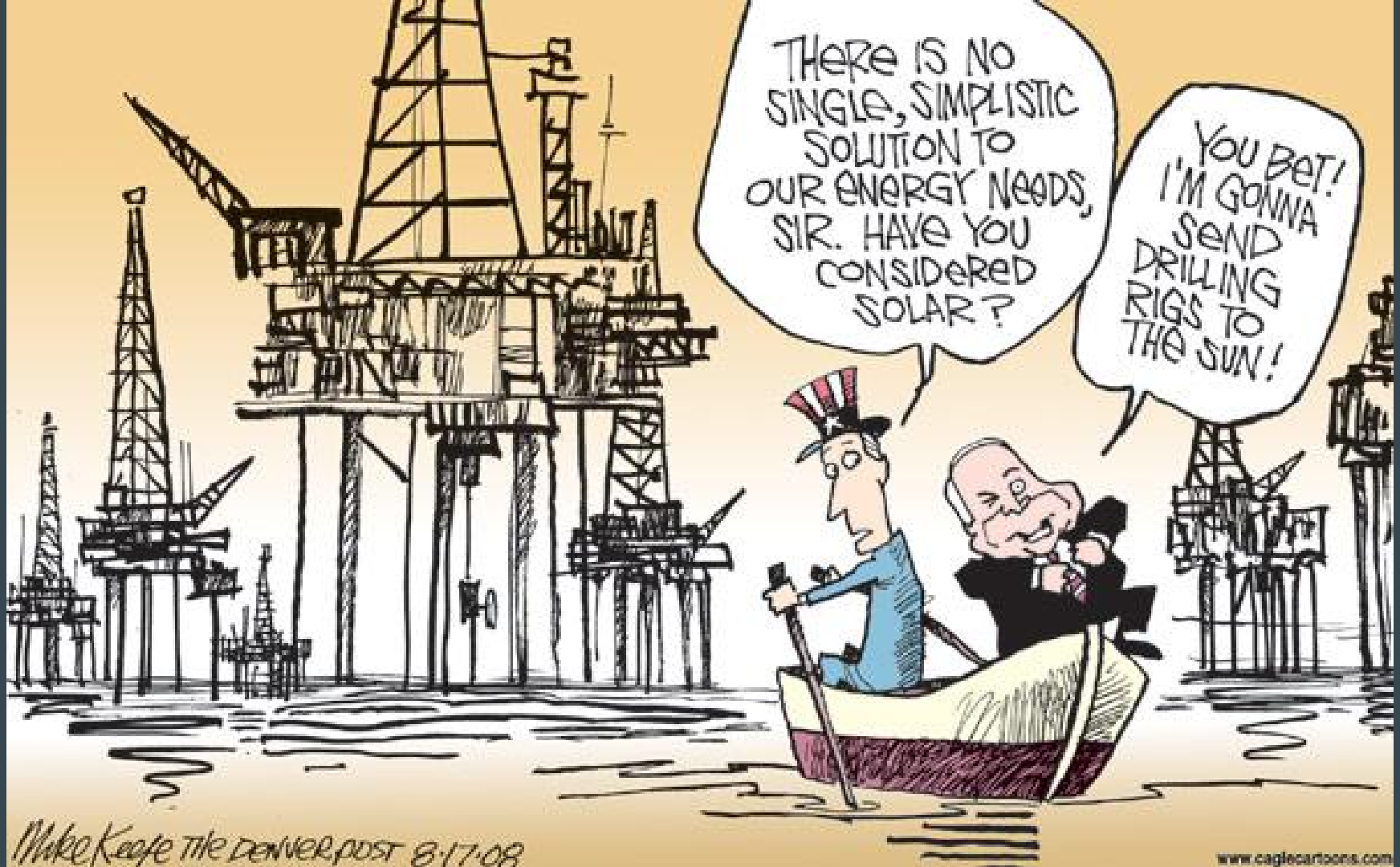
Energy Policy Act of 2005

United States of America

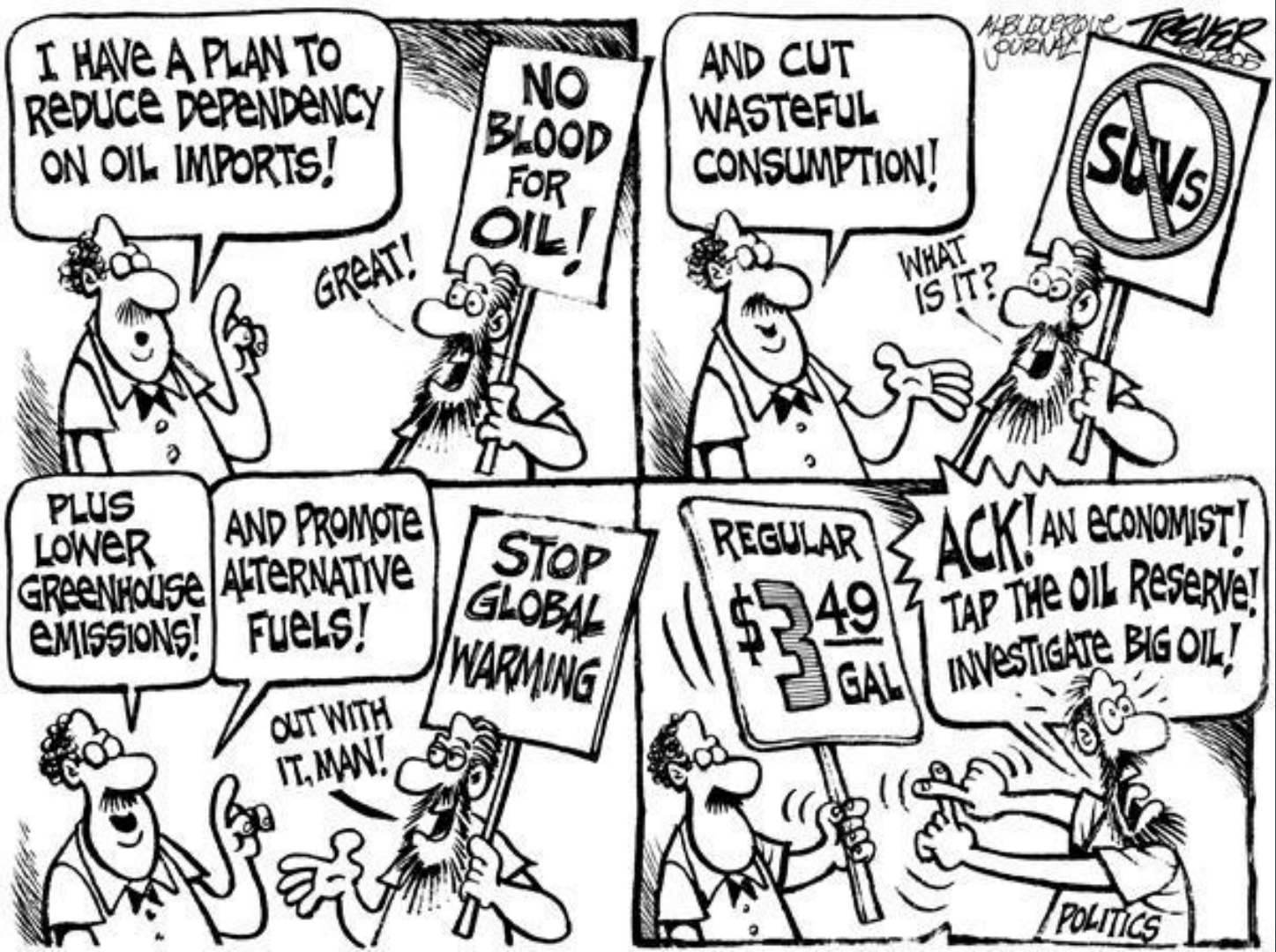
Ryan Bathras
Garrett Roberts


THERE IS NO SINGLE, SIMPLISTIC SOLUTION TO OUR ENERGY NEEDS, SIR. HAVE YOU CONSIDERED SOLAR?
YOU BET! I'M GONNA SEND DRILLING RIGS TO THE SUN!
Mike Keefe The Denver Post 8-17-08
www.caglecartoons.com

The Background

The Bill was passed and signed into law by President George W. Bush in August of 2005.

The goal was to provide tax incentives and a loan guarantee plan for the Department of Energy to support clean technologies for companies that otherwise wouldn't receive funding due to high risk and also to reduce US dependency on foreign energy.


I HAVE A PLAN TO REDUCE DEPENDENCY ON OIL IMPORTS!
NO BLOOD FOR OIL!
GREAT!
AND CUT WASTEFUL CONSUMPTION!
SUVs
WHAT IS IT?
PLUS LOWER GREENHOUSE EMISSIONS!
AND PROMOTE ALTERNATIVE FUELS!
STOP GLOBAL WARMING
OUT WITH IT, MAN!
REGULAR $3.49 GAL
ACK! AN ECONOMIST! TAP THE OIL RESERVE! INVESTIGATE BIG OIL!
POLITICS

Initiatives

Increase the amount of biofuel required in gasoline.

Increase coal use as energy source, but find solutions to pollution through a $200 million USD annual stimulus package.

Tax Reductions totaling over $14.5 Billion USD across various renewable energy sectors.

Tax breaks for individuals using renewable energy in their homes.

Nuclear-Specific Provisions including: funding for 6 new plants, as well as massive tax reductions and guaranteed funding to help with R&D and running costs.

Just one year later...

25 New Nuclear Reactors Planned = 25,000 Megawatts by 2020 = 15 million homes

2000 MW wind power online = 493,000 homes = $3 Billion economic activity

27 New Ethanol plants broke ground = 1.4 Billion gallons of ethanol production online

116,871 Hybrid Cars

Nationwide increase of solar thermal collectors.

2000 MW Geothermal Energy under construction

MegaWatts of energy saved by 2020!

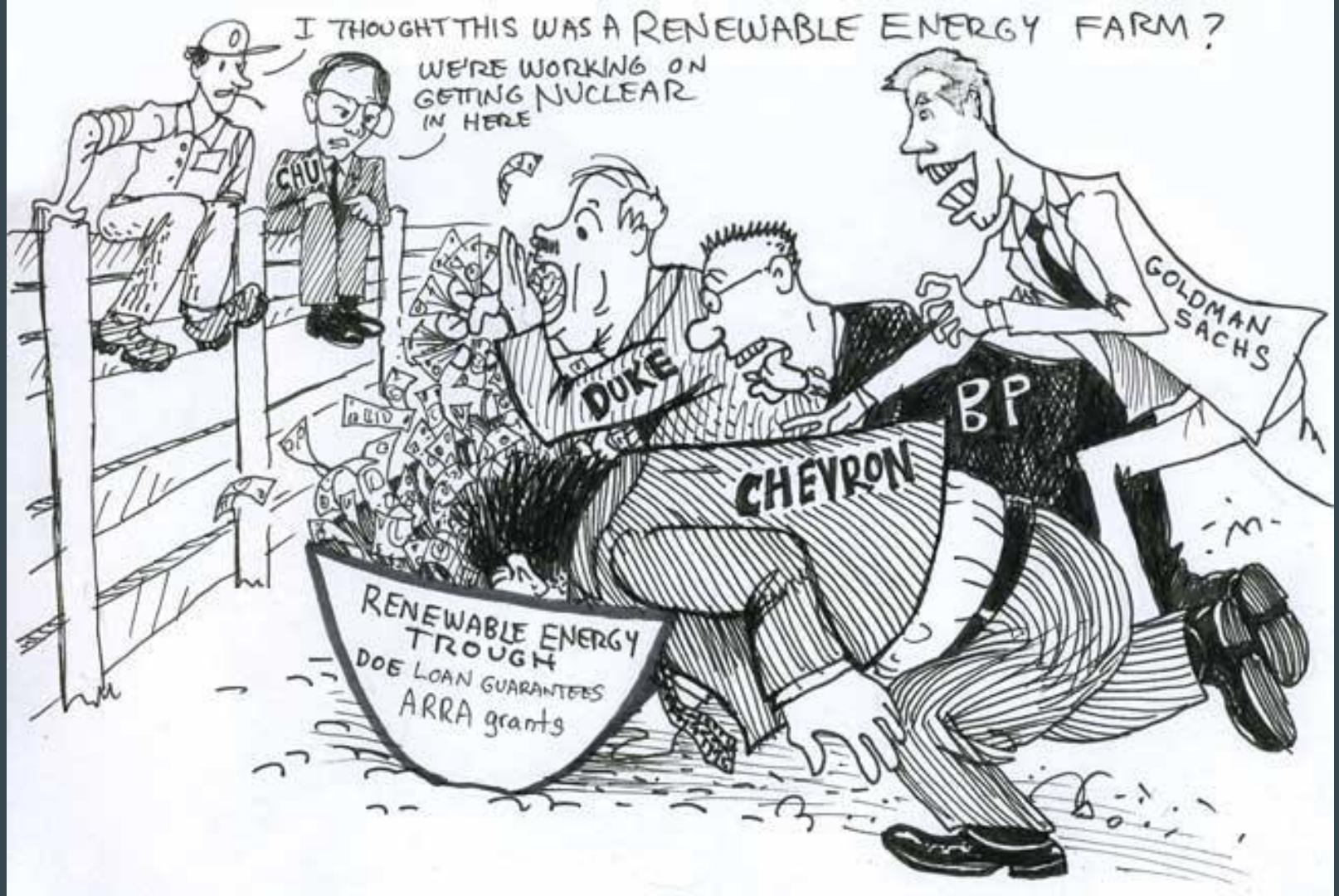
Extra stimulus...

Prior to President Obama's election in 2009, loans guaranteed by the bill hadn't been largely utilized...

In 2009 President Obama signed the American Recovery and Reinvestment Act of 2009 which revamped the loan program for authorization of loans for innovative technologies that avoid greenhouse gases.

This added $500 million to the available amount and restructured the guidelines for loans.

Under his presidency, the total size of the portfolio grew to over $34.4 Billion USD.


I THOUGHT THIS WAS A RENEWABLE ENERGY FARM?
WE'RE WORKING ON GETTING NUCLEAR IN HERE
CHU
DUKE
CHEVRON
BP
GOLDMAN SACHS
RENEWABLE ENERGY TROUGH
DOE LOAN GUARANTEES
ARRA grants

2009 Amendment Continued...

The Obama administration in the first few years increased the outstanding loan amount from under $5 Billion USD to almost $35 Billion USD.

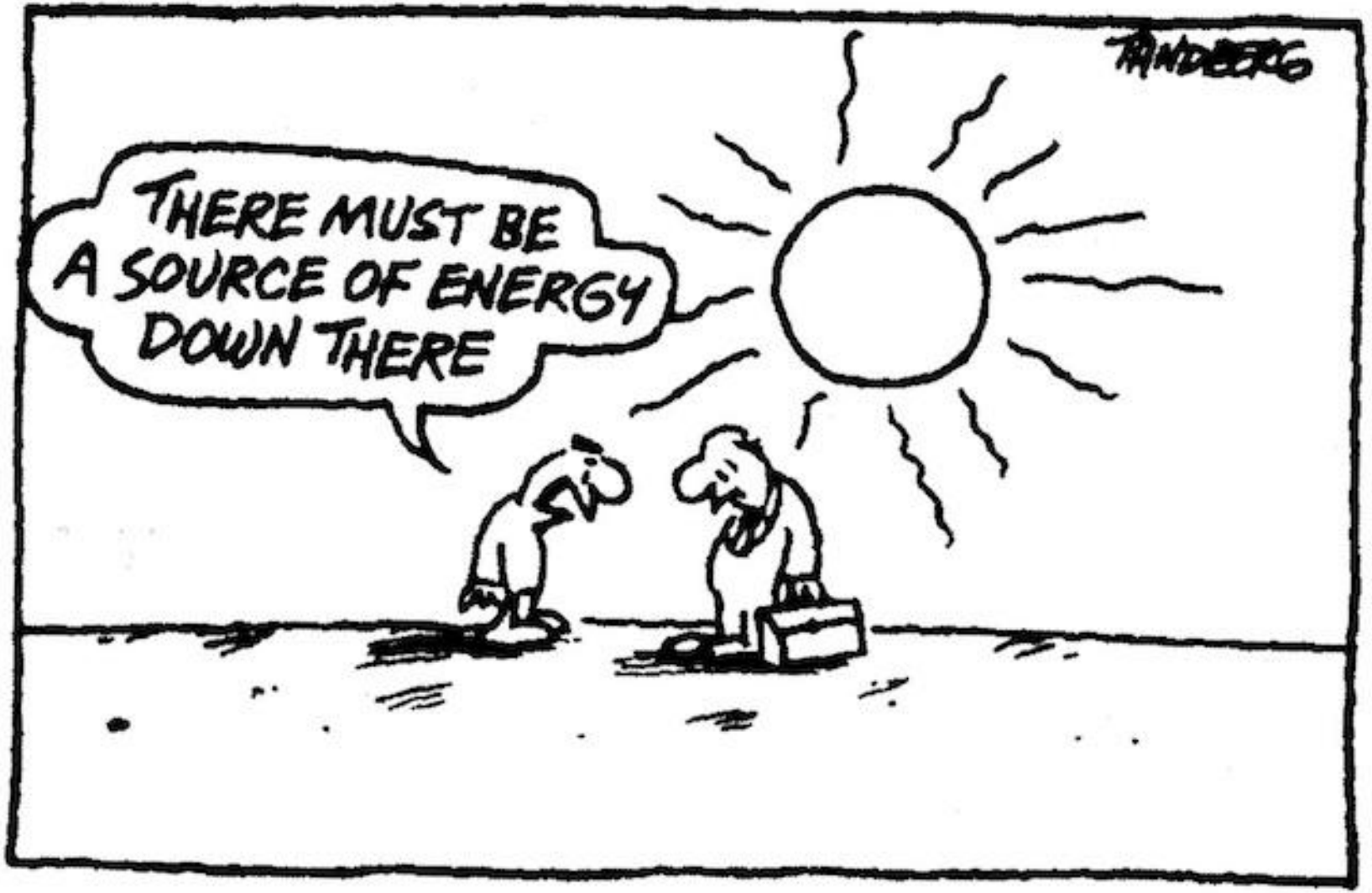
Many of these loans were written to position US Manufacturing for an increase in global renewable energy interest. It was estimated that renewable energy on a global scale would increase from 3% to 15% of total energy supply.

GOAL: ACHIEVE GRID PARITY

Grid Parity

Grid Parity is a state when a country has successfully managed to lower costs of energy from renewable sources so much that it is cost-competitive with energy from nonrenewable sources.

This is the main goal behind the Energy Policy Act of 2005, a goal was achieved by some European nations such as Italy, Germany, and Spain back in 2013.


THANDBERG
THERE MUST BE A SOURCE OF ENERGY DOWN THERE

So has it paid off?

In 2005, when the policy was passed, energy from renewable sources was under 9% of total energy supply.

Since then, as of 2015, total energy from renewable sources has increased over 50% and now supplies 13.44% of all energy.

Two of the major sectors we can clearly see the benefits of the policy are the Solar & Wind Energy Sectors.

Wind

In 2006 - 11,575 Megawatts of Installed Wind Generating Capacity - As of 2015 - almost 75,000 Megawatts

Initial Wind Goal: To have 15 states w/ at least 1000 MW of wind power by 2018 - As of 2015 the total was 17 (1000 MW powers roughly 250,000 homes).

The US is now number 1 in the world for wind energy production.

It is estimated that by 2030 almost 20% of US Power could be supplied by wind energy.

Much of the was made possible by a Production Tax Credit, or PTC, which pays producers based on the amount of wind energy they produce.

Solar

The goal was to achieve grid parity, so how is that going?

2006 Cost per Watt of Power - $9 - Today - $3.79

2006 Number of Homes with Solar Panels - about 30,000 homes

Today - over 1 million homes and as many as 3.8 million by 2020

It is estimated that, with solar panels, you can supply up to 85% of your home energy needs.

Thanks to an Investment Tax Credit, since its' enactment, solar energy grew 77% from 2006 to 2012.

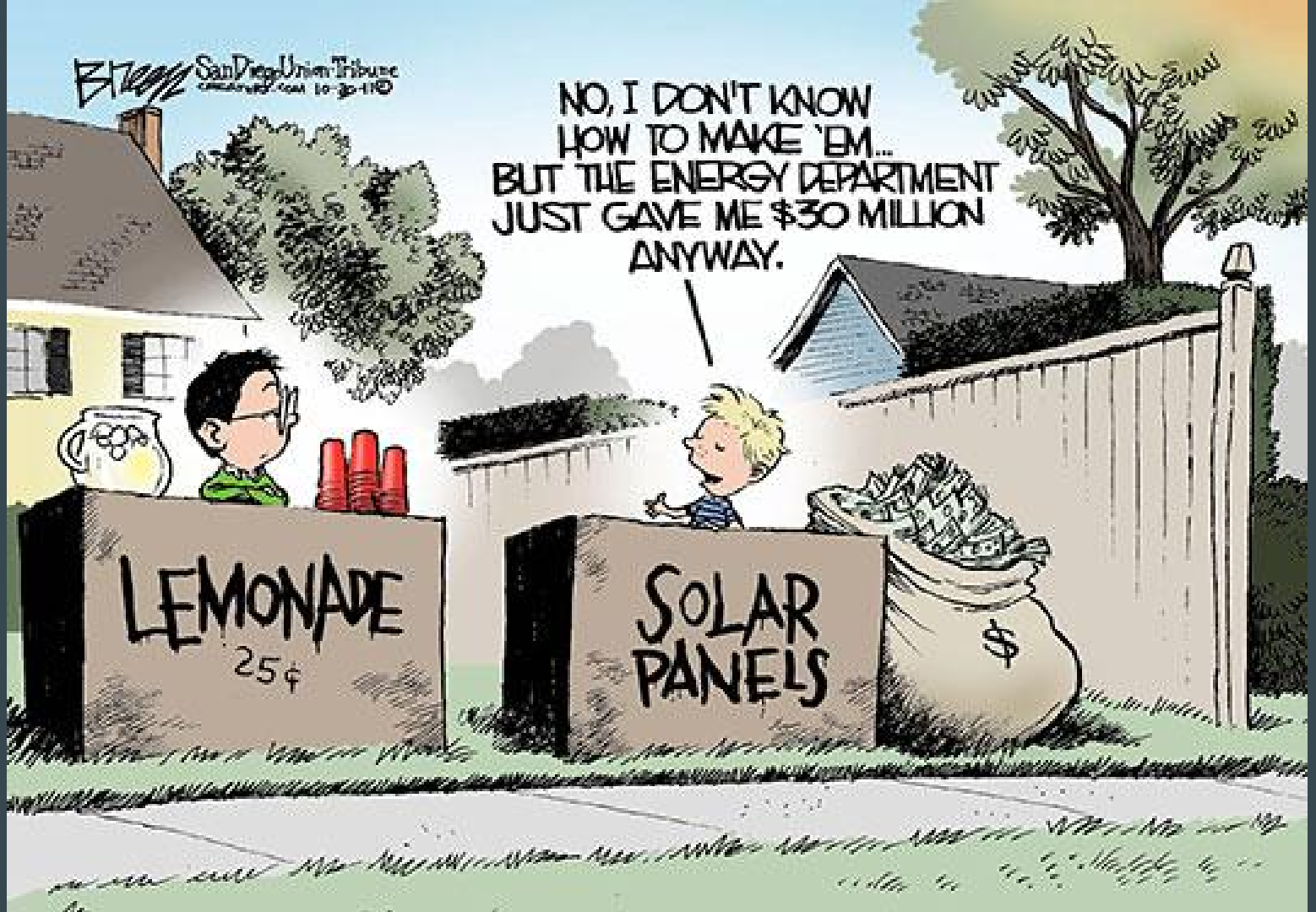
It’s not all sunshine and roses...

One of the biggest potential pitfalls of the policy happens to also be one of its greatest assets...

GUARANTEED LOAN - ZERO LOSS ON DEFAULT

The policy grants loans for risky technologies to companies that wouldn’t otherwise receive loans aka a bank would never even think about lending money because of default risk.

This was different... You default? No worries the government will cover you...


BTilley
San Diego Union-Tribune
NO, I DON'T KNOW HOW TO MAKE 'EM... BUT THE ENERGY DEPARTMENT JUST GAVE ME $30 MILLION ANYWAY.
LEMONADE
25¢
SOLAR PANELS
$

Solyndra - Solar Power Company

Solyndra was given a $535 million loan guarantee in 2009.

Shortly after... the price of polysilicon, the primary material in its solar panels, dropped and they filed for bankruptcy in 2011, while laying off over 1000 employees.

Per the agreement, this left the government responsible bearing the cost of the loan, which was then passed onto taxpayers.

This was one of the largest losses and drew mass media and was the root for much criticism against government funding in renewables.

In total, “since its creation, the loan office has lost $800 million in taxpayer dollars just two percent of the total $34.4 billion portfolio, and well within the bad loan margin of just about any private bank” (Gallucci, 2013).

GREEN ENERGY

Other failures and those on their way…

Evergreen Solar ($25 million)*

SpectraWatt ($500,000)*

Solyndra ($535 million)*

Beacon Power ($43 million)*

Nevada Geothermal ($98.5 million)

SunPower ($1.2 billion)

First Solar ($1.46 billion)

Babcock and Brown ($178 million)

EnerDel's subsidiary Ener1 ($118.5 million)*

Satcon ($3 million)*

Konarka Technologies Inc. ($20 million)*

Amonix ($5.9 million)

Fisker Automotive ($529 million)

Abound Solar ($400 million)*

A123 Systems ($279 million)*

Willard and Kelsey Solar Group ($700,981)*

Johnson Controls ($299 million)

Schneider Electric ($86 million)

Brightsource ($1.6 billion)

ECOtality ($126.2 million)

Nordic Windpower ($16 million)*

Navistar ($39 million)

Raser Technologies ($33 million)*

Energy Conversion Devices ($13.3 million)*

Mountain Plaza, Inc. ($2 million)*

Olsen's Crop Service and Olsen's Mills ($10 million)*

Range Fuels ($80 million)*

Thompson River Power ($6.5 million)*

Stirling Energy Systems ($7 million)*

Azure Dynamics ($5.4 million)*

GreenVolts ($500,000)

Vestas ($50 million)

LG Chem's subsidiary Compact Power ($151 million)

Mascoma Corp. ($100 mil

Putting aside the negative...

While the Energy Policy Act of 2005 has its obvious cons ($800 million USD taxpayer money lost... SO FAR), it does have massive upside, by providing extra incentives to innovate technology, the EPAct has:

Increased the percentage of US energy supplied via renewables, while decreased the emissions of greenhouse gases, both of which are vital in achieving a sustainable energy sector.

AND the cost of renewable energy and reaching grid parity is a goal that doesn't seem as far fetched anymore...


Mike Keefe The Denver Post 5-20-09
SNIP
SNIP
SNIP
AUTO EMISSIONS STANDARDS
IT'S A START.
CARBON FOOTPRINT
www.caglecartoons.com

SunShot Initiative...

Even though Solyndra was a failed attempt at renewable energy, a program launched in 2011, the SunShot initiative has proven to be successful having funded EnergySage and Zep Solar (Two companies that are major players in the solar energy sector).

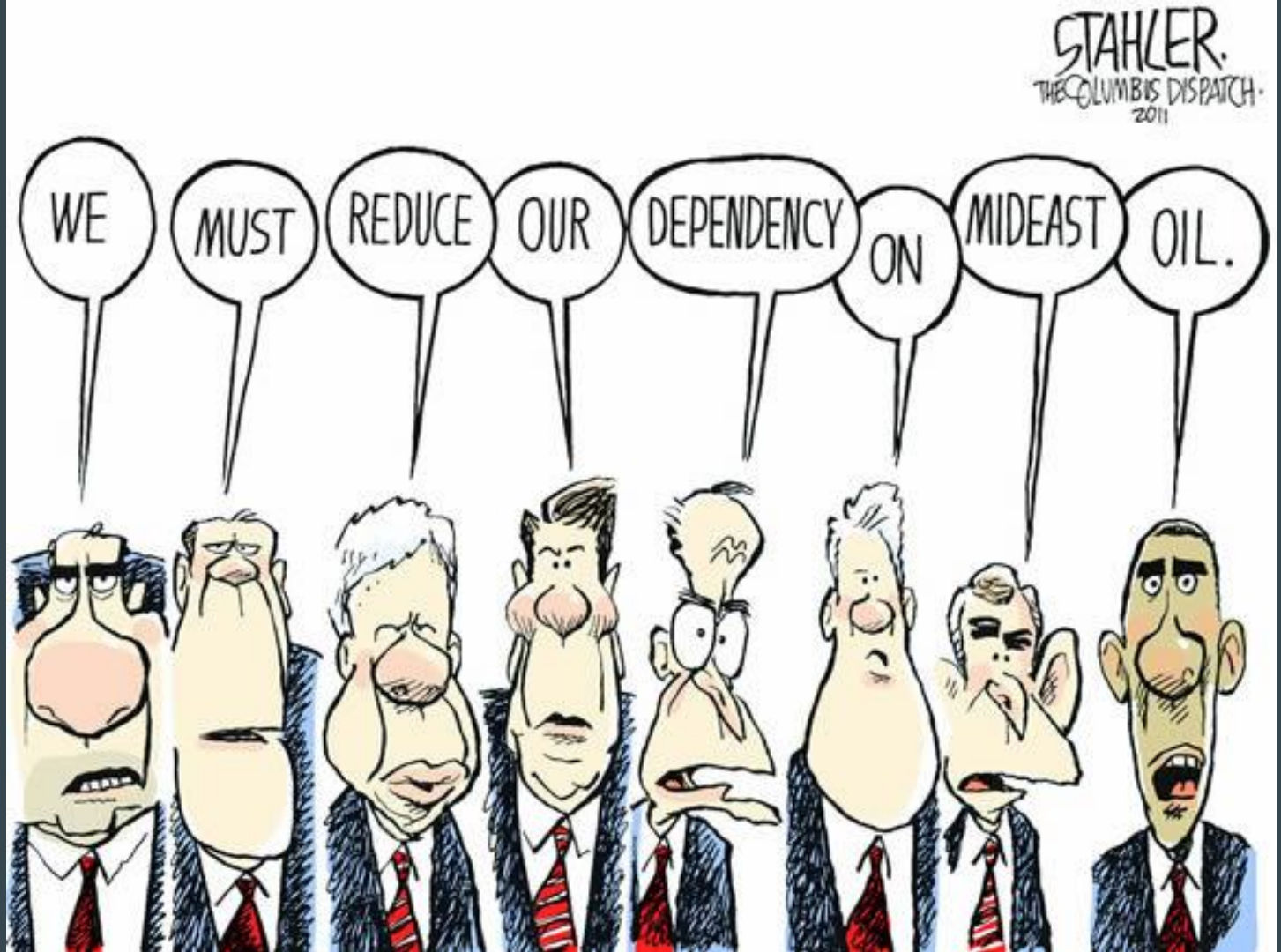
Goal is to cut cost of solar energy supplied by photovoltaic cells 75% by 2020.

As of today, the SunShot initiative has achieved roughly 70% of their goal.

Building on the positives...

Renewable energy is often considered to be an expensive alternative to non-renewables, but as of last year electricity rates remain 5.5% lower than they were in 2009.

As of last year, emissions in the US Power Sector fell to their lowest annual amount in over 20 years!


STAHLER.
THE COLUMBUS DISPATCH
2011
WE
MUST
REDUCE
OUR
DEPENDENCY
ON
MIDEAST
OIL.


OUR MOST IMPORTANT STEP IN TACKLING CLIMATE CHANGE...
OIL
COAL
RENEWABLE ENERGY
PARESH

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