Transform! / Akademia Working Group on Energy WORKSHOP
For a Democratic European Energy Model

April 18- 19 2015 Brussels

New Geopolitical Developments, European Energy Policy and Socio-ecological transformation (selected issues)

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(New) geopolitical factors for energy policy

- Tremendous fall in costs of solar energy (PV) – grid parity achieved!
- Peak oil and peak of most resources

  development of oil prices and strategies behind it
- emerging of BRICS and global south
- "new silk road": a new shaping of Eurasia
- dramatic changes in the Arab world
- sanctions policy towards Russia and tensions around Ukraine
- climate change policy – voluntary commitments

Forecasts for prices of fossil and renewable energy

- Oil prices volatile - trivial
- Probable strategies behind lowering of oil prices by Saudis require about current level of oil price FOR SOME YEARS otherwise strategies cannot (partly) succeed
- But unpredictable developments possible in many oil countries from Iran, Saudi-Arabia, Irak, Lybia, Nigeria, Venezuela…)
- In the longer run increasing because of peak oil
- Unlike oil, the price of renewables is predictable and always going down

Do not overestimate negative effects of lower prices of fossil energy

- Because of break-through in costs of renewable energies – in the range of competitiveness
- Will limit investments in fossil fuels with very negative effects (deep sea drilling, Arctic, tar sands, fracking…)
- Sun does hardly compete with Oil - Oil mainly is for cars; PV is for electricity.

Break-through in cost of renewable energies

PV now 20 % in the last 10 years

- Without fundamental new technologies, but by scale and learning effects

Open issues: grid integration, storage

Fossil mobility?

Nuclear energy- also economically hardly competitive; if costs of waste storage included➔ completly out

Currently also cost revolutions at storage of solar energy

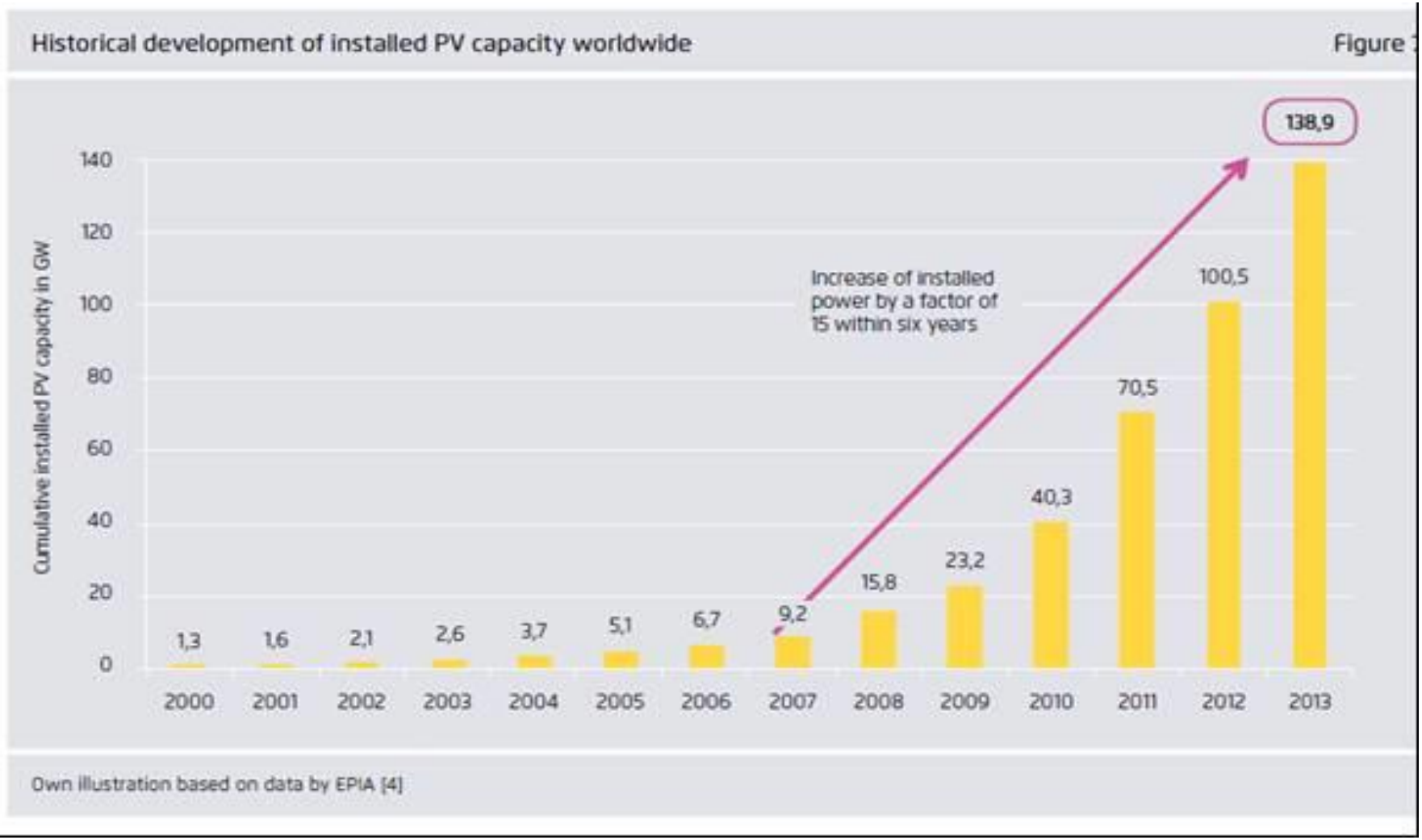
Photovoltaics is achieving grid parity!!

Grid parity := the point at which the cost of photovoltaic electricity is equal to or cheaper than the price of grid power; dependent of concrete circumstances

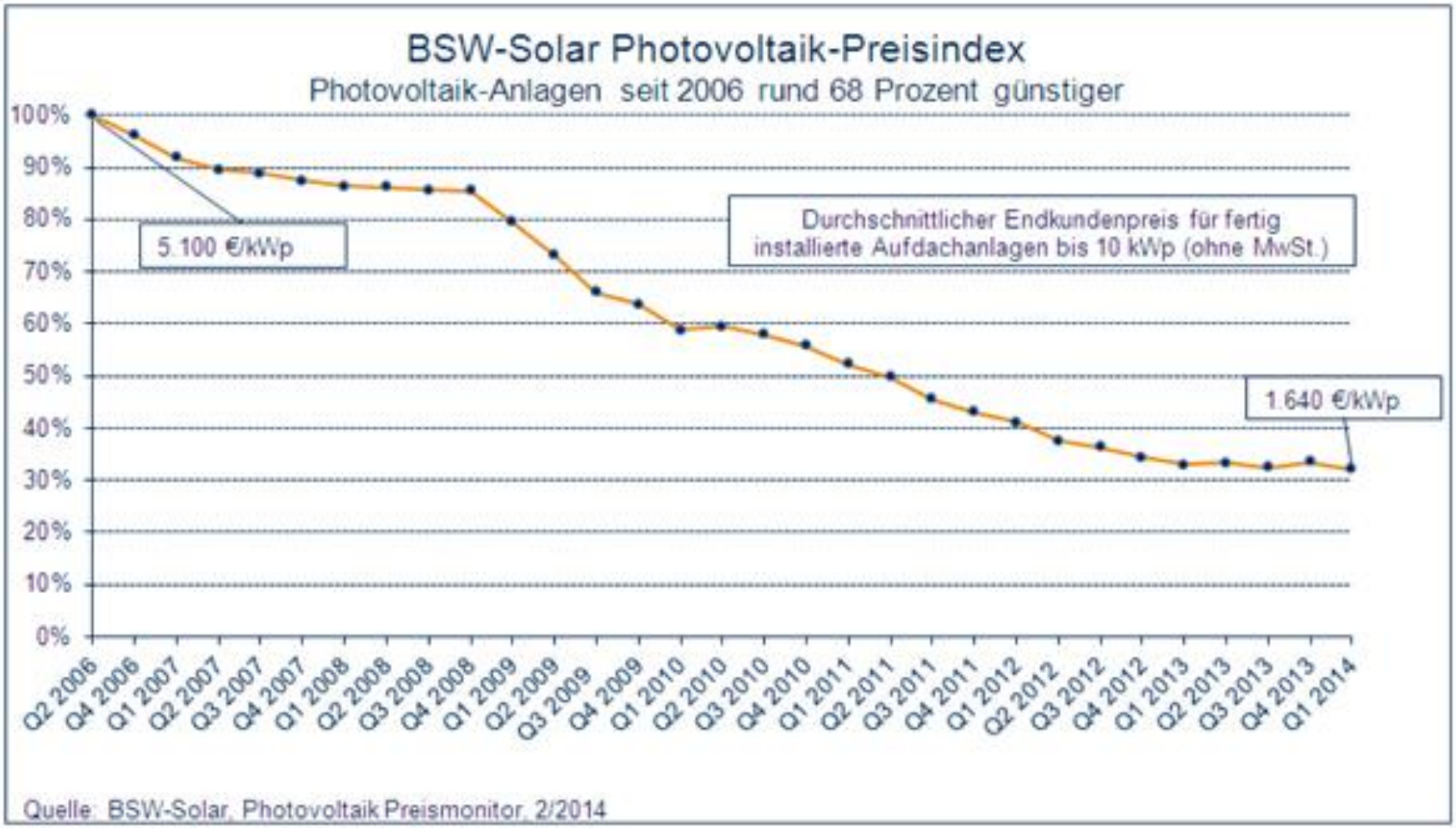
(Somehow surprising) cost development in solar energy - photovoltaics over the last decade

Global modul price since 2007: *minus 80 %!!!!!*

20 % of the level of 2007



Fraunhofer-Institute for Solar Energy Systems (ISE)(Feb 2015): Current and Future Cost of Photovoltaics. P. 19



Significant drop of prices 2008-2010, reaction to chinese anti-crisis programme

"**Solar photovoltaics is already today a low-cost renewable energy** technology.

Cost of power from large scale photovoltaic installations in Germany fell **from over 40 ct/kWh in 2005 to 9 ct/kWh in 2014.** Even lower prices have been reported in sunnier regions of the world, since a major share of cost components is traded on global markets.

Solar power will soon be the cheapest form of electricity in many regions of the world.

Even in conservative scenarios and assuming no major technological breakthroughs, an end to cost reduction is not in sight. Depending on annual sunshine, power cost of 4-6 ct/kWh are expected by 2025, reaching 2-4 ct/kWh by 2050 (conservative estimate)".

Fraunhofer-Institute for Solar Energy Systems (ISE)(Feb 2015): Current and Future Cost of Photovoltaics. P. 1 (Accentuation J.B.)

"**Financial and regulatory environments will be key** to reducing cost in the future.

Cost of hardware sourced from global markets will decrease irrespective of local conditions. However, inadequate regulatory regimes may increase cost of power by up to 50 percent through higher cost of finance. This may even overcompensate the effect of better local solar resources.

Most scenarios fundamentally underestimate the role of solar power in future energy systems.

Based on outdated cost estimates, most scenarios modeling future domestic, regional or global power systems foresee only a small contribution of solar power. The results of our analysis indicate that a fundamental review of cost-optimal power system pathways is necessary".

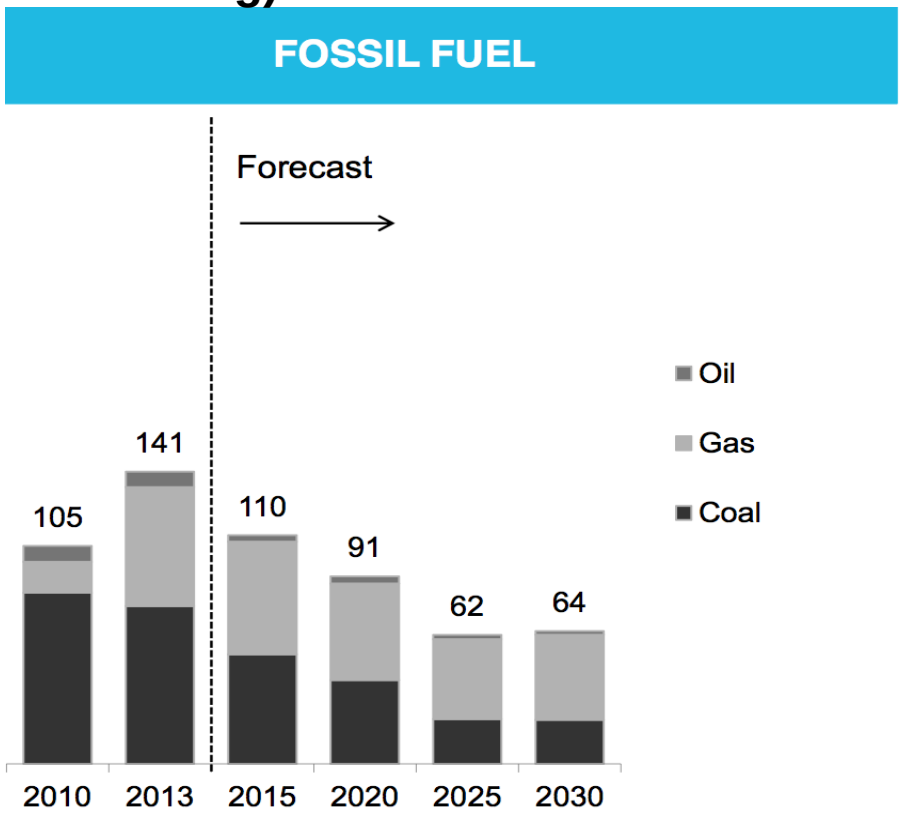
Fraunhofer-Institute for Solar Energy Systems (ISE)(Feb 2015): Current and Future Cost of Photovoltaics. P. 1 (Accentuation J.B.)

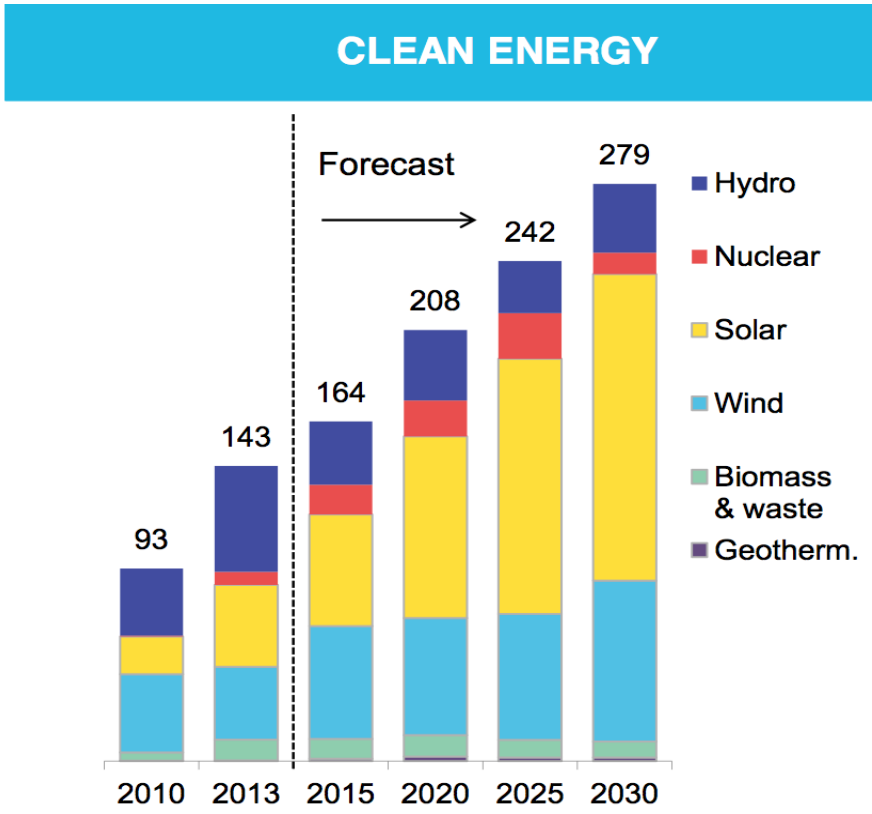
The Beginning of the End of Fossil Fuel:

Power generation capacity additions (GW)

Solar (PV) makes up less than 1 % of electricity today but will be the biggest single source by 2050, according to the Intern. Energy Agency.

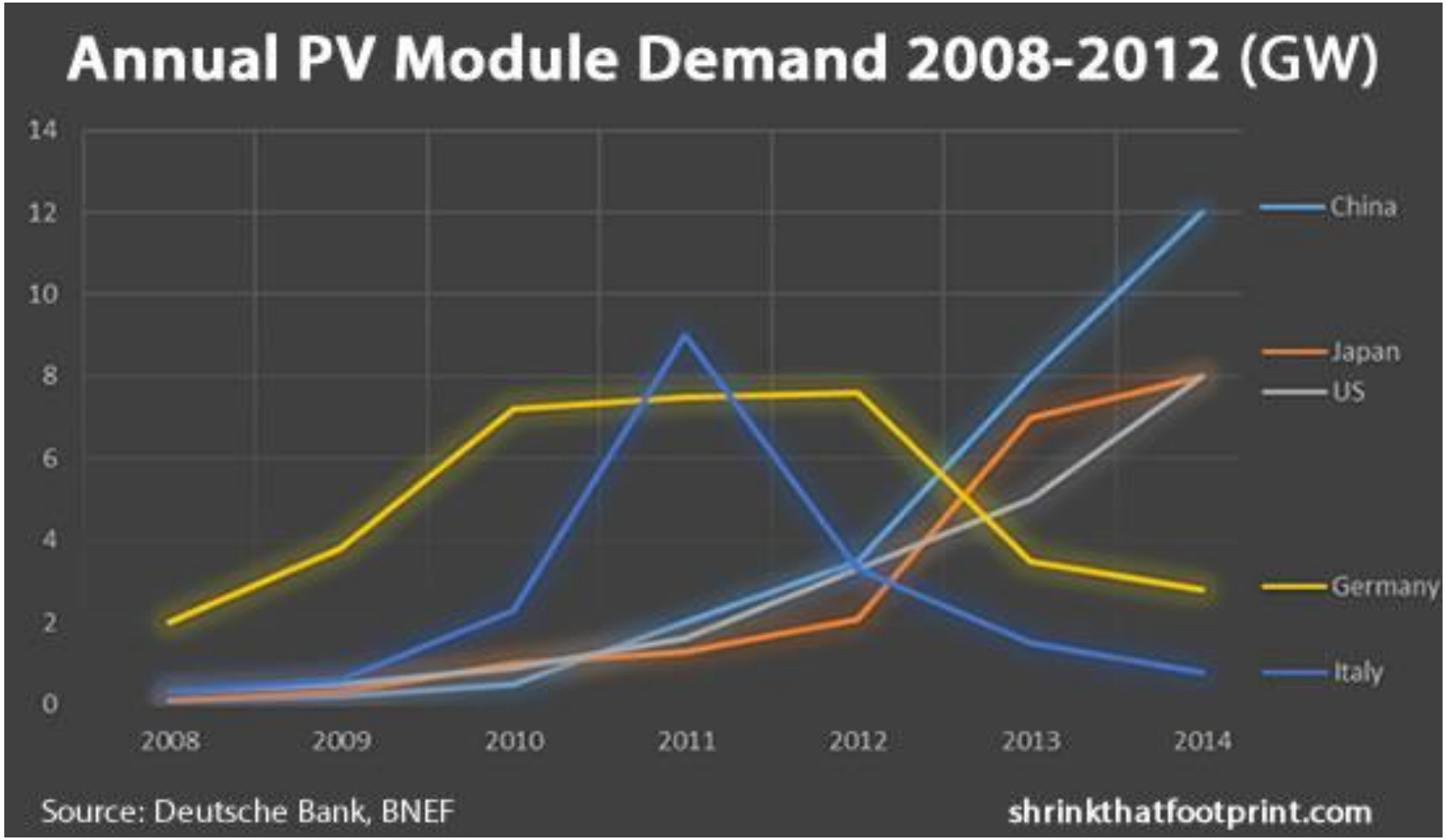
Global investment in clean energy is increasing (in fossil energy decreasing)





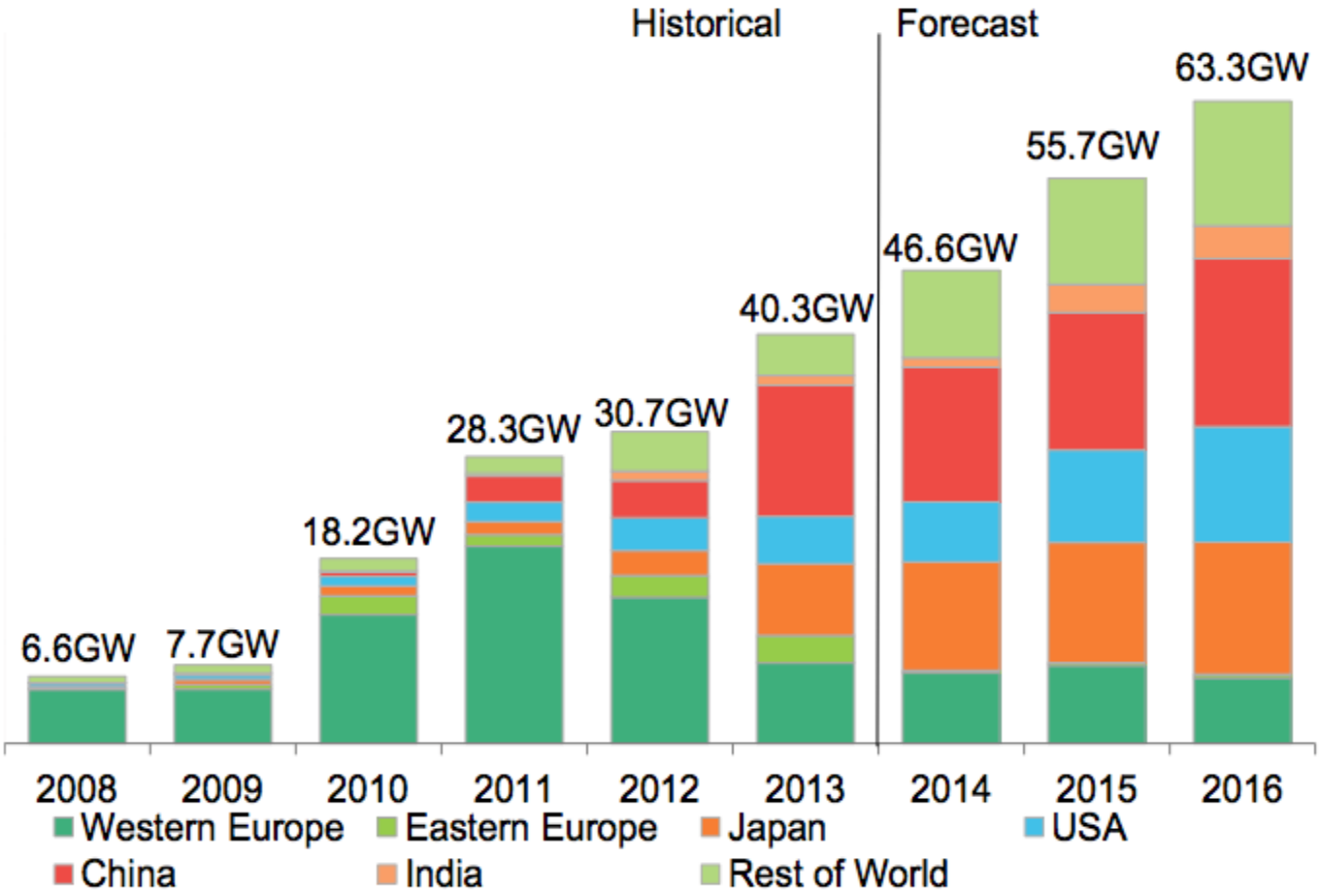
Bloomberg New Energy Finance, 2015

Europe is tremendously loosing global shares in renewable energy



http://cleantechnica.com/2014/05/16/europe/

Europe is tremendously loosing global shares in renewable energy - capacity additions in clean Energy



Source: Bloomberg New Energy Finance
("clean energy" including nuclear)
(Forecasts for US, Japan ?)
/

USA

- Unconventional fossil resources impede US to come out of **fossil lock-in**; will impede higher energy efficiency and impede innovation generally.
- **Higher energy prices in EU** should/will be **incentives** for EU-industry to invest in energy efficiency, so to **innovate**, come to new technology und **have lower energy bills not by lower energy prieces but by lower quantities of energy** by better energy efficiency

Russia

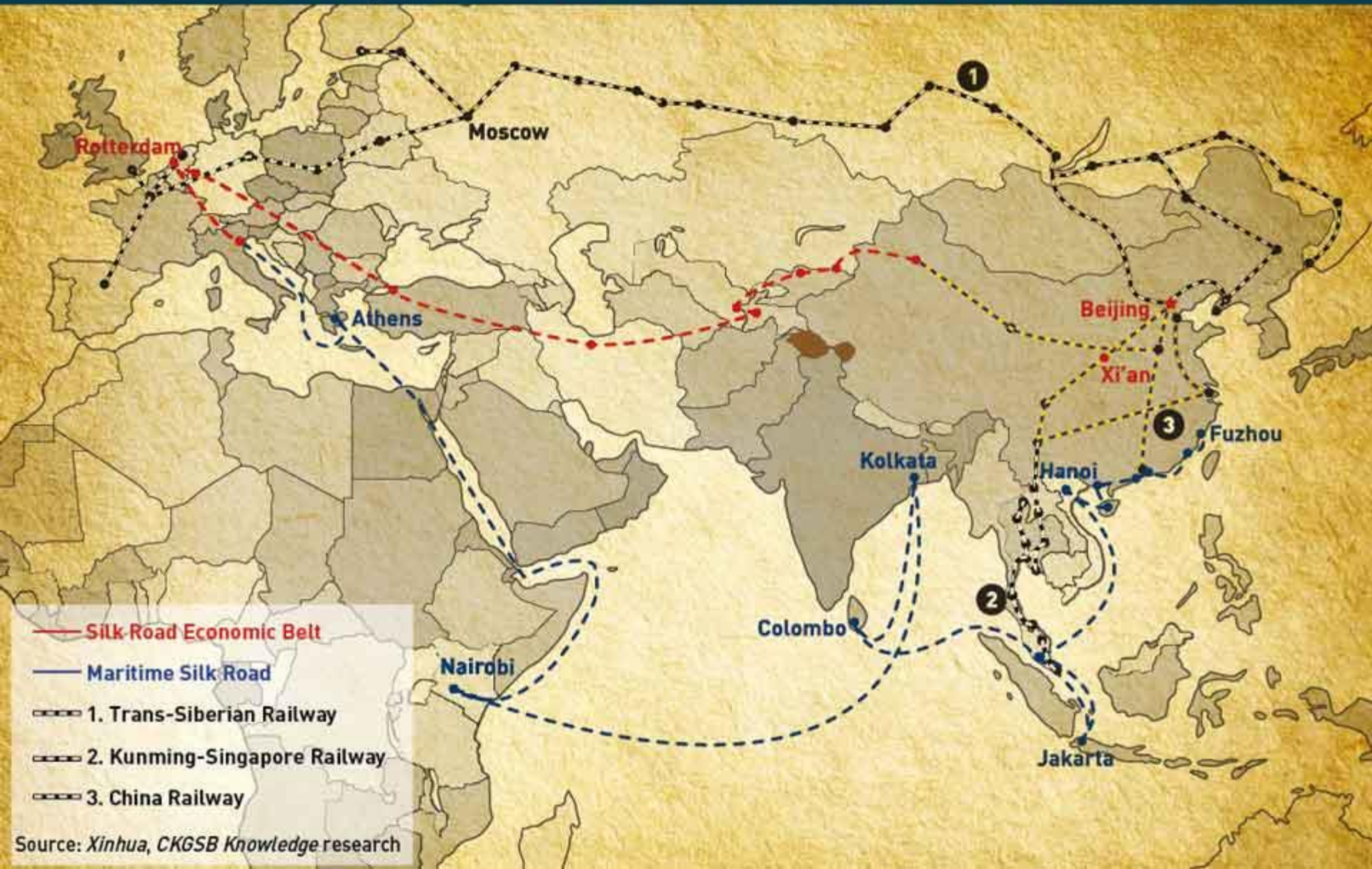
- Russia: „**curse of resources**“
- Stuck in fossil resources and technologies
- Embargo is also real chance for diversification
- Russia-EU: current mutual dependences for longer time, but both want do diversify
- Russia-China: highest intensity of cooperation since more than 50 years; complemenarity

„New silk road“= reshaping Eurasia

- *„Connectivity“ !*
- *Infrastructure: railways, highways, ports, air traffic, power grid, pipelines*
- *„New economic belt“*
- *Transport, energy, resources*
- “more capital convergence and currency integration”
- AIIB

Old Name, New Routes

The transport infrastructure that forms the New Silk Road initiative



Source: *Xinhua*, *CKGSB Knowledge* research

Fossil-fuel subsidies outpace renewable-energy subsidies by a factor 6:1

(Bloomberg, IEA- World Energy Outlook 2011)

State spending to cut retail prices of gasoline, coal and natural gas rose 36 percent to $409 billion as global energy costs increased. Aid for biofuels, wind power and solar energy, rose 10 percent to $66 billion.

- G-20 nations spent $160 billion supporting the production and consumption of fossil fuels last year, led by Saudi Arabia's outlay of $44 billion. Iran spent the most overall, shelling out $81 billion to support fuel sales.
- The OECD estimated its member countries gave oil, coal and natural gas producers between $45 billion and $75 billion a year in support for production from 2005 through 2010.

http://www.bloomberg.com/news/articles/2011-11-09/fossil-fuels-got-more-aid-than-clean-energy-iea

Fossil-fuel subsidies outpace renewable-energy subsidies by a factor 6:1

(IEA, Bloomberg)

While governments argue that fossil fuel subsidies are designed to help the poorest members of society, they generally fail to meet that goal, the IEA said. Just 8 percent of aid reached the poorest 20 percent of each country's population

"Social welfare programs are a more effective and less distortionary way of helping the poor than energy subsidies."

In the last months: India and Indonesia have used the oil price drop to cut gasoline subsidies.

Some countries that include China have pocketed the savings from cheaper oil by increasing gasoline taxes to make up the difference.

http://www.bloomberg.com/news/articles/2011-11-09/fossil-fuels-got-more-aid-than-clean-energy-iea

Energy as central factor for poltical economy and political ecology

- **Energy connects climate change via emissions of CO2 of fossil energy**
- **Energy has been decisive for productivity of labour**

➔**Energy** issues can be seen as pivot:

E.g. ***food prices are highly correlated to energy prices****, because in food there is incorporated much fossil fuel*

“Energy union”- proposals for the EU energy policy concentrating on

- "markets" (but oligopolies in reality)
- power policy.
- fossil lock-in

Alternatives focussing on

- renewable energy
- energy efficiency
- energy democracy – democratic control
- cutting all fossil (and nuclear) subsidies
- improved cooperation with neighbour regions

Sir Stern (Stern Report, updates currently): **a new strong narrative of capitalism**

- very **realistic analysis** of BAU (business as usual) in climate change scenarios – good rationale for massive and quick actions
- Climate change is "**biggest market failure**" in history
- But only capitalism has the creative potential to handle the challenges (Schumpeter!?) – stressing current developments in PV-industry

But what about

the **rebound effect** (more energy efficiency but also more demand to energy) because of capital accumulation implications?

Lock- in in fossil technologies because strong oligopolies can prevent devaluation of capital invested in fossil technologies

(Shifting to**) short term** rents and profits (determined also by the financial sector)

Lacking compass: No or small integration of social and environmental costs in prices

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Could not be overestimated in its significance for mankind

but obviously the dominating forces do not want a binding treaty like KYOTO

but the aggreement unfortunately will be the sum of voluntary goals without a relevant distribution setting which would be required to come to efficient mitigation

This would a setback behind Rio 1992 and Rio 2012, where the principle of "common but differentiated responsibilty" (CBDR) was acknowledged

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But there are signs that such regression could be avoided by pressure of people's movement

One sign:

Pope Francis is preparing a **papal encyclical** on climate change

Basics of climate policy

2°C target Copenhagen accord

because of irreversibility and uncontrollable implications when > **2°C**

➔**<u>fixed</u>** volume of remaining GHG emissions

How to allocate this volume of remaining GHG emissions? =Which distribution among countries and persons?

Missing link of climate policy

2°C target Copenhagen accord

+

CBDR (Rio 1992 and Rio+20)

basic distribution principle

but which concrete implementation? :=**X**

The equation for the missing link of climate policy

2°C target Copenhagen accord

+

CBDR (Rio 1992 and Rio+20)

+

x = **climate stabilization**

Shortly:

2°C target + CBDR + X=climate stabilization

The missing link of climate policy:
Equal rights

2°C target Copenhagen accord

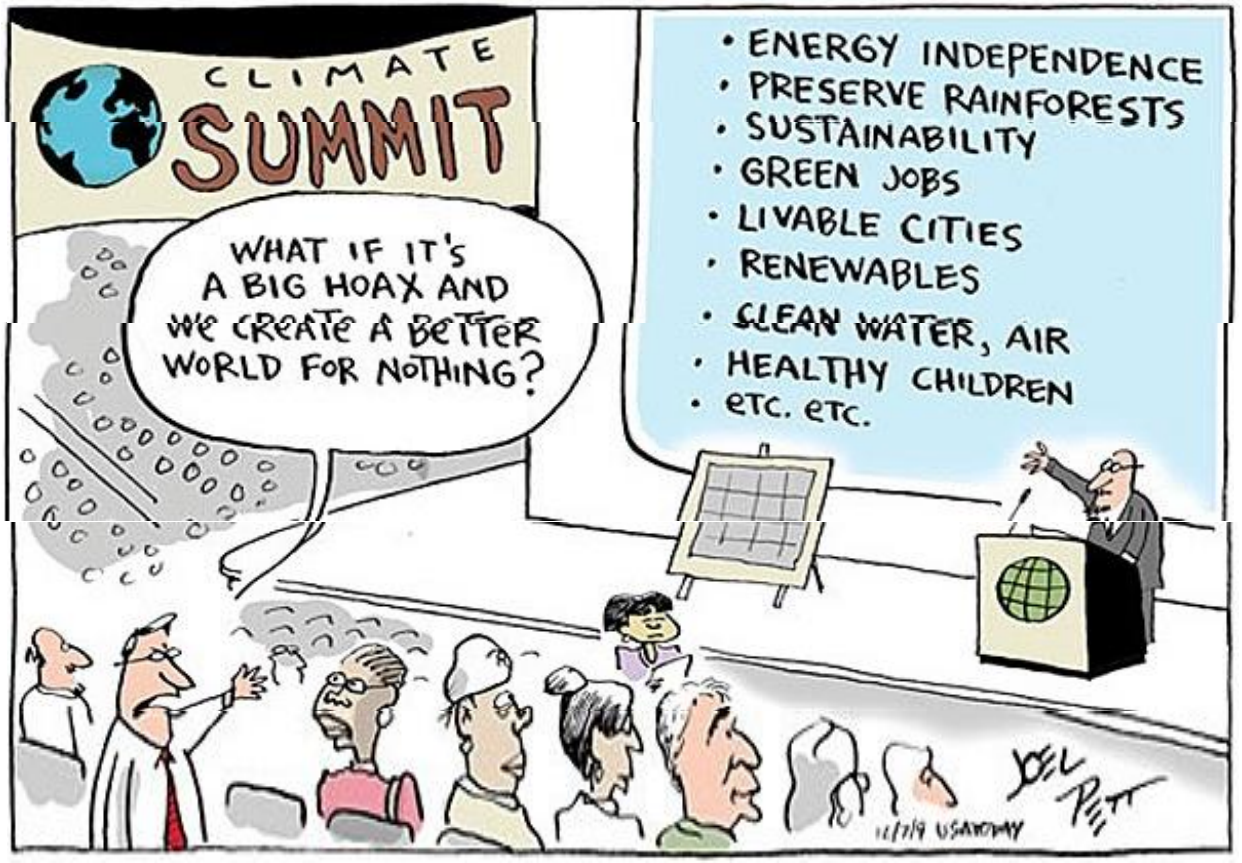
+

CBDR (Rio 1992 and Rio+20)

+

Equal rights

=climate stabilization


CLIMATE
SUMMIT
WHAT IF IT'S A BIG HOAX AND WE CREATE A BETTER WORLD FOR NOTHING?
• ENERGY INDEPENDENCE
• PRESERVE RAINFORESTS
• SUSTAINABILITY
• GREEN JOBS
• LIVABLE CITIES
• RENEWABLES
• CLEAN WATER, AIR
• HEALTHY CHILDREN
• ETC. ETC.
JOEL PETT
12/7/19 USATODAY