CAPITAN AMERICA

Centre for Science and Environment
Presentation based on report assessing US climate action plan
Download report from: cseindia.org and downtoearth.org.in

Climate change threat is real

- And the need for action is urgent
- South Asia hit by weather changes that are leading to our seasons to despair
- World needs effective, ambitious and equitable actions to combat climate change
- This is the agenda for Paris and beyond
- The question we are asking: is the world doing enough?

Why US?

- The US is largest historical polluter; 2nd largest emitter annually; has very high per capita CO2
- After years of climate-denial it has signaled that it is ready to take action
- It is said even if US INDC is not ambitious, it puts the country on track to long-term emission reductions
- The question is: is this really the case? If so, it heralds new hope; allows for emulation; will build new cooperation in climate agreement
- But if not. Then it is bad news. **Really bad**

US INDC: Fair & Lovely?

- US INDC says:
- An economy-wide GHG reduction target of 26-28% below 2005 levels by 2025. Will "*make best efforts to reduce emissions by 28 per cent*"
- Says "the target is fair and ambitious"
- GHG reduction target on 2005 base year and includes emissions sequestered by forests and land

US INDC: Ratcheted up?

- Under 2010 Cancun agreement, US roadmap for emissions reduction was: 17% below 2005 level by 2020; **30% by 2025** and 42% by 2030
- Now INDC talks about reducing by 26-28% by 2025 - **even lower than the weak Cancun pledge**
- **In 5 years, the US has not "ratcheted-up" its ambition; its has reduced it**
- **It is now proposing a bottom-up-voluntary-INDCs based on "ratcheting-up" formula. After Paris, there will be review and countries will 'up' their commitments**

US INDC: Ambitious?

- On 1990 baseline, the US will cut emissions by a mere 13-15% by 2025 and 23-27% by 2030.
- EU-28 will reduce 40% below 1990 levels by 2030.
- Vis-a-vis 1990, the US will cut annual emissions by 1,400-1,650 million metric tonnes CO2 equivalent (MMTCO2e) by 2030. In comparison, the EU-28 will reduce their annual emissions by 2,250 MMTCO2e by 2030.
- In 2030, US per capita emissions will be 12.5-13.0 tonnes; EU-28 will be 6.5 tonnes.
- **Ambitious? Not by a long shot.**

US INDC: Masking pollution

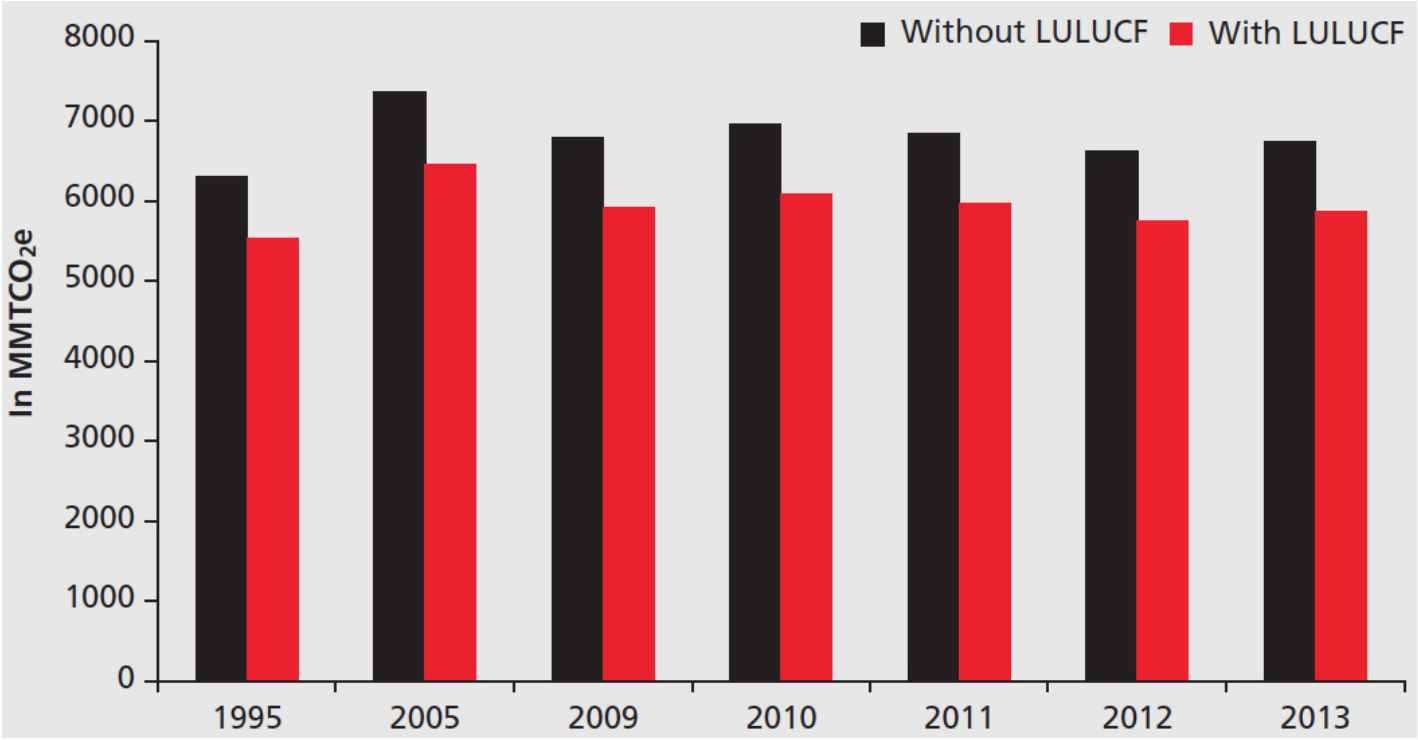
Mask 1: 2005 base year and not 1990

- Cleverly used 2005 as base year because 1990-2005, it allowed emissions to grow, whereas as per Kyoto Protocol it should have cut.
- If the US had reduced emissions 26-28% below 1990 (and not 2005) levels by 2025, it would have to cut emissions in 2030 by an additional 500 MMTCO2e
- So by changing the base year, it will emit ***4700 MMTCO2e instead of 4200 MMTCO2e by 2030***

US INDC: Masking pollution

Mask 2: Hiding behind forests

- About 14% of US emissions is sequestered by forests – roughly 900 MMTCO2e



US INDC: Forest mask

- In 2005, the US emitted 7,350 MMTCO2e of GHG, but by including carbon sinks of about 900 MMTCO2e in forests, it has reduced its net GHG emissions to 6,438 MMTCO2e
- If US had agreed to reduce its emissions by 26-28% excluding LULUCF, it would have had to cut 250 MMTCO2e more GHG in 2025.
- **By changing base year and including LULUCF, the US will emit 750 MMTCO2e more in 2030.**
- **Ambitious or creative accounting?**

US INDC: Fair? Equitable?

IPCC AR5 carbon budget: 2,900 billion tonnes of CO2 from all sources, from the dawn of the Industrial Revolution till 2100, to stay below 2°C warming.

- Emissions 1850-2011: 1,900 billion tonnes
- Remaining budget 2012-2100: 1,000 billion tonnes

Misappropriating Carbon budget – *5% population 17% cumulative emissions*

Total carbon dioxide budget (Gt)	US emitted up to 2011 (Gt)	US will emit by 2025 (Gt)	Total between 1850-2025 (Gt)	% of world's total carbon budget by 2025
2900	411	80	491	17.25

US Climate Action: Beginning to change?

So, the US is not ambitious. Its INDC is not equitable

Still, we ask:

1. Does the submission herald the beginning of the change the world is so desperately seeking from the US?
2. Is the US putting in places policies to move its economy towards low carbon?

Beginning to change?

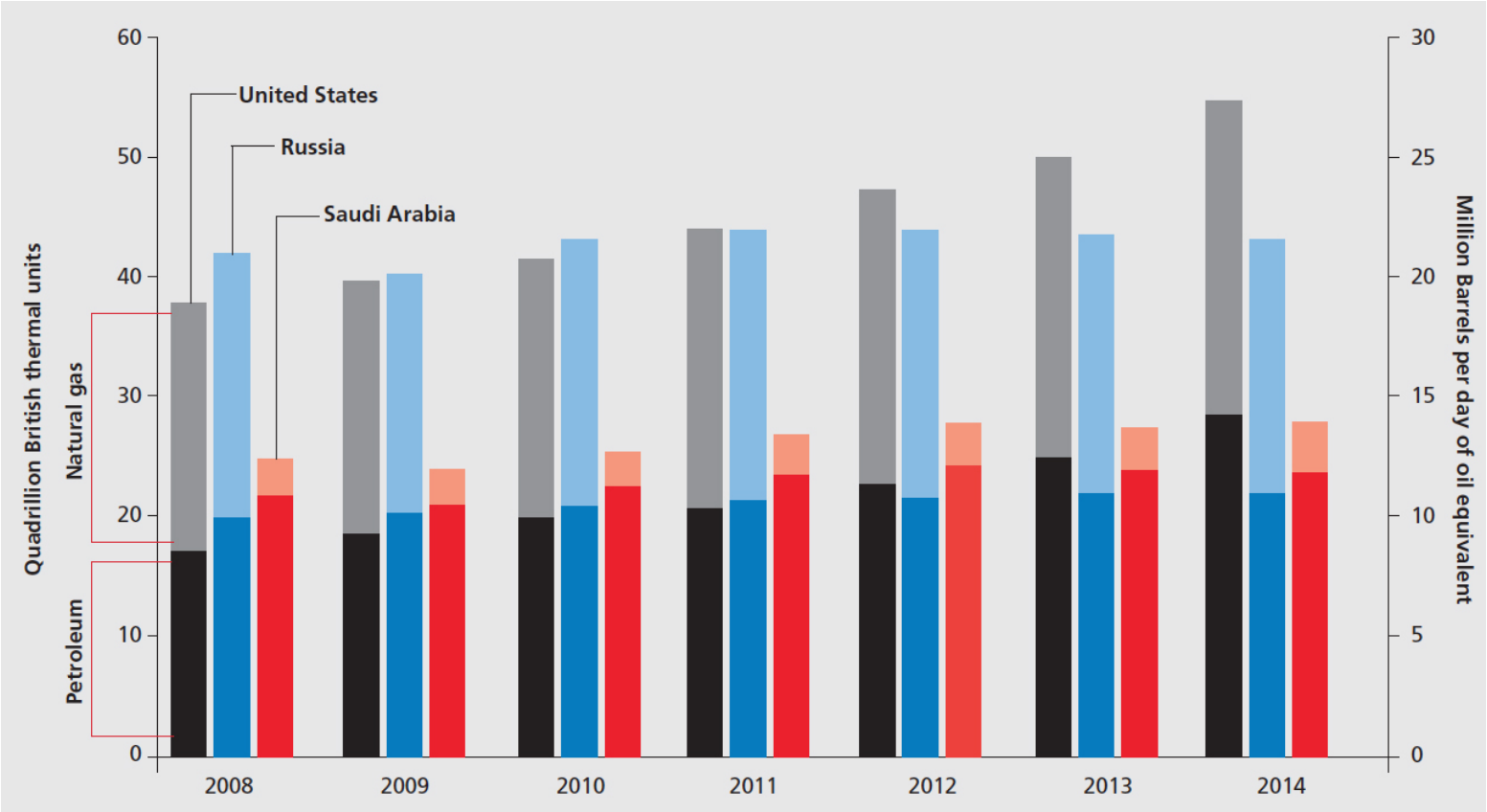
Our conclusion no 1:

All US climate change action plans are business-as-usual. The US economy is not moving towards low-carbon growth

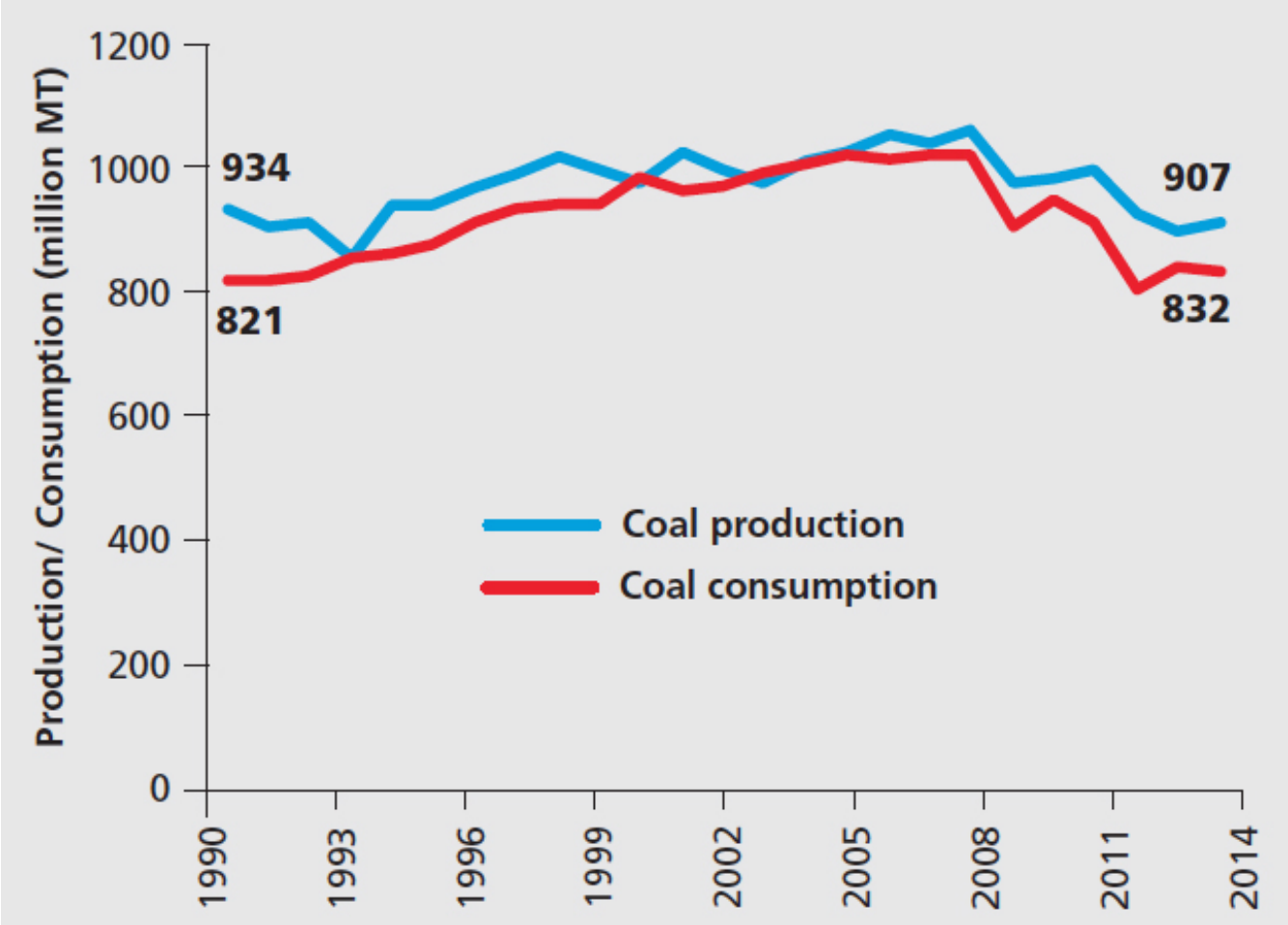
Clean Power Plan. Really

- **Described as historic, most ambitious, path breaking and so on.**
- Projected reduction in emissions from power sector by 32% below 2005 levels by 2030
- Comprises two key elements:
  - Setting specific CO2 emission standards for existing coal- and gas-based power plants; and
  - Converting the above standards into state-specific CO2 goals (rate-based/ mass-based goals) for the entire electricity sector.

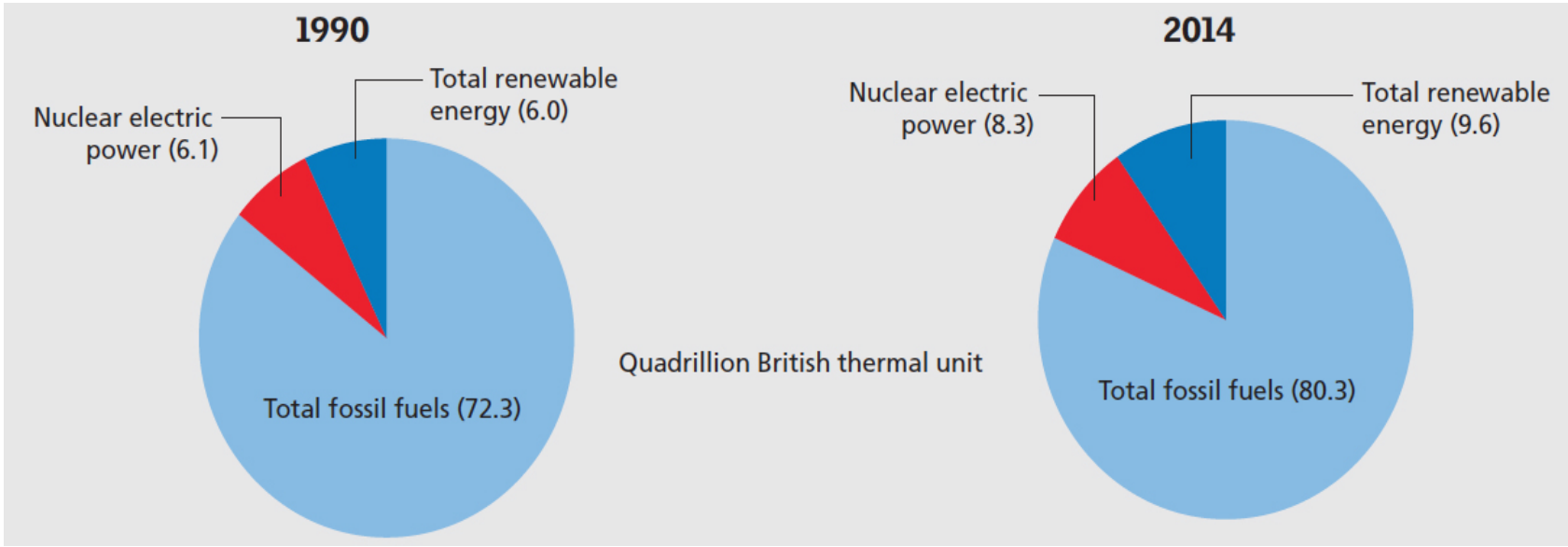
US remains fossil addicted: It now produces more gas than Russia and more oil than Saudi Arabia



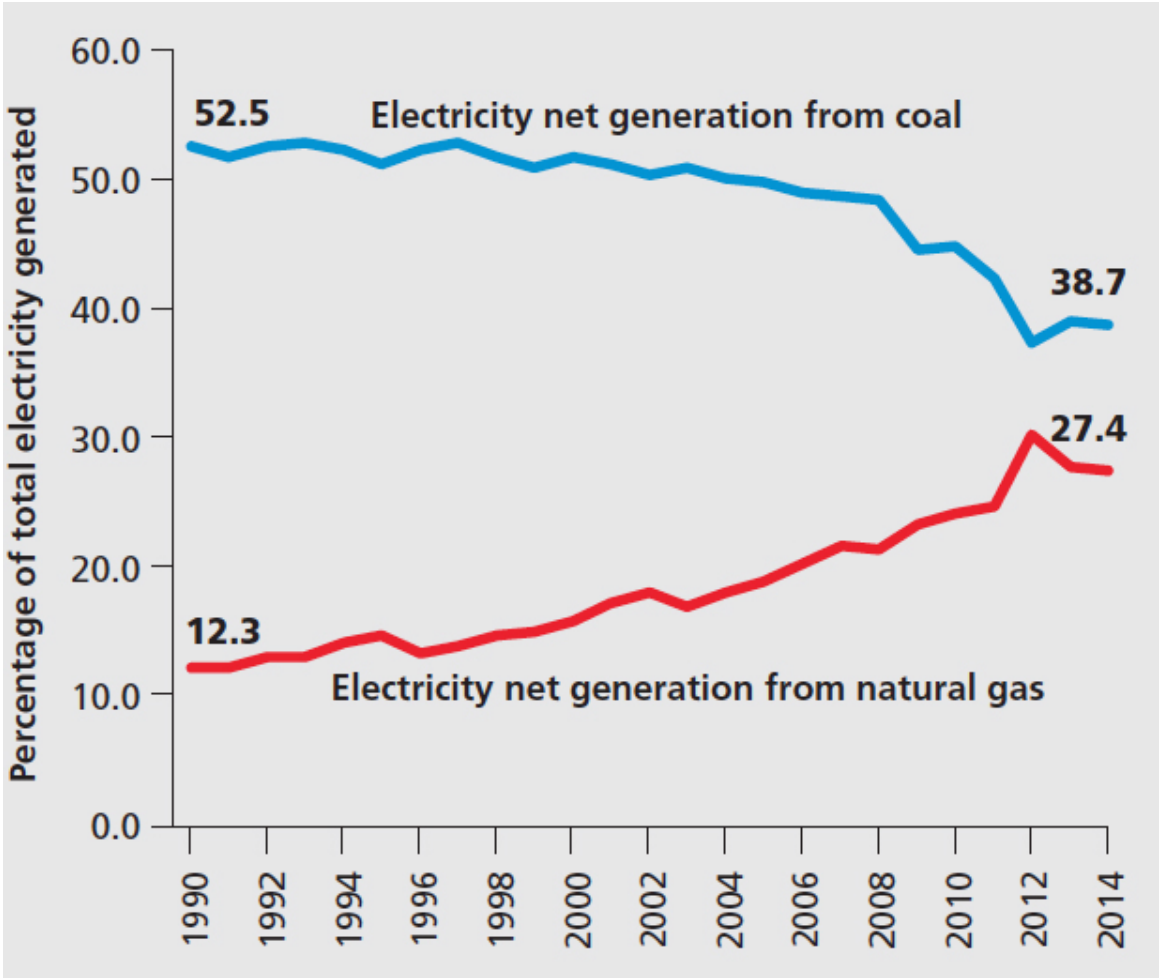
Yes coal use stagnated; but still per capita coal use 5 times higher than India



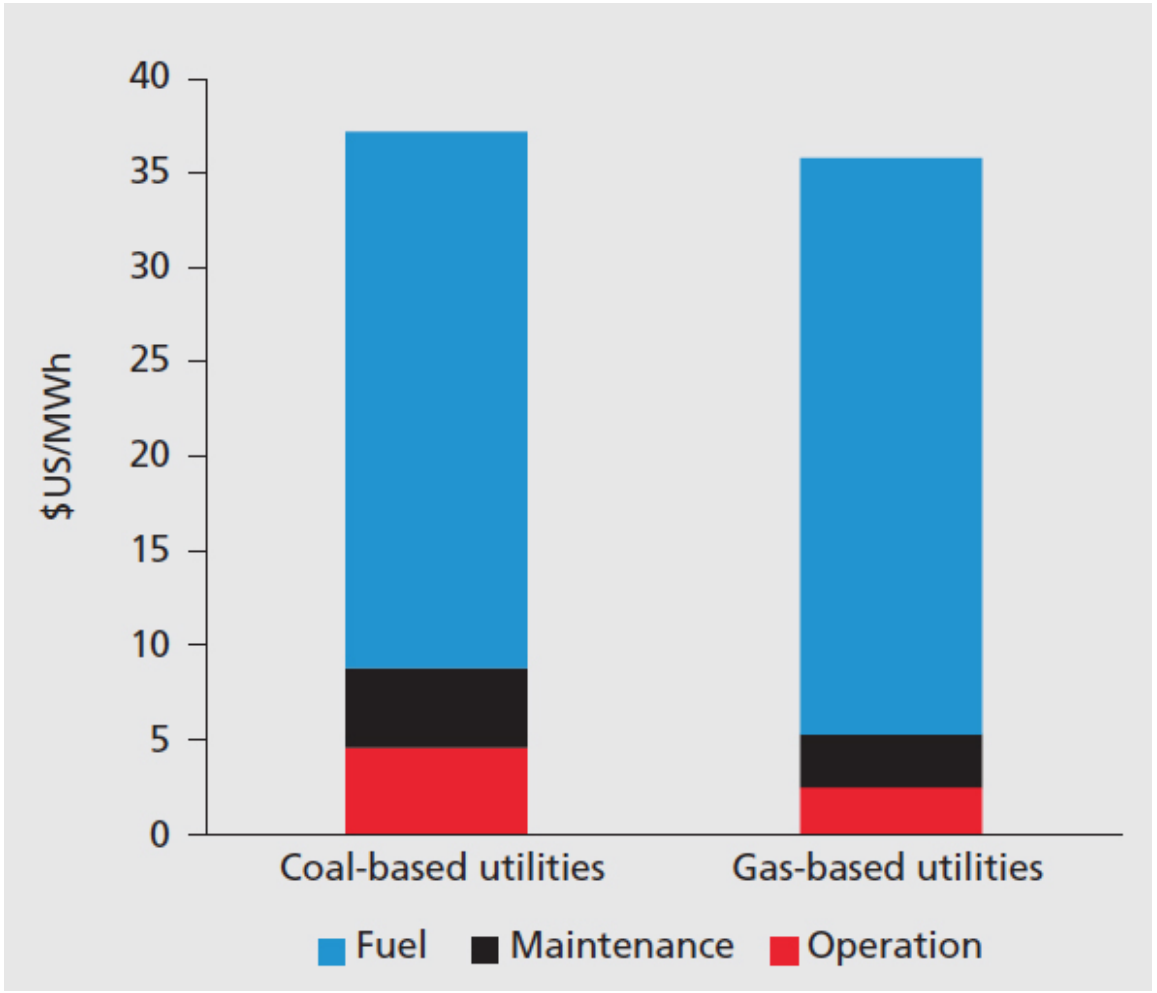
And it consumes more fossil fuels than in 1990; renewables are marginal



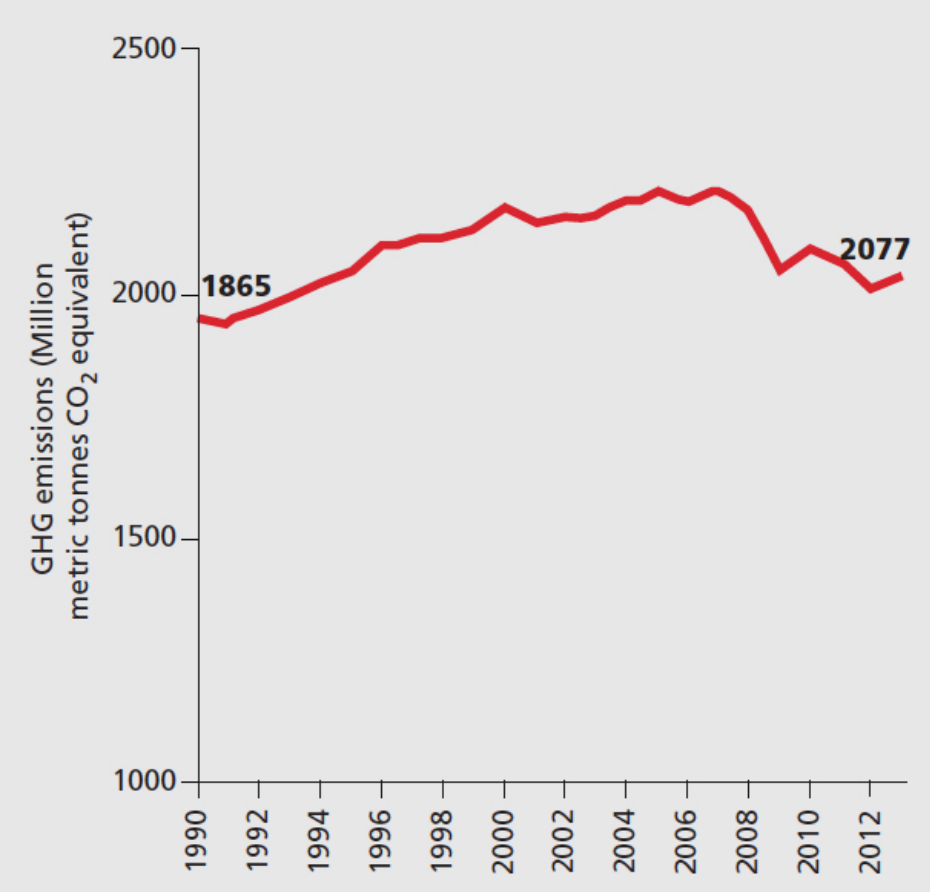
Back to power sector: Fuel switch has happened – coal to gas



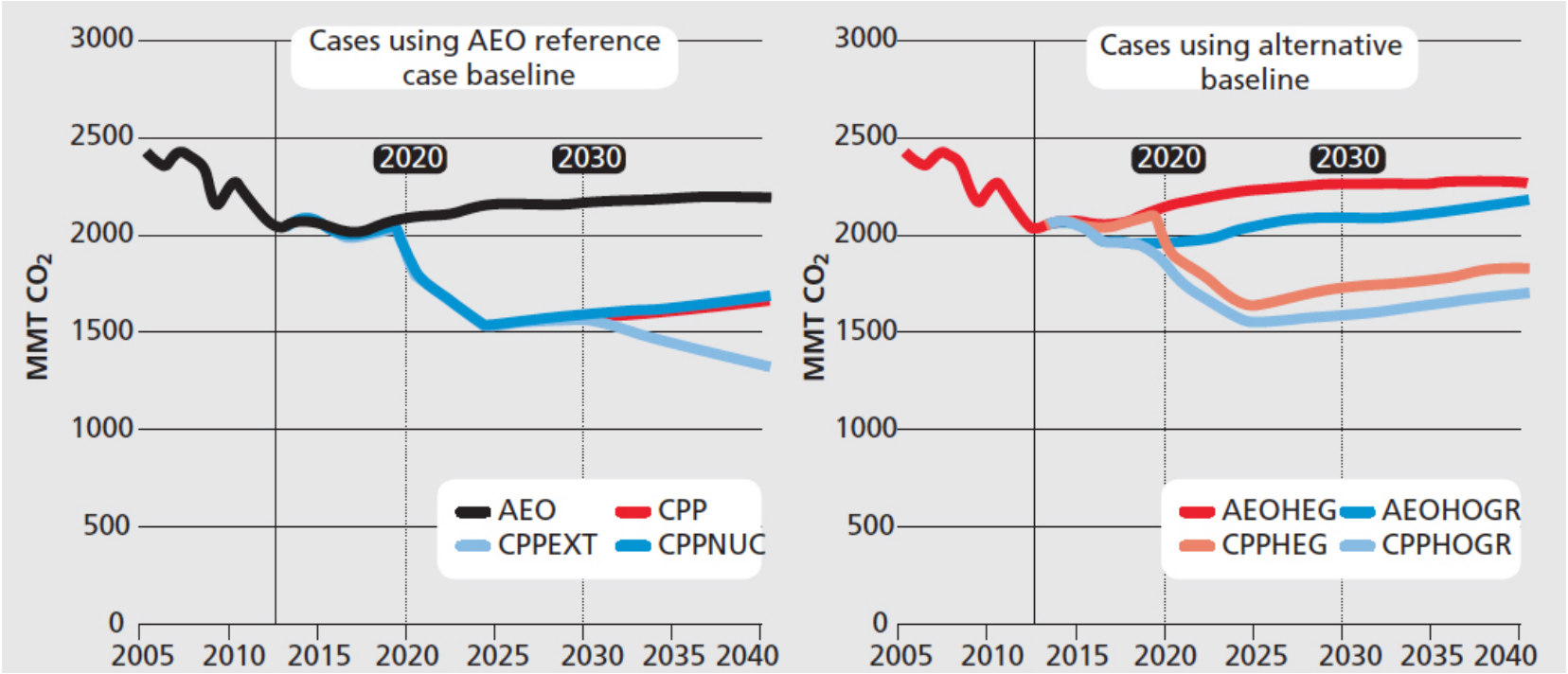
Happened because it is cheaper to operate gas plants (average power plant operating costs)



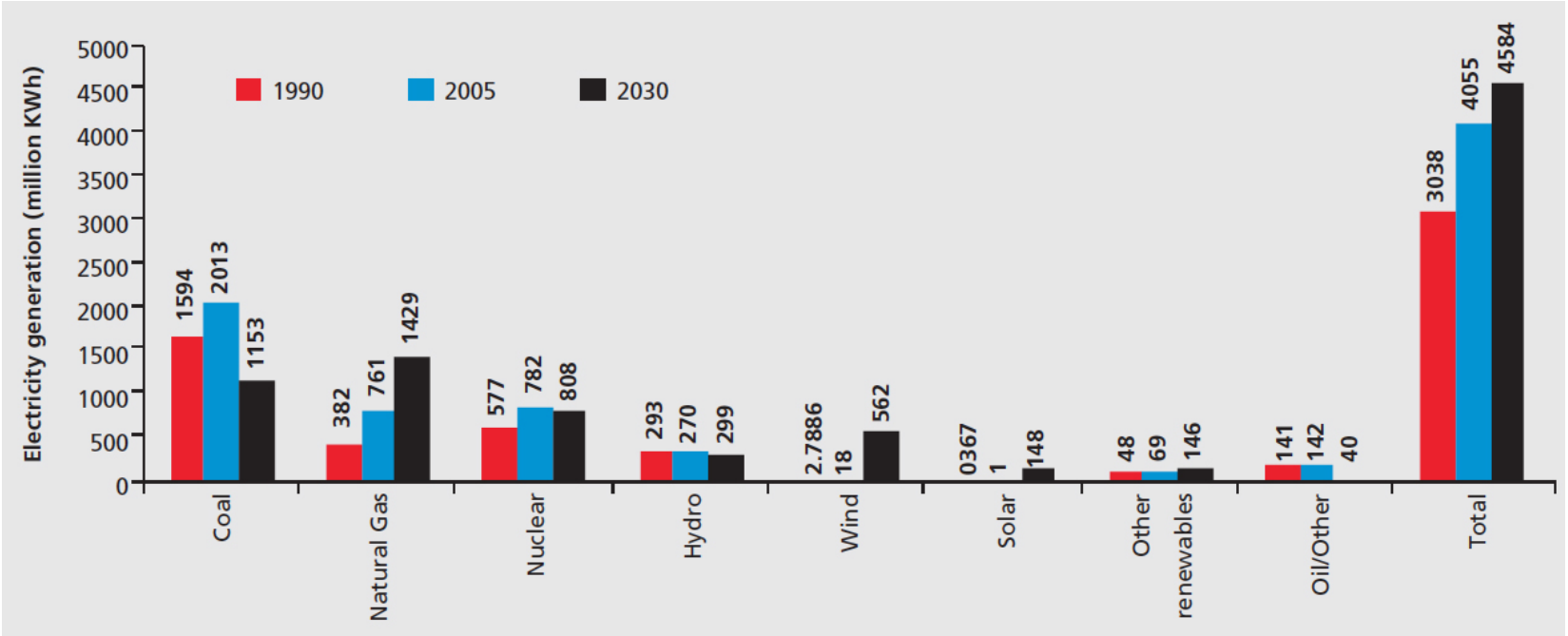
As a result of fuel switch GHG emissions are *15% below 2005 levels by 2014 – 1.8% annual reduction*



Obama Clean Power Plan: GHG emissions reduction will be 34% max by 2030 – *1.6% annual reduction from 2014 to 2030*



CPP: No fossil shift. *60% electricity from fossils in 2030 marginally down from 65% in 1990 & 66% in 2005*



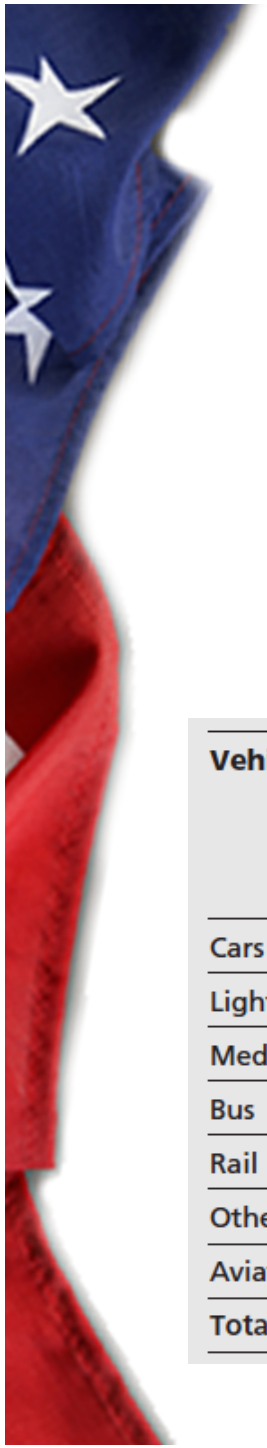
CPP: no change

- In 2030, 78% primary energy from fossil fuels compared to 76% in 2013.
- In 2030, fossil fuel production 20% higher than 2013.
- Renewables 15% in 2030 up from 11% in 2013

	Primary energy production in 2013 (in quadrillion Btu)	Clean power plan scenario: 2030		
		Primary energy production (in quadrillion Btu)	Percentage increase over 2013 (%)	Percentage of the total (%)
Natural Gas	25.1	33.6	34	33
Coal	20	16.6	-17	16
Oil	19.2	26.8	40	26
Nuclear	8.3	8.5	2	8
Renewable	9	14.8	64	15
Other	1.3	0.9	-31	1
Total	**82.7**	**101.2**	**22**	**100**

In part summary

- Clean Power Plan: nothing more than business as usual
- Switch to natural gas from coal happening because it is cheaper to produce and consume
- Will in fact consume more energy and not less by 2030
- Emission reduction in this scenario is predicated on how clean is natural gas. But recent scientific evidence suggests, methane emissions could be much higher in gas
- Switch to natural gas will delay the transition to renewables
- In 2030, US remains fossil fuel addicted. Has cheap energy and so unabated emissions



Take transport: Down marginally from 2005 but no control on cars *Emissions increasing by 1% per year*

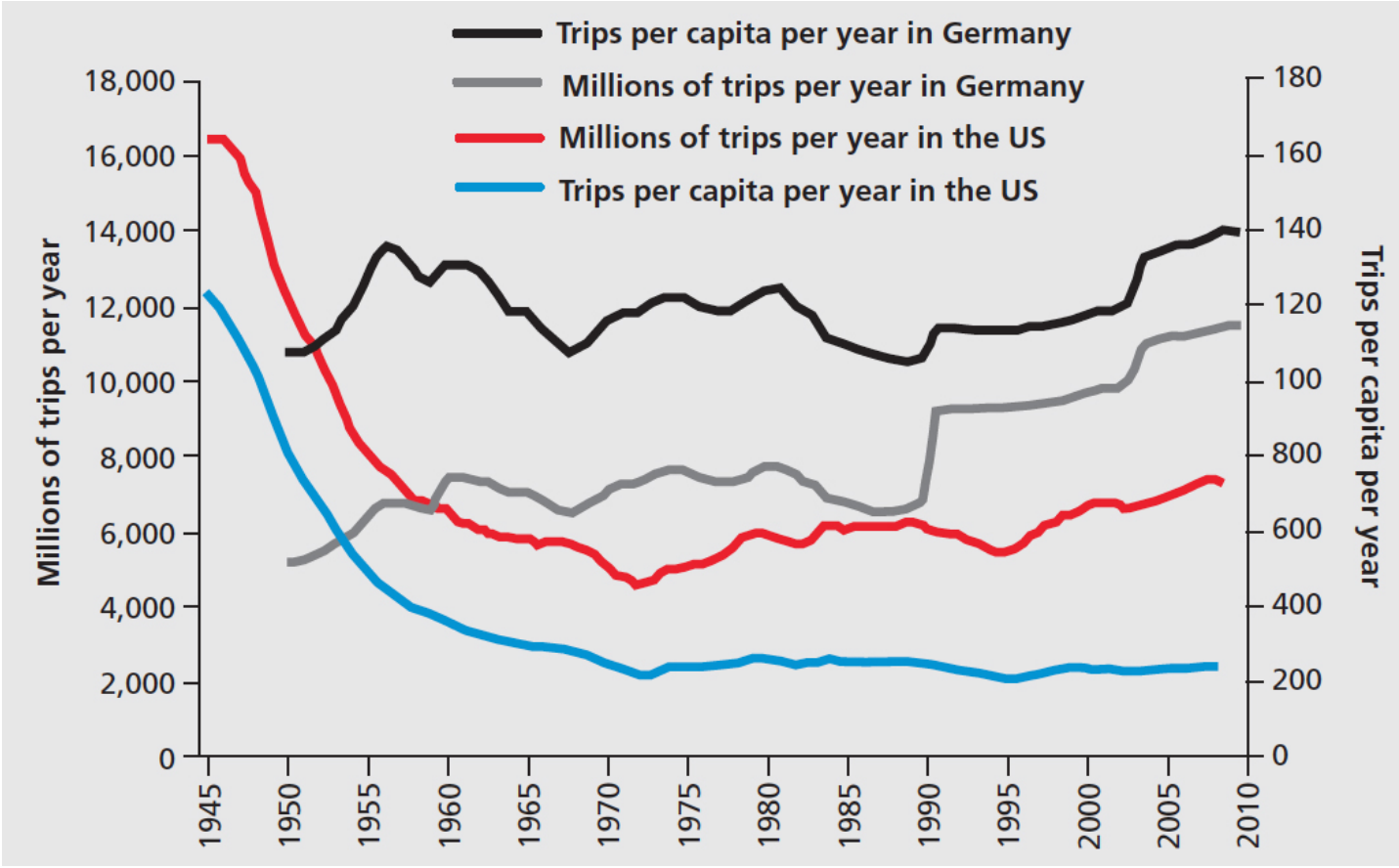
Vehicle type	1990	2005	2009	2010	2011	2012	2013	Annual change between 2005-2013	% of contribution to total emissions
Cars	656.7	711.2	792.9	783.6	774.3	768	763.3	0.89	42
Light duty trucks	335.6	553.3	351.6	349	332.1	326.2	323.4	-6.49	18
Medium and heavy trucks	231.1	409.8	389.6	403	401.3	401.4	407.7	-0.60	23
Bus	8.4	12.1	16.2	15.9	16.9	18	18.3	5.31	1
Rail	39	53.3	43.7	46.5	48.1	46.8	47.5	-1.43	3
Others*	94.5	89.3	88.3	95.3	97.1	93.2	100.1	1.44	6
Aviation	189.2	193.5	157.4	154.7	149.8	146.4	150.1	-3.12	8
Total	1554.5	2022.5	1839.7	1848	1819.6	1800	1810.4	1.4	100

Transport: Highest car ownership & increasing; 86% travel by cars

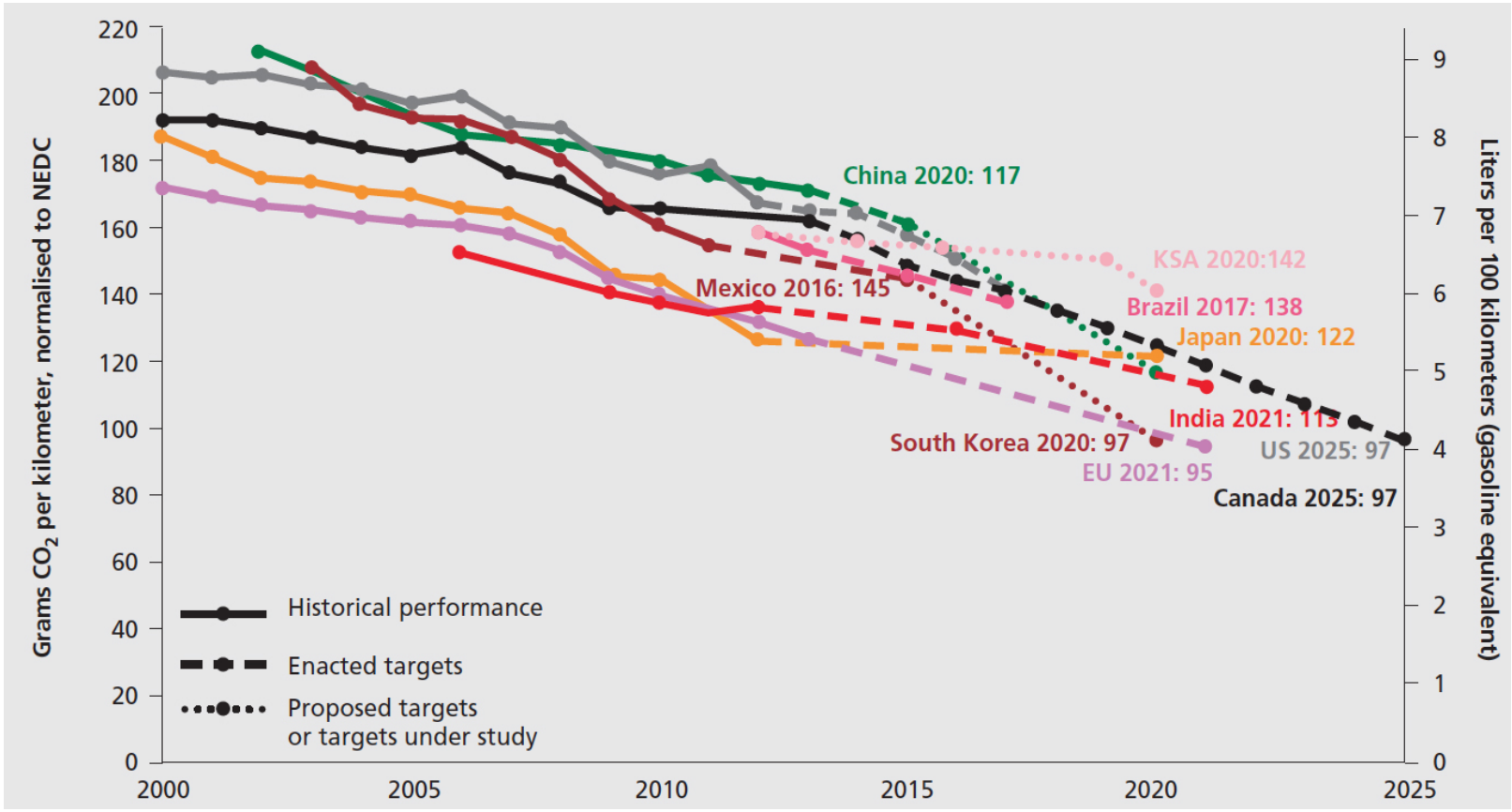
Country	Motor vehicles per 1000 people, (year 2011)
United States	786
Japan	588
Germany	588
China	69
Nigeria	31
India	18
Congo (Dem Rep)	5
Bangladesh	3

16.5 million vehicle sale of 2014 - about 1.0 million more than 2013 and projected to increase further

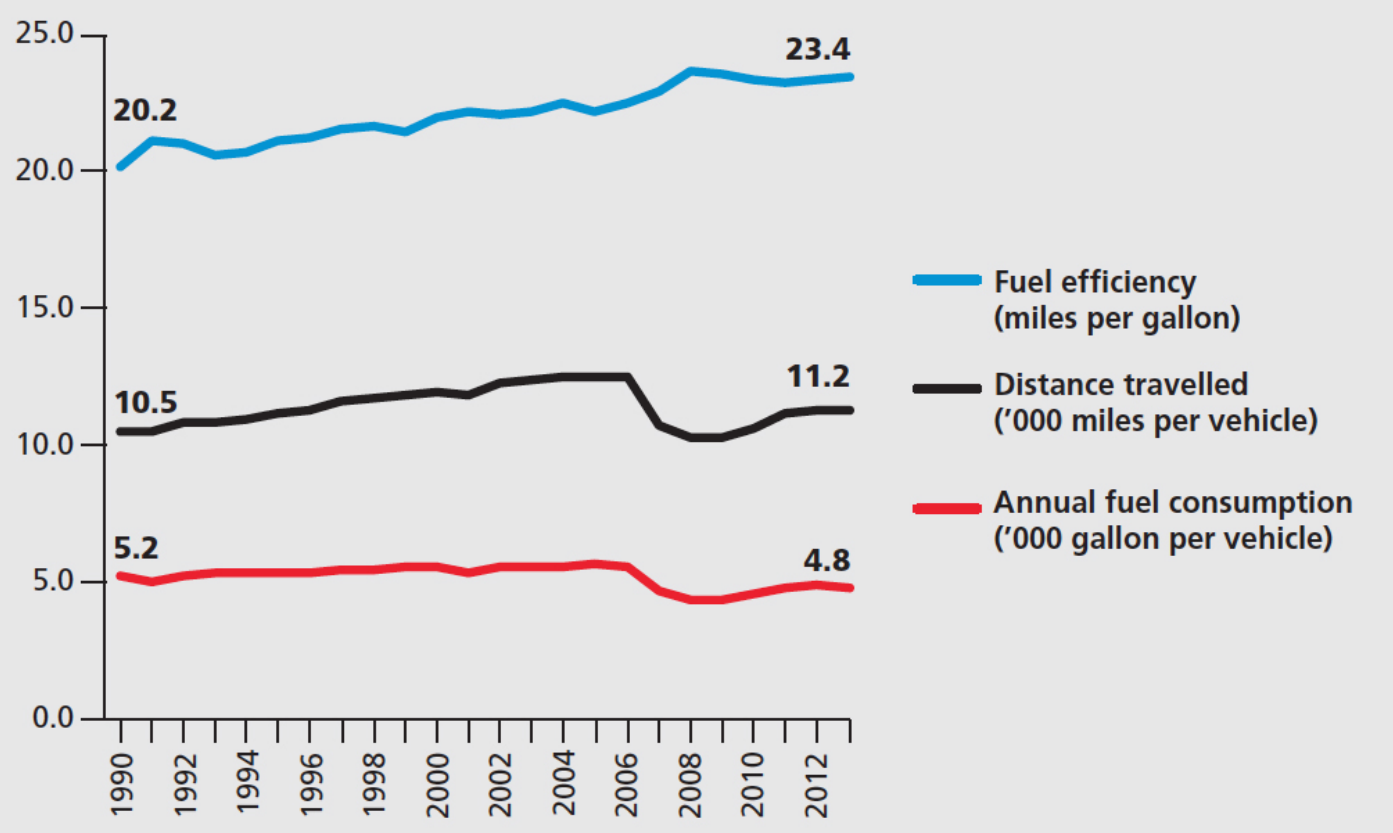
Transport: Public transport marginalized then and now



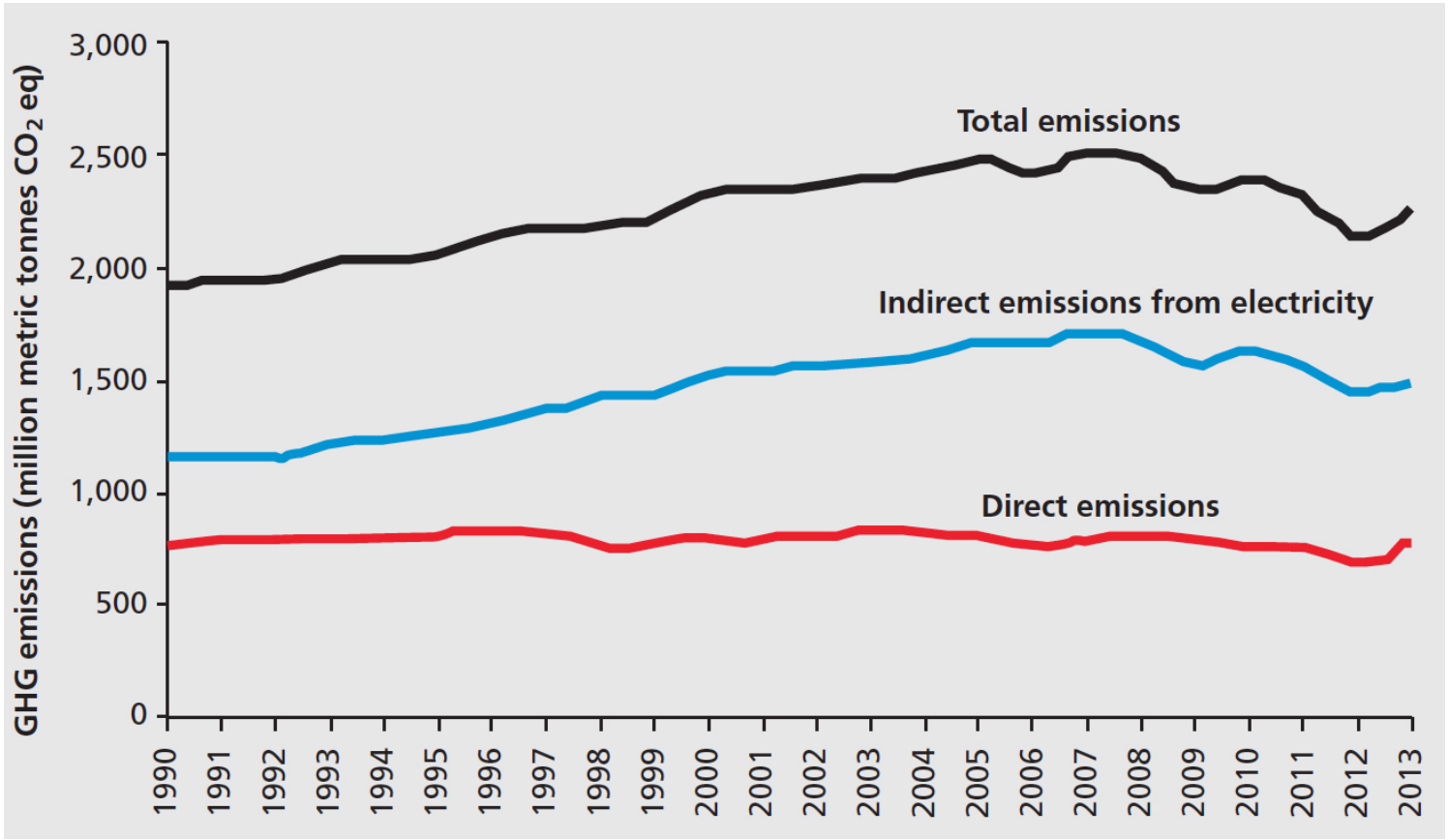
Transport: Fuel efficiency US INDC silver bullet – but lagging behind



Efficiency is not sufficiency: Fuel efficiency improved 16%; same period distance travelled increased 7%; gains lost



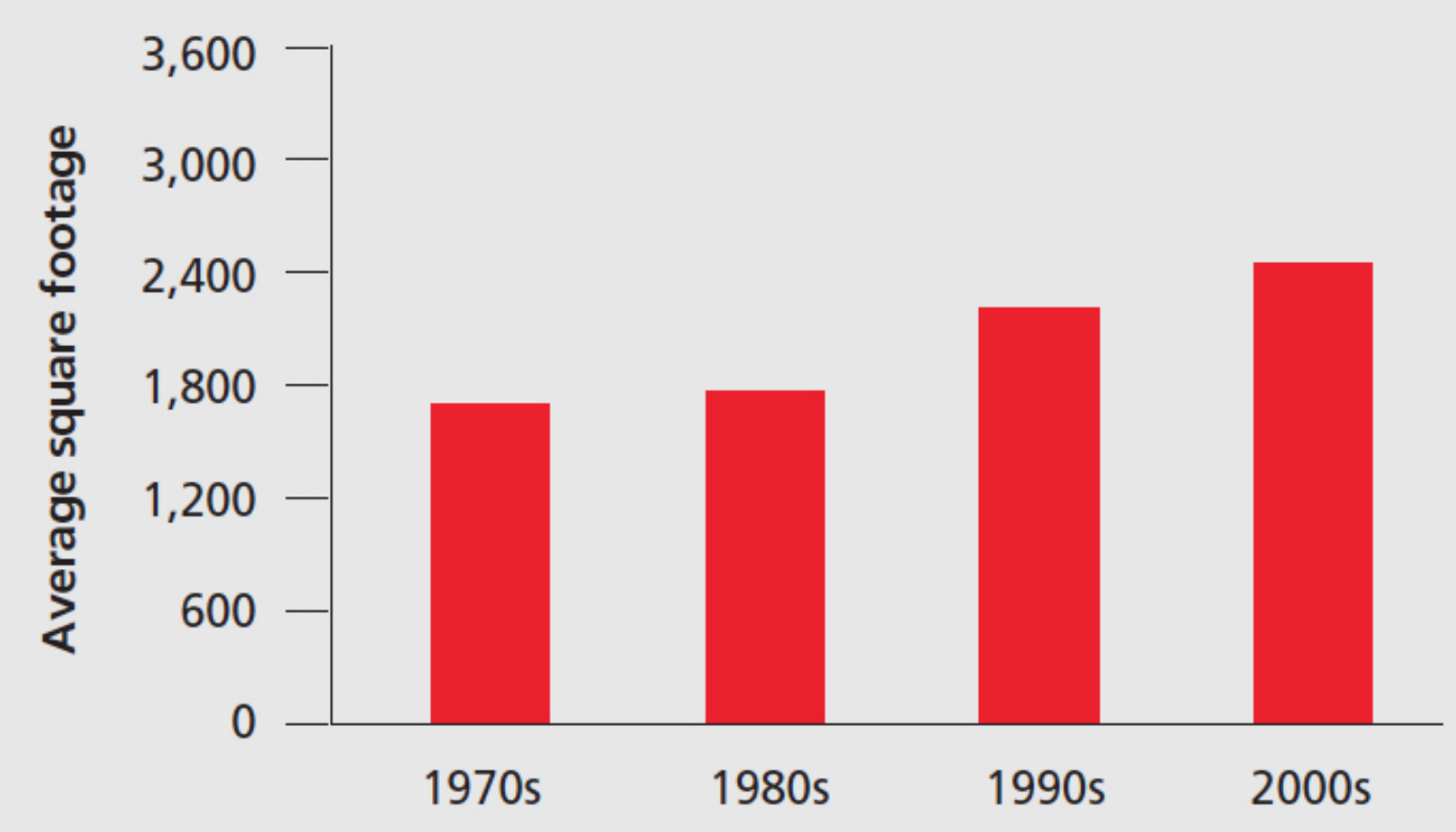
Buildings: Emissions 28% more than 1990



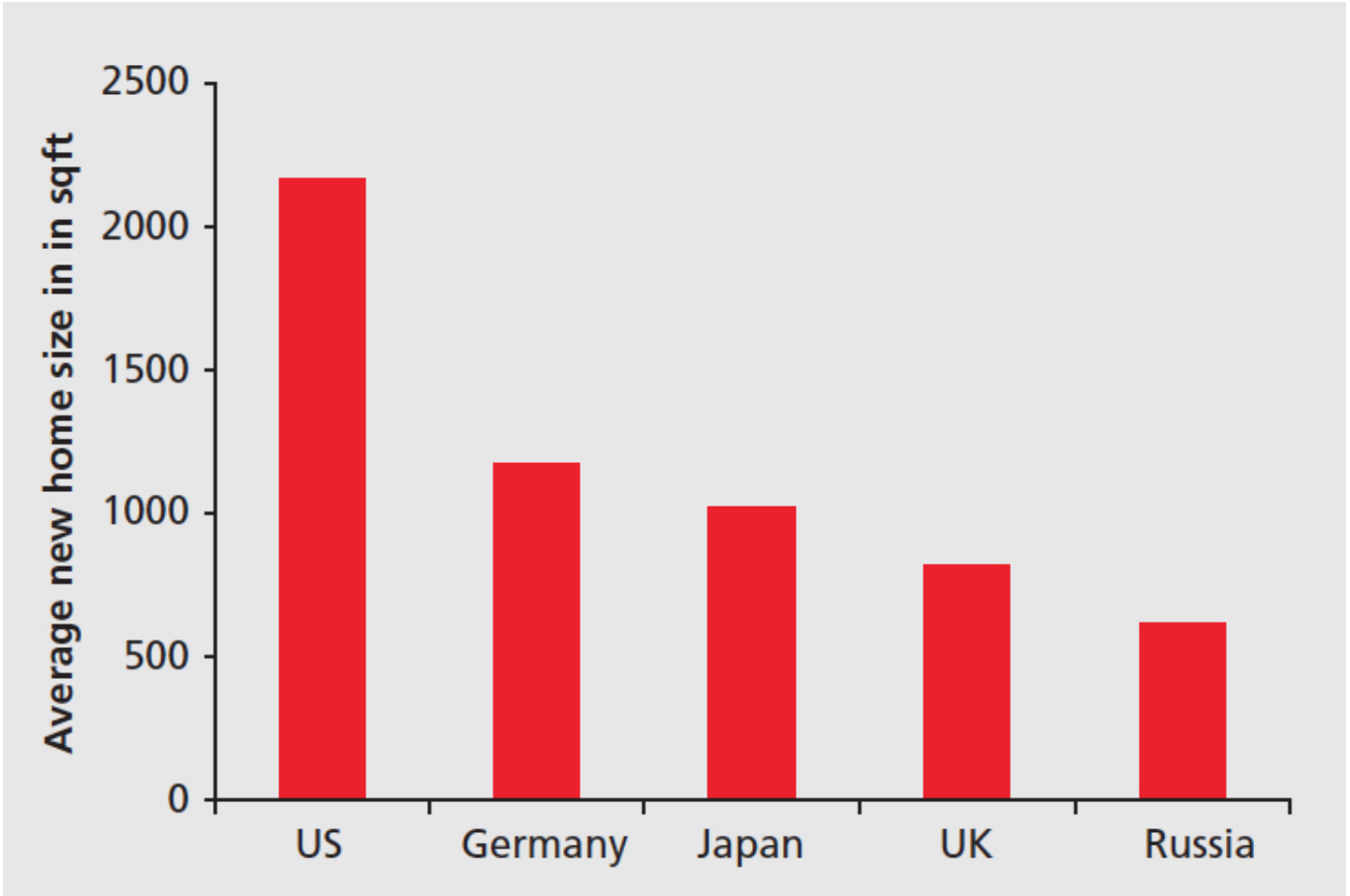
Electricity consumed at home by 1 American =

1.5	x citizen of France
2.2	x citizen of Japan
2.2	x citizen of the UK
2.6	x citizen of Germany
5	x citizen of South Africa
10	x citizen of China
34	x citizen of India
61	x citizen of Nigeria

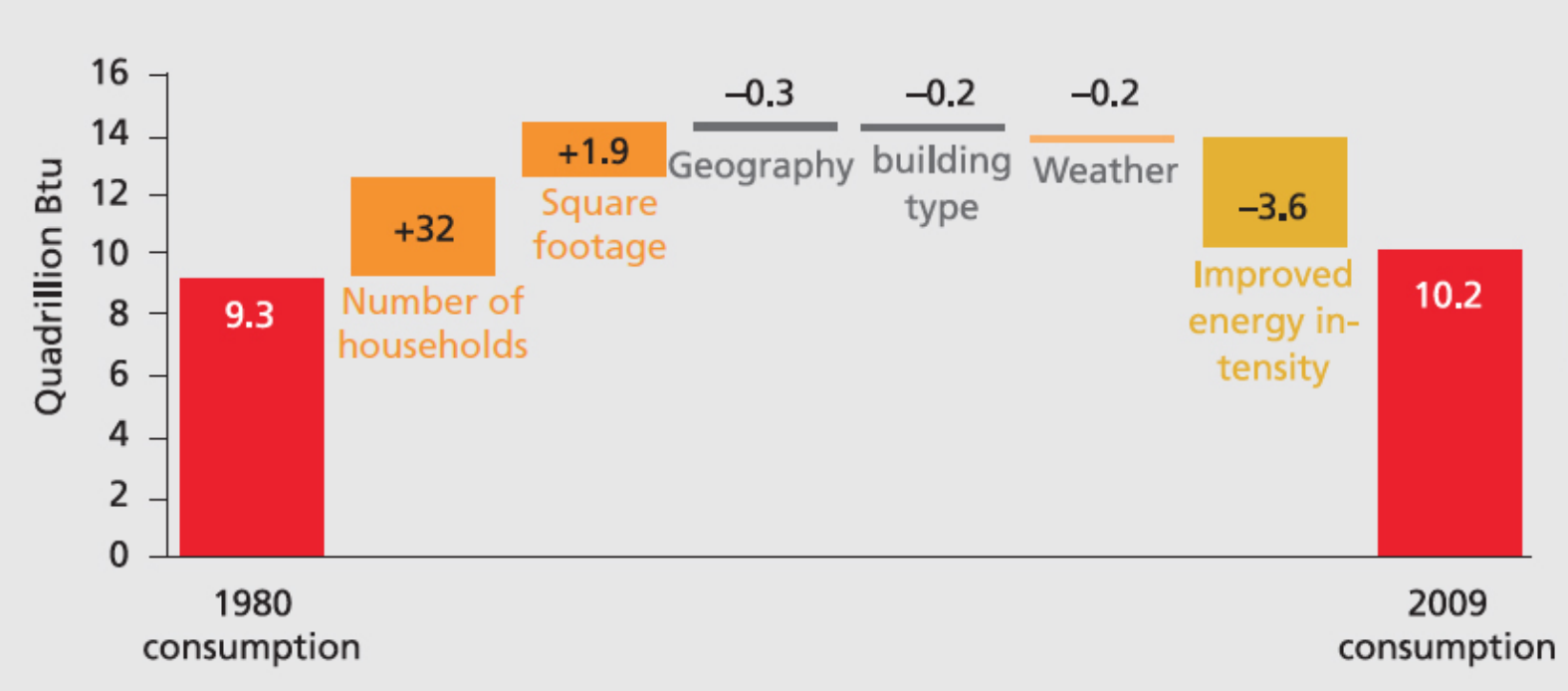
US homes getting bigger



Much bigger than other countries



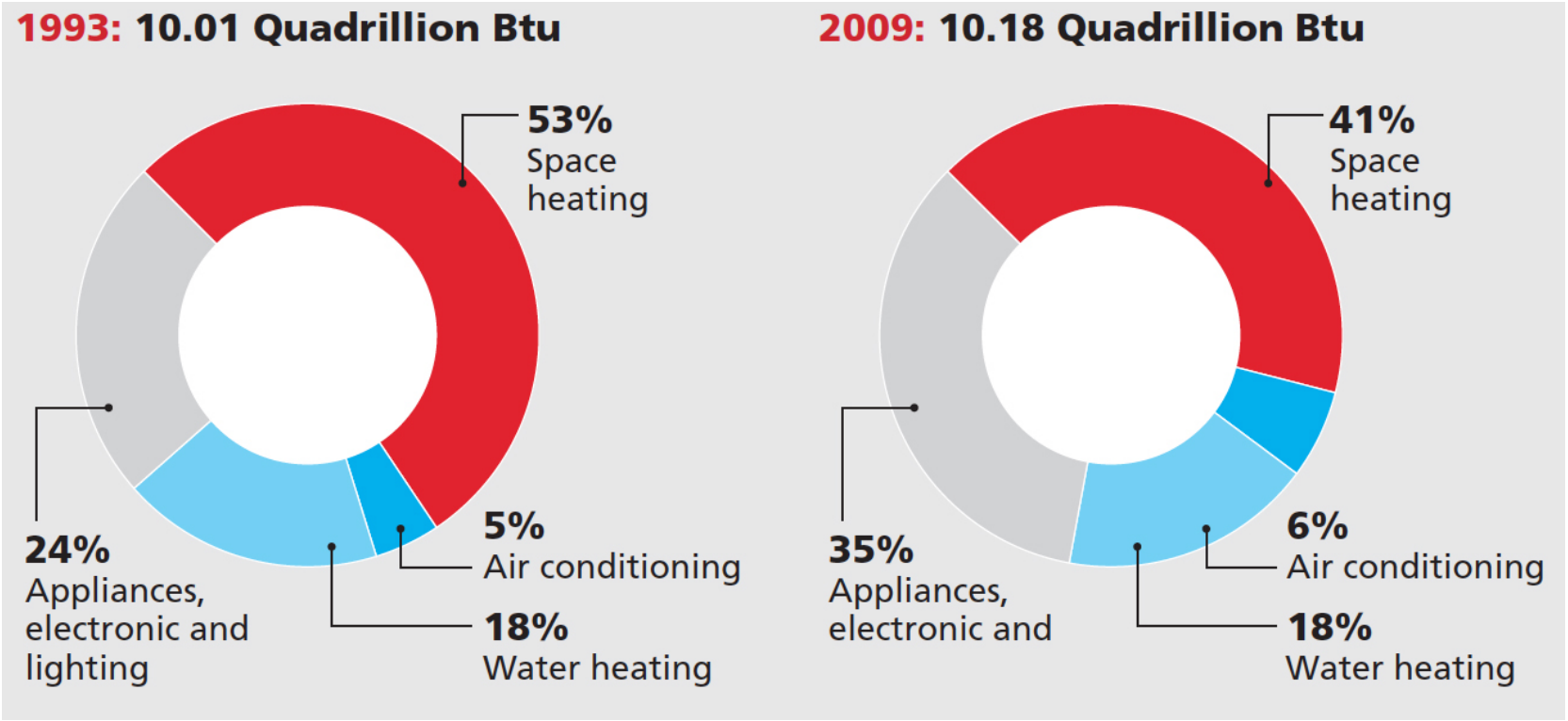
Buildings: Improved efficiency compensated by bigger houses



Appliance abuse

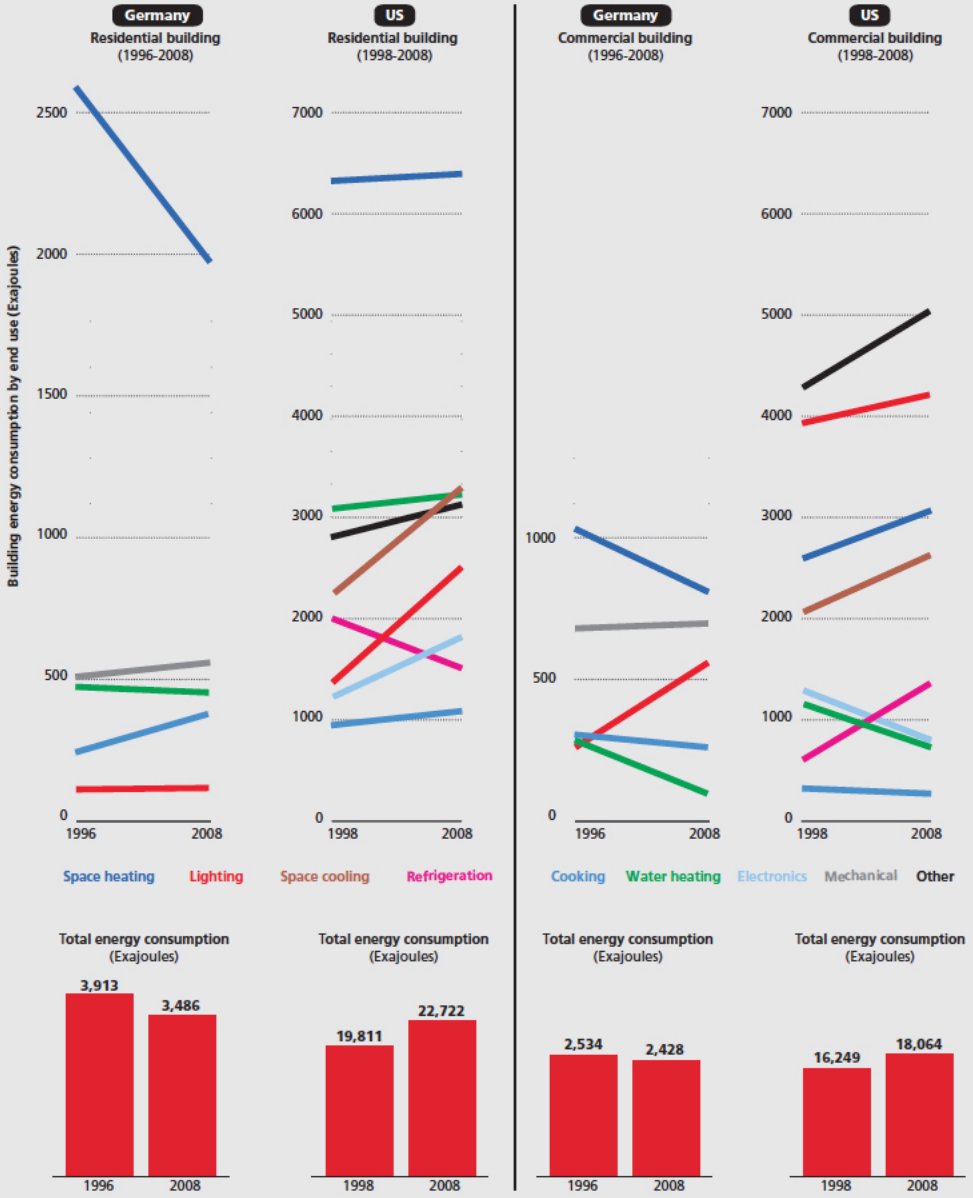
- In 1990, 23 per cent US households used electricity for space heating. In 2009, 35 per cent.
- In 1990, 15 per cent US households had two or more refrigerators. In 2009, 23 per cent.
- In 1990, 53 per cent US households had electric cloth dryers. In 2009, 63 per cent.
- In 1990, 28 per cent US households had two or more televisions. In 2009, 44 per cent.
- In 1997, 6 per ecnt US households had two or more computers. In 2009, 35 per cent.
- In the late 70s, 27 per cent US households had central air-conditioning. In 2011, 87 per cent. **The US uses more electricity for cooling than the entire continent of Africa consumes for all purposes.**

Energy consumption in homes



Germany 1–US 0 (own goal)

Germany has worked to bring its home and office energy use down — unlike the US



Buildings energy efficiency codes poor and voluntary: weak action

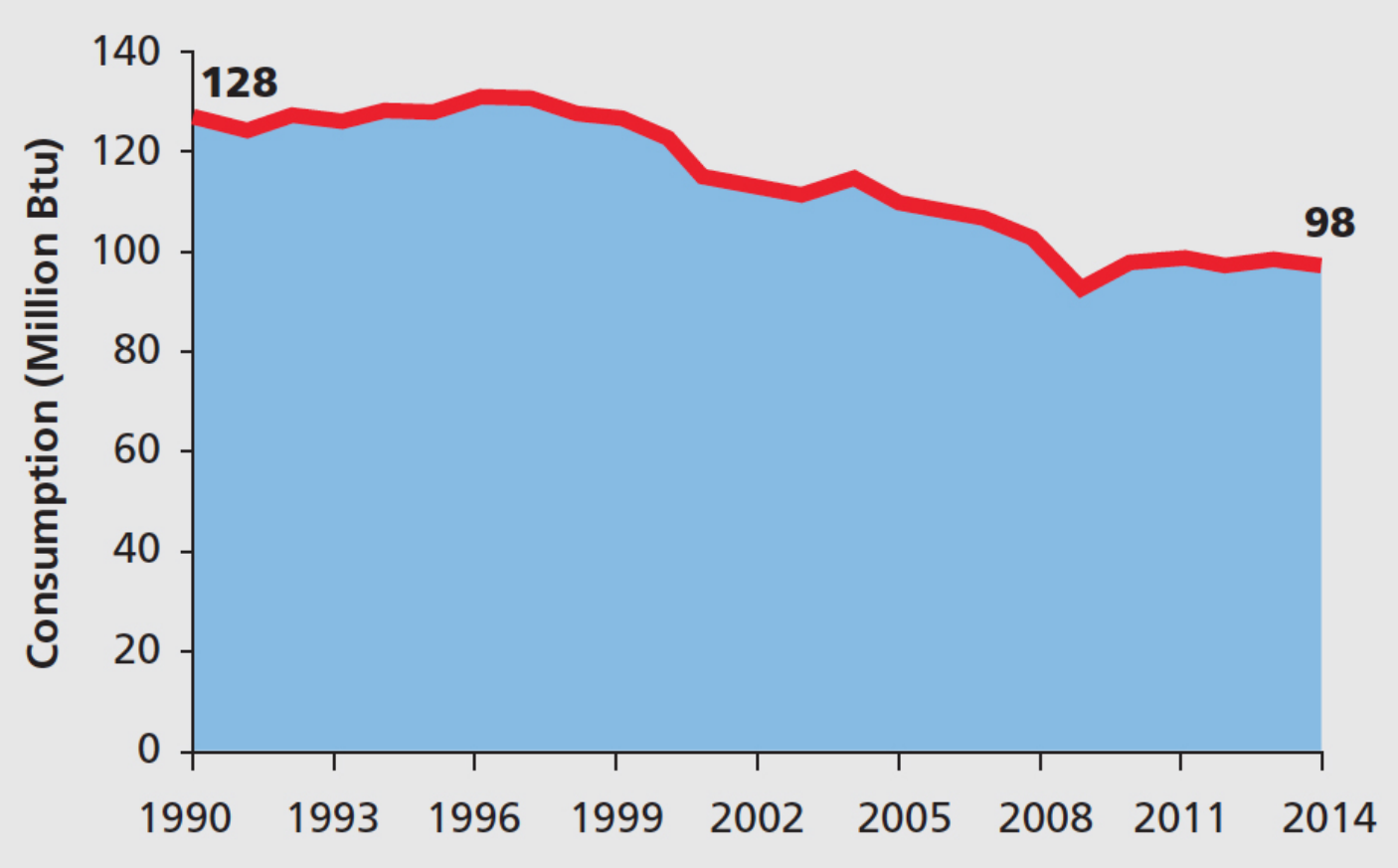
	Building enrgy codes	Technical requirement in residential	Technical requirement in commercial	Enforcement mechanisms for residential	Enforcement mechanisms for commercial	Total points
China	3.5	1.5	1.25	3	3	12.25
Australia	4	1.75	1.5	2	2	11.25
South Korea	4	1.75	1.5	2	2	11.25
United Kingdom	4	1.75	1.5	2	2	11.25
France	4	1.5	1.25	2	2	10.75
Canada	3	1.5	1.25	2	2	9.75
Spain	4	1.75	1.5	1	1	9.25
United States	3	1.25	1	2	2	9.25
Germany	3.5	1.75	1.5	0	1	7.75
Russia	3	1	0.75	2	1	7.75
India	2	0	1.5	2	2	7.5
Brazil	0	0	0	3	3	6
Japan	3.5	1.25	1.25	0	0	6

Source: American Council for Energy Efficient Economy, 2014.

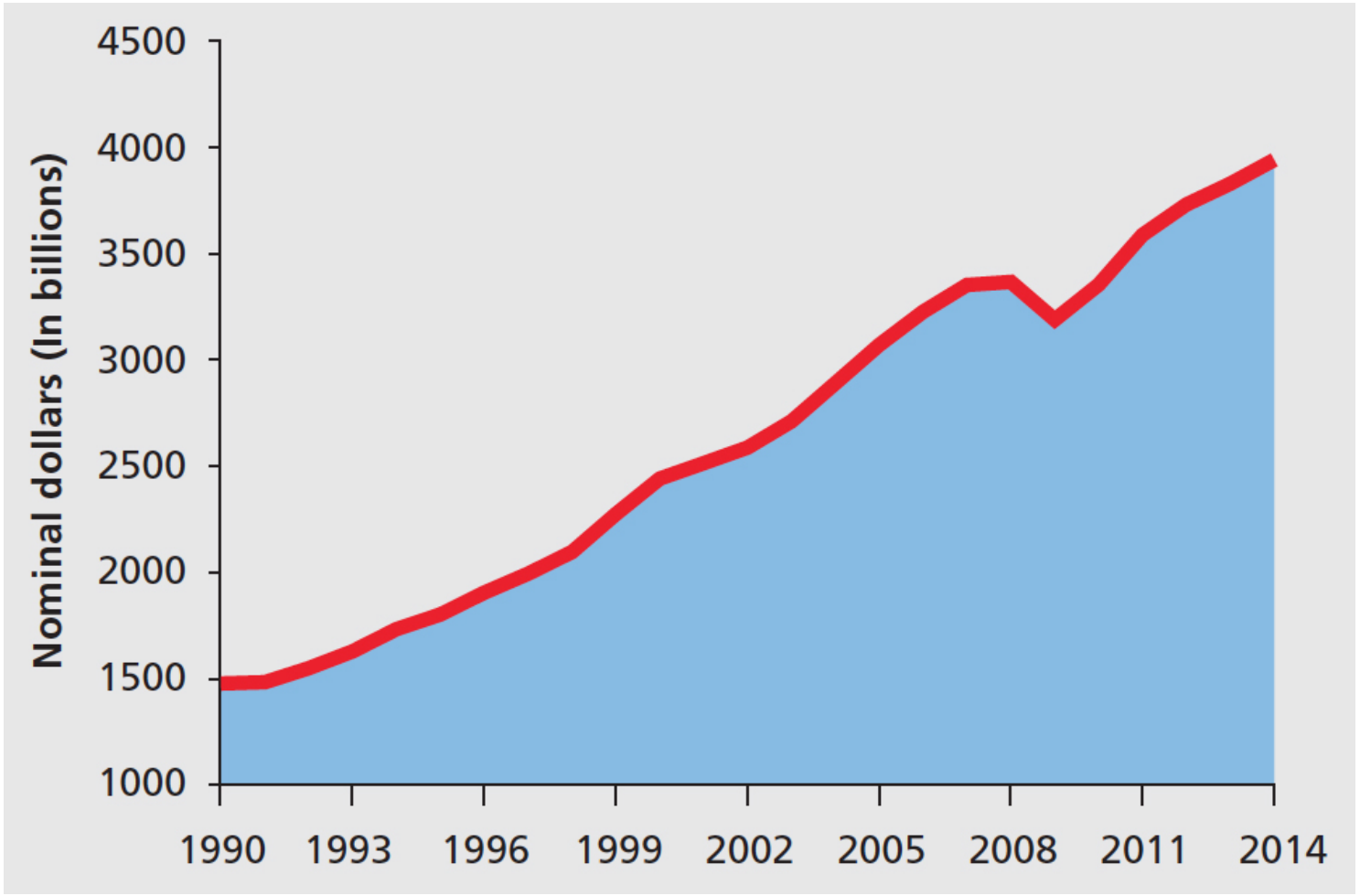
In part summary 2

- US INDC is based on regulatory measures to improve efficiency in fuel used in vehicles; appliances and energy efficiency in buildings through voluntary codes
- **But consumption is increasing**
- Lifestyle is not changing: people are buying more cars; driving more because vehicles are now more efficient; building bigger houses; buying more appliances
- As a result gains made in improvement in efficiency are being negated, and lost completely in many sectors
- This ‘silver bullet’ is not working. Bad for climate

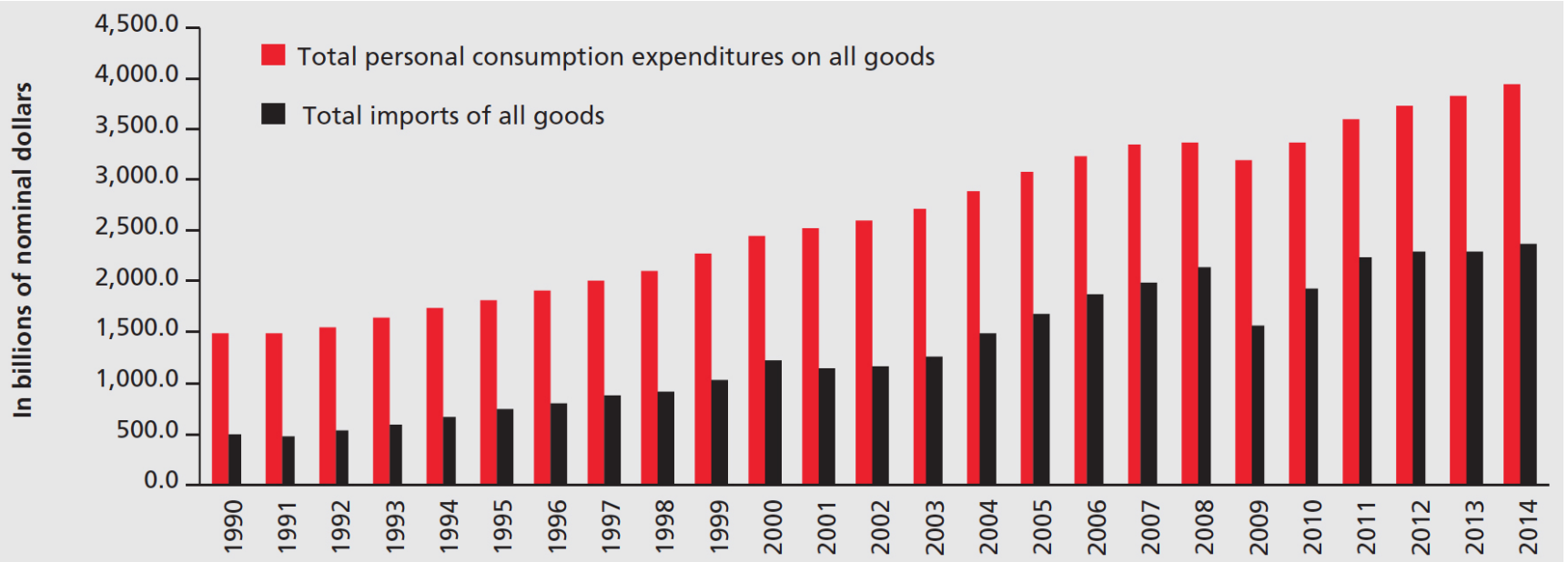
Industry: Per capita energy consumption down by 23%



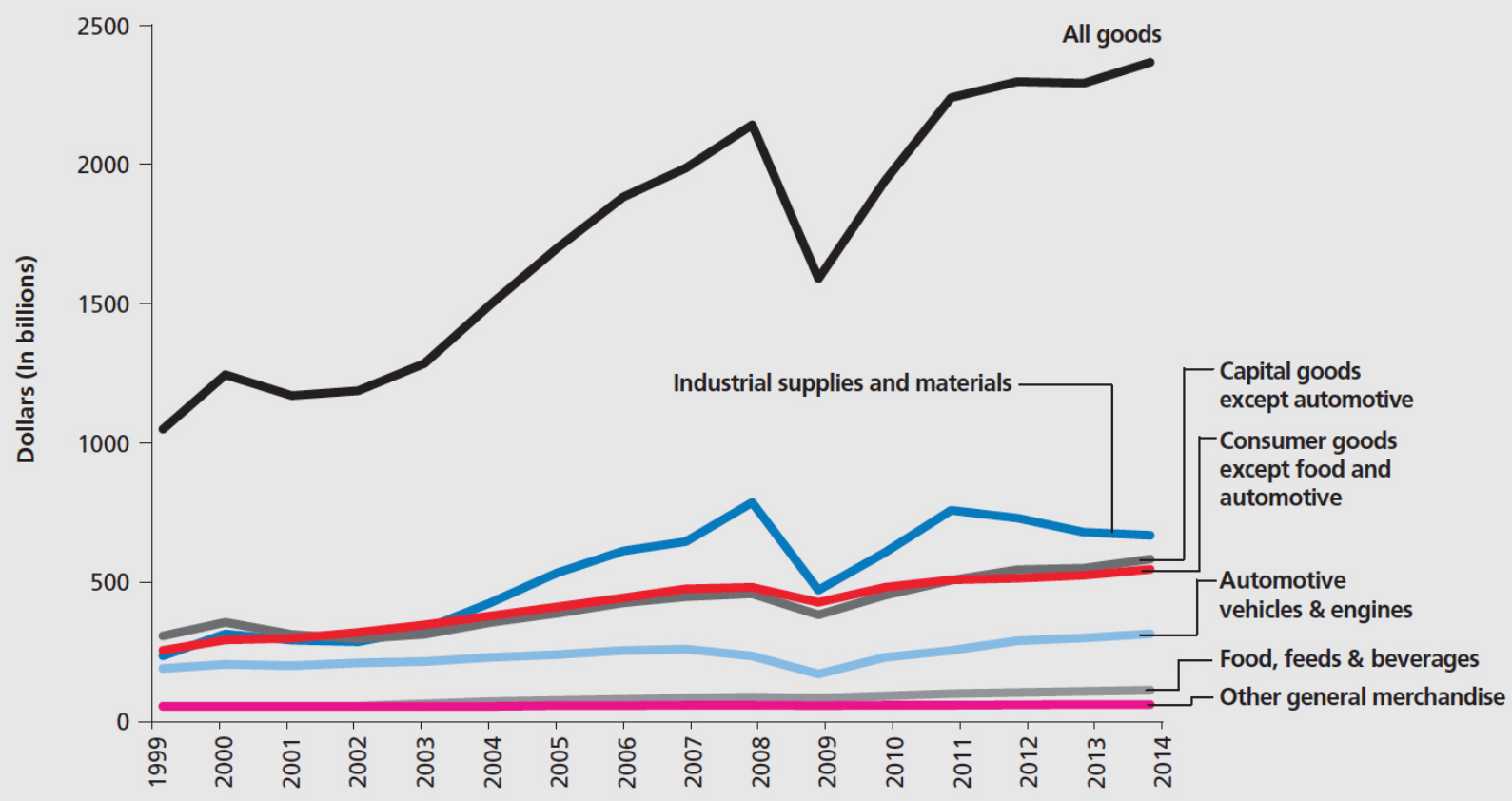
Personal consumption expenditure on goods >2X from 1990



Buying 60% imported goods



Importing energy intensive goods, outsourcing emissions



In part summary 3

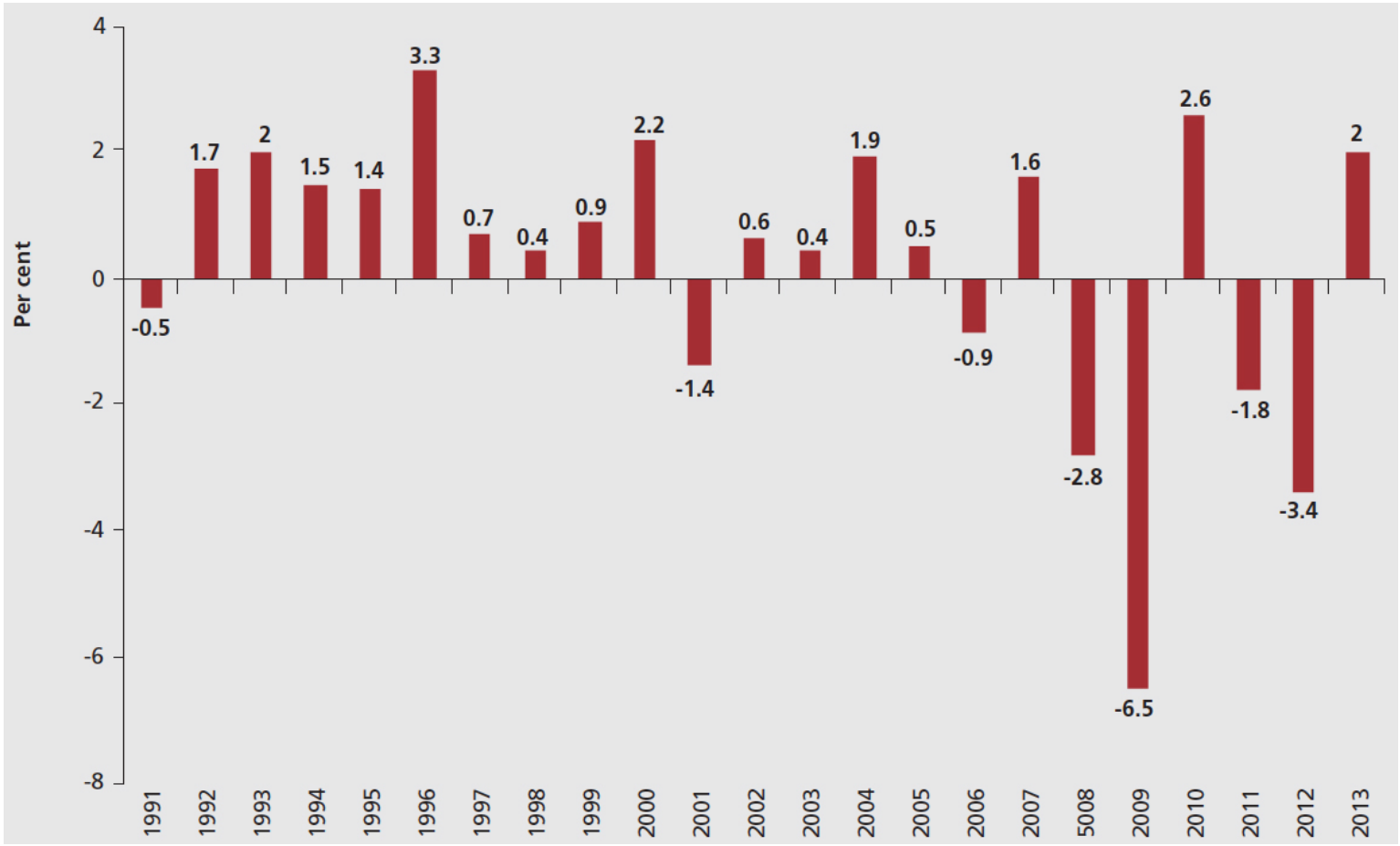
- The only sector where emissions are below 1990 levels is industry
- But the question is if these emissions are low because of changes in the way production and manufacturing happens
- Or if it is because US has outsourced production?
- Our analysis shows that consumption of goods has increased; imports have increased
- So, where is the gain for climate?

Move towards low carbon?

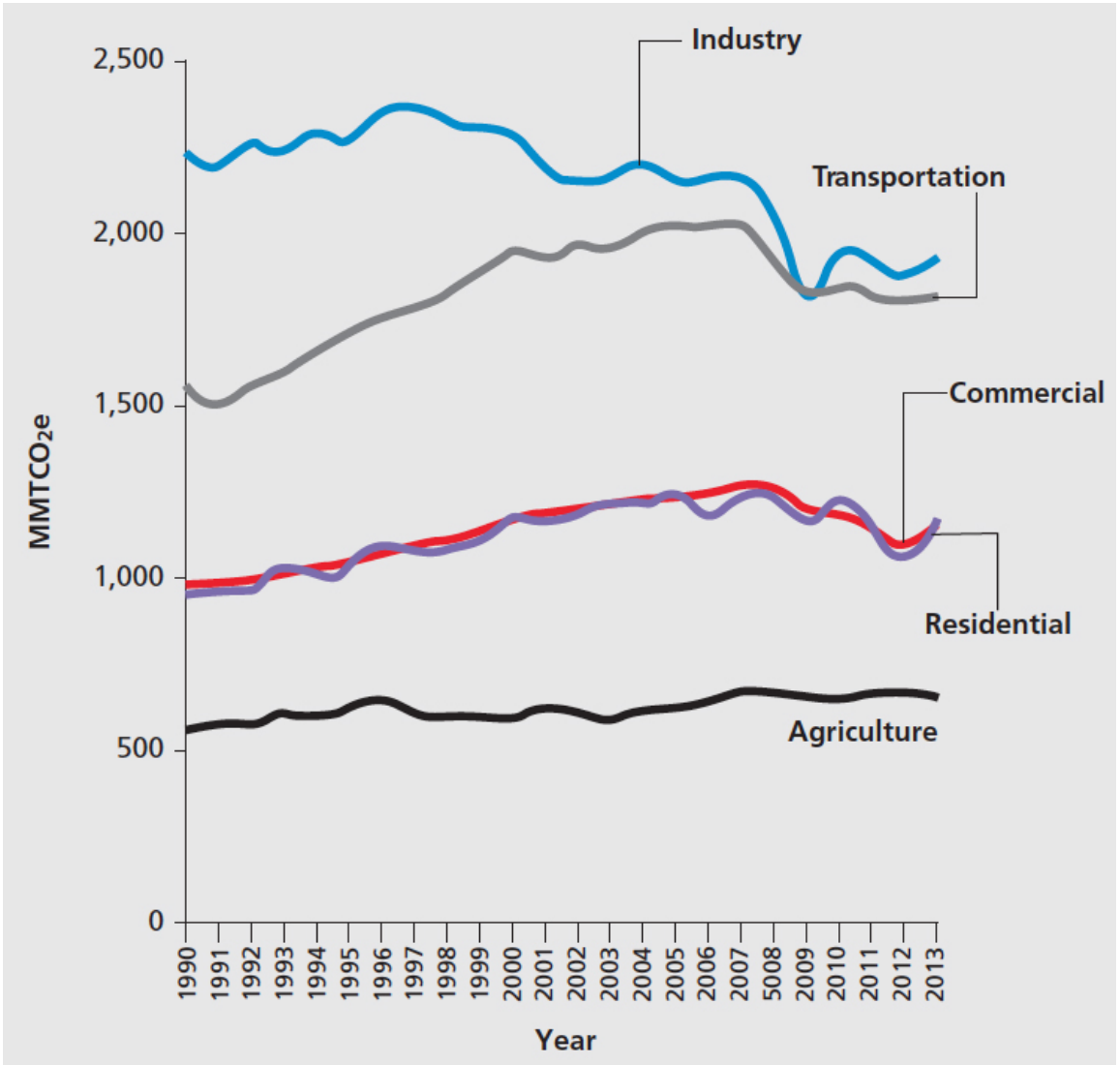
Our conclusion no. 2:

No evidence of a policy-driven downward trend in US GHG emissions post-2005 (2005 is the year US emissions peaked). In fact, as the economy is picking up, so is consumption and consequently emissions

Only fluctuation in GHG emissions, no downward trend: 1990-2013



Sector-by-sector similar trend, except industry: 1990-2013



US EPA's conclusion

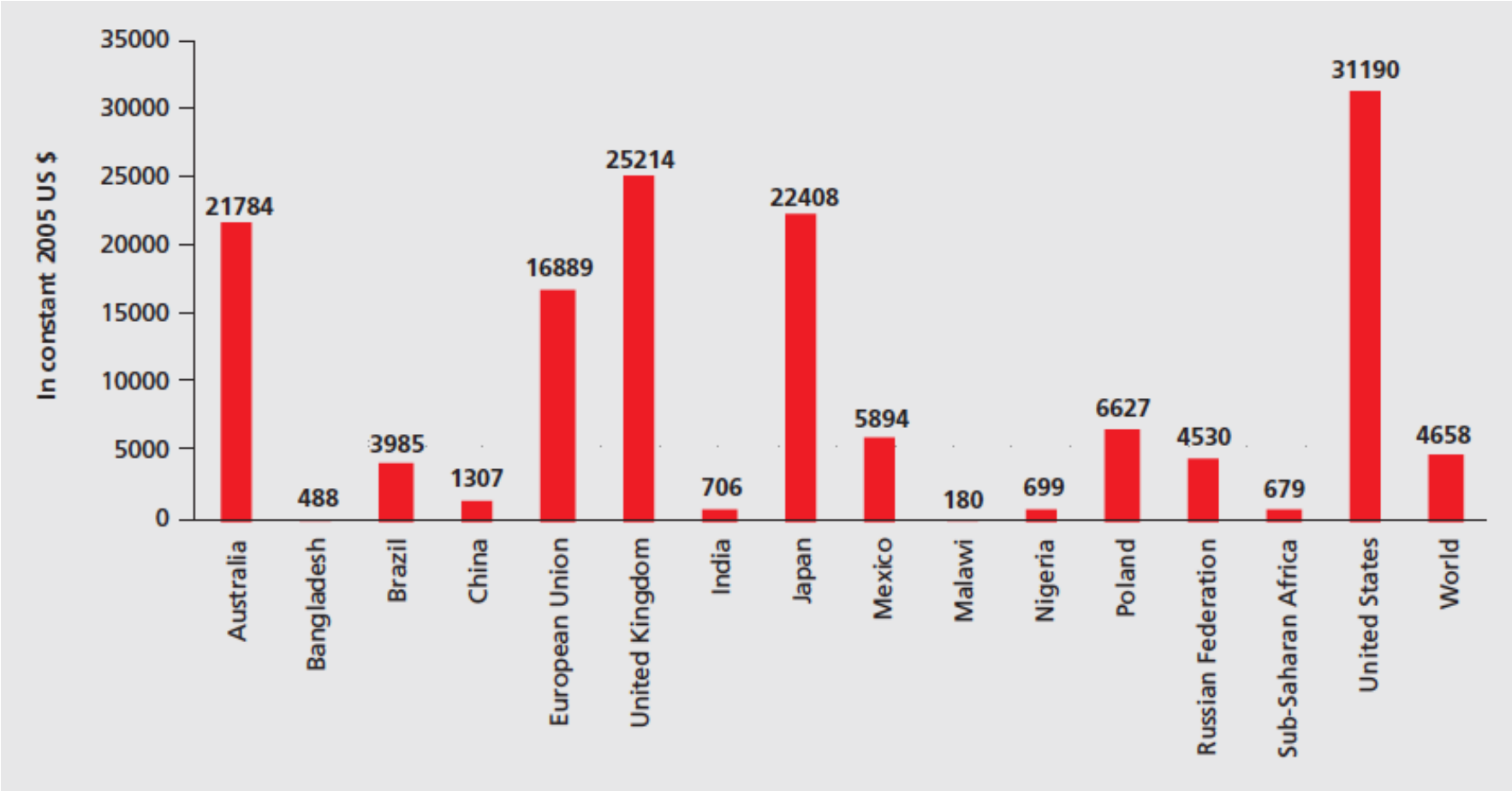
- **2009-2010:** Emissions from fossil fuels increased by 3.3%, the largest annual increase in CO2 emissions for the 24-year period from 1990 to 2013, due to increase in economic output, higher coal consumption and the hot summer of 2009.
- **2010-2011:** Fossil fuel emissions decreased by 2.5% due to a rise in natural gas use and higher car fuel costs, which led to lesser miles travelled.
- **2011-12:** Emissions from fossil fuels decreased 3.9%, primarily because of a switch from expensive coal to cheaper natural gas and weather conditions, in addition, were good – less cooling days

US EPA's conclusion

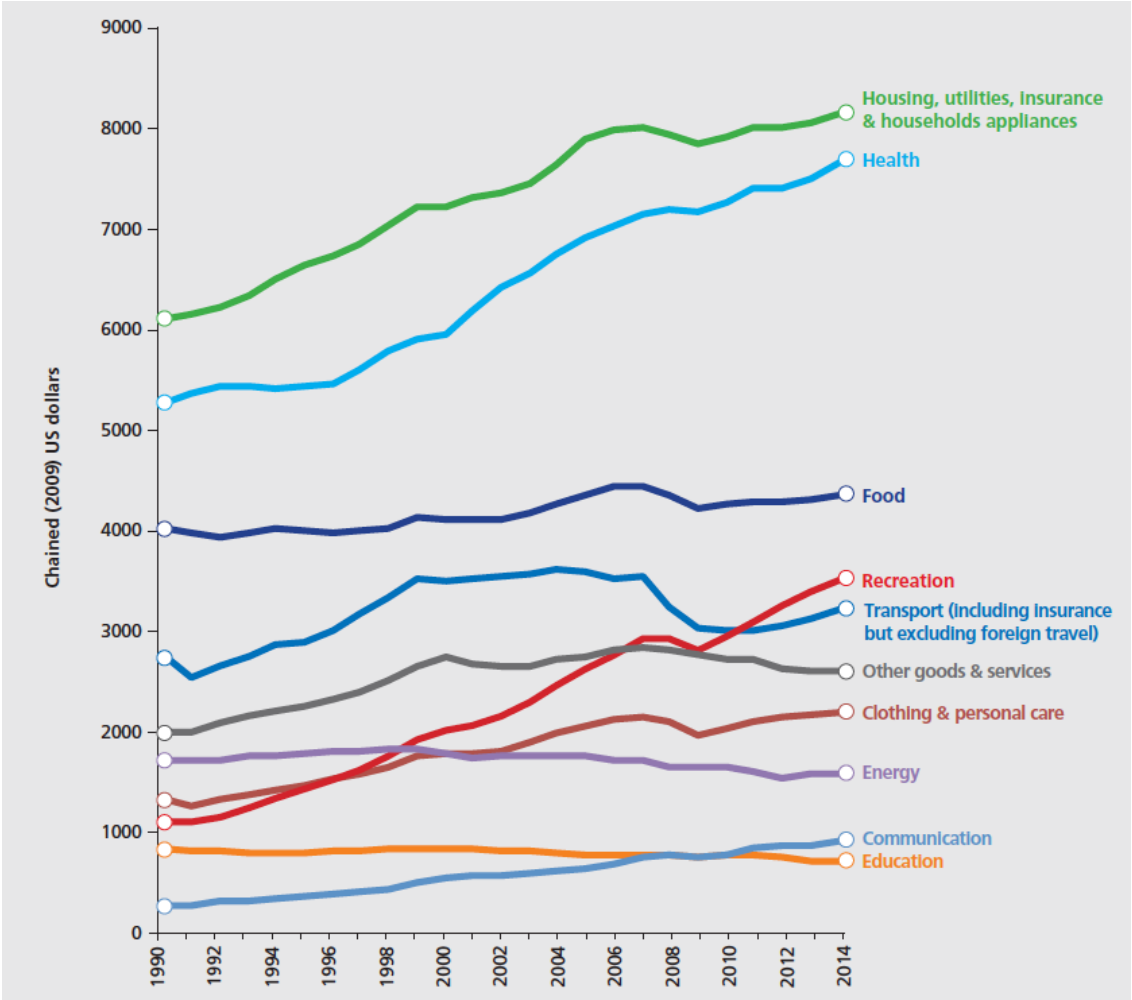
- **2012 to 2013:** Once again, CO2 emissions from fossil fuel combustion increased 2.6%. Heating-degree days increased 18.5 per cent. Cooler weather led to a 30% rise in direct use of fuels. At the same time, the price of natural gas went up; its use in the electricity sector fell 10%. Power plants shifted back to coal.

<u>Changes due to</u>: price changes, weather changes, changes in economic activities – policy drivers not working. Why?

1. The Mall-thusians: *In 2013, per capita household consumption expenditure double of Europeans & 44 times Indians*



Per capita real consumption expenditure: *Ever growing*



Basic necessities (1990-2014)

8 per cent more
A moderate increase
Food and beverages

30 per cent more
Bigger homes
Housing

17 per cent more
More cars
Transport

15 per cent less
Surprising
Education

8.5 per cent more
Prices are down, consumption is up
Energy

In 1990, an American spent US $22,739 on goods and services. In 2014, s/he spent US $34,108 – an increase of 50 per cent in the last 24 years. An individual in the US today consumes 50 per cent more goods and services than s/he did in 1990.

Non-essential spending (1990-2014)

250 per cent more
Really?
Communication

220 per cent more
Run away!
Recreation

90 per cent more
Wow
Household furnishing

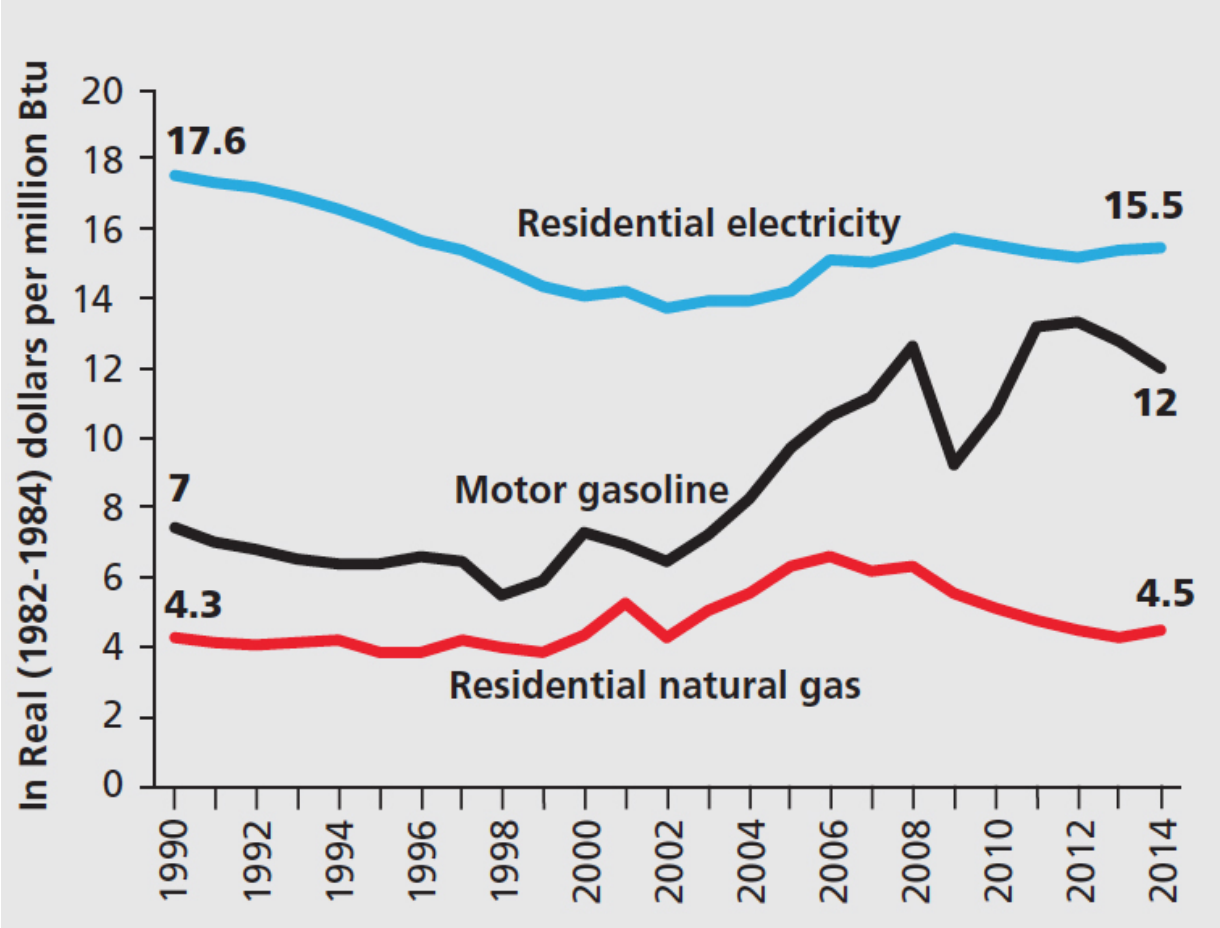
90 per cent more
Toast!
Household appliances

70 per cent more
Haute!
Clothes

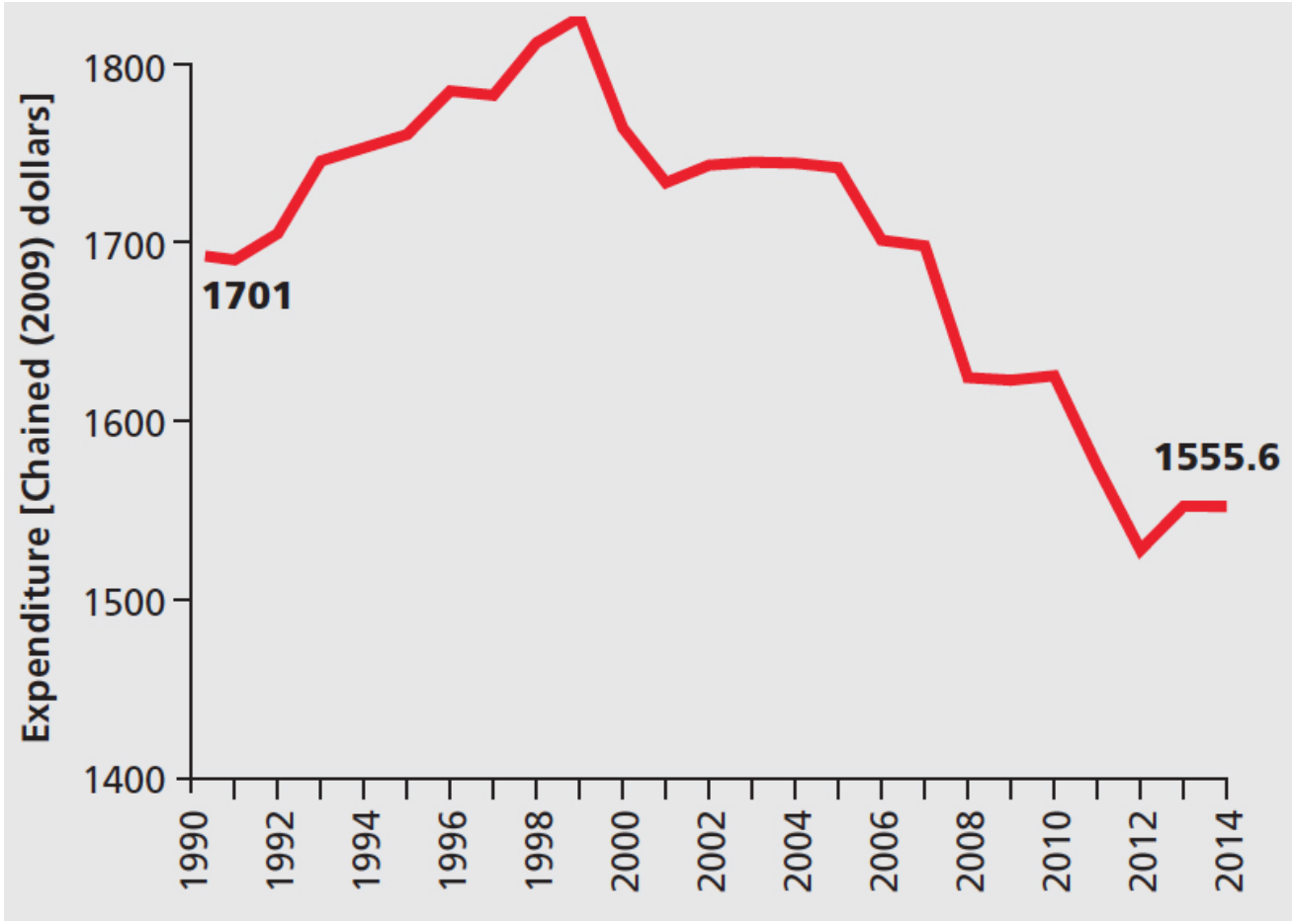
70 per cent more
Ooh.
Personal care

46 per cent more
Its OK.
Health care

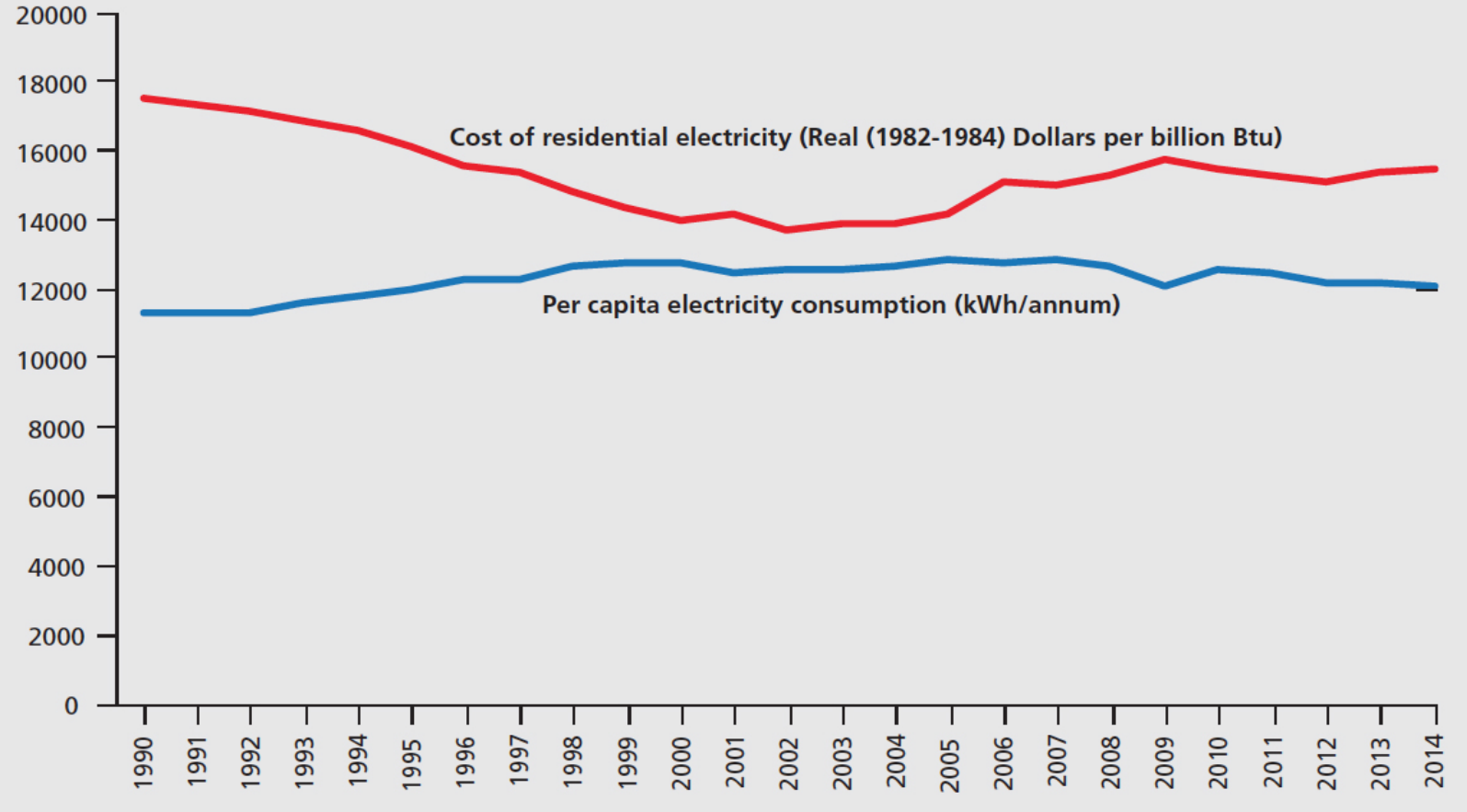
2. The guzzlers: Cheap energy means more consumption and more emissions: Consumer price index up by 81%, but...



Per capita spend on energy down; earning more and using more but spending less on energy



Per capita electricity up, as prices are down



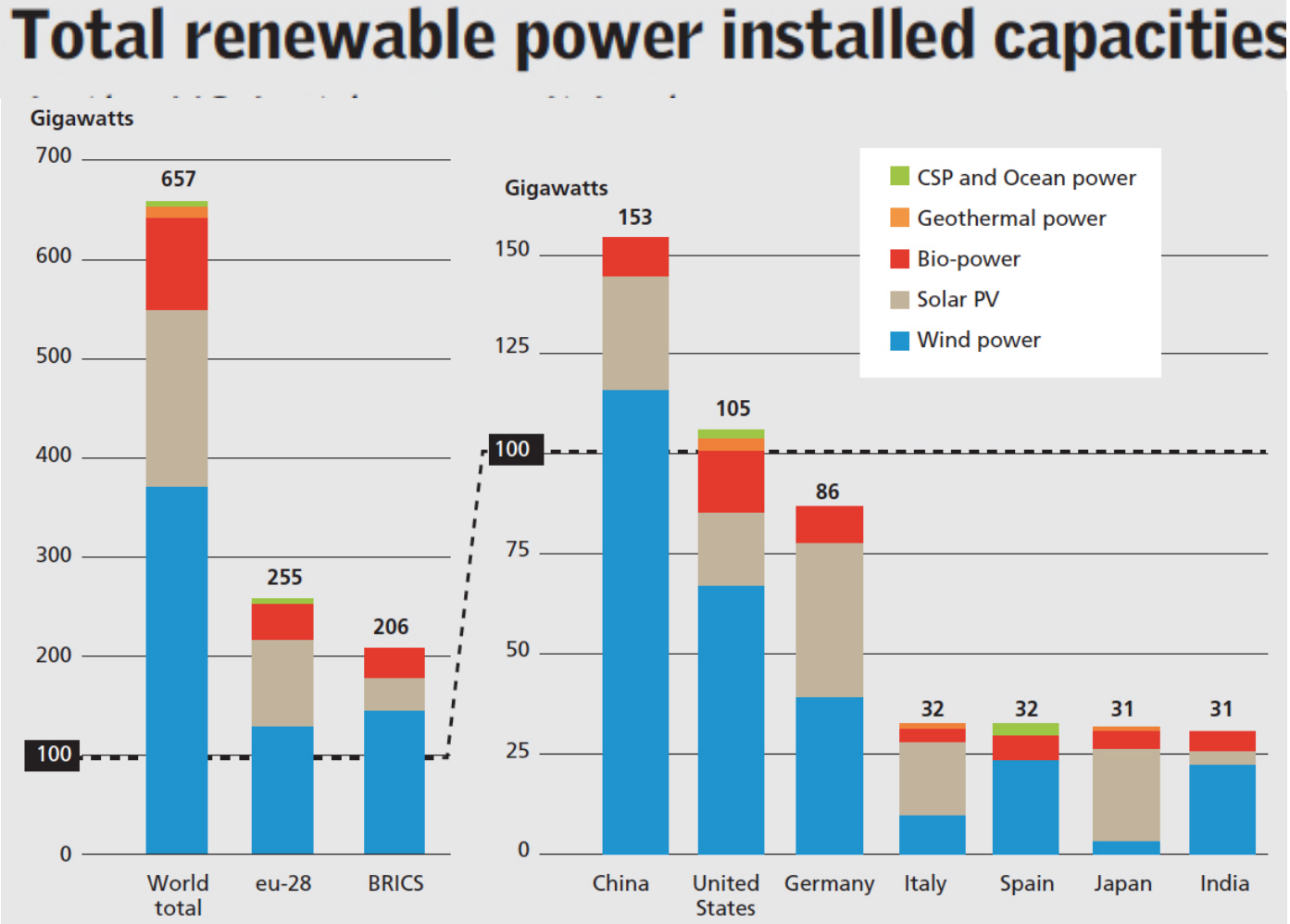
US Climate Non-Action: Implications for the world?

So, the US is not ambitious. Its policies are business-as-usual

We ask:

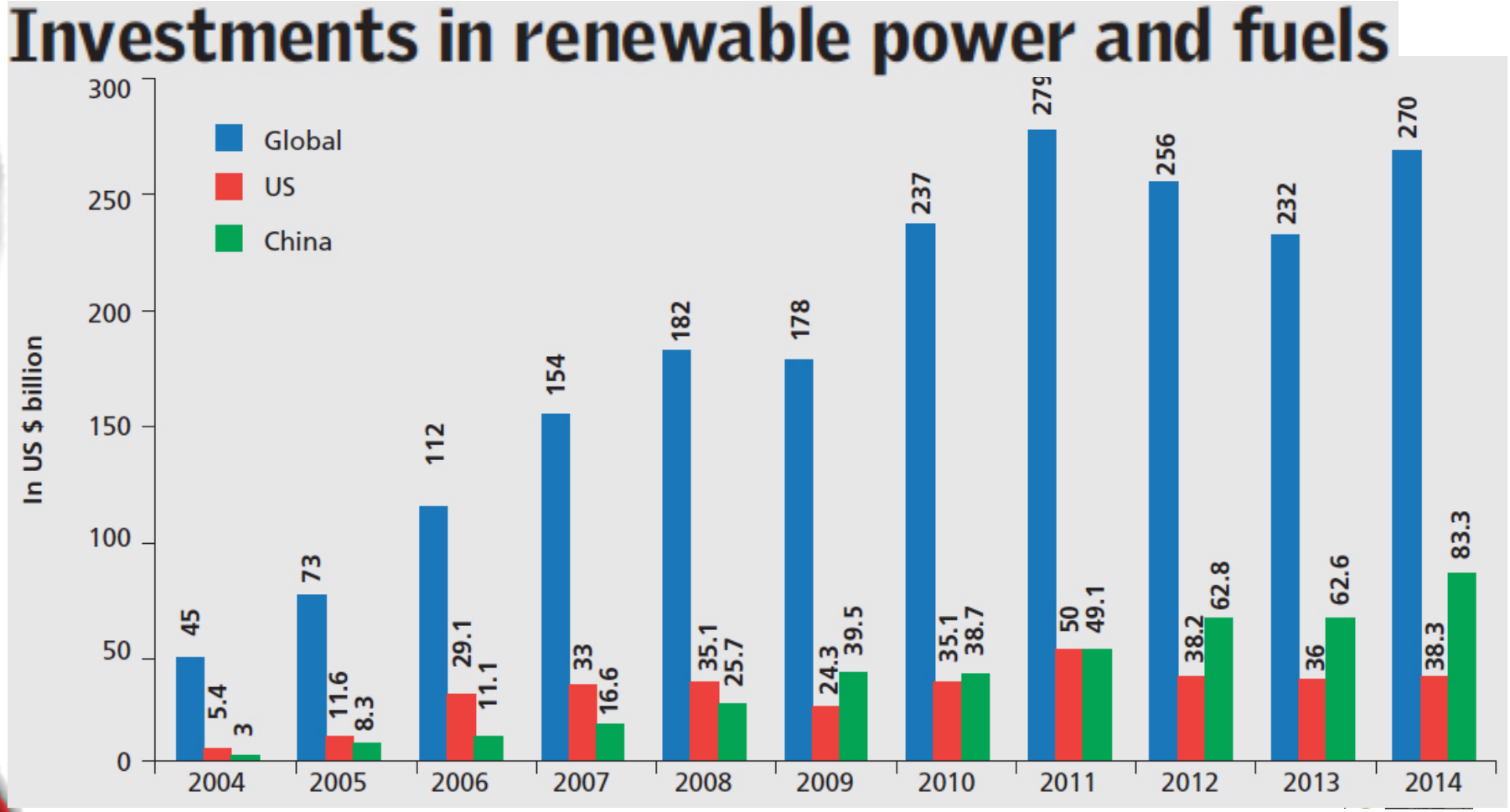
1. **What is the implications of these for the world?**

Implications 1: Shifting the burden of transition

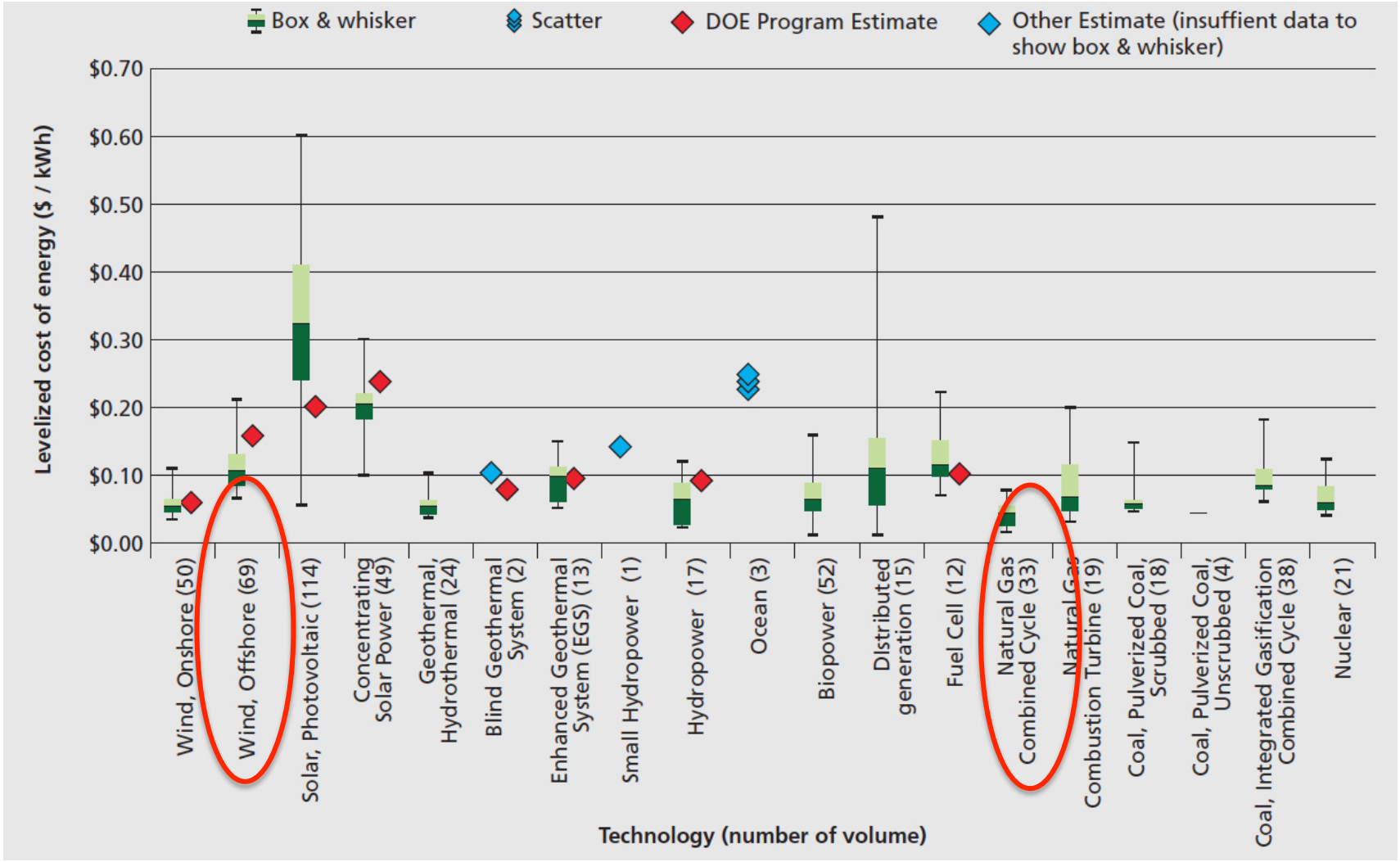


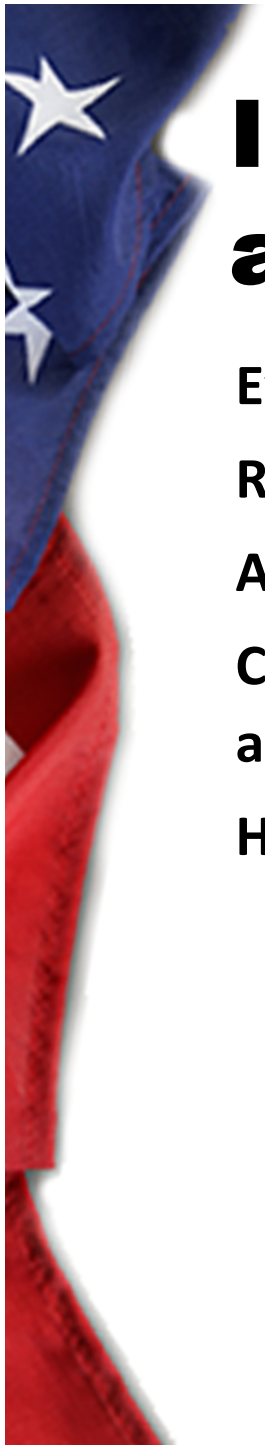
Shifting the burden of transition

- In 2014, the US accounted for 14% of global investment; China's contribution was 31% and Europe another 21%.
- India invested 0.3% of its GDP on renewables; US 0.2%



Shifting the burden of transition:
Moving to renewables when cheap





Implications 2: Bringing down the ambitions of all countries

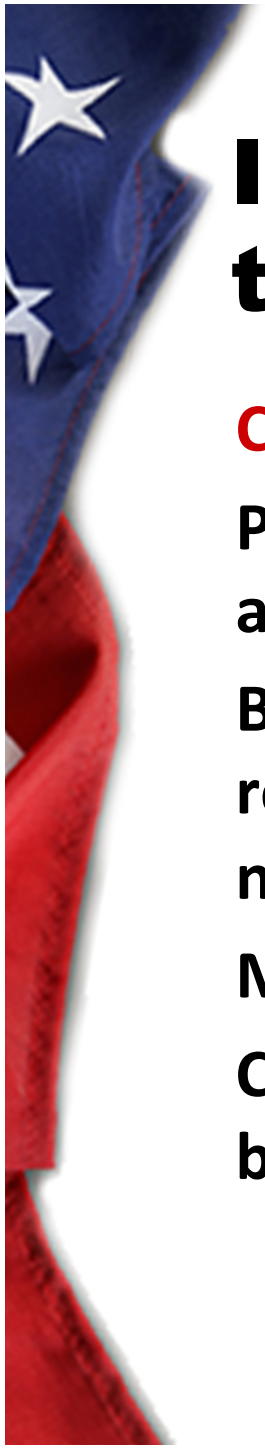
Every country is pegging its INDCs to the US

Race to the bottom

All countries will/should demand equal carbon space

China-US deal was about equalizing per capita emissions and getting equal carbon space

How does this work for Planet? Won't



Implications 3: Everybody wants to be an American

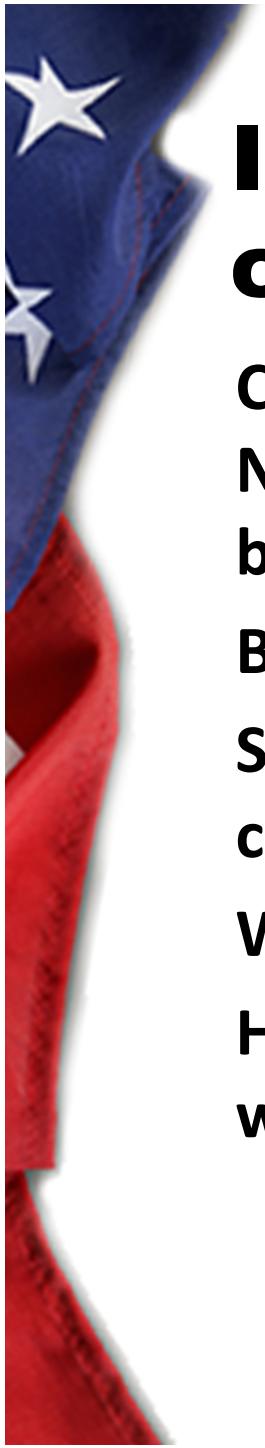
Climate is about consumption

Planet cannot afford the lifestyle of one US; let alone many

But if US does not change then it cannot expect rest of the world to forsake what it says is non-negotiable

Must lead by example

Climate negotiations demand cooperation – bullying will not work



Implications 4: Has space and can do more

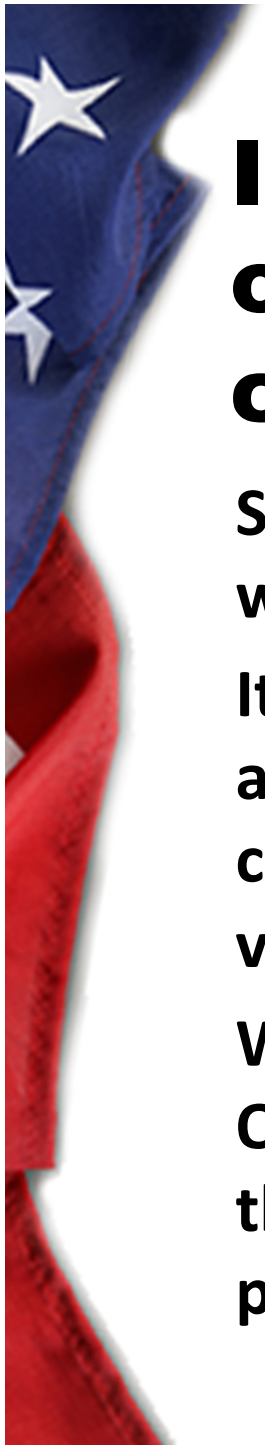
Comparing US consumption with Indians or Nigerians is odious – “we do not consume because we are poor”

But can compare with Europeans

Same HDI (even better in some cases) but consumption is disproportionately higher

Why? Can have well-being with less

Huge slack. Can improve. Reduce and save the world from climate threat



Implications 5: Divisive and obstructive force in fight against climate change

Since 1992 US has worked overtime to reduce world's ambition

It has changed the framework of action – moved away from setting emission targets, based on contribution, to a weak agreement based on voluntary action

Wants to remove equity, leading to distrust
Question now is if Paris COP will do deal to suit the convenience of US or a deal which suits the poor and most affected

Finally

US needs to do more

Much more

Ambition

Effective reduction

Real and measurable change

Climate change is real; impacts are catastrophic

For all. We need the US to step on the gas; do much more. For all our sakes