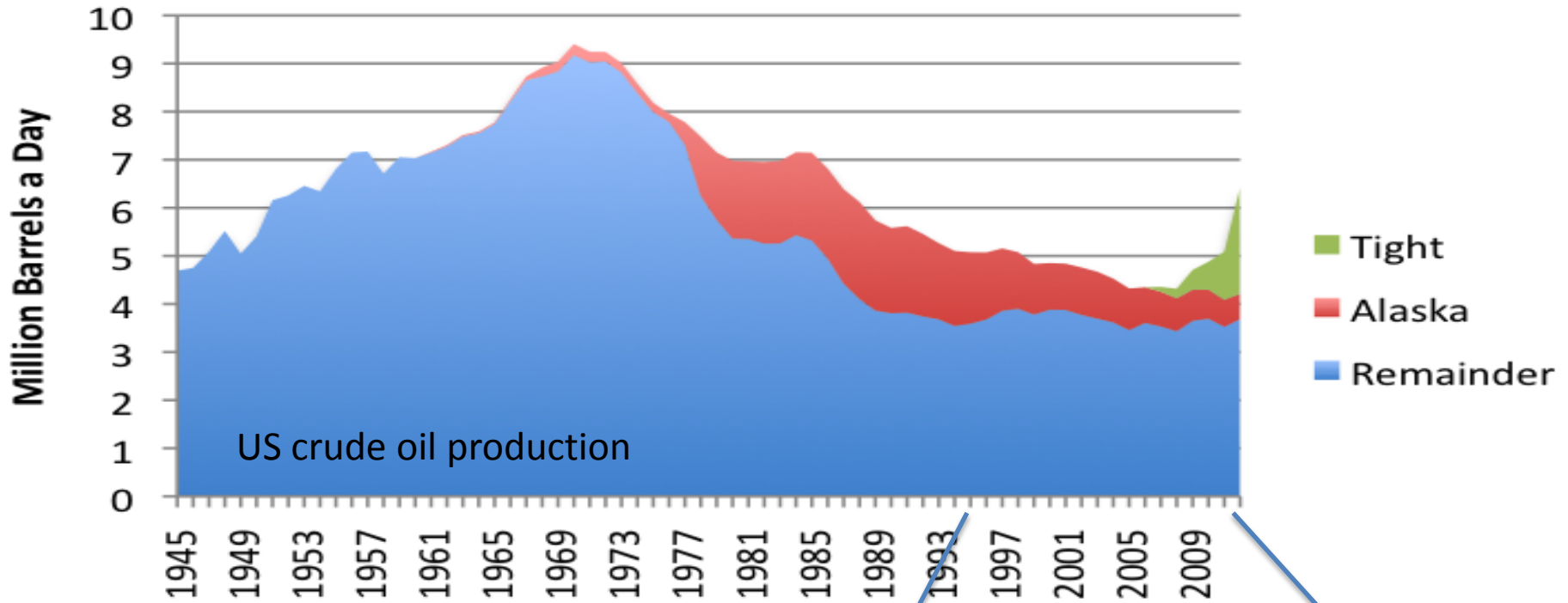




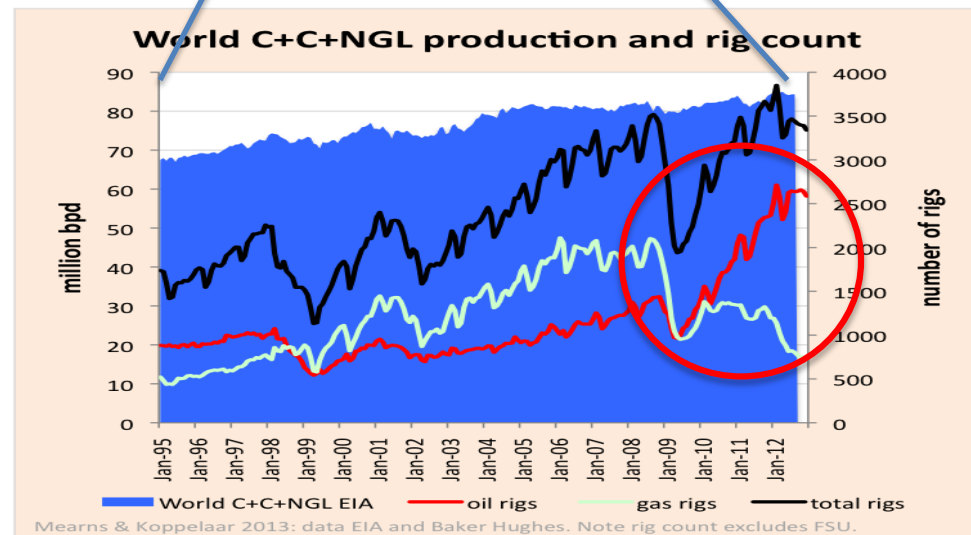


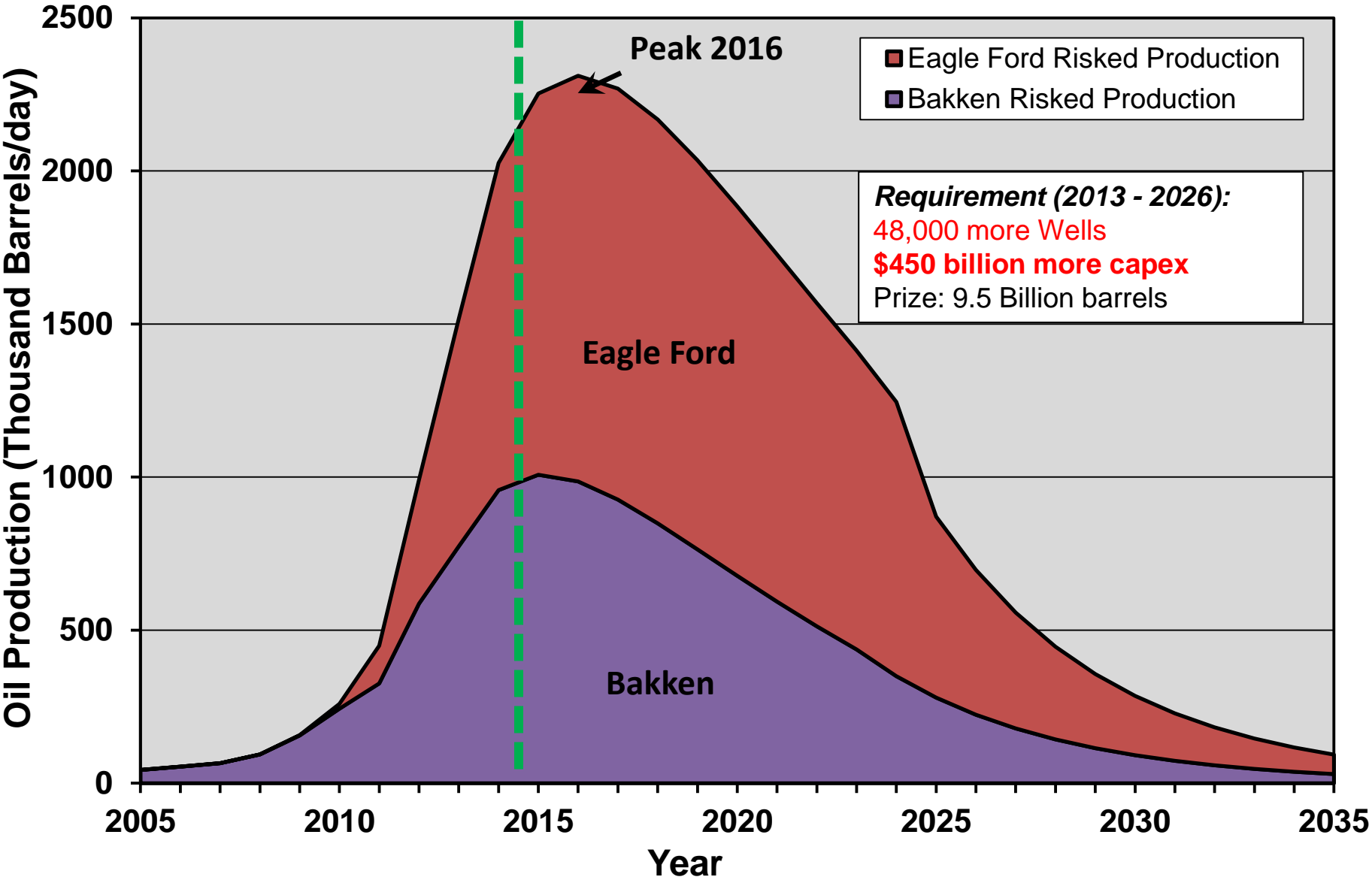


....and the proposed solution?



To lift US production from tight oil by c 2 mbd (<3% of c 90 mbd) **it has taken more than half the world's non-FSU non-China oil rigs.**









FINANCIAL TIMES

Matthew Engel
"Strong sales at Ryder Cup
Spurring sales" ...

The Isis oil connection
How the terrorist group is helping
Western energy industry ...

Global call for climate change action



PEOPLES CLIMATE MOVEMENT

as
s on
ledge

s powers not
of the border

TORONTO

On eve of UN summit, report urges creation of an international environment court

Lawyers' group calls for climate justice



am NEW YORK

CLIMATE SURGE

Tens of thousands rally in NYC to demand action on global warming



B'KLYN'S TOP CHIEFS



INSIDER'S LOOK: THE NEW PEACE CORPS APPLICATION

Police ranks swelling as crime rate

CLIMATE CHANGE
Investors pull

THE BRONX IS THING

Climate Change to the Streets

After Rancor, Afghans Agree To Share Power

ins global

An air of needed







“We cannot pretend we don’t hear them”