

Los Alamos Study Group Teach-In  
October 24, 2012  
Part One

# Converging Climate, Energy, & Economic Crises: (Very Brief) Background, Challenges, and Opportunities in New Mexico



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with help from Trish Williams-Mello

“Sometimes it is not good enough to do your best; you have to do what's required.”  
Winston Churchill.

First, here is an introduction (3 slides) used in 2007 in a talk with a prominent newspaperwoman. It fits with today's talk – both as to the conclusions I am bringing to this talk and as an example of the conversations (face-to-face and written) with opinion leaders that I am asking YOU to organize and lead in your own way, your own time, and your own style.

## We Must Choose: Royal Road or Dead Man's March?

Brief meditations on the global environmental crisis, the end of the republic, New Mexico's role, and the key role of the regional press

"The era of procrastination, of half-measures, of soothing and baffling expedients, of delays, is coming to a close. In its place we are entering a period of consequences..."  
(Winston Churchill, November 1936 speech to House of Commons after Germany invaded the Rhineland provinces)

"[D]oes the individual know that *(s)he* is the makeweight that tips the scales?" (Carl Jung)



Presentation by Greg Mello, March 11, 2007

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## **This is what I want to talk about:**

1. The fate of the earth – of all humanity and all life -- is now in our collective hands, and the hour is very late.
2. The “American Way of Life” is over; there will never again be security and prosperity as we knew it in the United States; all assumptions about the state of our democracy must now be reevaluated and protective measures taken.
3. Within these historical events and choices, New Mexico's future hangs in the balance; much of New Mexico’s future is being written from afar; New Mexico is also having a disproportionately negative role globally.
4. The role that will be played by the [news media] in all these choices will be very great, ineluctably; whether that role will be for better or worse is largely up to you and the other managers of the paper.
5. It is critically important to break through socially-acceptable normality, otherwise called complacency, fully accept our role as leaders, take the resulting flack and learn from it, change our political leadership, and inspire and train a new generation of journalists, community leaders, and citizens in the process.

- Sometimes we can be very powerful, although at times not fully of our choosing, and our actions will make a very great difference one way or another. This is my experience, and it is at least equally true for each of you.
- Our New Mexico (NM) political leaders are generally poor. Each and every member of our congressional delegation is mediocre at best (Democrats), badly wrong-headed at worst (Republicans), or else performing exactly what is in their personal self-interest with the barest nod to the needs of New Mexico (Richardson). Lack of leadership is the main reason New Mexico is poor. New Mexico's poor political leaders can be and right now are damaging to the country as a whole through their effect on national nuclear weapons and energy policies.
- One of the main reasons we have poor political leadership is the failure of the New Mexico news media. It is very rare for our newspapers to hold any of our leaders to account, or to zero in and hold a focus on any serious public issue for any length of time. Examples are legion.

# Climate

We begin with the assumptions that you are at least somewhat informed, very concerned (or you wouldn't be here), and wish to be as effective a political actor for climate protection and related policy issues as possible.

I therefore will skip the basics. The references provided contain or lead to all the basic science and policy background that may be needed. The degree of detail you wish to pursue will depend upon your chosen roles, personal style, and needs.

## A few good climate resources (in paper handout also)

- Climate Progress: <http://thinkprogress.org/climate/issue/> (partisan!)
- Climate Progress: An Illustrated Guide to the Science of Global Warming Impacts: <http://thinkprogress.org/climate/2012/10/14/1009121/science-of-global-warming-impacts-guide/>
- James Hansen's web site: <http://www.columbia.edu/~jeh1/>
- Makiko Sato and Hansen, publications and updates: <http://www.columbia.edu/~mhs119/>
- Climate Code Red, Australia: <http://www.climatecodered.org/>
- Tariel Murrigan's synthesis: <http://www.global.ucsb.edu/climateproject/papers/index.html>
- Lonnie G. Thompson "Climate Change: The Evidence and Our Options," <http://researchnews.osu.edu/archive/TBA--LTonly.pdf>
- <http://dirt.asla.org/2011/05/11/new-climate-change-report-upends-conventional-wisdom/> re Nisbet, M.C. (2011). *Climate Shift: Clear Vision for the Next Decade of Public Debate*. [PDF]
- Paul Gilding: <http://thinkprogress.org/climate/2011/05/05/208036/paul-gilding-the-great-disruption/>
- Committee on Natural Resources, Minority Staff: "Going to Extremes: Climate Change and the Increasing Risk of Weather Disasters," [http://democrats.naturalresources.house.gov/sites/democrats.naturalresources.house.gov/files/documents/2012-09-25\\_ExtremeWeather\\_.pdf](http://democrats.naturalresources.house.gov/sites/democrats.naturalresources.house.gov/files/documents/2012-09-25_ExtremeWeather_.pdf)
- [Your favorites here]

## A very few introductory remarks regarding climate policy

- It is very difficult for even environmental activists, let alone journalists, to provide a realistic assessment of the climate situation and its implications, which are harsh, for well-understood reasons (psychological, social, bureaucratic, political). Denial has its uses, but we must educate accurately. Don't, and don't be, "bright-sided."
- Positive feedback loops are powerful. These include: arctic carbon reserves (as CO<sub>2</sub> and as methane); shallow and deep ocean methane clathrates; tropical and temperate forest litter respiration, deforestation, and fires; arctic albedo increases from loss of ice (land, sea, themselves non-linear), movement of (dark) trees north, age of ice exposed; ocean acidification and temperature rise. Negative feedbacks (e.g. clouds, human-caused "white" aerosols, volcano aerosols, large meteorites – brief but potentially momentous) do not balance these. *Climate is a wild beast.* Change is not linear. The climate is not stable outside very narrow limits which we understand poorly (though we do know something of their narrowness). We do not know how hot it will get from what we have done, or could get from what we are doing. But the future is not determined. Many things can happen which we do not understand.
- The atmosphere is very thin. Human effects are large. One single chlorofluorocarbon factory is enough to prevent an ice age (Hansen). No future ice ages can now occur (carbon dioxide too high; sun too bright -- Hansen).
- Anthropogenic aerosol cooling masks some, perhaps 1/3, of committed warming.

## A very few introductory remarks regarding climate policy (1)

- Cap-and-trade proposals would never have worked or even been desirable, and they cost (and are still costing) us precious years.
- Lowering the rate of fossil fuel combustion does not solve the problem because CO<sub>2</sub> and even methane stay in the atmosphere for a long time (methane much less, but to much greater effect). Lowering total GHG emissions is necessary (and will occur!)
- Most climate-friendly policies will not be implemented in the U.S. for climate-saving reasons (hence the breadth of this talk), but for other reasons instead. Know those reasons and their beneficiaries very well.
- Timely, effective climate–friendly investments have a very high discount rate. So “take the cash, and let the credit go.” Most long-term proposals & policies are fantasies.
- Don’t bother with “business-as-usual” (BAU) proposals or anything like them, because BAU will not occur. Massive disruption is the only family of options available. Also, don’t bother with policies involving anything 450 ppm or greater CO<sub>2</sub>e, which by definition is out of control and probably in the terrible hands of natural positive feedback loops.
- At circa 390 ppm CO<sub>2</sub> we are already deep into the danger zone, with additional committed warming “in the pipeline” – which will be amplified by positive feedbacks. It is necessary to quickly return atmospheric CO<sub>2</sub> to below 350 ppm and possibly well below that.
- We need to think about climate, energy, and economy all together.
- What is best for the poor and for vulnerable species will be best for all.



## Regarding climate policy (2)

- Human adaptation is necessary, appropriate, economic, social, inevitable (*one way or another*), **insufficient**, and will ultimately collapse or be successively redefined downwards – potentially all the way to zero (to no adaptation, i.e. extinction) *if mitigation of adverse climate change is not successful*.
- Adaptation of other species is another and more politically-adverse matter altogether. **Saving them, we save ourselves**.
- Mitigation of climate change is necessary, appropriate, economic, social, **and sooner or later inevitable** (*one way or another*). The war will end, but we and the members of the Great Earth Sangha may not be around if we are defeated.
- Human adaptation, mitigation, and protection of other species all can be thought of as an intimate family affair, as stewardship of a Garden, and in many other ways that may occur to you. We have come a long way with our animal and plant brothers and sisters. They compose our thoughts and make us human. When we lose them we will go.
- Some kinds of adaptation will help us mitigate climate change. Intense adaptation is mitigation. Mitigation is adaptation.
- We can lead or we can be dragged screaming into a dark future. We can love and fight or we can be victims.
-

## Climate activism – a few words

- Toxic levels of self-absorption are endemic in our culture. We tend to think we are the world. We aren't.
- “If I had a hammer...” Well, do you have a hammer? If you had one, would you hammer in the morning, or at any other time? Or you perhaps too busy?
  - Pretend you have a hammer and are using it (popular but not recommended).
  - Get a hammer. Use it. There are problems with this approach.
  - Notice there is a hammer and *use that realization*. It is not *your* hammer precisely, as it will hammer *you* also. This option will require something more from you. Dogen: “To achieve a certain end you must become a certain person. When you become that person you will not worry about that end.”
- Factuality – objective truth – is very important. Such truth is nonpartisan and bipartisan. Havel in the 1980s: truth has been neglected as a factor of power. If you want nonviolent power, be as factual, fair, and objective as possible, just for starters. This means understanding some details.
- Being some NGO's cannon fodder is not all that helpful. That model is broken. If citizens blindly depend on professional NGOs they will be sorely disappointed.
- There is unlikely to be any timely and effective “social movement “ that will rescue us. The only social movement that matters is the one you unconsciously make.
- All strategies which depend on the commitment of third parties are unlikely to be successful. Stick to the first and second grammatical persons (I, we, and you).



What people can do when they have to. This was Dresden, 1945 – utterly destroyed.

<http://img684.imageshack.us/img684/1559/bundesarchivbild183z030.jpg>



Cologne, 1945.

People can do amazing things to recover, or mitigate the damage. **Loss of our fondest expectations is not the end of the world.**

Please note this is not a party *exactly*.

When joining this group we had better check our excessive ego needs at the door.





The result: Dresden now

Americans also know how to work, and will rise to very difficult challenges in the face of an urgent crisis if asked in the right way. People want to have meaningful lives that contribute to their families, communities, and country. They value meaning, transcendence, and honor much more than high levels of material consumption.

This woman, however, probably also saw her wages rise many-fold due to this job.

**Altruism is neither needed nor a sound basis for policy.**



<http://media1.shmoop.com/media/images/large/making-aircraft.jpg>



Not a party, but jobs and wages went up, as did life expectancy.

<http://cdn.blogs.babble.com/strollerderby/files/women-of-the-40s/17.jpg>



But we  
can do  
better  
than  
this.



The gravity of the situation: Jemez Mountains – *then* (3 slides)



**Fig. 35**

Cook tent at Chihuahueros campsite, 1939. Bences Gonzales on left, fixing trout, Amador Gonzales on right, at the cooking altar. Courtesy of Janet Chase Soldati.



**Fig. 30**

The pack train in Valle Toledo, 1941. Photo by LARS camper Bill Carson. Courtesy of William Carson.



**Fig. 33**

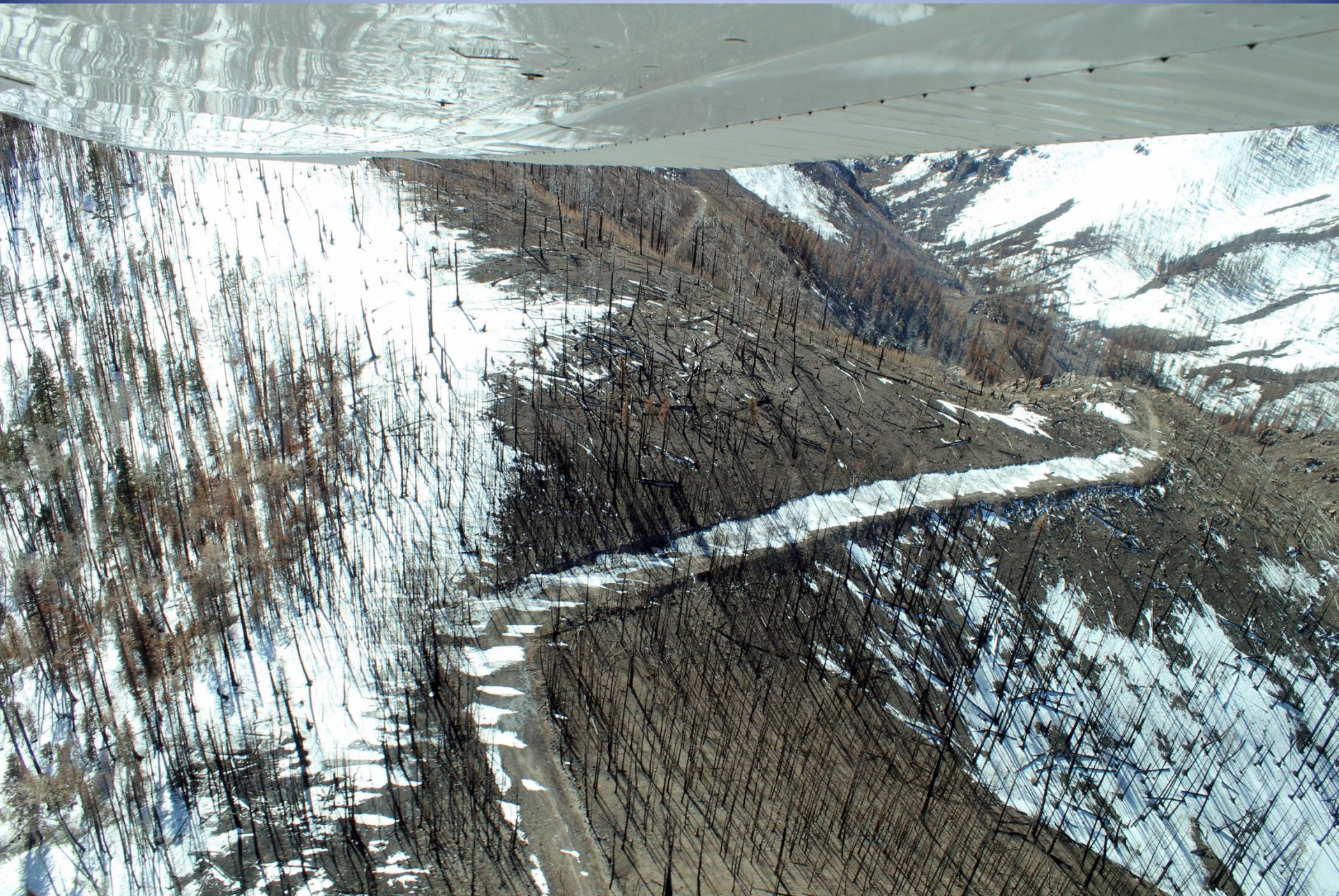
Camper Bill Carson looking northeast from St. Peter's Dome, Santa Fe National Forest. Photo by LARS student and camp counselor Charles Ripley. Courtesy Los Alamos Historical Museum Archives.



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Jemez Mountains *now* (3 slides, March 2012). This land will not return to what it was.





## The Dust Bowl, then

1936 Apr.

**Rothstein, Arthur**  
– **photographer**

Farm Security  
Administration –  
Office of War  
Information  
Photograph  
Collection

Location of public  
domain digital  
image:

[hdl.loc.gov/loc.pnp  
/ppmsc.00241](https://hdl.loc.gov/loc.pnp/ppmsc.00241)







Phoenix, July 5, 2011

PHOTOGRAPH BY: Mark J. Rebilas / U.S. PRESSWIRE

[http://latimesphoto.files.wordpress.com/2011/07/la-dust001\\_inw7dknc.jpg](http://latimesphoto.files.wordpress.com/2011/07/la-dust001_inw7dknc.jpg)

One positive feedback: Methane emissions from thawing permafrost

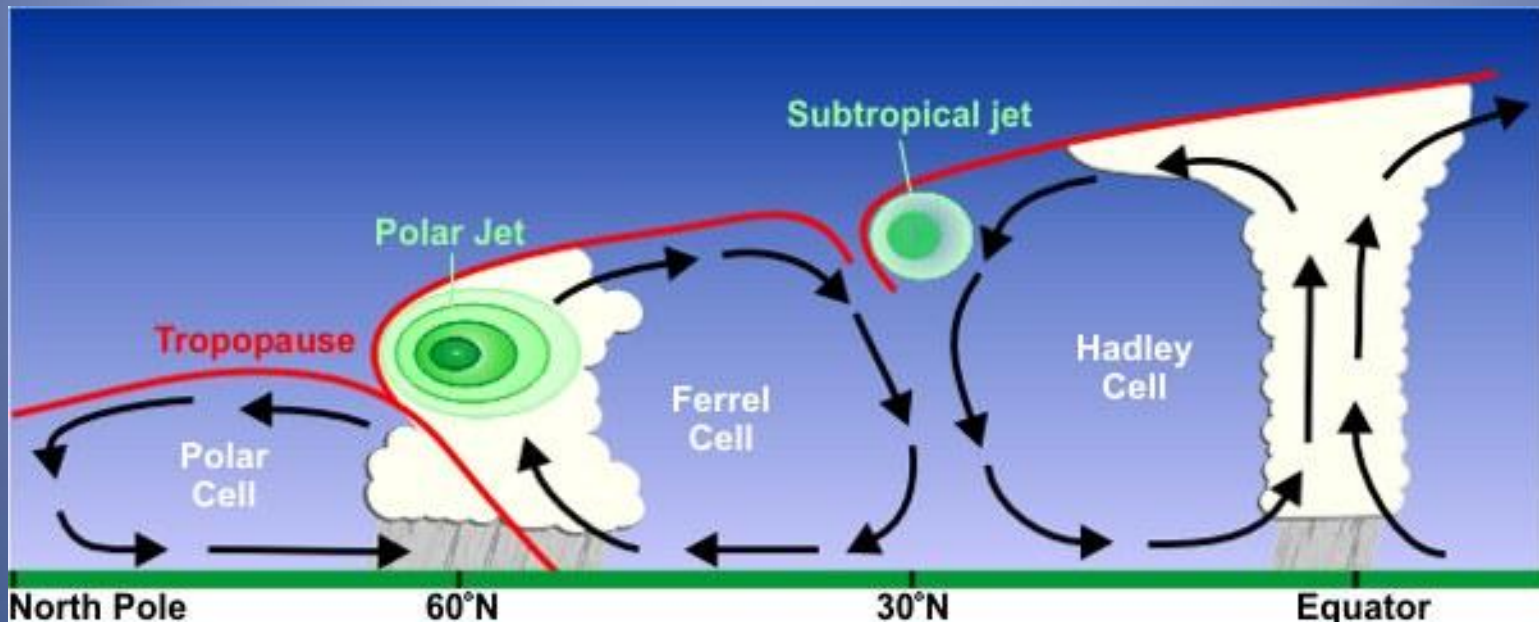
<http://www.youtube.com/watch?v=rEHyj2adRII>

There is no time to waste.



Methane clathrate sample from seabed

[http://en.wikipedia.org/wiki/File:Gashydrat\\_mit\\_Struktur.jpg](http://en.wikipedia.org/wiki/File:Gashydrat_mit_Struktur.jpg)



Seidel, D. J., Fu, Q., Randel, W. J., & Reichler, T. J. (2008). Widening of the tropical belt in a changing climate. *Nature Geoscience*, 1, 21–24.

“Remarkably, the tropics appear to have already expanded — during only the last few decades of the twentieth century — by at least the same margin as models predict for this century. Several recent studies, using independent datasets, show robust trends in different measures of the width of the tropical belt. Based on five different types of measurement, they find a widening of several degrees latitude since 1979.”

Finding: about 1 degree per decade expansion of Hadley cell northward, 1979-2003.

As the Hadley cell descending air & higher-pressure region moves north, so will the Chihuahuan Desert. The climate of trans-Pecos Texas and Chihuahua can be expected in Albuquerque *in the first half this century*.





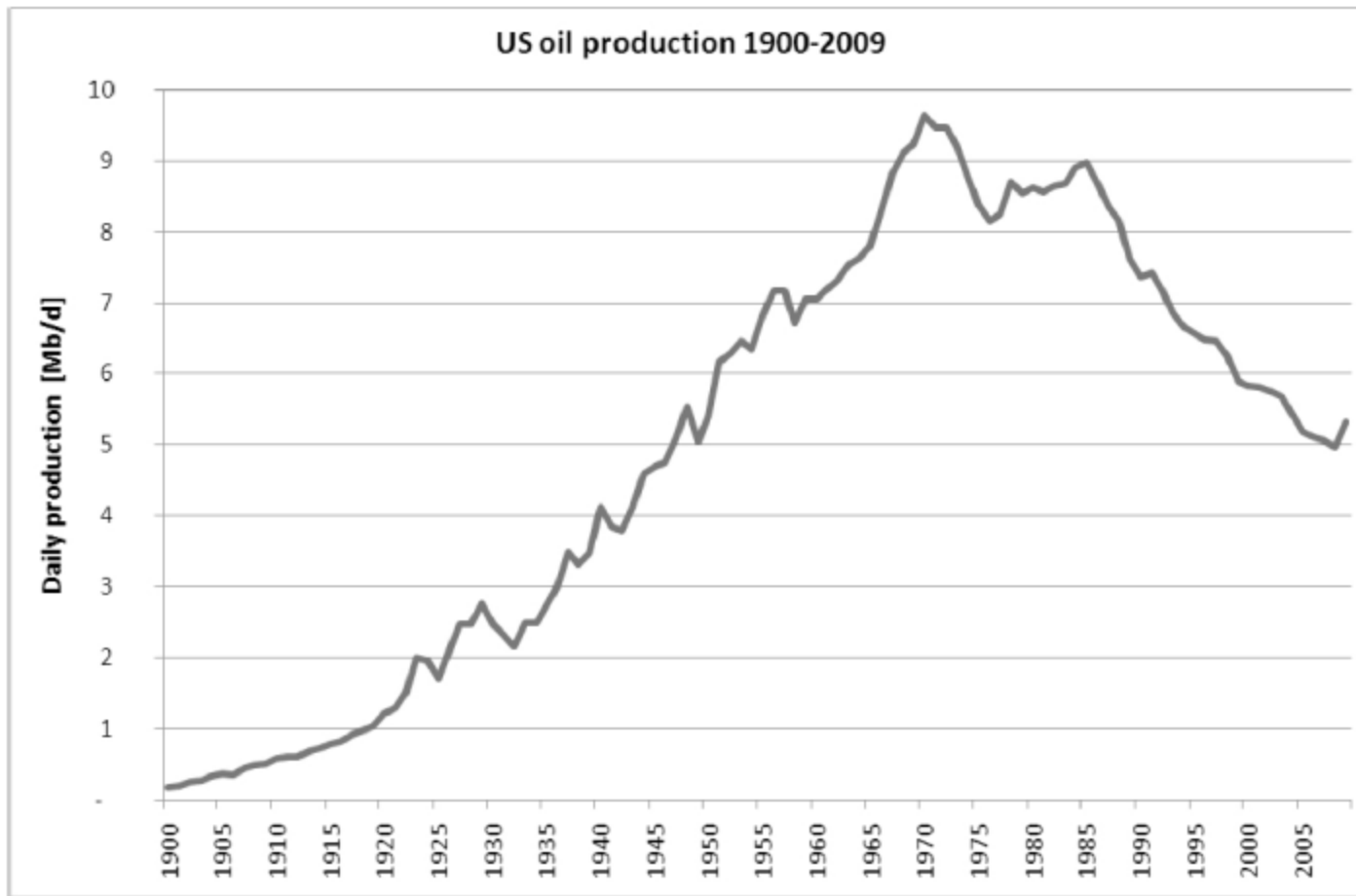
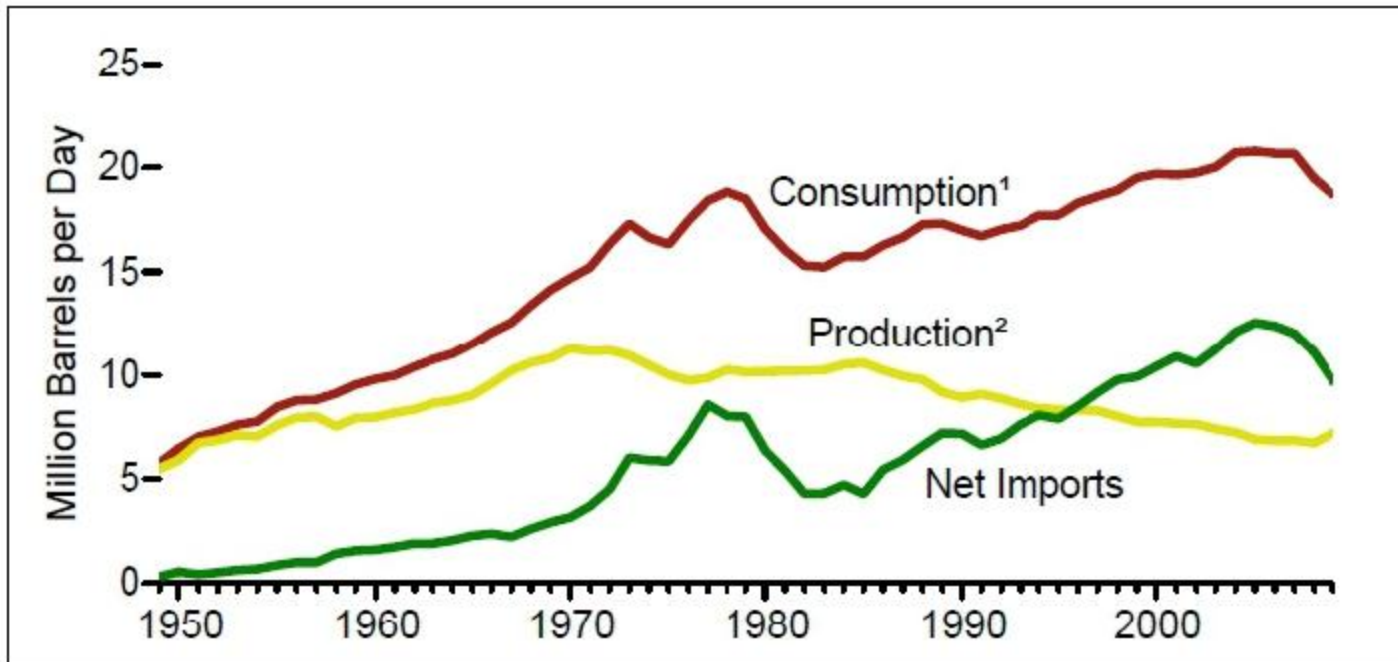


Figure 18: Historical production of oil in the USA from 1900 – 2009 <sup>82</sup>.

[Old chart]



<sup>1</sup> Petroleum products supplied is used as an approximation for consumption.

<sup>2</sup> Crude oil and natural gas plant liquids production.

*Figure 19: Petroleum overview of the United States<sup>83</sup>. When U.S. petroleum production peaked at 11.3 mbpd in 1970, net imports stood at 3.2 mbpd. By 1996, net imports exceeded production. In 2008, production was 6.7 mbpd, and net imports were 11.0 mbpd.*



## World Crude Oil Production

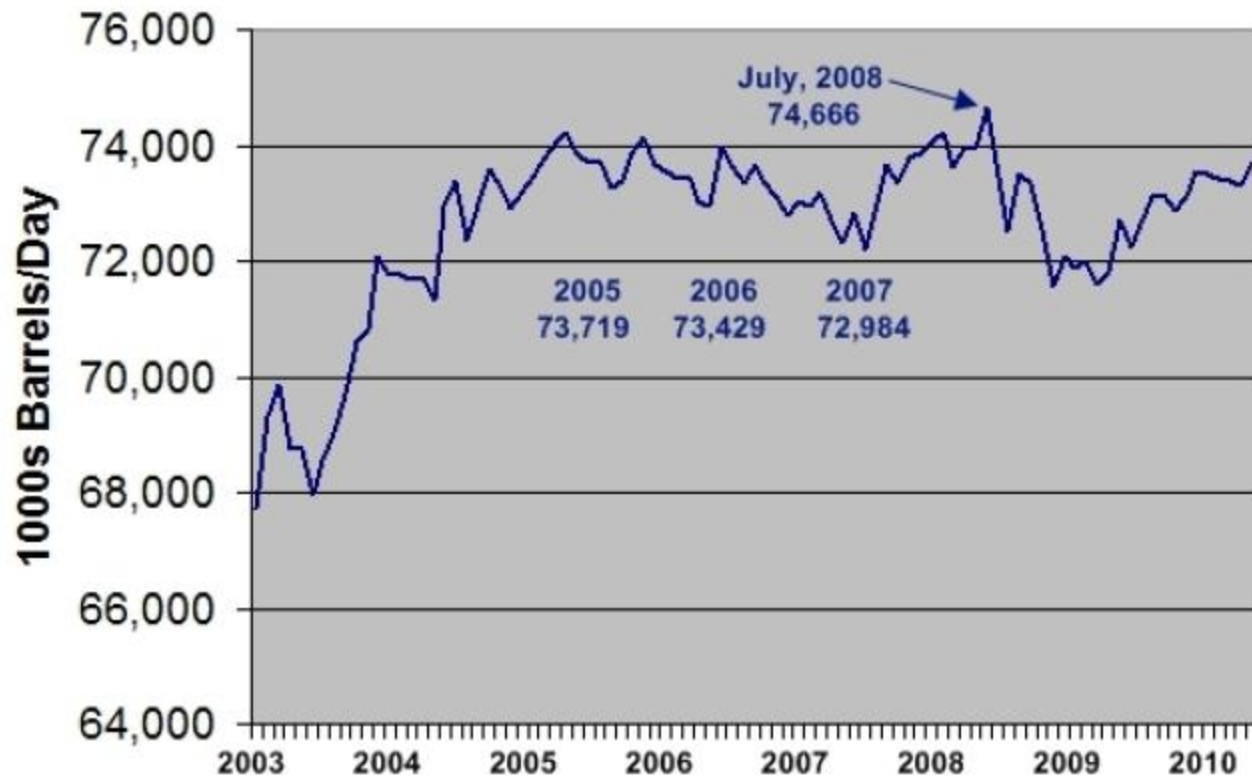


Figure 20b: EIA data for global conventional oil production<sup>86</sup>. The average world production through July is 73.426 mbpd in 2010.

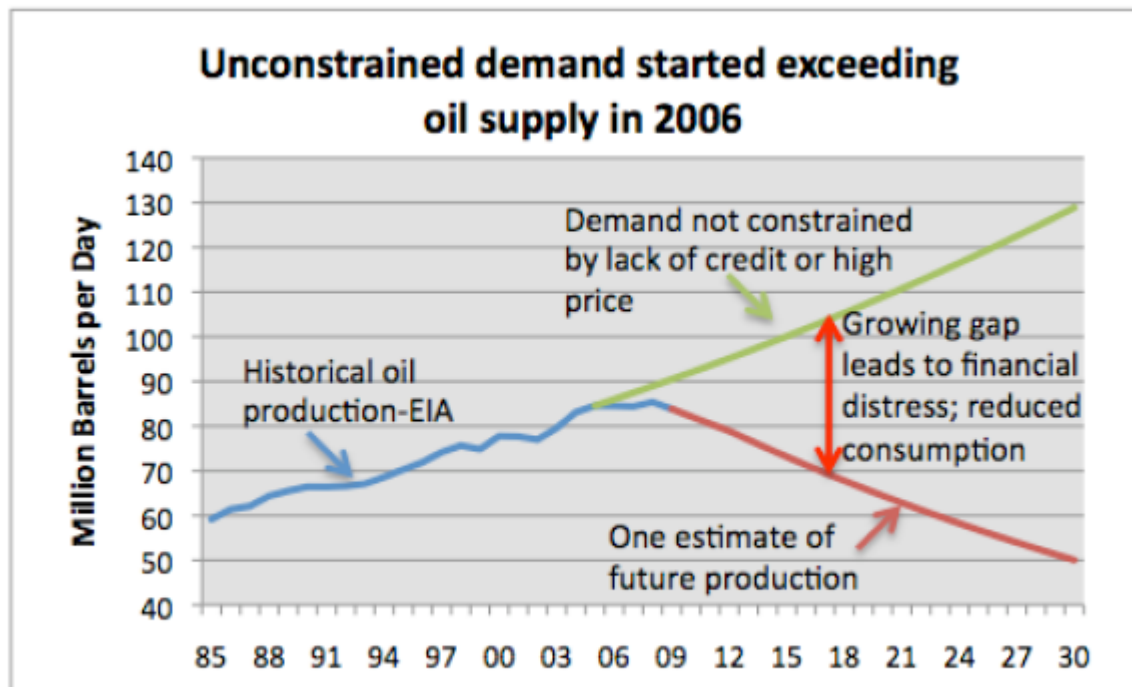
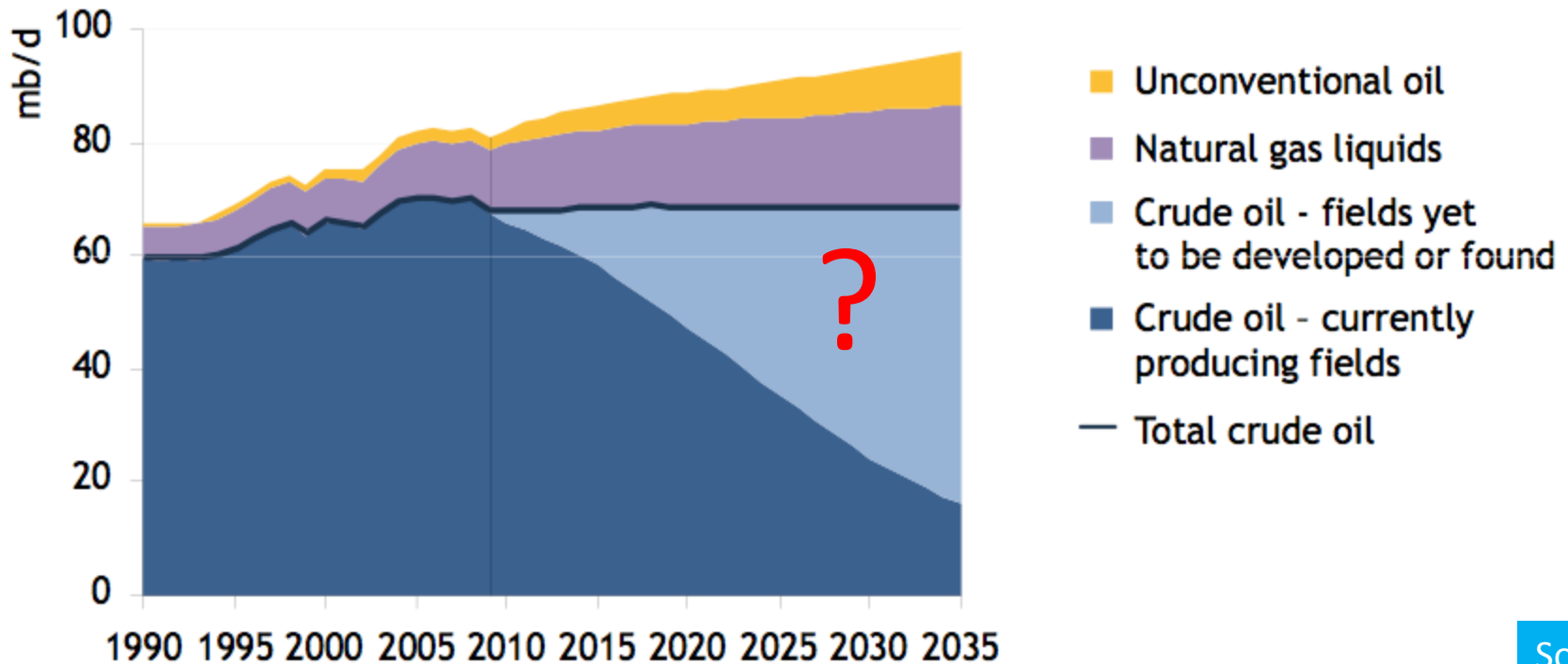


Figure 21: Unconstrained demand started exceeding oil supply in 2006 <sup>87</sup> with historical data from the EIA.

Analysis by Gail Tverberg, theoil Drum.com, reproduced in Morrigan

## World oil production by type in the New Policies Scenario



Source:  
OECD



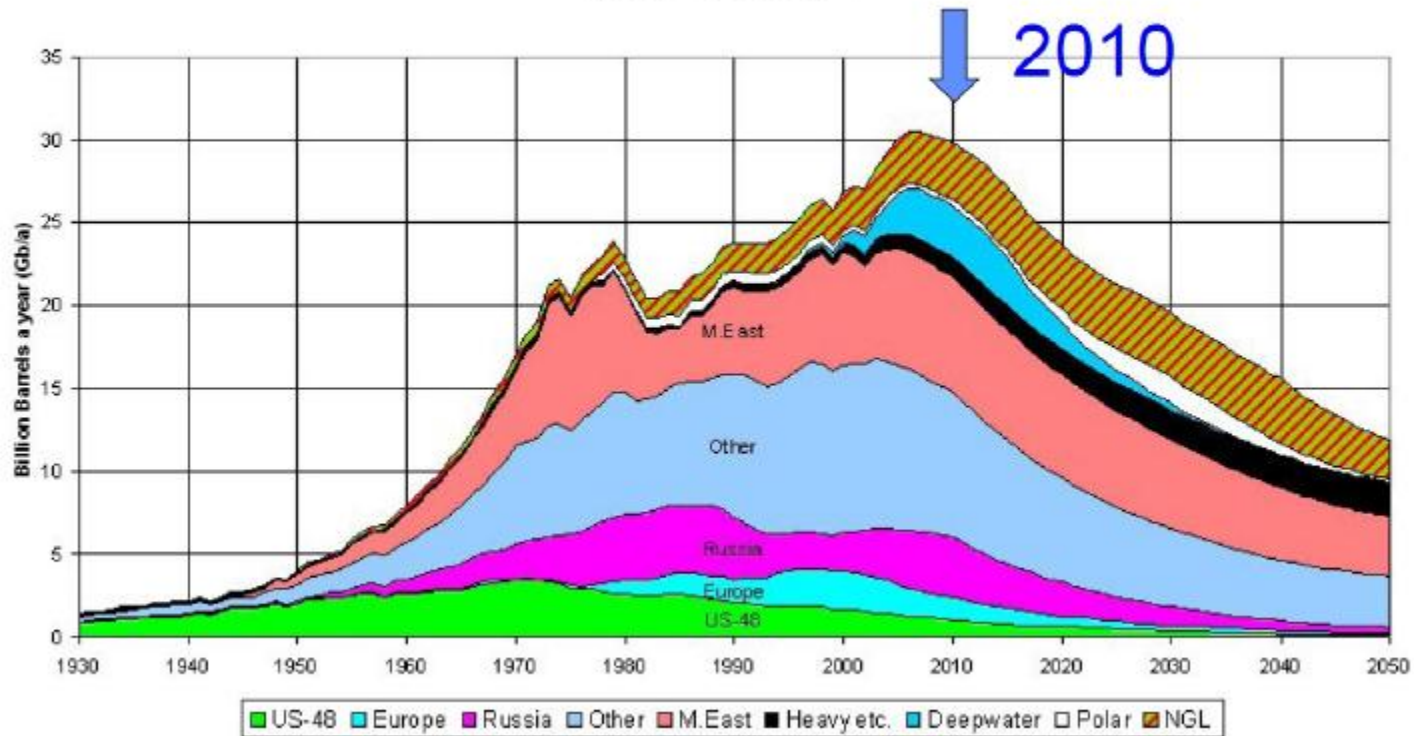
***Global oil production reaches 96 mb/d in 2035 on the back of rising output of natural gas liquids & unconventional oil, as crude oil production plateaus***

Glen Sweetnam, former director of the International, Economic and Greenhouse Gas division of the Energy Information Administration (EIA) at the U.S. Department of Energy (DoE), admitted in an interview that “a chance exists that we may experience a decline” of world liquid fuels production between 2011 – 2015, “if the investment is not there.”

Until April 2010, Glen Sweetnam was the main official expert on the oil market in the Obama administration. He also headed the publication of the DoE’s annual *Annual Energy Outlook (AEO)* and *International Energy Outlook (IEO)*, which are considered a couple of the most influential annual energy reports for the outlook of the U.S. and international energy markets, respectively.

Until recently, he was also vice president and principal at Houston-based Lukens Energy Group. In April 2010, Sweetnam was transferred to the post of senior director for energy at the U.S. National Security Council. He is reportedly back at DOE now.

## OIL AND GAS LIQUIDS 2004 Scenario

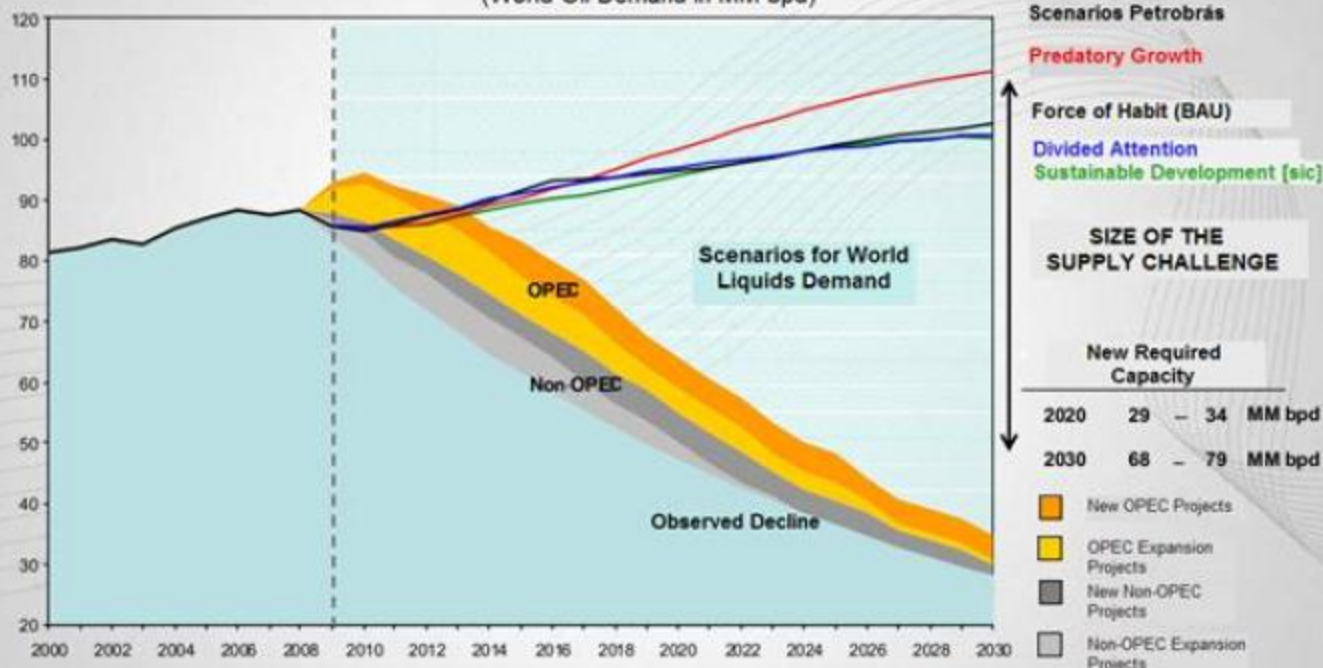


From a presentation by Steven Chu, now Sec. of Energy, in 2004.  
He does not, perhaps believe he cannot, say anything like this today.

## NEW ANNOUNCED PRODUCTION IS YET TO MEET LONG TERM DEMAND

### SCENARIOS FOR OIL DEMAND

(World Oil Demand in MM bpd)



The Predatory Growth Scenario stands out as the most challenging for long term supply. Although less challenging, Divided Attention and Sustainable Development [sic] shall also require considerable investment effort.

6

\* Volumes estimated from data by GOST service and WoodMackenzie.



Figure 9a: A presentation slide (slide 6) showing a possible peak in global oil production around 2010 as presented by José Sergio Gabrielli de Azevedo, the CEO of Petróleo Brasileiro SA (a.k.a., Petrobras), Brazil's state-controlled oil company<sup>50</sup>. The slide shows world oil capacity peaking in 2010 due to oil capacity additions from new projects being unable to offset world oil decline rates.

## DECLINE IN EXISTING FIELDS

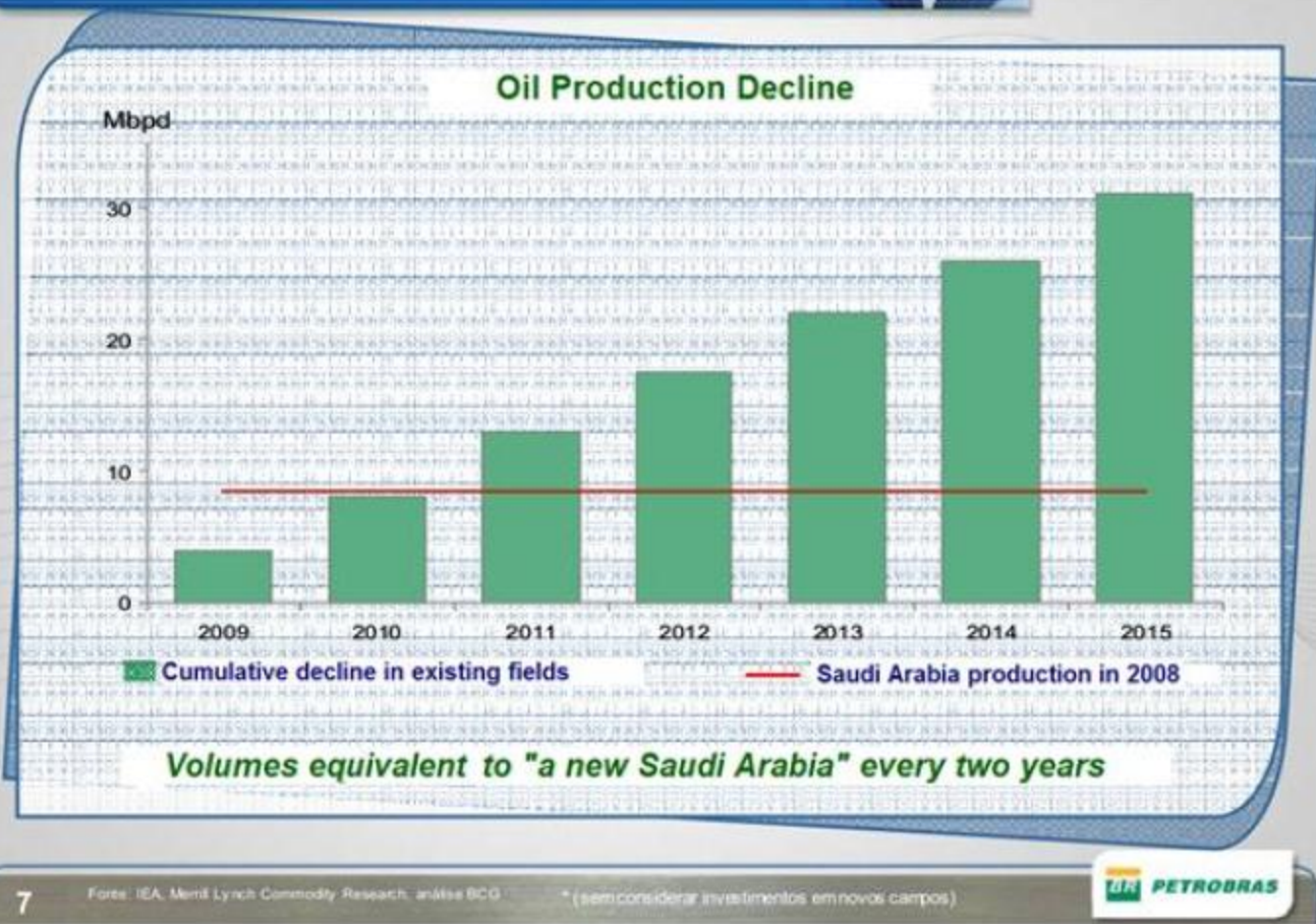
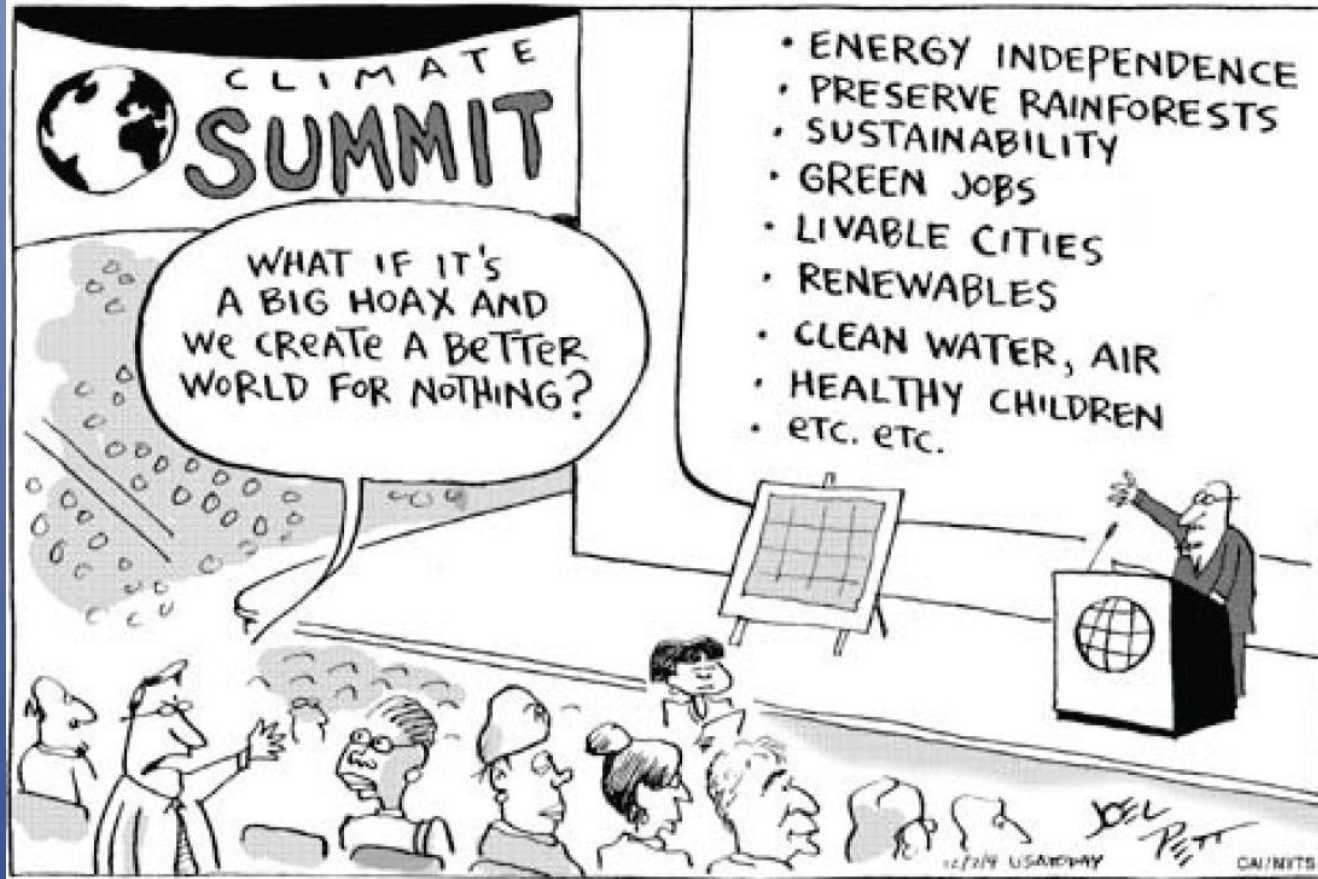


Figure 9b: A presentation slide (slide 7) showing a cumulative decline in existing fields over time; as presented by José Sergio Gabrielli de Azevedo, the CEO of Petróleo Brasileiro SA (a.k.a., Petrobras), Brazil's state-controlled oil company<sup>50</sup>. According to slide 7, the world needs one Saudi Arabia every two years just to keep production constant.

JOEL PETT  
USA TODAY



Even if a better world is not possible, “less bad is the new good.” “Less bad” than what is in store for us if we don’t act quickly and effectively would be very good indeed.