

An Energy Shock Summer: How Bad Will Oil Shortages Be?

with Art Berman | Episode #220

Show Notes and Links to Learn More

The TGS team puts together these brief references and show notes for the learning and convenience of our listeners. However, most of the points made in episodes hold more nuance than one link can address, and we encourage you to dig deeper into any of these topics and come to your own informed conclusions.

00:00 – [Art Berman](#)

- Presentation by Art for this episode: [The Hormuz Crisis: A Systems Perspective](#)
- [Video inserts in this interview](#)
- Previous TGS Episodes ([YouTube Playlist](#))
 - Reality Roundtable #16: [The Mad Scramble for Power: Global Superpowers Strategies for Energy, Economics, and War](#)
 - Ep #101: [Shale Oil and the Slurping Sound](#)
 - Ep #92: [BRICS+, Strategic Petroleum Reserve & Metaphysics](#)
 - Reality Roundtable #1: [Electric Vehicles](#)
 - Ep #54: [Peak Oil – The Hedonic Adjustment](#)
 - Ep #3: [Oil: It Was the Best of Fuels, It Was the Worst of Fuels](#)

03:09 – [Oil markets and the Iran War, Strait of Hormuz Crisis](#)

03:27 – [Oil price fluctuations since the Iran War](#)

03:35 – [Negotiations around a truce/ceasefire in early May](#)

04:28 – History of [war](#) and [oil](#) in the Middle East

04:55 – [Napoleon invasion of Russia in 1812](#)

05:30 – [Energy blindness, Nth-order effects](#) (System implications)

05:57 – [Ecological phase shifts, Frankly on such](#)

06:35 – [21 million barrels/day of oil and refined products passed through the Strait of Hormuz](#)

06:45 – [U.S. consumes 20 million barrels of oil and refined products daily](#)

07:00 – [Liquefied natural gas that passes through the Strait of Hormuz](#)

07:20 – **Video Insert (1)** [Ship traffic in the Strait of Hormuz](#)

07:22 – [Close to 0 barrels of oil are passing through the Strait of Hormuz except some Iranian oil](#)

07:40 – [~10 million barrels/day of oil is getting rerouted from Persian Gulf countries through pipelines](#)

08:15 – **Video Insert (2)** [Middle East oil output drop since the Strait of Hormuz Crisis](#)

08:20 – [~11% of the global supply of oil is currently offline](#)

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- 08:42 – [1970s/80s oil shock](#), [More oil consumption since then](#), [Economic growth since then](#)
- 10:00 – [Iranian Revolution: 1978–1979 oil shock](#)
- 10:20 – Effects of Iran War on [Asia](#), [Africa](#), and [Europe](#)
- 10:30 – [Leads and lags in the oil market](#)
- 10:44 – [Arrival times of the last tankers to make it through the Strait of Hormuz before the war](#)
- 11:20 – Oil [production](#) and [reserves](#) by country
- 11:38 – [California gas prices due to the Iran War](#), [U.S. gas price increases by state](#)
- 12:05 – [U.S. oil shortage projections this year](#)
- 12:40 – [Western OECD Strategic Reserve drawdown](#)
- 13:33 – Analysts saying U.S. Strategic Reserves could be at 0 by end of summer:
 - [HFI Research: \(WCTW\) The Oil Market Breaking Point Is Here](#)
 - [Giovanni Staunovo](#)
 - [HFI Research: Oil Math Update – The Heavyweights Are In Agreement](#)
- 15:02 – [Oil tankers currently stuck inside the Strait of Hormuz](#)
- 15:15 – [Abbas Araghchi](#)
- 15:35 – [Logistics of getting the tanks out after the Strait of Hormuz opens](#)
- 16:45 – [Middle Eastern current oil production pause and oil well shut in](#)
- 17:07 – [Mines in the Strait of Hormuz and logistics of removing them](#)
- 17:30 – [Tanker insurance during the Strait of Hormuz Crisis](#)
- 19:13 – Oil markets: [Futures vs. Spot](#)
- 20:05 – [Brent oil prices](#)
- 20:27 – [Future discounting](#)
- 21:00 – [Products that come from a barrel of oil \(6,000+\)](#)
- 21:20 – [Understanding refinery margins](#)
- 21:50 – [The issues with reducing oil refinery production \(similar to oil well shut-in\)](#)
- 23:40 – [Peak oil](#)
- 24:35 – [Game theory](#)
- 24:45 – [Superorganism splitting in 2?](#)
- 25:20 – [Oil prices going up, leading to more drilling \(1970s/80s\)](#)
- 25:55 – [Not much oil exploration/discovery happening this century \(pg 17\)](#)
- 26:07 – 1990s offshore drilling boom in [Gulf of Mexico](#), [West Africa](#), and [Brazil](#), [Price of offshore drilling \(pg 5\)](#)
- 26:35 – Recent reserve discoveries by U.S. in [Guyana](#) and by [Brazil](#), [Namibia discoveries](#)
- 27:15 – [Time it takes to bring an oil field online from time of discovery](#)
- 28:27 – [AI has long been a part of oil discovery technology](#) and [won't bring about great efficiency](#)
- 29:05 – [Wide-boundary perspective](#)
- 30:00 – [CO₂ injection \(Challenges and risks\)](#)
- 31:13 – [Risk premia](#)
- 31:30 – [Project Freedom – Trump and Hegseth's escort service through the Strait of Hormuz cut short](#)

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- 31:55 – [Iran attacking UAE port Fujairah](#)
- 32:40 – [Iran's ability to launch missiles and drones](#)
- 32:50 – [Suspected Karg Island oil slick via satellite imagery](#)
- 33:35 – [The Carbon Pulse](#), [Possible future shapes of the Carbon Pulse](#), [Future growth scenarios](#)
- 33:38 – [Humanity's metabolism \(Economic Superorganism\)](#)
- 35:55 – [The Great Simplification](#), [Deglobalization](#)
- 36:50 – [U.S. is 50 cents away from all-time high gasoline prices](#)
- 37:00 – [Global South shocks already here](#)
- 37:23 – [U.S. government charts showing the U.S. setting record oil exports](#)
- 38:17 – [Crude oil vs. Refined oil products](#)
- 38:32 – **Video Insert (3)** [U.S. is a net energy exporter](#)
- 39:12 – **Video Insert (4)** [U.S. is mostly a net exporter of natural gas liquids](#)
- 39:25 – [Not all forms of energy are equal](#)
- 40:02 – **Video Insert (5)** [U.S. crude oil imports vs. exports](#)
- 40:12 – Oil has the [highest energy density](#) and is the [easiest to move around physically](#)
- 40:52 – [Emissions from burning oil](#)
- 41:07 – [Correlation with oil usage and increase in global wealth](#)
- 42:20 – [U.S. decrease in oil imports and increase in oil exports in last few decades](#)
- 42:45 – [U.S. exports lighter crude and imports heavier crude](#)
- 43:02 – [U.S. Act](#) that lifted the [previous ban on exporting crude oil](#)
- 43:39 – [Shale oil boom in 2010s](#)
- 43:59 – [Light crude oil](#)
- 44:05 – [Not all oil is the same – Middle East oil is the sweet spot between light/heavy and sweet/sour](#)
- 44:55 – **Video Insert (6)** [Different Kinds of Oil Infographic](#)
- 45:20 – [In the 1940s/50s, the U.S. was largely oil independent because mainly using gasoline](#)
- 45:33 – [The rise of diesel usage](#)
- 46:01 – [Propeller plane vs. Jet plane](#)
- 47:03 – [Nate's Four horsemen of the 2020s](#)
- 48:01 – ["Complex refinery"](#), [U.S. can mainly refine heavy crude](#)
- 48:24 – [Refining tower and how oil is refined into different products](#)
- 48:50 – [Bitumen](#), [Hydrocoking](#)
- 50:05 – [Diesel can't come from only light oil](#)
- 50:22 – [In 2024, 62% of all U.S. crude imports came from Canada, including 75% of all heavy crude imports](#)
- 50:35 – [Current U.S.-Canada relations](#)
- 50:54 – [Diesel is the main energy source of the economy we have today \(More info\)](#)
- 51:20 – [Ships, trains, trucks, and agricultural and mining equipment do not have scalable renewable substitutes](#), [There Is No "Next Economy"](#)
- 52:12 – [East Asia already feeling the effects of less oil on the market](#)

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- 52:31 – [Spot price for diesel in Singapore](#)
- 52:53 – [42 gallons in a barrel of oil](#)
- 57:18 – [Rory Johnston \(TGS Episode: #218\)](#)
- 57:21 – [Strait of Hormuz Crisis has caused ~1 billion barrels of oil production loss](#)
- 57:37 – **Video Insert (7)** [Scenario Comparisons](#)
- 58:13 – [Probability distributions](#) and [Error bands](#)
- 59:40: – [Upcoming Trump–Xi 2026 Summit](#)
- 1:00:20 – [Kpler: What if Iran maintains control?](#)
- 1:00:55 – **Video Insert (8)** [Kpler graph on Hormuz traffic](#)
- 1:02:20 – [Valclav Smil four pillar of civilization: cement, steel, plastics, ammonia](#)
- 1:02:45 – **Video Insert (9)** [Steel and cement are declining, fertilizer is flat, plastics below peak](#)
- 1:03:53 – [Smil’s analysis on such – Substantia](#)
- 1:04:25 – [Economic growth correlates with cement and steel stocks](#)
- 1:04:47 – [Cars are made up of mostly steel and plastic](#)
- 1:05:13 – [Medical industry is one of the leading consumers of plastic](#)
- 1:05:28 – [Can’t support 8.5 billion humans without fertilizer](#)
- 1:06:00 – [Renewables termed as “Rebuildables”](#)
- 1:06:05 – [Materials, Cost, and Lifespan](#) of renewable energy systems
- 1:07:30 – [Critical minerals needed for renewable energy systems, China’s control over some of those minerals](#)
- 1:08:10 – Recent [Wide Boundary News Frankly](#) on [Boundary Waters mining](#)
- 1:08:40 – [Quetico Provincial Park mining](#)
- 1:09:33 – [Superorganism](#)
- 1:10:13 – [How the Hormuz crisis is driving a biofuels boom](#)
- 1:10:34 – [AI and energy demand, Hyperscaler capex and capacity surge, Data centers and electric grid \(U.S.\)](#)
- 1:10:45 – [U.S. electricity supply has grown, but the dispatchable amount has fallen](#)
- 1:11:33 – [Renewable energy is not dispatchable](#)
- 1:11:58 – **Video Insert (10)** [U.S. dispatchable electricity has fallen since 2007](#)
- 1:12:15 – [U.S. coal production has steeply declined, Trump has overseen larger coal decline than any other U.S. president](#)
- 1:12:45 – [Emissions and Health effects](#) of coal
- 1:13:53 – Data centers are looking [natural gas and batteries](#) and [nuclear](#) as energy sources
- 1:14:13 – [Natural gas turbines are in short supply](#)
- 1:14:15 – [Using jet engines as electricity turbines, EIA: Electricity generating potential from retired military aircraft](#)
- 1:15:04 – [Interconnection queues](#) and [starting an electric power plant](#)
- 1:16:28 – [Power vs. Energy, TGS Episode highlighting such](#)
- 1:17:21 – [Maximum Power Principle \(More info\)](#) as a [guide for a sustainable future](#)
- 1:19:20 – [Money, debt, and biophysical claims, Reality Blind chapter: Energy and Money](#)
- 1:19:55 – [1930s: The Great Depression](#)

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- 1:20:02 – [~20 Terawatts of yearly global energy production](#), [More information](#)
- 1:21:50 – [Degrowth](#) vs. [Post-growth](#)
- 1:22:17 – [All our wealth comes from nature yet it is being continually degraded](#)
- 1:22:35 – [Ecological tipping points](#)
- 1:22:50 – [Agricultural revolution](#) → [modern civilization](#) story is more [a story about war](#)
- 1:24:50 – [Peter Turchin](#) (TGS Episode: [#164](#)) on [war giving way to modern civilization](#)
- 1:26:20 – [Lives of most farmers many thousands of years ago was tough and risky](#)
- 1:26:36 – [Luke Kemp](#) (TGS Episodes: [#194](#) & [#153](#)), [Lootable surplus](#)
- 1:27:49 – [Multilevel/Group selection](#) ([More info](#))
- 1:28:40 – [Peter Turchin on cities coming together primarily for protection](#)
- 1:28:54 – “Soft” [Feudalism](#) ([Elements in contemporary society](#)), Frankly discussing such: [#129](#) & [#139](#)
- 1:29:50 – [Dark triad traits](#), [RR #19: Dark Triad Personality Traits](#), [Frankly #108: The Influence of Psychopaths](#)
- 1:30:30 – [The Holocene](#), [Stability of the Holocene era](#)
- 1:31:20 – [Military-industrial complex](#)
- 1:31:33 – [Europe is cutting flights because of lack of jet fuel imports](#)
- 1:31:50 – [AI is fundamentally a military tool](#) ([Surveillance](#) and [Weapons](#))
- 1:32:30 – [Art’s map of data centers](#)
- 1:33:15 – [Drone warfare](#), [AI arms/military race](#)
- 1:33:50 – [Anti-ship ballistic missile \(ASBM\)](#)
- 1:34:08 – [Continued attacks into Russia](#) and [anticipation of Putin’s response](#)
- 1:34:53 – [Alfred North Whitehead](#)
- 1:34:55 – [Iain McGilchrist](#) (TGS Episodes: [#217](#), [#165](#), [#85](#))
- 1:37:05 – [Momentous inevitability*](#) concept by [Simon Sebag Montefiore](#)
- 1:38:53 – [Turchin’s elite overproduction](#)