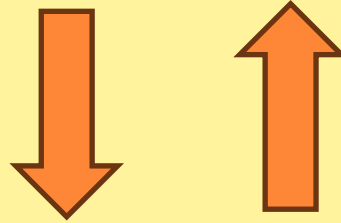
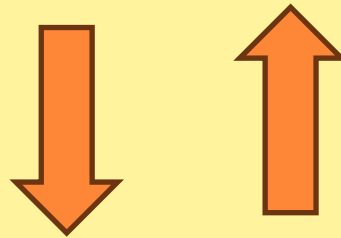


Resources



Economic Power

Military Power



Resources

Economic - Military Powers & Resources

Superpowers are defined by:

- 1) ECONOMIC POWER &**
- 2) MILITARY POWER**

Resources - Production - Consumption

➤ **The first aim is to get / hold /exploit**

Resources

Raw Materials

Metals, etc.

➤ **There is**

NO Production

NO Consumption

without the

Resources

Raw Materials

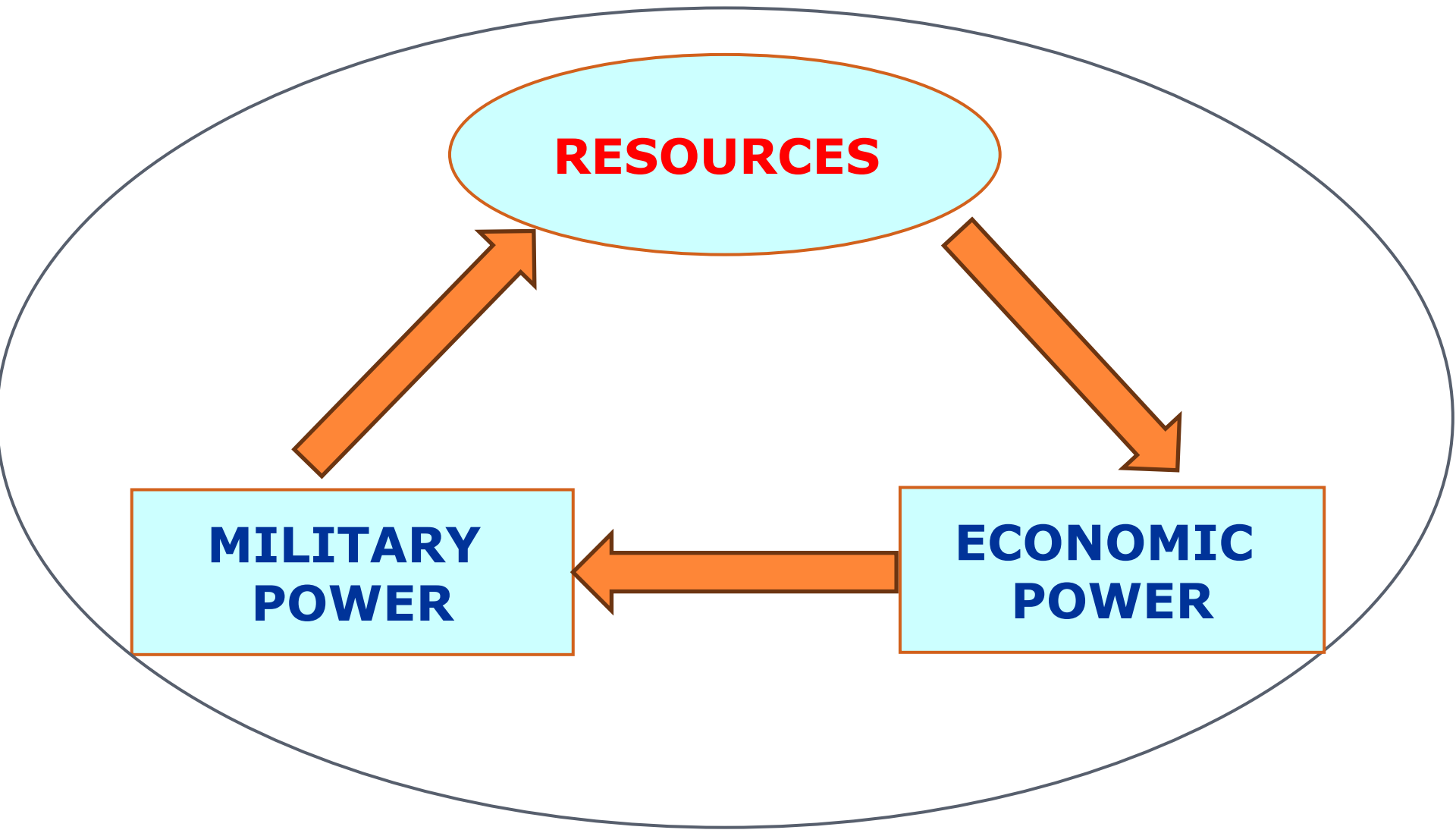
Metals, etc.

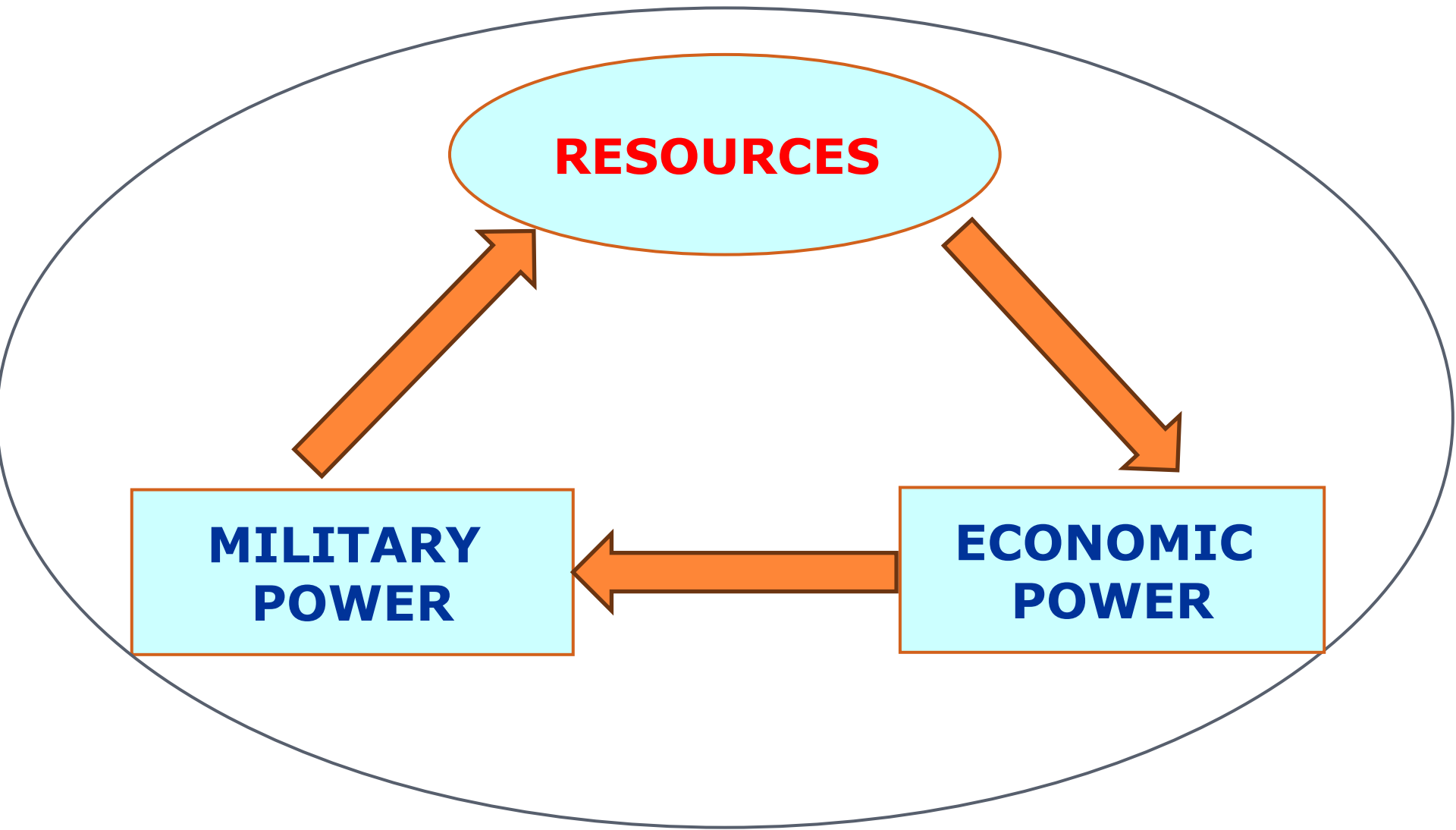
Resources

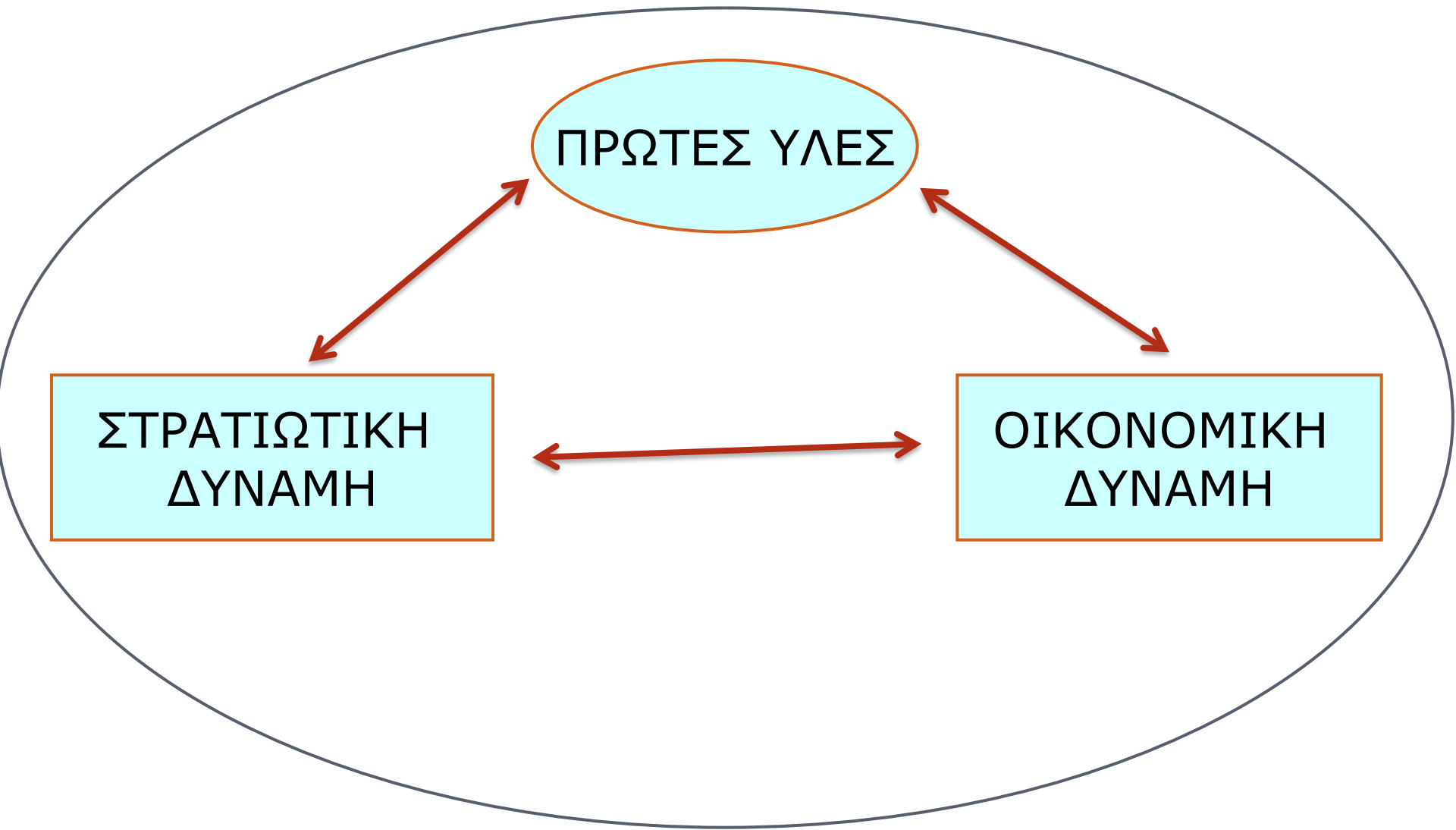
- ❑ **A resource** is a naturally occurring material that *could* be economically extracted now or in the future.
- ❑ **A reserve** is the portion of an identified resource that *can* be economically and legally extracted today.
- ❑ **Mining** is the extraction of the metal-raw material.
- ❑ **Production** is the process to make it commercial to be sold.
- ❑ **Consumption** is the buying of the final product.

Economic Power
is based on
access to
Resources

Military Power
is based on
Economic Power







Resources / Raw Materials

**FUTURE / ΜΕΛΛΟΝΤΙΚΑ
Resources / Raw Materials**

Top Five Minerals for Energy Technologies			
	2017 Production	2050 Demand from Energy Technology	Percentage Change (%)
Lithium	43 KT	415 KT	965%
Cobalt	110 KT	644 KT	585%
Graphite	1200 KT	4590 KT	383%
Indium	0.72 KT	1.73 KT	241%
Vanadium	80 KT	138 KT	173%

Demand for Metals on the Rise	
Metal	Expected Demand Growth Increase to 2030 in the EV Industry
Nickel	14x
Aluminum	14x
Phosphorus	13x
Iron	13x
Copper	10x
Graphite	10x
Lithium	9x
Cobalt	3x
Manganese	3x

Demand Forecasting for Cobalt-Lithium & Nickel

**Battery Demand Will Also Surge
Global Demand For Essential Metals**

Annual Demand Increases Through 2030

+ 7%

Cobalt

+ 15%

Lithium

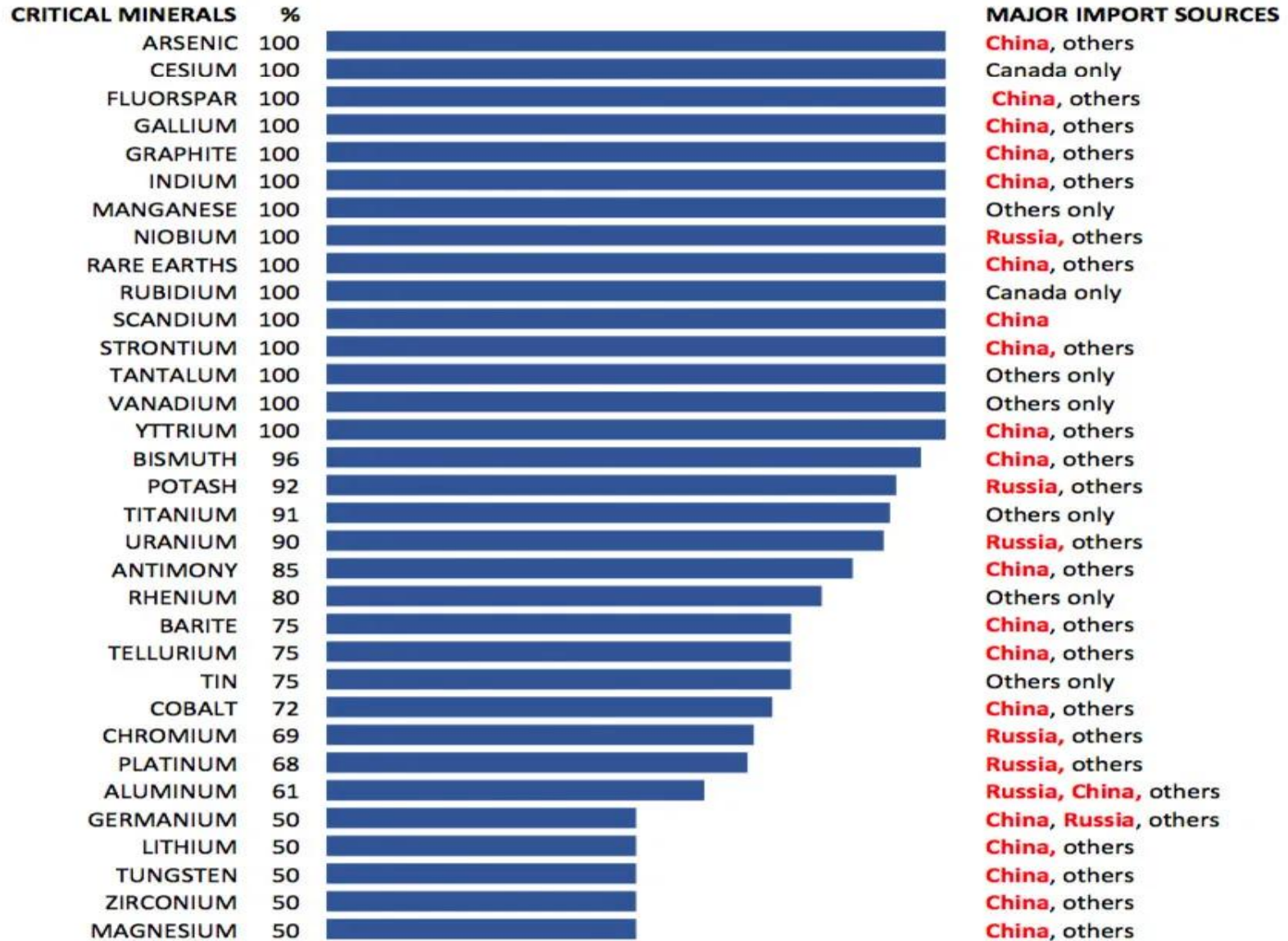
+ 19%

Nickel

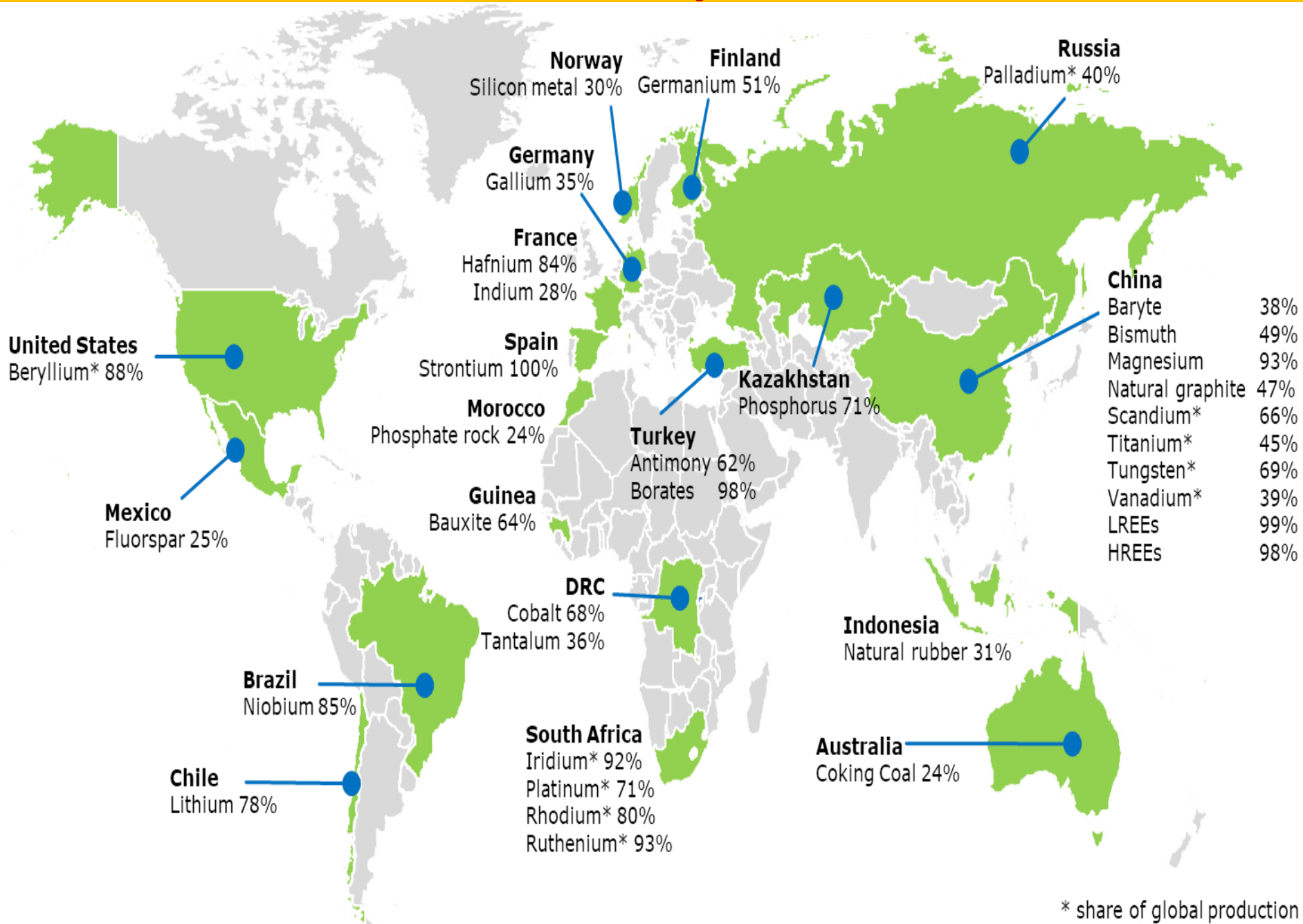


USA imports Critical Inputs & Resources ...from ... enemies ...

U.S. Critical Mineral Import Dependence: All Over 50%, Many at 100%, Too Many From Adversaries



Producers of Critical Inputs & Resources ...



Military Spending

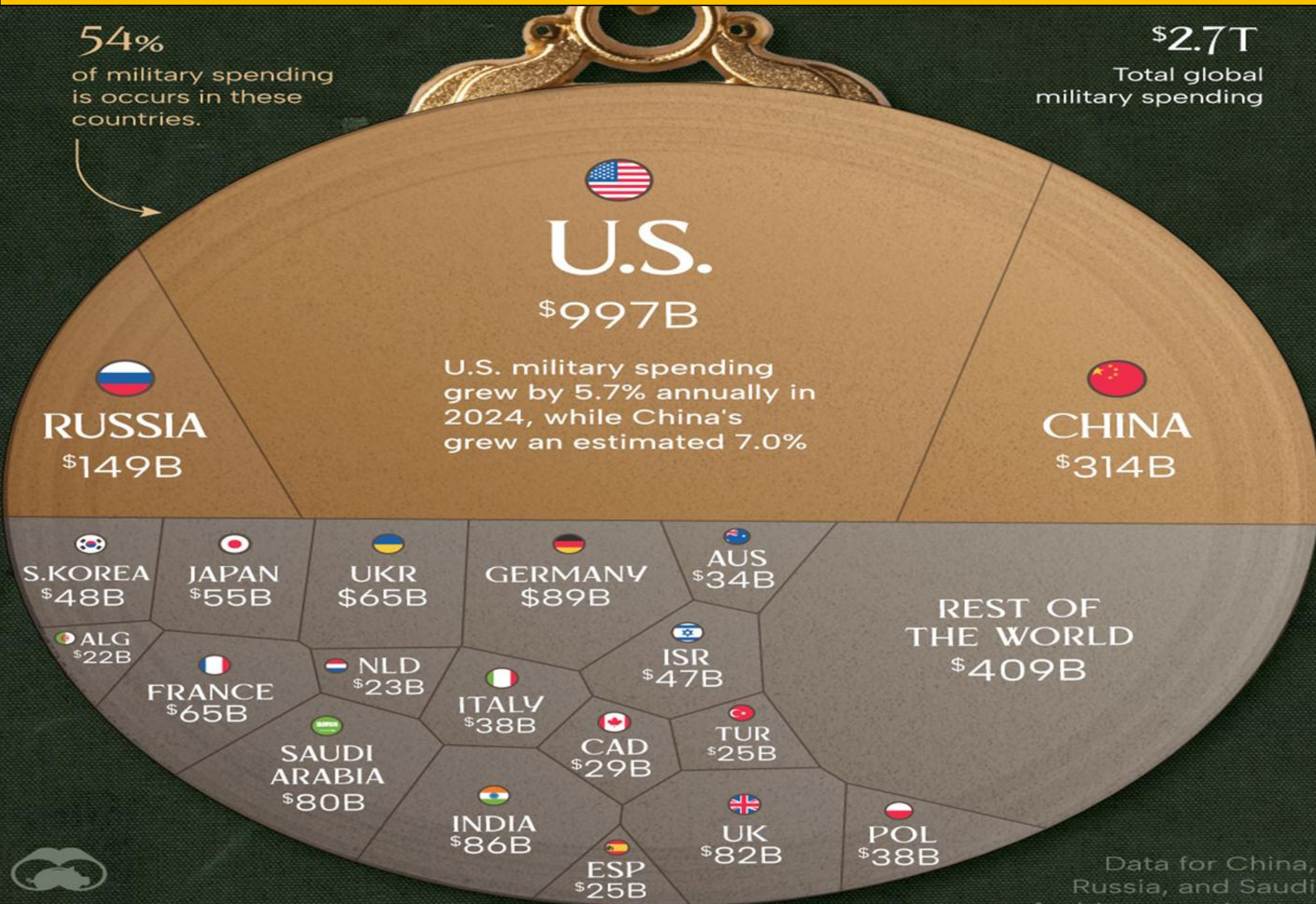
Global Military Spending (2024)

54%

of military spending
occurs in these
countries.

\$2.7T

Total global
military spending



Data for China,
Russia, and Saudi
Arabia are estimates

Global Military Spending by Country in 2024

Superpowers are defined by:

1) economic and

2) military stature

➤ Countries continue to invest hundreds of billions in military and defense every year.

➤ **In 2024, global military expenditure reached \$2.7 trillion.**

➤ *Hitting a record high—and just three countries made up more than half of the total.*

Rank	Country	Military Spending (2024)	Share of Global Total
1	United States	\$997B	36.7%
2	China	\$314B	11.6%
3	Russia	\$149B	5.5%
4	Germany	\$88.5B	3.3%
5	India	\$86.1B	3.2%
6	United Kingdom	\$81.8B	3.0%
7	Saudi Arabia	\$80.3B	3.0%
8	Ukraine	\$64.7B	2.4%
9	France	\$64.7B	2.4%
10	Japan	\$55.3B	2.0%
11	South Korea	\$47.6B	1.8%
12	Israel	\$46.5B	1.7%
13	Poland	\$38.0B	1.4%
14	Italy	\$38.0B	1.4%
15	Australia	\$33.8B	1.2%
16	Canada	\$29.3B	1.1%
17	Türkiye	\$25.0B	0.9%
18	Spain	\$24.6B	0.9%
19	Netherlands	\$23.2B	0.9%
20	Algeria	\$21.8B	0.8%
	Rest of World 🌍	\$408.8B	15.0%
	World 🌐	\$2,718B	100.0%

USA-China-Russia

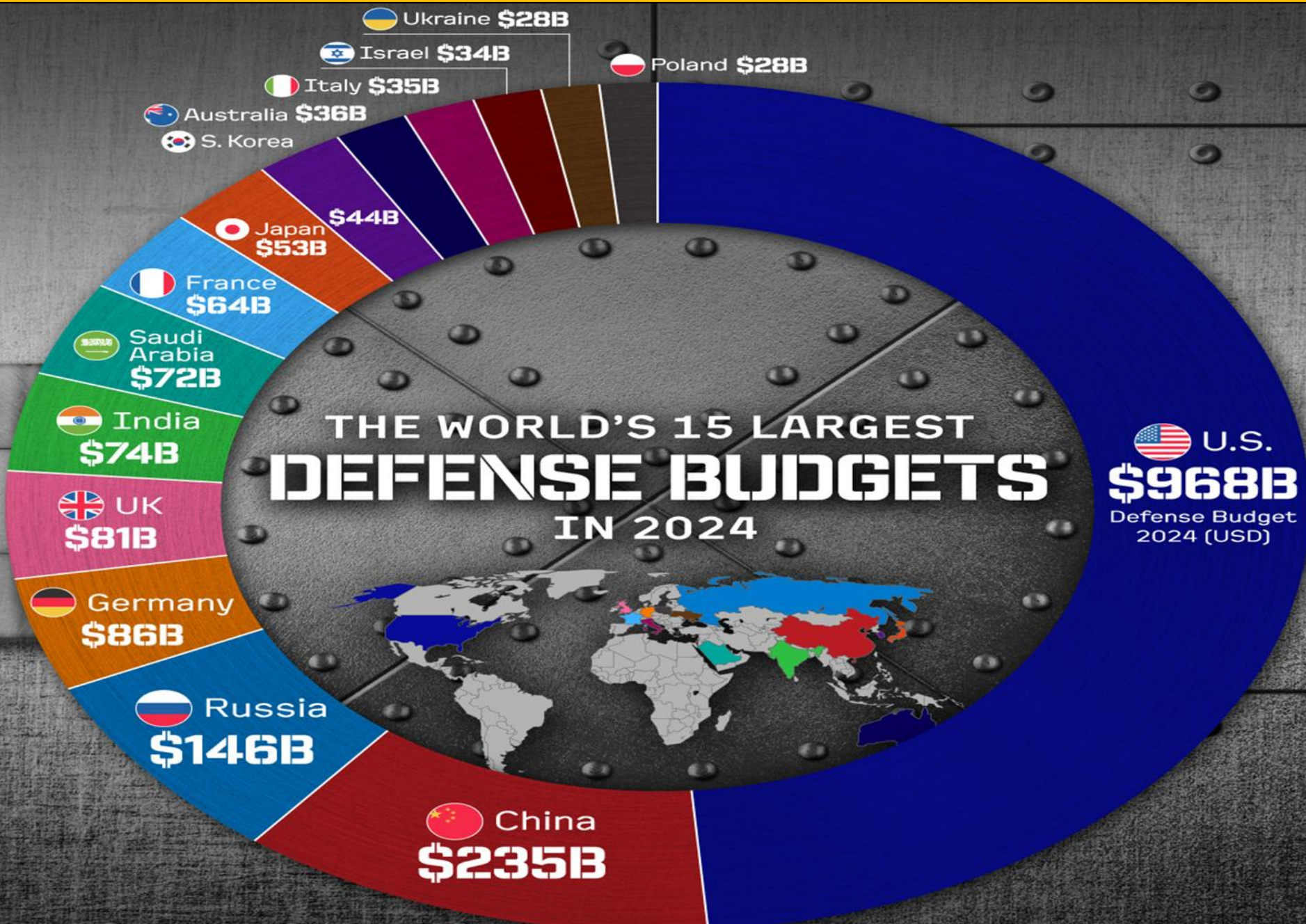
- ❑ **China** follows the U.S. with an estimated **\$314 billion** in military expenditure, up 7% from 2023.
 - *Over the last decade (2015–2024), China's military spending increased by 59%.*
- ❑ **Russia's** spending was up by 38% year over year at nearly **\$150 billion**.
- ❑ **Together, the United States, China, and Russia—often considered strategic competitors—made up 54% of global military expenditure in 2024.**
- ❑ **NATO countries made up 55% of global military expenditure in 2024.**

Second Tier ...

- ❑ **Germany and India** round out the top five, with both countries ramping up military spending in light of rising geopolitical tensions in recent years.
 - *India's simmering tensions with Pakistan and China contribute to its defense budget.*
 - *Germany's spending is partly down to the conflict between Russia and Ukraine.*
- ❑ **Ukraine** has seen the biggest jump in military spending in recent years—with its 2024 spending at nearly 10 times 2021 levels.
 - *It also has the highest military burden globally at **34.5%** of its GDP in 2024.*

Military Budgets

The 15 Largest Defense Budgets in the World



Largest Defense Budgets in the World (2024)

- ❑ The U.S. spent nearly \$1 trillion on its defense budget, equal to 3.4% of GDP.
- ❑ NATO members in Europe and Canada spent an average of 2% of GDP on defense.
 - *NATO's defense budgets have declined since the Cold War.*
- ❑ Russia's military spending has surged by 227% since 2000.
- ❑ China's has skyrocketed by 566%.

America’s Defense Budget Towers Over the Rest	
Country	Defense Budget 2024 (USD)
U.S.	\$968.0B
China	\$235.0B
Russia	\$145.9B
Germany	\$86.0B
UK	\$81.1B
India	\$74.4B
Saudi Arabia	\$71.7B
France	\$64.0B
Japan	\$53.0B
South Korea	\$43.9B
Australia	\$36.4B
Italy	\$35.2B
Israel	\$33.7B
Ukraine	\$28.4B
Poland	\$28.4B

USA *Defense Budgets & Spending*

- ❑ As the above table shows, the U.S. spends as much as the next 12 largest defense budgets combined.
- ❑ Today, just five prime contractors receive 86% of the Pentagon's spending compared to 51 contractors being allocated 6% of defense spending at the end of the Cold War.
- ❑ Arguably, this concentration has fostered overspending and lower productivity gains.
- ❑ In an era of all things new, the Trump administration has fired senior leaders in the military, navy, coast guard, and air force.
- ❑ Senior lawyers were abruptly let go too. Overall, the Pentagon could shed 8% of its personnel.

China & Russia *Defense Budgets & Spending*

- ❑ Ranking in second is **China**, with a \$235 billion defense budget.
 - ❑ Yet on a purchasing power parity basis, it stands at \$477 billion when adjusting for lower costs in China.
 - ❑ Overall, the country's military modernization includes 600 operational nuclear warheads that are projected to reach 1,000 by 2030 as the country increasingly focuses on reunification with Taiwan.
-
- ❑ **Russia** has the third-largest defense budget globally, at \$146 billion, representing 6% of the country's national income—the highest share since the Cold War.
 - ❑ Like China, this figure is much higher in real purchasing power terms, rising to \$461 billion.
 - ❑ Today, Russia's nuclear arsenal rivals the U.S. with 5,000 warheads, despite being a medium-sized economy.

Defense Budgets & Spending ...Fake ...calculations

Russia calculates:

- National Defense budget
 - Military R&D funding
 - Military pensions
 - Paramilitary forces' budgets, and
 - other MoD-related expenses such as
 - housing.

Germany includes

- special fund allocation,
- military pensions, and
- military aid to Ukraine.

UK includes

Armed Forces Pension Scheme and
military aid to Ukraine.

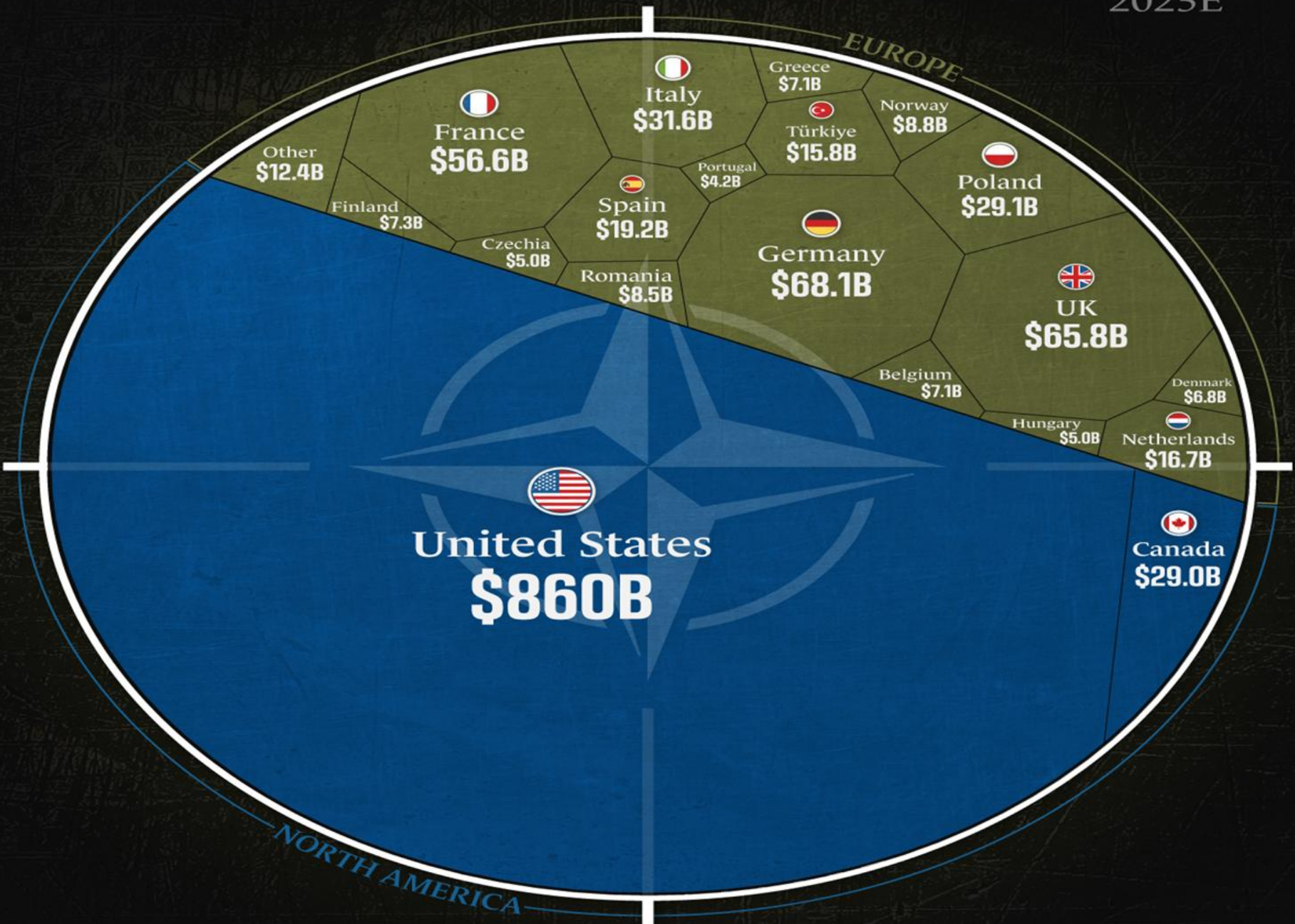
Poland excludes Armed Forces Support Fund.

NATO

Military Spending

Breaking Down \$1.3T in NATO Defense Spending

2023E



NATO

The North Atlantic Treaty Organization (NATO) is a political and military alliance comprising 31 countries.

❑ Its primary purpose is to facilitate cooperation among member nations, ensuring mutual defense and security.

❑ *This graphic breaks down the expected defense expenditures of NATO members in 2023, using data from NATO and based on current prices and exchange rates.*

❑ U.S. defense spending, within the context of NATO, aims to support European allies, deter adversaries like Russia, and gain access to additional military resources, among other objectives.

❑ In 2018, then-President Trump sent letters to NATO allies demanding that they spend more on defense to meet the 2% minimum target.

❑ In recent years, however, the U.S. has increased its spending, experiencing a 6% jump compared to 2021.

U.S. Dominance of NATO's Defense Spending

- ❑ NATO defines defense expenditure as payments made by a national government, excluding regional, local, and municipal authorities, specifically to fulfill the requirements of its armed forces.
- ❑ It requires members to spend at least 2% of its GDP on defense.
- ❑ A major component of defense expenditure includes payments for active armed forces personnel as well as retired pensioners.
- ❑ Expenditures for stockpiling war reserves of military equipment or supplies are also included.
- ❑ Additionally, it encompasses expenditures for peacekeeping and humanitarian operations, as well as the destruction of weapons.
- ❑ The U.S. is by far the largest contributor to NATO's budget.
- ❑ In 2023, the country accounted for **\$860 billion** spent by the organization, representing 68% of the total expenditure.
- ❑ This amount is over 10 times more than that of the second-placed country, Germany.

Country	2023 Defense Spending (USD, Millions)*
United States	\$860,000
Germany	\$68,080
United Kingdom	\$65,763
France	\$56,649
Italy	\$31,585
Poland	\$29,105
Canada	\$28,950
Spain	\$19,179
Netherlands	\$16,741
Türkiye	\$15,842
Norway	\$8,814
Romania	\$8,481
Finland	\$7,325
Greece	\$7,125
Belgium	\$7,076
Denmark	\$6,775
Hungary	\$5,036
Czechia	\$5,033
Portugal	\$4,167
🌐 Other	\$12,400

The Future of NATO

- ❑ After two years since Russia's full-scale invasion of Ukraine, NATO has mostly maintained its unity against Moscow.
- ❑ The alliance has expanded with Finland's membership in 2023 and will likely include Sweden soon.

Superpowers

use

Military Power

to get

Resources

From Countries

GREENLAND

**How Greenland's
Rare Earth Reserves
Compare to the
Rest of the World**

Greenland's Rare Earths

Greenland has never had commercial rare earth production, largely due to environmental regulations and local political opposition.



RESERVES

Metric Tons

1		China	44M
2		Brazil	21M
3		India	6.9M
4		Australia	5.7M
5		Russia	3.8M
6		Vietnam	3.5M
7		U.S.	1.9M
8		Greenland	1.5M
9		Tanzania	890K
10		South Africa	860K
11		Canada	830K
12		Thailand	4.5K
NA		Myanmar	0
NA		Madagascar	0
NA		Malaysia	0
NA		Nigeria	0
		Other	0
		World total	>90M

MINE PRODUCTION

Metric Tons

1		China	270K
2		U.S.	45K
3		Myanmar	31K
4		Australia	13K
5		Thailand	13K
6		Nigeria	13K
7		India	2.9K
8		Russia	2.5K
9		Madagascar	2.0K
10		Vietnam	300
11		Malaysia	130
12		Brazil	20
NA		Greenland	0
NA		Canada	0
NA		Tanzania	0
NA		South Africa	0
		Other	1.1K
		World total	390K

The role of Greenland's Rare Earth Reserves

- Greenland holds an estimated **1.5 million metric tons of rare earth reserves** despite **having no commercial production**.
- **China** dominates global rare earth mining, but
- Undeveloped reserves elsewhere could reshape future supply chains.

The USA aims to grasp Greenland

- ❑ U.S. President Donald Trump has once again put Greenland at the center of global attention.
- ❑ His renewed threat to assert U.S. control over the Arctic territory has drawn sharp reactions from European leaders and Denmark, which governs Greenland as an autonomous territory.
- ❑ While the **island's strategic location** is often cited, another underlying motivation is increasingly tied to its vast mineral potential.
- ❑ In particular, **Greenland's rare earth reserves** have become a focal point in a **world racing to secure critical resources**.
- ❑ This presentation pinpoints the rare earth mine production and reserves across countries, placing Greenland's untapped resources in a global context.

China's Grip on Rare Earth Supply

- ❖ China remains the backbone of the global rare earth market.
- ❖ In 2024, it produced roughly 270,000 metric tons, accounting for **well over half of global output**.
- ❖ China also controls the largest reserves, estimated at 44 million metric tons.
- ❖ This combination of scale and integration gives Beijing significant leverage over **industries ranging from**
 - ❖ **electric vehicles**
 - ❖ **defense systems.**

Large Reserves, Limited Production Elsewhere

- ❖ Outside China, **many countries with sizable reserves play only a minor role in production.**
- ❖ **Brazil** holds an estimated 21 million metric tons of rare earth reserves yet produces almost nothing today.
- ❖ **India**
- ❖ **Russia**, and
- ❖ **Vietnam** show similar patterns.

Country	Reserves <i>(Metric Tons)</i>	Rare Earth Production 2024 <i>(Metric Tons)</i>
China	44.0M	270,000
Brazil	21.0M	20
India	6.9M	2,900
Australia	5.7M	13,000
Russia	3.8M	2,500
Vietnam	3.5M	300
United States	1.9M	45,000
Greenland	1.5M	0
Tanzania	890K	0
South Africa	860K	0
Canada	830K	0
Thailand	4.5K	13,000
Myanmar	0	31,000
Madagascar	0	2,000
Malaysia	0	130
Nigeria	0	13,000
🌍 Other	0	1,100
🌐 World total (rounded)	>90,000,000	390,000

Why Greenland Matters

- ❑ Greenland's estimated 1.5 million metric tons of rare earth reserves exceed those of countries like Canada and South Africa.
- ❑ Yet the island has never had commercial rare earth production.
- ❑ Environmental protections, infrastructure constraints, and local political opposition have slowed development.
- ❑ Still, as supply chain security becomes a priority for major economies, Greenland's position is becoming harder to ignore.
- ❑ Trump's interest in Greenland is driven by more than symbolism.
- ❑ **Rare earths** are essential for advanced manufacturing, clean energy technologies, and military hardware.
- ❑ With China firmly entrenched as the dominant supplier, policymakers in Washington are increasingly focused on alternative sources.

VENEZUELA

Venezuela's Abundant Natural Resources

NOT JUST OIL:

Venezuela's Natural Resources



Venezuela's abundant resources come from its favorable geology:

- Plate tectonics that formed northern sedimentary basins which generated and trapped vast hydrocarbon reserves
- The ancient Guiana Shield to the south with shallow mineral deposits, enhanced by tropical weathering



Beyond oil, estimates place Venezuela among the world's largest holders of several key resources

Resource	Estimated Reserves*	Units	World Rank
Oil	303,221	Million Barrels (MMBbls)	#1
Bauxite	99.35*	Mega tonnes (Mt)	—
Diamond	1.02*	Billion Carats	—
Gold	2,343*	tonnes (t)	—
Natural Gas	5,511	Billion Cubic Meters (bcm)	#8
Iron	5,958	Giga tonnes (Gt)	#8
Coal	3	Giga tonnes (Gt)	#27

The Orinoco Oil Belt and Mining Arc

- ❑ Nearly all of Venezuela's estimated resource potential is concentrated along the **Orinoco river**.
- ❑ To the north, the Orinoco Oil Belt hosts Venezuela's **world-leading 303 billion barrels of extra-heavy crude oil reserves**.
- ❑ South of the river, is the Orinoco Mining Arc sitting atop the ancient Guiana Shield, a 1.7 billion-year-old craton.
- ❑ The Venezuelan government's mineral catalog and CSIS report world-leading deposits of **gold, iron, bauxite, and most notably diamonds**.
- ❑ Government estimates indicate Venezuela surpasses Russia as the country with the largest reserves **of diamonds in the world**.

Venezuela's Abundant Natural Resources

NOT JUST OIL:

Venezuela's Natural Resources



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Not Just Oil: Venezuela's Natural Resources

- ❖ Venezuela's natural resources include **the world's largest proven oil reserves, totaling roughly 303 billion barrels.**
- ❖ **Gold, natural gas, and other minerals** are reportedly abundant, but **underdeveloped**, ranking among the world's top deposits.
- ❑ **Oil** is the largest of Venezuela's natural resource reserves, which has dominated recent news, but the country's resource base extends far beyond crude.
- ❑ This presentation highlights the **often-overlooked scale of resources** across **oil, natural gas, gold, iron, bauxite, diamonds, and coal.**

Venezuela's Natural Resources			
Resource	Estimated Reserves / Resources*	Units	World Rank
Crude Oil	303,221	Million Barrels (MMBbls)	#1
Bauxite	99.35*	Mega tonnes (Mt)	-
Diamond	1.02*	Billion Carats	-
Gold	2,343	tonnes (t)	-
Natural Gas	5511	Billion Cubic Meters (bcm)	#8
Iron	5.958	Giga tonnes (Gt)	#8
Coal	3	Giga tonnes (Gt)	#27

Venezuela's Natural Resources

- ❑ **Bauxite and diamond** totals are identified resources published by the Venezuelan government providing a snapshot of the geological potential.
 - *These have not been independently verified, so they shouldn't be treated as confirmed reserves.*
- ❑ **Gold's** totals are also not of *proven* underground gold reserves, but rather are based on an asset-level analysis of 24 gold-bearing mines in Venezuela.

Massive Reserves, Minor Production

- ❑ Despite the vast resource richness, Venezuela has endured years of humanitarian and economic crisis brought on by international sanctions, mismanagement, and electoral fraud.
- ❑ The political environment has severely limited production across all resources with failing infrastructure and limited foreign investment.

Geopolitical and Economic Implications for Venezuela

- ❑ With the U.S. capture of Venezuela's President, Nicolás Maduro, the vast heavy crude and mineral endowment becomes a geopolitical lever under U.S. control.
- ❑ Redirecting heavy-crude barrels toward Gulf Coast refineries may pressure Canadian heavy-oil producers while delivering a setback to Chinese access to Venezuelan supply.
- ❑ Broadly, Maduro's capture signals a shift toward raw power politics, where geology still matters, but governance and international alignment may increasingly decide who benefits.

Thank You

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