

# Critical Infrastructures and Power Games in EU-China Relations



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## 1. Introduction

Mathieu Duchâtel

## 2. Charting Huawei's Trajectory through Three Periods of Transformation

Misha Lu

## 3. Grid Infrastructure as an Energy Transition Facilitator: The Role of China's State Grid

Anders Hove

## 4. Own and Control: China's Systemic Approach to Global Shipping

Léonie Allard

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## Introduction

Over the past decade, numerous factors have contributed to the deterioration of EU-China relations. Of those factors, China's investment in strategic infrastructure is often overlooked despite the role it played in nurturing mutual distrust, and in prompting Europe to adopt the much more defensive stance that it has now embraced.

Who remembers today that during their 2013 summit in Beijing, the two sides concluded an **EU-China 2020 Agenda for Strategic Cooperation**?<sup>1</sup> In hindsight, this document **represents the pinnacle of the optimistic engagement strategy that still prevailed in Europe at that time**. Economically, the highest priority mentioned was negotiating an Investment Agreement that would cover investment protection and market access, presented as a precursor to a "deep and comprehensive FTA". Europeans had long hoped China would cooperate on international security issues, but the Hu Jintao-Wen Jiabao (2002-2012) leadership viewed the relationship primarily through the lens of trade, access to the European Union single market, and European technology and investment. Thus, it was surprising when China agreed to include a "peace and security pillar" in the bilateral agenda, aiming for a secure cyberspace, a strengthened human rights dialogue, and enhanced

consultations on Africa, Central Asia, Latin America and regions neighboring both the European Union and China.

The 2013 summit was the second EU-China meeting since Xi Jinping had risen to supreme power in China, as the top leader of the state, the military, and the Communist Party. Some in Europe optimistically (and briefly) believed that the end of the Hu-Wen era would lead to the removal of at least some of the obstacles hindering the development of the EU-China partnership.

Yet, with Xi in charge, the exact opposite occurred: obstacles have accumulated, leading to growing disappointment and mutual distrust. On the international security front, after **a decade without any record of significant cooperation despite the good intentions displayed in the 2013 communiqué**, China and the European Union have now ended on opposite sides of the Russia-Ukraine war, so much so that some in Europe argue China should be considered a threat to European security. Economically, there is growing concern that the European Union and China may be in the early stages of a trade war, especially if the United States intensifies its trade measures against China after the November 2024 presidential

<sup>1</sup> "EU-China 2020 Strategic Agenda for Cooperation", European External Action Service, November 23, 2013, <https://www.eeas.europa.eu/sites/default/files/20131123.pdf>.

elections and United States pressure on Europe to align intensifies – even though one may also think that strong American trade measures against China would lead China to become more flexible towards Europe. For now, what we see is the culmination of a trend that has developed over the past decade, during which **the European Union has lacked the leverage to address the imbalances and asymmetries in EU-China relations.**

The 2020 conclusion of the Comprehensive Agreement on Investment,<sup>2</sup> often cited by China as evidence of its willingness to be flexible on market access, would have only marginally addressed the issues – and the agreement is now frozen due to political disagreements. Instead, the European Union focused on building a toolbox of defensive measures. Some of these are new, such as the Anti-Coercion Instrument (ACI), the FDI screening regulation, and the International Procurement Instrument. Others have been revised and updated, like dual-use export controls and anti-subsidy measures. When consultations fail, strengthening one's defenses becomes the only viable path to rebalance an asymmetric relationship.

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Infrastructure investment has been the backbone of China's economic miracle since the launch of economic reforms in the late 1970s, creating new opportunities for private entrepreneurship – and enormous market scale for State-Owned Enterprises (SOEs). However, **since Xi Jinping's declared "New**

**Era" (新时代),<sup>3</sup> strategic infrastructure has evolved beyond purely economic development.** The combination of China's market scale, Xi's vision for China's global leadership, and the tendency of large Chinese infrastructure companies to seek vertical integration shifted Europe's perspective, from one centered on economic development to one focused on unfair asymmetries and security risks posed by excessive leverage and access to sensitive data.

Consider three companies in three different sectors: COSCO (China Ocean Shipping Company), State Grid Corporation of China, and Huawei Technologies. Each operates in a sector deemed strategically important by the Chinese government: respectively, global trade and logistics, energy infrastructure and distribution, and telecommunications and technology. Each is heavily investing in innovation. Each has encountered politicized resistance in their expansion efforts in Europe – either on grounds of national security, or because of the distortions to free market competition induced by Chinese state capitalism.

**COSCO's dominance in maritime logistics stems from its comprehensive horizontal and vertical integration,** owning and operating shipping lines, carriers, specialized vessels, terminals, shipyards, and managing supply chain logistics. COSCO aligns with China's national security objectives by integrating civilian maritime assets with military operations, supporting the PLA Navy and enhancing Chinese influence over major trade routes.

State Grid Corporation, which supplies electricity to over a billion people in 26 Chinese provinces, with annual revenues exceeding \$450 billion, **operates on a scale comparable to entire countries. It wields significant political influence within China,** and plays a crucial role in shaping energy policies, including China's dual carbon goals (双碳). The company focuses on ultra-high voltage (UHV) transmission

<sup>2</sup> "EU and China reach agreement in principle on investment", European Commission, December 30, 2020, [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_20\\_2541](https://ec.europa.eu/commission/presscorner/detail/en/IP_20_2541).

<sup>3</sup> "Full text of Xi Jinping's report at 19th CPC National Congress", Xinhua, November 3, 2017, [http://www.xinhuanet.com/english/special/2017-11/03/c\\_136725942.htm](http://www.xinhuanet.com/english/special/2017-11/03/c_136725942.htm).

lines, investing a record \$76 billion in 2023 alone to expand UHV corridors and support clean energy integration. Additionally, State Grid is pursuing global expansion through strategic investments in power transmission projects.

**Huawei has adeptly navigated the United States sanctions** that many believed in 2020 and 2021 would decimate its smartphone and semiconductor design businesses. **Leveraging its privileged access to China's vast domestic market and substantial investments in AI, cloud computing, and operating systems**, Huawei experienced a significant profit surge in early 2024. In 2023, the company introduced its "All Intelligence" strategy, aiming to connect everything by extending the reach of large-scale AI models to individuals, families, and organizations at the edge. This strategy seeks to seamlessly integrate Huawei's various business sectors.

There remains a certain ambivalence in Europe's approach to relations with large Chinese corporate actors, particularly those involved in critical infrastructure. While there is **a general awareness that the political system of the People's Republic of China enables the possible state mobilization of these companies as instruments of influence, control and possibly even retaliation** during periods of political tensions, there is a lack of investment in understanding their autonomous strategies and operational methods.

Looking ahead, **Europe's dominant policy framework is likely to prioritize economic security, aiming to safeguard against excessive leverage, influence, and control risks**, as well as the market distortions caused by state capitalism practices. In this de-risking process, Europe's defensive measures will be shaped by the interplay of three factors: the intensification of American actions against Chinese companies, the degree of Chinese assertiveness in East Asia and in support of Russian imperialism, and the attractiveness of China's critical infrastructure offerings in comparison with alternatives – including alternatives to be found in Europe, from European providers of the continent's infrastructure needs to overseas activities within or outside the Global Gateway framework.

Given the scale of the challenge and regardless of the exact form of the deterioration of the international security environment that could come, it is urgent for Europe to invest in intelligence capabilities to better manage risks, to keep on prioritizing the construction of an efficient defensive toolbox, but also to embrace a vision of critical infrastructure as a source of power in international relations.

It is urgent for Europe to invest in intelligence capabilities to better manage risks.





## Misha Lu

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# Charting Huawei's Trajectory through Three Periods of Transformation

The rise of Huawei Technologies to prominence has placed it at the heart of the technology war between the United States and China, a war kick-started in 2019 by the Bureau of Industry and Security (BIS). Under the United States Department of Commerce, the BIS added Huawei to its Entity List in order to restrict its access to 5G and advanced semiconductor technologies. Citing the threat posed by Huawei to the United States national security interests in the context of China's civil-military fusion strategy, American restrictions have gradually been tightening ever since. But **despite mounting sanctions from the United States, Huawei experienced a revival in the first quarter of 2024 as it saw a year-on-year (YoY) profit surge of 564%**, bringing its net profit to RMB 19.65 billion (€2.5 billion at the April 30 exchange rate).<sup>1</sup>

The backdrop of this rebound makes it even more interesting to shed light on Huawei's growth trajectory and transformation through the lens of Chinese industry analysts, especially as the rebound could be partly attributed to Huawei's recent strategic adjustments.

**Huawei's rise and its long transformation road** from a mere sales agent of Private Branch Exchange

(PBX), to a sprawling empire linking telecommunications and cloud infrastructure to edge devices, while simultaneously serving government, business and consumer sectors, **has subjected it to countless analyses seeking to decipher its strategy and the multiple periods it has gone through.** Though these analytical frameworks differ in various degrees, there are nevertheless common characteristics of Huawei's development trajectory.

### Encircling the City with the Countryside

Huawei was founded in 1987 as a sales agent for a Hong Kong-based company that produced PBX, a system of private telephone networks used within a company. But **as agency business became unsustainable by 1989, Huawei moved into the assembly business**, in addition to research, development and commercialization of its own PBX products to small enterprises.

Described by three Beijing researchers as the "start-up period" (初创期), the decade between Huawei's foundation in 1987 and its entry into China's urban telecommunications market in 1998 is generally regarded as a critical period. During it, the **company's**

<sup>1</sup> "华为2024年一季度净利196.5亿元, 同比暴涨564% [Huawei sees first quarter net profit of 19.65 billion yuan, a YoY increase of 564%]", IC Smart, April 30, 2024, <https://www.icsmart.cn/76854/>.

**strategic priority was to secure a foothold in a telecommunications market rife with multinational competitors.**<sup>2</sup> The overarching strategy of this period is dubbed “encircling the city with the countryside” (农村包围城市), a name inspired by Mao Tse-Tung’s guerilla strategy, and with the aim to avoid a head-on confrontation with leading international telecom competitors (Nokia, Ericsson, Motorola, Siemens, and Fujitsu).<sup>3</sup> Huawei decided to foster its presence in China’s rural market, and by 1995, company sales retrieved RMB 1.5 billion (€150 million at the August 2017 exchange rate) from rural markets in China.<sup>4</sup> The period is also characterized by the attention given to customer feedback after the release of any product – an approach partly attributed to Huawei’s rapid rise.<sup>5</sup>

The “start-up period” (初创期), the decade between Huawei’s foundation and its entry into China’s urban telecommunications market in 1998 is generally regarded as a critical period (农村包围城市), a name inspired by Mao Tse-Tung’s guerilla strategy.

Huawei is generally perceived to have entered a **period of transition and rapid expansion after the year 1998** in what the consultant Sun Jianheng

**qualifies of an “internationalization and globalization” (国际化及全球化) phase.** Though its PBX business had come to dominate the Chinese market, the domestic market itself had become saturated and Huawei had to turn its gaze overseas.<sup>6</sup>

Notably, the **so-called “encircling the city with the countryside” strategy can also be applied to describe Huawei’s overseas expansion into developing economies:** by securing a foothold there, the company was able to further advance into developed economies. In 1997, for example, Russia became Huawei’s first overseas market as the country’s stagnant economy led rivaling multinationals to pull out from the Russian market. By 2000, Huawei’s international sales hit \$100 million (€92 million at the 2000 average exchange rate),<sup>7</sup> and it had successfully reached the Middle Eastern, Indian and African markets, targeting the mid and low-end market segments and backed up by strong after-sales service.<sup>8</sup> From 2001 onwards, Huawei’s footprint continued to expand into developed economies such as Europe and North America.

### Seizing the Smartphone Trend, Entering the B2C Era

With the new millennium approaching, Huawei undertook further changes, shifting away from the position of a telecom equipment vendor to a telecom solution provider. In practice, this meant moving from a business-to-government (B2G) and business-to-business (B2B) business model to one including business-to-consumer (B2C) as well.<sup>9</sup> Apple’s

<sup>2</sup> Dong Xiaoying, Hu Yanni and Yan Mengling, “华为战略升级与转型路径解析 [Analysis of Huawei’s strategic upgrade and transformation path]”, Guanghua School of Management, 2018, [https://www.gsm.pku.edu.cn/thought\\_leadership/info/1007/1279.htm](https://www.gsm.pku.edu.cn/thought_leadership/info/1007/1279.htm).

<sup>3</sup> Sun Jianheng, “华为的三次战略转型及其战略目标近乎100%达成背后的真相 [The truth behind Huawei’s three strategic transformations and nearly 100% achievement of its strategic goals]”, Jiemian News, August 15, 2017, <https://m.jiemian.com/article/1549045.html>.

<sup>4</sup> “Corporate information”, Huawei, <https://www.huawei.com/en/corporate-information>.

<sup>5</sup> Sun Jianheng, “华为的三次战略转型及其战略目标近乎100%达成背后的真相 [The truth behind Huawei’s three strategic transformations and nearly 100% achievement of its strategic goals]”, Jiemian News, August 15, 2017, <https://m.jiemian.com/article/1549045.html>.

<sup>6</sup> Ibid.

<sup>7</sup> “Corporate information”, Huawei, <https://www.huawei.com/en/corporate-information>.

<sup>8</sup> Wu Chaoze and Huang Yu, “通信巨头华为的崛起之路 [The Rise of Telecommunications Giant Huawei]”, China Securities, April 29, 2019, [https://pdf.dfcfw.com/pdf/H3\\_AP201905051326632096\\_1.PDF](https://pdf.dfcfw.com/pdf/H3_AP201905051326632096_1.PDF).

<sup>9</sup> Ibid.

unveiling of the first iPhone in 2007 accelerated this transformation. Prior to this, in fact, **Huawei already ventured into the terminal device business** with the dawn of the third generation of wireless mobile telecommunications technology (3G), **but failed to recognize its importance fully**, and even twice contemplated selling its terminal device business.<sup>10</sup> Back then, mobile phones were merely regarded by Huawei leadership as an auxiliary to its main telecom equipment business. Not to mention that the early mobiles produced by Huawei were white-labeled products made with little room for differentiation and little profits to sustain the development of Huawei's terminal device business.

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As indicated by Rui Bin, a former Vice President of Huawei's Consumer Business Group, the massive **success of Apple's iPhone prompted Huawei to recognize the importance of terminal devices and the revolutionary potential of 3G technology**: it brought a significant increase in data services as data demand driven by mobile phones and other terminal devices rose. As a result, Huawei's traditional B2B business has also been boosted by this increased data demand.<sup>11</sup> In light of these changes, at a critical meeting in 2011, Huawei's leadership settled on a three-pronged approach (三个面向) to hop on the emerging opportunity, marking the beginning of the rise of Huawei's terminal device business. Instead of pursuing sheer scale, **Huawei leadership decided that profits would take the front seat**, with the

emphasis switched to high-end devices – and away from the company's previous focus on mid and low-end products.

In 2011, Huawei's leadership settled on a three-pronged approach (三个面向).

The meeting solidified Huawei's commitment to its new B2C direction, marking a significant shift from B2B operations. However, transitioning to B2C does not come without new challenges. For instance, compared to business-facing products that stress reliability, consumer-facing products put a greater emphasis on user experiences. Another challenge was the **need to rapidly adapt to the fast developmental pace of the consumer electronics industry**. In addition, during this same period, domestic mobile makers like Xiaomi and OPPO were already known for their smartphone business.

### Connecting the Dots with AI

Huawei's entry into the smartphone business eventually came to underpin its so-called "Cloud, Pipeline, Edge" (云管端) framework. To cater to the demands of businesses, telecom operators and consumers, **Huawei created three separate business groups: "Enterprise", "Carrier Networks", and "Consumer"**. Those business groups respectively represent the three components of Huawei's framework. The "pipelines", namely the telecom infrastructure, function to interconnect and integrate the three business groups, eventually building an Internet of Everything based on synchronized cloud and edge.<sup>12</sup>

<sup>10</sup> Rui Bin, "华为: 活着就是最高战略 [Huawei: Survival is the highest-level strategy]", *Foundingaz*, May 25, 2022, <https://www.cyjiaomu.com/article/f2x5al6>.

<sup>11</sup> Rui Bin, "华为: 活着就是最高战略 [Huawei: survival is the highest-level strategy]", *Foundingaz*, May 25, 2022, <https://www.cyjiaomu.com/article/f2x5al6>.

<sup>12</sup> Wu Chaoze and Huang Yu, "通信巨头华为的崛起之路 [The rise of telecommunications giant Huawei]", *China Securities*, April 29, 2019, [https://pdf.dfcfw.com/pdf/H3\\_AP201905051326632096\\_1.PDF](https://pdf.dfcfw.com/pdf/H3_AP201905051326632096_1.PDF).

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Edge and terminal devices, as the end-products coming into contact with customers, naturally feature smartphones as a critical component. **Smartphones are thus regarded as a key portal into Huawei's envisioned interconnected ecosystem**, in conjunction with other terminals like tablets, computers, wearables, and automobiles. On the other end of the pipeline is the cloud: Huawei pursues an open cloud strategy focusing on **"open source", "open architecture", and "open ecosystem"** (开源, 开放架构, 开放生态).<sup>13</sup>

As Meng Wanzhou, Vice Chairwoman and Chief Financial Officer of Huawei, pointed out in September 2023, the intersection of communication technology and information technology led Huawei to propose its "All IP" strategy in 2003. This strategy aimed to facilitate an interconnected ecosystem via unifying various technology standards and protocols. In turn, in 2013, the accelerated development of cloud computing prompted Huawei to develop an "All Cloud" strategy, and in 2017, the company vowed to be one of the five cloud service providers in the world.

In addition, AI technologies present themselves as new linchpin to attain these objectives. From 2023 onwards, as announced by Meng, Huawei launched its newest "All Intelligence" strategy, aiming not only to connect everything, but also to **extend the reach of large-scale AI models to individuals, families, and organizations at the edge, making computing**

**power ubiquitous**.<sup>14</sup> In other words, "All Intelligence" is a step closer to what some analysts term "2T" (namely "to Things") an envisioned developmental stage in which Huawei seamlessly merges three hitherto separate business sectors.<sup>15</sup>

To a degree, the **current development trajectory of Huawei's semiconductor development also follows this overarching framework**. For example, the Kirin series of chipsets underpin Huawei's smartphone strategy, the Ascend series support its AI development, the Kunpeng series are designed for cloud computing, while the Balong and Tiangang chipsets support Huawei's telecommunication infrastructure deployment.

Meanwhile, as Huawei Vice Chairman Xu Zhijun revealed in April 2024, the **completion of an application ecosystem centered around the distributed operating system HarmonyOS is deemed "the most crucial thing for Huawei in 2024"**, and will drive Huawei's strategic investment for the coming five years.<sup>16</sup>

Huawei's smartphone deployment eventually plays a key part in its recent profit rebound. On April 30, Huawei revealed its first-quarter 2024 earnings report, with a 36.7% YoY revenue growth reaching RMB 178.4 billion (€22.8 billion at the April 30 exchange rate), and a 564% YoY profit growth. Four years ago, Huawei's revenue hit an all-time high of RMB 182.2 billion (€23.7 billion at the April 2020 exchange rate), but due to American sanctions, it dropped to its lowest point in ten years at RMB 132.1 billion YoY (€17.4 billion at the April 2023 exchange rate) in 2023.

The 2024 significant profit leap of 564%, while partially reflecting 2023's historical low point, also

<sup>13</sup> Ibid.

<sup>14</sup> Meng Wenzhou, "打造中国坚实的算力底座, 为世界构建第二标准 [Building a solid computing foundation in China to establish the second standard worldwide]", Huawei Technologies, November 2023, <https://www.huawei.com/cn/huaweitech/publication/202303/solid-computing-china>.

<sup>15</sup> Chen Hung, "华为战略及破局关键 [Huawei strategy and key breaking points]", Zheshang Securities, December 9, 2022, [https://pdf.dfcfw.com/pdf/H3\\_AP202212121581005826\\_1.pdf](https://pdf.dfcfw.com/pdf/H3_AP202212121581005826_1.pdf).

<sup>16</sup> Xu Zhijun, "全面智能化之路 [The road to comprehensive intelligence]", Huawei Technologies, April 2024, <https://www.huawei.com/cn/huaweitech/industry-trends/thrive-with-intelligence>.



pointed to Huawei's resurging smartphone business. Citing data from a Canalys' report, China's Securities Times for example noted that Huawei's smartphone regained domestic market leadership in the first quarter of 2024 with a market share of 17%.<sup>17</sup> Back in 2023, Securities Times had already noticed hints of rebound, when Huawei's consumer business revenue reached RMB 251.5 billion (€33.4 billion), an increase of 17.3% YoY. Here again, it was primarily driven by the Mate 60 series powered by the company's independently-designed Kirin 9000S chipset, along with the success of Huawei's HarmonyOS ecosystem. **Apart from a resurgent smartphone business, narrowing losses of Huawei's intelligent automotive business is also cited as a factor contributing to the recent profit growth.**

2024 significant profit leap of 564%, while partially reflecting 2023's historical low point, also pointed to Huawei's resurging smartphone business.

It remains to be seen how and when Huawei's newest "All Intelligence" strategy and the gradual completion of its HarmonyOS ecosystem will be reflected in the company's future fiscal performance. Industry analysts and academics will also be checking **if the rebound seen in the first quarter of 2024 can be sustained into the future**, especially as geopolitical forces, like the technology war between the United States and China, continue to be an evolving yet destabilizing factor pushing Huawei to constantly adapt its strategy.

<sup>17</sup> An Yufei. "一天赚超2亿元！华为一季度净利润大涨5.6倍 [Huawei earns over 200 million yuan a day! Q1 net profit soars 5.6 times]", *Securities Times*, April 30, 2024, <https://www.stcn.com/article/detail/1194825.html>.



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# Grid Infrastructure as an Energy Transition Facilitator: The Role of China's State Grid

China's State Grid Corporation is one of the largest companies in the world, and, even in China, stands out as a giant among the country's huge and powerful state-owned enterprises. **By any measure, this company is extraordinary. It supplies 26 Chinese provinces with over a billion people, and has an annual revenue of over \$450 billion.** The handful of remaining provinces are covered by another state-owned grid company, China Southern Grid. In 2023, State Grid supplied a peak electricity load of 890 gigawatts (GW) in its domestic territory, well above the historic peak load of the entire United States.<sup>1</sup> Additionally, State Grid is the driving force behind massive overseas investments in ultra-high voltage (UHV) transmission lines and other power grid investments.<sup>2</sup> And, through its spin-off think tank, the Global Energy Interconnection Development Cooperation Organization (GEIDCO), it further promotes a vision of a gargantuan global network of UHV lines, a vision that reverses the traditional Chinese one of broken up regional and provincial grids without any interconnections.

More than its size suggests, **State Grid is a powerful political actor in its own right, and therefore has a central part to play in the implementation of China's dual carbon goals** (peak emissions by 2030 and carbon neutrality by 2060). Indeed, the company ranks as equal to a government ministry within the Chinese government, and has no independent regulator as such.

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While the grid company does not build or own electricity generation plants in its own right, it is deeply involved in the making of energy policy that drives such investments. China's current state-dominated

<sup>1</sup> "Peak hourly U.S. electricity demand in July was the second highest since 2016", U.S. Energy Information Administration, October 5, 2023, <https://www.eia.gov/todayinenergy/detail.php?id=60602>; "China strives to secure power supply amid heatwaves", China Daily, June 6, 2023, <https://www.chinadaily.com.cn/a/202306/16/WS648c4805a31033ad3f7bcb86.html>.

<sup>2</sup> In Africa for instance, see "China electrifies Africa", The National Bureau of Asian Research, May 3, 2022, <https://www.nbr.org/publication/china-electrifies-africa/>.

electricity system, combined with a low cost of capital for large projects undertaken by the largest SOEs, favors heavy investment in large-scale infrastructure but results in relatively poor flexibility. This lack of flexibility hinders the clean energy transition, leads to massive overcapacity in coal power, and ultimately increases the costs to society of integrating clean energy.

### A New Type of Power System: Renewables, Clean Energy Bases and Big Grids

Despite the collapse of the real estate market and slower economic growth, China's energy demand continues to rise strongly. Demand growth is strong across all sectors of the economy, including for industry, commercial, and residential use. In 2024, State Grid's Energy Research Institute (SGERI) forecasted a 6.5% increase in full-year electricity consumption, faster than GDP's expected growth of around 5%.<sup>3</sup> **Peak loads are growing strongly, in part due to rising temperatures, leading to a tight supply-demand balance.** As of April 2024, electricity consumption had continued to rise rapidly and summer demand remained a core preoccupation.<sup>4</sup> In recent years, policymakers and grid officials have therefore **focused more and more on energy security rather than low-carbon targets.**

**The "New Type of Power System" (新型电力系统), defined by the 2022 14th Five-Year Plan for a Modern Energy System, features a high proportion of**

**new energy** – namely, wind and solar – along with digital control technologies to improve dispatch and integrate both large-scale and distributed clean energy sources. The Plan specifically mentions the need for such a new system to "plan and build a new energy supply and consumption system based on large-scale wind and photovoltaic bases, supported by (...) coal-fired power in its surrounding areas, and based on (...) ultra-high voltage transmission and transformation lines". At the same time, it calls for greater load flexibility and "improved interaction between supply and demand" (加强供需双向互动), including integrated development of generation, grids, loads, and energy storage.<sup>5</sup>

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The 14th Five-Year Plan for Renewable Energy, issued in early 2022, prioritizes renewable energy bases connected by high-voltage lines,<sup>6</sup> with high-voltage lines connected to such bases expected to carry at least 50% of clean energy, a target reiterated in State Grid's own five-year plan.<sup>7</sup> The first batch of renewable energy bases and their long-distance grid connections, totaling almost 100 GW of capacity, was planned for completion by the end of 2023, with construction underway on the second batch.<sup>8</sup>

<sup>3</sup> "国网能源院发布《中国电力供需分析报告2024》 [State Grid Energy Research Institute releases 'China Electricity Supply and Demand Analysis Report 2024']", State Grid Energy Research Institute, May 24, 2024, [https://mp.weixin.qq.com/s/E1AT9JHhv\\_b4o4TzbO32pg](https://mp.weixin.qq.com/s/E1AT9JHhv_b4o4TzbO32pg).

<sup>4</sup> "迎峰度夏电力供应有保障 [Power supply guaranteed for summer peak season]", Economic Daily, June 3, 2024, [http://paper.ce.cn/pd/content/202406/03/content\\_295506.html](http://paper.ce.cn/pd/content/202406/03/content_295506.html).

<sup>5</sup> "十四五'现代能源体系规划' [14th Five-Year Plan for a Modern Energy System]", National Energy Administration, March 2022, [https://www.nea.gov.cn/1310524241\\_16479412513081n.pdf](https://www.nea.gov.cn/1310524241_16479412513081n.pdf).

<sup>6</sup> "十四五'可再生能源发展规划' [14th Five-Year Plan Renewable Energy Development Plan]", National Development and Reform Commission, June 2022, <https://www.ndrc.gov.cn/xxgk/zcfb/ghwb/202206/P020220602315308557623.pdf>.

<sup>7</sup> "国家电网公司发布'碳达峰, 碳中和'行动方案 [State Grid releases 'peak carbon, carbon neutral' action plan]", State Grid Corporation of China, March 4, 2020, <http://www.sasac.gov.cn/n2588025/n2588124/c17342704/content.html>.

<sup>8</sup> "我国积极推进大型风电光伏基地建设 可再生能源发展今年开局良好 [China actively promotes the construction of large-scale wind power and photovoltaic bases. Renewable energy development is off to a good start this year]", People's Daily, May 5, 2023, [https://www.gov.cn/lianbo/2023-05/05/content\\_5754177.htm](https://www.gov.cn/lianbo/2023-05/05/content_5754177.htm).

### State Grid's Domestic Focus on Ultra-High Voltage

China is rapidly expanding its grid infrastructure, including especially long-distance high-voltage lines, to integrate clean energy bases. This contrasts with many advanced industrial economies which are facing difficulties in gaining approvals for even the most urgently-needed high-voltage corridors. In 2022, China's transmission system grew by 3.2%, reaching 880,000 km of transmission circuits above the voltage level of 220 kV.<sup>9</sup> In 2023, the system grew by a larger 4.3%, or 38,000 km, while investments focused on increasing the transfer capacity between regional grids – the long-distance connections – grew by 7.2%.<sup>10</sup>

All of this is supported by a huge amount of investment spending by the nation's grid companies. State Grid invested a record \$76 billion (€69.9 billion at the January 2023 exchange rate) in grid infrastructure in 2023,<sup>11</sup> following the steady increase of past years. These investments include not only transmission lines and substations, but intelligent grid software, 5G base stations, and drone equipment for monitoring transmission lines as well.

A record \$76 billion in grid infrastructure in 2023, not only for transmission lines and substations, but also for intelligent grid software, 5G base stations, and drone equipment.

The real darling of State Grid's plans, however, are UHV with UHV corridors expanding rapidly. UHV is typically defined as having voltages higher than 1,000 kV, compared to a typical high-voltage transmission line in the 100-500 kV range. In 2023, China planned to add an estimated 1,600 km of UHV transmission circuits, doubling the total distance of UHV lines to 46,000 km.<sup>12</sup>

State Grid's vision for China's energy transition focuses on clean energy bases connected to UHV lines, addressing the country's commonly-understood problem that its population is mainly in the east's coastal provinces, while renewables are in the north and west. **Less emphasized is the story of how wind and solar capacity are now growing faster in the eastern provinces**, resulting in local oversupply problems that could be alleviated with greater local flexibility and nimbler market prices.

### State Grid as a Global Ultra-High Voltage Champion

As one of China's most powerful SOEs, State Grid has been an active infrastructure investor since China initiated its "going out" strategy (走出去战略) to invest abroad and compete with other global utility players such as EDF, AES, National Grid or Enel. This has especially been the case with the launch of the Belt and Road Initiative (BRI), where **energy has long been the largest sector of investments**. Transmission investments as such have risen as a share of BRI investments, reaching \$7 billion (€7,5 billion at the February 2023 exchange rate) in 2023 and accounting for nearly a quarter of all BRI energy investment.<sup>13</sup>

<sup>9</sup> "中国电力行业年度发展报告2023 [China Power Industry Annual Development Report 2023]", China Electricity Council, July 7, 2023, <https://www.cec.org.cn/detail/index.html?3-322624>.

<sup>10</sup> "2023-2024年度全国电力供需形势分析预测报告 [Analysis and forecast of national electricity supply and demand situation in 2023-2024]", China Electricity Council, January 30, 2024, <https://www.cec.org.cn/detail/index.html?3-330280>.

<sup>11</sup> "State Grid mulls record investment in power grid projects", Xinhua, January 21, 2023, <https://english.news.cn/20230121/80f9328f2d534f879f02466e34dd8624/c.html>.

<sup>12</sup> "2023年中国特高压线路长度及投资情况预测分析 [Forecast analysis of China's extra high voltage line length and investment in 2023]", China Business Industry Research Institute, January 13, 2023, <https://www.askci.com/news/chanye/20230113/0935042100404.shtml>.

<sup>13</sup> Christoph Nedopil Wang, "China Belt and Road Initiative (BRI) Investment Report 2023", Green Finance & Development Center, February 5, 2024, <https://greenfdc.org/china-belt-and-road-initiative-bri-investment-report-2023/>.



Some of the most notable overseas investments have been in Latin America. **State Grid started its expansion in 2010, when it acquired six Brazilian power transmission companies**, which kicked off a huge transmission expansion in the country. Since then, State Grid has built over 16,000 km of transmission lines and been involved in the construction of the controversial Belo Monte hydropower plant. This past December, State Grid won a tender to construct a \$3.9 billion (€4.3 billion at the December 2023 exchange rate) UHV power line from the country's renewable-rich northeastern regions to the southwest ones. This was the largest auction ever held by the country's regulator.<sup>14</sup>

Likewise, China's grid companies are active elsewhere in South America. State Grid acquired two of Chile's electricity grid companies, and China Southern Grid acquired a Peruvian grid company that serves the capital Lima.<sup>15</sup> American officials have expressed concern over China's growing influence in the region, driven by synergies between its dominance in renewables and electric vehicles, and its investment muscle and ability to outplay competitors in infrastructure construction.

In Africa, State Grid's signature project is a major UHV direct current transmission line linking hydro-rich Ethiopia to Kenya and completed in 2022. The project was funded by the World Bank and the Africa Development Bank.<sup>16</sup> **State Grid has additional investments across Africa, including in Egypt, Mozambique and South Africa, with reportedly over 100 projects in at least 25 countries.**<sup>17</sup> GEIDCO also

proposed the development of a huge multinational UHV line connecting the Niger River in West Africa to solar bases in the Sahara and further in the north towards the Mediterranean coast.<sup>18</sup>

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Founded in 2016, and initially led by former State Grid Chairman Liu Zhenya, GEIDCO had envisioned from its inception a global UHV grid linking all continents except Antarctica. This project is illustrated by a map portraying "nine horizontal and nine vertical" (九横九纵) transmission corridors, including one circling the northern hemisphere through Scandinavia, Russia, Alaska, Greenland and Iceland. The purpose of such a grid would be to smooth out differences in the output of renewable energy and electricity demand on a global scale, while using UHV to reduce line losses.<sup>19</sup>

### UHV Cannot Solve Every Problem – Especially those Related to Market Design

Ironically, despite having a UHV system domestically, China's **vision of smoothing renewable output over large areas is far from reality**. Indeed, UHV

<sup>14</sup> Fabiane Ziolla Menezes, "China's State Grid wind biggest Brazilian power line auction", *The Brazilian Report*, December 18, 2023, <https://brazilian.report/liveblog/politics-insider/2023/12/18/china-state-grid-brazilian-power-line-auction/>.

<sup>15</sup> "Chinese green technologies are pouring into Latin America", *The Economist*, April 10, 2024, <https://www.economist.com/the-americas/2024/04/10/chinese-green-technologies-are-pouring-into-latin-america>.

<sup>16</sup> "500 KV Ethiopia-Kenya DC power transmission project put into trial operation", *State-owned Assets Supervision and Administration Commission of the State Council*, November 29, 2022, [http://en.sasac.gov.cn/2022/11/29/c\\_14547.htm](http://en.sasac.gov.cn/2022/11/29/c_14547.htm).

<sup>17</sup> Zheng Xin, "State Grid to power up Africa cooperation", *China Daily*, September 6, 2018, <https://www.chinadaily.com.cn/a/201809/06/WS5b908d51a31033b4f465489f.html>.

<sup>18</sup> Yu Zhang, et al., "Research on the implementation of West Africa-North Africa grid interconnection using new electricity-water composite transmission technology", *Global Energy Interconnection*, October 2021, <https://doi.org/10.1016/j.gloi.2021.11.007>.

<sup>19</sup> Jonathan Mingle, "Commentary: Does the path to a low-carbon future run through a global grid?", *Harvard China Project*, May 21, 2018, <https://chinaproject.harvard.edu/news/commentary-global-grid>.

lines are typically paired with new coal plants to ensure high utilization in a single direction. Current policy requires transmission lines between provinces to be contracted months or years in advance, hindering real-time balancing of renewable energy and regional load outside the local dispatch area. Moreover, UHV lines with bidirectional capability typically come under contracts with a seasonal basis. The lack of flexibility of UHV lines connecting Sichuan to other provinces was a contributing factor to power outages in 2022. At that time, power flows on flexible lines could only be reversed after the declaration of an emergency by State Grid, at which point low hydro levels were already in crisis.<sup>20</sup>

While grid officials emphasize UHV's need to balance clean energy across vast distances, the grid has powerful incentives to focus on such mega-projects. **Historically, State Grid profited from the difference between generation costs and regulated retail power prices**, driving a focus on boosting both generation and consumption of electricity. New transmission lines were compensated through a mechanism that took into consideration both the volume of energy transferred and the distance. Instead of shorter and flexible lines clearing bottlenecks between nearby regions, longer lines with high and steady single-direction power flows were ultimately favored.<sup>21</sup>

Somewhat, reforms to wholesale power markets and changes to State Grid's compensation through a transmission and distribution pricing reform in the late 2010s have changed the picture.<sup>22</sup> However, the **lack of regional spot markets and the focus on minimum utilization targets for new lines support longer, higher-voltage lines connected to energy**

**bases, instead of a mesh grid** for real-time, bidirectional flows. As a result of China's market design, almost all power trading occurs within a single province, or through single-direction long-term supply agreements between provinces.

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The grid's lack of flexibility drives significant energy storage investments, mostly **on the grid side** (albeit not necessarily owned by the grid companies), followed by storage at utility-scale wind and solar sites. In January and February of this year, 55% of storage investments were tied to the grid, 35% were located at wind or solar plants, and only 10% at the user side, mostly at industrial sites.<sup>23</sup> But generation-sited energy storage is often less effective at solving grid bottlenecks than independent grid- or user-sited storage. In addition, **the absence of a functional wholesale spot market for electricity**, with fluctuating prices reflecting supply and demand, **means that storage owners cannot derive full benefit from storing energy for when it is most needed**. This helps explain reports of low utilization of storage resources in China.

### Slower Reforms Call For an Infrastructure Push and a Bigger Role for the Grid

Outside of China, the inability to approve and complete large-scale grid investments hinders the transition to clean and renewable energy. China presents

<sup>20</sup> Yuan Jiahai, et al., "四川高温限电痛点在何处, 如何防止重演? [Where are the painful points of Sichuan's high-temperature power restrictions, and how can they be prevented from repeating themselves?]", Caixin, November 6, 2022, <https://zhishifenzi.blog.caixin.com/archives/260319>.

<sup>21</sup> Michael Davidson and Ignacio Perez-Arriaga, "Avoiding pitfalls in China's electricity sector reforms", The Energy Journal, May 2020, <https://doi.org/10.5547/01956574.41.3.mdav>.

<sup>22</sup> "一文看懂全国输配电价核定情况 [A look at the approved national transmission and distribution tariffs]", BJX, August 15, 2019, <https://m.bjx.com.cn/mnews/20190815/1000059.shtml>.

<sup>23</sup> "近3GW! 2024年1-2月储能投运项目统计分析 [Nearly 3GW! Statistical analysis of energy storage commissioning projects in January-February 2024]", China Energy Storage Network, March 5, 2024, <https://www.escn.com.cn/20240305/371ec213472b45d98e29dbc5e44ac87a/c.html>.

the opposite dilemma. While power market reforms have been underway since 2015, including with calls to boost power trading between provinces and through flexible regional markets, these green transition reforms are slow. **Even under the planned implementation of a national power market design by 2030, the present system dominated by**

**long-term contracts and intra-province trading looks likely to remain in place.** This implies more upstream investments, including clean energy bases integrated with coal, long-distance UHV lines, and storage. Above all, it highlights the growing role of the world's largest electric utility company, State Grid.



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# Own and Control: China's Systemic Approach to Global Shipping

The expansion of China as a “global maritime power” (海洋强国) is a priority underpinning its claim to attain by 2049 global leadership status.<sup>1</sup> The maritime sector is also key to its growth: in 2022, the national marine GDP reached RMB 9463 billion (€1,250 billion at the April 2023 exchange), accounting for 7.8% of the GDP according to Chinese official figures.<sup>2</sup> This **maritime sector is historically tied to the need to secure and protect supply chains, trade routes and energy flows**, even more so as Chinese economic interests abroad were growing with state-owned enterprises encouraged to “go out” in the 1990s. Around the same time, carriers were incentivized to invest beyond container shipping following the devolution of Chinese port governance to the private sector.

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Investments abroad first included stakes in major European hubs (Rotterdam, Antwerp) and in Singapore before quickly expanding in the 2000s to the Middle East as resource dependency increased. In the aftermath of the 2008 financial crisis, investments turned towards the rest of the world and the sector was aggressively subsidized to sustain itself and conquer foreign markets. **The state-led impetus continued when Xi Jinping integrated ports very early on in the Belt and Road (BRI) strategy**, and introduced the “Maritime Silk Road” (海丝) declination in 2015.

Today, China's supply-chain control and port infrastructure constitutes a vast network that provides its leadership with the possibility to act and operate over major sea lines of communication. As the offspring of the first state-run shipping company established in 1961, China Ocean Shipping Company, commonly abbreviated as COSCO, played a major role in accompanying China's growth and rose as the most prominent Chinese state-owned player in the domain. Foremost a carrier, **COSCO operates around 1,500 ships through ownership and leasing, ranking 4<sup>th</sup> worldwide in terms of container**

<sup>1</sup> “展海洋经济推进建设海洋强国的理论脉络与实践路径 [The theoretical context and practical path of developing the marine economy and promoting the construction of a maritime power]”, National Development and Reform Commission, March 7, 2024, [https://www.ndrc.gov.cn/wsdwhfz/202403/t20240307\\_1364687.html](https://www.ndrc.gov.cn/wsdwhfz/202403/t20240307_1364687.html).

<sup>2</sup> “去年海洋经济生产总值逾9.46万亿 我国港口规模稳居世界第一 [Last year, the gross domestic product of the marine economy exceeded 9.46 trillion yuan, and the size of China's ports ranked first in the world]”, The State Council of the People's Republic of China, April 14, 2023, [https://www.gov.cn/lianbo/2023-04/14/content\\_5751415.htm](https://www.gov.cn/lianbo/2023-04/14/content_5751415.htm).



**fleet capacity.** At 3.05 million TEU transported yearly, COSCO manages around 15% of the global containers in circulation.<sup>3</sup> In consequence, examining COSCO reveals not only the Chinese Communist Party's power projection abroad but also the evolution of Chinese state-owned enterprises in strategic sectors.

### Pivot Points, Networks and Hubs

According to the National Development and Reform Commission,<sup>4</sup> Chinese priorities for developing into a "global maritime power" (海洋强国) include:

- (1) Developing a complete marine economy (biological resources, seawater, equipment, minerals, transport);
- (2) Investing in science and technology to make breakthroughs in sectors that are new or still dominated by western countries;<sup>5</sup>
- (3) Taking leadership on global environmental issues;
- (4) Fostering open cooperation favorable to the CCP's rise by developing a network of global ports and setting the international normative agenda to its advantage.

In building its global maritime powerhouse, the CCP possesses a powerful asset with COSCO, unique in the world in terms of breadth and size since its merger with China Shipping Group in 2015.<sup>6</sup> **COSCO's horizontal and vertical integration allows for domination of the logistical chain** (carrier, terminal, storage and shipbuilding), with a single company

transporting commodities, raw materials and energy. Investments in ports as well as supply chain logistics enhance its **ability to streamline and reroute trade aligning with China's priorities, national infrastructure and investment projects.** This strategy contrasts with those adopted by major players like Maersk, which has been selling subsidiaries and shares over the last ten years,<sup>7</sup> or MSC, which has traditionally focused on container shipping and cruises. Similarly, companies like the Emirati DP World or Singapore's PSA concentrate only on terminals.

Early on, Xi Jinping integrated ports to the Belt and Road strategy with his concepts of "important pivot points" (重要支点) and "important pivot hubs" (重要枢纽).

Early on, Xi Jinping integrated ports to the Belt and Road strategy with his concepts of "important pivot points" (重要支点) and "important pivot hubs" (重要枢纽) in 2013 and 2015.<sup>8</sup> Today, from a strategic point of view, **China's vast "pivot point network" (海外港口支点) foremost aims to mitigate the risk of blockades by a coalition of adversarial powers that would disrupt flows.** As such, Wang Xu, from the China Institutes of Contemporary International Relations, highlights three major trends in the goals assigned by major powers to oversea ports. The first

<sup>3</sup> "COSCO Group Profile", China COSCO Shipping, accessed on June 3, 2024, [https://en.coscoshipping.com/col6918/art/2016/art\\_6918\\_45339.html](https://en.coscoshipping.com/col6918/art/2016/art_6918_45339.html).

<sup>4</sup> Ibid.

<sup>5</sup> Made in China 2025 puts a priority on maritime equipment and high-tech shipping.

<sup>6</sup> The merger resulted in LNG and oil tankers being integrated to COSCO but also the creation of brand-new subsidiaries such as a new holding to enhance the company's ship leasing, investment, insurance, finance management and an entity devolved to provide integrated supply chain logistics services: Lee Hong Liang, "A guide to the merger of COSCO and China Shipping", Seatrade Maritime News, January 17, 2017, <https://www.seatrade-maritime.com/asia/cosco-shipping-guide-merger-cosco-and-china-shipping>.

<sup>7</sup> To cite a few of the major deals, in 2017, Maersk's oil and gas division was sold to the French Total, and Maersk Drilling became a separately listed company in April 2019.

<sup>8</sup> "展海洋经济推进建设海洋强国的理论脉络与实践路径 [The theoretical context and practical path of developing the marine economy and promoting the construction of a maritime power]", National Development and Reform Commission, March 7, 2024, [https://www.ndrc.gov.cn/wsdwhfz/202403/t20240307\\_1364687.html](https://www.ndrc.gov.cn/wsdwhfz/202403/t20240307_1364687.html)

<sup>9</sup> "习近平总书记关心港口发展纪实 [General Secretary Xi Jinping's concern for port development chronicle]", Xinhua, July 5, 2016, [http://www.xinhuanet.com/politics/2017-07/05/c\\_1121270327.htm](http://www.xinhuanet.com/politics/2017-07/05/c_1121270327.htm).

trend is the need for an overarching national oversight. The second one is the strategic nature of over-sea port ownership for China, linked to “ports as hubs for resource distribution” (港口是资源集散的枢纽) and “nodes for economic exchanges” (港口城市是国与国之间经济交往的节点).<sup>9</sup>

The importance of terminals was made a priority by the CCP in a context where global shipping faced difficulties **after the 2008 financial crisis**. At the same time, **national industry received a significant boost through subsidies while foreign buyers were unable to pay**. COSCO was a large beneficiary of this program, receiving, together with China Shipping Group, \$1 billion (€870 million at the July 2020 exchange rate).<sup>10</sup> Since COVID, ownership and control of container terminals have been a huge factor of differentiation for shipping companies, as it guarantees priority access.

China's investment in land infrastructure, with port hinterland development gains new emphasis (“港口的腹地也越来越广”).

The third and final trend, as highlighted by Wang Xu, is China's investment in land infrastructure, with port hinterland development gaining new emphasis (“港口的腹地也越来越广”). Indeed, carriers and port operators are seeking to integrate secondary industries to the port's activities, especially land-based infrastructures like rail and road deployed within the BRI framework. In parallel, this development strategy responds to the search for diplomatic alignment

coupled with an increased influence in the maritime domain.

### A Driver of Eurasian Connectivity

COSCO's priorities fully align with the national security objectives of commercial supply lines linking the Eurasian continent and “blue economic corridors” (蓝色经济). The three priority passages aim to link China to Africa and the Mediterranean, the Pacific Ocean, and Europe through the Arctic Ocean.<sup>11</sup> As such, along the Asia-Europe route, **COSCO owns stakes in 17 strategically located ports outside of continental China**, with some of the biggest in the world: Busan (6<sup>th</sup>), Antwerp (14<sup>th</sup>), Hamburg (18<sup>th</sup>), Piraeus (28<sup>th</sup>), Valencia (30<sup>th</sup>), and others in the Red Sea (25% joint venture in Ain Sokhna) and the Indian Ocean (Port of Khalifa).<sup>12</sup> In Europe, COSCO is the leading state-owned company involved in terminal operations, along with China Merchants, while in Africa and Asia construction companies like China Communications Construction Company (CCCC), or its subsidiary China Harbour Engineering Company (CHEC), dominate the construction, ownership and operation of terminals landscape.

Most of its European deals were concluded between 2016-17, in the aftermath of the COSCO and China Shipping Group merger. It coincided with the European Union and Member States' engagement in the BRI, promoting joint investments through the now obsolete EU-China Connectivity Platform. In recent years, the main exception is COSCO's acquisition of 24.99% shares in a new Hamburg Terminal which was approved by the German Chancellor Olaf Scholz in October 2022. Given that COSCO was the only global shipping company to continue maritime trade with

<sup>9</sup> Wang Xu, “大国海外港口支点战略及模式选择 [Overseas port pivot strategy and model selection of major countries]”, International Cooperation Center, February 22, 2024, <https://www.icc.org.cn/publications/internationalobservation/2188.html>.

<sup>10</sup> Jude Blanchette, Jonathan E. Hillman, Mingda Qiu and Maesea McCalpin, “Hidden Harbors: China's state-backed shipping industry”, CSIS, July 8, 2020, <https://www.csis.org/analysis/hidden-harbors-chinas-state-backed-shipping-industry>.

<sup>11</sup> “Full text of the Vision for Maritime Cooperation under the Belt and Road Initiative”, The State Council of the People's Republic of China, June 20, 2017, [https://english.www.gov.cn/archive/publications/2017/06/20/content\\_281475691873460.htm](https://english.www.gov.cn/archive/publications/2017/06/20/content_281475691873460.htm).

<sup>12</sup> “COSCO Group Profile”, China COSCO Shipping, accessed on June 3, 2024, [https://en.coscoshipping.com/col6918/art/2016/art\\_6918\\_45339.html](https://en.coscoshipping.com/col6918/art/2016/art_6918_45339.html).

Russia after the invasion of Ukraine, this **German decision may seem contradictory to the European Union's broader strategic goals vis-à-vis Russia.**<sup>13</sup>

Among COSCO's investments, Piraeus stands out as the only European port where it has a 100% ownership of container terminals and operational control of the entire port since 2021 via a majority stake of 67%. COSCO also has controlling shares in other European terminals, in Belgium over Zeebrugge at 90% and in Spain, a 51% controlling stake in Valencia Terminal through the acquisition of Noatum Port Holdings (NPH). In Italy, COSCO holds 40% of Vado Ligure but sold its 50% stake in the Naples container terminal. In consequence, some companies have already replaced their redistribution point for Europe from Rotterdam to Piraeus, where most Chinese products are destined for Europe transit.<sup>14</sup>

**COSCO is also at the forefront of Chinese investments in the Northern route to Europe, since Russia endorsed the People's Republic of China (PRC)'s interest for a greater role in developing logistics, infrastructure and research in the Arctic.** An ever-more asymmetric duopoly following Russia's increasing dependency on China as it wages war in Ukraine, the Arctic portfolio became a major trade-off that Xi was first able to secure following Medvedev's visit to Beijing in late December 2022.<sup>15</sup> The idea of a "Polar Silk Road" (极地丝绸之路) was elaborated as early as 2015, but its development accelerated in recent years.

This Sino-Russian cooperation is now enshrined in the May 2024 joint statement on "Deepening the Comprehensive Strategic Partnership of Coordination for the New Era" following Putin's visit to Beijing,<sup>16</sup> agreement that includes the establishment of a new "China-Russia Arctic Waterway Cooperation Subcommittee".

Within this new context, **COSCO is the leading Chinese company with experience in navigating North and South Sea routes.**<sup>17</sup> In 2013, COSCO's Yongsheng cargo ship passed through the Arctic Northeast Passage for the first time. It has also built three ice-class 36,000-ton heavy-lift ships called "Tianhui".<sup>18</sup> Since December 2022, Russia's State Atomic Energy Corporation has been organizing regular coastal transportation on the Arctic route, making trips for Chinese merchant ships, while a nuclear-powered icebreaker is dedicated to serving China. The involvement of COSCO in ports along the trade route from Europe to Asia risks developing a favored sea line, while the new Sino-Russian enhanced cooperation in the Arctic will inevitably generate effects of eviction of other actors.

The new Sino-Russian enhanced cooperation in the Arctic will inevitably generate effects of eviction of other actors.

<sup>13</sup> Chris Horton, "COSCO: China's shipping giant expands its global influence", *Asia Nikkei*, May 13, 2022, <https://asia.nikkei.com/Business/Business-Spotlight/COSCO-China-s-shipping-giant-expands-its-global-influen>.

<sup>14</sup> Guilhem Fabre, « Les nouvelles routes de la soie et la Grèce, tête de pont de la présence chinoise en Europe », *Institut des Langues et Cultures d'Europe, Amérique, Afrique, Asie et Australie*, Novembre 2019, <https://doi.org/10.4000/ilcea.7492>.

<sup>15</sup> "俄总统普京签署法案将北极航道船运管理权委托给俄原子能集团 [Russian President Vladimir Putin signs bill entrusting management of Arctic waterway shipping to Rosatom]", *Consulate General of the People's Republic of China in Vladivostok*, December 16, 2022, [http://vladivostok.china-consulate.gov.cn/ztlm/202302/t20230220\\_11027736.htm](http://vladivostok.china-consulate.gov.cn/ztlm/202302/t20230220_11027736.htm).

<sup>16</sup> The new sub-committee will be under the framework of the China-Russia Prime Ministers' Regular Meeting Committee mechanism, and will conduct specific cooperation in logistics and R&D: "中华人民共和国和俄罗斯联邦在两国建交七十五周年之际关于深化新时代全面战略协作伙伴关系的联合声明 [Joint statement by the People's Republic of China and the Russian Federation on deepening the comprehensive strategic cooperative partnership in the new era on the occasion of the 75th anniversary of the establishment of diplomatic relations between the two countries]", *People's Daily*, May 17, 2024, [http://paper.people.com.cn/rmrb/html/2024-05/17/nw.D110000renmrb\\_20240517\\_3-02.htm](http://paper.people.com.cn/rmrb/html/2024-05/17/nw.D110000renmrb_20240517_3-02.htm).

<sup>17</sup> According to the Polar Institute of China: "Under CCP guidance, Chinese shipping companies represented by COSCO Shipping had completed 56 commercial voyages on the Arctic route by 2021"

<sup>18</sup> The "Tianhui" has a loading capacity of more than 14,000 square meters and a bulk cargo hold capacity of more than 42,000 cubic meters, the largest among COSCO Shipping multi-purpose ships.

In the short term, **China's interest in the Arctic has foremost strategic implications tied to its naval strategy, given that it remains too costly for commercial use.** According to Deng Beixi from the Polar Institute of China, Arctic trade will be hindered by possible sanctions on marine engineering companies and with possible repercussions on the Yamal and Liquefied Natural Gas 2 project, China should concentrate on securing long-term influence. **It is in China's interest to "take advantage of Russia's strategic needs" (借助俄战略需求顺势而为) and continue to maintain communication with Russia on port infrastructure, energy and container transit points construction (远东地方规划建设的北方海航道液化天然气和集装箱运输中转港等).**<sup>19</sup> As Russia's Arctic shipping related industries dependence on Chinese funds, technology and markets is increasing with the war, these opportunities become ever more salient.

China expands military operations beyond escorts and towards more complex evacuation plans.

### "COSCO," a Spearhead for the Development of the Maritime Civil-Military Fusion Strategy

Since 2017, the PRC has enacted several laws to align the maritime sector with national security objectives. Starting with the major National Defense Transport Law, Chinese civilian ports are to have the means to host PLA navy ships and provide logistical support.

Djibouti's exceptional transformation into a military base around that same year, while tied to the counter-piracy mission in the Gulf of Aden, remains a case study in how China could place such civilian assets at the service of the military. **Beyond Djibouti, the PRC's naval strategy does not aim at a global hard-base power projection, by relying on softer dual-use infrastructures in a "flexible style, with multiple functions".**<sup>20</sup> In the Middle East, COSCO is also involved in the operation of Abu Dhabi's Khalifa Port concession for the exploitation of Terminal 3 for a period of 35 years, leading to American accusations that the company is building a clandestine facility on the side.<sup>21</sup>

Shipping companies play a major role in enhancing the logistics capabilities of low-intensity expeditionary operations. This is especially the case as **China expands military operations beyond escorts and towards more complex evacuation plans, with networks helping in logistics and supply outside of immediate periphery.** In Libya, when oil companies were attacked in 2011, COSCO's transport ships were the ones mainly used to rescue Chinese citizens. Since then, frigates of China's navy have been used in the Syrian or Yemenite conflicts.

In 2019, the possibility for COSCO civilian ships to provide dry goods supply to replenish surface ships at sea was tested for the first time and showcased in public.<sup>22</sup> **The mobilization of roll-on-roll-off (RORO) ferries, which allow for vehicles to disembark without cranes, would further be necessary for a large-scale amphibious operation.** In 2020, the civilian ferry Bang Chui Dao, owned by a COSCO subsidiary, "was involved in amphibious landing exercises", to test a modification allowing amphibious

<sup>19</sup> Deng Beixi, "当前国际形势下北极航道利用前景及对我国影响 [Prospects of utilization of Arctic passage and its impact on China under current international situation]", *Ship & Boat*, 2023, 34(1), <http://chuanbo.magtechjournal.com/CN/10.19423/j.cnki.31-1561/u.2023.01.001>.

<sup>20</sup> "In their own words: Science of military strategy 2020 edition", China Aerospace Studies Institute, January 2022, <https://www.airuniversity.af.edu/Portals/10/CASI/documents/Translations/2022-01-26%202020%20Science%20of%20Military%20Strategy.pdf>.

<sup>21</sup> John Hudson, Ellen Nakashima and Liz Sly, "Buildup resumed at suspected Chinese military site in UAE, leak says", *The Washington Post*, April 26, 2023, <https://www.washingtonpost.com/national-security/2023/04/26/chinese-military-base-uae/>.

<sup>22</sup> "中国海军首次应用民船对水面舰艇实施海上补给, 取得重大突破 [China's navy makes major breakthrough with first application of civilian vessels to surface ships for maritime resupply]", *The Paper*, November 11, 2023, [https://m.thepaper.cn/kuaibao\\_detail.jsp?contid=4976408&from=kuaibao](https://m.thepaper.cn/kuaibao_detail.jsp?contid=4976408&from=kuaibao).



tanks to land, load and unload in coastal waters. Moreover, the PLA's use of commercial RORO ferries has been widely documented since 2015, including with COSCO's involvement. A RORO ferry from COSCO was shown in 2019 with a new stern ramp, making possible the disembarkation of amphibious combat vehicles and confirming the strengthening of a maritime civil-military strategy.<sup>23</sup>

### The Sector's Vulnerabilities in the US-China Competition

The shipping sector is one of the most vulnerable to any evolution of extraterritorial sanctions or entity-based export controls by the United States. This can be explained by the current integration of supply chains and the dynamism of trade between China, the United States and Europe. Indeed, China was the top supplier of goods to the United States in 2022, accounting for 16.5% of total goods imports according to official sources.<sup>24</sup> The European Union and China were each other's largest trading partner as of 2023. While the Trump and Biden administrations have tried to mitigate overcapacity from China, offshoring of Chinese assembly lines in Mexico have compensated for the effect of these sanctions on trade flows.<sup>25</sup> And beyond overcapacity, there are real chokepoints in container manufacturing and shipbuilding.<sup>26</sup>

At the same time, **COSCO is adapting ahead to new demands generated by overcapacities in the energy and automobile domains.** The shortage in carriers for the transport of cars due to Chinese exportation's exponential boom has affected the flux of

electric vehicles towards Europe. Manufacturing and trading companies have therefore sought to become more involved in shipping with auto actors like BYD seeking to enhance their control of supply chains. In 2023, COSCO established a joint venture with Shanghai International Port Group and SAIC Motors to develop its own fleet of specialized transport vessels for new electric vehicles. Thereafter, 24 RORO ships orders were made and are now under construction across four shipyards. The same year, **COSCO had already transported 248,000 passenger vehicles bound for export, an increase of 228% year-on-year**, among which 86,000 were electric vehicles.<sup>27</sup>

Moreover, as the transatlantic community develops de-risking strategies, **shipping could also be impacted by restrictions on data flows.** This may especially occur in light of the transition of supply chain and port logistics from "cargo resource allocation hubs" (货物资源配置枢纽) to "cargo and data resource allocation hubs" (货物与数据资源枢纽).<sup>28</sup> Indeed, Chinese investment in port companies also allows Beijing to access intelligence linked to the movement of boats, even more so as data can be used to target a partner or distorted to undercut concurrence.

Transition of supply chain  
and port logistics from "cargo  
resource allocation hubs" (货物  
资源配置枢纽) to "cargo and data  
resource allocation hubs" (货物  
与数据资源枢纽).

<sup>23</sup> <https://cimsec.org/ro-ro-ferries-and-the-expansion-of-the-plas-landing-ship-fleet/>.

<sup>24</sup> "Countries & Regions", Office of the United States Trade Representative, accessed on June 3, 2024, <https://ustr.gov/countries-regions>.

<sup>25</sup> David Lawder, "Biden's new China tariff wall faces leakage via Mexico, Vietnam", Reuters, May 15, 2024, <https://www.reuters.com/business/bidens-new-china-tariff-wall-faces-leakage-via-mexico-vietnam-2024-05-14/>.

<sup>26</sup> The PRC produces 96% of the world's shipping containers, and more than 80% of the world's ship-to-shore cranes: "Assessment of the People's Republic of China's control of container and intermodal chassis manufacturing", Federal Maritime Commission, March 2022, <https://www.fmc.gov/wp-content/uploads/2022/03/ContainerandChassisManufacturingFinalReport.pdf>.

<sup>27</sup> Aaron Mc Nicholas, "Automakers at Sea", The Wire China, February 11, 2024, <https://www.thewirechina.com/2024/02/11/automakers-at-sea-byd-shipping/>.

<sup>28</sup> Wang Xu, "美国挑动港航议题"安全化"- 中国社会科学网 [The United States is provoking the 'security' of port and shipping issues]", Chinese Academy of Social Sciences, February 2023, [https://www.cssn.cn/gjgc/gjgc\\_gclld/202302/t20230203\\_5585925](https://www.cssn.cn/gjgc/gjgc_gclld/202302/t20230203_5585925).

China is the global leader in maritime data with over half of patents worldwide, and has already made significant advances in the realm of digital ports. These solutions generate dependencies in technologies of communication and storage of data. For instance, COSCO has already tested its new automation systems using 5G in Shanghai, with the ambition of future deployment in other parts of the world. This approach was tested in the Middle East as early as 2018, when China launched a new industrial park project to integrate Khalifa, Juzan, Port Said and the Special Economic Zones of Khalifa, Jisan, Ain Sokhna, Duqm. With these projects in mind, the **clear objective is for interoperability to extend to boats themselves.**

With its growing competitive advantage in certain sub-sectors of the maritime economy, China remains under the threat of American sanctions. In 2023, in a similar fashion to the Huawei exclusion campaign, the United States Congress banned the Pentagon from using any seaport that relies on the Chinese logistics container integration platform developed by COSCO, LOGINK (National Transport and Logistics Public Information Platform), including for banking

or some administrative services. **Wang Xu therefore considers that the United States is deploying a strategy of "provoking the securitization of [Chinese] port and shipping" (挑动港航议题"安全化") to (re)gain a competitive advantage.**<sup>29</sup> She further expands on the idea that the United States aims to reach this goal through "small circle" ("小圈子") cooperation, a reference to mini-lateral formats enhancing the enriching of the "toolbox" of port and shipping competition (通过丰富港航竞争"工具箱").<sup>30</sup>

Driven by de-risking policies, and even if manufacturers narrow down shipping options or if data integration streamlines supply chains, the risk of two independent supply lines emerging will be driven by national security concerns. However, like in many other sectors, **it remains impossible for the United States to provide a complete alternative to China's offer. As a result, American initiatives target specific segments and signal operators that present a risk** (cloud, data, application, 5G exclusion, etc.). Beyond specific segments, it is therefore clear that COSCO's reach and breadth is a significant and unparalleled driver of China's national maritime strategy.

<sup>29</sup> Ibid.

<sup>30</sup> Andre Wheeler, "China's LOGINK digital platform: a weapon to bring about a new economic hegemon through data control, ownership, and manipulation?", Asia Power Watch, October 5, 2022, <https://asiapowerwatch.com/chinas-logink-digital-platform-a-weapon-to-bring-about-a-new-economic-hegemon-through-data-control-ownership-and-manipulation/>.

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