Energy, Resources, and Geopolitics

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Introduction

Energy, resources, and geopolitics are inseparable. Oil, gas, and critical minerals do more than fuel cars, heat homes, or power data centers; they tilt the balance of power, determine the leverage of states, and shape the incentives to cooperate or coerce. This book examines how resource markets become instruments of statecraft and arenas of strategic competition. It argues that the defining feature of our era is not the end of energy geopolitics but its transformation, as the map of pipelines, shipping lanes, and mineral supply chains rewrites the geography of power.

The classic story begins with hydrocarbons. Throughout the twentieth century, oil shocks redrew alliances, financed wars, and forged the modern global economy. Natural gas, once regional and rigid, has become more flexible with liquefied natural gas (LNG), adding layers of optionality—and vulnerability—to energy security. Maritime chokepoints such as the Strait of Hormuz and the Strait of Malacca remain pressure points where naval power, commercial interests, and political signaling converge. These enduring dynamics continue to matter, even as the energy system changes.

Yet the energy transition is not a single lane highway; it is a sprawling network with conflicting timelines, technologies, and political interests. As demand for coal peaks and oil demand flattens or evolves by sector, new dependencies emerge in the supply chains of lithium, cobalt, nickel, copper, and rare earth elements. The materials that enable batteries, wind turbines, electric vehicles, and advanced electronics are concentrated in a handful of countries and often travel through narrow processing bottlenecks. Where oil pipelines once conferred leverage, refining capacity for critical minerals and control over specialized components now shape bargaining power. Transitions, by their nature, reallocate rents; when rents move, politics follows.

This reallocation creates both vulnerabilities and opportunities for diplomacy. States will hedge between old and new systems—locking in LNG contracts while investing in hydrogen pilots, or protecting domestic industries through carbon border adjustments while negotiating climate cooperation. Financial sanctions, export controls, and standards-setting bodies have become as important as troops or treaties. The actors are not only governments: national oil companies, international majors, commodity traders, and sovereign wealth funds wield balance sheets and information advantages that rival ministries. Cyber threats, sabotage, and disinformation campaigns target the infrastructure and trust that underwrite energy and mineral markets.

The book is sector-focused, because the levers of power vary by commodity and infrastructure. Gas pipelines create durable bilateral dependencies; LNG introduces

portfolio flexibility. Electricity grids transmit both electrons and influence through interconnectors and market coupling. Critical minerals depend on geology, extraction know-how, environmental and labor standards, and, crucially, midstream processing capacity where barriers to entry are steep. Nuclear power turns on fuel cycle governance and nonproliferation politics, while hydrogen’s future hinges on standards, certification, and transport economics. By analyzing each sector’s mechanics, we reveal how market structure translates into geopolitical leverage.

Readers will also see how geography, technology, and policy interact across regions. Russia’s hydrocarbon strategy, the Middle East’s effort to monetize molecules and electrons, Europe’s drive to diversify and decarbonize, China’s bid to secure supply chains and set standards, and the resource governance challenges across Africa and the Americas all illustrate the interplay of statecraft and markets. The Arctic’s opening sea routes, contested exclusive economic zones, and potential resource claims show how climate change itself rearranges strategic maps. These case studies link material flows to political choices, showing where competition is likely, where cooperation is possible, and where the risks of miscalculation are greatest.

Finally, the book equips readers with tools to think in scenarios. Energy and mineral systems are exposed to shocks—wars, sanctions, pandemics, technological breakthroughs, and extreme weather—that propagate through prices, freight, and finance. Scenario thinking helps leaders stress-test assumptions, build resilience into supply chains, and design policies that perform under uncertainty. The aim is not to forecast a single future but to map the contours of risk and opportunity as the next energy order takes shape.

Energy, Resources, and Geopolitics offers a guide to navigating this transition with strategic clarity. By connecting the plumbing of resource markets to the practice of diplomacy and the realities of power, it shows how states and firms can reduce exposure to coercion, find bargaining chips in unexpected places, and craft coalitions that accelerate the transition while securing national interests. The coming decades will reward those who understand that the politics of molecules and minerals are not a sideshow to international affairs—they are its main stage.

CHAPTER ONE: Power from the Ground: A Framework for Resource Leverage

Energy and minerals are not just commodities; they are instruments of power. A barrel of oil, a cubic meter of gas, or a kilogram of refined lithium can buy alliances, deter aggression, or trigger a diplomatic crisis. This chapter sets out a framework for

understanding how physical resources translate into geopolitical leverage. It explains why the control of supply, the ownership of infrastructure, and the setting of standards create distinct forms of power. It also shows how the energy transition scrambles old hierarchies while reinforcing the enduring rule that whoever controls a critical input at the moment of scarcity gains outsized influence over others. Power from the ground is not simply about geology; it is about the political, financial, and logistical systems that move resources from rock to refinery to reactor.

Leverage begins with scarcity. When demand is inelastic—that is, when buyers cannot quickly switch to alternatives—producers gain pricing power and political voice. Oil markets have often exhibited this trait, particularly during supply shocks that squeeze refiners and consumers. Natural gas has shown similar behavior when pipeline capacity is tight or winter storage is low. Critical minerals like lithium and nickel do not yet trade in deep, liquid markets with standardized contracts, so scarcity can be felt acutely in long-term supply agreements. The degree of substitutability matters: a city can substitute electric buses for diesel buses relatively quickly, but a semiconductor fabricator cannot swap out high-purity neon gas or gallium without massive disruption.

Supply control is only as strong as the infrastructure that delivers it. A producer with barrels locked onshore without pipelines or export terminals cannot wield much influence. Conversely, a nation that sits astride a key pipeline route or a strategic port can extract transit fees and political concessions from neighbors. This is why pipelines are not simply steel tubes; they are long-term contracts written in concrete. They create path dependencies that tie producers and consumers for decades, shaping foreign policy choices and exposing both sides to coercion. LNG terminals and ships add flexibility, but they also introduce new chokepoints—liquefaction plants, regasification facilities, and specialized vessels—whose availability and reliability become strategic variables.

Geography remains stubborn. Hydrocarbon reserves cluster in a handful of regions, and mineral deposits are similarly uneven. Russia’s vast gas fields lie close to European markets but require complex delivery networks. The Middle East holds the world’s largest oil reserves, but export capacity depends on the Strait of Hormuz. The Lithium Triangle in South America and cobalt deposits in the Democratic Republic of Congo are geographically constrained, and the processing of these minerals is often concentrated in a single country. This geography creates hubs and corridors that geopolitical strategies must navigate. It also means that political instability in a specific region can reverberate globally, as the physical location of resources cannot be moved to safer jurisdictions.

Infrastructure ownership determines who holds the keys. National oil companies and state-owned gas firms often own the fields, pipelines, and processing plants, giving governments direct control over strategic assets. International oil companies bring capital, technology, and market access, but they operate under host-government

terms and are vulnerable to policy shifts. Private midstream and logistics firms own refineries, storage terminals, and shipping fleets, adding layers of dependency. In critical minerals, Chinese firms have built dominant positions in refining and processing, giving Beijing leverage even over raw materials sourced elsewhere. The shift from resource nationalism to a more complex web of ownership has not democratized power; it has simply distributed it across more nodes.

Standard-setting is a quiet but powerful lever. When states or firms define technical specifications for fuels, batteries, or grid interoperability, they influence who can enter markets and on what terms. Emission standards for fuels determine refinery upgrades; specifications for battery cathodes dictate which mineral blends are strategic; electrical grid codes determine which equipment can connect. Certification schemes for “green” hydrogen or “responsible” minerals can act as non-tariff barriers. Control of data and benchmarks, such as crude oil price assessments or battery-grade chemical purity levels, confers informational advantages that traders and policymakers exploit. Standards may seem technical, but they often decide who wins the next commercial and diplomatic race.

Finance is a force multiplier. Energy projects require enormous capital, and access to funding can be granted or denied on political grounds. Export credit agencies, development banks, and sovereign wealth funds finance pipelines, mines, and power plants, attaching policy conditions that extend beyond project boundaries. Sanctions regimes weaponize this interdependence by cutting off access to Western financial systems, shipping insurance, or technology licenses. Commodity traders, with sophisticated logistics and balance sheets, can smooth volatility—or amplify it—by positioning inventories and securing vessels. In this ecosystem, bankability—the ability to attract financing on commercial terms—can matter as much as geology.

Energy security is a multi-player game, not a zero-sum contest. Consumers seek diversification of supply, while producers aim to diversify markets. Both sides hedge by building strategic reserves, signing long-term contracts, and maintaining a portfolio of options. A consumer that relies solely on one pipeline or a producer that depends on a single buyer is exposed. Diversification reduces leverage but increases complexity. In the gas sector, the coexistence of pipeline gas and LNG means that political leverage is contingent: a pipeline can be shut for political reasons, but LNG can be rerouted if the buyer has flexible terminals and ships. The cost of this optionality is higher infrastructure spending and more complex contracting.

Transitions magnify risk because they stretch the time horizon of investments and widen the gap between old and new systems. A country phasing out coal needs reliable electricity during the ramp-down and ramp-up, which often means keeping thermal plants online and importing fuel. Mining for critical minerals requires long lead times, environmental permits, and skilled labor, while battery demand can spike with policy announcements. Hydrogen and synthetic fuels remain niche, depending on

standards, transport, and cost reductions. During these overlapping phases, incumbents retain leverage from existing assets while newcomers scramble to secure future supplies. Policymakers must manage both sets of risks simultaneously.

As the mix of energy sources changes, so do alliances. Oil security historically anchored bilateral relationships: the United States and Saudi Arabia, Western Europe and Russia, Japan and Middle Eastern producers. Gas security has reinforced Eurasian ties and rivalries. Electricity security is knitting together new partnerships through interconnectors and regional power pools. The race to control mineral supply chains is drawing Africa, Latin America, and parts of Asia into the center of geopolitical competition. Hydrogen and nuclear power are redefining partnerships around technology transfer, fuel cycles, and certification. Transitions do not erase old dependencies; they redistribute them, often in opaque ways that become visible only under stress.

The state remains the central actor, but firms and markets are increasingly influential. National oil companies command vast reserves and revenues; international majors navigate multiple regulatory regimes; traders possess unique logistical intelligence; sovereign wealth funds invest windfalls to shape long-term economic security. These actors may align with their home governments or pursue corporate strategies that complicate statecraft. For example, a national oil company may resist decarbonization policies to protect revenue, or a trader may arbitrage sanctions by routing cargoes through intermediaries. Understanding energy geopolitics requires tracking the incentives of not just states but also the companies that operate the physical and financial plumbing.

Vulnerability is not evenly distributed. Import-dependent economies face higher exposure to price spikes and supply disruptions. Landlocked countries depend on transit from neighbors, creating political friction. Coastal nations with ports and terminals gain flexibility but must defend maritime chokepoints. Island grids rely on imported fuel or interconnection, adding cost and risk. In mineral supply chains, countries that control midstream processing have leverage over both upstream miners and downstream manufacturers. The distribution of vulnerability shapes bargaining power: a buyer with multiple options can play suppliers against each other, while a seller with captive markets can dictate terms.

Infrastructure is also a target. Physical attacks, cyber intrusions, and sabotage can degrade capacity or erode confidence without triggering full-scale war. Pipelines can be bombed, LNG plants can be disabled by malware, and shipping containers can be tampered with. These gray-zone tactics exploit the fact that energy and mineral systems are complex and often fragile, with cascading effects across markets. They also blur the line between commercial disruption and political coercion, complicating deterrence and response. Resilience thus requires not only spare capacity and redundancy but also robust security arrangements and trusted partners.

Diplomacy moves with molecules and minerals. Trade agreements now include energy clauses, investment treaties cover critical infrastructure, and climate summits negotiate the future of fossil fuel use. Carbon border adjustments, clean energy standards, and responsible sourcing rules are becoming instruments of trade policy and geopolitical leverage. Negotiating these rules involves not just environmental goals but also competitive advantage. Countries rich in resources seek to capture more value domestically by banning raw exports and requiring local processing. Consumer countries seek to lock in supply through long-term contracts and equity stakes. The diplomatic playbook has expanded beyond barrels and vessels to include electrons, data, and certificates.

In this landscape, leverage often comes from controlling the narrowest point of a chain. A refinery outage can spike gasoline prices even when crude supply is abundant. A processing plant shutdown for rare earth separation can halt magnet production for electric motors. A port closure can strand LNG carriers and trigger winter shortages. A software vulnerability in grid management can black out cities. These pinch points concentrate power in the hands of those who own, operate, or secure them. They also create opportunities for diplomacy, as building additional capacity, diversifying routes, or developing substitutes can reduce exposure to coercion.

The energy transition is often framed as a shift from “dirty” to “clean,” but geopolitically it is a shift from one set of dependencies to another. Oil pipelines give way to electricity interconnectors; drilling rigs yield to mining trucks; gas storage tanks to battery packs. The centers of gravity change: petrostates must adapt or decline, while mineral-rich nations become pivotal. Technology leaders who control intellectual property and process know-how gain influence even when they lack resources. The global balance of power will hinge on who can secure materials, build infrastructure, set standards, and finance the transformation. The transition is not a single event but a long, uneven realignment of interests and vulnerabilities.

Understanding leverage requires a mental model that connects supply, demand, infrastructure, finance, and policy. One useful framework distinguishes between three types of power: producer power, infrastructure power, and market power. Producer power arises from control of a scarce resource that others need. Infrastructure power arises from ownership or control of the routes, hubs, and plants that move and transform resources. Market power arises from setting prices, standards, and access to capital and customers. Each type operates through different mechanisms and creates different vulnerabilities. States often combine these forms, but they can also be held by firms or alliances. The balance among them determines how hard it is to substitute, reroute, or bypass a node.

Take the example of natural gas. Russia historically wielded producer power through

large reserves and infrastructure power through pipelines into Europe. European consumers responded by building LNG terminals to enhance market power through diversification. When pipelines were disrupted or politicized, LNG cargoes could be redirected, but only if terminals were available and ships were not locked elsewhere. The balance of power shifted with infrastructure investments and geopolitical events, such as wars and sanctions. The lesson is that leverage is dynamic: it depends on the configuration of assets at a given time and the options available to each side. It can be diluted by redundancy and strengthened by exclusivity.

Critical minerals illustrate a different pattern. Producer power is fragmented—lithium and cobalt are mined in different countries—but infrastructure power is concentrated in refining and processing, especially in China. Market power rests partly on technology and standards for batteries and electric vehicles. A miner in Australia may sell ore to a processor who sets the price and purity of the intermediate product that feeds battery manufacturers. This gives the processor outsized influence, even if the miner controls raw material. Western governments have recognized this and are investing in domestic processing and partnerships to reduce exposure. The geopolitics of minerals is thus a game of stacking capabilities across stages of the value chain.

Finance and sanctions add another layer of complexity. Interdependence means that restrictions on banking, insurance, shipping, or technology can disable projects without blockading ports. A single bank’s refusal to finance a pipeline can delay it for years. A ban on exporting specialized equipment can stall a refinery upgrade. These tools are precise and can target specific nodes, but they also create incentives for the targeted country to build alternative systems—new banks, new shipping registers, new technology stacks—that reduce reliance on the sanctioner. The contest becomes one of ecosystem-building: which coalition can provide the financing, insurance, and technology that the resource flows require?

Risk management is the practical art that flows from this framework. Consumers must decide how much redundancy to pay for, whether to diversify suppliers, and when to sign long-term contracts versus rely on spot markets. Producers must manage price volatility, secure customers, and invest in infrastructure without overbuilding. Firms must hedge currency, freight, and regulatory risk. Governments must balance energy security, affordability, and climate goals while avoiding entanglements that become liabilities. All of this requires a clear view of which nodes are most exposed, which partners are most reliable, and which contingencies are most costly. The countries and companies that do this well are not just safer; they are more influential.

Several trends will shape the distribution of leverage in the coming decade. The growth of renewables increases demand for copper, aluminum, nickel, lithium, and rare earths, shifting attention to mines and refineries rather than oil fields. LNG capacity continues to expand, enhancing optionality but also creating periods of oversupply that can be weaponized through price wars. Electricity grids are becoming

more interconnected, enabling cross-border flows that transmit both electrons and political influence. Data centers and AI are driving electricity demand in specific geographies, raising local bottlenecks. Hydrogen and synthetic fuels are still niche but could reshape trade if standards and costs align. And the financial system is increasingly used as a tool of economic statecraft, making access to capital as strategic as access to ports.

To navigate this, a practical checklist helps. First, map the physical flows: where are the resources, the processing plants, the routes, and the chokepoints? Second, assess the ownership and control: who decides how capacity is allocated, and under what rules? Third, evaluate the substitutes and options: how quickly can buyers switch, and at what cost? Fourth, understand the financial plumbing: which banks, insurers, and investors finance these assets, and what constraints do they face? Fifth, track the policy landscape: how are standards, taxes, and trade rules evolving? Sixth, consider the shock absorbers: what strategic reserves, spare capacity, and contingency plans exist? This mapping turns abstract leverage into concrete scenarios.

The relationship between resource geopolitics and climate policy is intimate, even if often unstated. Rapid decarbonization can tighten oil and gas markets in the short term if investment lags, strengthening producer leverage. Building renewable supply chains requires massive mining investment, which can create new chokepoints. Governments may use climate policies to justify trade restrictions, such as carbon border adjustments, that protect domestic industries and penalize rivals. Conversely, cooperation on methane abatement, grid interoperability, or responsible mining standards can build trust and reduce risk. The energy transition will not be smooth; it will be a series of bargains that reconcile security, affordability, and climate goals. Geopolitics is the arena where those bargains are struck.

A final point: leverage is not destiny. Geography and resource endowments matter, but political choices and institutional design can amplify or mitigate their effects. Countries that welcome investment, uphold contracts, and enforce transparent regulation attract capital and technology. Those that monopolize, expropriate, or hide data struggle to build long-term partnerships. Diversification and redundancy are expensive, but they buy negotiating space. International coordination on emergency stocks, transparency on inventories, and mutual assistance during crises can dampen volatility. The difference between a manageable disruption and a systemic crisis often lies in preparedness and trust. Energy and mineral systems are physical, but their geopolitics is ultimately human.

This chapter has sketched the anatomy of leverage in energy and resources: scarcity, infrastructure, ownership, standards, finance, and vulnerability. It has shown how these elements interact to create power and how the energy transition reshapes them. The rest of this book explores how these forces play out across commodities and regions, from oil’s historical dominance to the emerging politics of critical minerals

and electricity. The aim is to give readers a durable framework for reading the news, evaluating policy, and anticipating where pressure points will emerge. Power from the ground is a constant, but it is not immutable; it is built, contested, and sometimes redesigned by those who understand the system’s architecture.
