S T R A T E G I C H O R I Z O N
ENERGY STATECRAFT · VOLUME 07 OF 08

Positions and Shocks

2035: Winners, Losers and Disruptors

Nobody knows what the energy system looks like in 2035, and this volume does not claim to. What can be known is which structural positions compound and which erode, because those are visible now and move slowly. The forecast here is about positions rather than outcomes, and about the specific shocks that would invalidate it — named in advance, with the signposts that would show them arriving.

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EDITORIAL NOTE

On method

Energy forecasting has an unhappy record, and the reason is usually that the forecast was a point estimate of a quantity nobody could know. This volume avoids that by forecasting something slower and more legible: the structural position of the major actors, meaning the assets, chains and relationships that determine what each can do regardless of who is in office.

Three rules follow. Positions are assessed on evidence from Volumes 01 to 06 rather than on new modelling. Disruptors are named specifically, with the window in which each could become material and the confidence attached. And the scenario weights at the end are stated as Strategic Horizon judgement rather than as modelled probabilities, because they are judgements and presenting them otherwise would be false precision.

A reader who thinks the weights are wrong should be able to say which signpost they expect to fire differently. That is the standard this volume is written to.

EXECUTIVE SUMMARY

The argument in brief

- **China holds the strongest position and it stops compounding.** The industrial platform is built and will not be dislodged by 2035. What changes is the rate of gain: the binding constraint moved from generation to absorption in 2025, and roughly USD 17 billion of foregone output sits on provincial balance sheets. The plateau is a strong plateau, not a decline.
- **The American position is the one that erodes fastest, and not because of China.** Data centre load went from 23 GW in 2023 to 42 GW in 2026, gas turbines are sold out through 2030, and the molecule doctrine only holds while the molecule is needed. Domestic demand and the four-year policy cycle are both internal.
- **Two positions improve, and one of them is European.** Gulf producers convert capital and sun into an export position with existing ammonia infrastructure. European network manufacturers hold roughly two-thirds of the global HVDC market with order backlogs beyond four years, which is pricing power. Both compound.
- **Seven disruptors are named, and the most likely one is already happening.** Data centre demand is reshaping the American system now. Rare earth diversification is the next most probable: Bloomberg Intelligence projects Chinese share of neodymium-praseodymium falling from 90 per cent in 2024 to 69 per cent by 2030. Perovskite and solid-state are real but late, and both could entrench the incumbent rather than displace it.
- **Consolidation is the most likely outcome and it is not a comfortable one.** On present policy Europe arrives at 2035 decarbonised, importing, and holding one industrial position of scale. The scenarios that improve on that require either a disruptor to land outside China or a European decision that has not yet been taken.

SH VERDICT

The most useful thing this series can say about 2035 is that very little of it is still open. Manufacturing positions in solar, batteries and alkaline electrolysers are settled. Molecule supply relationships are being written into treaty law now. What remains genuinely undetermined is the grid, the contract architecture for imported fuels, and whether any of the seven named disruptors lands outside Chinese control. Those three are where the remaining European agency sits, and all three are decided before 2030 rather than in it.

SECTION I

Positions

Seven actors, assessed on where they stand in 2026 and the direction of travel. Position here means the capacity to act independently of others' decisions, which is not the same as market share and not the same as wealth.

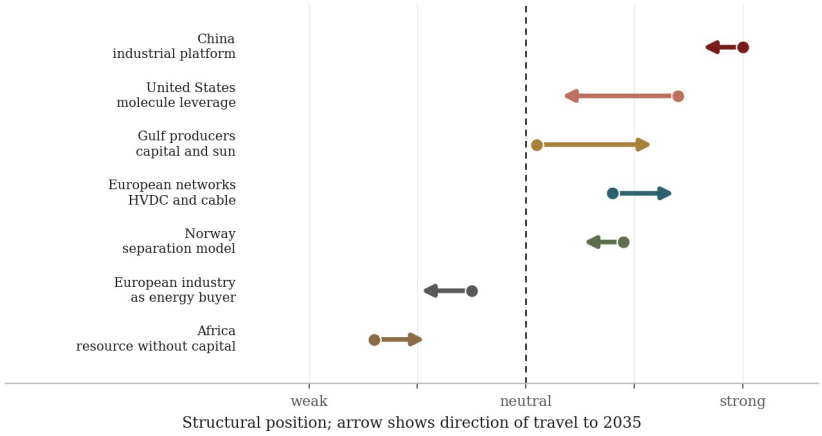


Figure 1. Structural position in 2026 and direction of travel to 2035. Positions are Strategic Horizon assessments derived from Volumes 01 to 06; the scale is ordinal and comparative rather than measured.

Winners: positions that compound

Actor	What the position rests on	Why it compounds
China	Manufacturing platform across solar, batteries, magnets and alkaline electrolysers; grid capital at sub-two-per-cent yields; export controls demonstrated in 2025	Scale lowers cost, cost wins share, share funds the next plant. Broken only by financial failure or by a technology reset outside its control
Gulf producers	Capital, irradiance, existing ammonia terminals, and a demonstrated willingness to design around chokepoints — Oman ships from Duqm outside Hormuz	Buyers with 2030 import targets and no domestic production must contract early, which converts a resource into a relationship
European networks	Roughly two-thirds of the global HVDC market; Hitachi Energy and Siemens Energy above half of everything outside China; Prysmian, Nexans and NKT in subsea cable	Offshore HVDC cable backlogs run beyond four years. Scarcity in a technology nobody can substitute is the definition of a compounding position

Table 1. Three positions that improve or hold. Sources: Volumes 02, 05 and 06; IEA; MarketsandMarkets; company reporting.

SH ASSESSMENT I/1

The Chinese position stops compounding without declining, and the distinction matters for European planning. Volume 02 found the binding constraint had already moved from generating electrons to moving them: solar curtailment at 6.6 per cent nationally and 33.9 per cent in Tibet, with roughly USD 17 billion of foregone output concentrated on western provincial project companies. That caps the rate of gain. It does not reverse the platform, and European strategy built on an expectation of Chinese retreat is built on nothing.

The European network position is the single most underused asset in the series. It is a genuine two-thirds global share in a technology with no substitute, held by firms that are European, in a segment where the constraint is factory capacity rather than ownership. Volume 06 scored HVDC cable and converters at 3.8, the highest of any technology that can actually scale. Nothing in current European industrial policy treats it as the strategic asset it is.

Recommendation I/1-R — Treat European HVDC manufacturing as a strategic industry with the instruments that implies: public capacity co-investment against long-term TSO order books, qualification of second-source insulation compound supply, and export credit support. The backlog is the constraint and the backlog is solvable with capital, which is the rarest kind of strategic problem Europe faces.

Losers: positions that erode

Actor	What erodes	The mechanism
United States	The leverage value of the molecule	Data centre load rose from 23 GW in 2023 to 42 GW in 2026; gas turbines are sold out through 2030 at prices 195 per cent above 2019. Domestic demand competes with the export product, and every year Europe electrifies shrinks the leverage
European industry	Cost position as an energy buyer	Industrial electricity at roughly EUR 120–145 per MWh against about EUR 55 in the United States. Absent intervention this is structural, and 1,700 GW sits in connection queues while 72 TWh is curtailed for grid constraints
Norway	The value of the relationship, not the revenue	The revenue holds. What erodes is the position as indispensable partner: declining to extend interconnection converts a strategic relationship into a commercial one, and commercial relationships are replaceable
Africa	Nothing — but the position does not improve much either	Roughly 60 per cent of the world's best solar resource, 85 per cent of the global electricity access gap and about 3 per cent of clean energy investment. Capital cost of 12 to 16 per cent is the binding constraint, and it is not moving fast

Table 2. Four eroding positions. Africa is included because a position that fails to improve while others compound is a relative loss. Sources: Volumes 01, 03 and 04 material; Draghi Report; IEA Cost of Capital Observatory; Beyond Fossil Fuels.

SH ASSESSMENT I/2

The American erosion is the most consequential finding here and the least anticipated in European planning. Volume 03 recorded Europe taking 68 per cent of American LNG exports while America supplied 63 per cent of European LNG imports.

Both sides treat that as stable. The chain that could unsettle it runs through several steps rather than one: data centre load raises electricity demand, gas-fired generation is the default marginal response, that raises domestic gas demand, domestic demand competes with liquefaction feedgas for the same molecules, and feedgas cost sets the floor under American LNG export economics. Each link is contestable and the aggregate is plausible. European adequacy assessments do not currently stress-test it at all.

The African case is a moral problem and a strategic one, and the second is less discussed. A continent with the world's best solar resource and no capital to build on it will take the offer that arrives. Volume 03 recorded Pakistan turning to Chinese solar after the Hormuz price shock. Every year Europe does not compete on financing terms in these markets is a year the standards, the equipment and the service relationships are set by someone else — and those outlast the panels.

Recommendation I/2-R — Redirect a defined share of Global Gateway toward first-loss guarantees that compress the cost of capital in African power projects rather than toward project finance itself. A one-point reduction in the capital cost across emerging markets is worth roughly USD 150 billion a year; no European industrial subsidy available at that price achieves anything comparable.

SECTION II

Disruptors

A scenario that cannot be falsified is not analysis. Seven developments are named here that would materially change the positions above, each with the window in which it could become material and the confidence Strategic Horizon attaches to it.

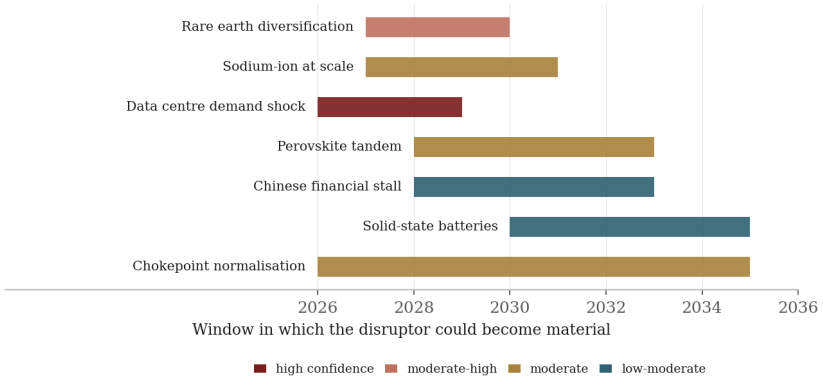


Figure 2. Seven disruptors, windows and confidence. Confidence refers to the likelihood that the development becomes materially significant within the window, not to the certainty of the underlying technology.

Disruptor	Evidence	What it would change
Data centre demand	23 GW of US load in 2023 to 42 GW in 2026; share of peak summer demand from 4.1 to 8.5 per cent by 2027; turbines sold out to 2030	Already happening. Raises domestic gas demand, which competes with liquefaction feedgas and lifts the cost floor under US LNG
Rare earth diversification	Bloomberg Intelligence projects Chinese NdPr share from 90 per cent in 2024 to 69 per cent by 2030; roughly USD 10 bn of US federal money since January 2025	Moves NdFeB magnets by a full point on both ETGEM sovereignty dimensions, and with them wind and EV drivetrains

Disruptor	Evidence	What it would change
Sodium-ion at scale	CATL, BYD and HiNa hold 55–60 per cent of capacity, but the raw materials are distributed; systems operating at 92 per cent round-trip efficiency over 5,000 cycles	Breaks the lithium chokepoint for stationary storage, where the energy density penalty matters least
Perovskite tandem	LONGi at 34.85 per cent in laboratory; Oxford PV shipping 24.5 per cent commercial modules; commercial products expected 2027–28	Could reset the solar chain — or entrench it, since Chinese tier ones entering mass production would dwarf Western capacity
Chokepoint normalisation	Hormuz closed on 28 February 2026 and traffic had not returned to normal five months later	Converts a tail risk into a planning assumption and revalues every domestic and overland supply option
Chinese financial stall	USD 17 bn of foregone output in 2025 on substantially provincial and opaquely financed assets	Slows Chinese deployment without weakening the manufacturing platform. Would be misread in the West as a policy reversal
Solid-state batteries	Small-batch vehicles around 2027, mass market 2030 at the earliest; timelines have slipped consistently since 2020	Would reset the anode and graphite chokepoint. The consistent slippage is itself the most informative data point

Table 3. Sources: Goldman Sachs Research; Bloomberg Intelligence; Mordor Intelligence; PatSnap; Oxford PV; CREA; IEA; interact analysis.

SH ASSESSMENT II/1

Two of the seven are technology resets and both could deepen the concentration rather than break it. Perovskite tandem and solid-state are the disruptors most often cited as European opportunities. Neither is safely that. Oxford PV licensed its technology to Trinasolar for Chinese manufacture and sale in April 2025; LONGi, Trina, Jinko and Aiko entering perovskite mass production would reproduce the single-junction outcome at higher efficiency. A technology reset only helps Europe if Europe holds the manufacturing when it lands, and on current trajectory it will not.

The disruptor most likely to matter is the one nobody is calling a disruptor. Data centre demand is not a possible future event; it is a present and rapid increase in American electricity demand, already visible in turbine order books and congestion costs. Whether it reaches LNG export economics depends on how much of that demand is met by gas rather than by renewables, storage or nuclear, and on how tight the domestic gas market becomes. That is a chain rather than a certainty, but it carries the highest confidence of the seven and it is the one European planners have most completely omitted from supply modelling.

Recommendation II/1-R — Establish a standing disruptor watch with named signposts and quarterly review, published rather than internal. The specific triggers to monitor: Chinese tier-one perovskite mass production announcements; ex-China NdPr share crossing 20 per cent; US LNG cargoes diverted from export on domestic price; sodium-ion share of new stationary storage crossing 10 per cent; and any second chokepoint closure. Each is observable, and each would move a position in Figure 1.

SECTION III

Three Paths to 2035

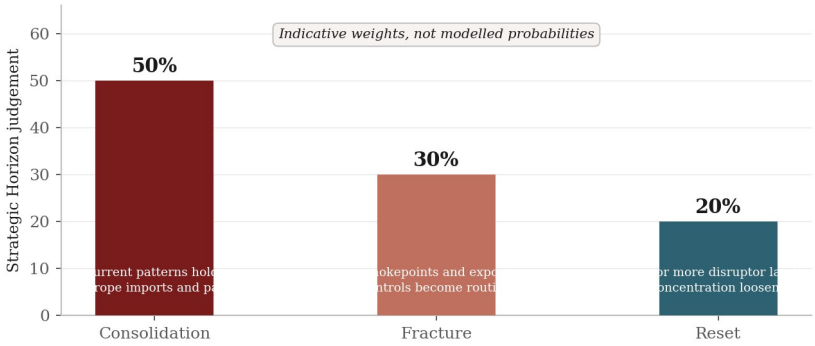


Figure 3. Three scenarios with indicative weights. These are Strategic Horizon judgements, not modelled probabilities, and are stated to be argued with.

Consolidation — the base case

Present patterns hold. China retains the manufacturing platform and plateaus at a high level. The United States keeps its export position through the decade while domestic demand steadily erodes the margin. Europe decarbonises broadly on schedule, imports its equipment and a rising share of its fuel, and retains one industrial position of scale in networks. Gulf and North African suppliers become structural counterparties in hydrogen derivatives on contracts written between 2027 and 2030.

The 2030 RFNBO obligation is missed and quietly adjusted. Industrial electricity prices stay roughly double American levels. Nothing collapses; the Union simply arrives at 2035 having met its climate targets and lost the argument about who owns the system that delivers them.

Fracture

Chokepoint closures and export controls become routine rather than exceptional. A second Hormuz-type event, or the November 2026 expiry of the Chinese export control suspension without renewal, converts supply chain risk into supply chain reality. Regionalisation accelerates: content requirements harden on all sides, costs rise everywhere, and deployment slows against every published target.

Counter-intuitively this improves the relative European position on sovereignty while worsening it on cost and speed. Domestic-resource technologies — biomethane, pumped hydro, geothermal, nuclear life extension — become economic on security grounds that no cost comparison would have justified. The transition gets slower, more expensive and more sovereign at the same time.

Reset

One or more disruptors lands outside Chinese control. The most plausible combination is rare earth diversification reaching material scale by 2030 alongside sodium-ion taking a meaningful share of stationary storage, with perovskite manufacturing establishing outside China as the third leg. Concentration loosens across several ETGEM dimensions at once, and the inverse correlation in Volume 06 weakens.

This is the scenario European policy implicitly assumes and does least to bring about. It requires manufacturing capacity to exist when the technology arrives, which is a decision taken years earlier, not a market outcome.

> **SH ASSESSMENT III/1**

Consolidation is the base case at roughly even odds, and the honest way to describe it is a successful transition into a weaker strategic position. The transition succeeds on its headline climate objectives while the strategic position deteriorates on every sovereignty measure. This is not a failure scenario in the ordinary sense, which is exactly why it is the one most likely to occur: nothing in the European decision-making process registers it as a failure until it is irreversible.

Fracture is more probable than European planning assumes and less catastrophic than it fears. At roughly thirty per cent it is not a tail case. It slows and raises the cost of the transition, and it makes domestic-resource technologies economic on grounds no levelised cost comparison would deliver. A Union that had already built the reserve cover metric recommended in Volume 03 and the domestic floor recommended in Volume 06 would enter it with instruments rather than improvisation.

Reset is the scenario Europe is counting on and not investing in, which is the most expensive combination available. A technology reset transfers value to whoever holds manufacturing at the moment it lands. Volume 05 recorded the electrolyser case: the technology changed, and the beneficiary was the incumbent manufacturer. Hoping for a reset without holding capacity is not a strategy; it is a wish with a budget line.

SECTION IV

Signposts

The scenarios above are falsifiable. These are the observable events that would move the weights, with the direction each implies.

Signpost	Window	What it would indicate
Chinese tier-one perovskite mass production announced	2027–29	Reset becomes less likely for Europe; consolidation hardens
Ex-China NdPr supply crosses 20 per cent of world total	2028–30	Reset gains weight; ETGEM magnet scores improve by a point
US LNG cargoes diverted from export on domestic price	2027–30	American erosion confirmed; European supply modelling must be redone
Chinese export control suspension lapses in November 2026	2026	Fracture gains weight immediately
Sodium-ion above 10 per cent of new stationary storage	2028–31	Reset gains weight in storage specifically
A second chokepoint closure of over one month	any	Fracture becomes the base case
EU legislates binding cross-border transmission consent deadlines	2027–28	The one signpost entirely within European control

Table 4. Signposts and their implications. Bold entries are assessed as the three most informative.

SECTION V

Conclusion — The Strategic Horizon View

Six volumes of evidence produce a narrower conclusion about 2035 than the question invites. Most of it is already determined.

The manufacturing outcomes are settled. Solar, batteries, alkaline electrolysers and permanent magnets are not contests any more; they are conditions. The fuel relationships are being settled now, in trade agreements and long-term offtake contracts written between 2025 and 2030, and those documents will outlast the governments that sign them. What remains genuinely open is a short list: the grid, the contract architecture for imported fuels, and whether a technology reset lands somewhere other than China.

What each actor is actually betting

Volume 02 found China betting that control of the electron beats access to the molecule. Volume 03 found the United States betting the opposite — that the molecule era lasts long enough to matter more than the electron era. Both bets are coherent and they cannot both be right. Strategic Horizon's assessment is that China wins the bet on the 2035 horizon and the United States wins it on the 2030 horizon, which is why both look strong today and why the American position is the one that turns.

Europe has not made a bet. It has made a target, which is a different kind of object: a target commits you to an outcome without committing you to a position. That is the finding this series keeps arriving at from different directions, and it is why the same sequence recurs — solar lost while the argument was about tariffs, batteries lost while the argument was about subsidy, electrolysers lost while the argument was about additionality rules.

The verdict

STRATEGIC HORIZON VERDICT

The most likely 2035 is one in which Europe meets its climate commitments and holds less control over its energy system than it did in 2020. That outcome carries roughly even odds and requires no adverse event to produce it. It is the default. Every alternative — fracture or reset — requires either an external shock or a European decision, and only one of those two can be arranged.

The decisions that determine which path runs are taken before 2030, not during the 2030s. Import contracts for hydrogen derivatives, transmission legislation, manufacturing capacity for whichever technology resets, and the reserve and concentration metrics recommended in Volumes 03 and 06. All are five-year decisions with fifteen-year consequences, and none of them is currently on a European legislative timetable.

The one position Europe holds that compounds is the one it discusses least. Two-thirds of the global HVDC market, order backlogs beyond four years, no substitute technology, and a constraint that is factory capacity rather than ownership. Volume 01 argued the grid was the contest still open; Volume 06 scored it; this volume finds it is also the only European position whose trajectory points upward. If the series has one operational recommendation, it is to stop treating that as an engineering matter and start treating it as the industrial policy it should have been a decade ago.

On the limits of this volume

This is a judgement about structural positions, not a forecast of quantities, and the scenario weights are stated as judgements rather than as modelled probabilities. The position scores in Figure 1 are ordinal and comparative; they are not measurements and should not be treated as such. Disruptor windows are drawn from published industry timelines that have a documented history of slipping, particularly for solid-state batteries. The Hormuz disruption that began on 28 February 2026 remains unresolved at the time of writing, and a durable settlement would lower the weight on the fracture scenario. And the whole exercise inherits the limits of Volumes 01 to 06, including the unsourced provincial financing assumption recorded in Volume 02.

Principal sources: Strategic Horizon Energy Statecraft Volumes 01–06 and Strategic Brief SB-2026-01; International Energy Agency; Bloomberg Intelligence; BloombergNEF; Goldman Sachs Research; Centre for Research on Energy and Clean Air; Mordor Intelligence; MarketsandMarkets; PatSnap; Oxford PV; Draghi Report; Beyond Fossil Fuels; interact analysis. © Strategic Horizon 2026. Volume 07, v1.2. Open access. Reviewed by Ciceró and Solon; see the note on limits in Section V.