

Policy Brief: China's Infrastructure Ambitions

*The Transit Infrastructure Vehicle Security Act
a provision of the
National Defense Authorization Act*



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Introduction

Congress is currently preparing a reauthorization of the National Defense Authorization Act (“NDAA”), a critical piece of America’s national security framework. Contained within the larger NDAA are a number of more specific provisions and narrowly tailored policies. Among these stands one, which utilizes language drawn from a bill entitled the Transit Infrastructure Vehicle Security Act (“TIVSA” or “the Act”) introduced earlier in the year, and purports to protect domestic cities, infrastructure, markets, and national security. The Act serves to block aggressive foreign powers from entering and winning bids in U.S. infrastructure competitions for urban transportation networks like bus and rail.

By blocking certain foreign state-owned corporations from federal taxpayer dollars in contract and subcontract bidding on domestic infrastructure projects, cities updating their subways, metros, and busses may not have to worry about suspicious low-bidding government corporations. The Act does not explicitly name any corporation or country, but applies to non-market economies and those subject to monitoring. It serves as a broad economic and national security

measure that would block any state-owned, controlled, or subsidized corporations around the world in countries:

(i) identified as a non-market economy country (as defined in section 771(18) of the Tariff Act of 1930 (19 U.S.C. 1677(18))) as of the date of enactment of this subsection;

(ii) identified by the United States Trade Representative in the most recent report required by section 182 of the Trade Act of 1974 (19 U.S.C. 2242) as a priority foreign country under subsection (a)(2) of that section; and

(iii) subject to monitoring by the Trade Representative under section 306 of the Trade Act of 1974 (19 U.S.C. 2416).

Presently, there are concerns that China is acting to fulfill its “Made in China 2025” plan, which seeks to establish Chinese ownership and control in global industries.¹ When combined with the “New Silk Road” China is pursuing through its Belt and Road Action Plan,² the nation’s geopolitical and

¹ McBride, James. “Is ‘Made in China 2025’ a Threat to Global Trade?” Council on Foreign Relations, May 13, 2019. <https://www.cfr.org/backgrounder/made-china-2025-threat-global-trade>.

² Bruce-Lockhart, Anna. “China’s \$900 Billion New Silk Road. What You Need to Know.” World Economic Forum, June 26, 2017. <https://www.weforum.org/agenda/2017/06/china-new-silk-road-explainer/>.

infrastructure-control ambitions³ are difficult to overlook. Having already established a foothold in Europe⁴ and the U.S., and a virtually absolute monopoly in Australia, the aggressive sub-competitive contract bidding is particularly significant.

The main player in the rail sector is the China Railway Rolling Stock Corporation Ltd (“CRRC”), which has already won bids in Boston, Chicago, Los Angeles, and Philadelphia through hyper-competitive bids.⁵ In some cases underbidding established western competitors from 20 to 50 percent,^{6,7} CRRC and other government-backed corporations have little to no cost or profit incentives, meaning virtually no bottom line. This facilitates intentionally bidding at unprofitable levels in exchange for long-term access into other countries, industries, and markets.

China’s geopolitical and infrastructure-control ambitions are difficult to overlook

TIVSA is a powerful step toward blocking Chinese interference in America. While it is limited in scope to rail rolling stock for public transit, the Act would protect federal taxpayer resources, national security, and economic opportunities for Americans.

Legislative Status

The bipartisan NDAA is likely to pass both chambers of Congress and be signed by the president. The remaining question is what form TIVSA will take within that legislation. TIVSA itself is a bipartisan effort, but some disagreement over the strength and extent of that language is unsettled. Versions exist in both the U.S. House of Representatives⁸ and the U.S. Senate⁹, which are substantially similar. One difference appears to be whether busses are covered by the legislation or only rail rolling stock. Currently in conference¹⁰ to reconcile the texts, some version of TIVSA is expected to emerge with bipartisan support to at least cover rail infrastructure. The White House has expressed support for the Act, with

³ “The World, Built by China.” The New York Times. The New York Times, November 18, 2018. <https://www.nytimes.com/interactive/2018/11/18/world/asia/world-built-by-china.html>.

⁴ Weiss, Richard. “German Locomotive Takeover Gives China Cheap Route Into Europe.” Bloomberg.com, August 28, 2019. <https://www.bloomberg.com/news/articles/2019-08-28/german-locomotive-takeover-gives-china-cheap-route-into-europe>.

⁵ Balsamo, Michael. “U.S. Senate’s Top Democrat Calls for Probe of CTA’s Chinese Rail Car Supplier.” chicagotribune.com. Chicago Tribune, May 20, 2019. <https://www.chicagotribune.com/business/ct-biz-crrc-cta-china-rail-car-investigation-20190520-story.html>.

⁶ McCartney, Robert. “Senators to Metro: No More Federal Funding If You Buy Chinese Rail Cars.” The Washington Post. WP Company, April 13, 2019. https://www.washingtonpost.com/local/trafficandcommuting/senators-to-metro-no-more-federal-funding-if-you-buy-chinese-rail-cars/2019/04/13/99d22b7a-5cab-11e9-9625-01d48d50ef75_story.html.

⁷ Olson, Erik. “Viewpoint: Chinese Rail Cars Would Offer More Risk than Reward for WMATA.” bizjournals.com. Washington Business Journal, December 10, 2018. <https://www.bizjournals.com/washington/news/2018/12/10/viewpoint-chinese-rail-cars-would-offer-more-risk.html>.

⁸ H.R. 2739

⁹ S. 846

¹⁰ “NDAA Conferees to Meet.” House Armed Services Committee - Democrats, September 18, 2019. <https://armedservices.house.gov/2019/9/ndaa-conferees-to-meet>.

emphasis that it block foreign state-owned bids on all rolling stock, not limited to rail.¹¹

The Senate version was introduced by Senator John Cornyn (R-TX) and has 47 cosponsors, with 31 Republicans and 16 Democrats.¹² The House version was introduced by Representative Harley Rouda (D-CA) and has garnered 53 cosponsors, including 35 Republicans and 18 Democrats.¹³

Despite bipartisanship behind the Act, there are considerable, and mounting, public relations and lobbying efforts on both sides of the issue.

With four major U.S. cities already awarding bids to CRRC, Congress is expected to act before New York City or Washington, D.C. join that number.

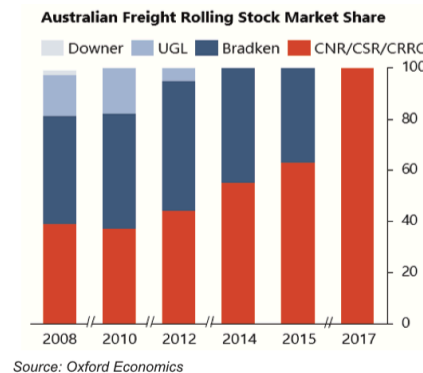
Economic Effects

CRRC lobbying efforts to counter the TIVSA language focus on short-term impacts, such as job creation at the local level, but these jobs are created by local communities and will be generated no matter who wins the contract. Jobs won by CRRC with low-ball bids are simply jobs taken away from other

market-based suppliers in countries that are not adversaries of the U.S.

Short-term impacts aside, the long-term potential for serious economic interruptions raises significant concerns. Without TIVSA, CRRC and others may gain valuable market-disrupting footholds in the U.S.

Possibly the most salient example of the risks at hand is Australia, where China aggressively entered the freight railcar industry. It utilized below-market bid pricing to undercut market-based competitors, and effectively drove them out, destroying the domestic industry, leaving only a Chinese monopoly to supply and manage the Australian freight sector.¹⁴



“[Oxford Economics] findings illustrated a pattern of anti-competitive behavior with respect to pricing freight railcars, which ultimately led to the collapse of Australia’s

¹¹ Vought, Russell. Letter to the Armed Services Committee from the Executive Office of the President of the United States. PDF File. September 4, 2019. <https://www.whitehouse.gov/wp-content/uploads/2019/09/Letter-to-the-Chairs-and-Ranking-Members-of-the-House-and-Senate-Armed-Services-Committees.pdf>.

¹² Cornyn, John. “Cosponsors - S.846 - 116th Congress (2019-2020): Transit Infrastructure Vehicle Security Act.” Congress.gov, June 4, 2019. <https://www.congress.gov/bill/116th-congress/senate-bill/846/cosponsors>.

¹³ Rouda, Harley. “Cosponsors - H.R.2739 - 116th Congress (2019-2020): Transit Infrastructure Vehicle Security Act.” Congress.gov, May 16, 2019. <https://www.congress.gov/bill/116th-congress/house-bill/2739/cosponsors>.

¹⁴ Adams, John. “National Security Vulnerabilities of the U.S. Freight Rail Infrastructure and Manufacturing Sector – Threats and Mitigation.” October, 22, 2018. PDF File. https://go.americanmanufacturing.org/page/-/Adams_Freight_Rail.pdf

freight railcar manufacturing industry.”¹⁵ The same study concluded that approximately 65,000 jobs would be threatened in the U.S. freight manufacturing market if CRRC acted the same way here.¹⁶

Chinese sources offer the opposite perspective, that CRRC presence increases competition and is good for the domestic industry.¹⁷ While it would serve as competition, CRRC and other state-owned corporations do not play by the same rules.

Healthy competition depends on the nature of who is competing and what they offer to the mix. CRRC lacks profit incentive and capital risk, which establish a level playing field in a fair and open competitive marketplace. Sub-competitive business pricing tends to displace competition and can lead to less innovation and improvement. While disruptive innovation leads to safer and cheaper products, market distortion threatens the dynamic competition needed for innovation.

Direct jobs are also a critical aspect of the TIVSA debate. The award of a contract to CRRC mainly transfers jobs already promised to be “created” in the development and deployment of rail rolling stock. Moreover, it directs business away from companies that have a proven long-term positive impact on U.S. economic development that hail from

countries that support the U.S. and adhere to principles of free-market competition.

Furthermore, Chinese access to U.S. markets is largely unimpeded, while access to China comes at the cost of intellectual property infringement and technology transfers. This inequity disadvantages America and rewards China for its disruptive trade practices.

If TIVSA is adopted, the contracts CRRC has already won and jobs already filled to facilitate them will not go away, because the Act does not cancel existing contracts.

Moreover, new jobs CRRC promises turn out to be jobs already promised. Simply by opening the bidding process, the cities guarantee the jobs will exist. The question is simply which company wins the bids and provide those jobs. In fact, CRRC may actually stand to diminish jobs in the long-run.

An Oxford Economics study¹⁸ found that for every \$1 billion awarded to a state-owned Chinese business, the U.S. stands to lose 3,250 to 5,100 jobs. Framed another way, for every job created through Chinese transit projects, the U.S. could lose 3.5 to 5.4 jobs.

More directly, TIVSA seeks to preempt unfair competition from driving out the many

¹⁵ The Impact of Foreign State-Owned Enterprises on the U.S. Public Transit and Freight Rail Sectors. PDF File. May 16, 2019. <https://transportation.house.gov/imo/media/doc/Testimony%20-%20Galloway.pdf>.

¹⁶ *Ibid.*

¹⁷ Jiahua, Wang. “CRRC Locomotives Exported to Australia: Entering a New Stage of High-Quality BRI Development.” CRRC locomotives exported to Australia: entering a new stage of high-quality BRI development - People’s Daily Online, May 5, 2019. <http://en.people.cn/n3/2019/0505/c90000-9575045.html>.

¹⁸ Galloway, Hamilton. “Assessing How Foreign State-Owned Enterprises’ U.S.-Based Operations Disrupt U.S. Jobs.” Oxford Economics, June 2019. <https://www.oxfordeconomics.com/recent-releases/assessing-how-foreign-state-owned-enterprises-us-based-operations-disrupt-us-job>.

market-based competitors that have long invested, employed, and manufactured here in an open market, and placing business in the hands of a U.S. adversary.

The Australia freight example serves as a cautionary tale should CRRC use its foothold for cross-industry expansion. Without TIVSA, both western market participants and the U.S. manufacturing sector would likely face a challenge from a well-established Chinese presence in the coming decade.

Local bases for foreign state-owned corporations may also threaten fledgling or growing manufacturing capacity in the component and subcomponent markets for rail.¹⁹ Growth, expansion, and market dominance are clear objectives in CRRC's mission.

A since-deleted tweet²⁰ from CRRC openly advertises its ambition, "...So far, 83% of all rail products in the world are operated by #CRRC or are CRRC ones. How long will it take for us conquering the remaining 17%?"

Whether interpreting this tweet as a threat or zealous corporate marketing, the economic implication is clear. China does not plan to stop at a few transit bids. They are pursuing market power and industry superiority.

When it comes to economics, costs are central. CRRC bidding at half the cost of other competitors seems like a bargain-basement opportunity. But the long-run cost from diminished competition and accompanying lack of incentive for innovation harms riders. This, combined with the potential disruption and displacement of domestic manufacturing, makes for a costly impact.

Public Safety & National Security

Beyond economic security, other national security implications range from concerns over espionage to remote manipulation of vehicles and systems to outright sabotage. Modern railcars feature highly integrated systems including electronic components from Wi-Fi to Positive Train Control, with



¹⁹ Jewell, John. *Passenger Rail & Transit Rail Manufacturing in the U.S.* PDF File. January 2015. <http://www.bluegreenalliance.org/wp-content/uploads/2015/01/PassengerRailTransitRailManufacturing.pdf>.

²⁰ @CRRC_global, "Following CRRC's entry to Jamaica, our products are now offered to 104 countries and regions. So far, 83% of all rail products in the world are operated by #CRRC or are CRRC ones. How long will it take for us conquering the remaining 17%?" Twitter, January 11, 2018. https://twitter.com/CRRC_global/status/951476296860819456. [Tweet Deleted].

vulnerabilities for both individuals and national economic and government data.

The primary concern TIVSA seeks to address is rail rolling stock, or passenger trains and subway cars. With these contracts, China could have eyes and ears inside New York City, Washington, D.C., and major urban centers across the country.

While cities and localities vet the bids, it is federal tax dollars and national security at stake, necessitating congressional action.

Modern railcars hold thousands of different electronic components and subcomponents comprising myriad integrated systems.^{21,22,23} From simple lighting and digital displays to security cameras and Wi-Fi as well as safety and control components, rail is as modern and digitally connected as any transit method.

It would be virtually impossible – or prohibitively expensive – to ensure that the electronic aspects of every car supplied by CRRC is devoid of latent surveillance equipment, backdoors for the Chinese government, or susceptibility to remote controlling or hacking by China or any other adversarial actor.

In the past three years, major transit authorities have been victim of ransomware attacks including San Francisco, Sacramento, and Colorado.²⁴ Along with concerns directly related to transportation and logistics, the U.S. government has already taken actions to curb Chinese spying and malware in cell phones and telecom products from Huawei and ZTE.²⁵



²¹ “Electrical Components for the Railway Industry.” siemens.com Global Website. <https://new.siemens.com/global/en/markets/transportation-logistics/rail-solutions/electrical-components-for-the-railway-industry.html>.

²² Phoenix Contact. Rail industry: Connection technology and electronic components. PDF File. https://www.phoenixcontact.com/assets/downloads_ed/global/web_dwl_promotion/52003206_EN_HQ_Bahnindustrie_LoRes.pdf.

²³ Knorr-Bremse Group. *Electromechanical and Electronic Components*. PDF File. 2018. https://www.knorr-bremse.com/remote/media/documents/railvehicles/product_broschures/2018_2/product/power_electrics/Electromechanical_and_Electronic_Components_P-1275_EN.pdf.

²⁴ Chuang, Tamara. “Ransomware Strikes Colorado's Transportation Department for a Second Time.” *Governing*. Tribune News Service, March 2, 2018. <https://www.governing.com/topics/mgmt/tns-cdot-ransomware.html>.

²⁵ Villas-Boas, Antonio. “Huawei Has Been Blacklisted by the US Government. Here's What Happened to the Last Chinese Tech Company That Got the 'Death Penalty.'” *Business Insider*, May 20, 2019. <https://www.businessinsider.com/huawei-us-ban-similar-to-zte-us-ban-2019-5>.



CRRC claims that it turns over control of all technologies and electronics in its railcars to purchasers.²⁶ Even if strictly true, this does not eliminate risks of monitoring activities or potential threats from the Chinese government or others.

Adding validity to this concern is the increasing surveillance state²⁷ within China and the top U.S. spy chiefs raising concern²⁸ over embedded spy technology. Repeated military and government data breaches²⁹ give policymakers reason to take even the whiff of a threat seriously. A report from the Office of

the Director of National Intelligence indicates that Russia and China already have the capability to shut down U.S. infrastructure,³⁰ including energy and power companies. With China directly interacting with transit infrastructure, this harmful potential must be taken seriously.

Some experts downplay potential risks.³¹ Claiming there are minimal or even no susceptible components in these cars, or that the Chinese would not take the risk of being discovered, these experts suggest a national security risk is not imminent. While this perspective is worth some consideration, it also overlooks China's history as a bad actor and a global adversary of U.S. interests. CRRC could conceal or embed numerous types of technology and disclaim responsibility if discovered or pass along access to other actors. Moreover, it could be months or years before they take any action, allowing suspicion to settle.

With four major U.S. cities already awarding bids to CRRC, Congress is expected to act swiftly before New York City or Washington, D.C. join that number.

²⁶ Swanson, Ana. "Fearing 'Spy Trains,' Congress May Ban a Chinese Maker of Subway Cars." The New York Times, September 14, 2019. <https://www.nytimes.com/2019/09/14/business/chinese-train-national-security.html>.

²⁷ Langfitt, Frank. "In China, The Government Isn't The Only Spy Game In Town." WKNO FM, January 30, 2013. <https://www.wkno.com/post/china-government-isnt-only-spy-game-town>.

²⁸ Farrell, James. "CIA, FBI and NSA All Say Huawei Phones Could Be Chinese Spying Devices." SiliconANGLE, February 15, 2018. <https://siliconangle.com/2018/02/14/cia-fbi-nsa-huawei-phones-chinese-spying-devices/>.

²⁹ Mills, Elinor. "Bad Flash Drive Caused Worst U.S. Military Breach." CNET, August 25, 2010. <https://www.cnet.com/news/bad-flash-drive-caused-worst-u-s-military-breach/>.

³⁰ Fazzini, Kate. "China and Russia Could Disrupt US Energy Infrastructure, Intelligence Report Warns on Heels of Huawei Indictments." CNBC. CNBC, January 29, 2019. <https://www.cnbc.com/2019/01/29/china-russia-could-disrupt-us-infrastructure-with-cyber-attacks-odni.html>.

³¹ Schneier, Bruce. "The Real Threat from China Isn't 'Spy Trains.'" CNN, September 21, 2019. <https://www.cnn.com/2019/09/21/opinions/chinese-spy-trains-are-not-a-credible-threat-schneier/index.html>.

The economic and national security data flowing through New York City and Washington, D.C. cannot be overstated. The potential cost to personal safety and national security is virtually immeasurable.

Legislative Impact

The TIVSA prohibition only applies to federal tax dollars. It is still possible that due to the market-distorting bids, sometimes millions of dollars lower than other competitors, localities could afford the full bid without the help of federal transportation dollars. This was the case in Boston, where no federal aid was used. To curb this, the Act includes a one-year penalty for purchasing from foreign state-owned corporations, even when using state and local funds. This would allow localities to continue to award bids to CRRC and others with their own state and local dollars, but only if localities were willing to forego critical federal infrastructure assistance.³²


The passage of TIVSA is likely to be viewed as a component of the ongoing trade war with China. This could elicit retaliatory actions. Those actions may be costly, but would be balanced against long-term costs of CRRC winning contracts.

There would be no disruption to the bids CRRC already won in four U.S. cities, but the Act would take immediate effect for all ongoing bids. This would prevent CRRC or other state-owned corporations meeting

TIVSA language criteria from gaining access to markets and industries in the U.S.

Conclusion

This legislation is in its final stage, potentially becoming law in a matter of weeks. If it is passed, not only will Department of Defense programs be reauthorized, but U.S. taxpayer dollars will be withheld from economically hostile powers and state-owned foreign corporations. The Transit Infrastructure Vehicle Security Act language does more than protect taxpayers, it blocks adversarial powers from accessing critical infrastructure, strengthens national security efforts, and protects domestic and ally economic activity.

This bipartisan legislation is a first defense against 21st Century cyber security threats and a safeguard for economic vitality, even while critics may note that it restricts competition. Many of the fears and risks are uncertain, but the cost of those threats, if materialized, could be devastating. It is the task of Congress to evaluate those costs. 

The Alliance for Innovation and Infrastructure (Aii)
consists of two non-profit organizations, The National Infrastructure Safety Foundation (NISF) a 501(c)(4), and the Public Institute for Facility Safety (PIFS) a 501(c)(3). The Foundation and the Institute focus on non-partisan policy issues and are governed by separate volunteer boards working in conjunction with the Alliance's own volunteer Advisory Council.

³² "Full Committee Hearing on: 'The Impacts of State-Owned Enterprises on Public Transit and Freight Rail Sectors': The House Committee on Transportation and Infrastructure." The House Committee on Transportation and Infrastructure, May 16, 2019. <https://transportation.house.gov/committee-activity/hearings/full-committee-hearing-on-the-impacts-of-state-owned-enterprises-on-public-transit-and-freight-rail-sectors>.