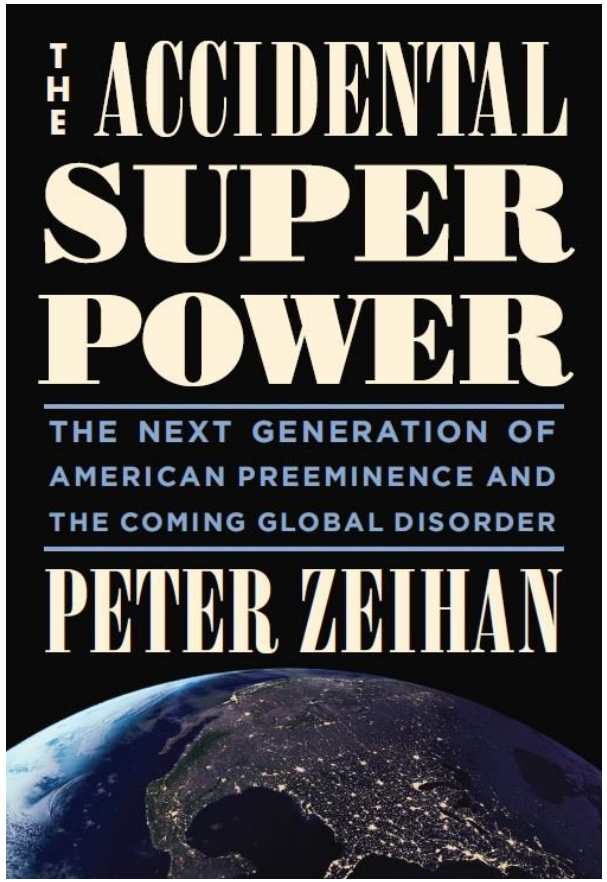
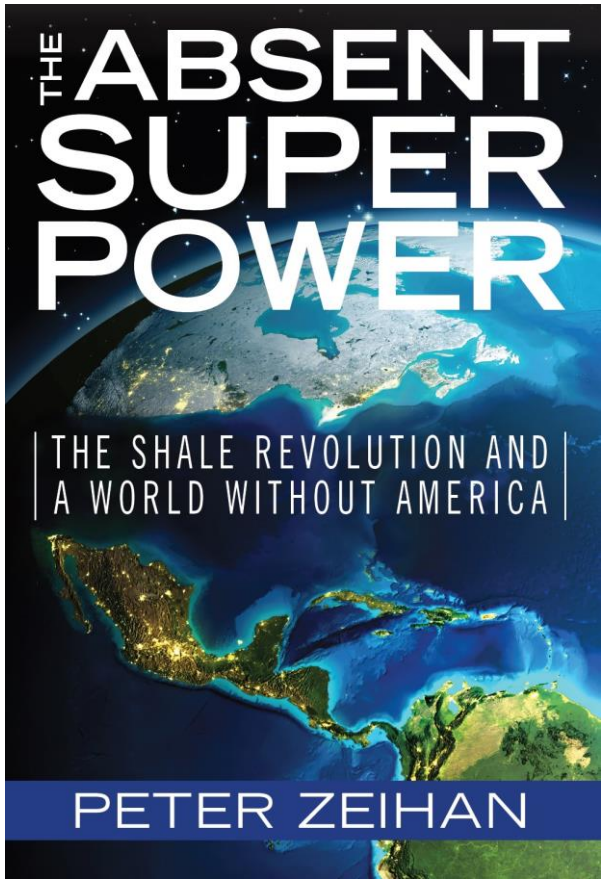
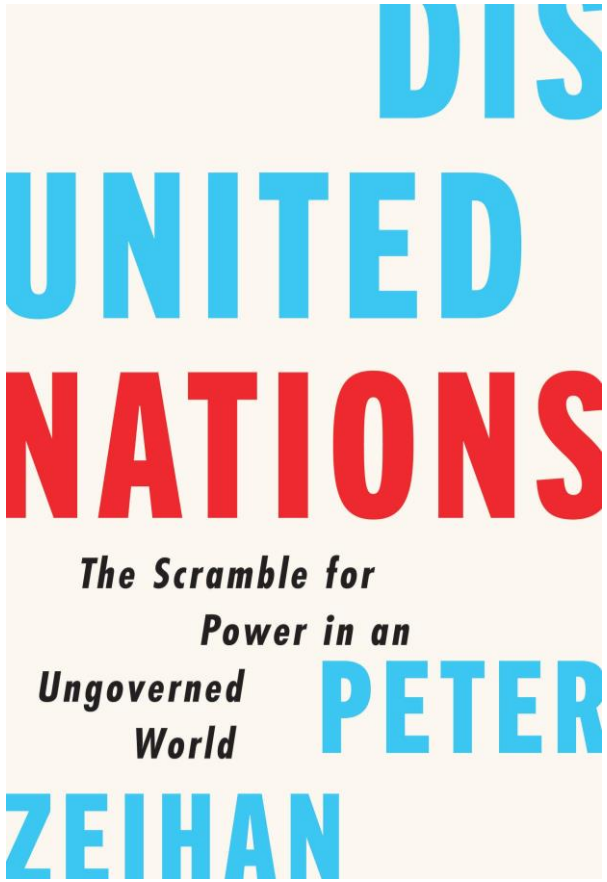
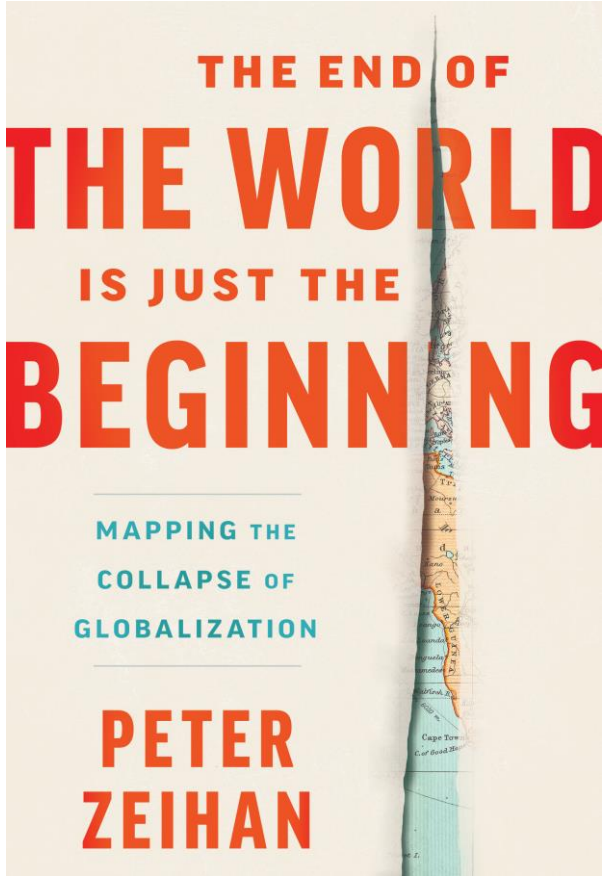
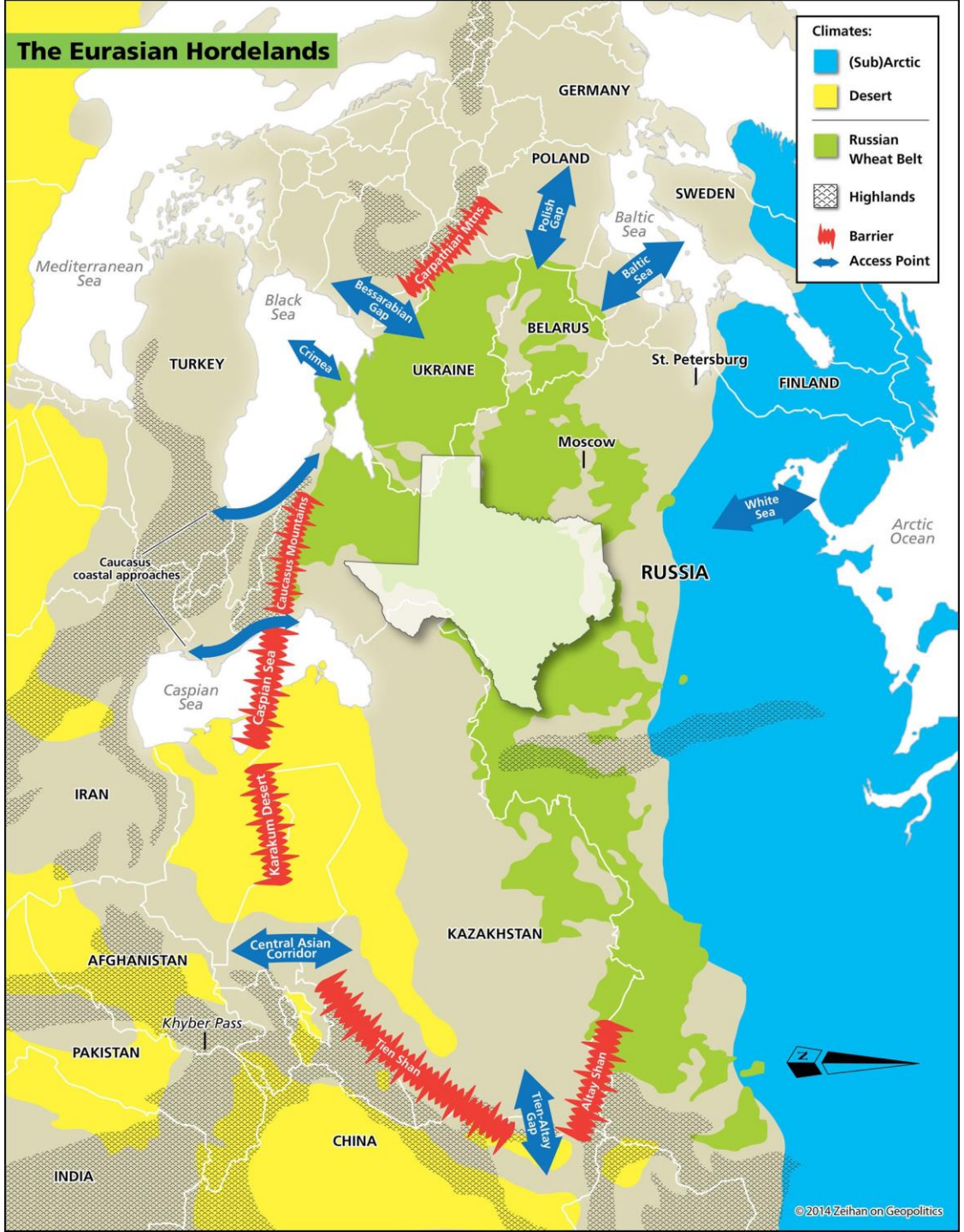
Energy at the End of the World
ECC – September 8, 2022










The Eurasian Hordelands
Climates:
(Sub)Arctic
Desert
Russian Wheat Belt
Highlands
Barrier
Access Point
GERMANY
POLAND
SWEDEN
Baltic Sea
Polish Gap
Baltic Sea
Carpathian Mtns.
Bessarabian Gap
Mediterranean Sea
Black Sea
Crimea
TURKEY
UKRAINE
BELARUS
St. Petersburg
FINLAND
Moscow
White Sea
Arctic Ocean
RUSSIA
Caucasus coastal approaches
Caucasus Mountains
Caspian Sea
Caspian Sea
IRAN
Karakum Desert
KAZAKHSTAN
Central Asian Corridor
AFGHANISTAN
Khyber Pass
PAKISTAN
Tien Shan
Altay Shan
Tien-Altay Gap
CHINA
INDIA
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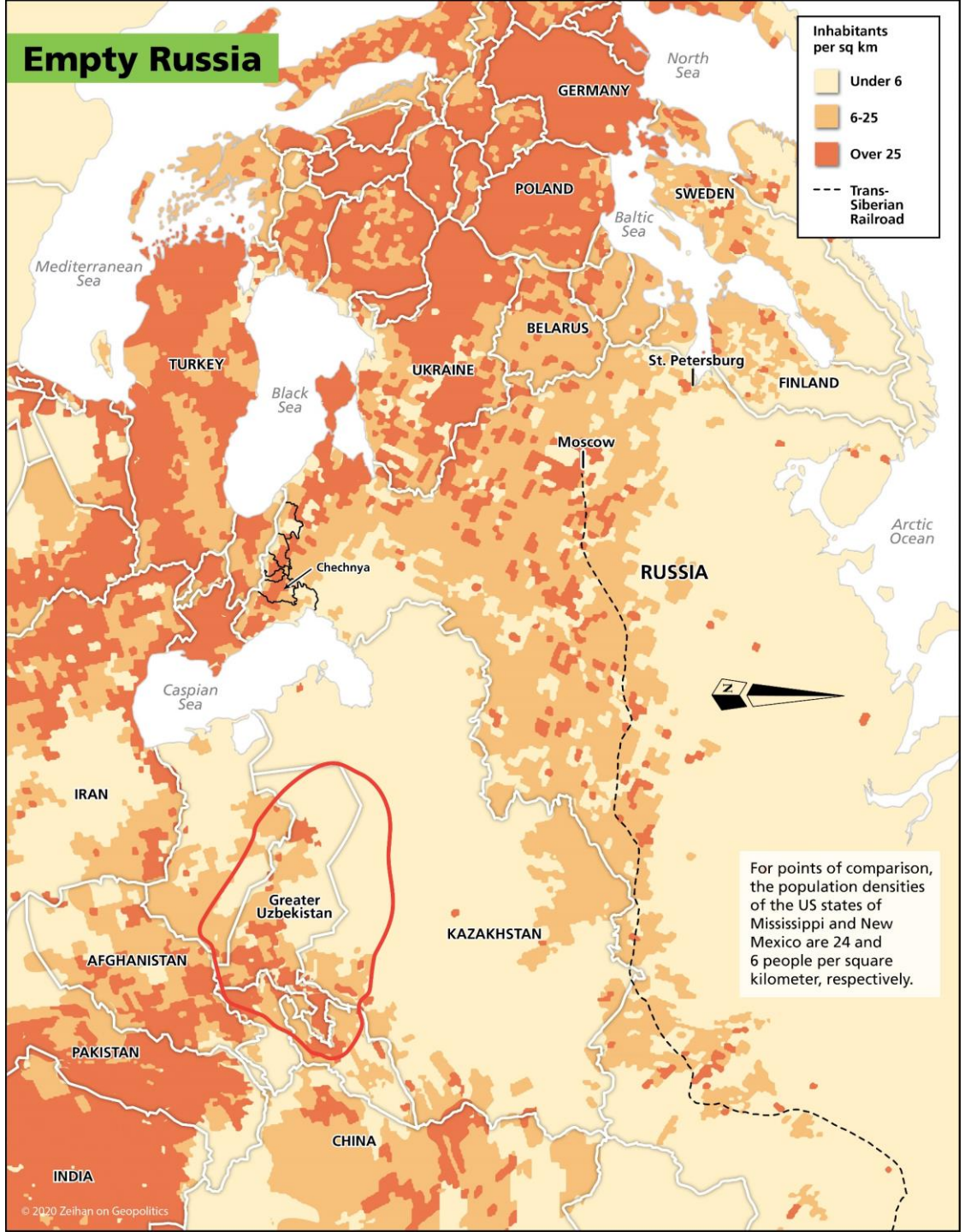
Empty Russia
Inhabitants per sq km
Under 6
6-25
Over 25
Trans-Siberian Railroad
North Sea
GERMANY
POLAND
SWEDEN
Baltic Sea
Mediterranean Sea
BELARUS
TURKEY
UKRAINE
St. Petersburg
FINLAND
Black Sea
Moscow
Arctic Ocean
Chechnya
RUSSIA
Caspian Sea
IRAN
Greater Uzbekistan
KAZAKHSTAN
AFGHANISTAN
PAKISTAN
CHINA
INDIA
For points of comparison, the population densities of the US states of Mississippi and New Mexico are 24 and 6 people per square kilometer, respectively.
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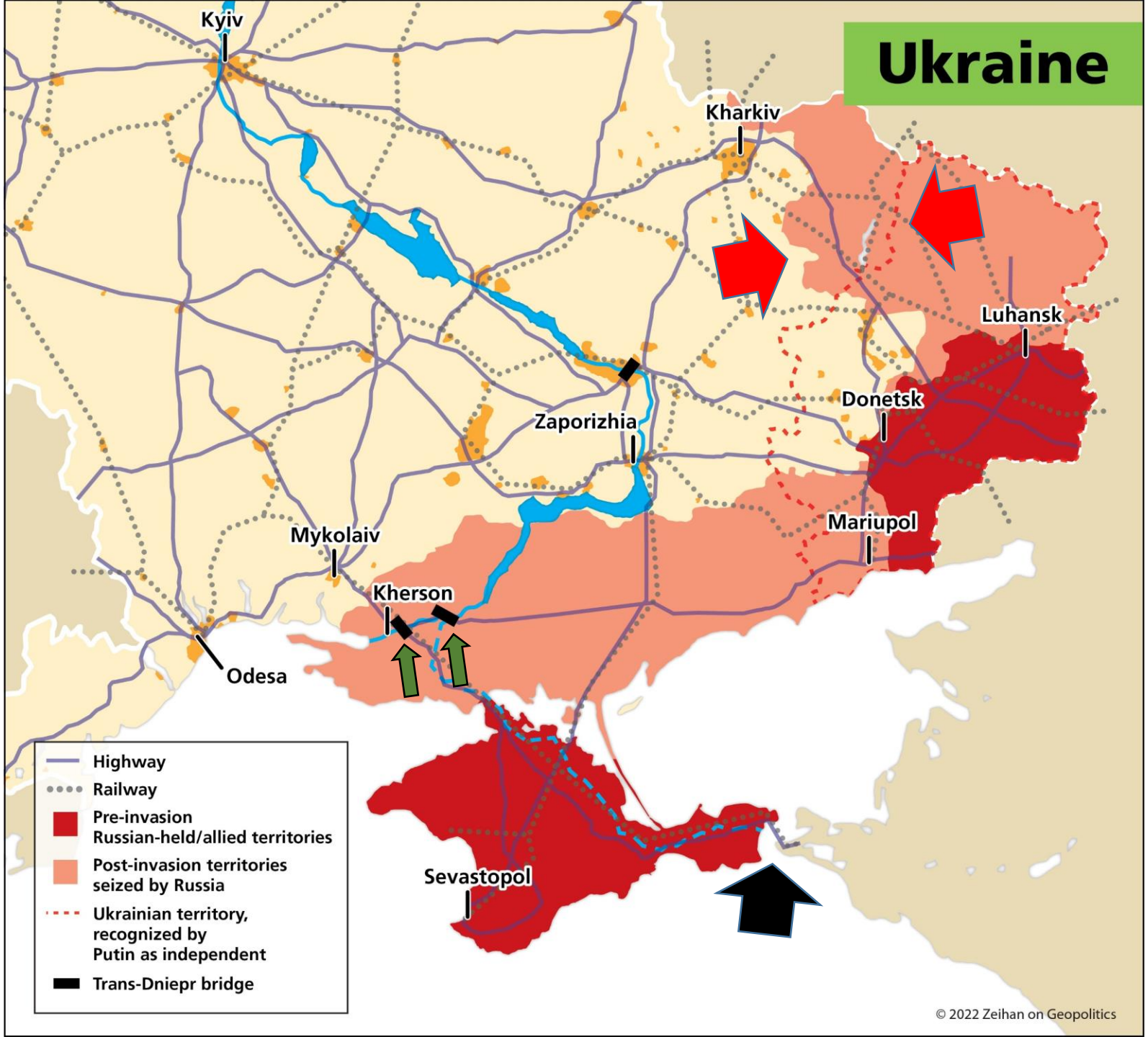
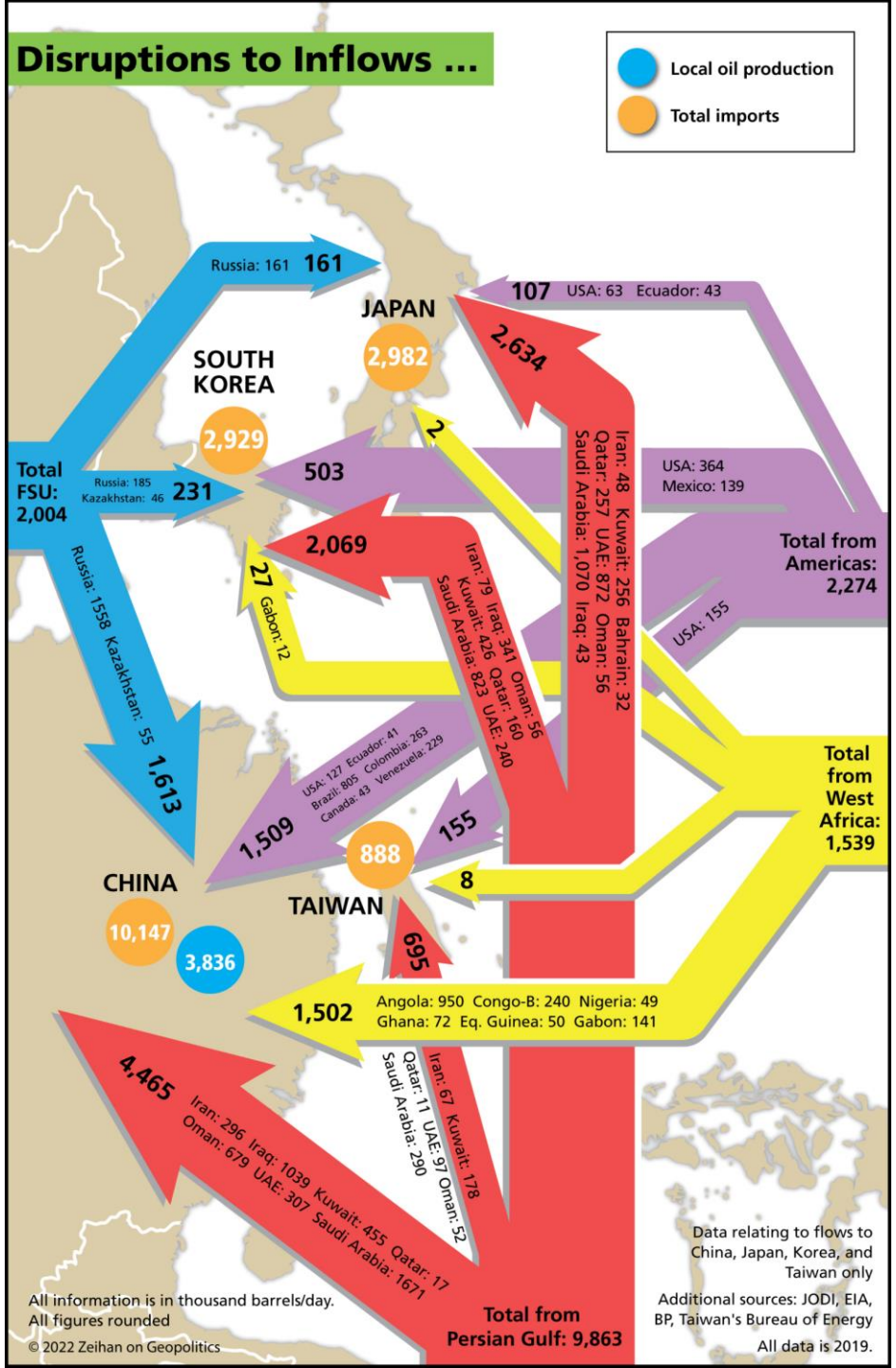
State of the War & Ukrainian Exports

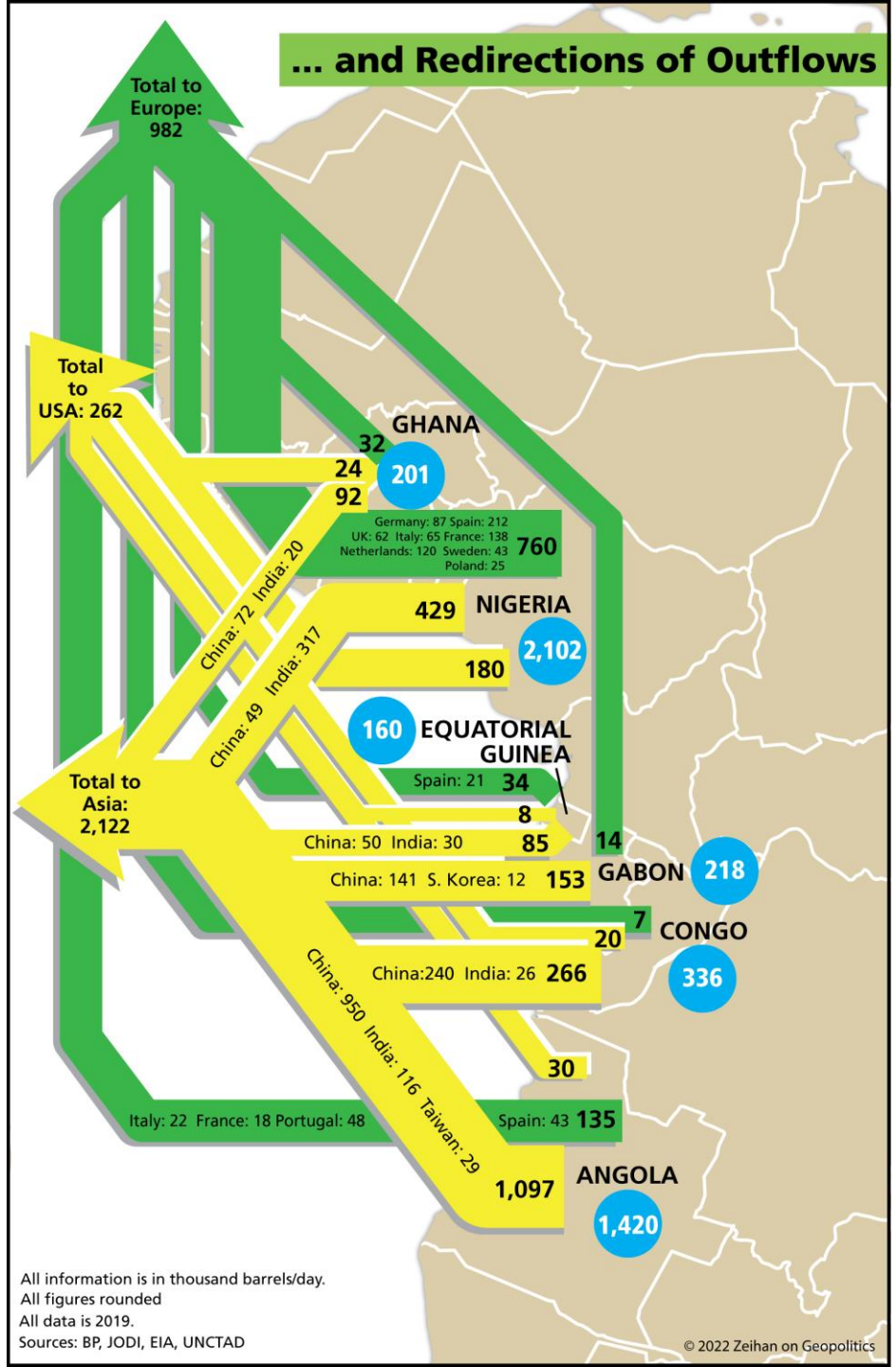


Russian, Belarusian and Ukrainian Major Exports

First in Global Ranking	Second	Third
Natural gas	Crude oil	Coal
Uranium (fuel)	Refined oil products	Aluminum
Neon	Platinum group metals	Gas turbines
Processed nickel	Refined copper	Titanium
Semi-finished iron	Steel	
Wheat	Seed oils	
Fertilizer	Ammonia	
Potash	Sawn wood	

The Redirection Question





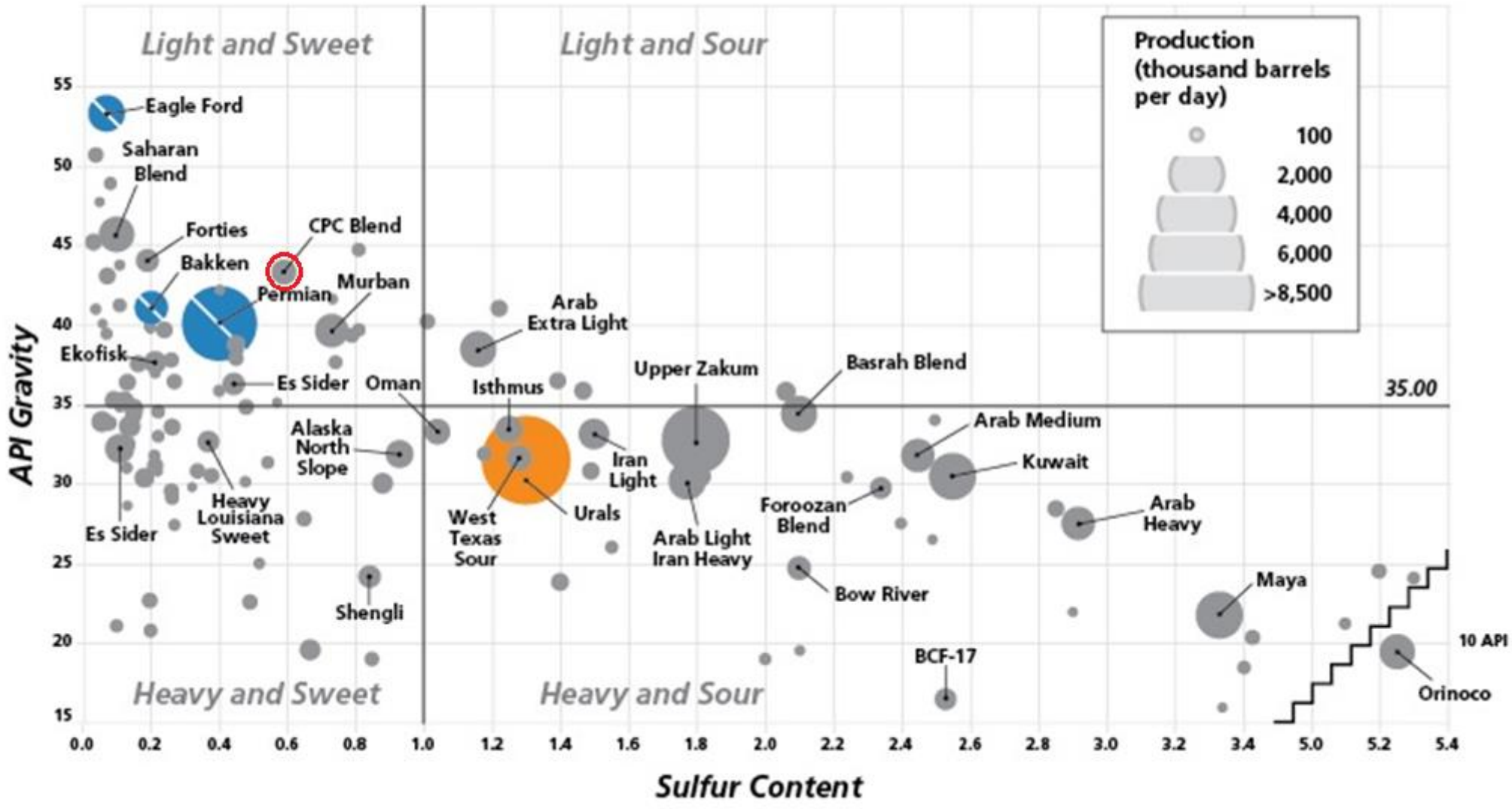
The Depression Question

The Populist Question

The German Question

The Mismatch Question

Risk to Important Crude Flows



All global crude grades with a gross production in excess of 100,000 barrels per day. Sources: Energy Intelligence, Baker Institute, EIA, Argus Media, and Tableau

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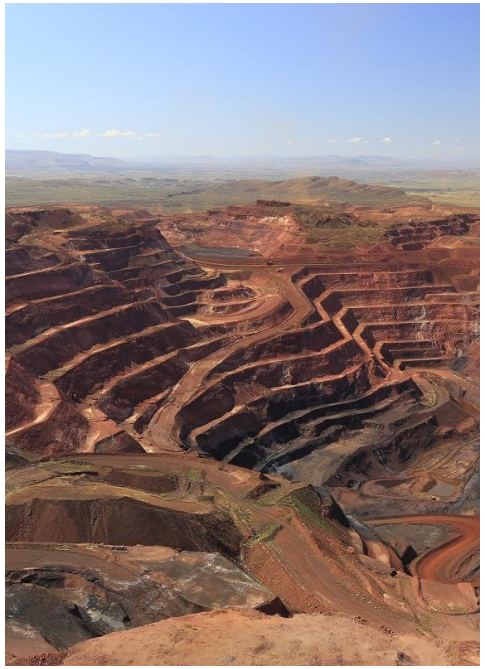
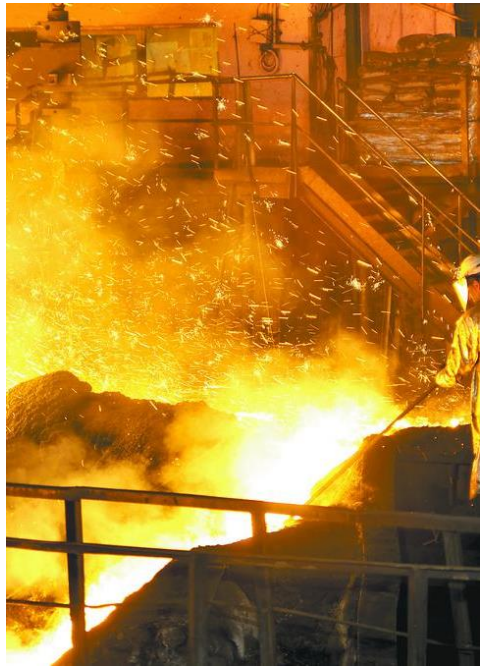
The Steel Question

Iron Ore



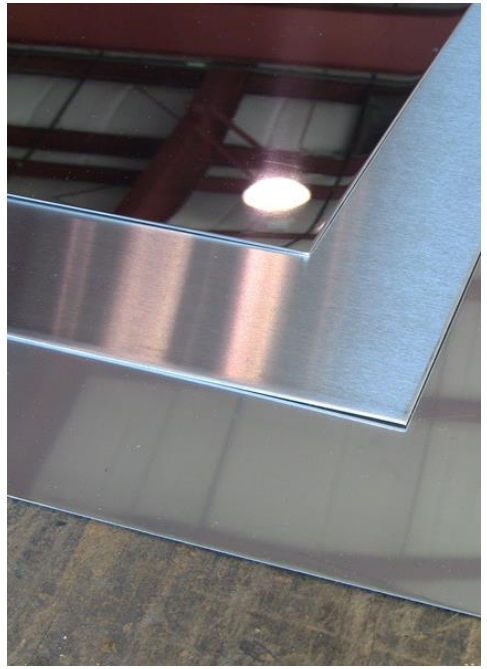
Blast Furnace



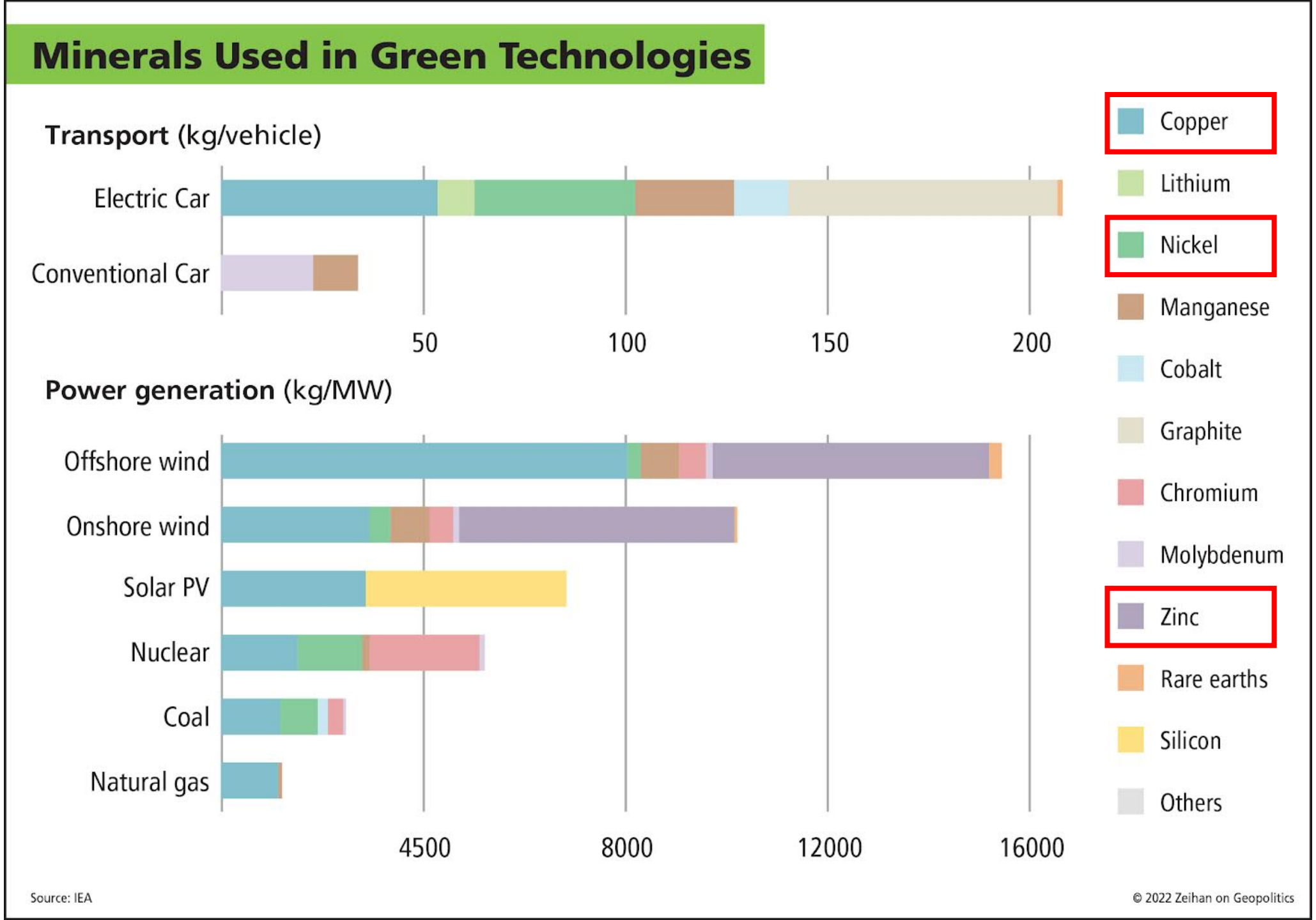
Pig Iron

Hot-Rolled

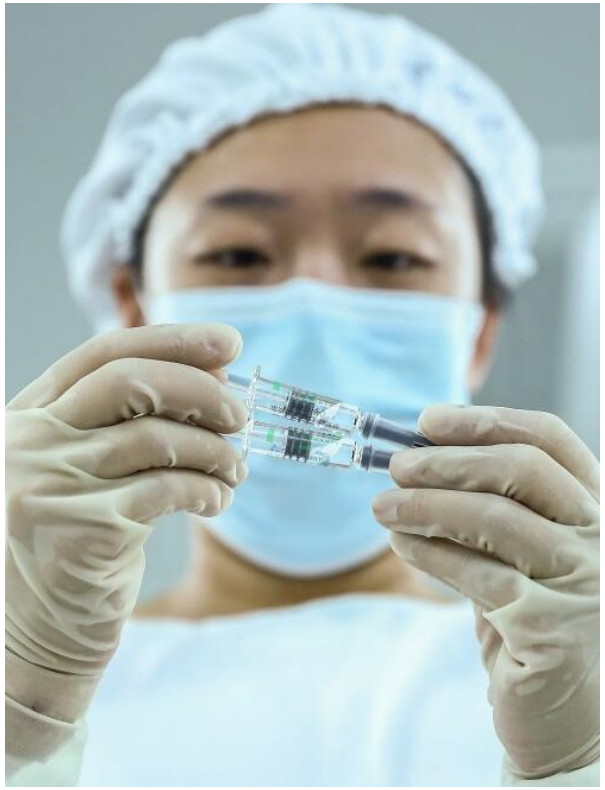
Cold-Rolled



The Greentech Question

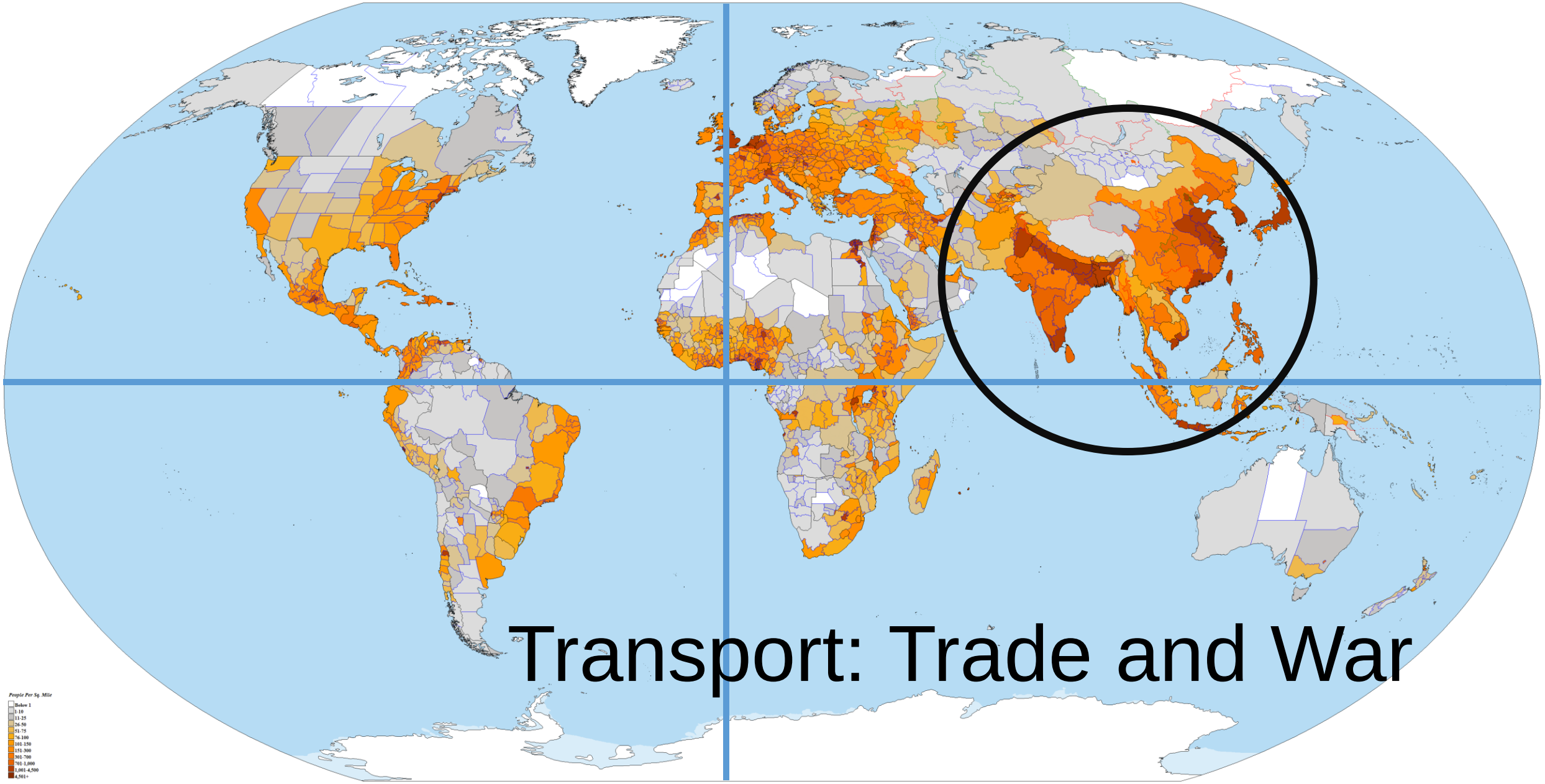


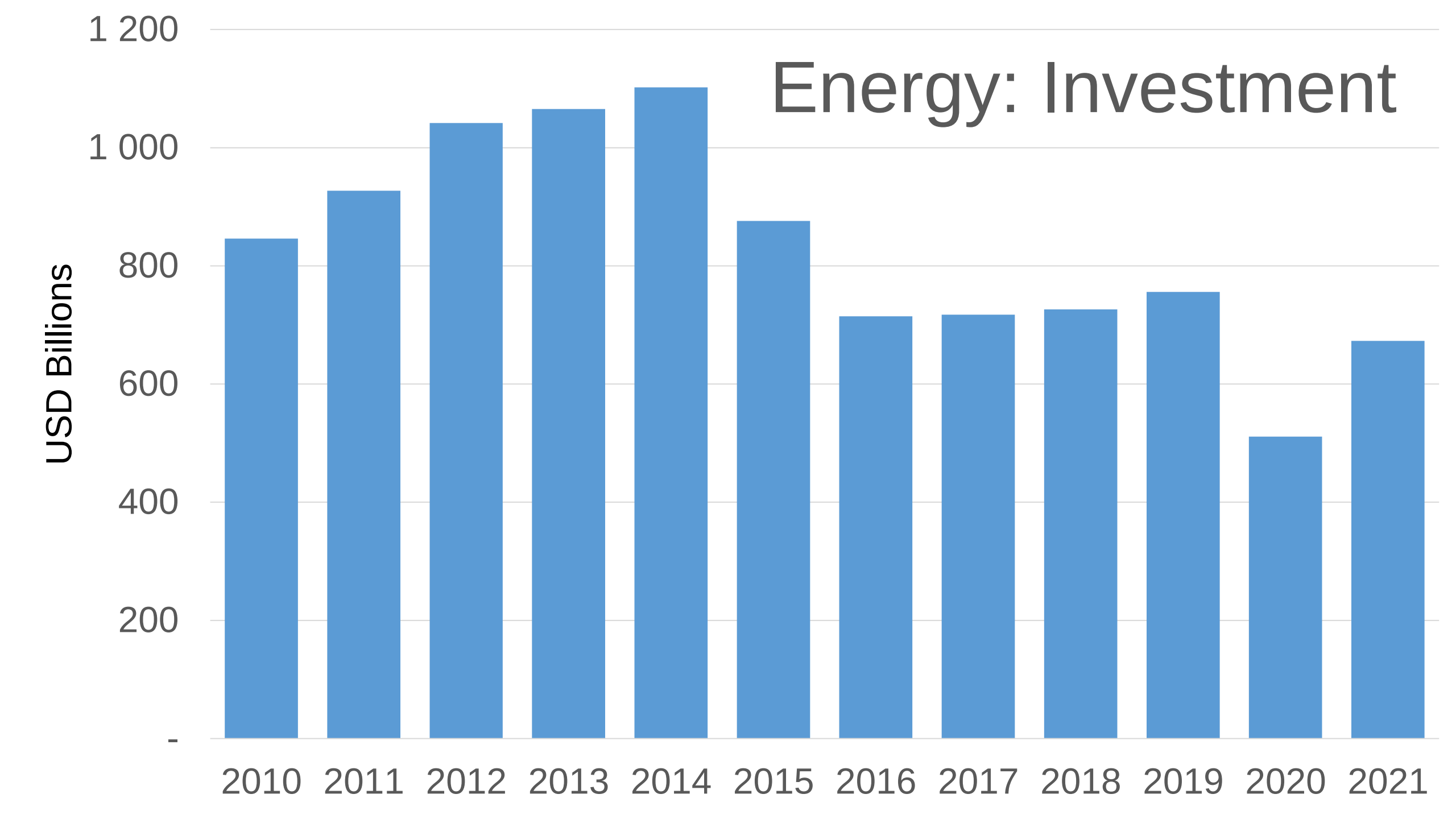
Approaching the Chinese Collapse



Transport: Global Patrol

Transport: Global Patrol


Transport: Trade and War
People Per Sq. Mile
Below 1
1-10
11-25
26-50
51-75
76-100
101-150
151-300
301-700
701-1,000
1,001-4,500
4,501+


Energy: Investment
USD Billions
1 200
1 000
800
600
400
200
-
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021

The World At Night
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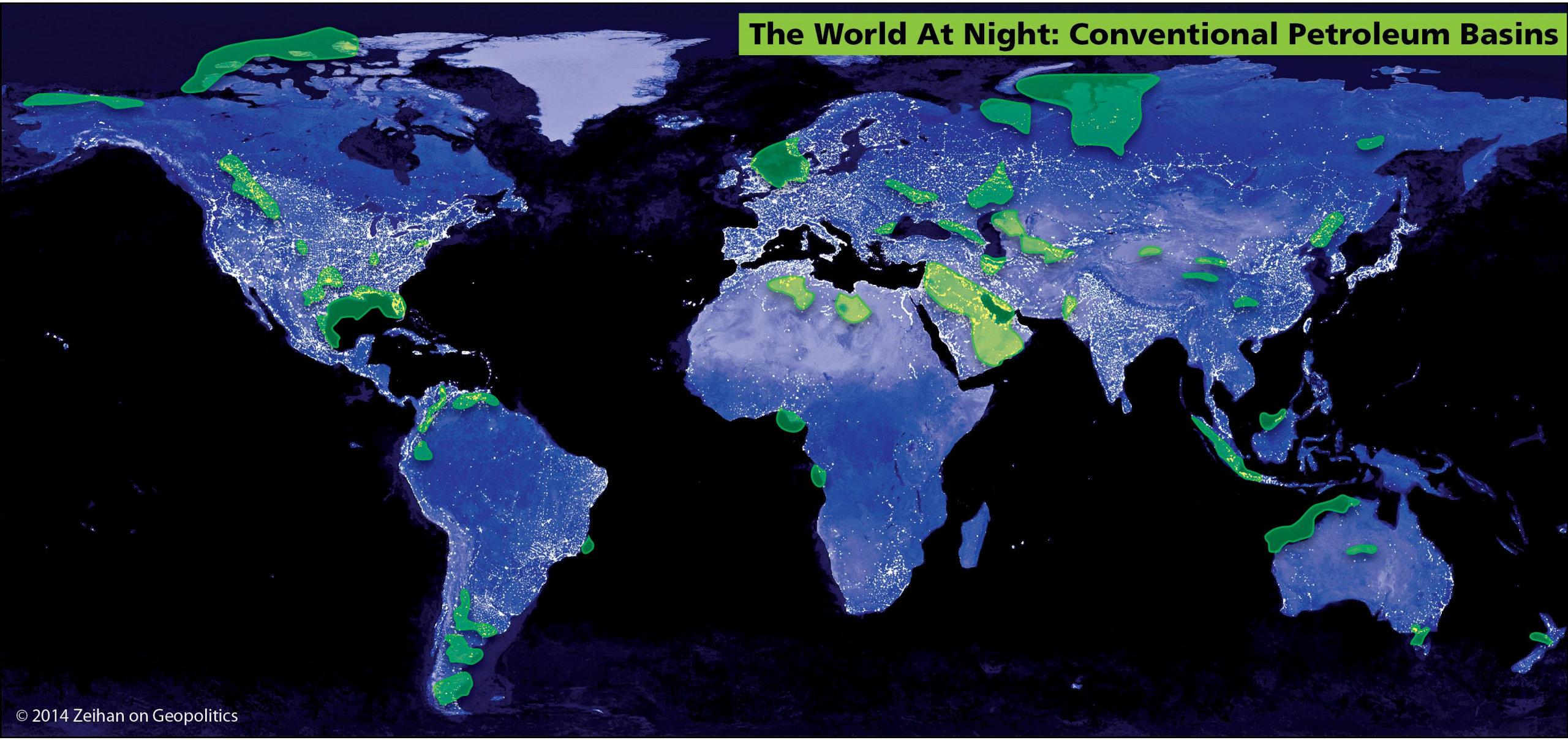
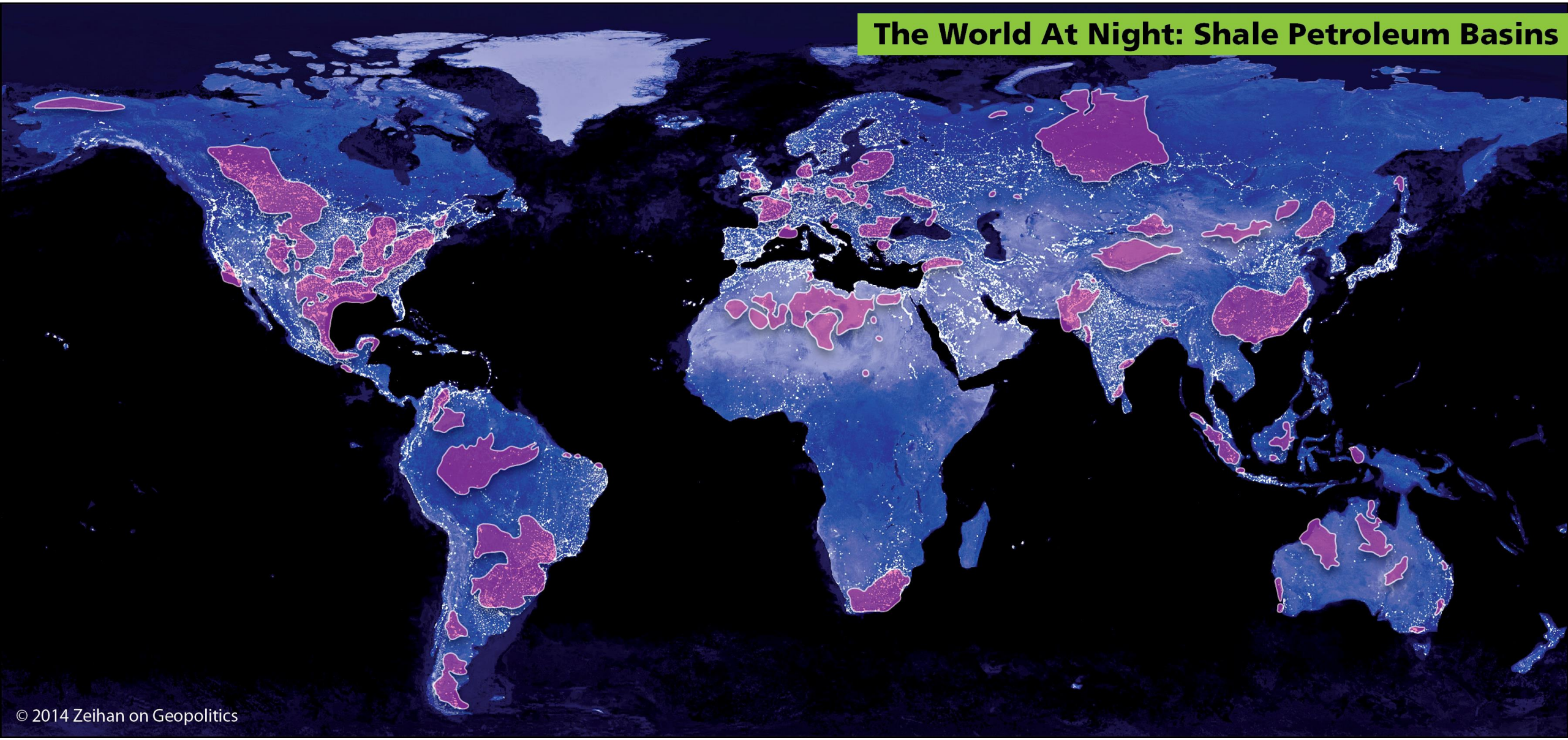

The World At Night: Conventional Petroleum Basins
© 2014 Zeihan on Geopolitics


The World At Night: Shale Petroleum Basins
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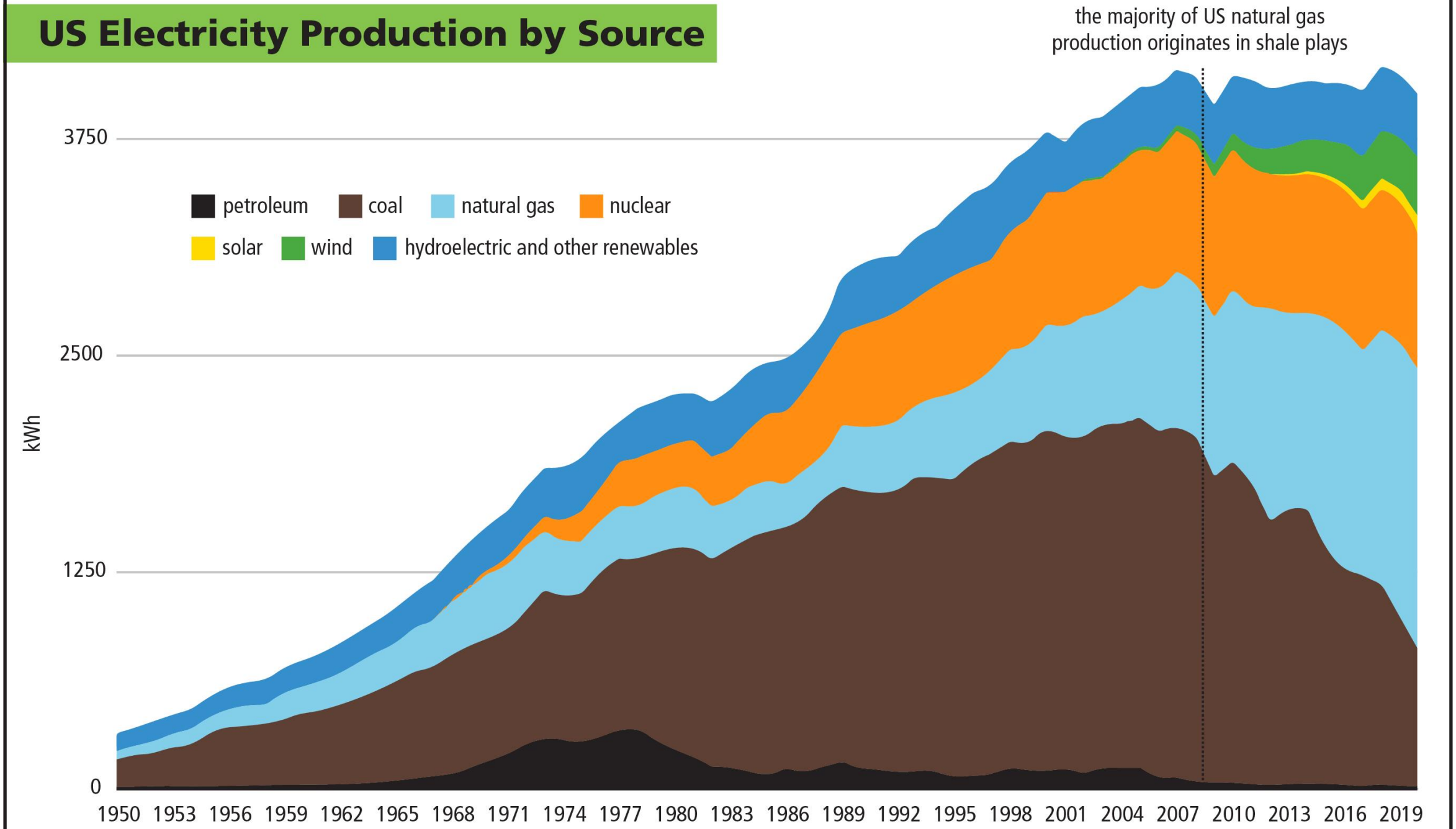
Minneapolis
Des Moines
Chicago
Omaha

US Electricity Production by Source



Source: EIA

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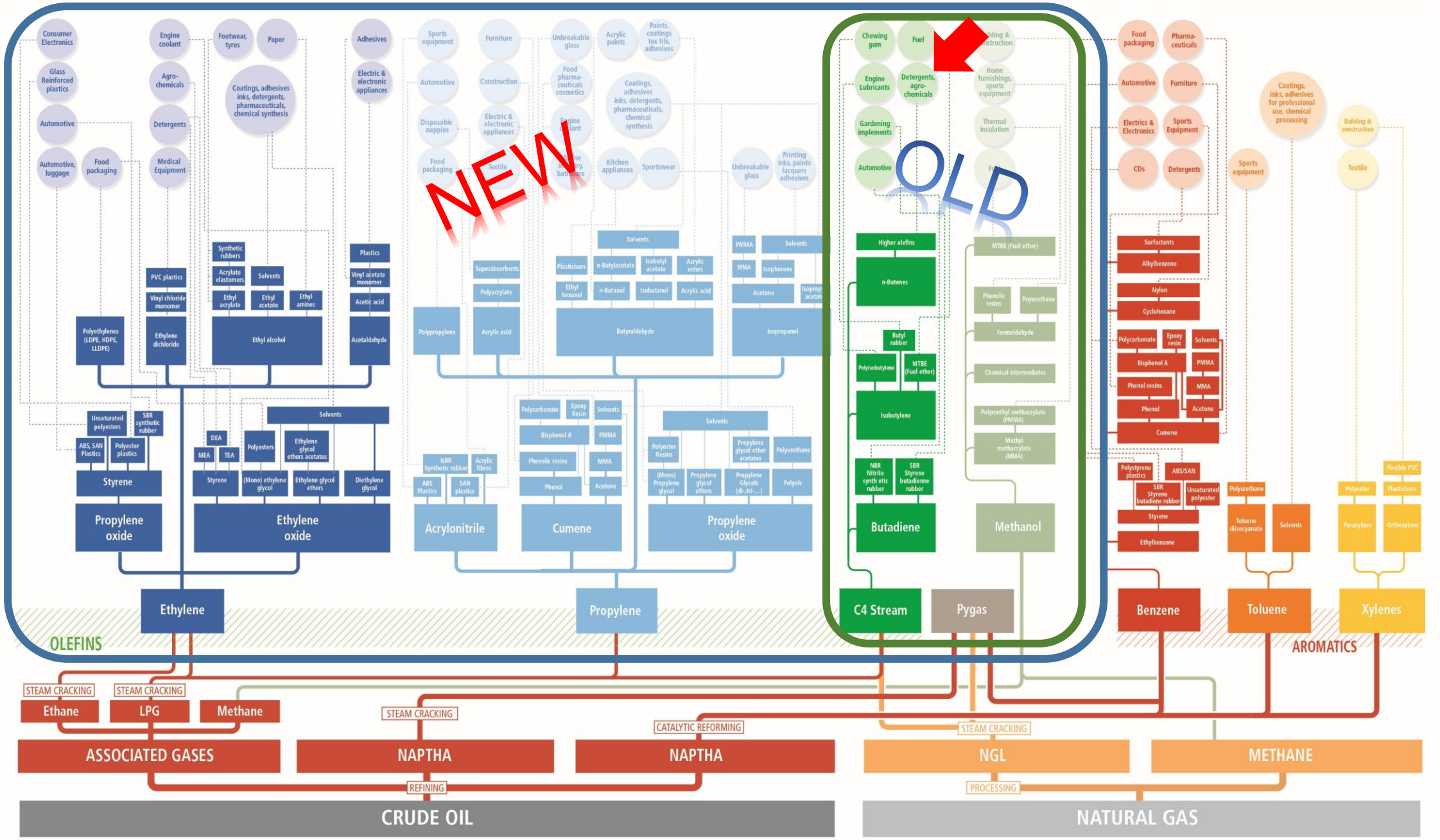
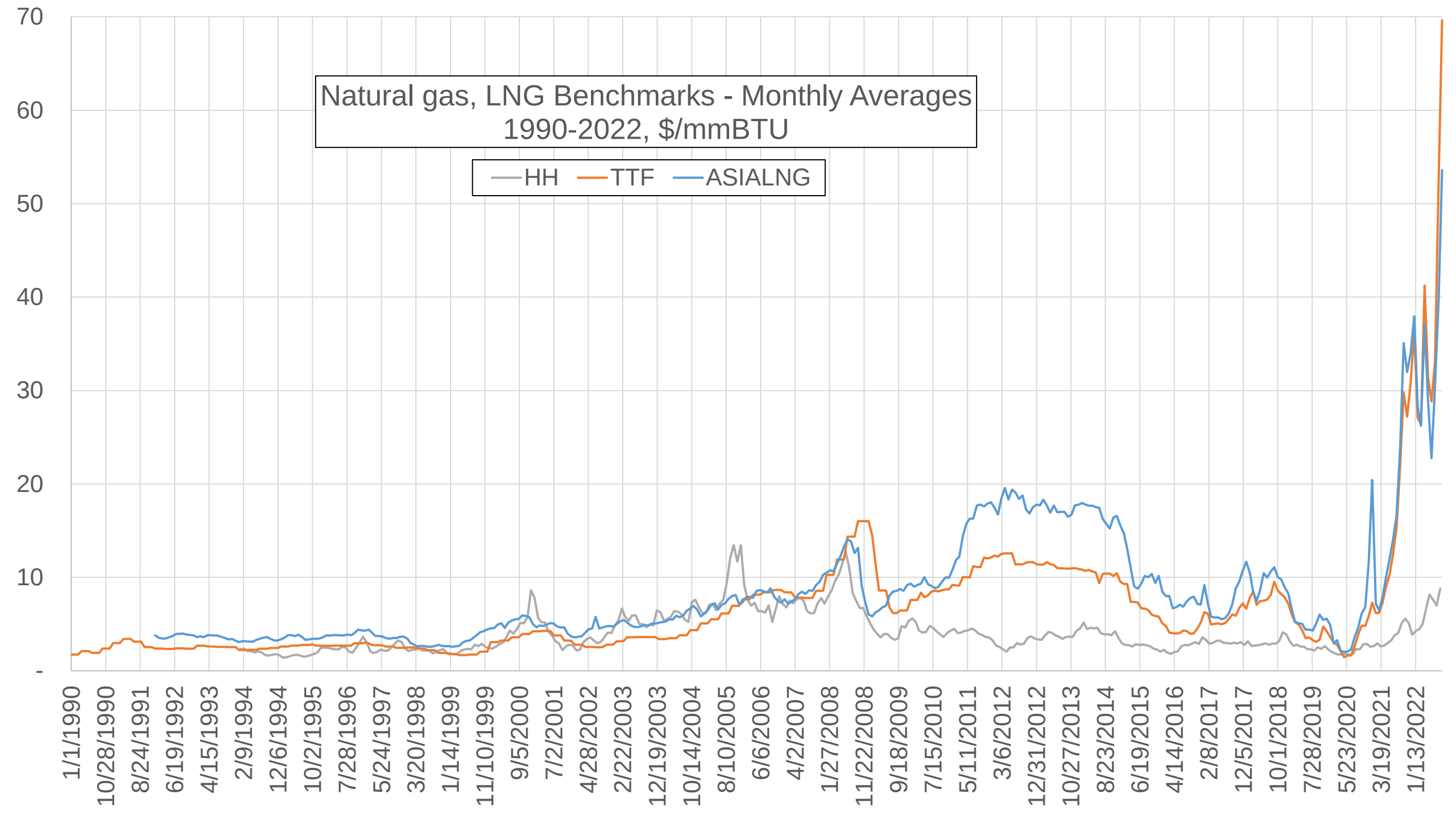
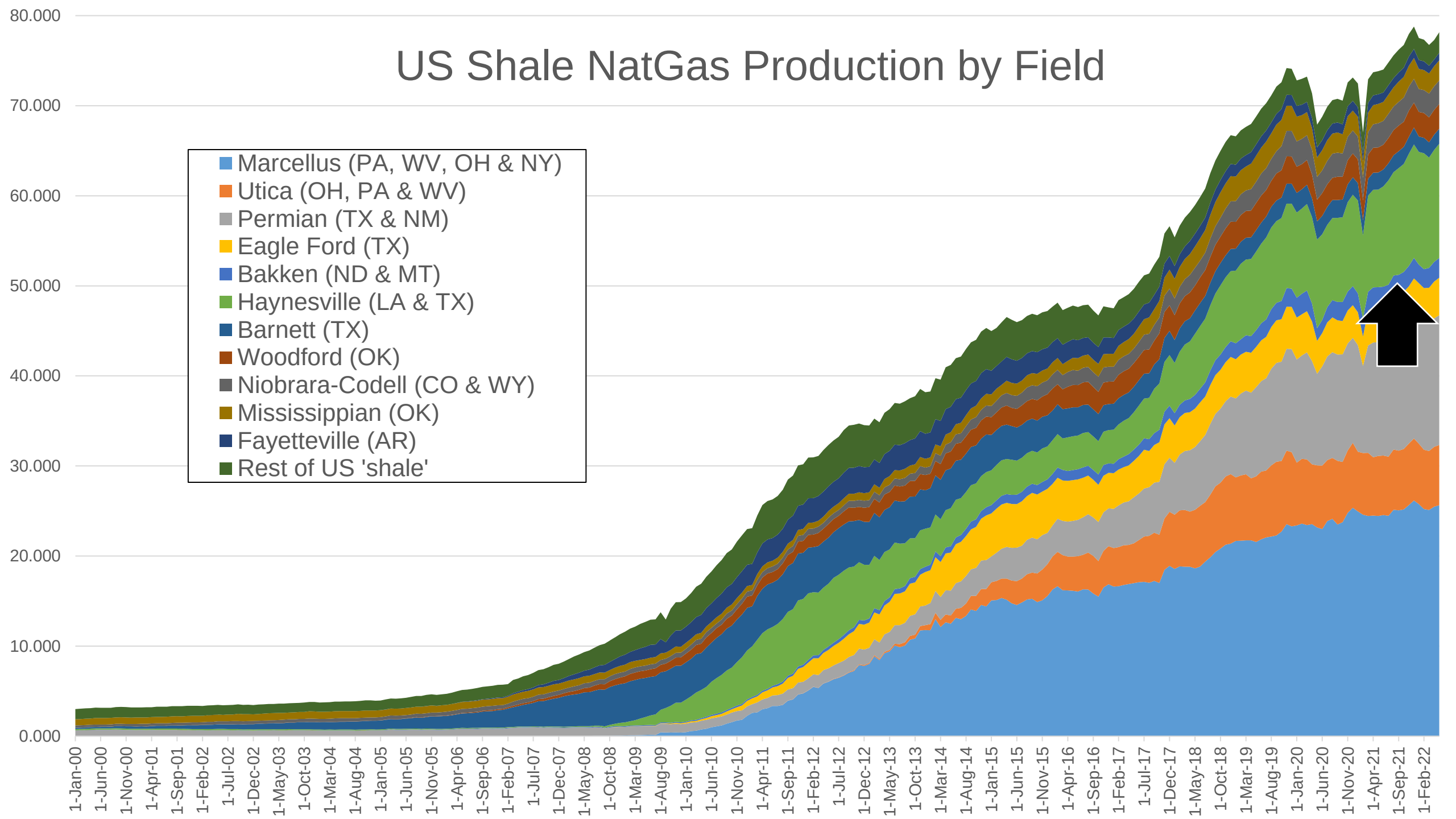
Energy: Waste Economics

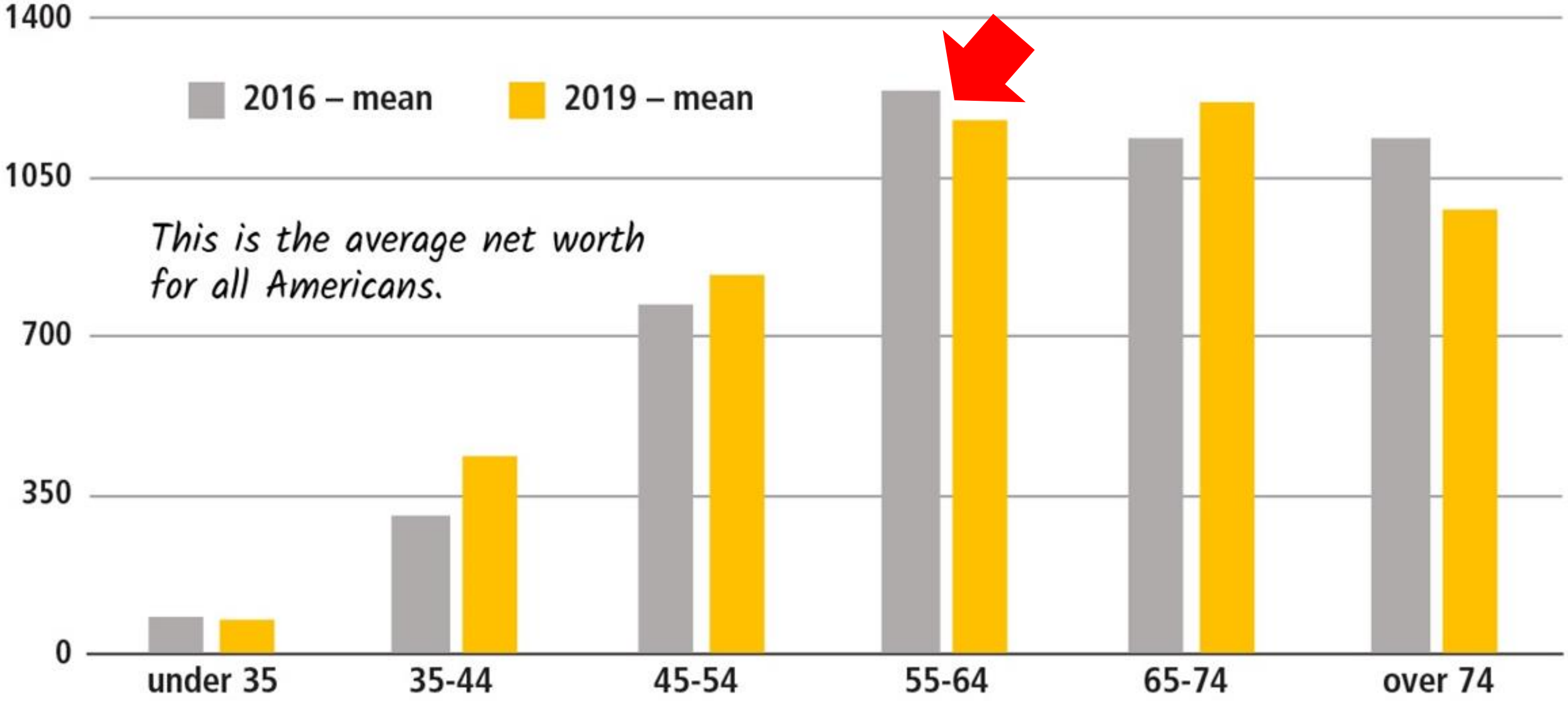
Petroleum Inputs into Common Goods



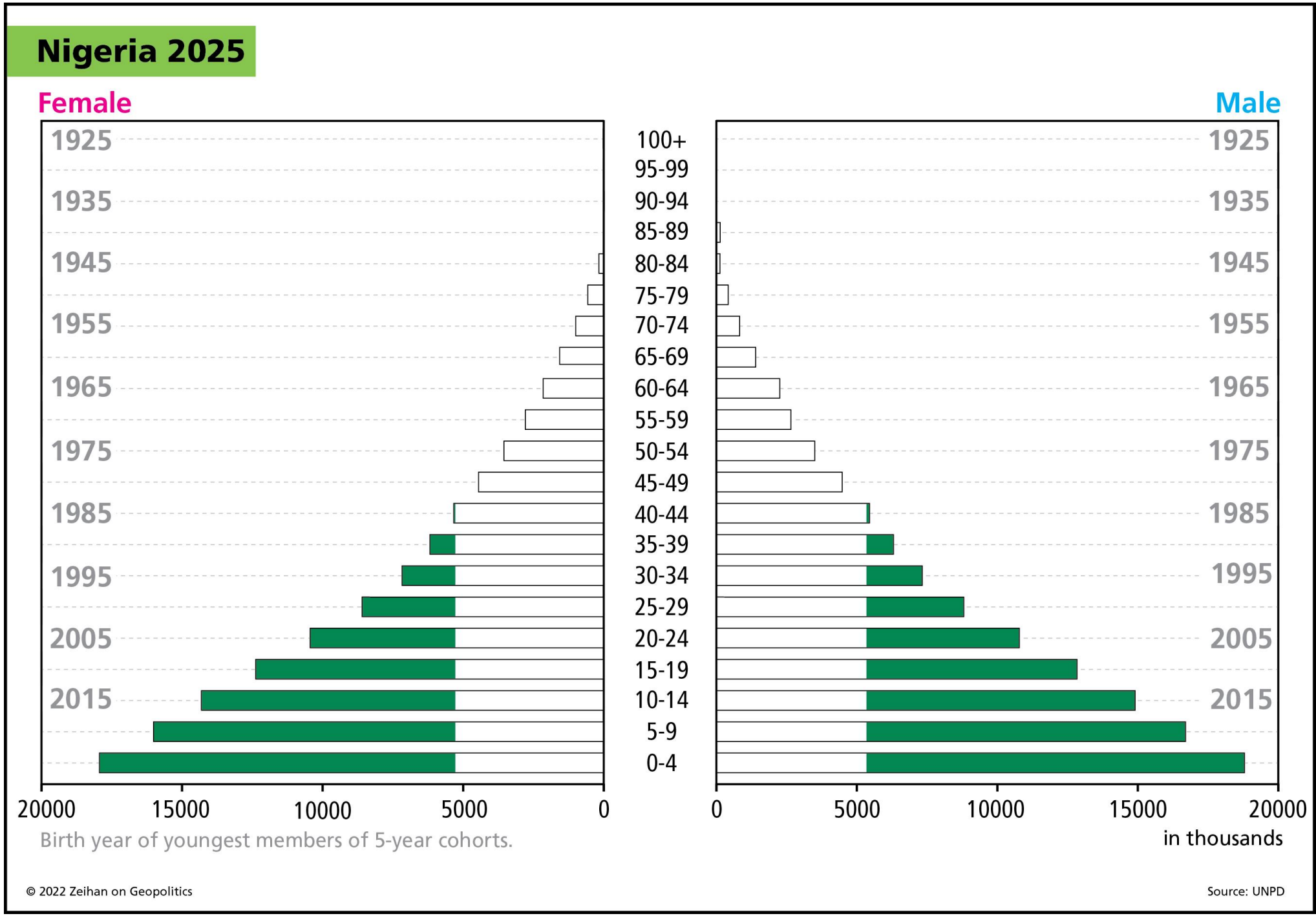

Natural gas, LNG Benchmarks - Monthly Averages
1990-2022, $/mmBTU
HH
TTF
ASIALNG
70
60
50
40
30
20
10
-
1/1/1990
10/28/1990
8/24/1991
6/19/1992
4/15/1993
2/9/1994
12/6/1994
10/2/1995
7/28/1996
5/24/1997
3/20/1998
1/14/1999
11/10/1999
9/5/2000
7/2/2001
4/28/2002
2/22/2003
12/19/2003
10/14/2004
8/10/2005
6/6/2006
4/2/2007
1/27/2008
11/22/2008
9/18/2009
7/15/2010
5/11/2011
3/6/2012
12/31/2012
10/27/2013
8/23/2014
6/19/2015
4/14/2016
2/8/2017
12/5/2017
10/1/2018
7/28/2019
5/23/2020
3/19/2021
1/13/2022


US Shale NatGas Production by Field
Marcellus (PA, WV, OH & NY)
Utica (OH, PA & WV)
Permian (TX & NM)
Eagle Ford (TX)
Bakken (ND & MT)
Haynesville (LA & TX)
Barnett (TX)
Woodford (OK)
Niobrara-Codell (CO & WY)
Mississippian (OK)
Fayetteville (AR)
Rest of US 'shale'
80.000
70.000
60.000
50.000
40.000
30.000
20.000
10.000
0.000
1-Jan-00
1-Jun-00
1-Nov-00
1-Apr-01
1-Sep-01
1-Feb-02
1-Jul-02
1-Dec-02
1-May-03
1-Oct-03
1-Mar-04
1-Aug-04
1-Jan-05
1-Jun-05
1-Nov-05
1-Apr-06
1-Sep-06
1-Feb-07
1-Jul-07
1-Dec-07
1-May-08
1-Oct-08
1-Mar-09
1-Aug-09
1-Jan-10
1-Jun-10
1-Nov-10
1-Apr-11
1-Sep-11
1-Feb-12
1-Jul-12
1-Dec-12
1-May-13
1-Oct-13
1-Mar-14
1-Aug-14
1-Jan-15
1-Jun-15
1-Nov-15
1-Apr-16
1-Sep-16
1-Feb-17
1-Jul-17
1-Dec-17
1-May-18
1-Oct-18
1-Mar-19
1-Aug-19
1-Jan-20
1-Jun-20
1-Nov-20
1-Apr-21
1-Sep-21
1-Feb-22

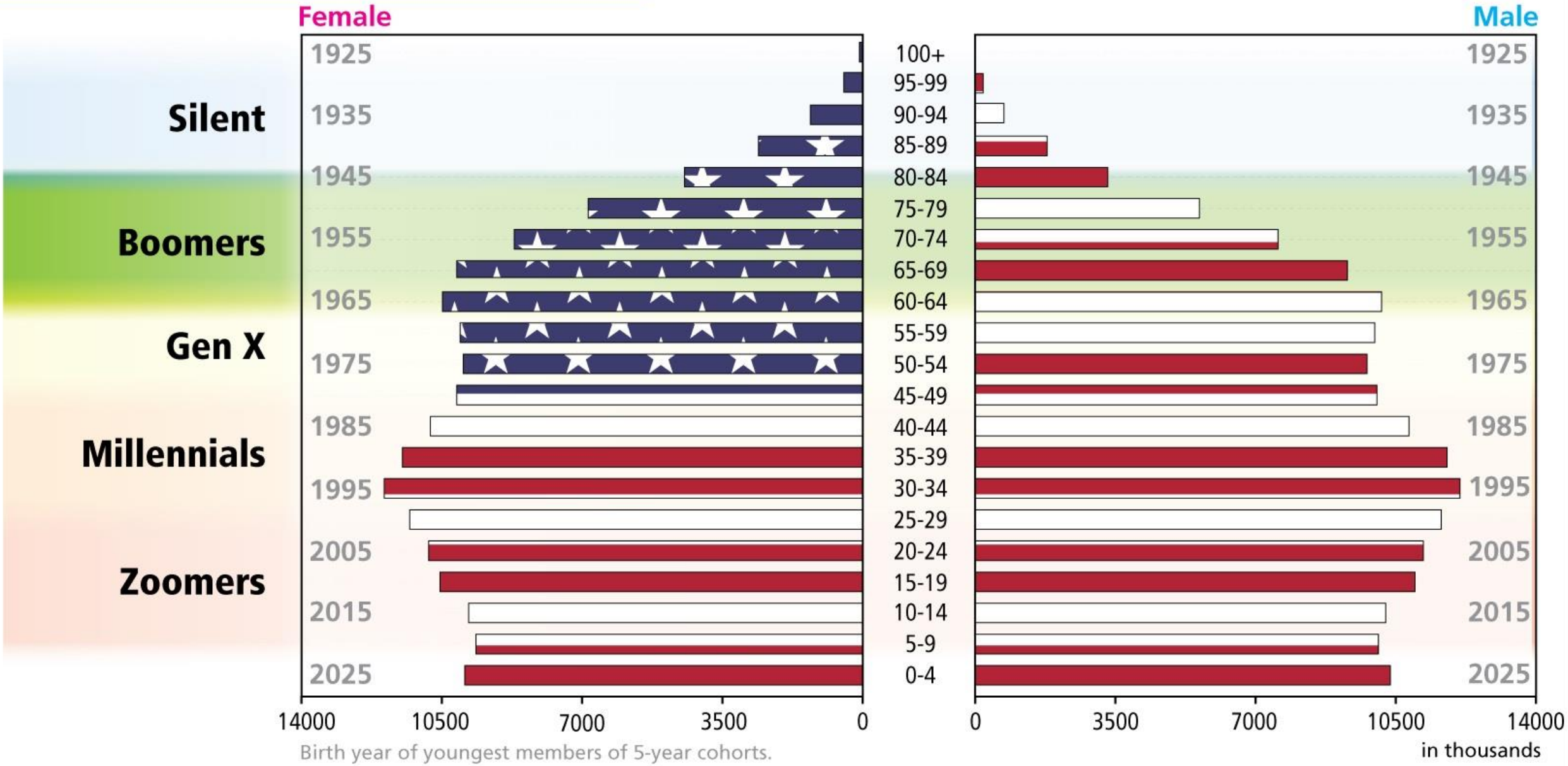
Finance: The Cliff Approaches



Finance: The Old Normal



United States Demography 2025



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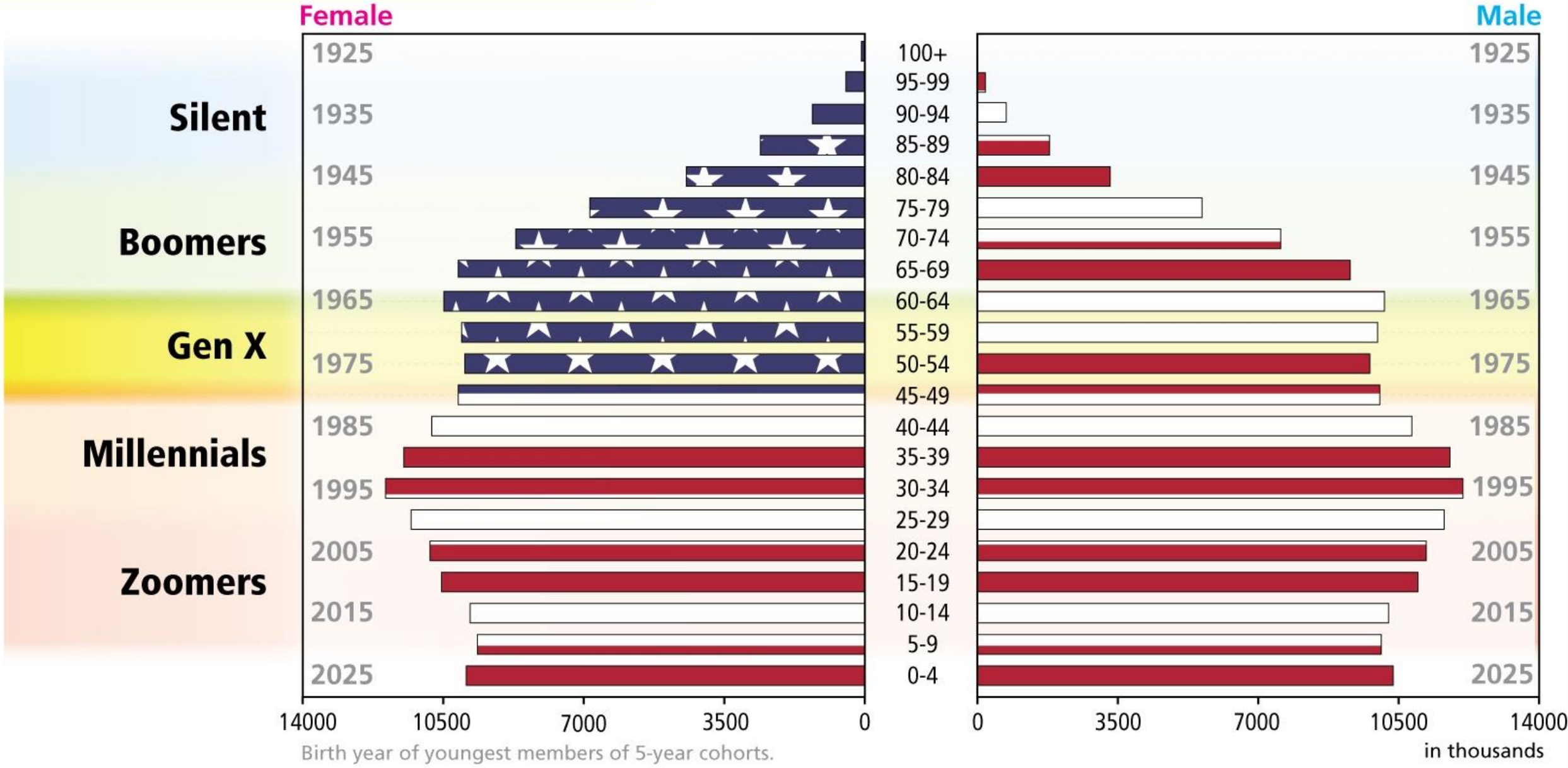
Source: UNPD

United States Demography 2025



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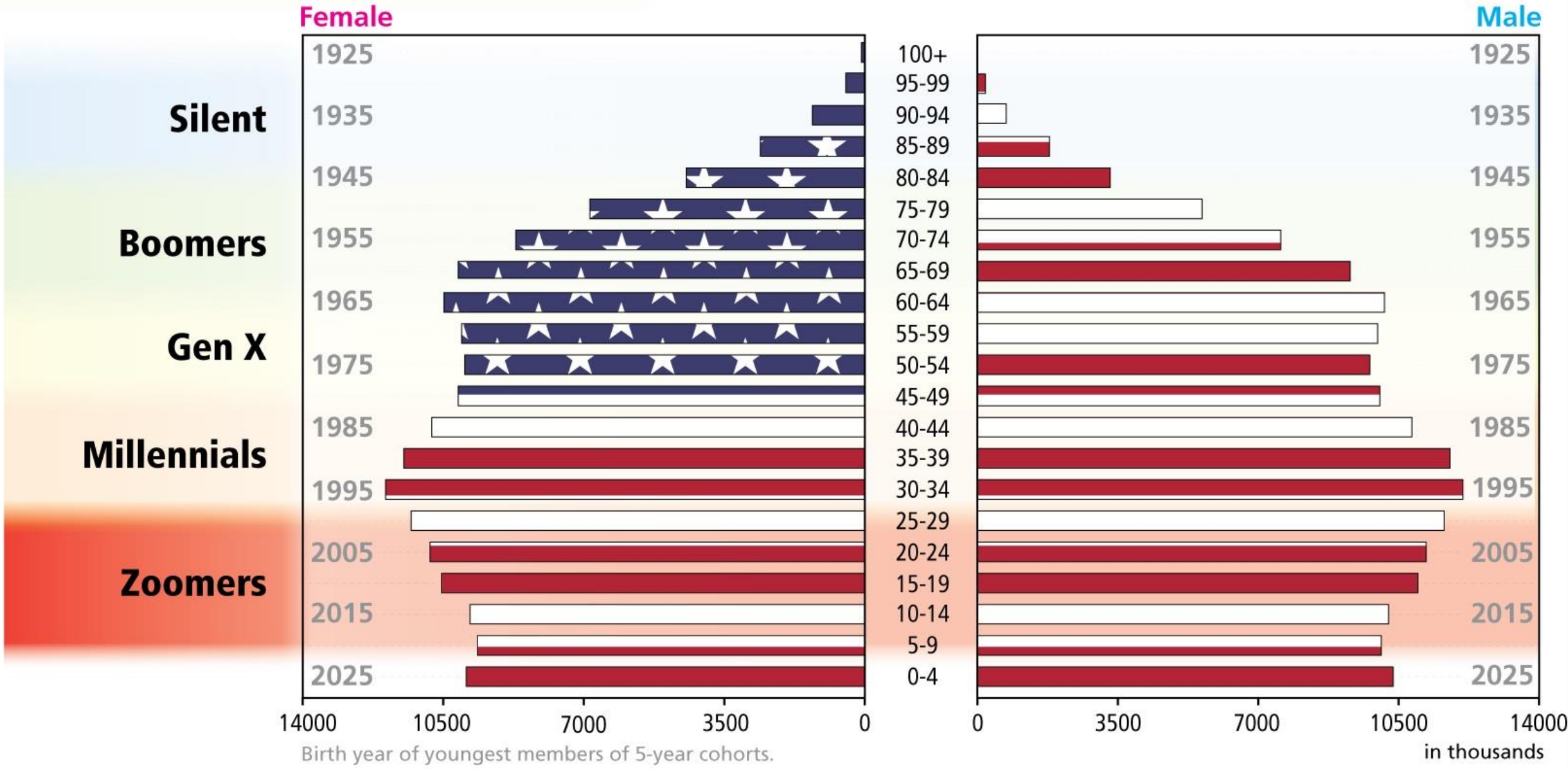
Source: UNPD

United States Demography 2025



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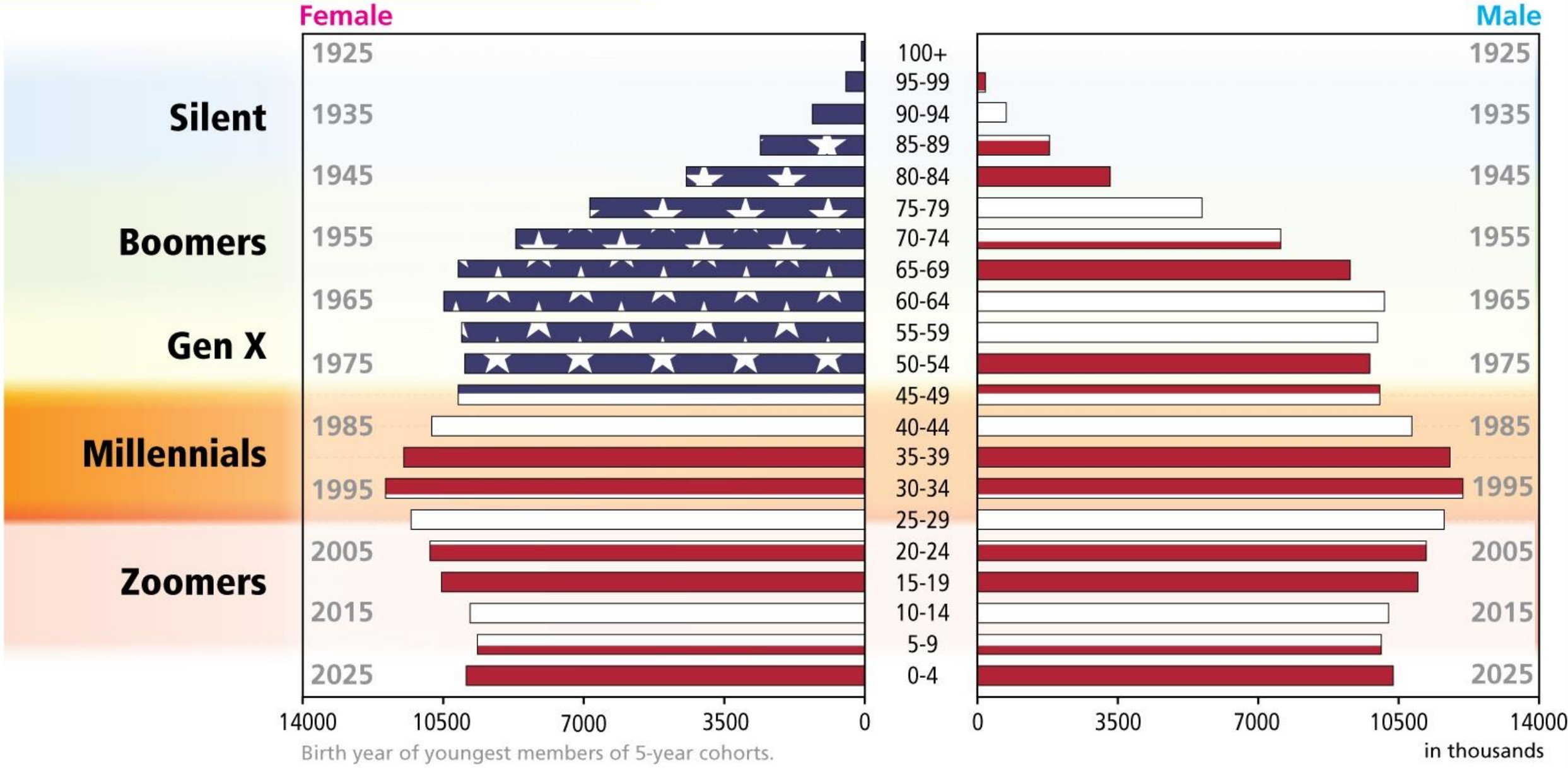
Source: UNPD

United States Demography 2025



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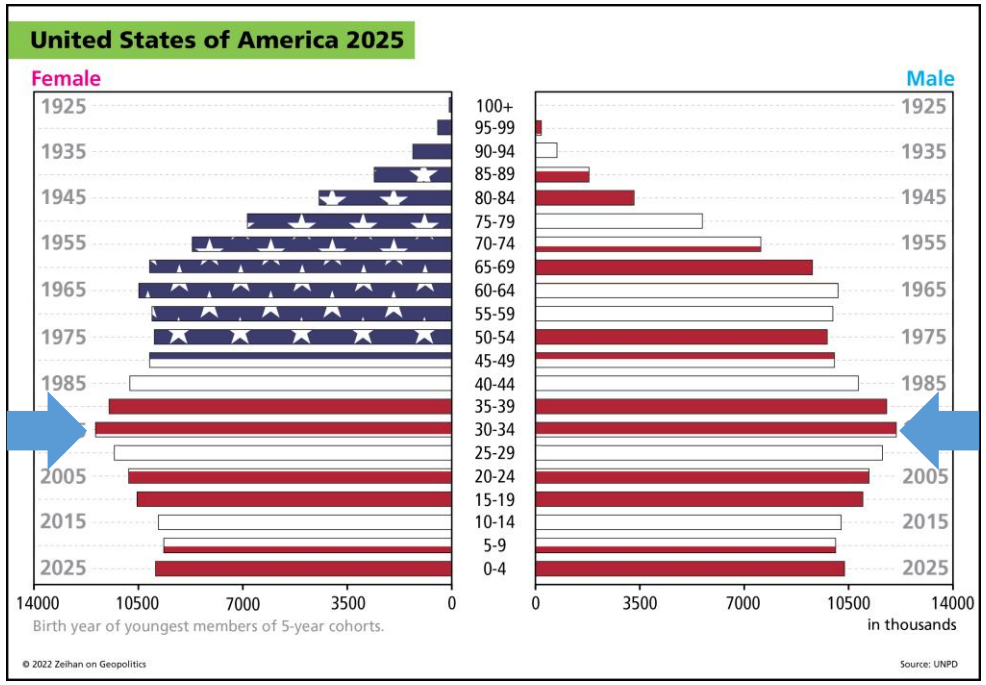
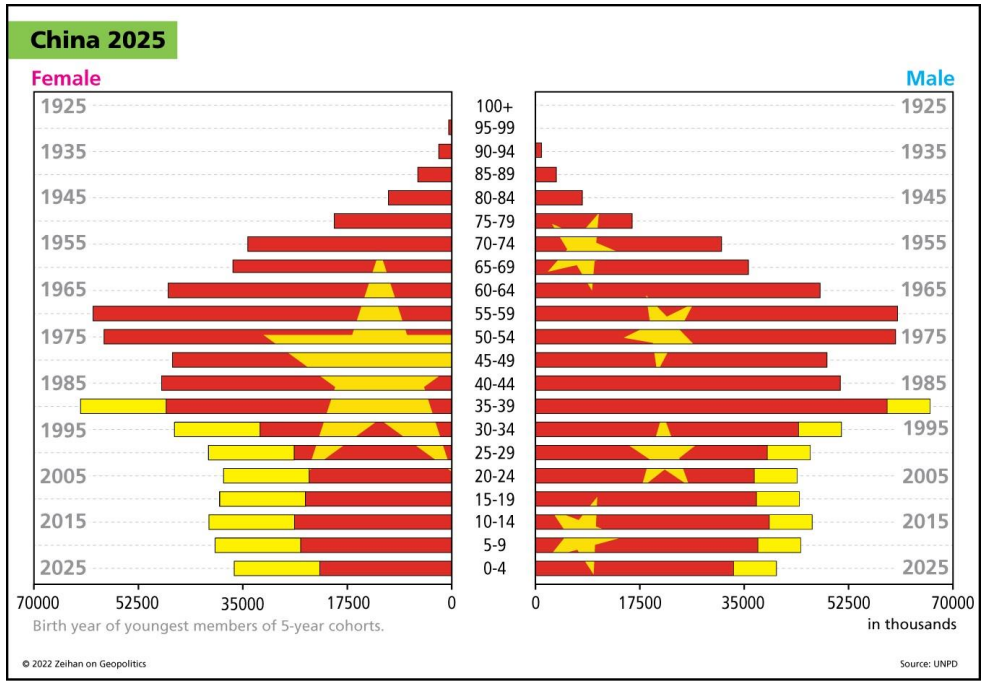
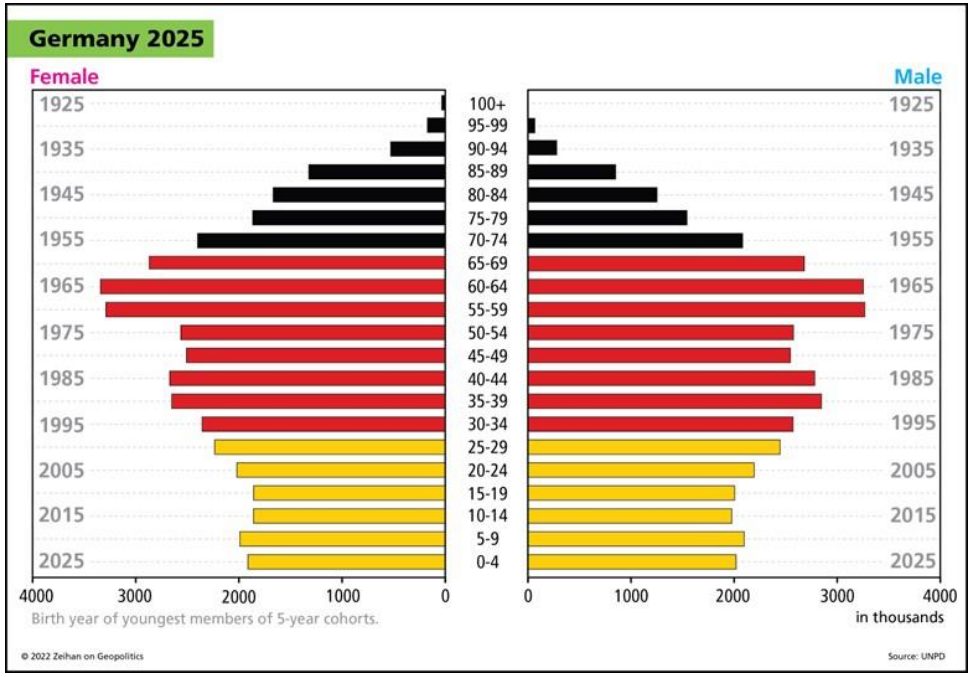
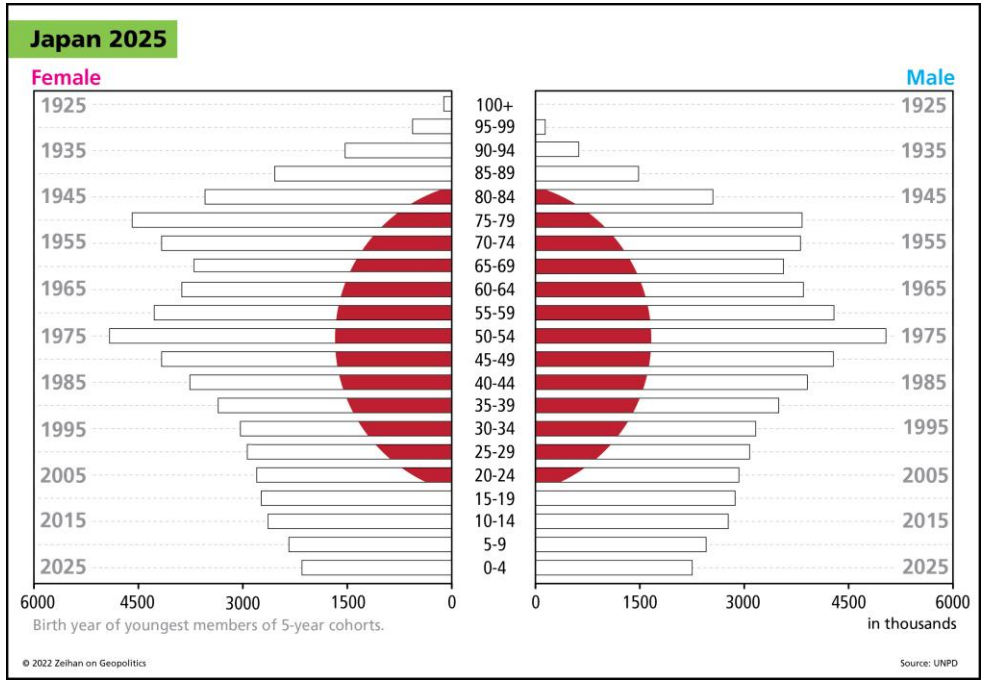
Source: UNPD

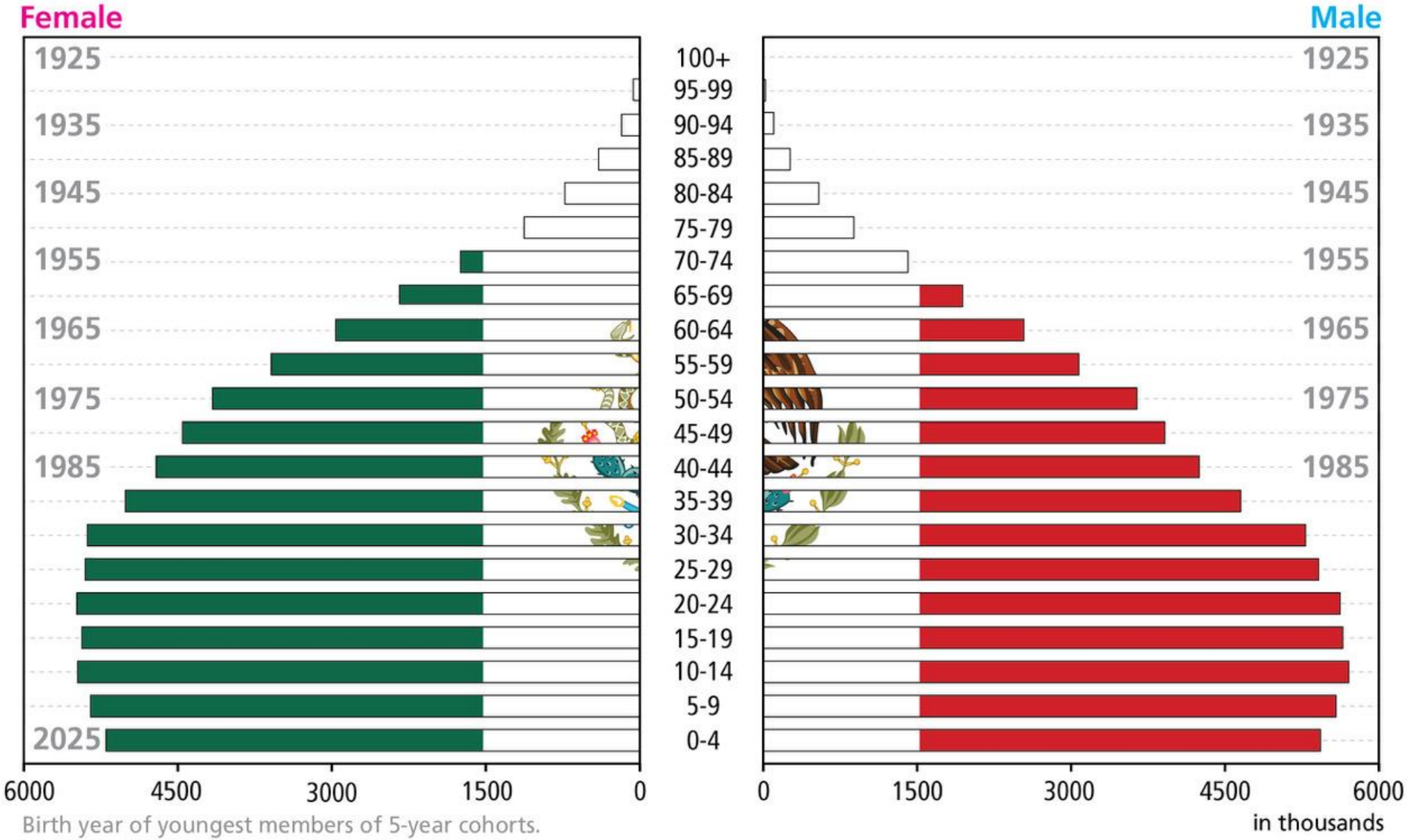

United States of America 2025
Female
Male
1925
1935
1945
1955
1965
1975
1985
2005
2015
2025
100+
95-99
90-94
85-89
80-84
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4
14000 10500 7000 3500 0
0 3500 7000 10500 14000
Birth year of youngest members of 5-year cohorts.
in thousands
© 2022 Zeihan on Geopolitics
Source: UNPD


China 2025
Female
Male
1925
1935
1945
1955
1965
1975
1985
1995
2005
2015
2025
100+
95-99
90-94
85-89
80-84
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4
70000 52500 35000 17500 0
0 17500 35000 52500 70000
Birth year of youngest members of 5-year cohorts.
in thousands
© 2022 Zeihan on Geopolitics
Source: UNPD


Germany 2025
Female
Male
1925
1935
1945
1955
1965
1975
1985
1995
2005
2015
2025
100+
95-99
90-94
85-89
80-84
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4
4000 3000 2000 1000 0
0 1000 2000 3000 4000
Birth year of youngest members of 5-year cohorts.
in thousands
© 2022 Zeihan on Geopolitics
Source: UNPD


Japan 2025
Female
Male
1925
1935
1945
1955
1965
1975
1985
1995
2005
2015
2025
100+
95-99
90-94
85-89
80-84
75-79
70-74
65-69
60-64
55-59
50-54
45-49
40-44
35-39
30-34
25-29
20-24
15-19
10-14
5-9
0-4
6000 4500 3000 1500 0
0 1500 3000 4500 6000
Birth year of youngest members of 5-year cohorts.
in thousands
© 2022 Zeihan on Geopolitics
Source: UNPD

Mexico 2025



Birth year of youngest members of 5-year cohorts.

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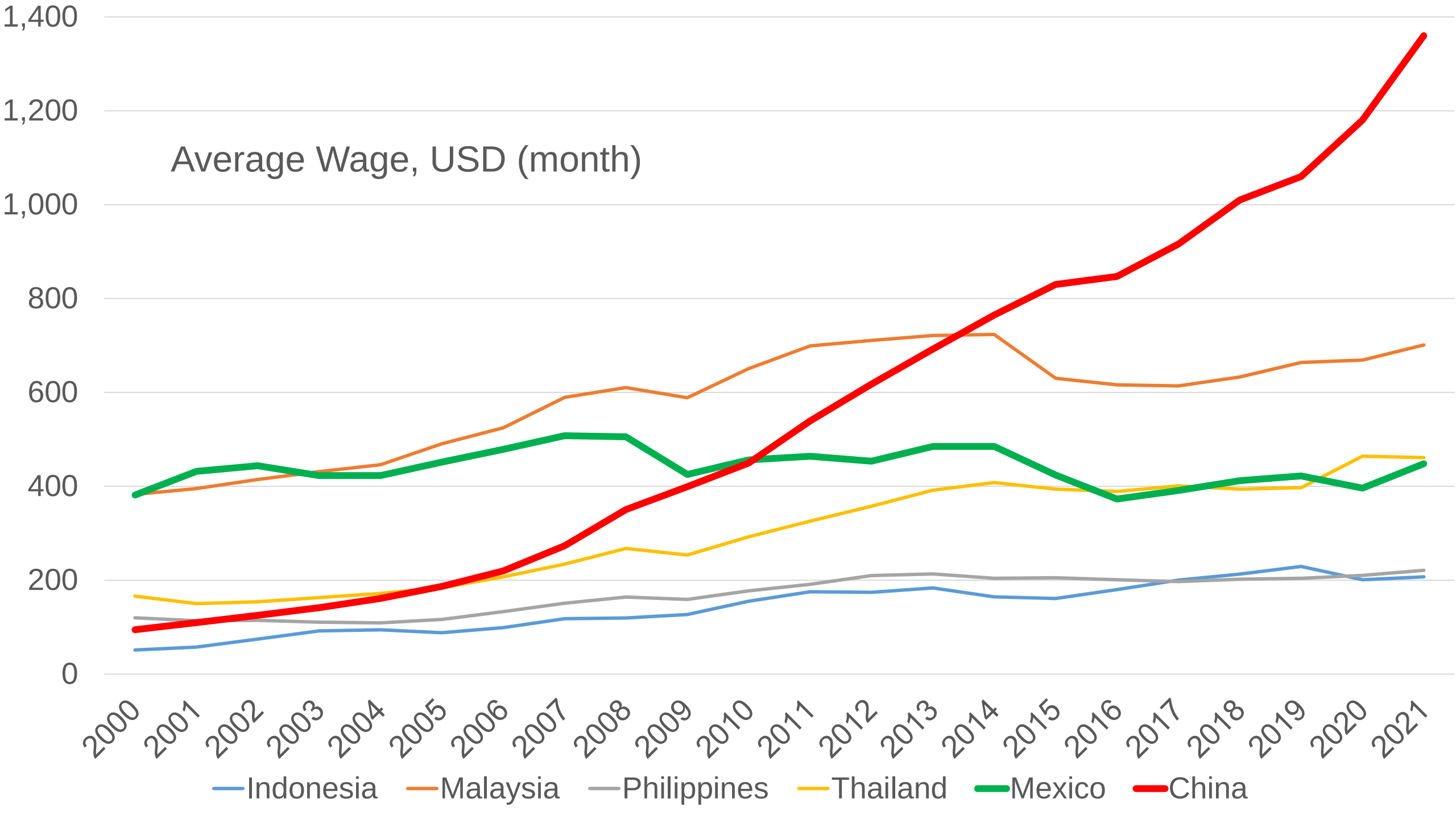
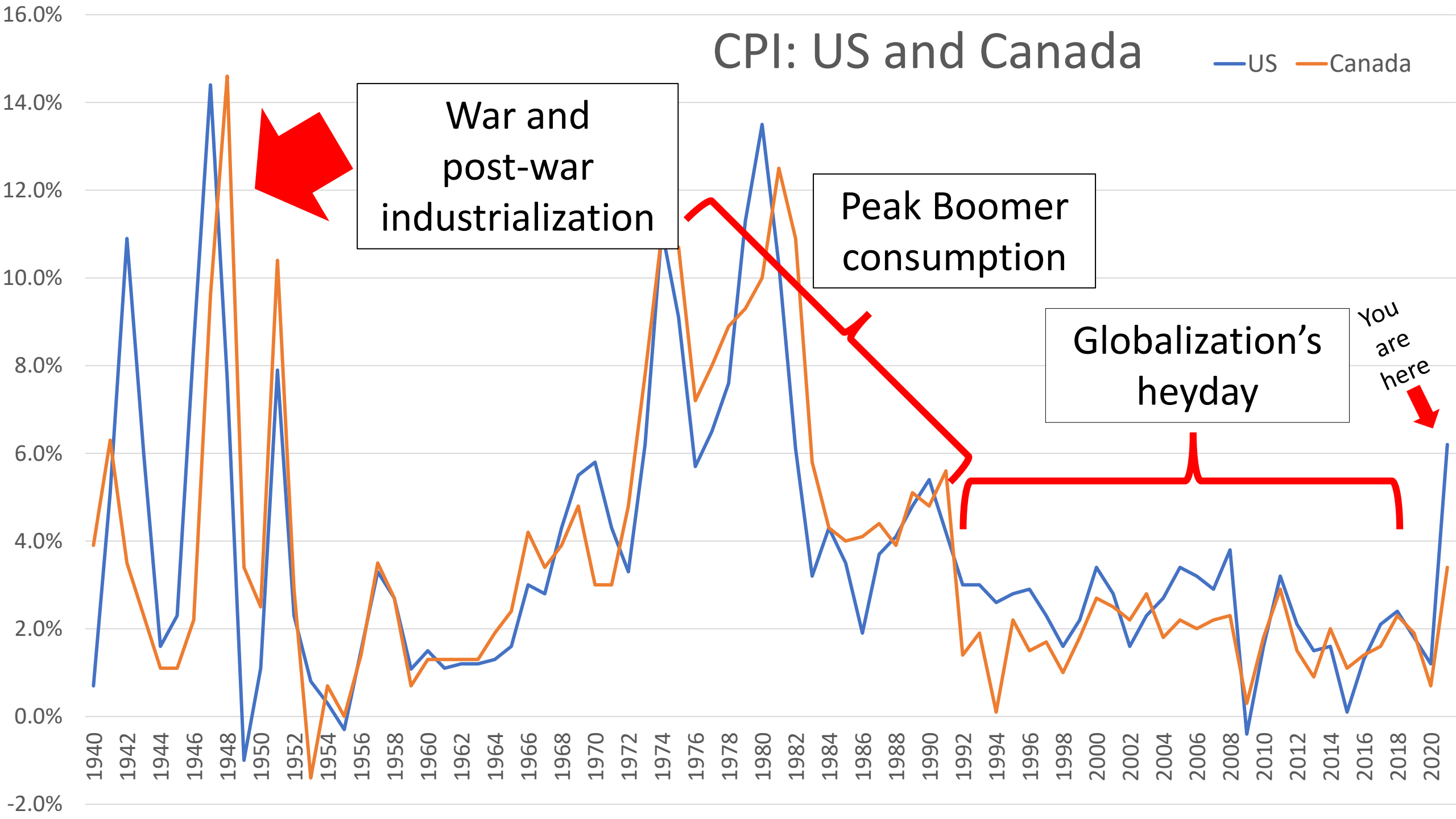
Source: UNPD


Average Wage, USD (month)
1,400
1,200
1,000
800
600
400
200
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
Indonesia
Malaysia
Philippines
Thailand
Mexico
China


CPI: US and Canada
US
Canada
War and post-war industrialization
Peak Boomer consumption
Globalization's heyday
You are here
16.0%
14.0%
12.0%
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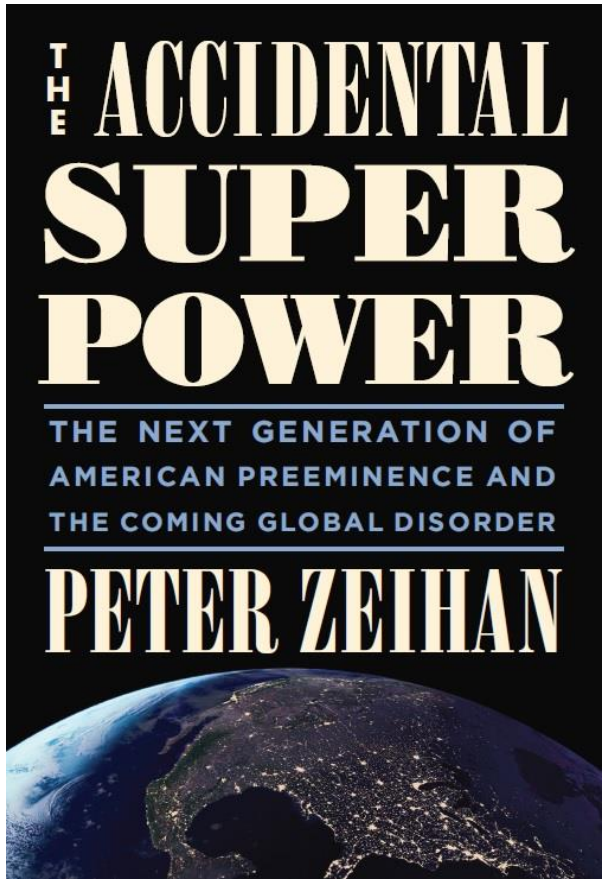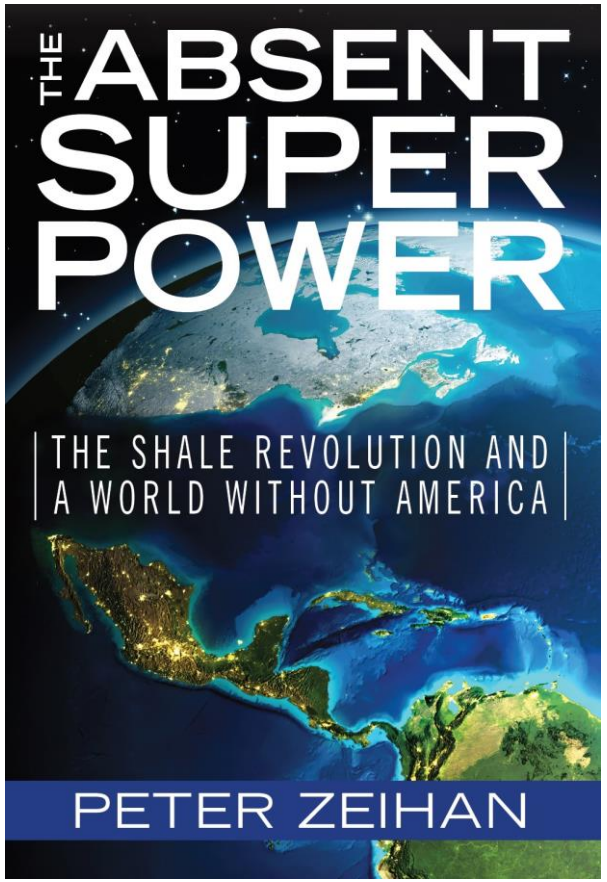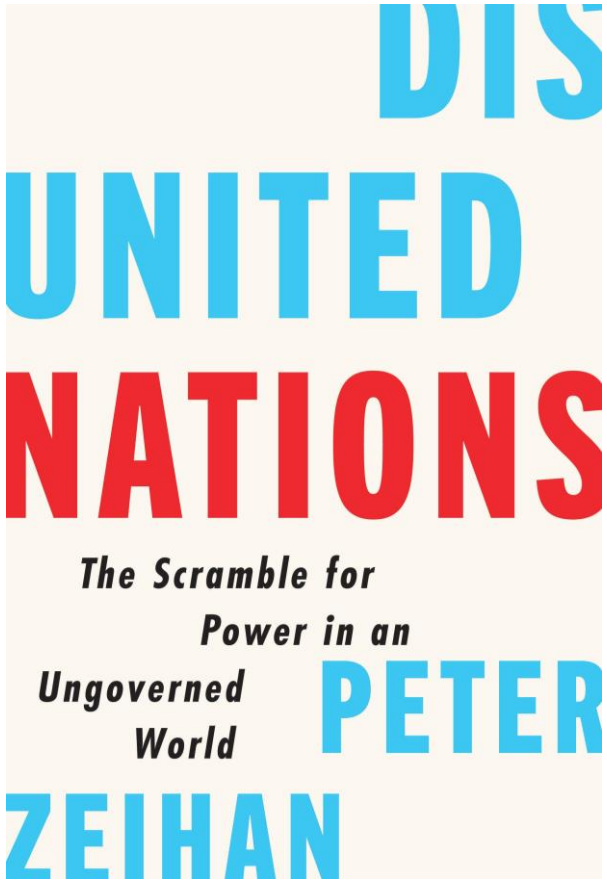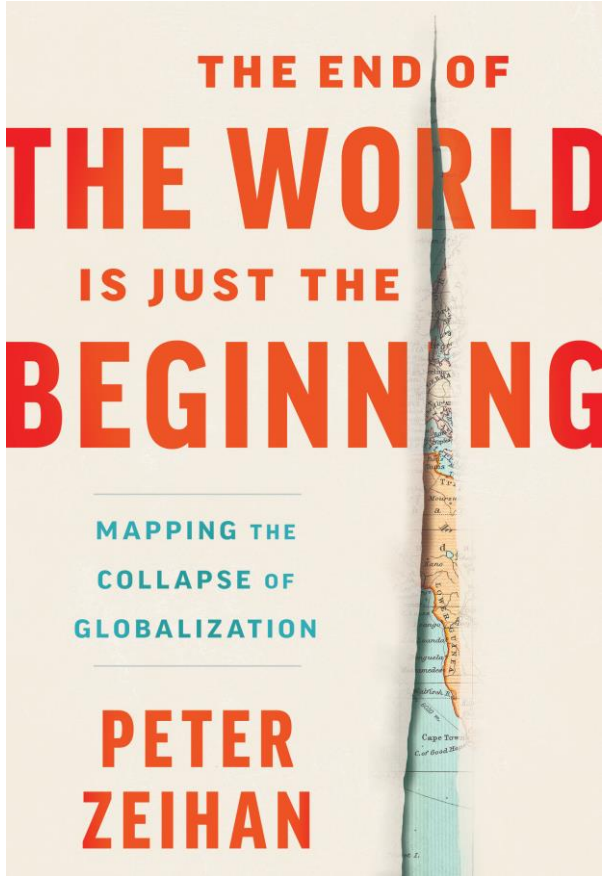
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