

BEIJING'S POWER PLAY: SAFEGUARDING U.S. NATIONAL SECURITY IN THE ELECTRIC VEHICLE AND BATTERY INDUSTRIES

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OCTOBER 23, 2023

INTRODUCTION

In an era of escalating global technological competition, China's dominance in the electric vehicle (EV) battery industry warrants serious scrutiny.¹ The ascent of Fujian-based Contemporary Amperex Technology Co. Ltd. (or CATL, 宁德时代新能源科技股份有限公司), the world's largest manufacturer of lithium-ion batteries, reflects Beijing's bid to dominate both the EV market and critical segments of its supply chain. Through this company and others, Beijing aims to establish and exploit technological dependencies to achieve strategic, political, and intelligence advantages over the United States.

CATL's close alignment with the Chinese Communist Party (CCP), as well as the powerful, CCP-led All-China Federation of Industry and Commerce (ACFIC), justifies such concerns. CATL's reach, which has grown through its strategic acquisitions and partnerships with Western auto makers and utility companies, amplifies these fears. These connections serve as potential access points for intelligence collection, cyber espionage, and sabotage.

By compromising internet-connected public charging infrastructure, CATL could install malware on EVs, consequently allowing for the extended monitoring of countless vehicles and gathering sensitive information about their owners. Furthermore, the company could execute a shut-down of EV charging networks or even disable targeted vehicles through hardware infiltration. There is even greater risk associated with CATL's provision of large-scale power storage stations for American electric utilities. Sophisticated, sometimes undetectable malware on these energy storage stations could pose a threat to the industrial control systems connected to the U.S. energy grid. In a worst-case scenario, an attack on these control systems could result in widespread blackouts impacting industrial centers or financial hubs. While there is no evidence to date that any of these risks have materialized, it is essential to proactively acknowledge and address them.

This memo documents CATL's outsized influence in the lithium-ion battery sector and its founders' ties to the CCP. It also explores how the Chinese government's explicit requirement to create party cells within private enterprises, including CATL, allows the CCP to exert direct and indirect influence over the company's operations. Last, it offers recommendations to address potential infrastructure and data security risks that derive from CATL's growing international footprint, especially CATL's nascent plans to develop EV charging and utility-scale battery power storage infrastructure across the United States.

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1. The author would like to thank Zachary Shuter for his research contributions to this memo.

U.S. policymakers should scrutinize and potentially limit CATL's joint ventures and partnerships with U.S. firms, especially in sectors deemed critical to national security. There must be stringent oversight protocols focused on protecting U.S. person data as well as other proprietary and sensitive U.S. technologies. By proactively addressing these and other risks, policymakers can circumvent past pitfalls, such as when Chinese enterprises seized outsized market positions in innovative industries before countermeasures were employed.

CATL: A GIANT EMERGES

Founded by Zeng Yuqun (曾毓群) in 2011, CATL specializes in the research, development, and manufacturing of lithium-ion batteries used in EVs and utility-scale energy storage batteries. The company is headquartered in the coastal city of Ningde. Zeng founded CATL after receiving his Ph. D in condensed matter physics from the Chinese Academy of Sciences, a Chinese state-directed entity with robust connections to China's military, nuclear, and cyber-espionage programs.² Upon graduation in 2007, Zeng first co-founded a company called ATL, which legally acquired technology licenses from U.S. companies to make batteries for laptops, MP3 players, smartphones, and later vehicles. In 2011, ATL spun off its car battery division into another company: CATL.³

Today, one in three EVs is powered by a CATL battery.⁴ Since 2018, CATL has been the world's largest maker of mid-to-large-sized batteries for electric vehicles.⁵ It is the primary supplier of batteries for all Tesla vehicle models and maintains collaborative partnerships with General Motors, Volkswagen, BMW, Volvo, and other automakers.⁶ As of 2023, the company was exploring partnerships and joint ventures with other major automakers, including Ford.⁷

CATL employs more than 80,000 people and operates thirteen battery manufacturing bases worldwide, including in Germany and Hungary.⁸ CATL has also established subsidiaries and/or maintains offices in many other countries, including the United States, where CATL maintains an official presence in Michigan and Delaware.⁹

2. CAS and CAS-owned companies develop [AI initiatives](#), [hypersonic spaceplanes](#), robotic submarines, [underwater platforms](#), and missile technology for the Chinese military, enabling it to expand its presence in the Pacific and around the world. Numerous CAS-affiliated entities have been included on the U.S. Department of Commerce Bureau of Industry and Security Entity List. Tara Beeny, "Supply Chain Vulnerabilities from China in U.S. Federal Information and Communications Technology," *Interos Solutions, Inc.*, April 2018. (https://www.uscc.gov/sites/default/files/Research/Interos_Supply%20Chain%20Vulnerabilities%20from%20China%20in%20U.S.%20Federal%20ICT_final.pdf); Nick Whigham, "Chinese state media tout 'world's fastest' wind tunnel to boost hypersonic weapons capability," *news.com.au*, March 21, 2018. (<https://www.news.com.au/technology/innovation/military/chinese-state-media-tout-worlds-fastest-wind-tunnel-to-boost-hypersonic-weapons-capability/news-story/ad2e65867fa313685295958d546c135a>); Elizabeth Shim, "China plans underwater AI base in South China Sea," *United Press International*, November 26, 2018. (https://www.upi.com/Top_News/World-News/2018/11/26/China-plans-underwater-AI-base-in-South-China-Sea/1891543261199)

3. Akshat Rathi, "The inside story of how CATL became the world's largest electric-vehicle battery company," *Quartz*, April 3, 2019. (<https://qz.com/1585662/how-catl-became-the-worlds-biggest-electric-car-battery-company>)

4. Chris Randall, "One third of the world's EV batteries come from CATL," *electrive*, August 8, 2022. (<https://www.electrive.com/2022/08/08/34-per-cent-of-the-worlds-ev-batteries-come-from-catl>)

5. Heejin Kim and Hongcheol Kim, "CATL Retains Top Position as World's Biggest EV Batter Maker," *Bloomberg*, May 2, 2022. (<https://www.bloomberg.com/news/articles/2022-05-02/catl-retains-top-position-as-world-s-biggest-ev-battery-maker>)

6. *Ibid.*

7. David Shepardson, "US House committees investigate Ford Chinese battery partnership," *Reuters*, July 21, 2023. (<https://www.reuters.com/business/autos-transportation/us-house-committees-investigate-ford-catl-battery-partnership-2023-07-21>)

8. "Company Profile," *CATL*, accessed October 5, 2023. (<https://www.catl.com/en/about/profile>)

9. "CATL opens first North American base, strengthening presence in U.S. market," *CATL*, December 8, 2018. (<https://www.catl.com/en/news/455.html>); "Contact Us," *CATL*, accessed October 5, 2023. (<https://www.catl.com/en/contactus>)

With the surge in EV adoption, CATL's revenues have spiked. In 2016, CATL reported total revenues of \$3.01 billion.¹⁰ In 2021, that figure soared to \$20.24 billion before doubling to \$48.08 billion in 2022. In the first three months of 2023, the company reported revenues of \$13 billion, putting it on track for record revenues again this year.¹¹ Zeng is CATL's top shareholder, owning 23 percent of the company.¹² As of mid-2023, Forbes estimated Zeng's net worth, derived almost entirely from his stake in CATL, at approximately \$34 billion.¹³

With China controlling approximately 80 percent of the global raw material supply for rechargeable batteries, CATL is strategically positioned to influence supply chain and market dynamics in other lithium-ion battery-dependent sectors, such as aerospace, electronics, and defense.¹⁴ With Beijing's backing, CATL has built commanding positions in several other battery-dependent sectors, including energy storage solutions that enable more consistent delivery of electricity from renewable energy generation sites. CATL batteries have already been installed at generation facilities in Florida, Virginia, Nevada, and California as well as a solar farm on leased land inside Marine Corps Base Camp Lejeune in North Carolina.¹⁵

Such energy storage solutions are often touted as harnessing renewable energy to reliably reduce fossil fuel reliance, or decarbonization. However, their environmental footprint remains a subject of ongoing debate.¹⁶ Nevertheless, experts say lithium-ion solutions will continue to be the leading technology for EVs and short-duration energy storage, even as questions linger about their role in long-term viability owing to their high storage capacity costs.¹⁷

10. "CATL," *CompaniesMarketCap*, accessed October 5, 2023. (<https://companiesmarketcap.com/catl/revenue>)

11. "CATL," *CompaniesMarketCap*, accessed October 5, 2023. (<https://companiesmarketcap.com/catl/revenue>); Danny Lee, "Top Battery-Maker CATL's Profit Soars 63% Amid EV Sales Boom," *Bloomberg*, July 25, 2023. (<https://www.bloomberg.com/news/articles/2023-07-25/top-battery-maker-catl-s-profit-soars-63-amid-ev-sales-boom>)

12. Jie Ma, "Musk Challengers Turn Into Billionaires as China Battery Giant Soars," *Bloomberg*, June 10, 2018. (<https://www.bloomberg.com/news/articles/2018-06-11/biggest-electric-vehicle-battery-maker-soars-on-trading-debut>); "Bloomberg Billionaires Index: Zeng Yuqun," *Bloomberg*, accessed October 5, 2023. (<https://www.bloomberg.com/billionaires/profiles/zuqun-zeng>)

13. Lily Brown, "10 most powerful billionaires in Asia – net worths, ranked: from India's Gautam Adani and Mukesh Ambani, to Uniqlo's Tadashi Yanai, Alibaba's Jack Ma and Hong Kong's 'Superman' Li Ka-shing," *South China Morning Post* (China), May 20, 2023. (<https://www.scmp.com/magazines/style/celebrity/article/3221265/10-most-powerful-billionaires-asia-net-worths-ranked-indias-gautam-adani-and-mukesh-ambani-uniqlo>)

14. Today's EV battery chemistries depend on five critical minerals: lithium, cobalt, manganese, nickel, and graphite. Brandon S. Tracy, "Critical Minerals in Electric Vehicle Batteries," *Congressional Research Service*, August 29, 2022. (<https://crsreports.congress.gov/product/pdf/R/R47227#:~:text=Graphite%20is%20currently%20widely%20used,manganese%2C%20nickel%2C%20and%20graphite>); Charlie Cooper, Antonia Zimmermann, and Sarah Anne Aarup, "China leaves EU playing catchup in race for raw materials," *Politico*, March 10, 2023. (<https://www.politico.eu/article/white-gold-rush-salt-lithium-batteries-raw-materials-chile-salar-atacama>); Emily de La Bruyère and Nathan Picarsic, "Elemental Strategy: Countering the Chinese Communist Party's Efforts to Dominate the Rare Earth Industry," *Foundation for the Defense of Democracies*, February 10, 2022. (<https://www.fdd.org/analysis/2022/02/10/elemental-strategy-countering-the-chinese-communist-partys-efforts-to-dominate-the-rare-earth-industry>)

15. Yujie Xue, "China's CATL to supply batteries to 'record-breaking' solar storage project near Las Vegas, US," *South China Morning Post* (China), October 18, 2022. (<https://www.scmp.com/business/china-business/article/3196364/chinas-catl-supply-batteries-record-breaking-solar-storage-project-near-las-vegas-us>); "CATL and FlexGen Sign 10GWh Multi-Year Battery Energy Storage System Supply Agreement," *FlexGen*, September 22, 2022. (<https://www.prnewswire.com/news-releases/catl-and-flexgen-sign-10gwh-multi-year-battery-energy-storage-system-supply-agreement-301630386.html>); Cameron Murray, "Duke Energy completes three Florida BESS projects totalling 34MW/58MWh," *Energy Storage News*, March 11, 2022. (<https://www.energy-storage.news/duke-energy-completes-three-florida-bess-projects-totalling-34mw-58mwh>); John Engel, "North Carolina's largest battery storage project begins operation," *Renewable Energy World*, March 30, 2023. (<https://perma.cc/YXS4-9VRN>)

16. "The Future of Energy Storage," *MIT Energy Initiative*, June 3, 2022. (<https://energy.mit.edu/research/future-of-energy-storage>)

17. Ibid.

THE (PARTY) TIES THAT BIND

The EV and battery industries stand at the forefront of China's evolving state capitalism and its quest for technological dominance. Both industries featured prominently in China's 13th (2016-20) and 14th (2021-25) Five Year Plans (FYPs). The former called for establishing dominance in "strategic emerging industries," including EVs and batteries, to "gain new competitive advantages in the future."¹⁸ The latter noted how breakthroughs in key technologies, such as high-safety power batteries, high-efficiency vehicles, and high-performance power systems for new energy systems, aim to transform China into an "science and technology powerhouse" (科技强国).¹⁹

To fortify these aims, the Chinese government has granted subsidies, tax incentives, favorable procurement deals, and additional policy benefits to entities and researchers advancing these sectors. CATL is a prime beneficiary of these measures. The Chinese Ministry of Industry and Information Technology (MIIT) included CATL on a 2017 "white list" of approved battery manufacturers.²⁰ Companies not listed faced difficulties securing necessary licenses for their factories, but CATL gained preferential access to government contracts and enjoyed associated tax benefits. Additionally, CATL benefitted tremendously from a Chinese government credit system that rewarded automakers for producing EVs and penalized the manufacturing of high-fuel-consumption cars.²¹ These and other policies led to wide-scale EV adoption in China, where CATL maintains a 48 percent of the domestic market share.²²

Yet CATL's rise to prominence was not always assured; rather, Zeng's decision to align himself with China's party-state played a pivotal role in the company's ascent.²³ Chief among Zeng's power plays has been a decade-long affiliation with the Chinese People's Political Consultative Conference (CPPCC).

THE PARTY HELPS THOSE WHO HELP THE PARTY

The CPPCC characterizes itself as "an important organ for multiparty cooperation and political consultation under the leadership of the CCP, and an important means of promoting socialist democracy in China's political activities."²⁴ This anodyne description underplays the CPPCC's influence. It is led by a member of China's highest-level decision-making authority, the CCP's Politburo Standing Committee, and serves as the highest-ranking entity overseeing China's United Front system — a complex web of organizations and individuals working to deepen the

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18. "Translation: National 13th Five-Year Plan for the Development of Strategic Emerging Industries," *Center for Security and Emerging Technology, Georgetown University*, December 9, 2019. (<https://cset.georgetown.edu/research/national-13th-five-year-plan-for-the-development-of-strategic-emerging-industries>)

19. "Outline of the People's Republic of China 14th Five-Year Plan for National Economic and Social Development and Long-Range Objectives for 2035," *Center for Security and Emerging Technology, Georgetown University*, May 12, 2021. (https://cset.georgetown.edu/wp-content/uploads/t0284_14th_Five_Year_Plan_EN.pdf)

20. Ministry of Industry and Information Technology of the People's Republic of China, "《汽车动力蓄电池行业规范条件》公告 [Announcement of 'Automotive Power Battery Industry Standard Conditions']," March 26, 2023. (https://www.miit.gov.cn/zwgk/zcwj/wjfb/tg/art/2020/art_3aa31303ce75453ba93963f57032538d.html)

21. "China's Abandoned, Obsolete Electric Cars Are Piling Up in Cities," *Bloomberg*, August 17, 2023. (<https://www.bloomberg.com/features/2023-china-ev-graveyards/?srnd=premium-asia#:~:text=In%20the%20mid%2D2010s%2C%20China,of%20high%20fuel%2Dconsumption%20cars>)

22. Joanna Gao and Jack Wu, "CATL tops China's EV battery market with 49% market share," *DigiTimes* (Taiwan), March 29, 2023. (<https://www.digitimes.com/news/a20230328PD205/battery-catl-china-ev-battery.html&chid=10>)

23. Henry Sanderson, "China's Electric Vehicle Battery King," *Time*, September 29, 2022. (<https://time.com/6217992/china-electric-vehicle-catl>)

24. "Roles and functions of Chinese People's Political Consultative Conference," *The National Committee of the Chinese People's Political Consultative Conference*, March 17, 2023. (http://en.cppcc.gov.cn/2020-03/17/c_470023.htm)

CCP's influence throughout industry and civil society.²⁵ As a key player in China's overseas talent recruitment programs, China's United Front system also facilitates foreign technology transfer.²⁶

Zeng's CPPCC ties can be traced back to 2013, two years after CATL's founding, when he was named as a member of the Fujian Provincial Committee of the CPPCC.²⁷ The committee listed Zeng as a mere science and technology (科学技术界) delegate; however, his CPPCC credentials carried major implications, providing him with preferential access to decision-makers. After several years, Zeng was elevated to serve on the 13th National Committee of the CPPCC, where he was again listed as a science and technology delegate.²⁸ Zeng used his national-level CPPCC perch to promote CATL's interests and broader EV adoption as well as to link the company to Xi's policies and China's FYP goals.

In November 2018, the CPPCC website quoted Zeng as saying, "Occupying the commanding heights of electric vehicles is an important driving force for us to realize the dream of a powerful automobile country."²⁹ In September 2020, Zeng called on state and local governments to support the industry by "reducing the insurance rate of new energy vehicles, and reducing or exempting roads and bridges fees for electric vehicle owners."³⁰ In 2020, Zeng called upon Chinese regulatory bodies to be "more tolerant" towards problems that arise in early stage technical research.³¹

Zeng's plea was anything but altruistic. It coincided with reports from a rival Chinese battery manufacturer, Shenzhen-based BYD, suggesting that CATL's battery technology was unsafe. More specifically, BYD released a video imitating a Chinese government safety test in which a nail puncture of CATL's battery cell resulted in the cell exploding.³² Chinese officials heeded Zeng's calls and dropped the test from its inspections. While other countries also do not require a nail test, that move greatly benefited CATL and demonstrated Beijing's willingness to nurture and protect the company.

25. "Overview," *The National Committee of the Chinese People's Political Consultative Conference*, accessed October 5, 2023. (<http://en.cppcc.gov.cn/overview.html>); Alexander Bowe, "China's Overseas United Front Work," *United States-China Economic and Security Review Commission*, August 24, 2018. (https://www.uscc.gov/sites/default/files/Research/China%27s%20Overseas%20United%20Front%20Work%20-%20Background%20and%20Implications%20for%20US_final_0.pdf)

26. Alex Joske, "Hunting the Phoenix," *Australian Strategic Policy Institute*, August 20, 2020. (<https://www.aspi.org.au/index.php/report/hunting-phoenix>)

27. "政协第十一届福建省委员会委员名单 [List of members of the 11th CPPCC Fujian Provincial Committee]," *People's Daily* (China), January 24, 2013. (<http://cpc.people.com.cn/n/2013/0124/c87228-20308427.html>)

28. "中国人民政治协商会议第十三届全国委员会委员名单 [List of members of the 13th National Committee of the Chinese People's Political Consultative Conference]," *The National Committee of the Chinese People's Political Consultative Conference*, May 11, 2020. (<http://www.cppcc.gov.cn/zxww/2020/05/11/ARTI1589179608333237.shtml>)

29. "促进新能源汽车产业高质量发展推动落实新理念向汽车强国迈进——全国政协 '促进新能源汽车产业健康发展' 双周协商座谈会发言摘要 [Promote the high-quality development of the new energy automobile industry and promote the implementation of new concepts towards becoming an automobile power — excerpts from the speeches at the National Committee of the Chinese People's Political Consultative Conference (CPPCC) bi-weekly consultation symposium on 'Promoting the healthy development of the new energy automobile industry']," *The National Committee of the Chinese People's Political Consultative Conference*, November 11, 2018. (<http://www.cppcc.gov.cn/zxww/2018/11/13/ARTI1542069437153218.shtml>)

30. "用精细政策激发创新动能——全国政协 '科技创新型企业发展面临的困难和建议' 双周协商座谈会综述 [Using refined policies to stimulate innovation momentum — Summary of the bi-weekly consultation symposium of the National Committee of the Chinese People's Political Consultative Conference on 'Difficulties and Suggestions Facing the Development of Scientific and Technological Innovation Enterprises']," *The National Committee of the Chinese People's Political Consultative Conference*, September 14, 2020. (<http://www.cppcc.gov.cn/zxww/2020/09/14/ARTI1600043732094197.shtml>)

31. Ibid.

32. Keith Bradsher and Michael Forsythe, "Why a Chinese Company Dominates Electric Car Batteries," *The New York Times*, December 22, 2021. (<https://www.nytimes.com/2021/12/22/business/china-catl-electric-car-batteries.html>)

MOVING ON UP

As CATL's revenues skyrocketed from just \$3 billion in 2016 to \$7.4 billion in 2020, so too did Zeng's access and influence.³³ Zeng was asked to serve on the 14th (and current) National Committee of the CPPCC.³⁴ This time, however, his CPPCC position is vice chairman of the All-China Federation of Industry and Commerce (ACFIC), or 中华全国工商业联合会, a title he secured in December 2022.³⁵

This change in title carries profound significance. As the largest business association of Chinese firms in the mainland, ACFIC is "led by" the CCP and responsible for integrating private businesses into the Chinese government's economic strategies and development plans, underscoring that even ostensibly private enterprises are intertwined with the party-state's ambitions and policies.³⁶ ACFIC's articles of association emphasize merging private enterprises with party ideologies, including efforts to "fully implement Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era."³⁷ Zeng's position as vice chairman mandates he "implement" ACFIC's resolutions and subject himself — and CATL — to oversight.

As Xi sought a third term at China's 20th Party Congress, he had Zeng's unequivocal support. Zeng, echoing party ideology, stated he and CATL "firmly believe that under the leadership of the Party's Central Committee, the great rejuvenation of the Chinese nation will surely be realized."³⁸ Earlier that year, Zeng committed to contributing "wisdom and strength to the great rejuvenation of the Chinese nation," a cornerstone of Xi Jinping Thought.³⁹ Though skeptical of the Chinese business community, Xi nevertheless expressed "joy" in 2023 upon receiving a briefing from Zeng about CATL's market dominance and prospects.⁴⁰

All told, Zeng's personal affiliations place CATL within the party-state's sphere of control and could provide concrete channels for the CCP to exert influence. Zeng's robust, repeated defense of Xi's ideological goals suggest that CATL serves the state. Information about Zeng's personal life is scarce, but his wife, Hong Huacan, is also tied to the party — she is a senior lecturer at a municipal-level Party school in Ningde, where she encourages "adhering to the Party's purpose."⁴¹

33. "CATL," *CompaniesMarketCap*, accessed October 5, 2023. (<https://companiesmarketcap.com/catl/revenue>); "CATL's revenue from 2015 to 2020," *Statista*, accessed October 5, 2023. (<https://www.statista.com/statistics/875511/revenue-of-catl>)

34. "中国人民政治协商会议第十四届全国委员会委员名单 [List of members of the 14th National Committee of the Chinese People's Political Consultative Conference]," *The National Committee of the Chinese People's Political Consultative Conference*, January 18, 2023. (<http://www.cppcc.gov.cn/zxww/2023/01/18/ARTI1674005617470226.shtml>)

35. "Zeng Yuqun," *All-China Federation of Industry & Commerce*, December 16, 2022. (http://ht.acfic.org.cn/Leaders/202212/c20221216_186133.html)

36. "中国工商业联合会章程 [Articles of Association of All-China Federation of Industry and Commerce]," *All-China Federation of Industry and Commerce*, accessed October 5, 2023. (<http://www.acfic.org.cn/bhjj/gk/zc>)

37. Ibid.

38. "电子信息领域企业家热议党的二十大报告 [Entrepreneurs in the field of electronic information enthusiastically discuss the report of the 20th National Congress of the Communist Party of China]," *China E-Government Network*, October 21, 2022. (<http://www.e-gov.org.cn/article-182915.html>)

39. 全国政协副主席高云龙与闽商代表交流座谈 [Gao Yunlong, Vice Chairman of the National Committee of the Chinese People's Political Consultative Conference, held an exchange and discussion with representatives of Fujian businessmen]," *Overseas Chinese News of Fujian*, June 24, 2022. (<https://www.xepaper.com/fjqb/resfile/2022-06-24/01/fjqb-20220624-001.pdf>)

40. Danny Lee, "Xi Jinping Views Top EV-Battery Maker CATL With 'Joy and Worry,'" *Bloomberg*, March 7, 2023. (<https://www.bloomberg.com/news/articles/2023-03-07/xi-jinping-views-top-ev-battery-maker-catl-with-joy-and-worry>)

41. "加强理论阵地建设，提高党员党性修养 [Strengthen the construction of theoretical positions and improve the Party spirit of Party Members — the Municipal State Investment Corporation Enterprise Party School was inaugurated]," *Ningde City State-owned Properties Investment & Management Co Ltd*, June 17, 2021. (http://ndgtgs.com/wap/pages/article_ad8de020870340c0b3391d1abfbcf9b.html)

If Zeng's enthusiasm ever wavers, fear could cement his loyalty. He might prioritize compliance with CCP directives to avoid a similar fate as tech giant Alibaba's founder, Jack Ma, who disappeared for an extended period after criticizing the Chinese government's policies.⁴² Even then, the CCP could, without warning, simply replace Zeng with a leader of its choosing to further support the CCP's objectives.

IT'S THE LAW

CATL's connections with the CCP go beyond mere political affiliations. The reach of the CCP into CATL's internal governance presents serious implications for EV supply chain security. Put plainly, Chinese law does not merely encourage alignment with CCP ideology; it requires it.

The laws with the greatest impact on CATL's operations include a 2018 mandate from the China Securities Regulatory Commission (CSRC), the National Intelligence Law, the Counter-Espionage Law, and the Cybersecurity Law. Hong Kong's separate National Security Law also applies. Together, these laws amplify the risks to critical U.S. infrastructure in ways analogous to those associated with other Chinese companies the U.S. government has identified as national security threats, including Huawei.

The 2018 mandate issued by the CSRC, which institutionalizes the CCP's control over CATL and countless other businesses,⁴³ requires public companies to establish and operate CCP cells within their corporate structures. This is not a mere formality. Rather, it is a structured channel through which the CCP exerts influence over various business and hiring units in Chinese enterprises.

As a company listed on the Shenzhen stock exchange in 2018, CATL is bound by this regulation.

CATL's 2018 articles of association explicitly state, "the company shall establish a Communist Party organization and carry out party activities" and "provide the necessary conditions for the activities of the party organization."⁴⁴ As a result, the CCP can guide and, in many cases, dictate the company's support of China's strategic and military ambitions. These party cells also provide the CCP with influence over CATL's corporate culture, aligning the company's business practices with the CCP's ideological imperatives. Last, through embedded party cells and corporate linkages, the CCP can access CATL's proprietary technologies and strategic market data, potentially giving other Chinese entities a competitive edge and undermining U.S. companies' positions in global markets.

Likewise, China's National Intelligence Law states that "all organizations and citizens shall support, assist, and cooperate with state intelligence work."⁴⁵ This mandate compels CATL to adhere to Beijing's directives. The law does not provide specific exemptions or limitations, creating an environment in which Beijing can exert nearly boundless pressure on CATL and its employees. These broad requirements compel CATL to share sensitive data with China's party-state. That includes U.S. person information and critical infrastructure details obtained via CATL's commercial collaborations with U.S. entities, including electric critical infrastructure owners and operators

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42. Lavender Au, "Jack Ma Isn't Back," *Wired*, June 15, 2023. (<https://www.wired.com/story/jack-ma-isnt-back>)

43. "中国证券监督管理委员会公告 [China Securities Regulatory Commission Announcement]," *Official Gazette of the State Council*, September 30, 2018. http://www.gov.cn/gongbao/content/2019/content_5363087.htm

44. "宁德时代新能源科技股份有限公司 [CATL New Energy Technology Co., Ltd.]," *CATL*, May 2022. (https://www.catl.com/uploads/1/file/public/202204/20220426200308_qr532d21u6.pdf)

45. China's National Intelligence Law came into effect in 2017. National Intelligence Law of the People's Republic, (Adopted at the 28th session of the Standing Committee of the 12th National People's Congress on June 27, 2017), (China). (<https://www.chinalawtranslate.com/en/national-intelligence-law-of-the-p-r-c-2017>)

as well as automobile manufacturers. Such sharing might occur without the knowledge or consent of CATL's customers or American interlocutors.⁴⁶

Beyond data concerns, the absence of transparency and oversight within the National Intelligence Law creates a risk of forced human-intelligence collaboration.⁴⁷ Such coercion could potentially ensnare U.S. persons employed by CATL in China, as well as U.S. persons located in China, however temporarily, to support CATL-related collaborations. Owing to the extraterritorial nature of the law and its emphasis on “all” Chinese citizens (Article 7), this risk also applies to certain CATL employees located in the United States, who could be compelled to provide information about critical U.S. networks to Chinese authorities.

Similarly, China's 2015 Counter-Espionage Law also requires all Chinese companies to support, assist, and cooperate with state espionage work as well as provide the government with access to sensitive, corporately derived information. A sweeping 2022 revision to the law permits the Chinese government to designate routine commercial engagements between CATL and U.S. entities (or persons) as acts of espionage.⁴⁸ This includes instances in which Chinese-derived data or information, however benign, is conveyed. All told, these potential espionage determinations include instances in which U.S. entities (or persons), may collect, store, or transfer *any* information deemed relevant to Chinese national security.

Pursuant to this law, the Chinese government can forcibly inspect homes and businesses as well as detain suspects, including U.S. nationals, and compel them to provide information and access to their digital devices.⁴⁹ After the revised law went into effect, Chinese authorities raided the local offices and detained employees of U.S. corporate due diligence firm Mintz Group, as well as consulting firms Bain & Company and Capvision Partners, for compiling information about Chinese markets, companies, and policies.⁵⁰ U.S. electric utilities and vehicle manufacturers doing business in China, as well as their employees, today face acute suspicions of espionage owing to their regular contact with U.S. governmental bodies and long-held Chinese suspicions about the unauthorized sharing of Chinese-derived data.

China's 2016 Cybersecurity Law further mandates that network operators store certain data within China and undergo a “security assessment” when data is destined to leave China.⁵¹ The law applies to CATL's global data flows, including those derived from international collaborations. In 2023, for example, the Chinese government ordered a review of a proposed CATL-Ford agreement to prevent CATL's battery technology from being shared with the

46. Brian Fung, “Analysis: There is now some public evidence that China viewed TikTok data,” *CNN*, June 8, 2023. (<https://www.cnn.com/2023/06/08/tech/tiktok-data-china/index.html>); Mara Hvistendahl, “How China surveils the world,” *MIT Technology Review*, August 19, 2020. (<https://www.technologyreview.com/2020/08/19/1006455/gtcom-samantha-hoffman-tiktok>); Samantha Hoffman, “The U.S.-China Data Fight Is Only Getting Started,” *Foreign Policy*, July 22, 2021. (<https://foreignpolicy.com/2021/07/22/data-tiktok-china-us-privacy-policies>)

47. Murray Scot Tanner, “Beijing's New National Intelligence Law: From Defense to Offense,” *Lawfare*, July 20, 2017. (<https://www.lawfaremedia.org/article/beijings-new-national-intelligence-law-defense-offense>)

48. “Counter-espionage Law of the People's Republic of China (2023 ed.),” *China Law Translate*, April 26, 2023. (<https://www.chinalawtranslate.com/en/counter-espionage-law-2023>)

49. “China's Revised Counterespionage Law and Recent Actions Highlight Challenges for U.S. Companies Operating in China,” *Crowell*, May 10, 2023. (<https://www.crowell.com/en/insights/client-alerts/chinas-revised-counterespionage-law-and-recent-actions-highlight-challenges-for-us-companies-operating-in-china>)

50. David Pierson and Daisuke Wakabayashi, “China's Crackdown Widens as Police Raid Another Firm With Foreign Ties,” *The New York Times*, May 8, 2023. (<https://www.nytimes.com/2023/05/08/business/capvision-china-espionage-law.html>)

51. “Translation: Cybersecurity Law of the People's Republic of China,” trans. Rogier Creemers, Graham Webster, and Paul Triolo, *DigiChina*, June 29, 2018. (<https://digichina.stanford.edu/work/translation-cybersecurity-law-of-the-peoples-republic-of-china-effective-june-1-2017>)

American automaker.⁵² The law also provides Beijing with wide discretion to exploit CATL's global operations and networks to serve its strategic interests. It obliges companies to provide technical support, including decryption, to the government during national security and criminal investigations. This compels CATL to disclose sensitive intellectual property to Chinese authorities, including potentially U.S. person information and/or confidential business data CATL possesses about U.S. companies or localities.

Finally, the 2020 National Security Law in Hong Kong compels businesses to comply with Beijing's interests.⁵³ This law's vague wording allows for broad interpretations that can facilitate CCP control over various industries. For instance, as a major CATL shareholder, the Hong Kong Securities Clearing Company (HKSCC) can appoint directors to CATL's board. This creates a pathway for the CCP to exert influence over CATL and its leadership. More specifically, by placing directors on CATL's board, HKSCC can guide CATL's alignment with the Chinese government's goals, such as technological advancement and global competitiveness, consistent with China's 2017 National Security Law, among others.

CHANNELS FROM CATL TO THE CHINESE MILITARY

China's military-civil fusion (MCF) strategy, which aims to harness civilian advances for military applications, also presents major risks for U.S. entities (or persons) collaborating with CATL on research and development (R&D).⁵⁴ This includes U.S. automobile manufacturers, electric utilities, and potentially U.S. universities developing technology that may ultimately benefit the Chinese military if shared with CATL.

MCF is a policy, not a legal instrument, but nonetheless impacts corporate conduct. China's People's Liberation Army (PLA), like most modern militaries, is exploring the benefits of powering its military bases and outposts with renewable energy. The PLA has already built micro-power grid systems at more than 80 of its border defense outposts that rely on solar and wind energy as well as accompanying battery storage systems akin to those developed by CATL.⁵⁵ Beijing has championed these "stable, all-weather power supply" systems to boost the PLA's "combat capabilities." CATL advances in this domain are thus likely to benefit the PLA.

Similarly, researchers from China's Naval Submarine Academy, in the peer-reviewed Chinese journal *Marine Electric and Electronic Engineering*, have proposed upgrading China's conventional submarine fleet with lithium-ion batteries.⁵⁶ Doing so could more than double a Chinese submarine's underwater endurance, greatly improve its acceleration for high-speed operations, and create more space on-board for weapons. This proposed lithium-ion battery transition is possible because of extensive development and testing of such technologies in China's EV market, where CATL is the industry leader.

52. "China to Scrutinize Ford-CATL EV Battery Deal to Ensure Core Technology Isn't Shared," *Bloomberg*, February 16, 2023. (https://www.bloomberg.com/news/articles/2023-02-16/china-to-scrutinize-ford-f-us-catl-battery-deal-to-ensure-key-tech-not-shared?in_source=embedded-checkout-banner)

53. "In full: Official English translation of the Hong Kong national security law," *Hong Kong Free Press* (China), July 1, 2020. (<https://hongkongfp.com/2020/07/01/in-full-english-translation-of-the-hong-kong-national-security-law>)

54. Emily de La Bruyère and Nathan Picarsic, "Defusing Military-Civil Fusion: The Need to Identify and Respond to Chinese Military Companies," *Foundation for the Defense of Democracies*, May 2021. (<https://www.fdd.org/wp-content/uploads/2021/05/fdd-monograph-defusing-military-civil-fusion.pdf>)

55. Liu Xuanzun, "PLA builds renewable power grids for border defense outposts in plateau, islands," *Global Times* (China), January 21, 2021. (<https://www.globaltimes.cn/page/202101/1213548.shtml>)

56. Gabriel Honrada, "Power play: China's submarines going lithium," *Asia Times* (China), October 30, 2022. (<https://asiatimes.com/2022/10/power-play-chinas-submarines-going-lithium>)

Collaborations between CATL and U.S. entities (or persons) could also result in the unauthorized transfer of information about U.S. electrical grids or other critical infrastructure to the PLA. This risk is particularly acute given CATL's ongoing collaboration with U.S. utility companies. During a conflict, China could potentially exploit that data to identify vulnerabilities and execute sabotage operations against the homeland.

CATL's academic and research partnerships with Chinese universities also provide a channel through which PLA-affiliated researchers can obtain non-public information and know-how provided to CATL by its international partners. This includes a partnership with Shanghai Jiao Tong University, where CATL's chief manufacturing officer is the dean of the university's Institute of Future Technologies.⁵⁷ CATL also maintains research partnerships with three other Chinese universities closely tied to China's MCF initiatives and intelligence services, including Tsinghua University, Zhejiang University, and Xiamen University.⁵⁸ These relationships serve as conduits for the company to contribute to Beijing's national security ambitions.

THE NEXT (BATTERY) FRONTIER

CATL plans to expand beyond battery manufacturing. This includes ventures into worldwide EV charging and grid-scale battery energy storage systems (BESS) as well as the construction of battery production and recycling facilities in the United States and Europe.⁵⁹ The growth of these industries furthers the White House's climate and renewable energy goals, yet CATL poses significant risks to U.S. critical infrastructure, data security, and supply chain integrity.

As part of its global strategy, CATL has made multi-billion-dollar R&D investments in various charging solutions pivotal to mass EV adoption. These include joint ventures with Baicheng New Energy, British Petroleum (BP), Shenzhen Kstar Science and Technology, and other companies to develop EV charging infrastructure across China — already home to the world's largest public charging network.⁶⁰ As China approaches EV saturation, Zeng has expressed interest in expanding these and other platforms to overseas markets to maintain growth, including plans to localize production of certain technologies abroad.⁶¹

CATL's plans reportedly include \$5 billion of battery plant investments in North America.⁶² CATL and Tesla, as of March 2023, were exploring a new battery plant and other projects in Texas.⁶³ CATL was also reportedly scouting

57. Dorothy Zheng, "CATL's chief manufacturing officer serves as dean of top Chinese university," *CnEVPPost*, August 19, 2021. (<https://cnevpost.com/2021/08/19/cats-chief-manufacturing-officer-serves-as-dean-of-top-chinese-university>)

58. "CATL's First Batch of Postdoctoral Researchers Pass Dissertation Defense," *CATL*, May 27, 2022. (<https://www.catl.com/en/news/955.html>)

59. Dan Murtaugh, "China's CATL In Talks to Build EV Battery Recycling Sites in Europe," June 28, 2023. (<https://www.bloomberg.com/news/articles/2023-06-28/catl-in-talks-to-build-multiple-battery-recycling-sites-in-europe>); Peng Chen, "CATL aims to establish EV battery recycling sites in Europe, North America," *DigiTimes* (Taiwan), June 30, 2023. (<https://www.digitimes.com/news/a20230630VL206/catl-battery-recycling.html&chid=10>)

60. Cao Yingying, "Battery maker CATL expands into growing charging market," *China Daily* (China), March 16, 2023. (<https://www.chinadaily.com.cn/a/202003/16/WS5e6f0d35a31012821727f696.html>); "China builds world's largest network of charging facilities for electric vehicles," *People's Daily Online* (China), October 29, 2021. (<http://en.people.cn/n3/2021/1029/c90000-9913528.html>); Karrie Gordon, "How to Invest in China's Better Positioned EV Market," *VettaFi*, June 23, 2022. (<https://etfdb.com/climate-insights-channel/how-to-invest-in-china-s-better-positioned-ev-market>)

61. "China's CATL says gross profit margins to improve after raising prices," *Reuters*, May 5, 2022. (<https://www.reuters.com/business/retail-consumer/chinese-battery-giant-catl-plans-battery-price-changes-second-quarter-2022-05-05>)

62. Gabriella Coppola, Edward Ludlow, and Maya Averbuch, "Tesla Supplier CATL Weighs Sites for \$5 Billion Battery Plant," *Bloomberg*, March 19, 2022. (<https://www.bloomberg.com/news/articles/2022-03-19/tesla-supplier-catl-weighs-sites-for-5-billion-battery-plant?srnd=hyperdrive>)

63. Gabriella Coppola, Edward Ludlow, and Jennifer Jacobs, "Tesla Pursues Building a New US Plant With China's Dominant Battery Maker," *Bloomberg*, March 30, 2023. (https://www.bloomberg.com/news/articles/2023-03-30/tesla-pursues-us-plant-with-china-s-dominant-battery-maker-catl?in_source=embedded-checkout-banner)

locations in South Carolina and Kentucky in mid-2022.⁶⁴ The establishment of battery plants could blaze a trail for CATL to expand its reach into the U.S. charging sector and increase its overall U.S. market share in the battery manufacturing industry at the expense of competitors based in allied countries, like South Korea and Japan.

CATL is also pursuing innovative technologies like battery-as-a-service (BaaS).⁶⁵ BaaS aims to eliminate “range anxiety” by enabling EV customers to lease batteries as a separate component from their cars. These subscription services would allow EV customers to pull into battery swap stations and exchange drained batteries for fully charged ones, all in minutes. CATL, in partnership with Chinese EV manufacturer Nio, already operates hundreds of swap stations across China, with more than 15 million swaps to date.⁶⁶ Expanding these stations to the United States is likely a long-term goal for CATL, although the company has not yet announced plans.⁶⁷

CATL is also seeking to become an industry leader in BESS, which are large-scale energy storage power stations. When needed, grid operators can release energy from these systems via existing transmission lines. Several CATL-supported BESS projects have already been completed or are underway across the United States.

In March 2022, Duke Energy completed three CATL battery-supported BESS projects in Florida and, in August 2022, Virginia-based Dominion Energy completed construction on a similar project outside of Richmond.⁶⁸ In October 2022, Primergy Solar, a Nevada-based solar and storage company, entered into a sole battery supply agreement with CATL. When completed, the Gemini project will be one of the largest solar and storage projects in the United States.⁶⁹ More recently, in 2023, CATL entered into an agreement with HGP Storage, LLC (HGP), a Texas-based company specializing in advanced BESS solutions. The long-term partnership aims to produce up to 5 gigawatt hours (GWh) of energy projects to meet Texas’ energy demands.⁷⁰

These expansions present several potential risks to U.S. critical infrastructure, analogous to the concerns raised about Huawei and other Chinese technology companies. Cybersecurity researchers and white-hat hackers have identified numerous vulnerabilities inherent to EV charging and BESS-related projects.⁷¹ Studies document how deficient cybersecurity for internet-connected public charging hardware can compromise customer data and WiFi

64. Christoph Steitz and Ben Klayman, “EXCLUSIVE CATL planning EV battery production in United States, vetting sites,” *Reuters*, May 6, 2022. (<https://www.reuters.com/technology/exclusive-catl-planning-ev-battery-production-united-states-vetting-sites-2022-05-06>)

65. “CATL Launches Battery Swap Solution EVOGO Featuring Modular Battery Swapping,” *CATL*, January 18, 2022. (<https://www.catl.com/en/news/856.html>); Dan Mihalascu, “CATL Opens Its First Battery Swapping Stations in China,” *InsideEVs*, April 20, 2022. (<https://insideevs.com/news/580916/catl-opens-its-first-battery-swapping-stations-china>)

66. Nora Manthey, “Nio launches Battery-as-a-Service,” *electrive*, August 20, 2020. (<https://www.electrive.com/2020/08/20/nio-launches-battery-as-a-service-baas-with-catl>); Cristian Agatie, “CATL Launches Swappable Battery Service for Heavy-Duty Trucks, and It Makes Sense,” *autoevolution*, June 13, 2023. (<https://www.autoevolution.com/news/catl-launches-a-swappable-battery-service-for-heavy-duty-trucks-and-it-makes-sense-216481.html>)

67. “CATL Launches Battery Swap Solution EVOGO Featuring Modular Battery Swapping,” *CATL*, January 18, 2022. (<https://www.catl.com/en/news/856.html>)

68. “RES Builds Battery Energy Storage System for Virginia’s Dominion,” *T&D World*, August 8, 2022. (<https://www.tdworld.com/distributed-energy-resources/article/21248281/res-builds-battery-energy-storage-system-for-virginias-dominion>); Cameron Murray, “Duke Energy completes three Florida BESS projects totalling 34MW/58MWh,” *Energy Storage News*, March 11, 2022. (<https://www.energy-storage.news/duke-energy-completes-three-florida-bess-projects-totalling-34mw-58mwh>)

69. Gautamee Hazarika, “Primergy Solar Partners with CATL for \$1.2 Billion Solar+ Storage Project in the US,” *Mercom*, October 20, 2022. (<https://www.mercomindia.com/primergy-solar-catl-for-1-2-billion-solar-project-in-us>)

70. “CATL and HGP establish partnership to facilitate up to 5 GWh of Battery Energy Storage Systems,” *CATL*, March 27, 2023. (<https://www.catl.com/en/news/5997.html>)

71. Tik Root, “EV Charger Hacking Poses a ‘Catastrophic’ Risk,” *Wired*, July 5, 2023. (<https://www.wired.com/story/electric-vehicle-charging-station-hacks>); “Upstream’s 2022 Global Automotive Cybersecurity Report,” *Upstream*, 2022. (<https://upstream.auto/2022report>)

networks.⁷² Laboratory testing confirms that malign actors, including hardware charging manufacturers, could install malware on EVs either wirelessly or via charging cables, after which EV users could be tracked for months or even years after a single charge.⁷³ Malware deployed throughout charging networks could also be used to disable entire charging networks and potentially infect EV vehicles, according to research in the journal *Computers & Security*.⁷⁴ While it is challenging to ascertain the precise likelihood of such attacks, the potential exists for CATL, and consequently the Chinese government, to exploit vulnerabilities in U.S.-based charging networks. Given the potential for such attacks, it is imperative to acknowledge and address these risks.

BESS-related systems present their own set of vulnerabilities. Several suspected state-directed cyberattacks on clean energy systems have been reported in recent years, mostly attributed to Russian and Chinese cyber actors. That includes the 2022 ransomware attack on India's Tata Power, which U.S. cybersecurity firm Recorded Future attributed to China.⁷⁵ Sophisticated, sometimes undetectable activity on BESS systems by CATL and/or the Chinese government, could pose a similar threat to industrial control systems connected to American energy grids.⁷⁶ Worst-case scenarios are grid blackouts in industrialized areas and/or major financial hubs.

The Biden administration is already hunting for malicious Chinese operators inside American networks controlling power grids, communications systems, and water supplies that support U.S. military bases.⁷⁷ Special attention should be given to CATL's existing solar energy project at Camp Lejeune, where U.S. Marines are training to support potential Taiwan contingencies.⁷⁸

Research indicates that the expedited shift to wind and solar power could be facilitated by EVs. Through bidirectional charging, power can be returned to the grid during periods when renewables falter.⁷⁹ Given CATL's prominence in the EV battery market, this introduces grave concerns about the broader stability and security of our energy grids.

72. Catherine Stupp, "EV Charging Networks Prepare for Cyberattacks," *The Wall Street Journal*, July 14, 2023. (<https://www.wsj.com/articles/ev-charging-networks-prepare-for-cyberattacks-7bf488d7>); Safa Hamdare, Omprakash Kaiwartya, Mohammad Aljaidi, Manish Jugran, Yue Cao, Sushil Kumar, Mufti Mahmud, David Brown, and Jaime Lloret, "Cybersecurity Risk Analysis of Electric Vehicles Charging Stations," *U.S. National Library of Medicine*, July 27, 2023. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10422437>)

73. Jay Johnson, Timothy Berg, Benjamin Anderson, and Brian Wright, "Review of Electric Vehicle Charger Cybersecurity Vulnerabilities, Potential Impacts, and Defenses," *Sandia National Laboratories*, May 26, 2022. (<https://www.mdpi.com/1996-1073/15/11/3931>)

74. Tony Nasr, Sadegh Torabi, Elias Bou-Harb, Claude Fachkha, and Chadi Assi, "Power jacking your station: In-depth security analysis of electric vehicle charging station management systems," *Computers & Security*, January 2022. (<https://www.sciencedirect.com/science/article/abs/pii/S0167404821003357#preview-section-snippets>)

75. Jonathan Greig, "Indian energy company Tata Power announces cyberattack affecting IT infrastructure," *The Record*, October 13, 2022. (<https://therecord.media/indian-energy-company-tata-power-announces-cyberattack-affecting-it-infrastructure>)

76. Alex Wright, "Battery Energy Storage Systems Can Make Companies More Sustainable — and More Vulnerable to Hackers," *Risk & Insurance*, May 29, 2023. (<https://riskandinsurance.com/battery-energy-storage-systems-can-make-companies-more-sustainable-and-more-vulnerable-to-hackers>)

77. David E. Sanger and Julian E. Barnes, "U.S. Hunts Chinese Malware That Could Disrupt American Military Operations," *The New York Times*, July 29, 2023. (<https://www.nytimes.com/2023/07/29/us/politics/china-malware-us-military-bases-taiwan.html>)

78. Konstantin Toropin, "Marines Look to Get Closer to Special Operations Teams While Practicing Extractions," *Military.com*, April 25, 2023. (<https://www.military.com/daily-news/2023/04/25/marines-look-get-closer-special-operations-teams-while-practicing-extractions.html>)

79. Leda Zimmerman, "Reversing the charge," *MIT News*, November 28, 2022. (<https://news.mit.edu/2022/reversing-charge-electric-vehicles-1128>); Charles Q. Choi, "EVs Are Essential Grid-Scale Storage," *IEEE Spectrum*, January 20, 2023. (<https://spectrum.ieee.org/electric-vehicle-grid-storage#toggle-gdpr>); Chengjian Xu, Paul Behrens, Paul Gasper, Kandler Smith, Mingming Hu, Arnold Tukker, and Bernhard Steubing, "Electric vehicle batteries alone could satisfy short-term grid storage demand by as early as 2030," *Nature Communications*, January 17, 2023. (<https://www.nature.com/articles/s41467-022-35393-0>)

CATL's involvement in essential U.S. energy and transportation sectors could thus create the following potential risks should it ever be used to further CCP strategic goals:

- **Data Security Risks:** Charging stations and battery management systems collect vast amounts of data, to include user behavior and preferences, vehicle information, and energy consumption patterns. CATL's control over this data might enable unauthorized access and potential misuse aligned with the CCP's strategic and security interests.
- **Critical Infrastructure Vulnerabilities:** CATL's integration into the U.S. electrical grid, through its collaboration with Dominion Energy, HGP, and Primergy — along with increasing U.S. dependence on its charging infrastructure — creates potential vulnerabilities. These could be exploited to disrupt essential services, similar to the way Huawei's deep integration into global telecom networks raised concerns about surveillance and disruption.
- **Influence over Industry Standards and Regulations:** By shaping the landscape of charging and battery management technologies, CATL could exert leverage over the development of industry standards and regulations. This could influence these sectors in ways that mirror the CCP's broader strategic goals, possibly hindering U.S. technological innovation and competitiveness. China's efforts to set 5G standards serves as a precedent; Beijing positioned Huawei at the forefront of defining and deploying the next generation of global telecommunications infrastructure in a bid to dominate the market.
- **Supply Chain Risks:** CATL's dominance in the battery supply chain, coupled with its growing influence over charging infrastructure, provides China with potential leverage to withhold industry-specific inputs or shipments from U.S. operators, much like when China hoarded personal protective equipment during the pandemic. Disruption or manipulation of battery-related inputs could have effects beyond the broader automotive and energy sectors.

CONCLUSION AND POLICY RECOMMENDATIONS

The CCP clearly intends to leverage Chinese commercial entities to advance China's broader grand strategy. The ties between CATL and the CCP, coupled with the mandates of Chinese law, offer Beijing the means to harness the company's global footprint for purposes that transcend commercial objectives, potentially advancing its military and great-power ambitions. There is scant evidence Beijing is actively leveraging CATL to advance its national security goals in the same manner it has with Huawei, for example. However, it is imperative to establish forward-thinking strategies immediately to safeguard U.S. national security interests in the EV industry.

Current regulations are clearly insufficient to deal with the risks that CATL poses to the EV charging industry. Although the U.S. Federal Highway Administration requires states to implement "appropriate" cyber solutions for charging networks, the federal government allows states to draft their own strategies. The result is a patchwork of approaches with limited oversight and no cohesive national framework. Moreover, these rules do not apply to networks or BESS funded outside of federal sources like the Bipartisan Infrastructure Law, such as those paid for entirely by CATL, other companies, or even state or local governments.⁸⁰ Nor do they apply to the 100,000

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⁸⁰. National Electric Vehicle Infrastructure Standards and Requirements, U.S. Federal Highway Administration, 88 Federal Register 12724, February 28, 2023. (<https://www.federalregister.gov/documents/2023/02/28/2023-03500/national-electric-vehicle-infrastructure-standards-and-requirements>)

charging units already in use nationwide. Additionally, while these two laws include “Buy America” provisions to ensure domestic sourcing of critical inputs, policymakers often waive them to stimulate mass EV adoption.⁸¹

Given the nexus between CATL, the CCP, their mutual ambitions in the EV domain, and the global automotive supply chain, the following recommendations should be considered:

1. Comprehensive Oversight and Regulation: Congress, the executive branch, and, where appropriate, state governments, should consider:

- Authorizing a comprehensive intelligence assessment of CATL along with the broader Chinese EV industry, to include an assessment of the degree to which these companies overlap with the Chinese Military-Industrial Companies List, as well as an assessment of U.S. charging network and energy storage system vulnerabilities, and China’s ability exploit them.
- Instituting comprehensive regulatory measures and stringent oversight protocols, focused on monitoring technology transfer, investment, and adherence to global industry standards, and scrutinizing the risks posed by Chinese EV and electrical grid investments in the United States.
- Conducting a careful review of any potential technology transfers that might benefit the CCP’s strategic objectives and protecting proprietary and sensitive U.S. technologies.
- Establishing localized oversight mechanisms at the state level tailored to regional economic and infrastructural contexts.
- Empowering agencies like the Committee on Foreign Investment in the United States (CFIUS) to more thoroughly review and potentially limit or condition CATL’s investments in critical sectors.
- Establishing stricter licensing requirements for Chinese companies operating in the U.S. energy sector and mandating stringent security reviews before granting operational licenses.
- Imposing sanctions or penalties on CATL in the event of confirmed violations to deter further activities that threaten U.S. national security.

2. Enhanced Transparency, Collaboration, and Monitoring: Governments, industry stakeholders, and civil society should engage in open dialogue, regularly share intelligence on potential CATL-related threats, and establish monitoring mechanisms to ensure consistent alignment on risk assessment and mitigation. This should include:

- Establishing a shared understanding of CATL’s ties to the CPP and their potential implications. The development of collaborative international platforms could help align global responses, ensuring that strategies to manage CATL’s influence are comprehensive.
- Mandating federal reporting requirements for U.S. companies entering joint ventures or other collaborations with CATL or similar entities.
- Directing agencies responsible for counterintelligence and national security to monitor and report on CATL’s activities in the United States, ensuring the detection of efforts to influence or co-opt U.S. businesses or technologies.
- Launching educational campaigns for U.S. businesses and state governments, highlighting the risks associated with CATL or other Chinese-affiliated entities.
- Authorizing and appropriating additional federal research funding for EV cybersecurity research.

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81. Ibid.

3. Stronger Data Protection and Privacy: To adequately protect against the misuse of sensitive information and to underscore the importance of privacy in the context of foreign investments and operations, Congress and the executive branch should consider:

- Directing regulatory bodies to issue guidelines on data handling and storage for Chinese companies operating in the United States, ensuring that CATL or similar entities do not exploit potential loopholes. This could include requiring CATL to store and process data generated in the United States within the country, limiting foreign access.
- Instituting mandatory audits of CATL's data handling and storage by approved third-party firms.
- Scrutinizing and potentially limiting CATL's joint ventures and partnerships with U.S. firms, especially in sectors deemed critical to national security.

CATL's growth in the U.S. charging and power sectors carries layered for national defense, economic health, and tech dominance. The parallels to Huawei are not difficult to see. It is therefore imperative for policymakers to safeguard American critical infrastructure and national interests, even if doing so temporarily impedes some near-term renewable energy goals.

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