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THE IMPACTS OF STATE-OWNED ENTERPRISES ON PUBLIC TRANSIT AND FREIGHT RAIL SECTORS

(116–16)

HEARING

BEFORE THE

COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE HOUSE OF REPRESENTATIVES

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

MAY 16, 2019

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Committee on Transportation and Infrastructure
U.S. House of Representatives
Washington, DC 20515

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MAY 14, 2019

SUMMARY OF SUBJECT MATTER

TO: Members, Committee on Transportation and Infrastructure
FROM: Staff, Committee on Transportation and Infrastructure
RE: Full Committee Hearing on "The Impacts of State-Owned Enterprises on Public Transit and Freight Rail Sectors"

PURPOSE

The Committee on Transportation and Infrastructure will meet on Thursday, May 16, 2019, at 10 a.m. in 2167 Rayburn House Office Building, to receive testimony on "The Impacts of State-Owned Enterprises on Public Transit and Freight Rail Sectors." At the hearing, Members will receive testimony about recent entrants to the rolling stock market, current Federal policies, and the impacts on American workers, American taxpayers and transit riders. The Committee will hear from representatives of the Alliance for American Manufacturing, Guardian Six Consulting, Oxford Economics, McCrary Institute for Cyber and Critical Infrastructure Security, BYD, and Los Angeles County Metropolitan Transportation Authority.

BACKGROUND

Capitalist markets thrive on fair and open competition to promote efficiency, reduce costs, and improve innovation. Foreign state-owned enterprises (SOEs) can undermine otherwise functioning free markets because they benefit from state subsidies and preferential treatment and use those benefits to undercut the competition.

In China, a non-market economy, the central government owns 51,000 SOEs, valued at $29.2 trillion USD and that employ approximately 20.2 million people.[1] These SOEs benefit from Chinese SOE loan rates that averaged approximately 3.8 percent in 2012, while private companies in China paid approximately 6.8 percent for their loans.[2] In addition, Chinese SOE return on investment was less than half that of private companies in China. The ability to reduce their profit margins enables SOEs to undercut foreign competition.[3]

CRRC STATE OWNERSHIP AND SUBSIDIES

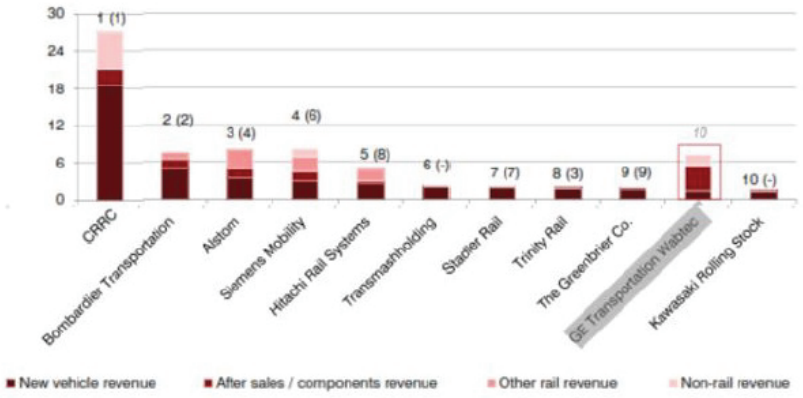
The state-owned China Railway Rolling Stock Corporation, known as CRRC, was formed in 2015 by the merger of China CNR and CSR, creating a monopoly within China that employs 176,000 people. It is by far the largest train manufacturer in the world. As the rail construction boom across China begins to slow down, the Chinese government facilitated the merger to boost their international market share.

[1] Korin Kane. *Size and Sectoral Distribution of State-Owned Enterprises: Main Findings of the Latest Review*. OECD. 28 September 2017. https://www.oecd.org/industry/ind/Item_6_3_OECD_Korin_Kane.pdf

[2] Can a Tiger Change Its Stripes? Reform of Chinese State owned-enterprises in the Penumbra State. Page 14. Working Paper 25475. National Bureau of Economic research. http://www.nber.org/papers/w25475

[3] *Ibid*. Page 17.

Top 10 rolling stock manufacturers ranked by estimated new rolling stock revenue 2017 [EUR billion]



As a SOE, CRRC has preferential access to cheap credit from Chinese state banks and remains heavily subsidized. In its listing announcement on the Shanghai Stock Exchange, CRRC noted that in 2014 and 2015, it received $194 million (RMB 1.3 billion) and $268.7 million (RMB 1.8 billion) in government subsidies, respectively. The company stated that were its government subsidies reduced, it would have a "definite negative impact on the company's business results and financial position."[4] This access to capital and heavy subsidies allows CRRC to bid below market rates and undercut the competition.

CRRC in the Public Transit Sector

Since 2015, CRRC won four consecutive transit rail rolling stock contracts with public transit agencies in the United States. These contracts were awarded to CRRC, because its bids were substantially lower than competitor bids. A summary of each contract follows:

Boston: In 2015, Massachusetts Bay Transportation Authority (MBTA) awarded CNR, now part of CRRC, a contract for 342 heavy rail cars with a bid of $567 million. This was significantly lower than any of the other bids, with the closest coming from Hyundai Rotem at $720.6 million, Kawasaki at $904.9 million, and Bombardier at $1.08 billion. Above the rolling stock bid, CRRC built a new $60 million assembly plant in Springfield, MA, where the rail cars will be assembled.[5] The original 342 rail car order amounts to $1.66 million per rail car. CRRC MA President Xiwei Lu said the company offered such a low bid, in part because it viewed the MBTA project as an entry point to the U.S. market: "We are committed to be here. I want to enter this market. So I don't calculate all the investment in one project."[6] In 2016, MTBA agreed to a no bid contract for $280 million for an additional 130 rail cars from CRRC.[7] This second order, for the same cars, rose to $2.15 million per rail car, reflecting a 30 percent price increase over the initial order. Federal funding was not used to purchase the heavy rail cars because the RFP mandated that the final assembly take place in Massachusetts.[8]

Chicago: In 2016, Chicago Transit Authority (CTA) awarded a $1.3 billion contract to CRRC for 846 heavy rail cars if all options are exercised. This amounts to $1.53

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[4] Michelle Ker. *China's High Speed Rail Diplomacy*. U.S.-China Economic and Security Review Commission. 21 February 2017. https://www.uscc.gov/sites/default/files/Research/China%27s%20High%20Speed%20Rail%20Diplomacy.pdf.

[5] Matt Murphy. *Chinese Rail Company Won MBTA Contract over Objections of Other Bidders*. Mass Live. 23 October 2014. www.masslive.com/news/index.ssf/2014/10/chinese__rail__company__wins__out.html.

[6] *Id*.

[7] Matt Stout. *MBTA's No-Bid Plan Barrels Along to Replace Red, Orange Line Cars*. The Boston Herald. 13 December 2016. https://www.bostonherald.com/2016/12/13/mbtas-no-bid-plan-barrels-along-to-replace-red-orange-line-cars.

[8] Paul Tuthill. Gov. Baker Hails First Springfield-Built Subway Cars For The MBTA. WAMC. Dec 18, 2018 https://www.wamc.org/post/gov-baker-hails-first-springfield-built-subway-cars-mbta.

million per rail car.[9] Bombardier, which supplied 714 rail cars to CTA between 2009 and 2015, bid $226 million higher. Above the rolling stock bid, CRRC built a new $100 million assembly plant in Chicago.[10] Federal funding was used to purchase the heavy rail cars.[11]

Los Angeles: In 2017, Los Angeles Metropolitan Transportation Authority (LA METRO) awarded a $647 million bid to CRRC for 282 heavy rail cars if all options are exercised. The price per rail car is $2.29 million.[12] The rail cars will be assembled in the Springfield, MA plant. LA METRO did not release competitor bid information. Federal funding was used to purchase the heavy rail cars.[13]

Philadelphia: In 2017, Southeastern Pennsylvania Transportation Authority (SEPTA) awarded a $137.5 million contract to CRRC for 45 commuter rail cars, plus an option for 10 additional cars. Bombardier bid $171.5 million and Hyundai Rotem, which has a manufacturing plant in South Philadelphia, bid $184.7 million. The price per rail car is $3 million. Federal funding was used to purchase the commuter rail cars.[14]

Given that the other rolling stock competitors already have final assembly plants in the U.S., CRRC is merely shifting jobs from the competition to their new plants using their state-owned enterprise advantage. This is evident from the recent closure of the Hyundai Rotem plant in Philadelphia.[15]

CRRC IN FREIGHT RAIL SECTOR

The United States freight rail sector could be affected by CRRC. Currently, a number of U.S.-based companies manufacture the majority of the freight rail cars that haul shipments acrossthe United States.[16] However, the experience of CRRC entering, and then overtaking, the Australianfreight rail industry once dominated by domestic companies is illustrative of what could occur in the U.S.[17]

As recently as 2004, almost all of Australia's rail vehicles were designed and produced by Australian-owned companies. However, as CRRC entered this market, the Australian manufacturers' share of the domestic freight rail market dropped. In 2008, CRRC and its predecessors held a less than 40 percent market share of the Australian freight car market, while the rest of the market was shared by Downer, UGL, and Bradken of Australia.[18] By 2016, however, CRRC dominated freight rail car delivery, holding more than 95 percent of the market share. Bradken was the only remaining domestic player, with roughly less than 5 percent of freight railcar deliveries.

Notably, in an attempt to remain competitive with CRRC, Bradken had moved some of its manufacturing operations to China in 2010. By 2014, the company moved all freight rail car production out of Australia, yet it still struggled to com-

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[9] CTA Press Release. CTA Chooses Manufacturer for Newest-Generation Rail Cars. March 9, 2016. https://www.transitchicago.com/cta-chooses-manufacturer-for-newest-generation-rail-cars.

[10] Mary Wisniewski. *CTA Board Approves Contract to Replace Half of Rail Cars*. The Chicago Tribune. 10 March 2016. https://www.chicagotribune.com/news/local/breaking/ct-cta-board-rail-cars-0310-20160309-story.html.

[11] Federal Transit Administration. Red and Purple Modernization Phase One Project Chicago, Illinois (December 2018)https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/funding/grant-programs/capital-investments/130361/il-redpurple-line-mod-profile-profile.pdf.

[12] Brenda Goh. *China's CRRC Corp Wins LA Metro Contract Worth Up to $647 Million*. Reuters. 27 March 2017. https://www.reuters.com/article/us-crrc-usa/chinas-crrc-corp-wins-la-metro-contract-worth-up-to-647-million-idUSKBN16Y0ZA.

[13] Progressive Railroading. L.A. Metro inks pact with CRRC for up to 282 new rail cars. March 24, 2017. https://www.progressiverailroading.com/mechanical/article/LA-Metro-inks-pact-with-CRRC-for-up-to-282-new-rail-cars--51154.

[14] SEPTA Press Release. SEPTA Board Approves Purchase of Multi-Level Coaches for Regional Rail. March 23, 2017. http://www.septa.org/media/releases/2017/03-23-2017.html.

[15] Joseph N. DiStefano. Philly railcar maker Hyundai Rotem gives up and leaves town. Philadelphia Inquirer. August 17, 2018. https://www.philly.com/philly/blogs/inq-phillydeals/septa-hyundai-rotem-crrc-rail-cars-philadelphia-20180817.html.

[16] Oxford Economics, *Will we Derail US Freight Rolling Stock Production? An Assessment of the Impact of Foreign State-owned Enterprises on the US Freight Rolling Stock Production*. May 2017. p. 4.

[17] Oxford Economics, *Will we Derail US Freight Rolling Stock Production? An Assessment of the Impact of Foreign State-owned Enterprises on the US Freight Rolling Stock Production*. May 2017. p. 5.

[18] Oxford Economics, *Will we Derail US Freight Rolling Stock Production? An Assessment of the Impact of Foreign State-owned Enterprises on the US Freight Rolling Stock Production*. May 2017. p. 16 *citing* SCI Verkehr data.

pete with CRRC, and in 2017 became a wholly-owned subsidiary of Hitachi Machinery Company.[19]

The freight rail industry invests significant amounts of private funds into its network and systems, including the cars railroads use to haul goods. Such purchases of rail cars not using Federal funding are not subject to Federal Buy America standards. While the majority of freight rail cars used today are made by U.S. companies, the Australian experience suggests that a SOE could disrupt this manufacturing sector. Domestic freight rail car production supports approximately 65,000 jobs and an estimated $6.5 billion in GDP. This economic impact includes the direct impacts on the freight industry, the industry's supply chain, and lost spending in the economy.[20]

NATIONAL SECURITY IMPLICATIONS

New technologies intended to improve safety and efficiency are being incorporated in freight and transit rail sectors. These include advanced technologies and increasingly interconnected systems that should be properly secured to ensure they are not vulnerable to breaches.

Concerns about breaches of systems by those with malicious intent are not unfounded. In May 2018, the Pentagon prevented service members from purchasing on military bases phones made by Chinese companies Huawei and ZTE, stemming from concerns that a dominant presence of Chinese-made technology could make it easier for hacking or spying.[21] Congress later enacted the John S. McCain National Defense Authorization Act for Fiscal Year 2019 [P.L. 115–232], preventing Federal agencies from using telecommunications equipment made by those same companies, and in May of 2019, the FCC voted to block China Mobile from U.S. markets due to national security concerns.[22] In December 2018, the Department of Justice indicted two individuals who, for at least 12 years, acted in association with the Chinese Ministry of State Security to hack into computers around the world, targeting intellectual property and confidential information. These individuals targeted a range of industries, including aviation and maritime technology as well as telecommunications.[23] Following that indictment, a Department of Defense spokesman indicated that, "the Chinese Communist Party's use of predatory economic practices like illegal states-sponsored cybertheft reinforce concerns about Chinese companies playing a role in critical infrastructure—whether it be rail cars or 5G telecommunications networks."[24]

Nearly 10.2 billion rides occurred on U.S. public transit systems in 2017, during many of which passengers were connected to the internet through on-board wifi routers.[25] Advanced technologies embedded on these rail cars could be exploited for "spying and hacking of riders' personal data to intentional disruptions of day-to-day operations to deliberate acts of terrorism."[26]

The Department of Homeland Security (DHS) and the Department of Transportation are designated as the Co-Sector-Specific Agencies for the Transportation Systems Sector. The U.S. freight rail network is designated by the DHS as being part

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[19] Bradken Limited, May 2014, Annual Report to Shareholders. http://www.annualreports.com/HostedData/AnnualReportArchive/B/ASX_BKN_2014.pdf.

[20] Oxford Economics, *Will we Derail US Freight Rolling Stock Production? An Assessment of the Impact of Foreign State-owned Enterprises on the US Freight Rolling Stock Production*. May 2017. p. 31.

[21] Hamza Shaban. *Pentagon Tells U.S. Military Bases to Stop Selling ZTE, Huawei Phones*. The Washington Post. 2 May 2018. https://www.washingtonpost.com/news/the-switch/wp/2018/05/02/pentagon-tells-u-s-military-bases-to-stop-selling-zte-huawei-phones/?utm_term=.da5df9799503.

[22] David Shepardson, Sijia Jiang, *China Urges U.S. to Respect Market Economy After China Mobile Denied Entry*. Reuters. May 9, 2019. https://www.reuters.com/article/us-usa-fcc-china/fcc-votes-to-deny-china-mobile-bid-to-operate-in-u-s-idUSKCN1SF1SX?feedType=RSS&feedName=businessNews.

[23] Department of Justice. *Two Chinese Hackers Associated with the Ministry of State Security Charged with Global Computer Intrusion Campaigns Targeting Intellectual Property and Confidential Business Information*. 20 December 2018. https://www.justice.gov/opa/pr/two-chinese-hackers-associated-ministry-state-security-charged-global-computer-intrusion.

[24] Robert McCartney and Faiz Siddiqui. *Could a Chinese-made Metro Car Spy on Us? Many Experts Say Yes*. The Washington Post. 7 January 2019. https://www.washingtonpost.com/local/trafficandcommuting/could-a-chinese-made-metro-car-spy-on-us-many-experts-say-yes/2019/01/07/00304b2c-03c9-11e9-5df-5d3874f1ac36_story.html?noredirect=on&utm_term=.644e6da8bc91. *quoting* Air Force Lt. Col Mike Andrew, a Defense Department spokesman.

[25] American Public Transportation Association. *2019 Public Transportation Fact Book*. https://www.apta.com/wp-content/uploads/APTA_Fact-Book-2019_FINAL.pdf page 12.

[26] Brigham A. McCown. *China on the March: Cybersecurity and Hidden Risks*. Forbes. 17 December 2018. https://www.forbes.com/sites/brighammccown/2018/12/17/china-on-the-march-cybersecurity-and-hidden-risks/#5a7f1b164b88.

of the country's critical infrastructure.[27] The freight network hauls almost two billion tons of goods every year, including approximately 35 percent of all U.S. exports. These shipments include a wide array of goods ranging from agricultural products and construction materials, to auto parts, chemicals and energy products. Notably, freight rail transports a significant share of hazardous materials, including poisonous inhalation hazard and toxic inhalation hazard materials, in addition to flammable and combustible products.[28] Protecting this material while in transport is critical to public safety and environmental safeguarding. Additionally, a 33,000-mile interconnected network of railroad corridors are designated as the Strategic Rail Corridor Network (STRACNET). Together with an additional 4,700 miles of designated lines, STRACNET includes the railroad lines most important to national defense, as they can serve U.S. defense installations and activities and help ensure the rail network infrastructure is robust and capable of quickly moving a large force for contingency deployments.[29]

BYD Ownership and Subsidies

BYD asserts that it is a private company. It does benefit from Chinese state-owned investment funds and enterprises that hold equity interests in BYD and its subsidiaries. These investments from the Chinese investment funds are in addition to substantial Chinese government subsides, which totaled $191 million (RMB 1.3 billion) in 2017 alone.[30] In 2018, BYD recognized $338 million in (RMB 2.3 billion) in Chinese government grants in its income statement.[31]

China's electric battery subsidies appear to be targeted specifically to BYD over other Chinese electric battery companies, allowing BYD a competitive advantage.[32] China has poured more than $10 billion into the electric vehicle (EV) battery industry since 2012, equating to a subsidy of around $10,000 per electric car, and higher for electric buses. The government also shouldered much of the cost for battery plants.[33] Despite this significant effort by BYD and the Chinese government to invest heavily in battery manufacturing in China, BYD is certifying its batteries as U.S. domestic content under Buy America rules. BYD calculates that these battery packs meet 53 percent out of 65 percent of the domestic content standard.[34]

BYD in Public Transit Sector

BYD has won electric bus contracts with 45 entities, including Los Angeles, Albuquerque, and Indianapolis. Concerns about reliability, delivery schedules, and meeting the contracted specification of battery range have been publically raised for some of the orders.

Los Angeles Metro returned five BYD buses in 2016, pulling these five buses off the road after less than five months of service. A recent Los Angeles Times report cited internal emails and other agency records in which agency staff called BYD buses "unsuitable," poorly made, and unreliable for more than 100 miles.[35]

The City of Albuquerque contracted with BYD for 20 electric buses at just under $23 million, using Federal Capital Investment Grant program funding. Bus delivery delays and concerns that the buses could not complete the route as specified in the contract led the city to seek an independent report from the Center for Transpor-

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[27] *See* Department of Homeland Security. *Critical Infrastructure Sectors*. Available at: https://www.dhs.gov/cisa/critical-infrastructure-sectors; *see also* Presidential Policy Directive PPD–21. The White House. 12 February 2013, available at: https://www.dhs.gov/sites/default/files/publications/PPD-21-Critical-Infrastructure-and-Resilience-508.pdf.

[28] See Pipeline and Hazardous Materials Safety Administration. *Hazardous materials by Rail Liability Study*. Pp. 16–17. https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/news/57011/report-congress-hazardous-materials-rail-liability-study-nov-2017__1.pdf.

[29] United States Army. *Strategic Rail Corridor Network (STRACNET) and Defense Connector Lines*. October 2018. https://www.sddc.army.mil/sites/TEA/Functions/SpecialAssistant/RND%20Publications/STRACNET%202018__Reduced.pdf.

[30] BYD 2017 Annual Report, page 140.

[31] Kenji Kawase. *For Some Chinese Companies, Generous State Subsidies Make up for Losses*. Nikkei Asian Review. 24 April 2019. https://asia.nikkei.com/Spotlight/Cover-Story/For-some-Chinese-companies-generous-state-subsidies-make-up-for-losses.

[32] Anjani Trivedi. Buffett's China Ride Is Losing Power With Investors. Bloomberg. February 19, 2019. https://www.bloomberg.com/opinion/articles/2019-02-19/china-s-byd-backed-by-buffett-is-losing-its-electric-car-edge.

[33] https://asia.nikkei.com/Economy/Brutal-culling-awaits-China-s-EV-battery-makers-as-support-ends.

[34] Albuquerque City Inspector General. OIG 18-0001-R Report of Inspection: ART Project. Page 31.

[35] Paige St. John. *Stalls, Stops and Breakdowns: Problems Plague Push for Electric Buses*. The Los Angeles Times. 20 May 2018. https://www.latimes.com/local/lanow/la-me-electric-buses-20180520-story.html.

tation and the Environment (CTE). They modelled the bus route to test the buses and simulate various conditions that mirror real service in the corridor—running the doors, heat, HVAC and all other bus systems, and also loading weight onto the buses to simulate passengers. The simulations found that the operational plan developed for Albuquerque could not be achieved by the buses BYD delivered.[36] The buses only averaged 177 miles on a single charge, as opposed to the 275 miles specified in the contract. The City Inspector General also found significant concerns with federally required post-delivery Buy America certification.[37] Ultimately, the city returned all the BYD buses for failure to meet contract specifications and filed a lawsuit, which is still pending.[38]

In 2017, the City of Indianapolis approved a contract with BYD for electric buses using Federal Capital Investment Grant program funding.[39] The IndyGo Bus Rapid Transit BRT Red and Blue lines will also use BYD electric buses, but the first buses delivered are also experiencing significant range issues, averaging only 205 miles during testing by IndyGo well under the contractual specification of 275 miles.[40]

PENDING LEGISLATION

Senators Cornyn (R–TX), Baldwin (D–WI), Crapo (R–ID), and Brown (D–OH) introduced S. 846, the Transit Infrastructure Vehicle Security Act, a bill to prevent Federal funds from being used to buy transit rail cars or buses manufactured by Chinese owned, controlled, or subsidized companies, although pre-existing contracts would be continued. The bill also requires cybersecurity certification and 3rd party testing of critical hardware and software. A companion House bill is expected to be introduced by the date of this hearing.

WITNESS LIST

- Mr. Scott N. Paul, President, Alliance for American Manufacturing (AAM)
- Brigadier General John Adams, U.S. Army (Ret.), President, Guardian Six Consultancy LLC
- Mr. Hamilton Galloway, Head of Consultancy, Americas, Oxford Economics
- Mr. Frank Cilluffo, Director, McCrary Institute for Cyber and Critical Infrastructure Security, Auburn University
- Mr. Zachary Kahn, Director of Government Relations, BYD Heavy Industries
- Mr. Phillip A. Washington, CEO, Los Angeles County Metropolitan Transportation Authority

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[36] *City of Albuquerque Files Lawsuit Against BYD*. Intelligent Transport. 14 December 2018. https://www.intelligenttransport.com/transport-news/74221/city-albuquerque-lawsuit-byd.

[37] Office of Inspector General. City of Albuquerque. Inspection of Albuquerque Rapid Transit Project Procurement. 6 June 2018. https://media.krqe.com/nxs-krqetv-media-us-east-1/document__dev/2018/06/07/Rep%20of%20Inspection%20ART__1528430650775__44821973__ver1.0.pdf.

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THE IMPACTS OF STATE-OWNED ENTERPRISES ON PUBLIC TRANSIT AND FREIGHT RAIL SECTORS

Thursday, May 16, 2019

HOUSE OF REPRESENTATIVES,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
WASHINGTON, DC.

The committee met, pursuant to notice, at 10 a.m., in room 2167, Rayburn House Office Building, Hon. Peter A. DeFazio (Chairman of the committee) presiding.

Mr. DEFAZIO. I would like to have the committee come to order for today's hearing.

This hearing today is not about any one company or one sector or one nation. This is about how Congress will respond to other nations, in this case specifically China, wiping out U.S. transit and rail manufacturing and yet taking away more of our high-paying, blue-collar jobs.

I have been fighting these sorts of battles for many decades. I opposed every so-called free trade agreement since I have been here. I opposed China's ascension into the WTO under Clinton's premise that if we put them in the WTO, they would follow the rules. They do not and they have not.

And I am going to use all of the tools we have to see that they do not decimate the freight industry in America like they did in Australia in a very short period of time, and that they do not decimate our passenger railcar and bus manufacturing in this country.

It is not just about the ultimate assembly. It is about all of the parts that go into these vehicles and all of the jobs that they support.

So today we are going to focus on that issue, state-owned enterprises.

I was having a conversation with the President's Economic Advisor about the Jones Act, and he said, "Well, you understand I am a free market guy. I like competition."

And I said, "Well, Larry, is it competition for an American shipyard to compete with the Government of Communist China?"

And he really had to kind of think about that for a minute, and he said, "Well, yeah."

I said, "Yeah. How about competition with a level playing field?"

In this case, U.S. companies currently produce the majority of freight railcars. We have one of the most robust freight networks in the world, 65,000 jobs. But as I mentioned earlier, we saw that industry wiped out in Australia by China in a very short period of time.

And I believe they have set their targets, and part of their 2025 plan is to take over that industry worldwide with unfair—subsidized in this case of the railcar company, CRRC, state-owned. Communist Government of China owns the company.

And in the case of the BYD, we have a company that is very heavily subsidized by the Government of Communist China.

You know, I strengthened. We had a long discussion. We did the FAST Act, and we moved up the Buy American standards of domestic content up to 70 percent, and we are phasing that in.

Yet there are loopholes in the way things are defined, subassembly, assembly, component, you know, system, whatever. We have had these discussions before. Clearly, the law needs some clarification.

And in the case of BYD, they send over all of these small batteries made in China, send over a battery case made in China, but workers here assemble it, and then they claim that was made in America, and it constitutes 53 percent of the value of the bus.

I mean, clearly, there is something wrong with the way that is being scored, and that is not made in America.

So and then I have a local example in my district. Sometimes politics is local. My LTD, my local bus company, ordered some of these spiffy BYD buses in 2016. After they finally were belatedly and outside the contract delivered and did not work, they were sent back.

Albuquerque, of course, is in litigation with BYD for dysfunctional buses, and you know, I understand. Transit agencies are under a lot of pressure. The Federal Government has not been a good partner. We have got a $100 billion backlog for state of good repair in our transit, which could be one hell of a lot of American jobs if we go about this right.

But the Federal Government has not had the will nor has Congress to raise the revenues necessary to better partner and begin to chip away at that deficit.

So some transit agencies have turned to these below cost vehicles or very low-cost vehicles, and you know, again, I cannot totally blame them, but you know, for every U.S. transit railcar final assembly job, and, yes, some of these are union jobs, good jobs, and this is not about those workers. They are doing the best they can with what the Chinese ship here for them to put together.

And they do not do the engineering and design work. All of that is done in China, where many of the problems lie.

And for every one of those jobs we get as assembling Chinese parts over here, we lose 3.5 jobs in our economy, and that includes an assumption that they comply with Buy America, which, I think, in this case is very, very questionable.

They are smart. They unionized. They put these plants in very strategic places. They did not know Democrats were going to take over the House. So they put the plant in Kevin McCarthy's district. I think they would put it in someone else's district if they had known Democrats would take over the House, but they are not dumb.

So we are here today to get into this issue and see what remedies might lie. Legislation has been introduced in the Senate and in the House to address this issue. Harley Rouda, a member of this com-

mittee, is the sponsor in the House, and we will be looking and talking about that legislation here today in the hearing.

With that I yield back the balance of my time and recognize the ranking member, Representative Graves.

[Mr. DeFazio's prepared statement follows:]

Prepared Statement of Hon. Peter A. DeFazio, a Representative in Congress from the State of Oregon, and Chair, Committee on Transportation and Infrastructure

Today's hearing is not about one company, one sector, or one nation. It is about how Congress will respond to other nations' systematically wiping out the U.S. transit and rail manufacturing base and our blue-collar workforce.

I have been fighting similar battles for decades. I opposed multiple Free Trade Agreements that failed to protect U.S. manufacturers and American workers. I opposed China's ascension into the WTO. And I will continue to wage this battle with every tool in the toolbox to vigorously defend our domestic transportation manufacturing sector from state-subsidized entities.

My views of trade policy are not ideological; they are informed by observing the long run effects that unfair trade has had on my district. For three decades, blue-collar workers have been getting shafted all in the name of free trade. I have watched industries suffer the fate of bad trade deals and foreign incursions into the U.S. marketplace. I have battled to save multiple industries including paper, lumber, furniture, solar, trucking, auto, maritime, and agriculture.

And the hits keep coming. Today, state-owned enterprises and similarly subsidized corporations are beginning to enter the transit rail and bus market, using subsidies from foreign governments to undercut long-established manufacturers and grab American taxpayer dollars. State-owned enterprises are also eyeing the U.S. domestic freight rail market. Tens of thousands of U.S. jobs are supported by this domestic manufacturing sector, but it could be decimated by unfair foreign competition.

Not on my watch.

Today we will hear from several witnesses raising concern about state-owned enterprises and similar corporations undercutting the U.S. rail and bus rolling stock market, the potential long-term effect on U.S. workers, cybersecurity risks, and reliability problems. I share these concerns.

Currently, U.S. companies produce the majority of the freight rail cars that haul shipments across the country. Nearly 65,000 jobs are supported by the production of these rail cars. But as the Australian domestic manufacturing sector experienced, if left unchecked, state-owned enterprises can enter the market, dominate production, and squeeze-out domestic companies. We cannot let that happen in the U.S. Today's witnesses will help explain the dangers of letting domestic companies fall victim to state-subsidized companies as well as the security concerns that would be created if that occurred.

I also want to hear today if these state-owned companies are truly complying with federal transit Buy America rules. Federal laws like Buy America protect taxpayer interests in preserving U.S. jobs when local transit agencies use federal funds to purchase rolling stock. In the FAST Act, I strengthened Buy America standards by increasing the domestic content percentage phased-in to 70 percent.

Members of the House and Senate sharing these concerns have introduced the Transit Infrastructure Vehicle Security Act to prevent federal transit dollars from being used to procure transit rail rolling stock and transit buses from Chinese state-owned, controlled or subsidized enterprises. The House bill, H.R. 2739, was introduced by Representative Rouda, a Transportation and Infrastructure Committee member, along with several other Committee members who are original co-sponsors of the bill. I look forward to hearing the views of today's witnesses on this pending legislation.

I don't blame transit agencies for seeking cheaper rolling stock. I know they are severely underfunded, and the state of good repair back log continues to grow. That backlog is currently approaching $100 billion nationwide and the federal government only provides approximately $12.5 billion a year to meet all transit needs.

For example, in my district, the local transit agency, LTD, ordered five BYD buses in 2016. After years of delay and delivery of defective buses, they still do not have all five buses. Similar problems are found in several other transit agencies across

the U.S. These poorly constructed buses only exacerbate the $100 billion backlog of state of good repair.

I realize most products today are built with the goal of low initial cost, rather than durability. But dollar for dollar, it is cheaper to build for durability over the long run and that principal is enshrined in federal rules that require a bus to remain in service for 12 years.

I also understand that the state-owned enterprises with U.S. contracts have hired U.S. workers, and in some cases these workers even have union contracts. This hearing is not a criticism of those workers, or unions. In fact, I think the number of workers who benefit from a union contract ought to be much higher.

However, nobody today can honestly believe that Chinese companies are pro-labor union. The unionization of these jobs is a tactic to dodge the real issues these state-owned enterprises bring to the table.

State-owned enterprises have a history of using supply chains in low-cost countries and shipping the product to the destination country. Research suggests that for every U.S. transit rail car final assembly job created by a state-owned enterprise, the net loss is 3.5 jobs in the U.S. economy—and that estimate assumes the company complies with Buy America standards.

State-owned enterprises ultimately pose serious risk to U.S. skilled workers, labor unions, and the existing companies who play by the rules. That's why we're holding this hearing. I thank the witnesses for being here and look forward to your testimony.

Mr. GRAVES OF MISSOURI. Thank you, Mr. Chairman.

A modern transportation infrastructure system means a strong and secure America. Our public transit and freight rail systems are an integral part of our larger transportation network.

Technology modernization, which has been a priority of mine for a long time, drives improvements in safety and congestion, and it creates efficiencies.

However, as we adopt transportation technologies, safety and cybersecurity have to remain top priorities. And earlier this month, the Federal Government released a list of 55 national critical functions, and it is no surprise that these functions include transportation by rail, and mass transit, along with transport by air, road, vessel, pipeline, all of the areas that this committee is responsible for overseeing.

Any disruption or corruption to these functions or to our transportation network as a whole would have a very debilitating effect. This is why today we are going to study the effects of state-owned enterprises, of SOEs, on our infrastructure network.

SOEs are either wholly owned, as has been pointed out, or partially owned by a government that receives government funding to subsidize its operations, and these subsidies allow SOEs to gain U.S. market share by underbidding on their contracts.

And in addition, as an extension of a government, an SOE can carry out political, economic, and militarist interests of that state government. And make no mistake. We have to investigate the motivation and intent of SOEs when they enter our infrastructure markets.

China, in particular, possesses sophisticated capabilities, and it does have a track record of committing economic espionage focused on data collection of trade secrets and intellectual property.

And today we are focused on entrants to the rolling stock market and the impacts of these entrants on the public transit and freight rail sectors. Concerns have been raised about these recent entrants and particularly whether or not their ownership or access to government subsidies gave them an unfair advantage.

One of those recent entrants, the China Railway Rolling Stock Corporation, or the CRRC, successfully won contracts from public transit agencies in major metropolitan cities across the country to provide railcars with significantly lower bids than the competition.

Concerns exist that CRRC will also expand to the freight rail sector, and it is going to undermine a lot of U.S. companies. This committee plays an integral role in ensuring the safety and cybersecurity of the entire transportation network.

I look forward to hearing about possible solutions to ensure that we protect U.S. interests and maintain the security of our transportation system.

And with that I yield back.

[Mr. Graves' prepared statement follows:]

Prepared Statement of Hon. Sam Graves, a Representative in Congress from the State of Missouri, and Ranking Member, Committee on Transportation and Infrastructure

A modern transportation infrastructure system means a strong, secure America.

Our public transit and freight rail systems are integral to our larger transportation network. Technology modernization, which has been a priority of mine, drives improvements in safety and congestion, and creates efficiencies.

However, as we adopt transportation technologies, safety and cybersecurity must remain top priorities.

Earlier this month, the federal government released a list of 55 national critical functions. It is no surprise that these functions include transport by rail and mass transit, along with transport by air, road, vessel, and pipeline: all areas this committee is responsible for overseeing. Any disruption or corruption to these functions or to our transportation network as a whole would have a debilitating effect.

This is why today we are studying the effects of state-owned enterprises (SOEs) on our infrastructure network. SOEs are either wholly or partially owned by a government and receives government funding to subsidize its operations. The subsidies allow SOEs to gain U.S. market share by under-bidding on contracts.

In addition, as an extension of a government, an SOE could carry out political, economic, and militaristic interests of that state government.

Make no mistake, we must investigate the motivation and intent of SOEs entering our infrastructure markets. China in particular possesses sophisticated capabilities and has a track record of committing economic espionage focused on data collection of trade secrets and intellectual property.

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This Committee plays an integral role in ensuring the safety and cybersecurity of the entire transportation network. I look forward to hearing about possible solutions to ensure we protect U.S. interests and maintain the security of our transportation systems.

Mr. DEFAZIO. I thank the gentleman for his opening statement.

Now I would like to welcome our witnesses: Mr. Scott N. Paul, president, Alliance for American Manufacturing;

Brigadier General John Adams, U.S. Army (Retired), president, Guardian Six LLC;

Mr. Hamilton Galloway, head of consultancy for the Americas, Oxford Economics;

Mr. Frank Cilluffo, director, McCrary Institute for Cyber and Critical Infrastructure Security, Auburn University;

Zachary Kahn, director of government relations, BYD Heavy Industries; and

Mr. Phillip A. Washington, CEO, Los Angeles County Metropolitan Transportation Authority.

Thank you all for being here today. I look forward to your testimony.

But before we do hear from the panel, I believe Mrs. Napolitano wanted to do a special introduction.

Mrs. NAPOLITANO. Yes, sir. Thank you, Mr. Chairman.

I am, indeed, greatly honored to introduce Phil Washington, the CEO of Los Angeles Metro since 2015. He has been a transformative leader in our region, in southern California, as he has transitioned the L.A. Metro bus fleet to clean energy vehicles, and he has passed major transportation measures to construct rail transit lines and remove highway choke points through L.A.

He is leading on innovation with first-mile and last-mile solutions, such as bicycle and pedestrian paths, and on-demand transportation services.

He also is helping create the next generation of transportation workers with a workforce training partnership, practical labor agreements that support apprenticeship, and is even creating a transportation focus in high school for young people.

Thank you, Mr. Washington, for being here. I thank you very much.

I yield back.

Mr. DEFAZIO. I thank the gentlelady.

We now proceed to our first witness, Mr. Paul.

Mr. Paul, you have 5 minutes. You can summarize or extemporaneously talk, whatever you want to do.

TESTIMONY OF SCOTT N. PAUL, PRESIDENT, ALLIANCE FOR AMERICAN MANUFACTURING; BRIGADIER GENERAL JOHN ADAMS, U.S. ARMY (RETIRED), PRESIDENT, GUARDIAN SIX LLC; HAMILTON GALLOWAY, HEAD OF CONSULTANCY FOR THE AMERICAS, OXFORD ECONOMICS; FRANK J. CILLUFFO, DIRECTOR, McCRARY INSTITUTE FOR CYBER AND CRITICAL INFRASTRUCTURE SECURITY, AUBURN UNIVERSITY; ZACHARY KAHN, DIRECTOR OF GOVERNMENT RELATIONS, NORTH AMERICA, BYD MOTORS LLC; AND PHILLIP A. WASHINGTON, CEO, LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

Mr. PAUL. Thank you. I will not read the entire 5,500 words.

Mr. DEFAZIO. Thank you.

Mr. PAUL. Mr. DeFazio, I want to also thank you, and I appreciate your longstanding and enlightened view on trade policy. You have been proven to be correct about this.

And I want to thank Mr. Graves and the members of the committee.

On behalf of the Alliance for American Manufacturing, a labor-business partnership, thanks for the opportunity to testify.

I am going to summarize my written testimony by making three points. First, China's state-owned enterprises and Beijing's eco-

nomic policies that support these firms are a real threat to American jobs and security.

Second, firms in the rail and bus transit space, such as CRRC and BYD, that have established a foothold in the United States, thanks in part to Government contracts financed by taxpayers, are part of this web and represent the tip of the iceberg.

Third, you can protect American jobs and security and demand reciprocity through legislation and regulation.

China's model of state-led capitalism has contributed to the loss of 3.4 million U.S. jobs and the hollowing out of our industrial base as dumped and subsidized imports surged into our market since China joined the WTO in 2001.

China heavily subsidizes its 51,000 state-owned enterprises in almost every industry imaginable. These SOEs have devastated broad swaths of American manufacturing through dumping products, by building up over-capacity, and targeting American firms with cyber hacking and IP theft.

The SOEs are also supported by policies, including, but not limited to, discriminatory loan rates, tax rates, direct subsidies, protected home markets, lax labor and environmental regulation, and exchange rate misalignment.

Put simply, firms in the U.S. and elsewhere are not competing with other companies. Rather, they are competing with an entire nation which has amassed $29 trillion in value for these state-owned enterprises.

And now these SOEs threaten the infrastructure arena. Two such firms, CRRC and BYD, have begun securing lucrative U.S. taxpayer financed contracts to supply our major cities with transit railcars and electric buses. Their ambitions are sizable, establishing a substantial foothold in public procurement as a means of expanding into private sectors, such as freight rail and passenger automobile markets, as I illustrate in my written testimony.

CRRC is systematically working to drive established competitors out of the market and achieve a monopoly in transit railcar production. Now, if successful, this would be a disaster for taxpayers and for transit providers that are looking for legitimate, fair and broad competition for their contracts.

And you can look at the Australian market for perspective. In just the last decade, CRRC undertook a similar campaign leading to the obliteration of that country's domestic rail manufacturing sector.

And while final assembly of CRRC railcars may be local, components and parts manufacturing include heavy Chinese content. CRRC's U.S. assembly plants are a vehicle for this content to be delivered into the U.S. market. That puts 90,000 highways jobs, many of them unionized, and 750 companies in 39 States at risk of being displaced.

Dominating the medium- and heavy-duty electric bus sector is also in Beijing's plans. A key feature of China's industrial policy is the support of national champions, such as BYD. BYD's revenue growth has coincided closely with the trend of government-supported subsidies, access to below-market-rate capital, and other industrial policies.

And it is clear that BYD is also a delivery system for Chinese imports at taxpayer expense. An inspector general report issued by the city of Albuquerque calls into question the legitimacy of BYD's compliance with Federal Buy America laws.

Further evidence to support these assertions include BYD's public comments to the USTR requesting section 301 tariff relief for made-in-China storage batteries, parts, and electric vehicles, specifically noting four electric bus models.

Already the world's largest electric vehicle company by sales, BYD executives have been outspoken in their plans to one day sell passenger cars in the United States. Now, this model would threaten over 5,600 parts suppliers spread across the Nation employing 871,000 workers, the very heart of American manufacturing.

My testimony today should not be read as an attack on the American workers employed by CRRC or BYD, nor on foreign investment. We must respect the dignity of work and encourage foreign investment.

But this is no ordinary foreign investment. Our workers and firms in the supply chain are not competing with a company in CRRC or BYD. They are competing with an entire country.

I have policy recommendations that I am happy to discuss in Q&A, and I want to thank you for your time, Mr. Chairman.

[Mr. Paul's prepared statement follows:]

Prepared Statement of Scott N. Paul, President, Alliance for American Manufacturing

Chairman DeFazio, Ranking Member Graves, and members of the Committee, on behalf of the Alliance for American Manufacturing (AAM), thank you for the opportunity to testify at today's hearing on the *Impacts of State-Owned Enterprises on Public Transit and Freight Rail Sectors*.

The Alliance for American Manufacturing is a non-profit, non-partisan partnership formed in 2007 by some of America's leading manufacturers and the United Steelworkers. Our mission is to strengthen American manufacturing and create new private-sector jobs through smart public policies. We believe that an innovative and growing manufacturing base is vital to America's economic and national security, as well as to providing good jobs for future generations. AAM achieves its mission through research, public education, advocacy, strategic communications, and coalition building around the issues that matter most to America's manufacturers and workers.

INTRODUCTION

For years, we have seen the destructive impacts of China's model of state-led capitalism on our domestic manufacturing sector, and the damaging ripple effects on thousands of communities across our nation. Between 2001, when China entered the World Trade Organization (WTO), and 2017, 3.4 million U.S. jobs were lost or displaced because of our massive bilateral trade deficit with China.[1] This economic carnage has been fueled by predatory trade practices and disruptive economic policies, including heavy subsidization of state-owned enterprises (SOEs) and other firms that Beijing has deemed strategically important for their own security and economic interests.

A threat is growing in the infrastructure arena. China's state-owned, state-subsidized, and state-supported enterprises are setting up assembly operations right here in the United States. Backed by deep government support, two such firms—China Railroad Rolling Stock Corporation (CRRC) and Build Your Dreams (BYD)—have begun securing lucrative, U.S. taxpayer-supported contracts to supply our

[1] "The China toll deepens: Growth in the bilateral trade deficit between 2001 and 2017 cost 3.4 million U.S. jobs, with losses in every state and congressional district," Robert E. Scott and Zane Mokhiber. Economic Policy Institute. 23 October 2018.

major cities with transit rail cars and electric buses. Their ambitions are sizeable, that is to establish a substantial foothold into our market as a means of expanding into private sectors such as the freight rail and passenger automobile markets.

On a local level, it is understandably a positive outcome that these firms have established assembly operations and are hiring American workers—in many cases, skilled, union workers that deserve our utmost respect. However, it is the duty of this committee and of Congress to examine how these firms are systematically destroying the competitive national landscape for U.S. rolling stock manufacturing. With the seemingly endless backing of a foreign, non-market economy government and the stated goal of dominating these sectors, these firms pose a grave danger to established competitors. And, because their U.S. assembly operations are merely a supply line for imported components, ultimately the jobs of millions of American workers throughout our domestic supply chains are at risk.

It is essential that we scrutinize these investments and implement appropriate policies to protect against any deceptive or predatory actions that harm American workers and domestic companies, the U.S. supply chain, and the national security of our nation. At the conclusion of my testimony, I offer a number of policy recommendations for your consideration.

CHINA RAILROAD ROLLING STOCK CORPORATION (CRRC)

The Chinese government has shown its intention to dominate the global rail industry through various high-level, government initiatives, like Belt & Road and Made in China 2025. And it is carrying out this effort through its state-owned enterprises (SOE) like CRRC that benefit from an array of government subsidies and supports. China is not a fair player, and neither is CRRC.

In 2014 the Massachusetts Bay Transportation Authority (MBTA) made what I believe to be a shortsighted decision to award a $566 million contract to a Chinese SOE that would ultimately become CRRC (after merging with another Chinese SOE that was disqualified from the same bidding process). At the time, I wrote to then-Massachusetts Governor Deval Patrick warning that CRRC would drastically alter the competitive landscape for domestic railcar manufacturing. "As a basic principle of fairness," I wrote, "all bids should play by the same set of market rules and none should be allowed to benefit from the backing of a foreign government . . . It is cheating, plain and simple, and should not be rewarded using taxpayer dollars." CRRC's bid was more than $200 million below the next lowest bidder and roughly half that of another established firm. Because of CRRC's promise to build an assembly facility in Springfield with 120 jobs, local policymakers put potential short-term gains ahead of our collective, longer-term interests. They even gave CRRC an additional $277 million add-on contract in 2016.

Unfortunately, this warning was ignored, and the concerns outlined in that letter five years ago have become reality. Once MBTA legitimized CRRC with its first major U.S. contract, the SOE quickly secured an additional $2 billion in transit rail car contracts in Philadelphia, Los Angeles, and Chicago by again submitting implausibly low bids that no private-sector competitor could possibly match. In Philadelphia, another bidder was quoted as saying, "I cannot grasp how they are able to do it at that cost."[2] With potential deals in Washington, DC and New York City in CRRC's sights, the consequences are enormous for maintaining competition, national security, innovation, and jobs.

CRRC is Disrupting the Marketplace.

With the financial backing of Beijing, CRRC is systematically working to drive established competitors out of the market and to achieve a monopoly in transit rail car production. If successful, this would be a disaster for taxpayers and for transit providers that are looking for legitimate, fair and broad competition for their contracts. Once established competitors are driven out of the U.S. market, it is reasonable to assume that the lowball bids of CRRC will disappear and U.S. customers will be at their mercy in terms of pricing. If you don't think this is possible, I suggest you look at the Australian market for perspective. In just the last decade, CRRC undertook a similar campaign leading to the obliteration of that country's rail manufacturing sector.[3]

Already, established companies in the U.S. rail manufacturing space are facing unprecedented economic pressure to stay afloat. And, high-wage jobs throughout the domestic rail manufacturing supply chain are at risk of being displaced by workers

[2] "Mass.-based company with Chinese backing beats local group for SEPTA car contract," The Philadelphia Inquirer. 21 March 2017.

[3] "China to bid on D.C. Metro rail deal as national security hawks circle," Reuters. 09 May 2019.

operating under harsh conditions and little pay in China. To be fair, Boston, Los Angeles, and Chicago each stipulated that final assembly of rail cars be completed locally, but there are few guarantees that component and parts manufacturing will be conducted in the United States. CRRC's U.S. assembly plants are a vehicle—both literally and figuratively—for Chinese content to be delivered into the U.S. market.

According to the BlueGreen Alliance, there are more than 750 companies in at least 39 states that manufacture components for passenger rail and transit rail. This includes: 24 major locomotive, railcar, and streetcar assembly facilities; 188 direct suppliers that manufacture major propulsion, electronics, and body components and systems; and, in the Midwest and Mid-Atlantic alone, 540 additional companies manufacturing sub-components, materials, track and infrastructure, as well as providing repair and re-manufacturing to the industry. All told, the U.S. rail manufacturing sector supports 90,000 jobs.[4]

Security Concerns.

CRRC's ascent also raises alarming questions about Beijing's access to, or operational control over, critical technology embedded in our rail infrastructure—such as GPS, sensors, and other safety features. This is why security experts have raised concerns that the Washington Metropolitan Area Transit Authority (WMATA) may award its pending procurement contract for its 8000-series car to CRRC—putting rail cars manufactured by a Chinese state-owned firm underneath the Pentagon and in close proximity to other sensitive locations. Doing so would potentially provide an adversary with operational control of or access to a major U.S. transit system and potentially expose sensitive data and communications of riders.

CRRC's entry into the transit procurement market is almost assuredly a precursor to entering the freight rail market, a sector that not only supports 65,000 manufacturing jobs but is also responsible for moving 40 percent of all goods in the United States.[5] This is a clear security risk.

BUILD YOUR DREAMS (BYD)

The medium- and heavy-duty electric bus sector is also in Beijing's sights. In 2013, BYD Motors, Inc.—a subsidiary of BYD Company, Ltd. (short for "Build Your Dreams")—established an electric bus assembly facility in Lancaster, California, signaling its intention to compete for taxpayer-funded transit contracts in U.S. cities. As of September 2018, BYD says it has delivered more than 270 buses in North America, has more than 80 more in production, and has 300 bus orders with options in place. It has expanded its facility to produce up to 1,500 electric buses each year.[6]

BYD Benefits from Government Subsidies, Policy Direction, and a Protected Home Market.

A key feature of China's industrial policy is the support of "national champions." These are industry leaders that Beijing believes to have a high potential for growth, innovation, and the ability to advance China's industrial and other policy goals. Hence, BYD has been the beneficiary of a mix of government support, including a lower corporate tax rate, loans from state-owned and policy banks, and generous grants and subsidies.

China started its government support for new energy vehicles with a 2009 pilot program that evolved into a national program targeting battery, hybrid, and fuel cell electric vehicles, covering both passenger and commercial vehicles.[7] According to a 2019 Bloomberg article, "The company received new energy vehicle subsidies equal to 380 percent of its electric-car sales ... The Shenzhen-based company gets about 8.2 billion yuan ($1.2 billion) from the central government and 4.4 billion yuan [$647 million] from local governments ... Official aid even enabled BYD to push into making electric commercial vehicles."[8] BYD's revenue growth has coincided closely with the trend of government support subsidies, access to below-market-rate capital and other industrial policies. While the initial stream of direct electric vehicle subsidies has now declined, many of the other programs not only remain in place but are buttressed by Beijing's continued push to achieve the goals of President Xi to advance the country's national champions and promote global competitors.

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[4] "Passenger Rail & Transit Rail Manufacturing in the U.S.", BlueGreen Alliance and the Environmental Law & Policy Center. January 2015.

[5] "Will we derail US freight rolling stock production: An assessment of the impact of foreign state-owned enterprises on US freight rolling stock production," Oxford Economics. May 2017.

[6] BYD Press Release. 25 September 2018.

[7] Compiled from Government of China Announcements

[8] "Buffett's China Ride Is Losing Power With Investors," Bloomberg. 19 February 2019.

New energy vehicles have been deemed a priority, high-technology industry important to China's mid- and long-term growth strategy. Two national-level industrial plans have outlined the development objective and strategic importance of the new energy vehicle sector: the *13th Five-Year Plan for Strategic and Emerging Industries Development and the Made in China 2025 Strategy*, which identified new energy vehicles as one of 10 priority sectors for developing indigenous innovation capability. Made in China 2025 leverages state resources to rework and generate prejudicial advantage on a global scale. This unparalleled state-driven intrusion will continue to destabilize the market, causing artificially reduced prices, and distort U.S. manufacturing and innovation of medium- and heavy-duty electric buses. Meanwhile, BYD has enjoyed nearly exclusive access to its home market of Shenzhen, a city of 12 million people, where it has supplied upwards of 80 percent of the city's 14,000 electric buses.[9]

BYD is Not Your Average "Privately-Owned Company."

Despite BYD's assertion that the company is "privately-owned," a closer look raises legitimate questions about its connections to the Chinese government. For example, while Berkshire Hathaway is a major investor in BYD, there are several Chinese state-owned investment funds that hold equity interests in BYD or its subsidiaries.[10] This indicates that the central government has confidence in BYD as a leader in a priority industry, which, in turn, attracts private investment. And, as the U.S.-China Economic & Security Review Commission has noted, "some private Chinese companies operating in strategic sectors are private only in name, with the Chinese government using an array of measures, including financial support and other incentives, as well as coercion, to influence private business decisions and achieve state goals." [11] BYD certainly falls in that category.

BYD's leadership have past and current ties to local and national Chinese governments. Its Chairman and CEO Wang Chuanfu, who owns a significant stake in the company [12], was a delegate of the People's Congress of Shenzhen from 2000 to 2010 and held a position with the city legislature from 2005 to 2015. Zou Fei, an expert of the "Thousand Talents Program" of the Organization Department of the Central Committee of the Communist Party of China, serves as a supervisor on BYD's Board.[13] Zou was previously the managing director of the special investment department of the China Investment Corporation, a sovereign wealth fund responsible for managing China's foreign exchange reserves. Also, the deputy general manager of Norinco Group—a state-owned defense company—serves as a supervisor on BYD's Board.[14]

BYD Relies on the Battery Power System to Meet Buy America Laws.

U.S. domestic content preference laws—including the Buy America law applied to transit federal assistance—are an important policy to incentivize domestic capital investment and ensure that American workers supply the materials and components used to build our vehicles and infrastructure. The statutory Buy America law for rolling stock procurements funded with Federal Transit Administration (FTA) grants requires that assembly occur in the United States and that domestic content account for a minimum of 65 percent as measured by total material cost. The cost of the components and subcomponents produced in the U.S. increases to 70 percent or more for Fiscal Year 2020 and beyond.

A critical area of concern is the way battery power systems with Chinese subcomponents are accounted for as part of the Buy America calculation and certification. In our view, this issue sets BYD aside from its competition. An Inspector General (IG) report issued by the City of Albuquerque calls into question the legitimacy of BYD's compliance with federal Buy America laws. In the case of buses provided to the City of Albuquerque, BYD met the 65 percent threshold with 53 percent of the total cost of materials attributed to its Power Battery System, which appears to have been manufactured by another BYD subsidiary. This, in turn, means that all other domestic components—such as seats and the farebox—accounted for as lit-

[9] "100% Electric Bus Fleet For Shenzhen (Population 11.9 Million) By End Of 2017," *Clean Technica*. 12 November 2017.
[10] BYD 2017 Annual Report and BYD Financial Releases
[11] US-China Economic and Security Review Commission, 2017 Annual Report to Congress, at 3.
[12] BYD 2017 Annual Report
[13] BYD 2017 Annual Report
[14] BYD 2013 Interim Report

tle as 18 percent of the total cost of materials.[15] Meanwhile, other major elements of BYD's buses, such as steel chassis, are imported directly from China.

America is still gaining its footing with regard to designing, developing, and deploying cutting-edge battery technology that can meet the needs of companies. We need to dramatically enhance the capacity to meet this growing demand. Unfortunately, it appears that BYD imports large quantities of battery cells from another BYD subsidiary in China. They are likely combined into a battery pack in the United States, allowing Chinese state-subsidized foreign content to qualify as a domestic component.[16]

We must recognize that short-term market limitations exist for the domestic production of battery packs and a supporting supply chain. For the long-run, however, we must take appropriate steps to ensure that millions of new energy vehicles—both passenger and mass transit—rely on domestic production rather than Chinese imports. Congress and the administration should work together to establish a mix of incentives and policies to maximize the utilization of new energy vehicles and to expand the supply chain for the domestic production of batteries. Adopting the right kind of transition policies would also ensure that the recently-negotiated update of the North American Free Trade Agreement—which requires that advanced batteries, including the cells, originate in the United States—will advance the interests of the United States, Canada, and Mexico.[17]

An Individual was "Pressured" to Validate Buy America Compliance.

Based on the comments of individuals interviewed as part of the Albuquerque IG report, there is ample cause for concern that BYD is misrepresenting the already meager amount of domestic content in its buses. An individual identified in the report as "TD-1" indicated that he felt "pressured" to validate [Buy America] compliance by signing documents representing that he personally validated the origination of the components. Upon being told that "signing the document was just a 'formality' to ensure compliance," he said that he felt "uncomfortable" signing. He later told the IG "that he felt he was under duress in being pressured to sign the document." Meanwhile, the IG report indicates that BYD provided the "summary of calculations for the percentages of United States made parts" to the auditor tasked with ensuring Buy America compliance. This raises serious questions as to the accuracy of that information and how thorough of an audit was conducted.

"Everything Appeared to Originate in China."

According to the Albuquerque IG report, a BYD official said "that only the frames of the buses were made in China, and that all of the other assemblies and components were manufactured in the United States by American suppliers." Yet, city inspectors interviewed offered sharply different accounts.

An individual identified as TD-5 observed that "many of the shipping labels for various components had Chinese characters." TD-6 said that based on package markings, discussions with BYD personnel, and other factors he believed that the chassis, walls, drive train, axles, motor, and modules were made in China. TD-7 said that when asking about the assembly process status for electric lights, seating, seat belts, and other components, he was told "it's on the boat." He said that as far he knows, it seemed everything appeared to originate in China based on responses to his questions. And, TD-9 said "the majority, if not all, parts were manufactured in China and shipped to the United States."

Further evidence to support these assertions includes BYD's public comments to the Office of the U.S. Trade Representative (USTR) requesting Section 301 tariff relief for storage batteries[18], air conditioning machines, seats, parts and acces-

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[15] "Inspection of Albuquerque Rapid Transit Project Procurement," Peter Pacheco, Office of the Inspector General, City of Albuquerque. 6 June 2018.

[16] BYD's U.S. Imports Derived from Shipping Manifests, 2017 and 2018 YTD as of Nov. 28, 2018, Obtained from Panjiva, Inc.

[17] Office of the United States Trade Representative, "Estimated Impact of the United States-Mexico-Canada Agreement (USMCA) on the U.S. Automotive Sector," April 18, 2019, at 5.

[18] BYD America Corp. comments and appendix, *Proposed Determination of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, Docket No. USTR-2018-0005, May 14, 2018.

sories[19], and electric vehicles, specifically noting its K9S[20], K9MC[21], K7M[22], and K8S[23] electric bus models. BYD submitted Section 301 tariff exclusion requests to USTR for its electric buses, which were all denied. USTR's General Counsel stated that the "request was denied because the request concerns a product strategically important or related to "Made in China 2025" or other Chinese industrial programs."

Press Reports Document BYD's Quality and Consistency Issues.

The City of Albuquerque has resorted to legal action against BYD for delays and incomplete certification testing.[24] According to city officials, the bus batteries limited the bus range to 177 miles on a single charge, far short of the 275 miles stipulated in its contract. The buses also experienced serious safety issues, including brake pressure issues, door issues, cracked and missing welds compromising the integrity of the buses, malfunctioning wheelchair accessibility, and exposed high voltage cables that created a risk of electrical fire.[25]

According to the *Los Angeles Times*, "Internal emails and other agency records show that agency staff called them 'unsuitable,' poorly made and unreliable for more than 100 miles." Buses used in Los Angeles experienced white smoke, wouldn't start, lost charge, and stalled on the road. Others experienced door and air system failures. In Denver, bus doors would not open or close. In Columbia, Maryland, passengers were "jolted by an explosion and a wheel fire."[26]

BYD Aspires to Dominate the Global Electric Vehicle and Battery Market.

Already the world's largest electric vehicle company by sales, BYD executives have been outspoken in their plans to one day sell passenger cars in the United States. The *Los Angeles Times* reported that in 2008 BYD's chairman "boasted of plans to dominate world auto sales by 2025." Reuters reported that in 2017 a BYD executive said the company planned to sell passenger cars in the United States in "roughly 2 to 3 years." And, in the meantime, the company is planning to raise funds through a public listing of its battery business in order to build vehicle-battery factories in Europe and the United States.[27]

Allowing BYD to extend its non-market influence and operations into the U.S. auto market would put hundreds of thousands of jobs at risk. BYD's economic model of assembling vehicles in the United States, but relying on imported parts and components, would threaten over 5,600 auto parts suppliers spread across the nation, employing 871,000 workers.[28]

STATE-OWNED CHINESE FIRMS ARE AN EXCEPTION TO THE RULE

My testimony today should not be read as an attack on the hundreds of American workers employed by CRRC or BYD. These dedicated individuals get up and go to work each day focused on providing for their families. Many have the protections of a union which, as anti-union activity in the U.S. rises, cannot be overlooked. As a former shop steward for the CWA and policy advocate for the AFL-CIO who has walked picket lines with, marched with, and represented these workers, I urge you to respect the dignity of work. That's an entirely separate question from the impact of state-owned enterprises on our economy. Tens of thousands of American jobs are supported by a competitive, market-based ecosystem of companies that do not benefit from aggressive foreign government support to bankroll anti-competitive behavior. Ultimately, millions of our jobs are still at risk, while millions more have been vanquished by shifts of production and import competition over the past two decades.

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[19] BYD Motors LLC comments, *China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation*, Docket No. USTR-2018-0026, Sept. 6, 2018.

[20] Exclusion Denied, BYD Motors Inc., Electric bus, HTS 8702903100, USTR-2018-0025-7530, Oct. 26 2018.

[21] Exclusion Denied, BYD Motors Inc., Electric bus, HTS 8702903100, USTR-2018-0025-7528, Oct. 26, 2018.

[22] Exclusion Denied, BYD Motors Inc., Electric bus, HTS 8702903100, USTR-2018-0025-7346, Oct. 25, 2018.

[23] Exclusion Denied, BYD Motors Inc., Electric bus., HTS 8702903100, USTR-2018-0025-7347, Oct. 25, 2018.

[24] City of Albuquerque v. BYD Motors, Inc., No. 1:2019-cv-00012 (US Dist. Ct., NM).

[25] "BYD faces Albuquerque lawsuit: City claims bus firm didn't live up to deal," Antelope Valley Press. 08 December 2018.

[26] "Stalls, stops and breakdowns: Problems plague push for electric buses," Paige St. John. Los Angeles Times. 20 May 2018.

[27] "Warren Buffett-Backed Electric Vehicle Maker Plans Battery Unit IPO," Bloomberg. 05 December 2018.

[28] "State of the U.S. Automotive Industry," American Auto Policy Council. August 2018.

Neither should our criticisms be read as an attack on international competition. Foreign investment is welcomed in our economy, and many foreign firms that manufacture in the United States provide high-wage jobs and contribute to economic growth. This includes foreign firms that manufacture buses and rail cars for our transit procurement markets. State-owned, state-subsidized, and state-supported Chinese firms, though, are an exception to the rule. Short-term promises of assembly jobs belie the long-term economic damage being done to our economy—it is an unhealthy proposition to allow foreign government-funded competition to push market-based firms into bankruptcy.

CONGRESS NEEDS TO ACT

It is timely that action be taken to promote fair competition, ensuring that the next generation of transit vehicles supported by U.S. taxpayers at the federal, state, and local level and deployed in major U.S. cities are made by American workers and rely on a robust domestic supply chain. Even though CRRC and BYD have made substantial investments in our market, it is not too late to implement policies that will prevent the destruction of the competitive landscape for rolling stock manufacturing. I wish to outline a series of recommendations for this committee and Congress to consider.

First, we urge your support for the bipartisan *Transit Infrastructure Vehicle Security Act*, which has been introduced in the House and Senate. This bill would prohibit federal funds from being used by transit agencies to purchase rail cars or buses manufactured by foreign-government-owned, controlled, or subsidized companies. America's tax dollars should not be used to support Chinese SOEs seeking to undermine legitimate competition.

Second, it is necessary to apply further pressure to transit systems that aim to employ clever accounting as a means of using non-federal resources to award contracts to these Chinese SOEs. The Washington Metropolitan Area Transit Authority (WMATA) is currently reviewing bids—including one from CRRC—to supply its 8000-series rail cars. The procurement of CRRC rail cars would hurt thousands of workers throughout the rail supply chain and it poses security risks as it serves countless government and private-sector contractor employees in our nation's capital. WMATA should not be permitted to allocate "non-federal" resources for the procurement of rail cars from CRRC when it also receives hundreds of millions annually from the federal government.

Third, it is necessary to make improvements to longstanding Buy America laws by closing loopholes and adding additional teeth to prevent erosion of our supply chains. The U.S. Department of Transportation and Federal Transit Administration (FTA) need to promptly modernize Buy America rules as it pertains to battery-electric power propulsion systems on buses. A long-term plan, with appropriate recognition of the need for transition strategies, must be adopted.

Fourth, we urge that both CRRC's and BYD's Buy America certifications be audited to ensure compliance. Individuals interviewed as part of the City of Albuquerque IG Report said that they were "pressured" to validate domestic content and felt as if they were "under duress" to do so. Others suggested that "everything was made in China."

Fifth, even if bids by firms like CRRC and BYD were to abide by market-based pricing, it is necessary that we address security concerns related to Chinese state-owned, -invested, and -supported firms having operational access or control over critical infrastructure systems. These firms must be required to provide the source code for U.S. government experts to analyze for any signs of suspicious activity, including any installed software, patches, updates, upgrades, and any other modifications. It is simply not enough to accept the word of these firms that they will structure their operations in a manner that resolves our security concerns. Extensive oversight is vital for the safety and security of Americans.

Sixth, we must protect our freight rail sector with unprecedented transparency and limitations on Chinese state involvement. Any U.S. entity seeking to procure freight rail cars from a Chinese state-owned, -controlled, or -subsidized firm, should be required to publicly disclose the details of that purchase and assume full liability for any future misdeeds that may occur.

Seventh, we must insist on reciprocity in procurement. No U.S.-based firm may enter the Chinese procurement market the way in which CRRC and BYD have entered the American market. China is not a signatory to the Government Procurement Agreement (GPA). Put simply, the United States should consider banning all Chinese products and firms from our procurement market until there is demonstrable progress on reciprocity in law and in practice.

Last, but certainly not least, we encourage you to continue the hard work of passing a substantial infrastructure investment paired with strong Buy America requirements. A lack of adequate, consistent funding puts added pressure on transit agencies to find ways to cut costs, even if that means sourcing rolling stock from companies with lingering quality issues, dubious Buy America compliance, security issues, and clear designs on leveraging state backing to grab market share from their competitors.

CONCLUSION

I applaud the Committee for holding today's hearing and for drawing attention to impacts of China's state-owned, state-subsidized, and state-supported entities on our public transit and freight rail sectors.

Thank you for the opportunity to testify. We look forward to working with you to strengthen America's economy and national security through smart infrastructure and procurement policy.

Mr. DEFAZIO. I thank the gentleman.

Next would be Brigadier General Adams.

General ADAMS. Good morning, Chairman DeFazio.

Mr. DEFAZIO. Yes, there you go. That is better. Thanks.

General ADAMS. Good morning, Chairman DeFazio, Ranking Member Graves, and members of the committee. I want to thank you for inviting me to testify at this critically important hearing on securing our freight and transit rail sectors against Chinese state-owned enterprises.

My name is John Adams, and I am a 30-year veteran of the U.S. Army and president of Guardian Six Consulting.

We depend upon the freight rail system to provide safe, reliable and effective transportation for our defense and homeland security infrastructure. Our national survival depends upon these rail links to transport, for example, military equipment, hazardous waste, toxic substances, and a range of products and commodities that support our entire economy.

U.S. freight rail is a strategic asset, the health and integrity upon which our Armed Forces rely.

Today I would like to draw the committee's attention to China's strategic targeting of the U.S. rail manufacturing sector with aggressive, strategic, and anticompetitive actions that threaten to turn this system from a bedrock strategic asset into a potentially crippling vulnerability.

These efforts are being driven by a Chinese SOE called the China Railway Rolling Stock Corporation, a massive conglomerate wholly controlled by the Chinese Government as part of coordinated efforts to advance Chinese industrial policy, such as Made in China 2025.

So what are some of the tactics that CRRC uses to infiltrate our rail industry?

First, they have unlimited resources since they are backed by the Chinese Government. They can easily underbid their competitors. Just in the last 5 years, CRRC's underbidding has allowed them to establish rail assembly operations for transit railcars in two States, along with research and bidding operations in several others.

Emboldened with contract victories in four cities, CRRC continues to target other U.S. cities, including our Nation's Capital where the request for proposal includes video surveillance, monitoring and diagnostics, data interfaces, and automatic train control systems that are susceptible to cyberattacks.

Whomever is selected to supply railcars for WMATA will become a partner in in the day-to-day operations of a Metro system whose stops include the Pentagon and the Capitol, as well as unfettered access to our Nation's tunnels and underground infrastructure.

The prospect of the Chinese Government using these trains for intelligence gathering is alarming. Chinese built-in surveillance cameras could track the movements and routines of passengers, searching for high-value targets from whom intelligence officials could vacuum data using the train's built-in Wi-Fi systems.

China already boasts of using the latest advances in artificial intelligence and facial recognition technology, creating a very real chance that they have the capacity and interest in doing so here in the United States.

Even more alarming is that CRRC can easily pivot into freight rail assembly, a subsector of rail that does not benefit from the same Buy America protections as transit rail.

Concerns about CRRC's transition to freight rail manufacturing are best illustrated by the recent experiences of third-country markets like Australia, whose freight rail manufacturing sector CRRC decimated in less than 10 years.

The Department of Defense has a longstanding reliance on freight rail. Most of the military's heavy and track vehicles are transported by freight rail, meaning that freight rail runs through every military base in the United States.

Freight rail is also core to the U.S. Transportation Command, DoD's global defense transportation system, coordinating transportation assets around the world.

The national security concerns related to CRRC cannot be underestimated. Chinese intelligence awareness of U.S. rail logistical movements could provide China with a destabilizing strategic and economic competitive edge, and of course, Chinese access to U.S. freight rail also means that the risk of malicious incursions into our rail infrastructure, including those carried out by terrorists, would become much more difficult for U.S. operators to detect or counter.

While Congress has recognized and taken steps to address similar threats to products, such as computer chips and cellular technology, it is equally important that policymakers enact legislation to stop immediately the scope and impact of China's ongoing incursion into an increasingly digitized rail network.

I greatly appreciate the committee's interest in addressing these critical issues. We must safeguard our U.S. rail system's health and integrity before we lose it.

We owe it to the American people to ensure that the American freight rail sector continues to be a vibrant and secure element of our Nation's infrastructure.

Thank you, again, for the opportunity to testify. I look forward to answering your questions.

[General Adams' prepared statement follows:]

Prepared Statement of Brigadier General John Adams, U.S. Army (Retired), President, Guardian Six LLC

INTRODUCTION

Chairman DeFazio, Ranking Member Graves, and members of the Committee, I want to thank you for inviting me to testify at this critically important hearing on securing our freight and transit rail sectors against Chinese state-owned enterprises (SOE). My name is John Adams and I am a 30-year veteran of the US Army and President of Guardian Six LLC, (Guardian). Guardian Six is a defense and national security consulting firm, which specializes in understanding, assessing, and mitigating against national security threats to our Nation's defense industrial base. Guardian Six is also a national security advisor to the Rail Security Alliance (RSA) which is a coalition of North American freight railcar manufacturers, suppliers, steel interest and unions committed to ensuring the economic and national security of our freight and transit rail systems. Notably, on October 22, 2018, Guardian Six published a report titled "National Security Vulnerabilities of the U.S. Freight Rail Infrastructure and Manufacturing Sector—Threats and Mitigation," which systematically examines, among other things, the threats posed by SOEs in this industry.

Our country depends upon the freight rail system to provide safe, reliable, and effective transportation for our defense and homeland security infrastructure. I know first-hand that our national survival depends upon these vital rail links as the primary transportation for U.S. military equipment, infrastructure logistics, hazardous waste, toxic substances, and the range of products and commodities that support our entire economy. U.S. freight rail is a strategic asset, the health and integrity upon which our armed forces depend to maintain readiness and preserve our defense capacity. Our freight rail system connects ports to rural and urban inland hubs, military bases to each other, and to key logistics nodes throughout our Nation. It also links the U.S. by land to key allies and trading partners Canada and Mexico and enables transportation between coastal and inland military and homeland infrastructure nodes. On the passenger side, millions of Americans rely on transit rail systems every day. The U.S. rail system is also highly sophisticated, relying on a constantly expanding network of technology and digitization that dramatically increases its risk to cyber-attack and hacking.

Today, I would like to draw the Committee's attention to China's strategic targeting of the U.S. rail manufacturing sector, with aggressive, strategic and anti-competitive actions. China is making substantial economic inroads into our rail system's supporting supply chains, as well as rolling stock asset ownership and management. Beijing's 2015 "Made in China 2025" plan leverages state resources and industrial policy, specifically aiming for a comparative advantage in the global advanced rail sector among nine other sectors. China's strategy to capture the U.S. rail system's supply chain threatens the system's cyber-security, reliability, and safety. Any Chinese dominance of the U.S. rail system would turn the system from a bedrock strategic asset into a potentially crippling vulnerability.

CHINA'S STATE-OWNED ENTERPRISES TARGET U.S. RAIL MANUFACTURING

The United States has seen a growth in Chinese foreign direct investment over the last few decades, exceeding $140 billion in 2018.[1] Much of this investment is targeted in several sectors including energy, telecommunications, and transportation—industries that make up key pillars of our country's critical infrastructure. In the rail transportation sector, this investment has been spearheaded by a Chinese SOE called the China Railway Rolling Stock Corporation (CRRC). Specifically, CRRC is a massive conglomerate that is wholly owned by the Chinese government, with deep ties to the Communist Party of China. Not only does CRRC possess 90 percent of China's domestic market to produce rail locomotives, bullet trains, passenger trains and metro vehicles, but it has dramatically and strategically increased its investment and footprint in the United States. This fact raises serious questions and concerns about the current and future safety and security of our Nation's railroads.

The "Made in China 2025" initiative, a key component of China's 13th Five-Year plan,[2] identifies the rail manufacturing sector as a top target for Chinese expansion. This initiative has systematically and deliberately driven strategic investment and financing activities of the SOE CRRC in third-country markets and the United

[1] Rhodium Group, *China Investment Monitor: Capturing Chinese Foreign Investment Data in Real Time*. https://rhg.com/impact/china-investment-monitor/

[2] U.S.-China Economic and Security Review Commission, *2016 Report to Congress*, November 2016, at 100.

States.[3] In 2015, CRRC reported revenues of more than $37 billion[4]—significantly outpacing the entire U.S. railcar market, which had $22 billion of output during the same year.[5] According to Chinese state media, CRRC plans to increase overseas sales to $15 billion by next year alone. This represents about double the level of export orders from just four years ago[6] and according to CRRC's own presentation materials the U.S. market remains a prime target to, as they put it, "conquer."[7]

CRRC's bylaws direct that the company seek guidance from the Communist Party of China on significant matters affecting the company's operations.[8] Three of CRRC's current board members previously held high-level positions at several state-owned defense companies including, Aviation Industry Corporation of China (AVIC), which produces fighter and bomber aircraft, helicopters, and unmanned aerial vehicles for the Chinese Army, and China Shipbuilding Industry Corporation (CSIC), which produces submarines, warships, and other naval equipment for the Chinese Navy. Furthermore, two former CRRC board members held positions at AVIC and China North Industries Group Corporation Limited (NORINCO), a state-owned defense company that supplies tanks, aircraft, missiles, firearms, and related products for the Chinese military.

The latter two of these entities, CSIC and NORINCO, have been subject to allegations of espionage and sanctions evasion by the U.S. government, raising serious questions about the link between CRRC board members and these compromising activities. Coupled with these facts, in 2007, AVIC was reputed to have stolen data on the F-35 fighter jet from Lockheed Martin and used it to build the Chinese J-31 fighter.[9] Similarly, CSIC was indicted in 2016 by the U.S. Department of Justice for entering into contracts with another Chinese company for the purchase of industrial materials that were created using stolen trade secrets from an American company.[10] NORINCO has also been sanctioned by the U.S. State Department on six occasions for contributing to Iranian Weapons of Mass Destruction (WMD) development.[11] Two of CRRC's board members were respectively employed in high-level positions at CSIC and NORINCO at the time these offenses occurred, suggesting that they were likely aware of, if not complicit in, this illicit activity.

Using state-backed financing, subsidies, and an array of other government resources, CRRC has strategically targeted and sought to capture the U.S. railcar manufacturing sector. In just the last five years the United States has witnessed CRRC establish rail assembly operations for transit railcars in two states, along with additional research and bidding operations in several others. By beginning with a business strategy to take market share in the U.S. transit rail manufacturing sector and deploying near-limitless financing from its home government to help ensure the well below-market bids for new U.S. metropolitan transit projects, CRRC has quickly established itself as a formidable force and major competitor in the U.S. transit rail system.

Thus far China has secured four U.S. metropolitan transit contracts, totaling $2.6 billion, largely by utilizing anticompetitive under-bidding practices. In each case, CRRC leveraged massive subsidies and other resources from the Chinese government to dramatically underbid its competitors, and in one case going as much as fifty percent below the bid submitted by another competitor. The trains purchased

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[3] Langi Chiang, *China's largest train maker CRRC Corp announces 12.2 billion yuan in contracts*, South China Morning Report, July 23, 2015. https://www.scmp.com/business/companies/article/1842983/chinas-largest-train-maker-crrc-corp-announces-122-billion-yuan

[4] CRRC Corporation, 2015 CRRC Annual Report, https://www.crrcgc.cc/Portals/73/Uploads/Files/2016/8-23/636075436968234671.pdf

[5] Oxford Economics, *Will We Derail US Freight Rolling Stock Production?* May 2017, at 24.

[6] Brenda Goh, *China Trainmaker CRRC to build more plants abroad in expansion plan: China Daily*, REUTERS, Dec. 5, 2016, http://www.reuters.com/article/us-crrc-expansion-idUSKBN13U0EJ

[7] @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. [Tweet deleted]

[8] "CRRC Corporation Limited Articles of Association," CRRC Corporation Limited, at 70. http://www.crrcgc.cc/Portals/73/Uploads/Files/2018/6-4/636637164457871915.pdf

[9] "America's most expensive weapons system, the F-35, is a key symbol of Trump's trade gripe with China," CNBC, March 22, 2018 https://www.cnbc.com/2018/03/22/americas-most-expensive-weapons-system-the-f-35-is-a-key-symbol-of-trumps-trade-gripe-with-china.html

[10] "Chinese Nationals Stole Marine Technology to Benefit Chinese Regime, According to US Justice Department," Epoch Times, April 30, 2018. https://www.theepochtimes.com/chinese-nationals-stole-marine-technology-to-benefit-chinese-regime-according-to-u-s-justice-department_2509135.html

[11] "United States Imposes Sanctions Against Chinese Firm," Nuclear Threat Initiative, September 22, 2004. https://www.nti.org/gsn/article/united-states-imposes-sanctions-against-chinese-firm/

by those U.S. metropolitan transit agencies will contain Wi-Fi systems, automatic train control, automatic passenger counters, surveillance cameras, and the Internet of Things (IoT) technology that will be thoroughly integrated into the information and communications technology infrastructure of transit authorities, all designed and built by the Government of China.

The fact that the advanced technologies in these trains is sole-sourced from a Chinese state-owned enterprise is alarming and the risk is very high that Chinese-built-in surveillance cameras could track the movements and routines of passengers, searching for high-value targets that intelligence officials can then identify to vacuum data from using the train's built-in Wi-Fi systems. Some argue that these risks are low and manageable; however, I beg to differ. Already, China is openly developing a system of "algorithmic surveillance" that leverages advances in artificial intelligence and facial recognition technology to enable the Chinese Communist Party to monitor the movements and patterns of its own citizens, purportedly as a means of combatting crime. China boasts about how it has utilized the latest advances in Artificial Intelligence (AI) and facial recognition technology to identify and track its 1.4 billion citizens,[12] creating a very real prospect that they have the current capacity and interest in doing the same here, in the United States.

Several recent cases involving CRRC bids for new transit rail projects serve as compelling examples of the strategy being employed by China to capture our rail systems. For example:

- CRRC bid $567 million to win a contract with the Massachusetts Bay Transit Authority (MBTA) in Boston in 2014, coming as much as 50 percent below other bidders.[13]
- CRRC won a 2016 contract to provide transit rail for the Chicago Transit Authority (CTA), bidding $226 million less than the next-highest bidder.[14]
- CRRC bid $137.5 million in 2017 for a contract with Southeastern Pennsylvania Transportation Authority (SEPTA) in Philadelphia, underbidding the next-lowest bidder-which had a robust local manufacturing presence-by $34 million.[15]
- CRRC finalized a contract with the Los Angeles County Metropolitan Transportation Authority in 2017 for its transit rail system worth up to $647 million.[16] Again, China did this by leveraging below-market financing, which in turn undercut other bidders.

Emboldened with these contract victories, CRRC continues to target other U.S. cities, including our nation's capital. In September, the Washington Metropolitan Transit Authority (WMATA), which is the second largest mass transit system in the country, issued a Request for Proposals (RFP) for the new 8000-series metro car. This RFP includes video surveillance, monitoring and diagnostics, data interface with WMATA, and automatic train control systems that are susceptible to cyber-attacks. In response to concerns expressed by a number of lawmakers, including the Vice Chairman of the Senate Intelligence Committee, WMATA re-issued its RFP to include additional cybersecurity protections.[17]

Most concerning is that whomever is selected to supply railcars for WMATA will become a partner in the day-to-day operations of a Metro system whose stops include the Pentagon and the Capitol, as well as unfettered access to our Nation's tunnels and underground infrastructure. We couple this reality with two additional critical facts. First, a classified report written by WMATA's Inspector General recently concluded that there were significant shortcomings in WMATA's enterprise-level cy-

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[12] Surveillance Cameras Made by China Are Hanging All Over the U.S., The Wall Street Journal, November 12, 2017. https://www.wsj.com/articles/surveillance-cameras-made-by-china-are-hanging-all-over-the-u-s-1510513949

[13] Bonnie Cao, *After Winning MBTA Contract, China Trainmaker CRRC Plans American Expansion*, Boston Globe, Sept. 11, 2015. https://www.bostonglobe.com/business/2015/09/11/after-winning-mbta-contract-china-trainmaker-crrc-plans-american-expansion/jnS1kU7uHWFGR9gjWmDEjM/story.html

[14] Corilyn Shropshire, *First Step to New CTA Rail Cars: Build the Factory in Chicago*, Chicago Tribune, Mar. 16, 2017. http://www.chicagotribune.com/business/ct-cta-new-railcar-plant-0316-biz-20170315-story.html

[15] Jason Laughlin, *Mass.-Based Company with Chinese Backing Beats Local Group for SEPTA Car Contract*, The Philadelphia Inquirer, Mar. 21, 2017. http://www.philly.com/philly/business/transportation/Mass-based-company-with-Chinese-backing-beats-out-local-group-for-SEPTA-car-contract.html

[16] Keith Barrow, *Los Angeles Orders CRRC Metro Cars*, International Railway Journal, Mar. 24, 2017. http://www.railjournal.com/index.php/north-america/los-angeles-orders-crrc-metro-cars.html

[17] Sean Lyngaas, D.C. Metro system beefs up supply-chain cybersecurity provisions for new railcars, Cyberscoop, February 6, 2019. https://www.cyberscoop.com/metro-dc-subway-cyberscecurity-rfp/

bersecurity posture.[18] Second, the New York Times recently noted that "businesses and government agencies in the United States have been targeted in aggressive attacks by . . . Chinese hackers . . . "[19] So, in light of China's pervasive history of cyber espionage and hacking, we cannot trust a Chinese SOE to build, own, or operate U.S. critical infrastructure.

As troubling as these developments in our transit rail sector are, they are even more alarming because they provide CRRC the opportunity to pivot into freight rail assembly, a subsector of rail not protected by the same Buy America requirements as transit rail, and one that represents a dangerous vulnerability if overtaken by the Government of China. The Chinese government is banking on the fact that once CRRC secures sufficient U.S. municipal transit contracts, it can pivot quickly and inexpensively toward the more strategically important freight rail sector. With 140,000 miles of rail lines across the United States, the North American freight rail system transports five million tons of goods and materials each day. By providing a means for safe, reliable and effective transportation, freight rail keeps our nation's economy thriving while helping to ensure the security of our homeland. Penetrating our freight rail market will allow China to unload much of its current freight car manufacturing capacity oversupply—offsetting its own, slowing domestic market, while continuing its strategy of using exports to sustain its own employment base.

CRRC is making steady and deliberate headway into the freight rail sector with the launch of Vertex Rail Corporation and American Railcar Services. Vertex Rail Corporation is now a defunct freight rail assembly facility that was based in Wilmington, North Carolina. On the other hand, American Railcar Services is a separate assembly facility headquartered in Miami, Florida, that maintains assembly operations in Moncton, New Brunswick.

Concerns about CRRC's transition into freight rail manufacturing are best illustrated by the recent experiences of third-country markets like Australia, whose freight rail manufacturing sector CRRC entered in 2008. In less than ten years, CRRC effectively decimated the sector, forcing the four domestic suppliers out of business and out of the rail market which left only CRRC standing. Today, almost no meaningful Australian passenger or freight rolling stock manufacturing exists—CRRC's Australia footprint is almost exclusively that of an assembler of Chinese-made parts and a financier of purchases from CRRC. That cannot happen here.

NATIONAL SECURITY IMPLICATIONS

As stated earlier in my testimony, the threat of Chinese dominance of our freight and transit rail sectors is more than just a market concern. The Department of Defense (DoD) has a longstanding reliance on freight rail in the United States. Unlike the U.S. maritime shipping industry, whose security is protected by the Jones Act, a measure that requires vessels transporting goods between U.S. ports to be U.S.-built and majority U.S.-owned, freight rail in America has been left comparatively unprotected. Yet, the Department of Homeland Security (DHS) deems the U.S. rail sector as part of the nation's critical infrastructure,[20] noting that 140,000 rail miles enable U.S. freight rail to run through every major American city and every military base in the nation. Most of the military's heavy and tracked vehicles are transported by freight rail meaning that freight rail runs through every military base in the United States.[21] The DOD's Military Traffic Management Command (MTMC) has designated nearly 40,000 miles of freight rail track as being uniquely important to our Nation's defense, and thus part of the Strategic Rail Corridor Network, or "STRACNET." STRACNET serves 193 U.S. defense installations, connecting military bases with maritime ports of embarkation and other key points across the country. Because of the deep reliance of our military on U.S. commercial rail, MTMC monitors and evaluates data on railroad industry construction, industry

[18] Ryan Johnston, D.C. Metro needs to improve its cybersecurity, audit finds, Statescoop, July 9, 2018. https://statescoop.com/wmata-incident-response-audit-calls-for-improved-cybersecurity-plan/

[19] Nicole Perlroth, Chinese and Iranian Hackers Renew Their Attacks on U.S. Companies, New York Times, February 18, 2019. https://www.nytimes.com/2019/02/18/technology/hackers-chinese-iran-usa.html

[20] Presidential Policy Directive 21 (PPD-21) identifies 16 critical infrastructure sectors, including "Transportation Systems." The Department of Homeland Security defines "Freight Rail" as one of the seven key subsectors. *See generally*, PPD-21, *Critical Infrastructure Security and Resilience*, Feb. 12, 2013, https://www.whitehouse.gov/the-press-office/2013/02/12/presidential-policy-directive-critical-infrastructure-security-and-resil and *Transportation Systems Sector*, Dep't of Homeland Sec., Mar. 25, 2013, http://www.dhs.gov/transportation-systems-sector

[21] "Strategic Rail Corridor Network (STRACNET)," Global Security, 2012. https://www.globalsecurity.org/military/facility/stracnet.htm

mergers, bankruptcies and other similar events to determine how they may affect DoD's mobility and readiness capabilities.

Freight rail is also core to the U. S. Transportation Command (TRANSCOM), DoD's global defense transportation system, coordinating people and transportation assets around the world. The Surface Deployment and Distribution Command (SDDC), a component of TRANSCOM, operates 10,000 containers and some 1,350 rail cars to deliver equipment and supplies for deployed members of the Army, Navy, Air Force, Marines, and Coast Guard. SDCC also leverages commercial freight rail to provide important components of DoD's surface transportation requirements.[22] SDCC uses a fleet of 1,850 specially designed heavy-duty flatcars managed by a company owned by the major freight railroads.

The specter of Chinese dominance over our freight rail system presents a myriad of national security concerns. The implications of U.S. industry and military interests being forced to rely on Chinese government-manufactured railcars are jarringly self-evident: Chinese penetration of the rail system's cyber-structure would provide early and reliable warning of U.S. military mobilization and logistical preparations for conflict. Were the Chinese to gain access to advanced U.S. freight car technology (notably specific rolling stock asset health, waybill commodity information on loaded freight cars, or precise GPS train location) the potential exists for the generation of a false negative (or positive) sensor activation—something particularly worrisome given that freight rail transports most of our t nuclear waste and hazardous material. A false sensor reading (e.g. tank car outlet dome cover is secure) could lead to a false level of confidence that tank car service valves are secure. If service valves are disturbed and that disturbance is undetected, a release of toxic chemicals could have catastrophic consequences and cost American lives. Moreover, Chinese intelligence about U.S. rail freight logistical movements could provide China with a destabilizing economic competitive edge. Last and certainly not least, Chinese access to U.S. freight rail would also mean that the risk of malicious intrusions into our rail infrastructure, including those carried out by terrorists, would become more difficult for U.S. operators to detect or counter.

Predatory Chinese efforts to penetrate our freight rail market also create the potential for disruption to the most advanced technologies upon which our rail system depends for safety and efficiency. Commercial railroads are, of course, aware of the risks they face from potential cyber-security incursions and are investing in cybersecurity capabilities. Even so, we significantly increase the risk of Chinese cyber-espionage or even cyber-terrorism by allowing CRRC to displace U.S. rail interests and shift our freight rail supply reliance to the Government of China. If allowed to penetrate the U.S. freight rail system, Chinese government-backed entities could simply vacuum data from individuals and firms connected to the rail network.

China's history of cyberattacks on U.S. interests, combined with the Chinese Government's known efforts to use facial recognition and artificial intelligence for tracking its own citizens through "a vast and unprecedented national surveillance system" make this security risk all the more acute.[23]

As noted in my 2018 report on the vulnerabilities of freight rail,[24] our rail system's rapidly expanding IoT capabilities present an array of national security challenges that include:

- *Digitized railroad network/IoT*: Integrated teams of data scientists, software developers, and engineers develop and apply technology across every aspect of the nationwide freight rail network, effectively increasing the vulnerability of industrial control systems, train operations, and perhaps even the industry's metadata warehousing centers to cyber threats.
- *Rail Signaling*: Congress has mandated the installation of positive train control (PTC) systems on much of the nation's rail systems as a means of preventing specific accidents. A malicious cyber breach of PTC or underlying existing rail signaling systems could wreak havoc and cause accidents or derailments on the highly interdependent freight railway network.
- *Locomotives*: Rail locomotives rely upon hundreds of sensors to monitor asset health and performance of train systems.

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[22] "About SDDC," U.S. Army Military Surface Deployment and Distribution Command, 2016. https://web.archive.org/web/20110818114337/http://www.sddc.army.mil/What/default.aspx

[23] Paul Mozur, "Inside China's Dystopian Dreams: A.I., Shame and Lots of Cameras," The New York Times, July 8, 2018. https://www.nytimes.com/2018/07/08/business/china-surveillance-technology.html

[24] *National Security Vulnerabilities of the U.S. Freight Rail Infrastructure and Manufacturing Sector—Threats and Mitigation*, Brigadier General John Adams, US Army (Retired), October 22, 2018.

- *Onboard Freight Car Location & Asset Health Monitoring*: Thousands of freight cars are equipped with telematics or remote monitoring equipment, many of which are carrying hazardous materials like chlorine, anhydrous ammonia, ethylene oxide, and flammable liquids. This tracking technology includes a wireless communication management unit to track precise near-real time location via GPS, direction of travel, speed, and dwell time within the Transportation Security Administration (TSA)'s 45 designated high-threat urban areas (HTUAs).[25]
- *End-of-Train Telemetry (EOT)*: The FRA requires all freight trains operating on excess of 30 mph to be equipped with a 2-way EOT device that tracks GPS location and can allow a locomotive engineer to initiate an emergency brake application, a critical safety feature for trains that can stretch upwards of 10,000 feet long.

The presence of these evolving technologies underscores the clear danger of a foreign country, and particularly the Government of China and its SOEs, having unfettered control of freight manufacturing in the U.S. market. Already, there are reports of Chinese manufacturers investigating the production of their own "telematics" technology to allow the monitoring and control of their rail cars.[26]

We depend on technology, machinery and a robust system of intellectual property protections to support our national security; when we allow foreign states to interfere—especially our strategic competitors—we risk that security. While Congress has recognized and taken steps to address similar threats to products such as computer chips and cellular technology, it is equally important that policymakers enact legislation directed to stop immediately the scope and impact of China's ongoing incursion into an increasingly digitized rail network.

MITIGATION

Chinese intrusion into the U.S. rail system's supply chain threatens the health and sustainability of this vital economic pillar, especially in a national emergency. Were China to gain inroads into those operations, management, and supply chains, the ability of U.S. to effectively utilize and leverage the freight rail network in a crisis could be crippled. Moreover, the extensive telematics and digitization of the American rail network, while integrating the most modern technology, also exposes the system and those who use it to a wide array of cyber risks.

In other U.S. economic sectors where Chinese SOEs have engaged aggressively, the U.S. Government has responded with targeted restrictions to mitigate clear security risks. Such measures have included a reported U.S. government ban on the purchase of Chinese drones[27] and the removal of Chinese-made security cameras from U.S. military bases.[28] In April 2018, DoD reportedly also banned Huawei and ZTE cell phones from sale in U.S. military exchanges world-wide.[29] We have yet to do the same to protect Chinese incursions into the U.S. freight rail manufacturing base.

While there is no single solution that will mitigate the concerns and risks described in my testimony today, I suggest that we must modernize our national policies to reflect these security risks. It is difficult to overstate the potential impact on our national security and our economic future if we do not take a comprehensive and long-range approach to CRRC specifically, and SOEs generally.

Considering these security risks, both chambers of Congress last year attempted to pass a ban on federal funding going to CRRC through the appropriations process. This year 30 Senators have so far signed onto legislation that would place a permanent ban on Federal funding going to CRRC and the House just recently introduced a bill as well. I would urge members of this Committee to join their colleagues in co-sponsoring the Transit Infrastructure Vehicle Security Act. Congress also passed legislation last year that would mandate DHS, in coordination with the Committee

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[25] The Transportation Security Administration defines an HTUA as an area comprising one or more cities and the surrounding areas, including a 10-mile buffer zone.

[26] *China plans 'smart trains' to take on global rail companies*, CHINA DAILY, March 10, 2016, page 1 http://english.chinamil.com.cn/news-channels/2016-03/10/content__6952271__2.htm

[27] Alwyn Scott, "China drone maker steps up security after U.S. Army ban," Reuters, August 14, 2017. https://www.reuters.com/article/us-usa-drones-dji/china-drone-maker-steps-up-security-after-u-s-army-ban-idUSKCN1AU294

[28] Max Greenwood, "US Army base removes Chinese-made surveillance cameras," The Hill, January 12, 2018. http://thehill.com/policy/defense/368710-us-army-base-removes-chinese-made-surveillance-cameras

[29] Hamza Shaban, "Pentagon tells U.S. military bases to stop selling ZTE, Huawei phones," The Washington Post, May 2, 2018. https://www.washingtonpost.com/news/the-switch/wp/2018/05/02/pentagon-tells-u-s-military-bases-to-stop-selling-zte-huawei-phones/?utm__term=.bf1e99041b11

on Foreign Investment in the United States and the Department of Transportation, to produce a report on the national security threats of Chinese SOE investment in our rolling stock manufacturing sector.[30]

It is now time for our Nation's leaders to put an end to CRRC's infiltration of the U.S. rail manufacturing industry by developing comprehensive restrictions to ensure the integrity of our Nation's transportation systems. In that vein, I recommend that Congress and the Administration giver serious and immediate consideration to:

- Developing comprehensive restrictions and additional reviews on investments from SOEs in critical infrastructure integral to our national defense.
- Ensuring that appropriate federal agencies, in coordination with states and localities, develop robust standards for cyber and data integrity applicable to any rail or transit sector contracts involving foreign state-owned entities.
- Strengthening oversight of Buy America laws to ensure that existing laws and regulations are adhered to in Federally-funded transit and rail procurements including railcar manufacturing, and explore new avenues to further protect the manufacturing capabilities of freight rail and other core domestic industries that are integral to support and maintain our defense industrial base.

CONCLUSION

We need urgent action to safeguard our U.S. rail system's health and integrity. Chinese control of our rail system's supply chains, much less control of the system through cyber-intrusion or outright firm ownership, threatens this vital national security asset. The strategic targeting of our Nation's infrastructure by the Government of China and its state-owned enterprises poses a fundamental threat to the fabric of our critical infrastructure and is a pressure point for malicious cyber actors to threaten not only the economic and national security of the United States, but to our standing as a global power.

We greatly appreciate the Committee's interest in addressing these critical issues. We must take action to safeguard our U.S. rail system's health and integrity before we lose it. We owe it to the American people to ensure that the American freight rail sector continues to be a vibrant and secure element of our Nation's infrastructure, keeping us safe and carrying our economy into the future.

Thank you again for the opportunity to testify. I look forward to answering your questions.

Mr. DEFAZIO. Precisely on time. I thank you, General.

Mr. Galloway.

Mr. GALLOWAY. Chairman DeFazio, Ranking Member Graves, and members of the Committee on Transportation and Infrastructure, thank you for inviting me to testify today.

My name is Hamilton Galloway, and I am the head of consultancy for the Americas at Oxford Economics, a leader in global forecasting in quantitative analysis.

Oxford Economics has conducted several economic impact studies, including those within the rail industry. A September 2018 study that Oxford did with the Rail Supply Institute found that the rail supply industry supports 650,000 mostly middle-income jobs, generates $74 billion in U.S. GDP, and touches every State.

This sector also supports hundreds of producers of parts and components and systems for the rail supply industry.

Now, nested within this rail supply industry lies a sector that manufactures public transit and freight railcars and rolling stock. This sector employs over 21,000 middle-class workers in the U.S. and supports nearly 190,000 jobs in the U.S.

In other words, every job in the public transit and freight railcar and rolling stock manufacturing sector supports nearly eight additional jobs in the U.S. economy. It is these jobs that are under threat by foreign state-owned enterprises.

[30] See. H.R.5515—John S. McCain National Defense Authorization Act for Fiscal Year 2019, Sec. 1719(c)

Foreign competition from SOEs is an increasing challenge for the U.S. economy because they operate with a different business model. Their core purpose is to fulfill a social or economic need in their own country's economy.

But in recent decades several SOEs have become multinational. SOEs pose a risk to us because they enjoy advantages like state-direct subsidies, concessionary financing from state-owned banks, and regulatory exemptions.

These anticompetitive practices displace private-sector competitors causing cascading negative effects upon business owners, workers, and families in the U.S.

In 2017, Oxford Economics researched the potential disruption of SOEs in the U.S. freight railcar manufacturing sector. We found a pattern of anticompetitive behavior in countries outside the U.S. with respect to pricing.

To cite one example, this led to the collapse of Australia's freight railcar manufacturing industry, and we concluded that if similar practices were to occur here in the U.S., it would threaten 65,000 American jobs.

Under one worst-case scenario, if just $1 billion in freight railcar sales were lost to an SOE, nearly 13,000 jobs would be lost in the U.S., and $1.3 billion would be lost to U.S. GDP. The bulk of this loss would be felt across the supply chains of freight railcar manufacturing, recalling that these supply chains span every State in the Union.

At Oxford, we recently turned our attention to passenger railcar manufacturing, a sector where SOEs already established operations in the U.S., including final assembly facilities. Although railcars will be assembled here, a large number of the components are likely to be sourced from the SOE's home country, like China.

We assessed two scenarios of potential disruption. In the first scenario the SOE does not need to adhere to Federal Buy America provisions, which is currently set at 65 percent U.S. content, but will jump to 70 percent next year.

In this scenario, we assume the municipality purchasing railcars is not using Federal funds. So much of the railcar content will actually be made in the SOE's home country.

In our second scenario, we assume a good faith adherence to Buy America provisions, which applies when Federal dollars are used. For context, local municipalities, including Boston, Philadelphia, Los Angeles and Chicago, have already awarded contracts to an SOE. Three of these city contracts are entirely funded by State and local governments. So the Buy America provisions do not apply.

In the non-Buy America scenario, over half of the railcar's value is lost overseas. This means that for every $1 billion in railcar productions by an SOE, it costs the U.S. more than 5,000 jobs and $500 million in GDP.

Put another way, for every final assembly job created by an SOE here in the U.S., 5.4 jobs are lost elsewhere in the U.S. economy.

In the Buy American scenario, more of the railcar's value is kept here in the U.S. However, we estimate that $1 billion in production awarded to an SOE still leads to a net loss of 3,200 jobs and a reduction of almost $320 million in U.S. GDP.

In this scenario, every SOE final assembly job created still eliminates 3.5 jobs here in the U.S. economy. So ultimately America loses in both scenarios. We just lose less in the Buy America.

Our research, therefore, suggests that anticompetitive practices by SOEs could destabilize competitive private-sector railcar manufacturing, causing long-term consequences to productivity and efficiency. This creates cascading negative effects across the U.S. due to the loss of private-sector jobs.

In sum, it is imperative that policymakers promptly acknowledge, assess, and respond to the SOEs making headway in the U.S. rail industry to prevent the loss of thousands of jobs, as well as hundreds of millions in wages, GDP, and taxes.

Thank you again for this opportunity, and I look forward to answering any of the questions that you may have.

[Mr. Galloway's prepared statement follows:]

Prepared Statement of Hamilton Galloway, Head of Consultancy for the Americas, Oxford Economics

Chairman DeFazio, Ranking Member Graves and members of the Committee on Transportation and Infrastructure Committee. First and most importantly I want to thank you for inviting me to testify today. My name is Hamilton Galloway and I am the Head of Consultancy for the Americas at Oxford Economics—a leader in global forecasting and quantitative analysis. Our worldwide client base comprises more than 1,500 international corporations, financial institutions, government organizations, and universities. Headquartered in Oxford, England, with offices around the world, we employ 400 staff, including 250 advanced degreed economists and analysts. Our best-in-class global economic and industry models and analytical tools give us an unmatched ability to forecast external market trends and assess their economic, social and business impact. Over the past four years, my team and I have conducted a significant number of robust economic impact assessments that have been time tested, across a broad range of industrial manufacturing activities, including those within the rail industry, giving us unique insight into the domestic value that private companies provide the U.S.—specifically in terms of jobs, income, Gross Domestic Product (GDP) and taxes. Our work is regarded as best-in-class by some of the world's leading firms. It is within this context that I appear before you today.

OVERVIEW

In September 2018, Oxford Economics in collaboration with the Rail Supply Institute published a report that analyzed the economic contribution of the rail supply industry. That report is attached to my testimony. Our study included the manufacturing of railcars, locomotives, signaling and communication, rail ties and tracks, as well as the maintenance of way. Taking into consideration the extensive, integrated domestic supply chains of hundreds of producers of parts and components for the rail supply industry, we concluded that the activities of this sector support 650,000 mostly middle-income jobs, $74 billion in U.S. GDP and contributes nearly $17 billion to federal, state and local taxes. This value spreads coast to coast, covering every state in the Union. Simply stated, *one job* in the rail supply industry *supports four additional jobs* elsewhere in the U.S. economy, which means that significant value is retained in here in the U.S. In fact, data from the U.S. Bureau of Economic Analysis indicates that approximately 82% of the rolling stock manufacturing supply chain is U.S. based.[1]

[1] IMPLAN 2016 figures, based on U.S. Bureau of Economic Analysis data

Nested within the rail supply industry is the sector that manufactures public transit and freight railcars, and rolling stock—a sector that directly employs over 21,000 middle-class workers in the U.S. and supports nearly 190,000 U.S. jobs.[2] In other words, *every job in the public transit and freight rail car and rolling stock manufacturing sector supports nearly eight additional jobs in the U.S. economy*. This is the context of value to the U.S. that is under threat from anti-competitive business practices demonstrated by state-owned enterprises.

STATE-OWNED ENTERPRISES

Foreign competition in the form of state-owned enterprises is an increasing factor for the U.S. economy. While competition in the private sector is generally regarded as positive, state-owned enterprises operate with a different business model than for-profit companies. At their core, state-owned enterprises have as their purpose to fill a social or economic need within their home country's economy. In recent decades, however, many state-owned enterprises have expanded outward, becoming multinational. Because state-owned enterprises enjoy certain advantages of government ownership—including direct state subsidies, concessionary financing from state-owned banks, state-backed guarantees, and exemptions from antitrust enforcement or bankruptcy rules—this expansion raises serious questions about the role that government owners of some of the world's top companies have on competition, particularly in the U.S. In fact, the advantages afforded state-owned enterprises threaten to undermine the benefits gained from fair competition in true private sector production—such as improvements to efficiency and technological advancement. Instead, anti-competitive practices displace private sector competitors, causing cascading effects through U.S. domestic supply chains and the business owners, workers and families who rely on them.

[2] Freight railcar manufacturing supports approximately 65,000 jobs—as evidenced from an Oxford Economics study conducted in 2017 evaluating the industry with respect to the threat of state-owned enterprises. Passenger railcar and locomotive manufacturing represent the remaining balance of 125,000 total jobs supported.

IMPLICATIONS ON FREIGHT RAILCAR MANUFACTURING

In 2017, Oxford Economics conducted original research into the potential disruption of state-owned enterprises in the freight railcar manufacturing sector.[3] That report is attached to my testimony. Our findings illustrated a pattern of anti-competitive behavior with respect to pricing freight railcars, which ultimately led to the collapse of Australia's freight railcar manufacturing industry. If similar practices were to occur in the U.S., it would threaten the 65,000 jobs supported by freight railcar manufacturing. This problem is further amplified because measures designed to preserve domestic production and content, such as Buy America, do not apply in the fright rail sector.

In its 2017 research, Oxford Economics built two scenarios to better understand the implication of state-owned enterprise disruption in the U.S. freight railcar market. These scenarios were calculated in $1 billion sales/output increments—about one-fifth the size of the current freight railcar market. The first scenario evaluated a partial preservation of domestic supply chains—although the bulk of the railcar inputs would be produced in China. Under this scenario, if $1 billion in freight railcar sales were to shift to a state-owned enterprise, approximately 5,100 U.S. jobs would be lost and U.S. GDP would decrease by approximately $540 million. The second scenario evaluated a full transfer of freight railcar production to China—similar to what occurred in Australia.[4] Under this scenario, a $1 billion shift in freight railcar sales to a state-owned enterprise would result in a U.S. job loss of nearly 12,900, as well as a $1.3 billion loss to U.S. GDP. The bulk of this loss would be felt across the supply chains of freight railcar manufacturing.

IMPLICATIONS ON PUBLIC TRANSIT AND PASSENGER RAILCAR MANUFACTURING

State-owned enterprises have already established operations here in the U.S.—including the establishment of final assembly facilities. While the activity of assembling components and parts will occur here in the U.S., a significant proportion of those components are likely to be sourced from the home country of the state-owned enterprise. There are two key reasons for this: 1) the mission of the state-owned enterprise is to drive value back to the home country, and 2) the state-owned enterprise has already made significant long-run capital investment in their home country's supply chain, which they rely on to produce railcars. As a result, the supply-chain jobs and value that have largely been a staple of the U.S. railcar economic landscape would be offshored.

New research by Oxford Economics evaluating the potential disruption of these activities covers two scenarios. The first scenario evaluates the net impact of passenger railcar manufacturing wherein the state-owned enterprise does *not need* to abide by Buy America provisions (wherein, for FY2018-19, 65% of the parts used in railcar manufacturing must consist of content made in America. After FY2020, the U.S. content requirement moves up to 70%)—in other words, the municipality purchasing railcars in this scenario is not drawing on federal funds. Therefore, it is highly likely that much of the railcar content will be made in the state-owned

[3] Oxford Economics (May 2017). Will We Derail U.S. Freight Rolling Stock Production? An Assessment of the Impact of Foreign State-Owned Enterprises on U.S. Freight Rolling Stock Production.

[4] Australia's freight rail market was nearly fully displaced by a state-owned enterprise in a span of less than one decade. In 2008, CRRC comprised about 40% of production output in Australia. By 2016, CRRC comprised more than 95% of output. Three key factors contributed to this outcome: 1) The Australian dollar during this time was very strong relative to foreign currencies, which reduced the effective price of Chinese freight railcars. 2) Australia's increasing economic reliance on China to buy Australian goods. 3) Australia's recognition of China as a market economy leading up to the bilateral Chinese-Australian Free Trade Agreement, which limits Australia's access to WTO remedies related to pricing and anti-dumping.

enterprise's home country. The second scenario evaluates the impact of a good faith adherence to Buy Americaprovisions.

For context, local municipalities, including MBTA in Boston, SEPTA in Pennsylvania, LACMTA in Los Angeles and CTA in Chicago have already awarded contracts to a state-owned enterprise. Three of these four contracts are entirely funded by state and local governments, meaning that Buy America provisions *are not required*.

SCENARIO ONE—NO BUY AMERICA PROVISION

In the non-Buy America adherence scenario, we assume that approximately 52% of the parts used in the railcar are produced overseas, with final assembly completed in the U.S. The outcome from this scenario is a net loss of 5,100 jobs, $508 million in productivity and $113 million in taxes in the U.S. economy for every $1 billion in passenger railcar final output. Put another way, *for every 1 US final assembly job created by a state-owned railcar manufacturer, a net 5.4 jobs are lost in the US economy relative to traditional non-SOE producers, including direct, indirect, and induced impacts*.

SCENARIO TWO—ADHERENCE TO BUY AMERICA PROVISION

In the Buy America scenario, where more U.S. domestic content is incorporated into the production of railcars and final assembly completed, the effects are less severe, though the outcome still implies loss of jobs and value in the U.S. We estimate that there would be a net loss of 3,250 jobs, $318 million in productivity and $70 million in taxes for every $1 billion in final output. In this scenario, every state-owned enterprise US final assembly job created results in a net loss of 3.5 jobs in the U.S. economy.[5]

CONCLUSION

The conclusions drawn from our research suggest that anti-competitive business practices among state-owned enterprises could:

- Destabilize competitive, private sector railcar manufacturing, causing long-term consequences to productivity and efficiency
- Lead to significant losses of private-sector jobs and value in the U.S. economy, as supply chains for state-owned enterprises are offshored
- Create cascading negative effects across the U.S. due to the loss of private sector jobs in key manufacturing industries

This disruption is further amplified when one factors in the passenger railcar manufacturing sector—an area where state-owned enterprises have already established operations here in the U.S. In sum, it is imperative that policy makers acknowledge, assess, and respond to state-owned enterprises that have and will likely continue to make headway into the U.S. rail industry in the near future to prevent, among other things, the loss of tens of thousands of jobs, as well as billions in wages, GDP and taxes.

Thank you again for this opportunity and I look forward to answering any questions that you may have.

[5] This scenario is designed to apply to situations similar to the SEPTA contract, wherein Buy America is a requirement.

Mr. DEFAZIO. Well, again, very, very good on the time. Thank you, Mr. Galloway.

Mr. Cilluffo.

Mr. CILLUFFO. Thank you, Chairman DeFazio, Ranking Member Graves, and distinguished committee members. Thank you for the opportunity to testify before you today on an issue that is clearly of national importance.

And I applaud your leadership in examining the impacts of foreign-owned and state-owned enterprises on the transportation sector and critical infrastructure more broadly.

The subject is as timely as it is concerning, given the impact to U.S. economic power, national security, military strength, innovation, and of course, jobs.

At a top level, and I might note, covering so much terrain in 5 minutes is a tall order, especially for me since I have never had an unspoken thought, but I will try.

At the top level, from a cyber perspective, the threat comes in various shapes, sizes, and forms. Intentions vary, as do capabilities. Topping the list are Russia and China. They are both advanced, persistent threats, and both countries have turned to proxies to do their bidding.

The primary concerns include computer network exploit where the theft of information to include intellectual property and other forms of espionage, as well as the mapping of critical infrastructure; computer network attack where the means to disrupt, destroy, or modify information and/or their systems; and of course, the insider threat.

In relation to both Russian and state-owned enterprises, I wanted to underscore that companies may willingly or even unwittingly serve as conduits of sensitive information as legal provisions in their countries require that they share information with the security services, and they can even be compelled to do so.

To give a sense of the scale and scope, I thought I would quickly tick off a very few examples, and I will focus on China since they account for over 90 percent of DOJ's economic espionage prosecutions and a vast majority of the cyber espionage cases.

It is also worth noting, as General Adams brought up earlier, the Made in China 2025 plan. Most of the technologies targeted are directly in the Transportation and Infrastructure Committee's jurisdiction, and those that are not touch your jurisdiction in an integral kind of way.

But to paraphrase Mark Twain, and I am not going to go over all of the espionage cases, whereas history may not repeat itself, it tends to rhyme, and there is a whole lot of rhyming going on right now.

Taken individually, each of these cases, you can understand why people would brush them off. In the aggregate, however, it sends a very strong and compelling message to our national security interests.

CRRC, we discussed briefly, or General Adams did, the significance of it having a foothold in our supply chain in some of the biggest cities in America. Obviously a 20- to 50-percent procurement bids under the competition, this is an unlevel playing field, but it

is, again, consistent of a broader pattern here, a broader strategy here.

Drones, what most people do not realize is Chinese manufacturer DJI has largely captured the American UAS market, and in 2017, U.S. Customs authorities allege that drones produced by DJI provided China with access to U.S. critical infrastructure and law enforcement data.

Major concerns abound where the data resides and whether it is corrupted and/or transmitting data back to third parties.

Cameras, Hikvision, they are the biggest company in the world right now in terms of video surveillance equipment, and they have had access to U.S. infrastructures, including schools, prisons, and even sensitive military and Government installations.

5G, Huawei, ZTE, the strategic significance of 5G as the bedrock upon which telecommunications and so much more will rely has direct relevance to the transportation sector. Not only does the attack surface grow exponentially, but smart highways and vehicles of tomorrow will be paved in silicon as much as they are in asphalt.

This would be the tech equivalent of building on quicksand since 5G is going to be at the very core, at the operating systems of our smart infrastructures. This is the crux of the Executive order that the President promulgated last night.

Financing, foreign proxy entities can step in and scoop up U.S. assets and entities on the verge of bankruptcy or seeking startup capital. These are two primary blind spots in CFIUS. Those are two issues that I think the committee can play a role in elevating since China was the largest single foreign venture capitalist in the United States cumulatively between 2015 and 2017.

The grid, more than 200 Chinese transformers have come into the U.S. energy sector during the past decade. Previously, there were none, and I can go on and on and on with the lists.

But let me just close with there are certain things we need to be able to grapple with here, and what we cannot afford to do is grind the U.S. economy to a halt with blanket or overly blunt measures.

Instead, we need to tailor and calibrate our responses to limit collateral damage to U.S. interests. National security and free markets are not either/or propositions. They are not mutually exclusive.

We can and must do both.

And I will touch on any recommendations during the Q&A.

Thank you, Mr. Chairman. And sorry for blowing the good record of——

[Mr. Cilluffo's prepared statement follows:]

Prepared Statement of Frank J. Cilluffo, Director, McCrary Institute for Cyber and Critical Infrastructure Security, Auburn University

INTRODUCTION

Chairman DeFazio, Ranking Member Graves, and distinguished Committee Members, thank you for the opportunity to testify before you today on a subject that is clearly of national importance. Your leadership in examining the impacts of foreign-owned enterprises on critical U.S. infrastructure and in the transportation sector in particular is commendable. The subject is as timely as it is concerning.

In this testimony, my goal is threefold: First, to offer a snapshot of the threat. Second, to place that threat in context by elaborating upon why it matters. And,

third, to suggest a handful of feasible, impact-oriented policy recommendations that fall within the Committee's jurisdiction. However, before proceeding, I offer one caveat. Whereas other witnesses will focus deeply on the specifics of particular modalities of transportation and the impacts in connection thereto, my contribution will reside more at the strategic level. I will speak to the broader challenges, primarily the threats to critical U.S. infrastructure posed by foreign-owned enterprises and the response. This approach is intended to add value by acknowledging and emphasizing that the transportation sector must not be examined in isolation.

Pursuant to this approach, there are three chief concerns on the cyber side. One, the theft of information for the purpose of espionage or computer network exploitation, to include the mapping of critical U.S. infrastructure. Two, the theft of information to enable disruptive or destructive computer network attack, including hybrid cyber/physical attack. And, three, the insider threat, which cuts across all of these categories. In relation to foreign state-owned enterprises, it is also important to recognize that the potential threat is equally acute. It may arise deliberately with the foreign company acting as a willing conduit for its state of origin or inadvertently with the foreign company simply being subject in principle and/or by law of the state of origin to provide assistance upon request.

THE STATE OF PLAY: RISKS TO NATIONAL & ECONOMIC SECURITY

Foreign state-owned enterprises and China Railway Rolling Stock Corporation (CRRC) in particular is increasingly taking center-stage when it comes to building new rail cars for major American cities. Boston, Chicago, Los Angeles, and Philadelphia have each awarded contracts recently to CRRC, which placed markedly lower bids than the competition. The company is also expected to bid on upcoming railcar contracts with the New York Metropolitan Transportation Authority, and the Washington (DC) Metropolitan Area Transit Authority.[1]

These procurement decisions and processes raise multiple concerns. First, the playing field is tilted: CRRC is able to underbid others because it benefits from state support.[2] Second, this support is just one element of a much broader strategy on China's part to challenge and undermine America economically.[3] Third, these economic factors are inextricably intertwined with U.S. national security because to undercut America's competitiveness is to damage the engine that powers our national security. And, fourth, CRRC's foothold in the supply chain of public transit to some of the largest cities in America effectively provides China with a wealth of intelligence, accessible through cyber means and vulnerabilities, among others. In military terms, such gathering of information for future exploitation and potential attack is called Intelligence Preparation of the Battlefield (IPB)—an important concept here, as China conceives of cyber, economic, military, and other measures as interconnected tools to achieve the country's larger geopolitical aims and ambitions. Looking beyond public transit and beyond China alone, the unfortunate reality that

[1] Candice Norwood, "As China Builds Transit Cars for U.S. Cities, Congress Seeks to Ban Them," *Mass Transit* (March 19, 2019), https://www.masstransitmag.com/rail/vehicles/news/21072662/as-china-builds-transit-cars-for-us-cities-congress-seeks-to-ban-them

[2] "CRRC has been winning U.S. procurements by bidding anywhere from 20 to 50 percent below bids from its non-subsidized, private sector competitors." Annie I. Anton and Justin Hemmings, "Recognizing Vendor Risks to National Security in the CFIUS Process," *Lawfare* (January 4, 2019), https://www.lawfareblog.com/recognizing-vendor-risks-national-security-cfius-process

[3] As explained by a senior official at the U.S. Department of Justice just last month: "The problem is not that China is working to master critical technologies, or even that it is competing with the United States, but rather the means by which it is doing so. 'Made in China 2025' is as much a roadmap to theft as it is guidance to innovate. Since the plan was announced in 2015, the Justice Department has charged Chinese individuals and entities with trade secret theft implicating at least eight of the ten sectors [identified as 'strategic manufacturing industries for promotion and development' by the Made in China 2025 strategy]. Over a longer time period, since 2011, more than 90 percent of the Department's economic espionage prosecutions (i.e., cases alleging trade secret theft by or to benefit a foreign state) involve China, and more than two-thirds of all federal trade secret theft cases during that period have had at least a geographical nexus to China. Some of those cases demonstrate that China is using its intelligence services and their tradecraft to target our private sector's intellectual property. In the space of two months last year, the Department announced three cases alleging crimes by the same arm of the Chinese intelligence services, the Jiangsu Ministry of State Security, also known as the 'JSSD'." "Deputy Assistant Attorney General Adam S. Hickey of the National Security Division Delivers Remarks at the Fifth Annual Conference on CFIUS and Team Telecom," (April 24, 2019), https://www.justice.gov/opa/speech/deputy-assistant-attorney-general-adam-s-hickey-national-security-division-delivers-0

we must take as our operating assumption, is that U.S. critical infrastructures have already been mapped by our adversaries.

The situation is no less concerning in the air, where the use of unmanned aircraft systems (UAS) is becoming ever more common, for a range of purposes including surveying and securing large tracts of land. Notably, a Chinese manufacturer—DJI—has largely captured the American market for UAS. While UAS serve valuable functions, use of these Internet-connected systems entails risks. Most importantly, the using entity's sensitive data may be exposed and accessed.[4] This type of breach is especially problematic if the using entity supports a critical U.S. sector or function, and the manufacturer of the UAS is a foreign state-owned enterprise. Chinese companies, for example, may be legally required to help advance the mission and goals of China's security and intelligence services. The use of UAS also raises the prospect of cyber/physical convergence, whereby cyber tools and operations may be invoked (particularly by an adversary with hostile intent) to generate kinetic or real-world consequences. Notwithstanding this background, the UAS issue has yet to receive in this country the attention and commensurate timely action that this concerning matter deserves.

Within the transportation sector alone, the potential vulnerabilities are manifold. Public transit, freight rail, UAS, seaports, and so on—each presents a tempting target on its own.[5] At the same time however, these transport hubs in surface, air and maritime also individually and collectively support and enable the U.S. military to achieve its ends and operations both at home and abroad. The ability of U.S. forces to complete these activities successfully and in service of the national interest is what the U.S. defense community refers to as Mission Assurance. Continuity of these operations, and resilience in the face of disruptive or destructive events, is of fundamental importance. National defense priorities thus intersect and, to a certain extent, depend upon the integrity of the transportation sector. If the latter is compromised that may put Mission Assurance at risk, since logistics are the lifeblood of the U.S. military; and to hamper that planning and execution is to jeopardize our ability to deploy forces and prosecute war. Put differently, the impacts of foreign state-owned enterprises on the transportation sector range well beyond the economic and stray deeply and directly into the realm of national security. Again, the potential for cyber/physical convergence, with resulting consequences on the battlefield, is concerning. Indeed, the Center for Cyber and Homeland Security will be releasing a report shortly entitled "Strengthening Defense Mission Assurance Against Emerging Threats." We will make it available to the Committee.

Foreign state-owned enterprises and the advanced technologies that they offer, often at highly competitive prices and frequently accompanied by additional concessionary financing, present a dilemma for other critical infrastructure sectors, too. 5G telecommunications technology proffered worldwide by Chinese companies Huawei and ZTE is a clear and prominent example. 5G will be the foundation upon which next-generation networks, globally, will rest. Currently, countries are in the process of selecting the entities that will build and contribute to that foundation. This is a seminal decision that will affect not only the telecommunications sector in each country, but all of the other sectors that the telecommunications industry supports and services (such as transportation—including autonomous vehicles where the cyber domain meets and melds with the physical world).

As such, 5G will be the hub powering many spokes that in turn may be critical sectors or functions. To be selected a preferred provider of the components for the hub is a tremendous economic opportunity. Huawei and ZTE are therefore competing aggressively to act as suppliers, including to the United States. Based on evidence of these companies' complicity with the Chinese government, and the national security concerns that this raises (e.g., espionage, IPB, intellectual property theft, etc.), the United States has rejected these overtures, and urged its allies and part-

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[4] "In 2017, U.S. customs authorities alleged that drones produced by Chinese company DJI, which has dominated the U.S. and Canadian drone markets, likely provided China with access to U.S. critical infrastructure and law enforcement data. DJI denied the allegation." Matthew Pennington, "US panel warns against government purchase of Chinese tech," *The Associated Press* (November 14, 2018), https://www.fifthdomain.com/critical-infrastructure/2018/11/14/us-panel-warns-against-government-purchase-of-chinese-tech/

[5] "State and local government agencies have become increasingly vulnerable to cyberattacks—particularly when it comes to public transportation. In 2016, hackers hit the San Francisco transit system with a ransomware attack demanding $70,000. The following year, Sacramento Regional Transit faced a similar strike. In 2018, the Colorado Department of Transportation shut down 2,000 computers after falling victim to two ransomware attacks in two weeks." Norwood, https://www.governing.com/topics/transportation-infrastructure/gov-china-crrc-congress-cities-transit-federal-funding-bill.html

ners to do the same.[6] While paths forward may ultimately diverge, the U.S. way ahead is clear, and it will not engage Huawei or ZTE. Significantly, the strategic significance of 5G, as the bedrock upon which telecommunications and so much more will rely, has also been recognized by more than 30 countries, which met recently in Prague, and produced a series of principles regarding the "cyber security of communications networks in a globally digitized world."[7]

Other products and technologies supplied by Chinese companies that have raised security concerns in the United States include cameras, such as video surveillance equipment, manufactured by Hangzhou Hikvision Digital Technology. The company, a global giant in its field, began as a Chinese government research institute. Today, three Chinese state-owned enterprises retain a large ownership stake of more than 40 percent in the company. Nevertheless, Hikvision cameras have been used in U.S. prisons and schools, and "sensitive sites such as the Fort Leonard Wood army base and the U.S. embassy in Kabul." Hikvision has also been the subject of allegations that the company maintains access to its devices "even if you change the admin [passwords] and the firewall."[8]

Many other smaller but still important opportunities exist for foreign state-owned enterprises to make inroads into U.S. critical infrastructure either directly or indirectly. Flush with the financial backing of their state sponsors, these foreign proxy entities can step in and scoop up U.S. assets and entities that are on the verge of bankruptcy or in need of start-up capital.[9] Such acquisitions may relate to a niche or component that may seem minor to the untrained eye, but may bear significant import. Consider switches, for instance. They play a crucial role in freight and passenger rail, and the ability to alter their activation or operation could cause substantial harm to both persons and property. Nor would such alteration be necessary to perform in person or onsite. Instead, tampering could take place from afar through silent and stealthy cyber means.

This scenario also highlights the criticality of time, as invoked by the phrase Positioning, Navigation, and Timing (PNT). Accuracy of time and the positioning and navigation functions that it enables is too often overlooked, underplayed, or taken as given. We do so at our peril. Here again, China is investing heavily with the dual goals of enhancing its ability to safeguard its own PNT and undermine others, such as through anti-satellite capabilities that could blind and bind the U.S. military. Modern militaries rely heavily on space-based assets for their transit and targeting requirements and other needs, thereby expanding the potential surface of attack. In addition, the continued expansion of the Internet of Things and the related number of connected devices worldwide that are giving us smart cities, smart cars, and sensors galore, likewise serves to increase exponentially both vulnerabilities and possibilities for attack. Heightened functionality comes at a price for soldiers and consumers alike.[10] The ever-present criticality of PNT functions and the coming ubiq-

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[6] Frank J. Cilluffo and Sharon L. Cardash, "What's wrong with Huawei, and why are countries banning the Chinese telecommunications firm?" *The Conversation* (December 19, 2018), https://theconversation.com/whats-wrong-with-huawei-and-why-are-countries-banning-the-chinese-telecommunications-firm-109036. Note also, "the potential impact of malicious cyberattacks . . . will intensify with the adoption of ultra-fast 5G networks that could quicken data speeds by up to 100 times." Pennington, https://www.fifthdomain.com/critical-infrastructure/2018/11/14/us-panel-warns-against-government-purchase-of-chinese-tech/

[7] Government of the Czech Republic, "Prague 5G Security Conference announced series of recommendations: the Prague Proposals," (May 3, 2019), https://www.vlada.cz/en/media-centrum/aktualne/prague-5g-security-conference-announced-series-of-recommendations-the-prague-proposals-173422/

[8] Sidney Leng, "China's Hikvision hits out at US Congress over 'baseless' ban on using surveillance equipment over national security concerns," *South China Morning Post* (May 27, 2018), https://www.scmp.com/news/china/diplomacy-defence/article/2148010/chinas-hikvision-hits-out-us-congress-over-baseless-ban

[9] The U.S.-China Economic and Security Review Commission notes that China was "the largest single foreign VC [venture capital] investor ($24 billion) in the United States cumulatively between 2015 and 2017, according to a recent U.S. government study." *2018 Report to Congress* (November 2018), https://www.uscc.gov/sites/default/files/annual_reports/2018%20Annual%20Report%20to%20Congress.pdf at page 30. See also: Michael Brown and Pavneet Singh, *China's Technology Transfer Strategy: How Chinese Investments in Emerging Technology Enable A Strategic Competitor to Access the Crown Jewels of U.S. Innovation* (January 2018), Defense Innovation Unit Experimental (DIUx) Report.

[10] "'The scale of Chinese state support for the IoT, the close supply chain integration between the United States and China, and China's role as an economic and military competitor to the United States creates enormous economic, security, supply chain, and data privacy risks for the United States . . . '". Pennington, https://www.fifthdomain.com/critical-infrastructure/2018/11/14/us-panel-warns-against-government-purchase-of-chinese-tech/ [citing the 2018 Report of the U.S.-China Economic and Security Review Commission]

uity of 5G technology each underscore the need to remain resilient, including by considering alternatives to our heavy reliance on the space-based Global Positioning System (GPS), as a precautionary measure.

Supply chain concerns are by no means limited to goods or services of Chinese origin.[11] Software produced by the Russian anti-virus company Kaspersky Lab is the subject of a ban on use by U.S. federal agencies. Kaspersky Lab's leadership has close ties to Russia's leadership, and the Lab may be legally obligated to assist Russian security and intelligence officials with espionage efforts directed against the U.S. government.[12] Indeed, even if the assist to foreign state officials in Moscow, Beijing, or elsewhere, were inadvertent or unwitting on the part of the foreign supplier, the possibility for that enterprise and its products, technologies and services to serve as conduit is simply unacceptable.

Despite measures like the Kaspersky software ban that are intended to mitigate harm to U.S. national security, the imprint of foreign state-owned enterprises upon critical U.S. infrastructure today remains troubling. Consider the grid. According to the deputy director of counterintelligence at the Department of Energy, more than 200 Chinese transformers have come into the U.S. energy sector during the past decade. Previously there were none.[13] The groundwork for future sabotage, actioned remotely by digital means, is now in place.

In some instances, the problem is low-tech, at least on its face. A recent GAO report revealed that just six TSA employees were responsible for overseeing the security of 2.7 million miles of oil & gas pipeline.[14] This is patently insufficient, regardless the degree of foreign state-owned enterprise involvement in this area. The problem appears to be compounded by shortfalls in cybersecurity expertise on the part of relevant personnel, and this further inhibits robust oversight at a time when pipeline operations are increasingly computerized.

In short, we have failed to inoculate ourselves against the many and varied threats to U.S. critical infrastructure posed by nation-state actors and their proxies. This, despite the fact that our adversaries have demonstrated their interest year after year in mapping our architectures and engaging in persistent computer network exploitation efforts that have no benign purpose and could ultimately be combined with kinetic measures. China and Russia are not alone in these pursuits. Iran and North Korea join them and possess a degree of hostile intent that more than makes up for any shortfalls in their respective capacities and capabilities. In this regard, we ought not to forget Iran's past cyber-targeting of U.S. banks (DDoS attacks) or its cyber-foray into the workings of a New York State dam.[15] The 2018 Foreign Economic Espionage in Cyberspace Report produced by the National Counterintelligence and Security Center notes also, "Iranian hackers target U.S. aerospace and civil aviation firms."[16] Nor should we forget North Korea's destructive cyber-attack on Sony Pictures Entertainment.[17]

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[11] But note: "the U.S. government depends on commercial, off-the-shelf products, many of them made in China, for more than 95 percent of its electronics components and information technology systems." Pennington, https://www.fifthdomain.com/critical-infrastructure/2018/11/14/us-panel-warns-against-government-purchase-of-chinese-tech/. Moreover: "An analysis of seven major U.S. based tech companies—HP, IBM, Dell, Cisco, Unisys, Microsoft and Intel—found that more than half of the products they and their suppliers use are shipped from China." Derek B. Johnson, "China's penetration of U.S. supply chain runs deep, says report," *FCW* (April 23, 2018), https://fcw.com/articles/2018/04/23/china-supply-chain-cyber.aspx?m=1

[12] Joseph Marks, "Government's Kaspersky Ban Takes Effect," *Nextgov* (July 16, 2018), https://www.nextgov.com/cybersecurity/2018/07/governments-kaspersky-ban-takes-effect/149758/

[13] Blake Sobczak and Peter Behr, "China and America's 400-ton electric albatross," *E&E News* (April 25, 2019), https://www.eenews.net/stories/1060216451

[14] Catalin Cimpanu, "Only six TSA staffers are overseeing US oil & gas pipeline security," *ZDNet* (May 2, 2019), https://www.zdnet.com/article/only-six-tsa-staffers-are-overseeing-us-oil-gas-pipeline-security/

[15] Dustin Volz, Nate Raymond, Jim Finkle, "U.S. to charge Iran in cyber attacks against banks, New York dam-sources," *Reuters* (March 23, 2016), https://www.reuters.com/article/us-usa-iran-cyber-idUSKCN0WP2NM

[16] National Counterintelligence and Security Center, *Foreign Economic Espionage in Cyberspace* (2018), https://www.dni.gov/files/NCSC/documents/news/20180724-economic-espionage-pub.pdf at page 9. In respect of Russia, the Report notes further (at page 8): "Moscow has used cyber operations to collect intellectual property data from U.S. energy, healthcare, and technology companies. For example, Russian Government hackers last year compromised dozens of U.S. energy firms, including their operational networks. This activity could be driven by multiple objectives, including collecting intelligence, developing accesses for disruptive purposes, and providing sensitive U.S. intellectual property to Russian companies."

[17] Peter Elkind, "Inside the Hack of the Century," *Fortune* (June 25, 2015), http://fortune.com/sony-hack-part-1/

PROPOSED RESPONSE: SELECTED ACTION RECOMMENDATIONS

The magnitude of the challenge is daunting, but there are steps that we can and should take in order to confront and counter the array of threats and problems that prevail, particularly those of highest potential consequence. What we cannot afford to do is grind the U.S. economy to a halt by introducing blanket and overly blunt security measures. Instead, we must tailor and calibrate our responses to limit any collateral damage to U.S. interests, separate and apart from national security concerns. In practice, this means working to elevate security concerns, monitor them, test our responses, and continually refine those regimes. Admittedly, this is a tall order. But, like any complex task, it can be broken down into a series of steps to be taken in a sequence that deals with first things first:

Prioritize Lifeline Sectors and National Critical Functions. If everything is critical then nothing is, and since we cannot protect everything, everywhere, all the time, we must focus our limited human, capital and other resources on those assets and operations whose takedown or undermining would be most damaging to the nation. Put differently, we must manage risk since we cannot eliminate it. To this end, a good place to start would be to direct our attention to the so-called "Lifeline" Sectors, which have already been identified as the most critical of the critical. These include the defense industrial base, energy, financial services, transportation, telecommunications, and water. In addition, the list of National Critical Functions (NCF) recently released by the National Risk Management Center, nested within the Department of Homeland Security (DHS)'s Cybersecurity and Infrastructure Security Agency (CISA), provides another series of guideposts for prioritization. The NCF list addresses cross-sector and system-wide risks, and thereby complements a focus on lifeline sectors, by taking the logical next step, which is aligning and calibrating the most critical of sectors and the most critical of functions.

Know and Scrutinize Your Supply Chain. It should be patently clear from the above-described state of play that any entity is only as strong as the weakest link in its chain. In the context of business operations or government enterprise, this means that knowing and scrutinizing your supply chain is a prerequisite to public safety and security. However, while few would argue with this statement as a matter of principle, not enough businesses or government officials and contractors are paying this principle the heed that it deserves in practice. Instead of acting according to the old adage, "trust but verify," too many of us are relying on trust alone[18]. In the context of critical infrastructure, this could have catastrophic consequences. Executive Order 13806 on Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States[19] was assuredly a helpful initiative in this respect as was the Department of Defense-led Interagency Task Force Report[20] and, the Information and Communications Technology (ICT) Supply Chain Risk Management Task Force launched recently by DHS CISA.[21] However, it is incumbent upon all of us to widen and deepen the effort.[22]

Empower CFIUS to better Protect Critical U.S. Infrastructure. The Committee on Foreign Investment in the United States (CFIUS) is an interagency body mandated to review the national security implications of certain transactions. Taken together with the 2018 Foreign Investment Risk Review and Modernization Act, and our export control regime, we have in place an architecture and mechanisms to assess and

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[18] Phil Muncaster, "Most Firms Rely on Trust Alone for Supply Chain Security," *Infosecurity Magazine* (May 1, 2019), https://www.infosecurity-magazine.com/news/most-firms-rely-trust-alone-supply-1/

[19] (July 21, 2017), https://www.federalregister.gov/documents/2017/07/26/2017-15860/assessing-and-strengthening-the-manufacturing-and-defense-industrial-base-and-supply-chain

[20] Report to President Donald J. Trump by the Interagency Task Force in Fulfillment of Executive Order 13806, *Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States* (September 2018), https://media.defense.gov/2018/Oct/05/2002048904/-1/-1/1/ASSESSING-AND-STRENGTHENING-THE-MANUFACTURING-AND%20DEFENSE-INDUSTRIAL-BASE-AND-SUPPLY-CHAIN-RESILIENCY.PDF

[21] Robert Kolasky, Statement for the Record for a Hearing on "Securing U.S. Surface Transportation from Cyber Attacks," before the U.S. House of Representatives Committee on Homeland Security, Subcommittee on Transportation and Maritime Security, Subcommittee on Cybersecurity, Infrastructure Protection, and Innovation (February 26, 2019), https://homeland.house.gov/sites/democrats.homeland.house.gov/files/documents/Testimony-Kolasky.pdf at page 5

[22] Late last year, the Senate passed legislation to stand up an interagency council to "develop rules of the road for federal supply chain security." Derek B. Johnson, "Senate passes bill to establish governmentwide supply chain council," FCW (December 19, 2018), https://fcw.com/articles/2018/12/19/senate-supply-chain-bill-johnson.aspx?m=1. The subsequently enacted *SECURE Technology Act* established the Federal Acquisition Security Council. See *H.R. 7327* (January 3, 2018), at *Title II*, https://www.dni.gov/files/NCSC/documents/supplychain/20190327-Law-BILLS-7327.pdf

thwart significant, negative consequences for U.S. national security that might arise from foreign investment or technology transfer. The system in place entails evidence-based inquiry and analysis but contains some important gaps. These are identified and discussed in specific bilateral context in a staff research report of the U.S.-China Economic and Security Review Commission released earlier this month. The report includes the concern that "investments in U.S. critical technologies based outside the United States" fall beyond the detection ambit of CFIUS.[23]

Develop Strategy, Not Just Tactics, and Integrate Cyber. American economic advantage, military strength, innovation, jobs and many other important national equities are at stake.[24] There is a resultant compelling need to address the ecosystem of threats in a comprehensive and contextualized manner that balances and accommodates the tensions that may exist among the various equities at play. At the same time, cybersecurity factors, such as risk assessments and risk management strategies, should be woven into strategy at inception and across the board, rather than treated as a separate vertical, that must be retrofitted. To these ends, a domestic version of The Prague Proposals, which are principles regarding the "cyber security of communication networks in a globally digitized world" generated at the recent 5G Security Conference in which 32 countries participated, could prove useful for safeguarding U.S. Lifeline Sectors and National Critical Functions in connection with the widespread rollout and implementation of 5G technology.[25]

Make Building the Cyber Workforce and a Network of Critical Technologies Testbeds National Imperatives. Report after report has identified large shortfalls in the supply of skilled cyber professionals relative to U.S. demand for them in both the public and private sectors. Yet, cyber practitioners are crucial to identifying, assessing, and responding to the threat as manifested and previously described. For government, the under-supply problem is magnified because private industry can offer prospective and existing employees greater salary and benefits. Although psychic income derived from the government mission of serving the national interest is a significant pull and retention factor, the fact remains that the pool of qualified candidates is itself too small. It must be expanded, urgently, to address the deficit of knowledge and bandwidth that is needed in our public institutions and in our companies to counter and thwart cyber threats posed by state actors to U.S. critical infrastructure. The recent Executive Order on America's Cybersecurity Workforce recognizes this challenge,[26] but continued and whole-of-society efforts will be required. In addition, on the technology side, we lack a strategic approach to integrating advancements into the broader ecosystem. An R&D effort, in the form of a nationwide network of technology testbeds that simulate a realistic pan-sectoral environment, is needed to remedy this shortfall. Taken in aggregate, such a platform would identify and explore the various national and economic security implications of new and critical technologies before they are in widespread use.

CONCLUSION

National security and free markets need not be an either/or proposition—we need both. With leadership and sustained determination on the part of both government and industry, complemented and supported by robust partnership of the two, we can meet that goal. Thank you again for the opportunity to appear before you today. It is a privilege to contribute to this important conversation and analysis,[27] and I look forward to trying to answer any questions that you may have.

Mr. DEFAZIO. No, it's only 28 seconds. This is a good panel altogether. Thank you, and we are almost exactly on time.

Mr. Kahn.

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[23] Sean O'Connor, *How Chinese Companies Facilitate Technology Transfer from the United States*, U.S.-China Economic and Security Review Commission Staff Research Report (May 6, 2019), https://insidecybersecurity.com/sites/insidecybersecurity.com/files/documents/2019/may/cs05072019_China_Tech_Transfer.pdf at page 10. Also, as noted in the 2018 Foreign Economic Espionage in Cyberspace Report: "China uses front companies to obscure the hand of the Chinese government and acquire export controlled technology." https://www.dni.gov/files/NCSC/documents/news/20180724-economic-espionage-pub.pdf at page 6.

[24] The list is illustrative, not exhaustive, and elaborated by the National Counterintelligence and Security Center. https://www.dni.gov/index.php/ncsc-what-we-do/ncsc-supply-chain-threats

[25] Government of the Czech Republic, https://www.vlada.cz/en/media-centrum/aktualne/prague-5g-security-conference-announced-series-of-recommendations-the-prague-proposals-173422/

[26] (May 2, 2019), https://www.whitehouse.gov/presidential-actions/executive-order-americas-cybersecurity-workforce/

[27] I would be remiss if I did not thank the deputy director of the Center for Cyber and Homeland Security, Sharon L. Cardash, for her skillful assistance in preparing this testimony.

Mr. KAHN. I will try to make up those seconds.

Chairman DeFazio, Ranking Member Graves, distinguished members of the committee, thank you for the opportunity to speak here this morning.

My name is Zach Kahn, and I lead public policy efforts and government relations for BYD Motors.

I would like to acknowledge several of our employees here from our Lancaster, California, facility, as well as representatives from out union partners who are here as well.

Thank you for the opportunity to speak with you today. These are exciting times for BYD in America. We recently delivered our 300th electric bus in the U.S., and one of our first customers logged its millionth mile on BYD buses.

I do appreciate this opportunity to clarify that BYD is not a state-owned enterprise. As discussed in my written testimony, BYD is a privately held, publicly traded, global company with more than 200,000 employees, 900 of which are in the U.S.

Berkshire Hathaway Energy, a subsidiary of Berkshire Hathaway, is BYD's long-term investment strategic partner and single largest outside shareholder.

Our U.S. headquarters are in Los Angeles. We have multiple manufacturing facilities in Lancaster, California. BYD is a proud union company with a collective bargaining agreement with the International Association of Sheet Metal, Air, Rail and Transportation Workers, also known as SMART, Local 105.

We have grown, as I said, to nearly 900 U.S. employees, including more than 775 SMART Union workers.

We also have a community benefits agreement with Jobs to Move America and SMART, establishing training and apprenticeship programs for workers with traditionally high barriers to employment who have been historically underrepresented in the manufacturing industry.

We are immensely proud of our diverse and talented workforce and invite any interested members of this committee to come out to Lancaster to meet our employees and see what we are building there together.

BYD has invested more than $250 million on our U.S. operations. Last year alone, BYD spent more than $70 million on components made by American vendors located all across the country, which is twice what we spent in 2016. We source components from hundreds of U.S. vendor partners across the country.

Our procurements allow our vendors to create and maintain hundreds, if not thousands, of American jobs. BYD is helping to create a truly competitive market for buses in America.

The competition has led to rapid technological improvements in the electric bus sector for manufacturers across the industry, while also driving down costs and, most importantly, helping public transit agencies meet their Clean Air goals in a safe and economically viable way.

Competition is the life blood of our country, and rather than hurt the market, this competition sparks innovation, reduces acquisition and life-cycle costs, and facilitates the growth and adoption of zero emission options for U.S. transit operators.

The competition also creates new technology jobs outside of the vehicle manufacturer space. For example, BYD is the only manufacturer with numerous projects deploying en route, inductive, or wireless charging technology, which has the potential to transform transportation electrification by virtually eliminating operator concerns about vehicle range.

BYD has worked directly with two companies, Momentum Dynamics from Malvern, Pennsylvania, and WAVE from Salt Lake City, Utah, investing millions of dollars in initial projects with each company.

These companies are now deploying these technologies not only inside the U.S., but also outside the U.S. in Europe and abroad, as well as expanding their wireless charging applications to other industries besides transit buses.

Were it not for this early support from BYD, these amazing and innovative U.S. startup companies would in all likelihood have stalled out.

This is the kind of innovative technology that thrives in a competitive environment, driving local investment and creating new manufacturing, engineering, and design jobs in the process.

We proudly note that we have had 14 different repeat customers who purchased zero emission buses after their first appointments with BYD.

Just this week Anaheim Transportation Network ordered 40 additional clean energy buses from BYD. As their executive director Diana Kotler noted, "We have been operating four BYD buses on our routes over the past 2 years, and based on their performance, we are confident in BYD's quality, product, and their support of our effort to electrify our fleet."

Thank you, again, for this opportunity to tell you about BYD. I look forward to answering your questions.

[Mr. Kahn's prepared statement follows:]

Prepared Statement of Zachary Kahn, Director of Government Relations, North America, BYD Motors LLC

Chairman DeFazio, Ranking Member Graves, distinguished members of the Committee, thank you for the opportunity to speak to you this morning on the important topic of "The Impacts of State-Owned Enterprises on Public Transit and Freight Rail Sectors." My name is Zach Kahn and I lead policy efforts and government relations for BYD Motors. I have been with the company for more than 4 years and began as a regional sales manager. Prior to this, I worked on charging infrastructure for heavy duty electric vehicles, so I have not only seen the growth of BYD, but also the maturation of zero emission vehicles in the United States. There is a lot of positive news in this space and I hope to come back in the future and tell that story.

I appreciate this opportunity to clarify that BYD is *not* a State-Owned Enterprise. BYD is a privately held, publicly-traded global company. BYD US Holdings Inc., is a subsidiary of the global BYD Company and is incorporated in Delaware with headquarters in Los Angeles. BYD Coach & Bus LLC and BYD Energy LLC are subsidiaries of BYD US Holdings Inc. with manufacturing facilities in Lancaster, CA. Our U.S. operations are run out of these companies. That being said, we welcome this opportunity to tell you about BYD and what we have been doing in the United States to create good union jobs and to help transit agencies across the country electrify their bus fleets. We have been, and will continue to be, transparent and open.

Since opening its Coach & Bus manufacturing facility in Lancaster in 2014, BYD has grown to nearly 900 total U.S. employees, including more than 775 union workers. To date, BYD has delivered more than 300 electric buses in North America and

has sold over 500 all-electric heavy-duty buses to more than 50 municipal, transit agency, university, airport, and other commercial and private sector clients across 13 states including Massachusetts, Louisiana, Missouri, Oregon, Washington, and California, and four provinces in Canada. These buses are safe, economical, energy-efficient, quiet and environmentally friendly. Riders benefit from the smooth and quiet ride and the absence of tailpipe emissions, while we all benefit from the low environmental impact all-electric public transpiration provides.

In Lancaster, we recently completed an expansion of our state-of-the-art, ISO 9001, certified manufacturing facility to over 550,000 square feet, and our American workers now have the capacity to domestically build 1,500 electric buses per year.

In April of this year, BYD opened our first service center in San Carlos, CA. It is the first of several we plan to open around the country to better support customers with parts, training and technical support, ultimately creating more jobs and opportunity for American workers while providing better service to our customers. Additionally, BYD plans to expand its manufacturing presence in California and the U.S. by at least 2 million square feet in the coming years and expects to continue to significantly expand our employee base.

BYD BUSES ARE MADE IN AMERICA

All BYD buses sold to U.S. transit agencies are *made in America* and meet the Federal Transit Administration's regulatory requirements. These buses *exceed* Buy America standards and have undergone numerous third party Buy America audits, each of which confirmed BYD's compliance with Buy America requirements. Each purchase of BYD buses includes both a pre-award Buy America Audit and a Post-Award Audit. These audits are conducted by a third party Buy America expert who is compensated by the customer, not BYD.[1] In fact, during the Senate Banking Committee's work on the FAST Act in 2015, BYD encouraged committee staff to push the Buy America content requirements up to 70 percent U.S. content.

BYD also surpasses the regulatory requirements related to safety and testing. For example, BYD has had three bus models approved for sale to U.S. transit agencies based on Altoona testing.[2] In addition, we currently have two other electric bus models on the track in Altoona undergoing the certification and approval process—our five door, 60′ all-electric K11 bus, and our 45′ over the road all-electric coach bus.

BYD SUPPORTS LOCAL U.S. VENDORS

BYD has invested more than $250 million on U.S. operations since initiating domestic operations in 2014. Last year alone, BYD invested more than $70 million on components made by American vendors located all across the nation, which is a 3400% increase over what BYD spent on U.S. operations in the first year of U.S. operations and twice what the company spent in 2016. BYD sources components from more than 1,000 U.S. vendor partners across the country, including Trussville, Alabama; Windcrest, Texas; Murfreesboro, Tennessee; Elkhart, Indiana; Upper Sandusky, Ohio; Bronson, Michigan; and Neenah, Wisconsin. Our procurements allow our vendors to create and maintain thousands of American jobs across the country.

BYD OWNERSHIP—PRIVATELY-OWNED & PUBLICLY-TRADED

BYD's founding and ownership are as transparent as every other multinational manufacturer and we strive to be as forthcoming as possible. Integrity and transparency are core values for BYD as a company. BYD was founded in February 1995, as a private company with 20 employees making cell phone batteries. BYD has grown into a global publicly traded corporation with more than 200,000 employees globally. Throughout its 24 years of growth, BYD has established over 30 industrial parks on six continents and has played a significant role in industries related to electronics, automobiles, clean energy and transit. From energy generation and storage to transportation, BYD is dedicated to providing zero-emission energy solutions for customers around the world. Two cornerstones of BYD's success is its dedication to innovation and transparency. The clean technologies it has developed benefit communities and transit agencies in the United States and all around the world, seeking to improve the environment with safe, quiet, efficient and affordable products.

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[1] Buy America auditors who have worked on audits on BYD bus projects include: Steve Policar, LLC, Transit Resource Center, and Global Innovations, USA.

[2] BYD's completed Altoona Testing Reports can be found here: http://apps.altoonabustest.psu.edu/buses/441, http://apps.altoonabustest.psu.edu/buses/476

BYD has been publicly listed on the Hong Kong Stock Exchange since 2002, and on the Shenzhen Stock Exchange since 2011. BYD has never been owned, operated, and controlled by any nation-state. The two founders of BYD together own 33.58 percent of the company.[3] In September 2008, MidAmerican Energy Holdings Company (now renamed as Berkshire Hathaway Energy), a subsidiary of Berkshire Hathaway, based in Nebraska, entered into an agreement with BYD, pursuant to which it acquired approximately 8.25 percent of the Company, to become BYD's long term investment strategic partner and single largest stockholder outside of the founders.

PROUD UNION COMPANY

BYD is a proud union company with a collective bargaining agreement with the International Association of Sheet Metal, Air, Rail and Transportation workers (SMART). As well as being the only electric bus manufacturer in the U.S. that employs union labor at every single one of its bus manufacturing facilities, we are also the only electric bus manufacturer in the country with a Community Benefits Agreement with Jobs to Move America and SMART. This legally binding agreement establishes training and apprenticeship programs for workers with traditionally high barriers to employment, and BYD has committed to work toward the goal of recruiting and hiring 40% of our workers from populations, such as veterans, who face significant barriers to employment. BYD has also initiated an effort to recruit workers from other populations that have been historically underrepresented in the manufacturing industry, including women and African Americans. We currently exceed the goals set out in our agreement and are immensely proud of our diverse and talented workforce. We are working with Antelope Valley College and our labor partners to create both a pre-apprenticeship program at the college level and an ambitious apprenticeship program in 2019 that will include six months of classroom training and a year of on-the-job training. Our workers are diverse and reflect the communities in which we operate. We are proud of these workers and especially proud of the second chances we are providing to many of those working in our Lancaster facility. BYD stands by its products and its U.S. employees, which include over 775 proud American union members. We are especially proud of the relationship we have developed with the cities of Lancaster and Palmdale in the Antelope Valley. We are active civic participants in the community and have been supportive of numerous local charities and institutions—from sponsoring the Advanced Zero Emission Transportation Endowment Fund Program at Antelope Valley College to supporting the Boy Scouts and the California Poppy Festival—and are honored to build buses here.

BYD HAS INCREASED COMPETITION IN THE U.S. BENEFITING TAXPAYERS

BYD is a market leader and innovator responsible for many firsts in the bus industry—the first long range electric bus, the first electric bus to utilize in-wheel hub motors, the first manufacturer to offer a 12 year battery warranty, the first manufacturer to build a 60-foot electric articulated bus, and the first to build a 45-foot electric coach bus, to name a few of many notable achievements. BYD is helping to create a truly competitive market for buses in the United States for the first time in decades. We believe, the competition BYD provides to the U.S. market has led to rapid technological improvements in the electric bus sector from manufacturers across the industry, while also driving down costs and, most importantly helping public transit agencies meet clean air goals in a safe and economically viable way. Competition is the life blood of our country and rather than hurt the market, the competition represented by BYD and other participants in the U.S. electric bus market sparks innovation, reduces acquisition and lifecycle costs, and facilitates the growth and adoption of zero emission options for U.S. transit operators.

Competition in the transit market leads directly to innovation and job creation outside of the vehicle manufacturer space. For example, BYD is the only manufacturer with numerous projects deploying en route inductive charging technology. This technology has the potential to transform transportation electrification by virtually eliminating operator concerns regarding vehicle range. BYD has worked directly with two U.S. companies, Momentum Dynamics, from Malvern, Pennsylvania, and WAVE, from Salt Lake City, Utah, investing millions of dollars in initial projects including the first high powered 200 kW+ wireless chargers for each company. These two companies are now deploying their technology both inside and outside of the U.S., as well as expanding their wireless charging applications to other industries besides transit buses to include charging technologies for private vehicles and

[3] BYD 2018 Annual Report, http://www.byd.com/en/InvestorAnnals.html

port equipment. Were it not for early support from BYD, these amazing and innovative U.S. startup companies would, in all likelihood, have stalled. Instead, they have been able to raise millions of dollars from investors and are now the international leaders in the wireless charging space. This is the kind of innovative technology that thrives in a competitive environment driving local investment and creating new manufacturing, engineering, and design jobs in the process.

This competitive dynamic supported by BYD's presence in the U.S. has also driven down costs for transit agencies. Simply by having another viable alternative in the marketplace has forced traditional manufacturers to better respond to the needs of their customers by introducing zero emission options, investing in their own zero emission bus technology, and knowledge base. The entry of BYD, and others, into the electric bus market in the U.S. has created a vibrant and competitive market for transit agencies interested in procuring electric buses. Unlike in the traditional diesel or CNG bus market, where competition is minimal, each public Request for Proposals for electric buses is likely to garner at least four responses from legitimate bus manufacturers. Each proposer will have different technologies, different solutions to offer, and will each be competing on pricing. Without this market in place, it is unlikely that the price of an electric bus would have come down as quickly as it has in the last five years. By our calculations, the prices have stayed the same (or gone up). Competition is something to be encouraged in public transit as it benefits virtually all participants, with the possible exception of legacy manufacturers who have benefited from the lack of competition to date.

Finally, the transit bus manufacturing industry appears to be thriving with the new competition. Proterra has quickly established itself as a leading electric bus manufacturer in the U.S. building a second manufacturing facility in the last few years and growing its customer base to over 85 agencies across North America. The Canadian-based New Flyer wrote in a recent letter to the House Appropriations Committee that "New Flyer continues to expand its operations across the U.S. Our Anniston, Alabama facility, with 750 employees, is dedicated to the advancement of bus and coach technology, including electric, autonomous and telematics technologies. We've also invested $28 million to establish a new part fabrication facility in Shepherdsville, Kentucky—and anticipate hiring over 550 employees." And the California-based Gillig recently announced the launch of its electric bus program as well.[4] In short, competition is doing exactly what policymakers want it to do—forcing manufacturers to build better products at lower prices for the end user, while creating jobs across America.

Before I close, I would also like to highlight just how important it is to have a robust electric bus market and why I choose to work for BYD. I believe we must do everything in our power to transition our nation to a cleaner, safer, more efficient, more economical, transportation system and meet our air quality and climate goals. This is why efforts in California and around the country to require all public transit buses be zero emission by 2040 are so important. And it is also why BYD is a proud California company that stands ready to help deliver on this promise. If we can improve the transit sector by lowering emissions through innovative technology, it opens the door for other sectors to adopt electric vehicles. As BYD has proven, we can make these vehicles in America.

Thank you again for this opportunity to tell you about BYD. I welcome any questions you have and will answer them to the best of my ability.

Mr. DEFAZIO. Thank you. You are within the time limits.

And we now turn to Mr. Washington.

Mr. WASHINGTON. Chairman DeFazio, Ranking Member Graves, Congresswoman Napolitano, and the honorable members of this committee, it is a genuine honor to join you here today. I am thrilled to be here and happy the committee has called this hearing.

Today there is not a single American manufacturer of mass transit railcars, and that is certainly an issue worthy of congressional consideration, deliberation, and action.

[4] https://www.masstransitmag.com/bus/vehicles/hybrid-hydrogen-electric-vehicles/press-release/21079183/gillig-llc-gillig-previews-new-zeroemission-battery-electric-bus

I am pleased to submit my formal testimony for the record and want to summarize my testimony by sharing the following four points.

Point one, America's proud mass transit history in my own backyard of Illinois, having grown up as a child in the Midwest and specifically in public housing on the South Side of Chicago, I have great respect for America's tremendous manufacturing history and the path to the middle class of the history provided to millions of hard-working Americans.

While growing up as a child in Chicago in the 1970s, I was not aware that about 130 miles south of my home over a century before, America was designing and producing mass transit railcars in the town of Bloomington, Illinois.

In this American town, workers began building the iconic Pullman coaches. Years later, the company would set up a shop closer to Chicago, within 5 miles of my public housing project in the town aptly called Pullman, where thousands of American, would spend decades building mobility for our Nation.

I would like to add that at one time, that Pullman company was the largest employer of African Americans in the United States, where members of my family were Pullman porters and worked primarily for tips, and they organized themselves as the Brotherhood of Sleeping Car Porters under the leadership of A. Phillip Randolph.

Point two, today for reasons that are both very complex and very simple, there are no American manufacturers of mass transit railcars. So as was clearly explained in a very smartly worded Eno Center for Transportation report, the companies that build transit railcars and sell them to public transit agencies are all foreign-owned companies.

As members of this committee are well aware, there is a large delta between the benefits of simply assembling rolling stock in the United States as opposed to manufacturing rolling stock in our Nation.

To be clear, when we lost that manufacturing base, we also lost our leadership in the design and innovation realms to foreign manufacturers.

I say it is complex because I am convinced that the absence of the domestic transit railcar manufacturer is directly tied to both the intense competition of the global marketplace and government actions that have created an uneven playing field for rolling stock firms.

That said, I also believe that the lack of any domestic manufacturer has taken place because of an absence of Federal, State and local rules and regulations that prioritize a dynamic and competitive environment for the emergence of the American transit railcar.

For Los Angeles, a most recent rail rolling stock procurement that was held in line with all current Federal rules and resulted in a contract being awarded to CRRC, we entered into a contract on March 10th, 2017, to purchase 64 new heavy rail vehicles for our growing subway system, with five additional options for another 218 subway cars.

The shell for these railcars will be made in China, and its assembly will be done in Springfield, Massachusetts.

The third point is that as a U.S. military veteran who enlisted in the United States Army as an 18-year-old and retired as a command sergeant major, a disabled veteran with 25 years of service, I would like to share the following observation that has to do with manufacturing facilities of the Apache helicopter, which was synonymous with our branch of service.

If we look at where this attack helicopter is manufactured, it is not abroad. It is in Mesa, Arizona. Four thousand Americans are building the Apache.

Point four, like the Boeing plant and the base of suppliers surrounding it in and around Mesa, I have outlined a vision for a one-of-a-kind center of manufacturing of rolling stock in the United States in Los Angeles County, where rolling stock would be not simply assembled, but manufactured.

So with support of the county of Los Angeles and the city of Los Angeles, we are taking that initiative as we move forward.

Chairman DeFazio, Ranking Member Graves and honorable members of the committee, on behalf of L.A. County, I look to return to the committee in the coming year to share some positive news on our effort to stand up this country's only railcar manufacturing facility.

Thank you.

[Mr. Washington's prepared statement follows:]

Prepared Statement of Phillip A. Washington, CEO, Los Angeles County Metropolitan Transportation Authority

INTRODUCTION:

Chairman DeFazio, Ranking member Graves and honorable members of this committee—it is a genuine honor to join you today at this important hearing.

Having grown up as a child in the Mid-West and specifically in public housing on the South Side of Chicago—I have great respect for America's tremendous manufacturing history and the path—the ticket—to the middle class that history provided to millions of hard working Americans. We are thrilled to be here and happy the committee has called this hearing. Today there is not a single American manufacturer of mass transit railcars and that is certainly an issue worthy of congressional consideration, deliberation and action.

While growing up as a kid in Chicago in the 1970s—I wasn't aware that about 130 miles south of my home—over a century before—America was designing and producing mass transit rail cars in the town of Bloomington, Illinois. In this American town, workers began building—in 1859—the iconic Pullman coaches, which were made at the Chicago and Alton shops by workers who literally built our growing nation. Years later, the company would set up shop closer to Chicago within 5 miles of my public housing project—in a town aptly called Pullman—where thousands of Americans would spend decades building mobility for our nation. I should also add that at one time—the Pullman Company was the largest employer of African Americans in the United States—where—as porters (my grandfather and late pastor were Pullman porters and worked primarily for tips)—they organized themselves as the Brotherhood of Sleeping Car Porters under the leadership of A. Phillip Randolph.

TRANSIT RAILCARS—NO DOMESTIC MANUFACTURER

Today, for reasons that are both very complex and very simple—there are no American manufacturers of mass transit railcars. So as was clearly explained in a smartly worded Eno Center for Transportation report entitled, *The Implications of the Federal Ban on Chinese Railcars*,—"the companies that build transit railcars and sell them to public transit agencies are all foreign-owned companies with assembly facilities in the United States." And as members of this committee are well aware—there is a large delta between the benefits of simply assembling rolling stock in the United States as opposed to manufacturing rolling stock in our nation.

To be clear, when we lost our manufacturing base we also lost our leadership in the design and innovation realms to foreign manufacturers.

I say the reason is complex because I am convinced that the absence of a domestic transit railcar manufacturer is directly tied to both the intense competition of the global marketplace and government actions that have created an uneven playing field for rolling stock firms—leaving some at a clear disadvantage.

That said, I also believe that the lack of any domestic manufacturer has taken place because of an absence of federal, state and local rules and regulations that prioritize a dynamic and competitive environment for the emergence of an American transit railcar manufacturer. In effect—we have no American-owned Pullman's today because we have failed—in my opinion—to create the economic environment in which a new Pullman-like firm—American owned—would prosper in a truly free, fair and open marketplace.

For Los Angeles Metro, our most recent rail rolling stock procurement was held in line with all current federal rules and resulted in a contract being awarded to the China Railway Rolling Stock Corporation (CRRC). We entered into a contract on March 10, 2017 to purchase sixty four new heavy rail vehicles for our growing subway system—with five additional options for another 218 subway cars. The shell for these railcars will be made at the CRRC's facility in Changchun, China and its assembly would be done in Springfield, Massachusetts. Work on the assembly of propulsion systems, HVAC and lighting components will be performed at a facility in the City of Industry—which is situated in Los Angeles County. In total, our agency is spending a combination of federal and local funds in the amount of $647 million for this procurement.

MILITARY PROCUREMENT—THE APACHE HELICOPTER

As a U.S. military veteran—who enlisted in the U.S. Army as an eighteen year old and retired as a Command Sergeant Major after twenty five years of service—I would like to share the following observation. Wherever I was based—either at military facilities across America or abroad—the Apache helicopter was synonymous with our branch of service. And, if we look at where this attack helicopter is manufactured—it is not abroad—it is in Mesa, Arizona.

There in Mesa—over 4,000 Americans are building the Apache—and perhaps just as importantly—there are over 500 suppliers to Boeing's plant in Mesa—parts suppliers who employ thousands of Americans. And just over two years ago—in March of 2017—the U.S. Government entered into a five year $3.4 billion agreement with Boeing to construct many more Apaches—ensuring continued employment for hard working Americans.

LOS ANGELES METRO—ROLLING STOCK INDUSTRIAL PARK INITIATIVE:

Like the Boeing plant and the base of suppliers surrounding it—in and around Mesa, Arizona—I have outlined a vision to my Board of Directors to create in Los Angeles County a one of a kind center for the manufacturing of rolling stock in the United States—as opposed to many facilities in the United States—where rolling stock is simply assembled—not manufactured.

With support from the County of Los Angeles, the City of Los Angeles and other municipalities, our agency has taken the initiative to host several roundtables—including one last year with Chief Executive Officers of major rail manufacturing companies around the world and a second gathering held at our agency on April 2, 2019 with major bus and rail suppliers.

The goal of these two gatherings was to collect the information necessary for our agency to smartly move forward—with dispatch—to identify a location in Los Angeles County that could serve as the home to a future rail/bus manufacturing center. And related to the manufacturing part of this effort—I also want to emphasize and make clear that my goal is to see the associated design and innovation related to rolling stock occur in the United States—much like in the automotive realm, where southern California is the center for the design of automobiles produced here in the United States and around the world.

This future manufacturing center in Los Angeles County could also serve the growing mass transit rolling stock needs for agencies across the Western United States.

The motivation for my initiative is clear. With LA Metro slated to spend over $400 billion over the next four decades on mobility in our region—we must make sure that the benefits of our spending—which in our case is 82%—or $350 billion—from Los Angeles County residents—stays local.

So for those on this panel who believe in states' rights and local control—my initiative for this future rail/bus manufacturing center is to make sure our local funds

have a local benefit—without rules that—for example—prohibit us from hiring locally and giving preference to local manufacturers when we procure rolling stock—especially when a majority of the funds being spent come from the residents of Los Angeles County's 88 cities.

And for others on this panel—who are squarely focused on bringing good paying manufacturing jobs back to America—my initiative aims to do just that—offering a welcome ticket to the middle class that I touched on earlier in my testimony.

CONCLUSION:

Chairman DeFazio, Ranking member Graves and honorable members of this committee—on behalf of the Los Angeles County Metropolitan Transportation Authority—I want to thank you for giving us this opportunity to discuss our views on the critical subject raised by this hearing.

I look forward to returning to this committee in the coming year to share some very positive news on LA Metro's effort to bring back the manufacturing of mass transit rolling stock to America. With leadership, focus and a little help from Congress—I am convinced that the golden era of manufacturing mass transit rolling stock in America is ahead of us.

Mr. DEFAZIO. I thank the gentleman.

With that I would now turn to the first round of questions, as soon as I get back to my questions. I will look for my piece of paper here. Here we go.

So I was particularly alarmed at General Adams' and Mr. Cilluffo's testimony regarding the potential for cybersecurity breaches.

I mean, could you just get a little bit more into that issue?

In a major deployment, especially if we have to move our tanks, I assume we are tremendously dependent upon the freight rail network. I am not sure how much it applies to the logistics chain.

Could you address that at all, General?

General ADAMS. Yes, sir.

Mr. DEFAZIO. Turn your mic on please.

General ADAMS. Let's look at it from the strategic perspective, which I appreciate is a good place to start. First of all, intermodal transportation is the key here, and we think we need to focus on that.

As you know, and as I said in the testimony, freight rail runs through every military base, runs through every American city, runs through every depot, every port, and the transfer of goods and services and commodities from freight rail to shipping is really something that we should focus on from a strategic perspective.

That is where a potential adversary will focus as well. First of all, it is a real strength of our freight rail system that we have this kind of network that smoothly transports military goods, hazardous waste, and all sorts of other commodities from the place where they are produced or stored, in the case of the military, to ports so that they can deploy overseas.

A strategic adversary will look closely at this as an I&W, and it is an indications and warnings problem for them, and they are looking closely at our rail network. We should be concerned about that from a strategic perspective.

Mr. DEFAZIO. Let me. I assume we do not limit the freight that goes through the bases. I mean, we may have people transporting chlorine through a military base to another destination. Is that possible?

General ADAMS. Yes, sir, absolutely.

Mr. DEFAZIO. Right. And——

General ADAMS. And that is one of the reasons—I am sorry. Go ahead.

Mr. DEFAZIO. Right, and derailment of a chlorine vehicle, railcar, is potentially absolutely catastrophic.

General ADAMS. Potentially catastrophic, and if I may, since our railcars are continually technology improved, one of the things the telematics on our railcars do is provide positive indication that hatch covers are closed, for example.

Mr. DEFAZIO. Sure.

General ADAMS. A cybersecurity intrusion into that particular technology could give false assurance that the hatch cover is closed.

Mr. DEFAZIO. OK. All right. Mr. Cilluffo, briefly because I have another question for another member of the panel.

Mr. CILLUFFO. I will try to be brief. Two quick points here. So we discussed some of the cases where you have seen theft of intellectual property and economic secrets, as well as political and military secrets.

On the espionage sets of issues, there is a litany and a long list of examples we can turn to in other sectors as well, but I think what gets lost is disruptive and/or destructive types of attacks, and from a cyber perspective, if you can exploit, you can also attack. It all hinges around the intent of the perpetrator.

So if they are in these systems, they can use it for more malicious aim than just stealing secrets as bad as that is. So basically when you think about the transportation sector, your dependence on PNT, on positioning, navigation and timing, clocks is 100 percent.

So GPS and other issues that are maybe outside of what you would think of as transportation and disruptive attacks, such as jamming or spoofing of some of these systems could really take a major toll economically as well as from a national security standpoint.

And I just want to bring one point on the defense side. I mean the mission assurance. There is an old adage. Amateurs talk strategy. Professionals talk logistics. I think it was the Marine Corps that came up with it, but I am not 100 percent sure.

Logistics here is everything, and if you impede the ability to project power, you are basically impeding the ability to fight and win wars. So this is more than just a homeland security set of issues. It is a national security set of issues.

Mr. DEFAZIO. OK. Thank you.

Mr. Kahn, I am just a little confused here. We invited you to testify, and you were going to, we thought, testify on behalf of BYD as a whole, and we have a truth in testimony statement, but it indicates you are testifying on behalf of BYD Motors.

BYD Motors is the sales team subsidiary of BYD U.S. Holdings. Another subsidiary, BYD Coach and Bus, makes the buses.

So, you know, basically, I am a little confused here. Are you here on behalf of the company as a whole or just on the sales team?

Mr. KAHN. Sure. I work for BYD Motors. I am happy to talk about BYD Motors. I work hand in hand with BYD Coach and Bus. I can answer questions about BYD Coach and Bus.

Mr. DEFAZIO. OK. I just wanted to get that clear.

So BYD recognized in 2017 $338 million in Chinese Government grants on its income statement; is that correct?

Mr. KAHN. Which year was that? I missed that.

Mr. DEFAZIO. Pardon?

Mr. KAHN. What year did you say?

Mr. DEFAZIO. 2017.

Mr. KAHN. I believe that is correct. I do not have——

Mr. DEFAZIO. OK. All right. And then the batteries, which are assembled here, those are made in China, correct?

Mr. KAHN. The battery cells are made in China, yes.

Mr. DEFAZIO. Yes. So and somehow we assemble battery cells here, and we say that is a made-in-America product when it is assembled.

Mr. KAHN. So BYD since we have come here has followed the rules of the road when it comes to Buy America.

Mr. DEFAZIO. Right. I know, and it is very complicated rules, and we will act to clarify the components, subcomponents and all of that. It has been gamed before, and you know, it is being gamed here.

Yes, you are following the rules. The rules are defective. So if BYD were required to actually source the required amount of the vehicle in the United States, you know, by law, would they do that or would they just close up shop even with the $250 million investment?

Mr. KAHN. Just for clarity, are you talking specifically about the batteries?

Mr. DEFAZIO. Well, once we reduce that down to a very minor component, you are going to have to source other things here in the United States.

Mr. KAHN. So thank you for the question.

I think what BYD would say to that would be we would evaluate. You know, once those rules were promulgated for everyone, we would evaluate it and see the opportunity.

We certainly, as the demand for battery electric vehicles has grown around the world, we have, I believe, plants. I do not know if we have actually built them yet, battery cell plants elsewhere.

So if there was a demand in the U.S. for battery electric vehicles of the scale necessary to justify building our own plant, that is certainly something we would explore.

Mr. DEFAZIO. OK. Thank you.

I turn now to Mr. Graves.

Mr. GRAVES OF MISSOURI. I want to go back to Mr. Cilluffo.

Just drill straight down in, you know, just to be straightforward on what this committee can do to better integrate cybersecurity and our transportation policy.

I mean, it is very concerning to me what you said, but just shoot it straight out there.

Mr. CILLUFFO. Well, thank you, Congressman Graves, and thank you for that question, because I think cyber is treated still as a black magic and an art, isolated or independent of other critical infrastructure. I think it is actually part and parcel with everything your committee is grappling with and looking at.

It is pervasive. It is ubiquitous. So what I would suggest, and I am so happy you brought up the national critical functions in your opening statement. So marry up the national critical functions.

If you see issues to the national critical functions to all of our various lifeline sectors or critical infrastructure issues, you need to start getting to a risk-based approach and assessing and evaluating risk across modalities of transportation.

So I would be looking at a series of hearings across all the different modalities, looking at national critical functions, and then racking and stacking and seeing where you have some common vulnerabilities that cut across all of those, and that is where I think you would put your most muscle and weight behind trying to ameliorate the risk.

The reality is, if everything is critical, nothing is critical, but heck, transportation is at the very top of that list. If you are not moving, we have got big problems on our hands.

So I would actually make this a broader set of issues that your committee can start weighing in, and then there are sectoral issues outside of your jurisdiction that you are going to have to be able to work with your colleagues in other committees just as the executive branch is struggling with some of these issues.

So I think you have a major role to play here. I think I would start by matching up the national critical functions with the different modes of transportation, racking and stacking there.

And the other concept that might be worth looking at is how all of these entities come together. So I had proposed in my prepared remarks a testbed because we want to be testing these technologies before they are adopted in the market or used in the market.

But we look at the technology through a soda straw. We look at it through a very narrow lens. What we really need to be able to do is see how it impacts other infrastructures.

So I think you have got an important role to play. If we can help in any way we want to, but I think when you look at China, in particular, 2025, almost all of the issues they are interested in are in your bailiwick.

So I think cyber should be not a sidebar issue, not a footnote. I think it should be a principal issue your committee grapples with.

Mr. DEFAZIO. OK. Mr. Graves.

Mr. GRAVES OF MISSOURI. I will yield my time to Mr. Crawford.

Mr. DEFAZIO. OK. With that I turn to Mr. Crawford.

Mr. CRAWFORD. Thank you, Mr. Chairman. I thank the ranking member.

Earlier today, in fact, concurrently as we speak, the House Permanent Select Committee on Intelligence is holding a hearing on China's emerging digital authoritarianism and global influence operations targeting the United States and its partners.

I am a member of that committee, and I got to stay for the oral testimony of four very highly credentialed individuals that presented testimony on that topic.

I would ask the chairman for unanimous consent to enter that into the record.

Mr. DEFAZIO. Without objection.

Mr. CRAWFORD. Thank you.

I think that informs our committee here as well and, as you mentioned, on the cyber side in particular. So global influence operations.

Shortly before delivering its first products to Jamaica last year, the CRRC corporate Twitter account showed the following. I believe we have that on the screen. I will direct your attention to the screen. If not, I have the tweet in hand.

And that tweet reads, "Following CRRC's entry to Jamaica, our products now are offered to 104 countries and regions. So far, 83 percent 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 percent?"

There is the tweet on the monitor for your review.

[The information follows:]

CRRC Tweet Submitted for the Record by Hon. Eric A. "Rick" Crawford, a Representative in Congress from the State of Arkansas, and Ranking Member, Subcommittee on Railroads, Pipelines, and Hazardous Materials

Mr. CRAWFORD. One of those 104 countries that they referenced is Iran, by the way, an interesting footnote.

Mr. Washington, I have a question for you. When you used Federal grant funds to purchase CRRC rolling stock for the Los Angeles Metro, did you know that it was an SOE hell-bent on, quote, "conquering the global rail market"?

Mr. WASHINGTON. Thank you for the question.

I cannot say I personally did, but this was the best value procurement where two proposers bid on this. We had evaluation criteria where CRRC came in number one.

The evaluation criteria consisted of past performance, delivery, experience, technical price, all of those things. But I cannot say that I personally knew the SOE.

Mr. CRAWFORD. Given what we know and what has been shared with us in testimony, Mr. Cilluffo has referenced this. It has been referenced by the chairman and the ranking member.

Given what we know and what I just highlighted with regard to China's emerging digital authoritarianism and global influence operations and how that is extending into the United States, and I understand you are bottom line oriented, and you have to be. I know that particularly mass transit is an expensive enterprise, and you are looking for the best value.

But given what we know about China's influence operations and how they are trying to project that into the United States, would it not behoove you to look for other sources that are not state-owned enterprises of a country who has really a malign influence campaign targeting the United States?

Mr. WASHINGTON. Is that question for me?

Mr. CRAWFORD. Yes, sir, and anybody else that wants to answer that.

Mr. WASHINGTON. Well, sure. No, I stand by our procurement. I stand by the process that we used. I stand by the evaluation criteria that we used to evaluate. I stand by that.

Mr. CRAWFORD. OK. Well, given the fact that other taxpayers outside of those in the area that you serve, outside the State of California, contribute to funding operations like yours, I think that we probably in the future ought to take a closer look because I think it is incumbent on us to be good stewards of taxpayer dollars.

And I do not really want to go back home to my constituents in Arkansas and say that their Federal tax dollars went to help a state-owned enterprise of China to access mass transit projects in places like Los Angeles.

So I just think that we should probably endeavor to be better stewards, and anybody that wants to comment on that. Mr. Kahn, certainly you are welcome to chime in on this as well because I think there is probably some explaining that you might want to offer on that subject as well.

Mr. WASHINGTON. Mr. Crawford, can I add one other thing——

Mr. CRAWFORD. Sure.

Mr. WASHINGTON [continuing]. To my response. Standing by the procurement does not mean that we will not do our due diligence as it relates to cybersecurity. We are looking to perform penetration testing on the various systems, the vehicle networks, the wireless data communications, all of those things.

So while standing by our procurement and our processes, we still stand ready to do our due diligence as it relates to cybersecurity.

Mr. CRAWFORD. That is comforting. I appreciate that.

Mr. KAHN. Thank you, Mr. Crawford.

Just to respond to your point, I think Huawei is in a different ball because we are not a state-owned entity. We have never had

state control. We have always been privately funded and publicly traded.

Mr. CRAWFORD. I am having a hard time believing that, but that is a conversation for another time.

General Adams, you made some pretty important observations with our freight rail moving through military installations. How we move materiel and personnel and things like that are certainly of strategic interest to countries like China. Wouldn't you agree?

General ADAMS. Yes, sir, and in fact, it is one of the most important assets we have, is that we can, in fact, move our military supplies or military equipment from bases to ports effectively because we have a good freight rail system.

But, on the other hand, that also could be a crippling vulnerability if China were, for example, to build our freight railcars. They would be able to track them. They would be able to know what is on them, and we would lose the ability to move our military equipment without observation.

Mr. CRAWFORD. So I think I am understanding you here. Basically, the entry of Chinese state-owned enterprises into our freight rail, which is essentially what they are endeavoring to tee up, presents a strategic vulnerability to us, correct?

General ADAMS. Yes, sir. That is absolutely correct.

And if I may enlarge on that point just a moment?

Mr. CRAWFORD. Please do.

General ADAMS. We also lose the ability to conduct. If we only have the assembly operations here for freight rail or for transit rail, we lose the rest of the supply chain. We lose the R&D.

Mr. CRAWFORD. An important note. Thank you for that.

General ADAMS. And that is important from a standpoint of for the future we need to preserve that supply chain here in the United States.

Mr. CRAWFORD. Thank you.

Mr. Cilluffo, would you like to comment on it as well?

Mr. CILLUFFO. Yes. I think that the point you raised is really important in terms of global perception management or influence operations, and obviously, this is part and parcel of Russia's strategic plan, which they look at cyber.

We mirror image. We tend to think others look at it the way they do, but perception management, psychological operations, camouflage concealment and deception, this is all part and parcel of some of our adversaries' cyber toolkits.

And you see that with respect to China as well, and you have got two other countries that are starting to ramp up their activity, Iran and North Korea. They are by no means at the same level in integrating computer network attack and exploit into their warfighting strategy and doctrine as the Russians and the Chinese are, but what they lack in capability they more than make up for with intent, and they are more likely to turn to disruptive and destructive attacks.

At least some of the bigger countries, they have to weigh the consequences of some of their bad behavior, which they have gotten away with murder, if you ask me, but that is a different question.

But I am glad you brought up the influence operations because that is very much part of the cyber discussion we have to have. It is more than just hacking into systems.

If you can actually create the outcome you want without doing any harm, you are 10 steps ahead. And if you can induce changes in behavior on the good guys' side, meaning we make decisions or we lose trust and confidence in our systems or we lose trust and confidence in our democracy or our transportation, those are big issues to think about, and that has to be part of the cyber discussion.

Mr. CRAWFORD. Thank you.

General Adams, a final question here. In your opinion, do you think TRANSCOM is doing enough to secure freight rail movement?

General ADAMS. Sir, could you repeat the question?

Mr. CRAWFORD. Do you think our TRANSCOM is doing enough to help secure freight rail movement with regard to military operations?

General ADAMS. I do not think we can do enough. I know that TRANSCOM is diligently working on it and resolutely working on it, but I do not think we can do enough.

I think we should be very concerned about the threat. I like the idea of the TIVSA bill that has been dropped in the House yesterday. I like it being in the Senate.

We need to stop their incursion into freight rail especially, and I think we have. We are fortunate to have the opportunity to do that.

We will help TRANSCOM if they work hard, but they need as much support as they can get.

Mr. CRAWFORD. Thank you.

And I thank the panel for their testimony, and I yield back.

Mr. DEFAZIO. I thank the gentlemen.

I just want to explain to Members. I went over on my time. So we yielded the same amount of time on the Republican side to be fair, and now we will go to 5-minute questioning.

And who is next? Representative Napolitano.

Mrs. NAPOLITANO. Thank you, Mr. Chairman.

Mr. Washington, I would like to know what steps you think Congress could take in the next surface transportation authorization bill to realize your vision of bringing the manufacture of mass transit railcars to America, and in your case, L.A. County.

And to follow up, are there challenges with research, development and deployment of electric bus technology?

And what can Congress do to help?

Mr. WASHINGTON. Thank you for the question.

And thank you for your advocacy as well in the district and also for the transportation industry.

I think the best step that Congress can take is to, one, give preferential treatment to mass transit manufacturers to base their facilities in America. And, again, I am not talking about just assembly plants. I am talking about from soup to nuts, to forge steel, to do the things that real manufacturing outfits for passenger railcar vehicles do all over Europe, in China. We need to do that here.

So I think that a strong message from this committee to say, and Congress to say, that in the next transportation reauthorization bill that there will be a priority given for those regions that are looking to stand up in our case an industrial park that includes the manufacturing facility, that includes electric bus manufacturers as well, I think is very, very key.

Also and lastly, enabling local hire and allowing local hire to be at least piloted again I think is very, very key to making sure that if a manufacturing facility is stood up, that local entities that in our case are putting in 82 percent of the funding for infrastructure in L.A. County would benefit.

Mrs. NAPOLITANO. Well, that is very good.

What incentives do you think Congress might provide to help transportation quarters make up the difference for the low bid for the foreign company?

Mr. WASHINGTON. I think going through the process, in our case I think the difference was maybe $30 million or so, I believe, and that is in my testimony. It was not that big of a difference.

We had two bidders, and so if Congress were to consider making up the difference, I think that there are other things that are in the evaluation criteria that is not just price, things like experience in project management and things like that.

So I think that has to be considered as well.

Mrs. NAPOLITANO. Very good. Thank you, Mr. Washington.

I yield to Mr. Lipinski.

Mr. DEFAZIO. Or actually he has 5 minutes next if you want.

Mrs. NAPOLITANO. That is fine.

Mr. DEFAZIO. Because we did two in a row on the Republican side.

So do you want to do for 1 minute or you can use your 5?

Mr. LIPINSKI. I will use my 5.

Mr. DEFAZIO. OK. There you go. All right.

Mr. LIPINSKI. Thank you.

Mr. DEFAZIO. I recognize the gentleman.

Mr. LIPINSKI. And so I will not make this too much more confusing.

I want to thank you, Mr. Chairman, for holding this hearing. I have been working on this issue, especially Buy America, now not as long as the chairman has, but I think the fact that the Chinese Government has made very clear in their plan for their Made in China 2025 initiative that they want the rail manufacturing sector to target.

I think that should concern us on top of the what the ranking member of the Railroads, Pipelines, and Hazardous Materials Subcommittee, Mr. Crawford, pointed out, that tweet by CRRC.

You know, conquering the remaining 17 percent of all rail in the world, we really need to wake up. We need to understand what a threat this is and do something about it.

We cannot just sit here and talk about it and then years from now when it happens say, "Well, I remember talking about that, but, well, it happened."

My first question, Mr. Galloway, in Australia, you talked about how the freight railcar manufacturing industry was eliminated. How quickly could that happen here in the U.S.?

And I know we have a much more robust domestic market than Australia had, but you know, how quickly could you see this happening?

Mr. GALLOWAY. I think a lot of that would depend on the level of investment that CRRC or other state-owned enterprises would be making here in the U.S. in terms of either establishing final assembly facilities, specifically in freight rail, which is where.

[Disturbance in the hearing room.]

Mr. GALLOWAY. I think a lot of that actually depends on the level of focus and investment that CRRC would be looking to make to disrupt specifically freight rail, which was the example that I was pointing to in Australia.

I think it could occur in less than 10 years if the conditions are right. In Australia the conditions were right. Australia recognized China as a market economy, granted market economy status that opened a lot of doors of a company like CRRC to enter into that market and utilize their tactics to displace the market within freight rail.

There were a lot of other kind of global macroeconomic conditions that were taking place. The Australia dollar was very, very strong during that period, and so that made the purchase of foreign railcars much cheaper, and so they were able to acquire CRRC cars at a much lower price.

And on top of that, Australia was engaged in a trade deal, the Chinese-Australian free trade agreement, during that period, which also opened up a lot of those doors for a lot of disruption within the marketplace.

I think there are some corollaries that are here in the U.S., and some of those specific instances that could ultimately open up those doors for that type of disruption here in the U.S., and it could span in that same period of time in terms of our own disruption.

Mr. LIPINSKI. What leverage do you suggest that we use in order to prevent that from happening here in the U.S.?

Mr. GALLOWAY. Well, I think right now there is one lever that is being utilized through the section 232, steel and aluminum tariffs that help to mitigate some of those price advantages.

However, you know, we are looking at a short-term solution to a long-term problem, and the long-term problem is you have a company that is owned by a foreign government that is supporting that company, and ultimately the levers that need to get pulled is a long-term solution to move state-owned enterprises, wean them off of government subsidies and concessionary financing or tactics that they are using to disrupt the U.S. economy and manufacturing.

Mr. LIPINSKI. Mr. Paul, do you have any suggestions on what levers we can use?

Mr. PAUL. I do. First, a robust spend. As the chairman indicated, the Federal Government has not always been a good partner. So if there is a stable, long-term market, there will be more entrants into it.

The second is that CRRC is predatory, and we have to understand that they now dominate the world rail market after being a bit player 20 years ago, and the same thing that is happening globally will happen in the United States as they drive competition out.

An incumbent rail maker left Philadelphia after it lost its contract there, and we can assume that is going to happen down the road.

So the TIVSA legislation is a start. We should also insist on reciprocity. There is no American company that has the same opportunities that CRRC or BYD have in the United States.

We do not have those opportunities in China. China is not a signatory to the Government procurement agreement. It can discriminate, and it does, against our products, and so we should ensure that we have that reciprocity as well.

Mr. LIPINSKI. Thank you.

I yield back.

Mr. DEFAZIO. I thank the gentleman.

Representative Gibbs, 5 minutes.

[No response.]

Mr. DEFAZIO. Mr. Davis. I think he is here.

Mr. DAVIS. Can I take Gibbs' time, too?

[Laughter.]

Mr. DEFAZIO. That applies later on.

Mr. DAVIS. Actually to make it a little more confusing, I am going to yield my time to the gentleman from Michigan, Mr. Mitchell.

Mr. MITCHELL. Thank you, Mr. Davis.

And, Mr. Chair, if I could have Mr. Gibbs' time, too, it would be interesting.

Mr. Kahn, it is a long morning for you, and it is going to get a little bit longer. The $338 million in Chinese grants, what are the terms of those grants?

Mr. KAHN. I cannot speak to the terms of those grants. I just do not know the answer. I could look into it and get back to you.

Mr. MITCHELL. Were the loans from the Chinese Government?

Mr. KAHN. China set up a number of incentive programs. So I know some of them are voucher type programs that are similar to vouchers that we can receive in California. Some are, you know——

Mr. MITCHELL. With all due respect, Mr. Kahn, I think the voucher type programs to support that you get in California and from the Chinese Government are a little different. So we would like detail in writing to the committee——

Mr. KAHN. Sure.

Mr. MITCHELL [continuing]. Of what those grants were, the terms of those grants, whether they were loans, whether they had to be paid back.

BYD's board of directors, how many members are there?

Mr. KAHN. I would have to review the annual report. I believe it is five, but I would have to confirm.

Mr. MITCHELL. Let's assume you are right. It is five. Two of them, let's see, the chairman, Mr. Chuan-fu; then there is Zuo. The two founders, as they are worded, own 33.58 percent of the company.

I did a variety of private equity deals, and almost 34 percent is controlling interest in the company.

There is one other interesting guy who is on the board of directors, making it three, someone from Norinco group, which is a

state-owned defense company. That is three. Three of five means you have control. Math is pretty simple, right?

Mr. KAHN. Three of five, yes, that would be control, but I do not know the gentleman that you just mentioned with Norinco. I do not know about that.

Mr. MITCHELL. Well, it is cited here with a footnote. Footnote 14 is the BYD 2013 Interim Report. So I am assuming the Alliance for American Manufacturing did their homework on it. I suggest you may want to confirm that.

Mr. KAHN. If that is a 2013 report, I do not believe that is the 2018 report. So I do not——

Mr. MITCHELL. Well, why do you not detail for the committee the ownership, the board of directors—excuse me—of BYD as well as the overall organizational structure?

Because, as the chair noted, you have multiple companies and groups, and sometimes that happens in companies, but to be absolutely honest with you, we need to make a distinction, in my opinion, as we look at this, Mr. Chair, between state owned and state influenced.

Can you share with us the 33.58 percent of the company, what the equity value of that when the company was founded? How much was that?

Mr. KAHN. I cannot share, but I can look into that and get back to you with that.

Mr. MITCHELL. I have a list of questions.

Mr. KAHN. OK.

Mr. MITCHELL. The followup question to that is: on what terms, what general sources did that money come from?

Because, you know, to be honest with you, economic transactions in China are pretty opaque at best, and I still have doubts whether or not the money that founded this company came from individual earnings or came through them from the Chinese Government.

And you can paper this all you want in terms of you have a union agreement, you have employees. That is great. We want employment in America, but if, in fact, whether this is technically state owned or state influenced, we have a problem here.

I also serve on the House Armed Services Committee, and what is very abundantly clear by the Chinese Government is they plan to assume a dominant position in the world by 2025 in all aspects, including economic. This is a threat to the security of this Nation.

So let's not dress this up and say that BYD is not state owned when, in fact, I want documentation of how this company is funded, where the money came from, who the board of directors are, this $338 million grant.

And while the chair and I may have a different perspective in terms of how we address this problem, we need to in this country address predatory, state-owned entities or state-influenced entities that are taking jobs away from Americans and threatening our national security.

And unless you prove otherwise in terms of BYD, Mr. Kahn, you are going to be on that list of people we have serious questions why they are in the United States taking our Government money and sending it to China.

So we have serious questions that I would like to have addressed by your company.

And with that, Mr. Chair, I yield back. Thank you.

Mr. DEFAZIO. I thank the gentleman.

Next would be Representative Sires.

Mr. SIRES. Thank you, Mr. Chairman, and thank you for having this hearing, and it is a very informative hearing.

Brigadier General, I could not agree with you more on the concerns that this country should have about foreign entities being so involved in our rail system. I really do believe that while we sleep, these countries plot, Russia, China, and I am a believer of that just about all my life.

So with that, as we get into these companies, how do we track what they are doing? Or we do not.

Does any entity in the Government keep an eye on these people that you know of on what they are doing, whatever their involvement is with us?

General ADAMS. Sir, thank you for the question.

I know that our intelligence agencies are busily and resolutely working on that very problem, and I am encouraged to know that the Congress is also working on that problem.

This today represents a great moment. I look at the glass half full for just a moment. We know and we have awareness of the problem, and I think that is the beginning of resolving it.

I have referred to the TIVSA bill before. I think that is a very good step forward, and I appreciate those that have both sponsored it and signed onto the bill.

We cannot solve this problem overnight, but we can certainly wake up, as you suggest, and begin to address it effectively. We still, even if we stop Chinese incursion into transit rail and we prevent Chinese incursion into freight rail, we are still going to have some mitigation that we are going to need to do because we have got Chinese-made vehicles in our country, and we need to do the proper mitigation, primarily cybersecurity, to make sure that they do not take advantage of us already.

Allow me to suggest that the other thing we really need to do is look at this, and I know this is how you are looking at it. This is just one front in a broad campaign.

China is directed from the top. The Chinese Communist Party by the bylaws of the China Railway Rolling Stock Corporation, CRRC has to ask the Chinese Communist Party for guidance on any of the major operations.

The number of people on its board of directors who are also People's Liberation Army, former People's Liberation Army personnel, is large. There is a real overlap between the direction of the company and the direction of the Chinese Communist Party.

They do not do anything independently. Fortunately, we live in a country where our businesses are independent. We have a market economy, and thank God for that.

But China does not work like that, and I think the first realization that we have to have is this is one front in a broad campaign.

Mr. SIRES. I also think that we have to make the American people aware, more aware so that they become knowledgeable about what is going on actually. I just think the American people some-

times, it is too late sometimes when they become aware of some of these things, and as I look at Australia, you know, what happened to them.

I just want to ask Mr. Washington a question.

Mr. Washington, what are the problems that you as an administrator have dealing with these foreign countries that are subsidized; that when you go for a bid, they come in very low?

Now, you are appointed. You have to answer to the people. How do you say to the people, "Well, this guy is 20 percent cheaper. We should go to him"?

I mean, that is a nightmare. You know, having been a former elected official myself, and when you take the bids, you know, if you take the higher bid, they say, "Oh, this guy has got to have something going with this guy."

Mr. WASHINGTON. Yes.

Mr. SIRES. You know, so how do you deal with the public and say, "Look. This may be 20 percent cheaper, but the final product may cost us a lot more at the end"?

Mr. WASHINGTON. Yes, sir. This particular solicitation was a best value, and so we were not just looking at the lowest cost or the lowest price, I should say. And so most of these that have to do with rolling stock are usually best value.

So as I mentioned earlier, the evaluation criteria in this case looking at past performance, looking at past experience, technical compliance, project management expertise, voluntary local employment programs, as well, and price, all of these things with price being one of six have to be looked at.

And I would also add that in our case, with this solicitation, we had two bidders, CRRC and a South Korean firm, Hyundai Rotem. Coincidentally, as the CEO in Denver when I was there, I actually selected Hyundai Rotem, and I cannot remember if CRRC bid on that.

But that is reflective of the various evaluation criteria on any solicitation.

So it is tough to look at these kinds of things. You are criticized if you take something too high.

Mr. SIRES. If you do not——

Mr. DEFAZIO. You are over.

Mr. SIRES. I am sorry. That is my time?

Mr. DEFAZIO. Yes.

Mr. SIRES. OK.

Mr. DEFAZIO. All right. Sorry. Thank you. Thank you both.

Representative Bost.

Mr. BOST. Thank you, Mr. Chairman.

You know, when we are looking at this, I can see a similar situation that occurred in our steel industry. Both industries must compete against China state-owned enterprises.

Now, you can magically say it is not, but the reality is, from what the questions Mr. Mitchell brought forward, I think it is.

Now, the solution might be a little different, but the outcome is the same. China unfairly undercuts the competition and then comes in and dominates the market. We can see that with the email that was sent out.

You know, here in Congress, I worked on a law that would improve our anti-dumping and countervailing trade remedy laws. In this case, we can request by the industry or we can start the Commerce Commission to look into this.

I am just curious if the industry has started looking at this for potential trade by using this law. Mr. Paul, do you know that?

Mr. PAUL. I am not aware of any specific efforts with respect to transit equipment or railcars, but the component parts thereof, absolutely, steel being one of the key values by ingredient in railcars.

And I was just in Granite City the other week, and I have seen both the challenges with dumping and then also what can happen when you have taken some action and restored some jobs there.

And what I will say, and I think it is worth noting this, that both BYD and CRRC made substantial requests for tariff relief from both the 232 and the 301 tariffs for equipment that they were bringing into the United States.

And so this is already an issue.

Mr. BOST. Were they granted the request?

Mr. PAUL. Pardon me?

Mr. BOST. Were they granted those?

Mr. PAUL. They were not precisely because in the case of BYD's request, virtually all of them were products that were part of the Made in China 2025 plan, where there is a very well laid out set of objectives that the Chinese Government has for industry domination. It is there for everybody to read.

But this is an emerging threat, and as you indicated, in the steel market now, the global steel market is so distorted by China that it is almost unrecoverable. China makes half the world's steel. It does not consume that much, and 5 out of the top 10 companies in the world are state-owned enterprises.

They do not play in market conditions. It has completely wrecked the steel market around the world, and you see CRRC doing the same thing now in the rail space where, again, they were a bit player 20 years ago.

They are by far the most dominant rail company in the world. Bombardier and others are small players now compared to China and BYD.

Again, the ambitions of BYD are to become the world's largest automobile maker, and we have the luxury right now of not seeing a lot of imported cars from China. That may soon change.

Mr. BOST. Have you thought about bringing those anti-dumping challenges to the WTO?

Mr. PAUL. To the WTO? No. I find the WTO to be slow and incredibly inefficient.

Mr. BOST. So do I.

Mr. PAUL. From a domestic perspective, I think we would want to look at the market conditions to see if there is, in fact, a case because, as you know, the criteria are sometimes lagging and complicated.

But, again, the component parts, some of the component parts are already subject to specific dumping orders or tariffs because of that unfair competition.

Mr. BOST. Is there a way that you have been able to see where we can enhance those through law or does existing antidumping language we have suffice?

Mr. PAUL. No. Those laws need to be improved. They need to be improved dramatically, and there needs to be, first, the opportunity for the Commerce Department to initiate more cases. As you know, they are expensive for the private industry.

There needs to be a much more early warning activation system, and you have seen with this administration a lot more executive action that is being taken as well.

And so I do not think that that authority should be restricted in any way. In fact, I think the Federal Government should be much more assertive about standing up for the interests and rights of its domestic industry.

Mr. BOST. OK. One real quick question because I have got just a few seconds left. The Buy America, would it apply to the transit projects that receive Federal dollars?

Do you feel that this is being manipulated to make it look like they are not receiving Federal dollars?

Mr. PAUL. Absolutely. The Buy America laws need to be reformed. The chairman briefly mentioned this with respect to advanced batteries.

There is a new kind of standard that has been proposed in the USMCA that is worth looking at to get more of that battery content into the North American, specifically to the U.S., market.

And also, the CRRC and BYD claims with respect to Buy America, they should be audited. The inspector general's report in Albuquerque indicates that there is very clearly the possibility that BYD is not fully meeting its Buy America obligations.

Mr. BOST. Thank you, Mr. Paul.

Mr. Chairman, I yield back.

Mr. DEFAZIO. Representative Espaillat.

Mr. ESPAILLAT. Thank you, Mr. Chairman.

And thank you to all the witnesses for your testimony today.

This is a very important conversation that we are having today. I also sit on the Foreign Affairs Committee, and just last week we held hearings about China's influence in the world, particularly developing nations and in Latin America, and there they are building ports. They are building rail. They are building all kinds of transportation and infrastructure projects.

Of course, when you have control of the ports, there is no telling what will go through them.

They are also looking to control facial imaging and data, and so I think they are very crafty and they are out-foxing us.

So here in the U.S., we have to be mindful of ways in which China is undermining not only our competitiveness, but also our national security. Chinese state-owned enterprises have made it their goal to corner the market in terms of infrastructure, whether it is ports or rail, and their involvement in constructing rolling stock is of particular concern to me, coming from New York City where we have the largest transit system in the country.

FTA regulations require competitive solicitation of rolling stock contracts to the maximum extent feasible, but in many cases be-

cause of Chinese SOE's dominance, transit and commuter rail agencies end up having few options to choose from.

I would like to ask Mr. Washington whether he has experienced similar problems in Los Angeles.

And I would like to ask the other panelists what they think Congress can do to promote competitiveness in this area.

This is a real issue. As much as we can talk about it, I think we need to develop a strategy to derail them, no pun intended.

Mr. Washington.

Mr. WASHINGTON. Well, thank you for the question. I hate to hear the word "derailment" in my business.

[Laughter.]

Mr. WASHINGTON. But, yes, as I mentioned, we had two bidders on this particular contract for heavy rail vehicles. We also have contracts with other rolling stock providers, namely, Kinki Sharyo, Alstom, Talgo.

And so there are some, not many, that we have to choose from. In our case, we have proven in Los Angeles that these are, again, best value solicitations. So we are going to look at them very, very closely to determine not just price, but a number of other things.

But there are not many players.

Mr. ESPAILLAT. What kind of other factors will you be looking at besides pricing?

Mr. WASHINGTON. The program management, the past performance, delivery of the rolling stock vehicles. In our case, the local employment plan; what do they plan to do locally in terms of training local folks in the community, those kinds of things.

Mr. ESPAILLAT. Has anybody else had any other experiences across the country?

Mr. KAHN. I would just add, sir, just on the electric bus phase, which is different than the rail side, I think right now the electric bus space is actually the most competitive. The bus market right now compared to diesel or CNG, there are four legitimate OEMs that are submitting competitive bids, leading to technology getting better and better.

For example, in New York City, they have got 10 buses up and running. Five of them are with New Flyer, five of them with Proterra. BYD submitted a bid, was not selected, but there is an open and robust competitive process going on now on the electric bus space, which is leading to cleaner buses getting out on the roads around the U.S.

Mr. ESPAILLAT. Thank you.

Mr. Chairman, I yield back.

Mr. DEFAZIO. I thank the gentleman.

Representative Gallagher.

Mr. GALLAGHER. Thank you, Mr. Chairman.

Mr. Cilluffo, could you explain in simple terms to the committee the connection between transportation and telecommunications?

In other words, why is 5G and the internet playing such a crucial part of this conversation on rail and public transit security?

Mr. CILLUFFO. Well, thank you, Congressman Gallagher.

And I mentioned briefly in my oral that the highways and vehicles of tomorrow are going to be paved in silicon as much as they are in asphalt, and that is the reality.

Ultimately, when you think of 5G, it is going to be the hub that you have so many other spokes that will connect not only transportation; basically all of our lifeline sectors and critical infrastructure.

So if we get that wrong, we are really building some of the most sophisticated networks in infrastructure on very weak foundations. So I think that the President was right in promulgating the Executive order last night to prohibit, in essence, Huawei and ZTE from engaging in the market in the United States.

And I might note Australia has already done so. So I think from learning some of the hard lessons they learned on the rail side, that could have factored into their decisionmaking on 5G.

Mr. GALLAGHER. I think part of our challenge is these threats, while real, sometimes we talk about them in abstract ways. Could you give us perhaps some real-world examples of how a smart train or public transit could be compromised or weaponized?

Mr. CILLUFFO. Yes. So I mean, I think it was General Adams who brought up some of the examples in terms of Wi-Fi, and we talked a lot about security, but there are legitimate privacy issues here, too, given the use of technologies to monitor individuals.

So I mean, if you can get into the system, it really does hinge around what the perpetrator's intent is. So if you are exploiting Wi-Fi, which is just one of many avenues to be able to get into a system, you can cause some significant harm.

I am more worried from a national security standpoint. If you talk about switching, and if you are talking about rails and that is where it goes from a security concern to a genuine national security concern.

You know, I know an amazing and incredibly thoughtful chairman of an important commission that I hope can take some of this on in the Solarium Commission.

Mr. GALLAGHER. I will not ask you to elaborate on that further.

[Laughter.]

Mr. GALLAGHER. General, I will get to you in one second, but, Mr. Kahn, first—if I have time—if your company was asked to conduct espionage in any form under the 2017 National Intelligence Law on American citizens using your products, would BYD comply?

Mr. KAHN. BYD Motors would not comply. BYD, to my knowledge, BYD would not comply with that.

Mr. GALLAGHER. What recourse would BYD have if the Chinese Communist Party seized their assets under the 2017 National Intelligence Law?

Mr. KAHN. I do not know the answer to that. I am sorry. I can ask and get back to you on that.

Mr. GALLAGHER. Thank you.

Is your understanding that the judicial system in China is independent of the Chinese Community Party or subordinate to it?

Mr. KAHN. I am not an expert on the judicial system in China.

Mr. GALLAGHER. OK. And, General Adams, just to circle back to with the time remaining what I asked Mr. Cilluffo about, could you sort of add to what you have already laid out in your testimony, real-world examples of smart trains, public transit threats, any drone threats that you see in transportation going forward?

Help us really tease out that connection between the future of the internet and the future of transportation.

General ADAMS. One of the things that we want to do with our industry and its vulnerability to cyber intrusion, for example, is reduce the attack surface.

Specifically, we know the Chinese have technology, such as facial recognition technology and intercept technology. If we want to let them make our railcars, transit or freight, we are going to expose ourselves to their intrusion using facial recognition technology.

Now, I have commuted to the Pentagon a lot over the past 40 years. I do not want my face recognized getting on and off or any others who serve the country every day, whether they are in uniform or civilian clothes. We do not need to have Chinese facial recognition technology on a transit railcar going to the Pentagon or anyplace else in Washington, DC, or I would enlarge that to Boston or L.A. or Chicago or Atlanta.

But we have got to be reducing our attack surface all the time because they will exploit it.

Mr. GALLAGHER. Thank you.

And I am going to run out of time, and I apologize. We have a very vast number of witnesses here. So I cannot get to every one of them, but I yield back.

Thank you, Mr. Chairman.

Mr. DEFAZIO. I thank the gentleman for his questions.

With that, Representative Allred.

Mr. ALLRED. Well, thank you, Mr. Chairman. I want to thank you and the ranking member for holding this important hearing.

I am also a member of the Foreign Affairs Committee, and as has been mentioned, we have taken a close look at Chinese actions around the world recently, and I am happy to see us taking a close look at Chinese economic expansion into our own industries seriously now.

And I want to say that I welcome the legislation introduced by my colleague Harley Rouda and my fellow Texan, John Cornyn, in the Senate, the Transit Infrastructure Vehicle Security Act to prevent Federal funds from being used to buy transit railcars or buses manufactured by Chinese-owned companies.

I welcome that and look forward to supporting that.

And I want to recognize Trinity Industries, which is here today, which is headquartered in my hometown of Dallas and has provided good-paying American jobs for 85 years as a leading manufacturer of railcar products and services in North America.

And I want to begin with Mr. Kahn here. The United States is a top exporter of technology products and services, an industry powered by innovative, forward-thinking entrepreneurs and a robust network of some of the world's top research institutions.

In your written testimony, you mention some of the partnerships that BYD has made with community colleges in localities to diversify and bolster its manufacturing workforce.

Has BYD also partnered within the U.S. research institutions to develop products sold within the U.S.?

Mr. KAHN. Thank you for that question.

I think that is a really important thing that a lot of OEMs are looking at.

I do not believe we have worked with a specific research institution, but we have worked with startup companies, as I mentioned earlier, on the inductive and wireless charging space. We are the only OEM that has got a number of projects where we use wireless charging as a way to increase the range of our electric buses so that customers do not have as much range concerns as they might otherwise.

So those are two companies that came out of the U.S., one out of Pennsylvania, one out of the State of Utah where I actually used to work, but these are companies that are now being able to take the technology that they worked on with BYD and sell it to other agencies, but also abroad and bring it to other areas, such as the port environment and other areas where they operate.

That is technology that if there was not an OEM partner, those companies would have had a lot of trouble raising funding and developing that technology.

So it has been a great partnership that creating that competitive, innovative space that we have right now in the electric bus space in the U.S. has been vital for that.

Mr. ALLRED. OK. I want to turn to General Adams very quickly.

In your testimony you describe the deep ties between CRRC and the Chinese Government, and my question is: would CRRC be able to resist an order from the Chinese Government to take a malevolent action against the United States rail system?

General ADAMS. Sir, if I understand the question correctly, would the CRRC take orders from the Chinese Government?

Mr. ALLRED. That is right.

General ADAMS. No question about it. They are already doing that, and it is because not only is the directorship interlinked, but they are required by bylaw to solicit the opinion of the Chinese Communist Party for any decisions regarding company operations.

Mr. ALLRED. Well, I would like you to elaborate a bit. My colleague was just asking you about this as well, the statements you made in your testimony about the Chinese dominance of the U.S. rail system would turn the system from a bedrock strategic asset into a potentially crippling vulnerability for us.

If you could, elaborate on your thoughts there just a little bit.

General ADAMS. Yes, sir. Rail, especially freight rail, is the major way we move military supplies within the country. It is also the way we deploy military supplies from the bases in the country to the ports for deployment overseas.

We could not do without it. We move tanks. We move trucks. We move everything that is of military significance that requires transportation because rail is, one, it is effective and, two, it is the least expensive way to move things in the country.

That is a great asset for us, but if China were to make our railcars, if China were in control of not only the railcars, but the system itself, that would turn it into a strategic vulnerability because they would be able to monitor our movements. They would be able to receive advanced indication and warning of our movements. They would know what our plans were by knowing in detail what is on the cars.

So instead of something that would be to our benefit, it would be something that we would be giving the enemy, potential adver-

sary, I should say, a warning about what we are doing, and they would be able to monitor our movements.

Mr. ALLRED. Well, in the foreign affairs space, I think we are seeing a change to great power competition, and I want to commend this committee and the bipartisan approach that we are having to this to try and counter what I do see as, you know, a new competition for us, something we will be keeping our eye on.

I do not want to stifle innovation. I still want to have trade and bring in new ideas, but I think this is something we need to keep an eye on.

I want to thank you for your testimony and for helping share this with the American people today.

Mr. DEFAZIO. I thank the gentleman.

Representative Balderson.

Mr. BALDERSON. Thank you, Mr. Chairman.

Thank you all for being here this morning.

My first question is for Mr. Paul and Mr. Galloway. As noted in your testimonies, the manufacturing of public transit freight railcars and rolling stock employs over 21,000 American middle-class workers and supports nearly 190,000 jobs here in the United States.

Right now CRRC is consistently bidding 20 to 50 percent lower than nonsubsidized private-sector companies. Do you believe that once CRRC undercuts all other competition, that their current assembly jobs will be kept in the United States?

Mr. PAUL. Perhaps in name only, and that is the situation that we are operating under now, Mr. Balderson, is that there is final assembly occurring in the United States, turning the screw, adding very little value, adding some value, but a lot of that content is coming from Chinese imports.

In the process by CRRC underbidding all these other firms, and again, many of them have foreign investment, but they have to operate under market conditions. They are driving out competition.

And any economic textbook will tell you once a firm achieves a monopoly and/or a monopsony, the price is going to rise. The quality is not necessarily going to improve, and ultimately the victims of that are going to be transit riders and transit systems when there is not that robust competitive system in the United States.

The Australian example is a good one because Australia had a domestic rail industry. It now has virtually none. Ninety-five percent of the market is controlled outside of Australia.

In fact, the one Australian firm went to China to make its products and bring them back in.

So we are not Australia, but I think there is a lot of lessons to be learned there, and it is important to remember that most of the jobs in railcar assembly are outside of those assembly facilities. They are in the steel, the wheels, everything else that goes into making that vehicle.

That is where the preponderance of jobs is, and so if you have a company like CRRC that is not necessarily committed to that domestic manufacturing footprint and to expanding it, you are going to cost jobs in the supply chain.

Mr. BALDERSON. Thank you.

Mr. Galloway, would you like to add?

Mr. GALLOWAY. Yes, I will just add a couple of notes.

I think it is important, and I agree with everything Mr. Paul has said. I think the key to understanding some of the potential disruption here is the fact that the U.S. domestic railcar and rolling stock manufacturing sector has very, very deep supply chains within the U.S.

And it covers every State, and it covers hundreds of congressional districts, and so there is a lot of value that is being retained here in the U.S., and that even includes the private-sector foreign owners of rail rolling stock manufacturing. They have made significant investments here in the U.S. in our domestic supply chains. So that value is being retained.

The problem you are running into now is when you have a foreign SOE that is coming in here, and they are disrupting that by pulling that value-added supply chain out of the U.S. and moving it back to their home country because they are not making those investments into the U.S. manufacturing process. That is where you are going to find a lot of that huge amount of disruption.

But going back to my earlier comments, even under the existing Buy America provisions, you are still finding a net loss under SOE type of market activities and conditions.

Mr. BALDERSON. Thank you.

And, Mr. Paul, my last question to both of you also, but you kind of touched on it with the Australia issue.

If Chinese state-owned enterprises are ultimately successful in driving out and undercutting our competition just like they did in Australia, how long do you think it would take for America's railcar manufacturing and industry to bounce back?

Mr. PAUL. Obviously, there are a lot of factors that go into that, you know, public investment and many other issues. But the roadmap is pretty dire.

And we have seen what has happened in other industries of the United States that have been targeted through the 5-year industrial plans or the Made in China 2025.

And as I mentioned in my testimony, this is the tip of the iceberg. The procurement market is not insignificant, but the more significant market, I think, for these companies is the U.S. automotive market, and that is of serious concern because that is the very heart of American manufacturing.

One out of about every eight or nine jobs is connected to auto manufacturing in the United States, and so I look at the playbook, and I am very concerned unless the committee and the Congress take some action.

Mr. BALDERSON. Thank you.

Mr. Galloway, do you want to follow up or you are fine?

Mr. GALLOWAY. I am good.

Mr. BALDERSON. Thank you very much.

Mr. Chairman, I yield back my remaining time.

Mr. DEFAZIO. The 2 seconds.

Representative Rouda. Is he here? No. OK. Oh, there he is. Sorry. God, Harley, you are way down there. I forgot we had so many rows.

Mr. ROUDA. Thank you, Mr. Chairman.

And thank you, Chairman and Ranking Member, for holding today's hearing on such an important topic and for the guidance and protecting American manufacturing jobs.

I recently introduced the House companion of S. 846, the Transit Infrastructure Vehicle Security Act, TIVSA, that would prevent Federal transit dollars from being used to procure Chinese transportation assets.

The free market principles of capitalism are how the United States of America became the most powerful country in the history of the world. Yet we know nonfree market economies and their state-owned enterprises, SOEs, are a direct threat, a national security threat to our country's commitment to fair and open competition.

Why? Because SOEs undermine free markets by benefitting from government funding and preferential treatment to undercut the competition.

As part of the Made in China 2025 initiative, China has dramatically underwritten its rail and bus industries to the tune of billions of dollars through direct funding and other subsidies.

As this committee considers aggressive investments in our infrastructure, we must ensure we are not investing in rail and bus stock that could jeopardize our national security or disadvantage companies based in the United States who operate without the benefit of billions of dollars of direct government funding.

I support fair trade, as do all the Members in this room and on this committee, but there is nothing fair about forcing American rail and bus stock manufacturers to compete with companies who receive billions of dollars from their government in order to win contracts in the United States. And American tax dollars should not be used in that means.

I am proud to work with a bipartisan, bicameral group to introduce legislation to hold China accountable because we need to do all we can to support American workers and American-made products.

I would like to thank Representatives Ryan, Holmes Norton, Garamendi, Crawford, Perry, Granger, and Weber for joining me as original cosponsors of the House version of TIVSA, and I also want to thank Senators Cornyn, Baldwin, Brown, Crapo, and Shelby for their work in the Senate.

I have a few questions. I will start with you, Mr. Galloway.

Australia's freight railcar manufacturing has all been decimated, but decimated by what has taken place there with the Chinese SOEs; is that correct?

Mr. GALLOWAY. That is correct.

Mr. ROUDA. And I think I read somewhere that we are looking at 65,000 American jobs could be at risk if we continue down this process, if you want to take that question or the general as well.

Mr. GALLOWAY. Our research at Oxford Economics confirms that the freight rail sector, just as a sector in itself——

Mr. ROUDA. Just that sector alone?

Mr. GALLOWAY [continuing]. Is freight railcar manufacturing, that is correct.

Mr. ROUDA. Is that direct and indirect jobs?

Mr. GALLOWAY. That would be direct and indirect and induced effects. That is correct.

Mr. ROUDA. What is the cost, GDP?

Mr. GALLOWAY. The cost to GDP, it is in my notes. I believe it is about $7 or $16 billion. I do not have on hand, but it is significant.

Mr. ROUDA. Can you talk about what the ripple effects are through our economy if we use American tax dollars to fund SOEs? The impact of losing those jobs, losing the $7 billion of GDP, and what the ripple effects would be through our economy?

Mr. GALLOWAY. Yes, so the ripple effects would be substantial because you are dealing with supply chains that are domestic. So you have the suppliers of all sorts of parts and components, systems and subsystems that are manufactured here in the United States.

It is those jobs are strong middle-class, middle-income jobs in the U.S. that would be displaced as a result of foreign competition that would be coming in and underpricing and taking that market share away from good corporate citizens and producers of products here in the United States.

Mr. ROUDA. And, Mr. Paul, what is the total level of direct investment by the Chinese Government into these SOEs?

Mr. PAUL. The value of the 51,000 Chinese state-owned enterprises is $29 trillion. The amount of money they receive is almost incalculable because it is through every policy aspect that you can imagine, from preferential tax treatment, low-interest loans, a protected home market, labor and environmental regulations that are not complied with domestically, a misaligned currency from time to time, and the well-established technology transfer and intellectual property theft.

And so attracting the R&D and development is well below the cost of doing that in the United States, and so it is the world's largest racket.

And if China chooses to do that, I guess that is the Chinese Government's prerogative, but there is no reason whatsoever why American taxpayers should have to subsidize that. So I am glad that you introduced the legislation. We are proud to endorse it.

Mr. ROUDA. So American companies and any companies that follow fair and free trade in a capitalistic process, you invest money, you have revenue, you have expenses, and you have a return to shareholders.

Yet these SOEs do not work under those rules, right? There is no obligation for return to shareholders. In fact, by making these massive investments in these companies, they can underprice any other company out there in ways that it is absolutely impossible for us here in the U.S. and elsewhere——

Mr. DEFAZIO. I know the gentleman feels very passionately about the issue, but he is over time.

Mr. ROUDA. Thank you, Chairman.

I yield back.

Mr. DEFAZIO. I thank you.

And I would turn to Representative Palmer.

Mr. PALMER. Thank you, Mr. Chairman. Thank you for holding this hearing.

Mr. Washington, how much lower in dollars was the CRRC bid versus Hyundai?

Mr. WASHINGTON. I believe it was about $35 million, sir.

Mr. PALMER. What would that be as a percentage of the difference? Put that in percentage terms. What percent lower than Hyundai?

Mr. WASHINGTON. I would say probably about between 5 and 10 percent or so.

Mr. PALMER. Given what we have heard today, I am amazed that we are even having the discussion about doing business with China.

General Adams, the Commander of the U.S. Southern Command says Beijing is using this information and debt diplomacy to help Maduro hold on in power. We know that Xi has pledged $250 billion in investment and infrastructure and energy, infrastructure in Latin America.

There was this scandal involving a company called Otabek that they have taken over their projects in Colombia, Peru, Brazil, the Dominican Republic.

Does it make sense to you that we would allow China to come in?

You have already made the case. I am just going to ask you to repeat it, for how problematic this could be and how strategic it could be for China to get into our freight system.

General ADAMS. Sure. Thank you for bringing up the foreign element of this and the influence element of this because one of the ways that China does make its influence known in the world is they work in areas that need their technology, that need their financial support, and then they use that as leverage for all sorts of things.

Now, part of my service was in Africa, and this was 15 years ago.

Mr. PALMER. There are 10,000 Chinese-owned companies doing business in Africa today, and they are in every sphere you can think of, infrastructure, energy, small and medium-size businesses, telecom.

General ADAMS. They are assiduous about developing influence in the developing world. They know that the developing world wants their help, and they can provide it at cheap cost and develop as much money as they want.

It is a very important point of leverage for them to have these friends and these influences in the developing world.

Sir, if I may the other part of that is what they do when they buy this influence is they develop the supply chain entirely in China.

Mr. PALMER. Right.

General ADAMS. The Chinese are masters of vertical integration. They want not just to sell their goods. They want to make the goods in China, and if they can sell to the developing world, they are not going to put the supply chain there. They are going to keep it back in China, which means that they grow their industry with R&D, intellectual capital, basic research.

And once they have got the industry, they use that, again, for global domination.

Mr. PALMER. But they have got partners that are playing in this game with them as well where they might not manufacture the steel pipe or whatever it is they are selling. They will provide the material to do that in, say, Thailand or someplace like that and not have to pay any duties on it.

So they have these agreements that are undermining not only our interest, but the interest of other countries.

I want to move. You brought up the technology, and, Mr. Cilluffo, my concern, too, is when we are talking about China's expertise in building these electric vehicles and others, how much of the technology that they are using is pirated from the United States?

Mr. CILLUFFO. A great question because, I mean, if you look in totality, and I think it was Mr. Bost who brought up the question earlier about steel. The first big indictments were about 5 years ago where you had five PLA military officers indicted by the U.S. Government, and they were using state-owned enterprises to achieve industrial and economic espionage.

When we start looking at autonomous vehicles, that is so critical to our society, to our country and the great State of Alabama and elsewhere. So we need to get that right. I would be willing to bet you if you were to look in context that it is not all originally made in China.

Mr. PALMER. Oh, I go back to my opening comment about why we are even having a discussion about allowing China to play in our freight space, considering how we, I think, have been asleep at the wheel to a certain extent with them having control of the Panama Canal and other strategic footholds that they have established in Central and South America.

Thank you for your indulgence, Mr. Chairman. I yield back.

Mr. DEFAZIO. I thank the gentleman for his questions.

Representative Fletcher.

Mrs. FLETCHER. Thank you, Mr. Chairman, and thank you, Ranking Member Graves, for holding this important hearing today.

Thank you to all the witnesses for taking time to testify.

It has been clear here from the testimony today that these state-owned enterprises, Chinese state-owned enterprises have an unfair advantage in the bidding process for public rail projects and that we have a real situation on our hands of addressing a number of potential impacts as they continue to be engaged in this market.

Certainly if they can corner the market and drive domestic companies out of the business, we may not see these savings in the long term that we are seeing now in some of this bidding.

And beyond that, I think that there are a lot of national security and other concerns that your testimony has raised.

General Adams, I wanted to ask you specifically. In your written testimony, you explain that the contracts that the CRRC won for the U.S. metropolitan transit projects include the delivery of trains that contain Wi-Fi systems, automatic train controls, passenger counters, surveillance cameras, and other technologies that will be thoroughly integrated.

In an era where Americans are increasingly concerned about privacy and data privacy and artificial intelligence, can you talk a little bit about how the Chinese Government could use some of the

advances in artificial intelligence and facial recognition to extract even more value out of its investment in the U.S. transit systems?

General ADAMS. Thank you very much.

The point of having technology on our trains is ultimately efficiency and safety, which means that we welcome the inclusion of technology in our transit system trains, in our freight rail trains. We want more of it, not less.

We are not Luddites. We like technology. China knows that, too, and in fact, their technology is advanced. They are not as good as we are, but they are very good, and they know that they can answer our requests for proposal for building transit railcars, in particular, like WMATA is soliciting. They know they can satisfy that, and we want those requirements to be satisfied.

But we do not want to, as I go back to, we do not want to enlarge our attack surface, and if we allow them to build the cars that have this advanced technology, we are exposing ourselves to the maximum amount of intrusion, and they will do whatever they can.

They are very interested in tracking the movement of the cars. They are very interested in tracking the people that are on the cars. When it comes to transit rail, it is a clear problem for Washington, DC, because we all ride the Metro.

But when you talk about the freight rail system, I think the problem gets even more intense because we are talking about tracking the movement of sensitive goods, hazardous waste, toxic chemicals and so forth. We do not want to let China know where those cars are.

If they go into a high-threat urban area, for example, the last thing we want is for China to manipulate the controls on the hatches, either give a false read or give a spoofing read so that we think the hatches are open or closed. They can do whatever they want, if they have the control of the telematics on the railcars.

So to sum up, the exposure that we have to technology is something that we actually welcome. However, at the same time, we want to make sure that we do not want to have an attack surface that a potential adversary could exploit.

Mrs. FLETCHER. And just as a followup, what kind of safeguards, if any, do we have now to prevent that information from being utilized or what do we have in place?

General ADAMS. We do have standards for cybersecurity. I think we need to strengthen them, and because so much of especially the transit cars are property or bought by the local and the State governments, we need to help the State and local governments develop greater, tighter cybersecurity standards.

So there is a lot of work to do on that. Certainly, the TIVSA bill is important because the best way to manage risk is to avoid it. We do not want to use Federal dollars to purchase Chinese railcars. Let's avoid the risk. Let's not let them do it.

Mrs. FLETCHER. Thank you very much.

I yield back my time.

Mr. DEFAZIO. I thank the gentlelady.

We now turn to Representative Katko.

Mr. KATKO. Thank you, Mr. Chairman.

And thank you all for being here.

Unfortunately, this is a concern that is compounded by the cyber threat, and I am well aware of that through my role as ranking member on the Committee on Homeland Security's Subcommittee on Cybersecurity, Infrastructure Protection, and Innovation, and it really is stunning to me that, number one, we are not good stewards of our cyber systems in the United States, and we do not always anticipate the vulnerabilities.

And then we compound that by taking one of the worst actors in China and giving basically free access to the movement of millions of people and all of the implications that has.

So I am very concerned about that. In my previous life, way back when I was starting out as a lawyer, I was an antitrust lawyer, and that sure sounds like predatory pricing to me to price everybody out of the market, and that sure sounds like they are dumping in our market, too, basically, products because of state-support and government-owned entities.

But I want to focus on a cyber threat and all the threats, and I want to use a case example from something that is going on right now, and that is what they are doing in New York City.

Governor Cuomo announced in May of 2017 that the MTA would launch the Genius Transit Challenge, a grant program to challenge companies and individuals to develop innovative solutions to improve the New York City subway system.

On March 9th of last year, they announced that the winners of the grant program would include—you guessed it—CRRC, which invested $50 million of its own funds to develop a new subway car for the MTA transit system, despite the absence of any ongoing procurements.

The railcar would include modern train control technology, Wi-Fi, and other systems that could be susceptible to cyberattack.

So, Mr. Cilluffo, if you could start and if we have time, General, could you tell me based on that fact scenario, which is happening, what your concerns are?

Mr. CILLUFFO. Big, big concern. I mean, firstly, we discussed this threat that China poses from a cyber perspective, and quite honestly, we have not levied consequences or incurred costs for bad behavior. It seems like we are doing quite the opposite if we are rewarding bad behavior with winning potential contracts in the United States.

So CRRC has to be looked at in the broader context of what we have seen in other sectors, in other environments, and I think that that is important.

The bottom line in all this is we have let the bad guys have run of the field, and I think we need to change that. You have done some amazing work historically as a prosecutor, and I do think we need to start prosecuting some of these bad actors.

But we need to bring other instruments to bear as well, be those economic and in some cases maybe even military, but at the end of the day, we have yet to articulate a deterrence strategy to dissuade, deter, and if need be, compel bad behavior.

And amidst all of this, you have got economic levers that we are just not minding the store. So as a former New Yorker, I really hope that we do not continue.

Mr. KATKO. I appreciate your comments.

And, General, can you focus a little bit more?

I understand the problem, but focus more on this particular situation. What could go wrong with the Chinese railcars in New York City in the current fact pattern?

General ADAMS. The most effective cyberattack is one we never know about, and the sooner we know about it, the least effective it is.

They have succeeded in flying under the radar, to use another military term, for a long time. We do not even know the extent of their intrusion. In fact, the minute that we find out about it is going to be too late.

Mr. KATKO. Too late.

General ADAMS. That is the problem that really concerns me. We have already seen how they conduct business. They conduct business under the radar, surreptitiously, without raising any concerns.

And again, look at the glass half full. This hearing is a wonderful way to shine some light on the situation, and I appreciate the questions.

But I think we need to be much more resolute and diligent even than we are today. I think I know our intelligence agencies are working on the problem, and I presume that you have heard some of their concerns. I am happy that they are and have great confidence that they are doing resolute work on this issue.

But we in the public also need to know that we are taking this issue seriously. State and local governments do not have access to that information. They are making decisions, I am sure, in good faith, but in the blind, and I think the more we can tell about the incipient and insidious threats that we have from China and the way they exploit our technology for their own purposes the better off we are going to be.

Mr. KATKO. I thank you.

I yield back my 7 seconds, Mr. Chairman.

Mr. DEFAZIO. I thank the gentleman. We will use it wisely.

I would now turn to Representative Brownley.

Ms. BROWNLEY. Thank you, Mr. Chairman, and thank you for holding this hearing on the impacts of state-owned enterprises in the transit and rail industry.

Throughout my career in public service, I have supported Buy America and Buy America laws. In fact, I consistently cosponsored legislation to improve these laws, and I continue to believe we must strive to do everything possible to promote jobs in manufacturing in our country and in California, which is my home State.

Lancaster, California, is home to one of BYD's manufacturing facilities. It employs 900 individuals. Lancaster is very close to my congressional district and probably employs many of my constituents. I have heard from the sheet metal, air, rail, and transportation workers' unions that represent most of these employees, and they have raised real concerns about the loss of jobs should BYD be prohibited from doing business with our local transit agencies.

I am also concerned about how this issue relates to addressing climate change. In California, we have passed a new law requiring transit agencies to transition to zero emission buses by 2029. I believe we should pass similar legislation at the Federal level, and I have introduced the Green Bus Act to accomplish that purpose.

I hope, Mr. Chairman, that we can look to calibrate a solution as it relates to transit and to transit only, and to improve Buy America, and I hope we can distinguish between bad actions of state-owned companies and investments that create good jobs and help us address climate change.

And, Mr. Chairman, I hope we can work together to ensure all these issues are fully debated and considered before moving forward.

And finally, I would just like to say to my colleagues on the other side of the aisle China is investing in clean energies in the United States because China's leadership knows our cities and counties want to move to a clean economy, and they want to move to a clean economy as quickly as they possibly can.

So let's be clear. China's strategy fits very neatly into their Made in China by 2025 plan to become the world manufacturing power in 10 years. So we need to take the lead on clean energy.

So I have gotten that off my chest, and I would like to ask Mr. Paul, and this question is directed at transit and not rail.

Is there a solution, a calibrated solution, that does not simply just require creating a new U.S. manufacturing here in the United States?

Mr. PAUL. It is a good question, and I will say I come at this from the perspective of my background. I was a CWA member, a shop steward. I represented workers at the AFL–CIO. I have deep concern about the dignity of work and about the future of work in the United States.

I think there does need to be a level playing field, and I think that BYD as a corporate entity owes some answers about some of its subsidies and what have you.

I do think, and I agree with you that electrification is the future and that we ought to be a big part of it and investing in it as well. I think one way to achieve that goal is to have a robust infrastructure investment so that there are more companies that know that there is a sustainable, large enough market for them to make long-term investments in their workers and capital in the United States, and so I will say that.

I do not think it is a question of pitting the workers in Lancaster against everybody else. We are all in this together, and I do believe that there is a solution.

I also believe that every company needs to play by the rules, and those rules need to be strictly enforced.

Ms. BROWNLEY. And do you believe in this notion of electrification being the future, and that we are at a climate crisis, and the quicker we can get there the better off we are going to be and the world is going to be?

Mr. PAUL. I drive a union-made, Chevy-made Chevrolet Volt. I am part of that. I totally agree with you that electrification and other sorts of advanced energy forms, and there may be some transitions as well, but we have to get there as well. I completely agree with you.

Ms. BROWNLEY. Thank you very much.

And I see my time is up. So I will yield back, Mr. Chairman. Thank you for the time.

Mr. DEFAZIO. I thank the gentlelady.

Now Representative Babin.

Dr. BABIN. Sir, thank you so much, Mr. Chairman.

This is a very, very valuable and revealing hearing. It shows just how serious the threat is not only in the transportation issue, but many, many other issues that our country is facing. Thank you for having this.

Mr. Cilluffo, I would like to ask you a question. I want to say thank you to all of you witnesses. It is valuable testimony.

Mr. Cilluffo, I appreciate what you said in your testimony. Quote, "to undercut America's competitiveness is to damage the engine that powers our national security." Well said.

To allow the Chinese to undermine our otherwise well-functioning, free markets, undercut American competition, and jeopardize our national security is a travesty. And I have become aware recently of foreign state-owned enterprises attempting to enter into the U.S. market of passenger boarding bridges, and I personally have a number of cyber and data privacy concerns in response to some technologies that they are proposing, like facial recognition and others.

So in light of that, should the same concerns that are being raised about Chinese-owned or subsidized freight and passenger rail companies also be raised in the context of other critical transportation infrastructure, including aviation infrastructure?

Mr. CILLUFFO. Thank you, Mr. Congressman.

Without a doubt, I think it is important to look at it across all modes of transportation and even beyond because different modes of transportation are dependent upon critical infrastructures outside of that particular domain.

Take PNT, GPS, some of the timing signaling, I think it is very important that you look at it beyond that.

And one thing on the facial recognition piece that you raise, I mean what did not come up yet today was also they were the perpetrators behind one of the biggest hacks of all time, of OPM. Everyone with security clearances, match that up with fingerprints and then facial recognition, and you have got a pretty big privacy nightmare on our hands.

Dr. BABIN. Absolutely. All right. Well, thank you so much.

And, Mr. Galloway, as you know, China's Made in China 2025 initiative targets 10 major industries for global domination, covering a range of critical industries such as rail equipment, aerospace, maritime equipment, and many others. China's plan involves far-reaching state support for these industries, offering government subsidies, below-market financing, and a range of other tools to advance China's state-owned entities at the expense of domestic companies right here in the United States.

In your opinion, what long-term solutions should the United States implement to respond to China's anticompetitive behavior?

Mr. GALLOWAY. I think the challenge is long-term solutions really reside in getting the state-owned enterprises to conform to good corporate behavior and level the playing field here in the U.S.

I think from a policy perspective it presents a unique challenge because convincing a government to stop funding and supporting their entities is something that goes against what their objectives are here in the U.S. and globally.

There are certain tools I think that you have as a congressional body in terms of helping to mitigate some of that either through certain protectionist measurements, shoring up things like Buy America or using other types of tactics to target specific areas that are specifically susceptible to anticompetitive and disruptive behavior here in the U.S.

But I think a lot of encouragement for direct investment in building out supply chains and curbing the types of subsidies and other concessionary financing and activities that the state-owned enterprises are actually doing here and globally is really the next step.

Dr. BABIN. I think that is well said. And do you agree with some of the initiatives that the administration is currently doing in their negotiations with China to try to mitigate some of these problems that you just said?

Mr. GALLOWAY. I do agree with some of them. I think the issue is holding firm and keeping a close eye and focus on ensuring that the provisions that are attached to those types of engagements and those types of policies are enforced, and they are well designed in order to protect and preserve the sanctity of the supply chain systems and the competitiveness within our domestic economy.

Dr. BABIN. Absolutely, and I am running out of time. I could ask a lot more questions, but I will yield back. What is it, 11 seconds?

Mr. DEFAZIO. I thank the gentleman. Again, we will spend it wisely.

Representative Payne.

Mr. PAYNE. Thank you, Mr. Chairman, and I thank the ranking member for having this hearing today.

Mr. Cilluffo, as you may be aware, New Jersey and my district has been described as the two most dangerous miles in America because of the chemical installations, seaport, airport, rail, and interstate all coming together in a 2-mile radius.

What do you see as potential cyber threats to the area because of railcars manufactured by state-owned enterprises?

And what can be done to ensure safety?

Mr. CILLUFFO. Thank you, Congressman. That is an excellent question.

And when I highlighted the national critical functions earlier, these are 55 designated issues that, if denigrated, could have a debilitating effect on our national security economy and the like.

And industrial control systems, whether from the chemical side or from other sectors, share common vulnerabilities, and that is something we would call a single point failure.

So I do think that what we need to start doing is racking and stacking because we cannot get our arms around everything all the time, and the last thing we want is the "spread the peanut butter" approach where everything is even. We have got to get the most important issues addressed first, and I would put chemical and I would put, obviously, transportation on that list, along with a handful of others, financial services, defense, industrial base, telecommunications, water, and the like.

So I do think that that is an important set of issues, and from a rail, from a movement, absolutely that is something that we should be concerned about.

Mr. PAYNE. Thank you.

Mr. Galloway, the U.S. is in a dire need, obviously, of robust investment in our aging transportation infrastructure. If this investment goes to railcars manufactured by state-owned enterprises, would that impact the effectiveness of the investment?

And how so?

Mr. GALLOWAY. If I am hearing your question correctly, if it is going into freight railcar manufacturing that would be completed by state-owned enterprises, the disruption would be significant.

And earlier in my testimony and what we have actually, research at Oxford Economics, even $1 billion in freight railcar manufacturing that would go to a state-owned enterprise, and keep in mind $1 billion is only a fraction of the size of the industry, you are looking at a potential loss of 5,000 U.S. jobs, good-paying U.S. jobs, as well as $1.3 billion in U.S. GDP.

Because that value ripples through the economy, because the supply chains are here, and you are keeping a lot of that economic value retained here in the U.S., that is going to dry up. That is going to go overseas.

Mr. PAYNE. And would those figures and statistics and jobs continue at that level?

Mr. GALLOWAY. If the investment would continue at that level, yes, it would, and you can look at this as an additive effect. It would double if it goes from $1 billion to $2 billion. It would triple going from $1 billion to $3 billion.

And these are annualized figures. So as that investment would continue, that same disruption and that loss would continue.

Mr. PAYNE. Thank you.

And, Mr. Chairman, I am going to yield back 1 minute and 15 seconds.

Mr. DEFAZIO. Thank you. I appreciate that.

Representative LaMalfa.

Mr. LAMALFA. I appreciate it, Mr. Chairman.

Thank you, witnesses. It has been a full-length hearing here with many Members. I will just narrow my questions down a little bit here to issues of security.

Mr. Cilluffo, the bottom line on the amount of data that a Chinese company can be collecting on our transit systems, that is fully expected to be sent back to mainland China and used in their intel systems, right?

I mean, we fully expect that that is going to be.

Mr. CILLUFFO. That is a major concern, yes. As General Keith Alexander, then-Director of the National Security Agency, referred to it as the greatest transfer of wealth in our history. So intellectual property theft.

Mr. LAMALFA. There is no reason to believe that that will not happen?

Mr. CILLUFFO. No reason. I mean, obviously you want to agnostic to everyone. You want to put in all the right security controls you can and standards and most importantly, here is the reality. The threat moves so fast, technology changes, that you have got to be testing your systems all the time, red teaming and looking for vulnerabilities.

I mean, if you legislate a law right now that tries to handle security itself, not the importance of security, it is going to be out of

date by the time the ink dries. So you want to consistently probe and test our systems, and that is maybe where the mandate should be.

Mr. LAMALFA. To hack-proof them, et cetera?

Mr. CILLUFFO. As much as you can hack-proof them, yes, or at least minimize the impact and consequences when the inevitable occurs. They are hacked.

Mr. LAMALFA. But if we are bringing them in to be the manufacturers and installers of these——

Mr. CILLUFFO. A big problem, yes.

Mr. LAMALFA [continuing]. Then they have free access. They do not have to hack.

Mr. CILLUFFO. That is the concern.

Mr. LAMALFA. There is no way we can ensure that.

Mr. CILLUFFO. Yes.

Mr. LAMALFA. OK. Thank you.

Mr. Paul, when we are talking about, you know, railcars, for example, any product built in China or ostensibly starts to be built in China and only assembled here, let's talk about railcars, and I will also throw this to Mr. Washington, as well.

You know, bottom line, if the bidders are looking for savings involved by using Chinese-made products over American made, what kind of savings percentage-wise or dollar-wise are you looking at for a transit railcar?

What are you really saving at the end of the day?

And I come from northern California where only a couple of hours from me is the Bay Bridge, which, you know, the cost overruns on that were something else.

Mr. PAUL. Right.

Mr. LAMALFA. But also immediately as they are building it or immediately after it was deemed ready, they are talking about quality issues with bolts and type of metal and the way the metal was initially manufactured.

So, you know, compare all of those things please.

Mr. PAUL. Yes. And I specifically remember the Bay Bridge example because California taxpayers essentially subsidized an enterprise in China in Shenjian to begin a bridge building exercise that resulted in cost overruns and delays and ultimately did not deliver what it promised.

With respect to CRRC——

Mr. LAMALFA. I know people that will not drive across the bridge.

Mr. PAUL. Yes.

Mr. LAMALFA. I mean, I am not scared, but you know.

Mr. PAUL. In addition to the traffic, the safety.

Mr. LAMALFA. Yes.

Mr. PAUL. So CRRC entered the U.S. market a few years ago first in Massachusetts, and it won a contract after combining with another company, another Chinese-owned company that was disqualified from the bidding process, and it undercut every bidder.

It then quickly secured contracts in Philadelphia and Chicago, in Los Angeles, and I think the representative from Los Angeles said that the bid could have been 10 percent under. In some cases, it

was tens of millions or even hundreds of millions of dollars less than the next lowest bidder.

And CRRC was able to do this because it is a loss leader. This is not a profit-making enterprise. This is a tool of Chinese state power designed to build an industrial capacity and dominate a market.

Mr. LAMALFA. I am going to run out of time here real quickly. So bottom line, and then Mr. Washington, what initial savings for those that are tempted by that bid would they see? Just a few seconds, please.

Mr. PAUL. Well, on paper——

Mr. LAMALFA. Just a rough number here.

Mr. PAUL [continuing]. It could be up to 30 or 40 percent.

Mr. LAMALFA. Yes, yes.

Mr. PAUL. That may not be the case down the road, as you mentioned, but it can be quite sizable.

Mr. LAMALFA. OK. Mr. Washington, please.

Mr. WASHINGTON. Yes, I would just say that, first of all, current Federal procurement rules do not allow public agencies to disqualify a CRRC or an SOE or an SOE-influenced agency.

I would also say, and I mentioned earlier that the delta between the CRRC and the second bidder was between 5 and 10 percent. It was actually 3.5 percent.

But I think in our case that savings or that delta was not very big.

Mr. LAMALFA. Was not what?

Mr. WASHINGTON. Not very large, 3.5 percent.

Mr. LAMALFA. Very, very little. OK.

Mr. Chairman, thank you.

Mr. DEFAZIO. I thank the gentleman.

I just again do a little editorial comment at this point since you raised the new Oakland Bay Bridge. When I chaired the Highways and Transit Subcommittee back in probably 2008 or 2009, I held a hearing on that procurement, and we had the successful bidder sitting right there, and he had bid the U.S. side and the China side.

And I said to him, "Well, how is it that, you know, do they have the capability of building this bridge in China?" I said, "I am not aware, you know, because of the innovative design."

He said, "Oh, no. No," he said, "I am going to build a factory over there."

And I said to him, "Well, what if I tightened up the Buy America?"

He said, "Oh, I would build a factory here."

That is on the record. I mean, just pathetic what we have done.

With that, Representative Malinowski.

Mr. MALINOWSKI. Thank you, Mr. Chairman.

As a predicate to my question, let me make a couple of comments. First of all, China is setting up the most sophisticated surveillance state in human history. If you live in China, particularly in a sensitive area, we are at a point where the government is essentially tracking your movements 24/7 through apps installed on your phone and, of course, surveillance cameras that are everywhere with facial recognition that is getting better and better.

Number two, we are seeing that China, among other countries, is increasingly brazen in extending the tentacles of its repressive apparatus to other countries. Just last week we saw Amnesty International could not rent office space in New York City because a Chinese state-owned enterprise owned the building and told them no.

In New York City, we had a Canadian Member of Parliament using a WeChat page to communicate with her Chinese-Canadian constituents, and her messages, her posts were being taken down by the Chinese Government in Canada.

More to the point we have thousands and thousands and thousands of Chinese-Americans living in the United States, many of whom have taken refuge in this country, many of whom are dissidents. They are critics of the Chinese Government, and in the last couple of years more and more reports of Chinese agents in the United States directly confronting them, threatening them, of course, threatening their family members still back home in China.

So these are people, not hypothetical. These are people in the United States that are persons of great interest to the Chinese Government today.

Now, General, I wanted to ask you. Describe how China could use the fact that it is manufacturing train railcars, investing in mass transit in the United States, to follow these people and enable harassment of these people.

General ADAMS. I am sure that it is the case that one of the most interesting demographics for the United States for Chinese intelligence is Chinese ex-pats, American citizens whose families come from China, Americans who have emigrated from China and are now contributing to our economy, contributing to our society. Welcome American citizens.

I am sure that that is one of their targets.

Mr. MALINOWSKI. And they would have an interest in tracking them increasingly in real time to the extent that they can, and of course, Wi-Fi signals intercepting communications and so forth.

General ADAMS. It is like putting an antenna for their intelligence collection systems in every major city in the country, assuming that this dynamic continues.

But they have already got those antennae in some of the largest cities in our country, and I am sure they will use it for that.

If I may, strategically, one of the hardest things to do, you have to know the capabilities of the adversary. The hardest thing to do is to find the intentions of the adversary for us as well as our adversaries.

We look at each other all the time. China is developing the capability in bounds to collect against us, to collect against whatever targets they want. Giving them attack surfaces of our transit railcars is a gift to them.

The same thing with freight rail, much more strategic, much more logistically challenging for us because, again, it is our strategic asset, but we need to understand that what they really want to know is our intent, and the more detailed, the more fidelity they have, let's say, on the Chinese-American demographic, let's say on our demographic right here in this room; the more detail they have

on who we are and what our intents are, the more full their intel picture of the United States is going to be.

Mr. MALINOWSKI. Well, that is the national security risk, and what I am suggesting is that there is a very real personal danger to people living in the United States who are American citizens who have ties to China.

And this, of course, could perhaps extend to other dictatorships. China is the head of a club of autocrats and could share this intelligence with the Egyptians, the Pakistanis, others who may have similar interests.

The ultimate question for me then is: what are the safeguards, if any?

Are there technical safeguards short of simply not allowing Chinese investment in these sectors that would enable us, setting aside the economic questions that you all raise, but looking strictly at the national security and privacy concerns; are there technical safeguards that could be applied to the importation of railcars, buses, automobiles, which we have not mentioned, but of course could pose similar concerns, or is the only safeguard simply not accepting the investment?

General ADAMS. If we want to avoid the risk, then we need to not accept the investment. If we want to manage the risk, then there are some things we can do short of prohibiting it.

We have techniques that we can use to mitigate cybersecurity vulnerabilities, but we are going to have to manage it no matter what, whether it is completely cutting it off or using the technical measures that we have to detect transmission of signals, for example.

But, again, the best way to manage risk is to avoid it.

Mr. CILLUFFO. Congressman, can I add one very quick point to this, very, very quick? And I have got a flight to catch so I do so at my own peril here.

But the reality is agnostic to the perpetrator. We have a responsibility to do more from a cybersecurity standpoint because that attack surface is growing exponentially whether it is China-driven or anything else.

So I would argue that there are a lot of steps that can and should be taken. I just do not want that heavy regulatory hammer alone to be driving all that. We need to test our vulnerabilities and test systems within systems.

Mr. DEFAZIO. Mr. Garamendi.

Mr. GARAMENDI. Thank you, Mr. Chairman.

As you know and those who have followed my time here in Congress, make it in America has been my theme, multiple pieces of legislation over the years and more than enough talking, well, maybe not enough talking.

We have been somewhat successful. We have increased the Buy American percentage for the highway transit to I think it will be 70 percent. I tried to cut back on some of the loopholes that are there.

We have a piece of legislation before us today, Mr. Rouda's legislation, that goes directly to the heart of unfair competition.

The Chinese state enterprises as been discussed repeatedly by Members as well as our witnesses, make it very, very clear that

competing with the state-owned enterprises in China is not a market-based system. It has nothing to do with that.

And as long as that system of state-owned enterprises exists, we need laws here in the United States to say, no, you cannot enter the American market.

Now, much of the discussion that the President is engaged in with tariffs misses this key point and, frankly, he would be better off dealing with it directly as Mr. Rouda's legislation does.

I do have a couple of things that I want to bring out. We do have laws. We have the Clayton and the Sherman Antitrust Act. There is a right of private lawsuits that could and should be brought by those that have been harmed by the unfair predatory pricing.

I would suggest that there is a triple penalty. So if you find that it has cost you $1, the penalty can be $3. You ought to take a look at that.

Secondly, this is a question for Mr. Washington. I think you dealt with this at least in part, and I want to come back to it.

Do the Federal transit procurement rules allow an agency, such as yours, to reject a bid due to cybersecurity concerns, say, by the Chinese state-controlled company like CRRC?

Mr. WASHINGTON. They do not. Currently, the Federal procurement rules do not allow public agencies to disqualify a, in this case, a CRRC or a BYD. To my knowledge, only Congress can do that, and I would——

Mr. GARAMENDI. Well—excuse me. Please complete.

Mr. WASHINGTON. And I would just also add one thing. Transit agencies need guidance in this area because the increased need for railcars and many of the areas around the country as referendums are being approved is upon us.

Mr. GARAMENDI. I appreciate that, and it sounds like there ought to be law.

And, in fact, there is a law that at least goes partway towards dealing with this, and that is Mr. Rouda's law that says that if the cybersecurity concerns cannot be addressed, then that particular company or that particular bid must be rejected.

And so it does go directly to that, and I draw that to the attention of those of us who will be voting on this eventually. And I am proud to be an original cosponsor of that legislation.

My final point really deals with another piece of legislation that we are dealing with, and that is to extend the Buy America requirements to the entire infrastructure package that may eventually emerge from this committee. And so it is everything from pipes to pumps and broadband and other activities that hopefully will be part of a very rich and successful piece of legislation.

Apparently, the President is going to suggest how we might pay for it. That would be helpful, but along the way, that bill has been introduced by, will be introduced by Senator Baldwin over in the Senate side, and I will be introducing it here on this side in the next few days. I draw the attention of the committee and anybody that is interested in extending the Buy America to all money that the Federal Government would be spending on infrastructure writ large.

A most unusual event, I am yielding back time.

Mr. DEFAZIO. I thank the gentleman.

I just take the opportunity on his time to say, you know, I am determined. I got us to move to 70 percent American content, but I was not successful in getting amendments to how you classify components, subcomponent, systems, et cetera, et cetera.

It is very complicated, but clearly, the loophole that BYD is using in this case to get to the value that theoretically they are eligible.

So I really thank the gentleman for his initiative, and there are some very specific places where we need to apply that.

So with that, I would turn to the gentleman, Mr. Johnson.

Mr. JOHNSON OF GEORGIA. Thank you, Mr. Chairman.

Mr. Paul, your testimony and several others who have submitted testimony today express clear concern that the CRRC is intentionally seeking to dominate our Nation's transit rail sector. With the completion of several U.S. public transit projects already, CRRC has postured itself to be a dominant competitor in our transit and railcar manufacturing industry.

Do you anticipate that CRRC will make a gradual impact on our rail sector or can we expect a more dramatic and swifter impact?

Mr. PAUL. Mr. Johnson, it is a terrific question.

It has already altered the landscape. There is no question about that, and it is winning approximately three out of every four transit awards.

Atlanta is actually an exception to that, but they are making substantial progress, again, by offering prices that are essentially loss leading.

The ultimate result of all of this is going to be reduced competition. That is, its competitors, the incumbent firms like Hyundai, Kawasaki, Alstom, the others, will exit the market if they are not winning awards.

And so there is a combination of tools that are available, I think, to both make the experience better for local transit agencies and for taxpayers as well.

One of those is obviously to create a level playing field for the bidding. The incumbent companies are simply not competing against another company in CRRC. They are competing against a country. That is the issue that the TIVSA would alleviate.

The other issue——

Mr. JOHNSON OF GEORGIA. So how do you level that playing field?

Mr. PAUL. How do you level that playing field? Well, that would exclude state-owned enterprises from competing for the contracts, and so CRRC would need to divest itself of its interest in the Chinese Government or find another buyer for its assets.

The other issue, and I think this is an important one, is the size of the transit spend, and that has been an impediment for many firms to stay engaged in the U.S. market.

And so I am hoping as part of this infrastructure conversation that the Congress is having with the White House that there will be a robust, sustained commitment to building out transit rail infrastructure in the United States that is going to send a signal to these firms that it can stay in these markets, invest in these workers, invest in capital.

And I think that is the ultimate outcome that we would like to see.

Mr. JOHNSON OF GEORGIA. Thank you.

Mr. Cilluffo, the integration of Chinese technology into our transit network is intertwined with national security. With the implementation of GPS, safety features, Wi-Fi systems, and numerous other nuanced technologies, China gains considerable access to gather intelligence.

Do you believe that this requires hyper vigilance from our intelligence community?

And I would like for you to answer also, General Adams.

Mr. CILLUFFO. Congressman Johnson, without a doubt, and the good news is if you look at the number of industrial and economic espionage cases and if you look at the cyber espionage cases in particular, they are heavily focused on the People's Republic of China and their intentions because that is where a lot of the activity is.

They are by no means the only player we have to worry about or actor we have to worry about, but the good news is that awareness is high. The bad news is that awareness is high because there is a whole lot of activity going on.

Mr. JOHNSON OF GEORGIA. General Adams.

General ADAMS. Yes, sir, we do need to be hyper vigilant, and as I said before, by the time we detect a threat from cybersecurity, it is already too late.

The Chinese are not interested in telegraphing their intent. Good for us, they actually have. We know they want to conquer the global freight rail market, and it is good to see this level of interest from Congress because it supports our intelligence community's hyper interest in this dynamic as well.

So thank you.

Mr. JOHNSON OF GEORGIA. Thank you.

I want to thank all of the witnesses for their testimony, and I also want to thank Chairman DeFazio for holding this very important hearing today on how we can protect our Nation's rail infrastructure.

With that I yield back.

Mr. DEFAZIO. I thank the gentleman.

Representative Miller.

Mrs. MILLER. Thank you, Chairman DeFazio and Ranking Member Graves, and thank all of you all for being here today.

Mr. DEFAZIO. Mr. Cilluffo, if you need to get a plane, go. They do not hold planes for me and they are not going to hold it for you.

[Laughter.]

Mr. CILLUFFO. I apologize. Thank you.

Mrs. MILLER. Be safe.

It is of the utmost importance that we continue to focus on stabilizing our domestic industries by preventing unfair business practices. We know that anticompetitive business practices among the SOEs could damage private-sector railcars manufacturing and create an imbalance, leading to the loss of jobs in the United States.

The railcar manufacturing industry is one that we must protect.

Mr. Galloway, I enjoyed your quote on the internal structure of how a competitive market is supposed to work. The advantages given to state-owned enterprises threaten to undermine the benefits gained from fair competition in true private-sector productions, such as improving efficiency and technological advancement.

You state that the anticompetitive practices displace private-sector competitors causing a domino effect throughout the United States supply chains and the business owners, workers, and families who rely on them.

What are some ways in which Congress can improve oversight to ensure that state-owned enterprises do not upset our rail economy?

Mr. GALLOWAY. I think from a policy perspective and an action perspective, ensuring that state-owned enterprises are behaving as good corporate citizens, they are making the investments necessary in the U.S. to produce goods here in the U.S. rather than offshoring their supply chains and their goods production back to the Chinese economy or elsewhere is critical to maintaining that level playing field.

Unfortunately, under the current structure of SOEs, that is very unlikely to occur.

And not being a policymaker, I am uncertain on what the best path forward would be to ensure that if CRRC is going to operate here in the U.S. and is going to provide railcars, that they are doing it above board and they are doing it as a good corporate citizen, short of preventing them from actually operating here in the U.S. to begin with.

Mrs. MILLER. What is the future of the world market if this behavior continues?

Mr. GALLOWAY. Oh, I think we are already seeing what the future of the world market is, which is heavy displacement of domestic railcar manufacturing in many different countries.

I cited earlier the Australian example where the freight railcar manufacturing sector has been completely decimated, and then the last remaining producer moved their operations to China in order to compete with Chinese firms, with CRRC.

So and you are seeing this type of cascading effect across a lot of other markets, both developed and developing, where there were railcar sectors that existed that are no longer the case.

Mrs. MILLER. Thank you.

Mr. Washington, what are the top issues that you are dealing with as a transit agency with foreign companies that bid and operate here?

Mr. WASHINGTON. Well, I think one of the top issues is making sure that they invest in the local area, which is why we included in the evaluation criteria local employment plans and local employment requirements.

I think the other big thing is suppliers, as well. Having suppliers near or in close proximity in this case to final assembly plants is very, very important as well. I see those as some of the top challenges.

Mrs. MILLER. Would those suppliers be locally owned as well?

Mr. WASHINGTON. Pardon me?

Mrs. MILLER. Would the suppliers be locally owned?

Mr. WASHINGTON. The suppliers can be locally owned, yes. We prefer that. We definitely prefer that, which is why I said in my statement the idea that we need to stand up our own passenger railcar manufacturing facility in this country, slash, an industrial yard with suppliers located there as well.

Mrs. MILLER. OK. Thank you.

I yield back my time.

Mr. DEFAZIO. I thank the gentlelady.

Seeing no other Members prepared to ask questions, I would thank all of the members of the panel for their interesting and instructive testimony and the amount of time you devoted to us today.

This is a critical issue, and thank you for being here.

With that the committee stands adjourned.

[Whereupon, at 12:51 p.m., the committee was adjourned.]

SUBMISSIONS FOR THE RECORD

Prepared Statement of Hon. Daniel Lipinski, a Representative in Congress from the State of Illinois, and Chair, Subcommittee on Railroads, Pipelines, and Hazardous Materials

Thank you Chairman DeFazio and Ranking Member Graves for holding this important hearing about the "The Impact of Foreign State-Owned Enterprises on the U.S. Public Transit and Freight Rail Sectors."

As we will hear today from our witnesses and from many of our members including myself, the entry of Chinese State Owned Enterprises has made a lot of companies and public policy makers concerned. Since 2015, the China Railroad Rolling Stock Corporation also known as CRRC has won four large transit rail rolling stock contracts with public transit agencies in the United States, including in my home region of Chicago. Furthermore, recent media reports indicate they may bid on several more contracts, including WMATA, the New York City Subway and possible my home commuter railroad, Metra.

Let me be clear about my own views on the issue. The entry of Chinese State Owned Enterprises into this country is a huge threat to America's economic livelihood and national security.

Chinese State Owned Enterprises are a very different entity than a typical foreign corporation. In my mind, there absolutely is a huge difference between CRRC and Stadler for example. CRRC is controlled by a government that is competing with us economically, in many cases unfairly, and poses a potential substantial military threat. Last time I checked Mr. Chairman, Stadler was not controlled by the Swiss Government nor are we worried about the Swiss Government threatening the United States economically or militarily.

I want to note I am cognizant of the workers at CRRC's factories in Chicago and elsewhere. These factories do provide well-paying jobs to hundreds of workers and I understand from the local unions that CRRC has treated these workers and their unions well. So in this process, we should not forget that these workers are our constituents or that our actions could affect their livelihoods and families.

However, we can't turn a blind eye to this threat and assume that CRRC or China will continue to play by the rules. The Chinese government has a terrible record when it comes to respecting workers rights or competing fairly economically. As General Adams notes in his testimony, the Chinese Government has a "Made in China 2025" initiative, a key component of China's 13th Five-Year plan, and identifies the rail manufacturing sector as a top target for Chinese expansion. We should absolutely assume that the ultimate goal of CRRC or the Chinese government is to move into the US freight market and that should scare us all. One only has to look at our domestic steel market and the closing of steel plants in communities all across this country and the tremendous hardship that has resulted to see what happens when China decides they want to enter a market and compete unfairly.

According to testimony we will hear today from Hamilton Galloway, the rail supply industry supports 650,000 mostly middle-income jobs, $74 billion in U.S. GDP and contributes nearly $17 billion to federal, state and local taxes. Highlighting the importance of the railway supply industry in this country, my home region of Chicago has lot of railway suppliers that keep our American manufacturing strong and employ thousands of Chicagoans. I have heard strong concerns from these companies about their ability to compete with unfairly subsidized state owned entities, and we absolutely need to be forward thinking and address this potential threat.

As Mr. Galloway's testimony indicates, even if a state-owned rail manufacturer adds some jobs, the likely overall effect in the future is a significant decrease in jobs as the domestic supply chain is wiped out and most production is outsourced to where the state owned enterprise is located, say China. The potential future degradation of our domestic supply chain is something we are facing right now.

It is true that there are no American based manufacturers of transit rolling stock. However, that does not mean we should just give up and start accepting corporations controlled by foreign governments that may be adversaries to us both militarily and economically. I appreciate Mr. Washington's testimony that he would like to see to see the associated design and innovation related to rolling stock occur in the United States. I share that same goal. However, I fail to see how our transit agencies selecting Chinese state enterprises with a history of undercutting bids from other companies using Chinese state subsidies takes us closer to that goal. If anything, it drastically reduces the chances that we will create a thriving domestic market for rolling stock.

So above all, we need to be focused on protecting our domestic freight supplier industry and also figuring out how to create a thriving domestic transit and bus rolling stock industry right here in the United States.

I look forward to hearing from our witnesses and other members on how we can accomplish these two critical goals.

Thank you again Mr. Chairman for holding this important hearing and I yield back the balance of my time.

E-mail Submitted for the Record by Hon. Crawford

Information provided by the Federal Transit Administration re: Federal funds used in CRRC contracts.

On 5/16/19, 3:47 PM, "Webb, Kate (FTA)" <[redacted]@dot.gov> wrote:

Hi Jay,

My apologies for the delayed response. I don't have a formal table but I can tell you that .the following transit agencies have used federal funding to purchase CRCC [sic] subway cars:

Chicago Transit Authority (CTA)
Southeastern Pennsylvania Transportation Authority (SEPTA)
Los Angeles County Metropolitan Transportation Authority (LACMTA)

None of the ordered cars have yet entered into service.

Please let us know if you have any questions.

Kate

KATE WEBB,
Office of Communications and Congressional Affairs, Federal Transit Administration, Washington, DC 20590

Letter from Scott N. Paul, President, Alliance for American Manufacturing, Submitted for the Record by Hon. DeFazio

MAY 29, 2019.

SUPPORT H.R. 2739, THE TRANSIT INFRASTRUCTURE VEHICLE SECURITY ACT

AAM SUPPORTS ROUDA-CRAWFORD-PERRY-GRANGER-RYAN-HOLMES NORTON-WEBER-GARAMENDI BIPARTISAN LEGISLATION TO PROHIBIT FEDERAL FUNDS GOING TO CHINESE-OWNED, CONTROLLED OR SUBSIDIZED RAIL CAR OR BUS MANUFACTURERS

DEAR REPRESENTATIVES:

On behalf of the Alliance for American Manufacturing (AAM), a partnership between the United Steelworkers (USW) and leading U.S. manufacturing companies, I am writing to express our support for H.R. 2739, the Transit Infrastructure Vehicle Security Act (TIVSA). This bicameral, bipartisan legislation would ban Federal Transit Administration (FTA) funds from being used to award a contract or subcontract to a Chinese state-owned, controlled, or subsidized enterprise.

Backed by deep government support and Beijing's "Made in China 2025" initiative, China's electric bus and rail state-owned enterprises (SOEs) are rapidly altering the U.S. competitive landscape for rolling stock manufacturing. This is having a profoundly negative impact on established, private-sector U.S. firms and jeopardizing supply chains that employ tens of thousands of American workers.

China Railroad Rolling Stock Corporation (CRRC)—a Chinese SOE—has drastically altered the competitive landscape for domestic railcar manufacturing. Since 2014, CRRC has secured major metro transit car contracts in Boston, Philadelphia, Los Angeles, and Chicago with impossibly low bids. In Boston, CRRC's bid was hundreds of millions of dollars below the next lowest bidder. In Philadelphia, another

bidder was quoted as saying, "I cannot grasp how they are able to do it at that cost." There should be no doubting CRRC's strategy to establish itself in the U.S. market and to eliminate legitimate competition through any means necessary, even if it means losing substantial sums of money along the way. With potential deals in Washington, DC and New York City in CRRC's sights, it is vital for U.S. national security, innovation, and jobs that we stop subsidizing the destruction of our domestic rolling stock manufacturing base with federal dollars.

The electric bus industry is also in Beijing's sights. BYD, or Build Your Dreams, assembles electric buses in the United States and is both influenced and subsidized by the Chinese government. BYD has been plagued by quality issues and a recent OIG investigation by the City of Albuquerque suggests that "the majority, if not all, parts were manufactured in China and shipped to the United States"—including the bus frame, chassis, walls, drive train, axels, motor, lights, seating and seat belts, and more. BYD not only aggressively undermines healthy market competition in the electric bus procurement market, it threatens to displace supply chains here in the United States with imported parts and components shipped in from China.

It is vital that the United States act to prevent the destruction of the U.S. competitive landscape for rolling stock manufacturing before it is too late. America's tax dollars should not be used to support Chinese state-owned firms seeking to undermine market competition. Please support the bipartisan, bicameral Transit Infrastructure Vehicle Security Act.

Sincerely,

SCOTT N. PAUL
President

Letter from Lonnie R. Stephenson, International President, International Brotherhood of Electrical Workers, Submitted for the Record by Hon. DeFazio

MAY 15, 2019.

Hon. PETER A. DEFAZIO
Chairman
Committee on Transportation and Infrastructure, U.S. House of Representatives, Washington, DC 20515

Hon. SAM GRAVES
Ranking Member
Committee on Transportation and Infrastructure, U.S. House of Representatives, Washington, DC 20515

DEAR CHAIRMAN DEFAZIO AND RANKING MEMBER GRAVES:

On behalf of the 775,000 active and retired members of the International Brotherhood of Electrical Workers (IBEW), I am writing regarding your committee's May 16, 2019, hearing on "The Impacts of State-Owned Enterprises on Public Transit and Freight Rail Sectors." The IBEW is concerned that Congress may pursue legislation that will deny federal funds and will directly result in the loss of hundreds of jobs for our members who are employed by CRRC Sifang America in Chicago, Illinois and CRRC MA in Springfield, Massachusetts.

Several years ago, the IBEW and the International Association of Sheet Metal, Air, Rail and Transportation Workers (SMART) began a working relationship with CRRC, a China-based rolling stock manufacturer to build railcars in the United States. I had the opportunity to visit CRRC's work firsthand as a part of an IBEW delegation trip to China. CRRC made a commitment to manufacture transit cars in the United States and hire American workers at competitive salaries and benefits.

This investment has been further shown by the opening of CRRC's facility near the site of the historic Pullman Company factory in Chicago's South Side. In Chicago, part of the negotiated package resulted in historic community benefits agreements that not only targeted local workers but committed the company to hiring military veterans, women, the formerly incarcerated and communities of color. As a result, $4 million in federal funds were awarded to community colleges, junior colleges and technical training programs, all to build training for the transportation manufacturing sector where none had previously existed.

In recent years, dozens of IBEW members have traveled to China to be trained in CRRC's leading manufacturing practices and bring these skills back to the United States. Today, our partnership manufactures world class railcars for several of our nation's largest public transit systems, including the Chicago Transit Authority (CTA), Los Angeles County Metropolitan Transportation Authority (LA Metro), Mas-

sachusetts Bay Transportation Authority (MBTA), and Southeastern Pennsylvania Transportation Authority (SEPTA).

The decline of American manufacturing over the past four decades has been a major blow to the IBEW and its membership. Forty years ago, the IBEW had over 400,000 members in the manufacturing sector, proudly building goods for American consumers and the global market. These manufacturing jobs provided wages and benefits that would support a family and sustain communities through the United States. Today, the IBEW only has 30,000 members in manufacturing, a 93 percent decline. When CRRC approached IBEW about a partnership to build railcars in the United States, we saw this as an opportunity to bring manufacturing jobs back to communities in Chicago and Springfield that have suffered from years of deindustrialization.

The IBEW hopes to strengthen its relationship with CRRC moving forward and increase domestic railcar manufacturing made by union labor. However, we are aware of the criticism by CRRC's competitors and the increasing attention of CRRC's growing footprint within the halls of Congress. I want to be clear that the IBEW is sensitive to the cybersecurity concerns raised by some regarding CRRC transit cars and has no issue with Congress passing legislation that would ensure the security of hardware and software components of railcars and other rolling stock. Adoption of the Transit Infrastructure Vehicle Security Act (S. 846) or similar legislation, however, would result in the closure of CRRC's two manufacturing facilities, leading to the loss of 400 family-supporting union jobs at the Chicago and Springfield sites, without any assurance that future railcar manufacturing will be done domestically or through a U.S.-owned company.

The IBEW asks that the House Committee on Transportation and Infrastructure take a comprehensive view of the current state of domestic manufacturing in the United States and to consider alternatives before adopting legislation like the Transit Infrastructure Vehicle Security Act. Furthermore, before the Committee on Transportation and Infrastructure takes legislative action, we ask committee members to consider two important questions:

First, if Congress takes action to close CRRC's railcar facilities, how will the workers at these factories be made whole?

Second, if legislation is enacted to close the CRRC facilities, what will Congress do to ensure that future railcar manufacturing is done in the United States by American workers earning family-supporting wages and benefits? Otherwise, future transit cars will most likely be made by a different foreign-owned company with no assurance of creating more or higher quality jobs than what CRRC is already providing.

The IBEW looks forward to working with the House Committee on Transportation and Infrastructure on this important matter.

Sincerely yours,

LONNIE R. STEPHENSON
International President

Copy to all Members of the U.S. House Committee on Transportation & Infrastructure

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Statement of the Railway Supply Institute, Submitted for the Record by Hon. DeFazio

The Railway Supply Institute (RSI) is an international trade association representing more than 200 companies involved in the manufacture of goods and services in the locomotive, freight car, maintenance of way, communications and signaling and passenger rail industries. RSI members provide critical products to Class I and short line railroads, shippers, Amtrak, and transit authorities nationwide and work with these customers to create new products or services that drive enhancements in safety and efficiency across their networks.

While our members have a strong presence across the United States, they market their products around the world and have complex global supply chains that support these manufacturing operations. Our members are seeing increased government intervention in the global rail marketplace. Foreign governments sometimes impose technology transfer requirements—directly or indirectly—as a prerequisite to granting investment approvals or market access. A Chinese-owned State-Owned Enterprise (SOE) called CRRC has also identified rail manufacturing as a strategic market sector and made clear their intention to dominate the global railway supply and rolling stock market. Here in the United States, CRRC and its affiliates have leveraged state-backed financing and below-market loan rates to secure $2.6 billion in

railcar contracts for commuter agencies in Boston, Chicago, Los Angeles and Philadelphia, with other contracts pending including one in Washington, D.C. The company has won these contracts by as much as thirty percent below the next lowest bid, raising significant questions about whether these are market-based offerings.

Allowing a SOE to continue these activities creates both economic and national security concerns. These actions are already undermining a $74 billion dollar[1] a year industry with current American rail supply manufacturers concerned that more SOE involvement will lead to a loss of domestic manufacturing and a reduction in American jobs. This also has long term national security impacts as demonstrated in Australia with the complete takeover by an SOE of the Australian domestic market and its capability to build both passenger and freight rail cars. America's rail system covers more than 140,000 miles and carries forty percent of America's intercity freight, including 111 million tons per year of hazardous materials. Allowing a foreign, state-backed entity to increase direct investment in our nation's critical infrastructure, particularly projects utilizing federal funding, creates significant economic and national security concerns. Therefore, RSI supports H.R. 2739, the Transit Infrastructure Vehicle Security Act. H.R. 2739 would prohibit transit agencies from using federal dollars to acquire rolling stock produced by a company that is owned, controlled, or subsidized by any country with a non-market economy. In addition, it would ensure that transit agencies develop and execute a cybersecurity plan.

During the hearing on May 16, there was discussion regarding the "lack of a U.S. manufacturer" of passenger railcars and that all manufacturers are foreign-owned. As you may know, there are thousands of U.S.-based employees who work for foreign-owned companies that manufacture passenger railcars or their components here in the U.S. in full compliance with Buy America requirements. In September 2018, *Tracking the Power of Rail Supply: The Economic Impact of Rail Suppliers in the U.S.* was released as a major new study that quantifies the economic and workforce impact of the products and services produced by the railway supply industry in the U.S. RSI, partnering with the Railway Engineering-Maintenance Suppliers Association (REMSA), Railway Systems Suppliers, Inc. (RSSI) and Railway Tie Association (RTA) commissioned Oxford Economics to develop the report. It highlights the importance of the industry to the U.S. economy in terms of jobs, tax revenue, and gross domestic product (GDP) on both the state and national level. The economic contribution of the railway supply industry in 2017 amounted to more than $74.2 billion in GDP, as well as $16.9 billion in taxes to local, state and federal governments. Workers in the industry are highly productive, and wages reflect this at $78,800 annual income on average, placing them well above the median income earners in most states. In total, the railway supply industry directly employs more than 125,000 people in manufacturing, repair, maintenance, and leasing, among others. In addition, for each worker directly employed by the railway supply industry, a further 4.2 jobs are supported in the wider economy, either in the supply chains of railway suppliers or through the wage spending of those employed by the firms themselves or in their supply chains. On average, these indirect and induced jobs pay an average annual salary of $63,980.

This study solidifies that the U.S.-based domestic rail supply industry delivers well-paying jobs across the country. In the passenger rail sector, much of this is possible because of the Buy America program, which was created to promote U.S. manufacturing and help the domestic economy by creating jobs for Americans. Several of the foreign owned companies employing these manufacturing jobs here in the U.S. are finding it very difficult to compete against a SOE that receives significant support from their government and often are only assembling (versus manufacturing) their railcars here in the U.S. By design, Buy America laws were written to ensure that public transportation funds are used to create American jobs constructing and manufacturing our public transportation systems, rail cars, and buses here in the U.S. RSI member companies have played by the rules and built their business models to comply with Buy America, however having one SOE dominate the market and establish a heavy foothold that spans the United States has raised many red flags. The U.S. DOT should be directed to ensure that strict enforcement of existing Buy America provisions is occurring to help ensure that public investments in passenger rail lead to domestic jobs. It is critical to the continued health of American manufacturing.

Finally, several members of the committee highlighted the importance of robust, consistent federal funding for passenger rail, both to improve the efficiency and productivity of the nation's rail network and incentivize companies that follow Buy

[1] Tracking the Power of Rail Supply, *The Economic Impact of Railway Suppliers in the U.S.*: 5. September 2018

America requirements to invest in the United States. We agree. Increased public investments, coupled with policies that incentivize private investments, could relieve major bottlenecks and chokepoints and increase track, tunnel, bridge and station capacity across the passenger and freight rail system.

Thank you for consideration of our comments. We look forward to working with the House Transportation & Infrastructure Committee as we continue to look for ways to innovate, enhance and promote investment in rail infrastructure.

Letter from Jeffrey D. Knueppel, General Manager, Southeastern Pennsylvania Transportation Authority, Submitted for the Record by Hon. DeFazio

MAY 22, 2019.

Hon. PETER A. DEFAZIO
Chairman
Committee on Transportation and Infrastructure, U.S. House of Representatives, Washington, DC 20515

Hon. SAM GRAVES
Ranking Member
Committee on Transportation and Infrastructure, U.S. House of Representatives, Washington, DC 20515

DEAR CHAIRMAN DEFAZIO AND RANKING MEMBER GRAVES:

The House Transportation and Infrastructure Committee hearing last Thursday on The Impacts of State Owned Enterprises on Public Transit and Freight Rail Sectors provided Congress an opportunity to continue evaluating how best to balance the needs of transit agencies to replace aging vehicles together with domestic manufacturing interests. Given the Southeastern Pennsylvania Transportation Authority's (SEPTA) significant rail vehicle replacement needs, we appreciate the Committee's thoughtful consideration of this important subject, and I respectfully request that the following information be added to the hearing record.

With a consistently constrained capital budget, access to a broad marketplace for rolling stock, materials and services has been critical to ensuring the best product at the most competitive price for SEPTA and its funding partners, including state and federal taxpayers. SEPTA is proud to rely on the skill and expertise of hundreds of American businesses—large and small—to ensure safe and efficient mass transit service for the one million riders who depend on SEPTA every day. Over the last five years, alone, SEPTA's domestic procurement has exceeded $3.5 billion, including more than $1 billion from Pennsylvania companies.

SEPTA's railcar procurement needs are significant. More than 37 percent—roughly $1.7 billion—of SEPTA's $4.6 billion state of good repair backlog is earmarked for vehicle replacement and related activities. SEPTA has a need to replace 231 Silverliner IV railcars—approximately two-thirds of the Regional Rail fleet—that were built in the mid-1970s and are more than 40 years old. SEPTA will also replace all of its trolleys, which are nearly 40 years old and do not meet ADA requirements.

Following an open and competitive process in 2017, SEPTA awarded a contract to CRRC MA for 45 multi-level coach cars to be assembled at CRRC's Springfield, Massachusetts facility. The multi-level coach cars will meet or exceed FAST Act Buy America requirements and include parts and materials from domestic manufacturers from across the country. The contract also includes an option for 10 additional cars, which SEPTA has not yet exercised.

The number of transit railcar manufacturers worldwide is very limited, and there are currently no domestically-owned transit railcar manufacturers. Acquisition costs are a substantial obstacle to replacing aging rail vehicles, and future railcar procurements will benefit from competition generated in a robust marketplace. As Congress continues to evaluate important considerations related to rolling stock procurement, it is our hope that already executed contracts, including options, will be preserved, while efforts to develop and incentivize domestic production will reinvigorate a dormant industry and create increased competition.

Strengthening and securing America's transportation infrastructure is a vital national interest. We are grateful for the Committee's work on this important matter and look forward to continuing to support initiatives that grow and enhance the nation's public transportation systems.

Sincerely,

JEFFREY D. KNUEPPEL
General Manager

cc: Pasquale T. Deon, Sr., SEPT A Board Chairman
The Honorable Brian K. Fitzpatrick
The Honorable Lloyd Smucker

Letter from John Samuelsen, International President, Transport Workers Union of America, AFL–CIO, Submitted for the Record by Hon. DeFazio

JUNE 5, 2019.

DEAR REPRESENTATIVE:

On behalf of more than 150,000 members of the Transport Workers Union (TWU), I am writing to encourage you to cosponsor the Transit Infrastructure Vehicle Security Act (H.R. 2739). This important piece of legislation is an essential part of ensuring American workers and companies have a level playing field to compete against state-owned and subsidized enterprises.

Until August 2018, rail cars for transit agencies across the country were manufactured in Philadelphia, PA. Over 300 TWU members lost their jobs and livelihoods when the plant that did that work was closed. These jobs disappeared after their company was underbid by CRRC, the Chinese state-owned, highly subsidized rail car manufacturer. In Boston, Chicago, Los Angeles, and, finally, Philadelphia itself, CRRC offered a price well below any of their competitors not because of any efficiencies, but rather because their shareholder (the government of China) had given them a directive to conquer the U.S. market.

TWU members are not the only ones whose jobs are being threatened or destroyed by unfair competition from state-owned enterprises. China's "Made in China 2025" initiative directs all of their state-supported corporations to increase their market share across the globe, regardless of profitability. In the U.S., this is leading to massive turnover in transit manufacturing, with thousands of jobs potentially at risk.

H.R. 2739 directly addresses this issue and ensures that workers building and assembling transit cars are competing in the free market rather than against foreign governments. Corporations from non-free market economies would become ineligible from receiving federal funds. Additionally, the bill would increase cybersecurity protections for our transit vehicles—an essential component of our 21st century infrastructure.

The TWU believes H.R. 2739 is essential for ensuring that American workers can compete on a level playing. We urge you to cosponsor this legislation by contacting [redacted]@mail.house.gov in Representative Harley Rouda's office. Please contact [redacted] ([redacted]@[redacted].org) at [redacted]-[redacted]-[redacted] if you have any questions.

Sincerely,

JOHN SAMUELSEN
International President

Report, "Assessing How Foreign State-Owned Enterprises' U.S.-Based Operations Disrupt U.S. Jobs," Oxford Economics, June 2019, Submitted for the Record by Hon. DeFazio

[This report is retained in committee files and is available online at https://www.oxfordeconomics.com/recent-releases/assessing-how-foreign-state-owned-enterprises-us-based-operations-disrupt-us-job.]

Statement of Ian Jefferies, President and Chief Executive Officer, Association of American Railroads, Submitted for the Record by Hon. Graves of Missouri

Thank you for the opportunity to provide a statement for the record regarding the impacts of state-owned enterprises on the public transit and freight rail sectors. AAR's railroad members account for the vast majority of U.S. freight rail traffic, employment, and revenue. AAR Associates include many firms that are suppliers to freight railroads, including several railcar builders and many firms that supply components to railcar builders.

Some have expressed concern that, among other things, increased state-owned penetration of the U.S. freight and passenger railcar markets could lead to increased cybersecurity risks. The purpose of this statement is to briefly describe the

many ways that freight railroads are addressing cybersecurity risks, no matter their source.

Through multi-faceted cybersecurity plans and programs guided by internationally recognized standards, kept up to date by recurring assessments, and supported by specialized cybersecurity staff, railroads are constantly analyzing potential cyber threats, identifying potential vulnerabilities, and developing and implementing effective countermeasures.

RAILROADS ARE ADDRESSING THE CYBERSECURITY THREAT HEAD ON

Railroads use computers and information technology in every aspect of their operations. Consequently, railroads know the importance of guarding against cyberattacks.

The rail industry's cybersecurity efforts are unified, multifaceted, and proactive. The Rail Information Security Committee (RISC) leads the way. The RISC is comprised of the chief information security officers and information assurance officials of major U.S. railroads, augmented by AAR staff and representatives of other industry groups.

The RISC was formed in 1999—meaning the rail industry had already established a forum for consultations and coordination on enhancing cybersecurity well before such vigilance became common across many different industry sectors.

Railroads enhance their cybersecurity in a number of other ways, including:

- Maintaining an industry information sharing and analysis center that collects, evaluates, and disseminates cyber threat alerts and advisories, with recommended protection actions drawn from diverse sources.
- Defining and periodically reviewing and updating specific intelligence requirements with government entities in the United States and Canada to ensure timely awareness, understanding, and action to address prevailing and emerging cyber threats.
- Regular participation in classified presentations and discussions on cyber threats and incidents with the Department of Homeland Security (DHS), including the Transportation Security Administration (TSA), the Federal Bureau of Investigation (FBI), the National Security Agency (NSA), the Department of Transportation, and other government agencies.
- Engaging directly with various federal cybersecurity readiness and response teams to ensure continued cyber threat awareness.

INTELLIGENCE SHARING IS CRUCIAL

Even the most effective cybersecurity plans and procedures will falter if useful information on cyber threats is not shared. That's why timely intelligence and information sharing is essential if cybersecurity efforts are to succeed, and it's why a key element of railroads' cybersecurity efforts involves working with public sector partners to share information on cyber threats and effective countermeasures. The focus is on sharing tactical intelligence on what perpetrators are doing and how they are doing it.

As a recent Congressional Research Service (CRS) report on cybersecurity points out, information sharing allows one party to bolster the knowledge of its partners. Information may provide opportunities for organizations to learn from one another, reduce their vulnerability to hacking, and quickly adapt to changing conditions. Successful information sharing occurs when an organization receives information, has the capability to process it, knows how to use it, and makes a change to its practices to better secure itself. The advantage to sharing information is realized when the result is a valuable change in behavior because of the information shared.

Unfortunately, as the CRS points out, some organizations may miss critical information, lack the expertise to understand it, lack the resources to take action, or otherwise not change their behavior. A major goal of the RISC is to make sure this does not happen.

The Rail Intelligence Working Group (RIWG) is a key element of rail cybersecurity efforts and information sharing. The RIWG is a public-private partnership, comprised of experts from the federal government, transit, freight and passenger rail industries, that reviews threats and produces rail-focused intelligence analyses that are widely disseminated among security and law enforcement professionals in industry and government. These materials provide reliable, accurate, and timely intelligence along with recommendations on appropriate actions to take in response to real and perceived threats.

Other steps the rail industry has taken to enhance timely information sharing, in coordination with partners at DHS, including the TSA, the FBI, and other agencies, include:

- Deploying secure telephone equipment to connect major railroads, the AAR, and government officials. This capability ensures timely sharing of classified intelligence and related security recommendations.
- Sharing classified information with authorized Canadian railroad officials, thereby harmonizing cross-border security awareness and preparedness. Canadian authorities have hosted classified threat briefings for U.S. railroads.
- Establishing a classified information sharing network with TSA, enabling authorized rail industry personnel to access secure TSA facilities and review relevant materials in dozens of metropolitan areas nationwide.
- Participating in a multi-industry initiative with DHS to establish a secure video teleconference network that simultaneously links more than 40 U.S. metropolitan areas. This capability is available for use by industry security coordinators, law enforcement officers, government officials, and others. Classified briefing and discussions focused on cyber threats, led by analysts from DHS, including TSA, the NSA, and the FBI have been provided through this network.

As a result of these collective efforts, which reflect exceptional cooperation between government and industry, what had formerly sometimes required weeks or even months of effort (e.g., arranging in-person briefings or meetings in Washington, D.C. or at regional locations) can now often be accomplished in a matter of hours. This greatly enhances the ability of everyone involved to identify and effectively respond to cyberthreats.

The industry's cyberthreat intelligence priorities emphasize tactical analysis of successful cyber intrusions and blocked attempts that have targeted private sector and governmental entities. This focus draws upon the experience and knowledge of experts at the DHS, the FBI, and elsewhere in analyzing cyberattacks and assisting affected organizations.

In particular, the rail industry seeks analyses that highlight tactics that are most commonly employed to gain illicit access to computer systems; vulnerabilities most commonly exploited; indicators of illicit activities most often noted in post-incident analyses that were missed or disregarded; and protective measures that could have made a difference.

REGULAR TESTING OF CYBER-RESPONSE CAPABILITIES

The rail industry helps ensure maximum sustained effectiveness in the face of evolving cybersecurity threats through the use of recurring exercises that simulate emergency situations. Lessons learned from these exercises and from actual security-related incidents inform reviews and updates and assure that railroads' plans continue to evolve to meet changing circumstances.

Railroads and industry organizations also conduct comprehensive cyber risk assessments based on realistic threat scenarios drawn from intelligence analyses, including "penetration testing" that simulates an attack from malicious outsiders.

Insights gained from risk assessments and cyber threat advisories, as well as experience gained in drills and exercises, enable railroads and industry organizations to incorporate a variety of effective safeguards and protective measures into their business and operational practices. Railroads know that, going forward, cyber awareness must remain a fundamental component of their day-to-day operations.

APPENDIX

QUESTIONS FROM HON. HENRY C. "HANK" JOHNSON, JR. FOR SCOTT N. PAUL, PRESIDENT, ALLIANCE FOR AMERICAN MANUFACTURING

Question 1. Your testimony expresses clear concern that the CRRC is taking intentional action to dominate our nation's transit rail sector. With the completion of several U.S. public transit projects already, CRRC has postured themselves to be a noteworthy competitor in our transit manufacturing industry.

(a) Will CRRC make a gradual impact on our rail sector, or can we expect swifter action?

ANSWER. With the seemingly endless backing of a foreign, non-market economy government and the stated goal of dominating the U.S. rail sector, CRRC poses a grave danger. A look at the Australian market offers perspective. In just the last decade, CRRC undertook a similar campaign leading to the obliteration of that country's rail manufacturing sector. CRRC's ambitions are sizeable, that is to establish a substantial foothold into our public procurement market as a means of expanding into private sectors such as the freight rail market—a sector that not only supports 65,000 manufacturing jobs but is also responsible for moving 40 percent of all goods in the United States.

(b) What will be the economic impacts of CRRC as a sudden and significant competitor in our rail market?

ANSWER. Established firms in the U.S. rail manufacturing space are already facing unprecedented economic pressure to stay afloat. And, high-wage jobs throughout the domestic rail manufacturing supply chain are at risk of being displaced by workers operating under harsh conditions and little pay in China. With the financial backing of Beijing, CRRC is systematically working to drive established competitors out of the market and to achieve a monopoly in transit rail car production. If successful, this would be a disaster for taxpayers and for transit providers that are looking for legitimate, fair and broad competition for their contracts. Once established competitors are driven out of the U.S. market, it is reasonable to assume that the lowball bids of CRRC will disappear and U.S. customers will be at their mercy in terms of pricing.

Question 2. CRRC benefits from state subsidies that allow them to offer lower bids on rolling stock contracts than many of their competitors. This presents the threat of market shrinkage—if transit agencies can save hundreds of millions of dollars from contracts with CRRC, they may be unlikely to shop around.

(a) How do we engage with transit agencies to further consider contracts with established competitors?

ANSWER. I urge Congress to pass the bipartisan Transit Infrastructure Vehicle Security Act, which has been introduced in the House and Senate. This bill would prohibit federal funds from being used by transit agencies to purchase rail cars or buses manufactured by foreign-government-owned, controlled, or subsidized companies. America's tax dollars should not be used to support Chinese SOEs seeking to undermine legitimate competition. It is necessary to apply further pressure to transit systems that aim to employ clever accounting as a means of using non-federal resources to award contracts to these Chinese SOEs. Transit agencies should not be permitted to allocate "non-federal" resources for the procurement of rail cars from CRRC when they also receive large sums annually from the federal government. Additionally, there is a role for the federal government to educate and provide guidance to local transit agencies regarding the economic and national security threats posed by state-influenced entities such as CRRC.

(b) Do you think transit agencies are likely to favor market impact over exceptionally low bids?

ANSWER. Left to their own devices, many transit agencies will award contracts based on price alone. And, on a local level, it is understandably a positive outcome

that CRRC is establishing assembly operations and hiring American workers—in many cases, skilled, union workers that deserve our utmost respect. However, it is the duty of Congress to examine how these firms are systematically destroying the competitive national landscape for U.S. rolling stock manufacturing. With the seemingly endless backing of a foreign, non-market economy government and the stated goal of dominating these sectors, these firms pose a grave danger to established competitors. And, because their U.S. assembly operations are merely a supply line for imported components, ultimately the jobs of millions of American workers throughout our domestic supply chains are at risk. Thus, because transit agencies are required to adhere to federal programmatic requirements as a condition of receiving federal assistance, it is the duty of Congress to enact policies that result in a favorable market impact and to prevent the destruction of the competitive landscape for rolling stock manufacturing.

QUESTIONS FROM HON. PETER A. DEFAZIO FOR BRIGADIER GENERAL JOHN ADAMS, U.S. ARMY (RETIRED), PRESIDENT, GUARDIAN SIX LLC

Question 1. General Adams, your testimony provides a list of expanding technological capabilities that are being deployed on the rail system, such as onboard freight car location and asset health monitoring sensors, and you reference the national security challenges associated with them. The vulnerability of these types of connected technologies to intrusion is echoed in Mr. Cilluffo's testimony.

General Adams, do you believe that, once granted access to our rail network, state-owned enterprises would share information gained from connected technologies with the company's home country? Could this be done even without the company's knowledge?

ANSWER. China routinely spies on and engages in cyber espionage against the United States and other nations. For example, in September 2016, the Department of Defense released an intelligence report which made clear that computers manufactured by Lenovo, a Chinese company, could potentially insert malware to compromise the Pentagon's supply chains.[1] Couple this with the recent presidential national emergency declaration on Huawei, and it is certain that China seeks vulnerabilities in critical American systems.

The average life of a freight car is about 30 years. Transit cars can have a similar lifespan. The technology in these cars is incredibly sophisticated and future upgrades will only enhance their complexity. We can surely anticipate that the Chinese government will exploit these opportunities and do so surreptitiously.

There are serious national security risks to the United States in giving a Chinese State-Owned Enterprises (SOE) access to such critical equipment as transit and freight cars which carry passengers, commodities, military equipment, and dangerous toxic substances. Aside from the cars themselves, China would have access to rail lines through critical tunnels, ports, and military bases, and gain access to sensitive data including, but not limited to, the timing and location of sensitive deliveries.

It is absolutely possible that cyber vulnerabilities could be exploited without a company's knowledge. China has strong espionage and national security laws. The two pieces of Chinese legislation that allow cyber vulnerabilities to be exploited are the 2017 National Intelligence Law and the 2014 Counter-Espionage Law.[2] The first law states, "any organization or citizen shall support, assist, and cooperate with the state intelligence work in accordance with the law" while the second law states, "when the state security organ investigates and understands the situation of espionage and collects relevant evidence, the relevant organizations and individuals shall provide it truthfully and may not refuse." We are well-aware that CRRC is 100 percent government-owned and is thus mandated by Chinese law to provide any and all information to the government.

Furthermore, as stated in my testimony, "CRRC's bylaws direct that the company seek guidance from the Communist Party of China on significant matters affecting the company's operations.[3] Three of CRRC's current board members previously held high-level positions at several state-owned defense companies including, Aviation Industry Corporation of China (AVIC), which produces fighter and bomber aircraft, helicopters, and unmanned aerial vehicles for the Chinese Army, and China Ship-

[1] Bill Gertz, "Facebook and Lenovo", The Washington Times, June 6, 2018,https://www.washingtontimes.com/news/2018/jun/6/facebook-lenovo-put-cybersecurity-at-risk/

[2] Murray Scot Tanner, "Beijing's New National Intelligence Law: From Defense to Offense", Lawfare, July 20, 2017, https://www.lawfareblog.com/beijings-new-national-intelligence-law-defense-offense

[3] "CRRC Corporation Limited Articles of Association," CRRC Corporation Limited, at 70.http://www.crrcgc.cc/Portals/73/Uploads/Files/2018/6-4/636637164457871915.pdf

building Industry Corporation (CSIC), which produces submarines, warships, and other naval equipment for the Chinese Navy. Furthermore, two former CRRC board members held positions at AVIC and China North Industries Group Corporation Limited (NORINCO), a state-owned defense company that supplies tanks, aircraft, missiles, firearms, and related products for the Chinese military."

QUESTIONS FROM HON. ELEANOR HOLMES NORTON FOR BRIGADIER GENERAL JOHN ADAMS, U.S. ARMY (RETIRED), PRESIDENT, GUARDIAN SIX LLC

Question 2. Brigadier General Adams, as you noted in your testimony, the China Railway Rolling Stock Corporation (CRRC) has increased its presence in the U.S. mass transit market through its successful bids for railcar manufacturing contracts in several major cities such as Boston, Chicago, Los Angeles, and Philadelphia. And now, given CRRC's expected participation in the Washington Metropolitan Area Transit Authority's (Metro) ongoing procurement for its new 8000 series railcars, the challenge of how to respond to the risks posed by state-owned enterprises has landed right on our doorstep here in the nation's capital.

You noted a number of potential vulnerabilities that could arise as a result of state-owned enterprises manufacturing U.S. infrastructure components. These vulnerabilities range from the theft of information for espionage or computer network exploitation, to the mapping of infrastructure, to physical attacks.

Metro is unique among transit agencies because many of its stations are located near critical hubs of legislative, defense, and transportation operations such as the U.S. Capitol, the House and Senate office buildings, the Pentagon, and Ronald Reagan Washington National Airport.

(a) What security risks could arise from having CRRC build railcars for our Metro system here in the nation's capital?

ANSWER. The security risks that could arise from CRRC winning and building transit cars for the Washington Metropolitan Area Transit Authority (WMATA) are both numerous and alarming. WMATA is a unique rail system for several reasons including the fact that it is located near critical hubs around Washington, D.C. including the Pentagon and United States Capitol. Modern day transit cars are complex and possess technologies such as Wi-Fi, passenger counters, cameras, and vital sensors, among other critical components. These could be easily used to track American citizens and more specifically targets of interest to the Chinese government, as well as, monitor conversations and data transmissions, and confiscate sensitive materials such as military plans or national security secrets.

China is already tracking its own citizens. Using over 200 million cameras and widely deployed facial recognition software, the Chinese government is giving each citizen a social credit score.[4] By monitoring behaviors and allegiance to the government, citizens are either rewarded or punished. Punishments are believed to be as severe as being placed in reeducation camps. If China is capable of keeping such a watchful eye on their own citizens, it seems entirely plausible that they would also surveil American citizens, especially those living and working in our Nation's Capital.

(b) What steps should our region's Metro system take to minimize the risks associated with the potential purchase of railcars from CRRC?

ANSWER. Zero tolerance is the best decision for WMATA when it comes to SOEs. In other words, WMATA must not engage in any activity with CRRC, or other similar SOEs, and that includes executing contracts with them. After all, trusted sources of transit cars are available from our allies. Moreover, even if WMATA believes that it could mitigate against the possible cyber-security and other risks posed by CRRC today and in the future, WMATA seems woefully unprepared to do business with CRRC, only recently amending its request for proposal for new cars to include cyber security protections.

It should be acknowledged that there are no American-based manufacturers of transit cars. That said, the foreign companies that do manufacture cars in the United States are trusted friends and allies of the United States including France, Germany, Switzerland, Canada, Japan, and South Korea. Equally important, these countries employ thousands of Americans and source their products locally, unlike SOEs.

In sum, WMATA has many ready options from which to procure new transit cars. The most recent generation of metro cars are Kawasaki, a Japanese company, that manufactures the cars in Lincoln, Nebraska. CRRC may offer cheap transit cars,

[4] Paul Mozur, "Inside China's Dystopian Dreams: A.I., Shame and Lots of Cameras," The New York Times, July 8, 2018. https://www.nytimes.com/2018/07/08/business/china-surveillance-technology.html

but that cheap price includes the latent cost of serious risk to the economic and national security of the United States.

When doing business with a trusted foreign ally, the United States can count on the protection of over 650,000 American jobs, and $74.2 billion dollars in GDP according to a September 2018 report from the Railway Supply Institute.[5] This is in addition to the 65,000 jobs that could be impacted in the freight industry should CRRC gain stable footing and attempt to take over that market.[6]

(c) What steps should Congress take to minimize the security risks associated with CRRC railcars in operation throughout the country?

ANSWER. Congress has awoken to the threat of CRRC, as clearly demonstrated by H.R. 2739, the Transit Infrastructure Vehicle Security Action (TIVSA). Passing commonsense legislation like TIVSA would deny federal transit funds from going to CRRC contracts. Congress should also enact robust cyber security measures aimed at protecting freight and transit rail in the United States; support Administration proposals that put economic pressure on China; and further educate federal, state, and local officials on the predatory nature of Chinese SOEs.

QUESTIONS FROM HON. PETER A. DEFAZIO FOR HAMILTON GALLOWAY, HEAD OF CONSULTANCY FOR THE AMERICAS, OXFORD ECONOMICS

Question 1. In your testimony you explain that the core purpose of state-owned enterprises (SOEs) is to fill a social or economic need within their home country's economy, yet in recent decades SOEs have increasingly been used to expand into foreign markets.

In your opinion, is it fair to conclude that SOEs are being misused when they break into, or gain a significant share of, foreign markets? How concerned should countries be by the growing presence of SOEs?

ANSWER. It is a very fair conclusion that state-owned enterprises, especially those in the People's Republic of China, are using anticompetitive practices and state-subsidies to gain unfair economic advantages in foreign markets. These practices and business activities do not represent market economy business activities. In the United States alone, companies like CRRC underbid competitors by up to hundreds of millions of dollars. A 2019 Oxford Economic report found that CRRC undercut the next highest bidder by 7–21 percent for certain transit contracts.

What is great about operating in the United States is that fair and open competition reigns supreme. However, a state-owned company significantly reduces fairness and risks pushing out market competition. This has negative consequences on long-run prices and competitiveness, moving more toward monopoly-like economic distortions.

Thus far, CRRC has won four major contracts in the United States for transit rail by underbidding competitors by hundreds of millions of dollars. Moreover, a number of these contracts use American taxpayer dollars to financially benefit the already subsidized state-owned enterprise.

In a recent June 2019 report released by Oxford Economics, we found that state-owned enterprises do not face the same budget constraints as other manufacturers and thus have a greater ability to engage in anti-competitive strategic pricing behavior. Furthermore, CRRC touted American job creation with the establishment of two final assembly facilities in the U.S. (Springfield, MA and Chicago, IL). However, our analysis shows that the United States actually loses between 3.5 to 5.4 jobs for every job created by a Chinese state-owned enterprise, given documented assumptions about offshoring the U.S. supply chain. This amounts to a net loss of more than 5,000 middle-class American jobs for every $1 billion in contracts won by Chinese SOEs.[1]

Other countries that have existing privately-owned railcar manufacturers should be concerned. China's Belt and Road Initiative impacts 152 countries around the globe. If SOE impacts are as significant here as they have been elsewhere in the world, Chinese SOEs have a serious, if not insurmountable economic advantage.

I have attached our newest analysis to this response in case you have additional questions.

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[5] Railway Supply Institute, Tracking the Power of Rail Supply: The Economic Impact of Rail Suppliers in the U.S, September 2018, at 5

[6] Oxford Economics, *Will We Derail US Freight Rolling Stock Production?* May 2017, at 5

[1] Oxford Economics, *Assessing How Foreign State-Owned Enterprises' U.S. Based Operations Disrupt U.S. Jobs*, June 2019, at 3.

QUESTIONS FROM HON. ELEANOR HOLMES NORTON FOR HAMILTON GALLOWAY, HEAD OF CONSULTANCY FOR THE AMERICAS, OXFORD ECONOMICS

Australia's Experience

Question 2. Why were state-owned enterprises able to eliminate Australia's freight railcar manufacturing industry? How long do we have before the same happens in the U.S.?

ANSWER. The Chinese state-owned enterprise, CRRC (previously CNR and CSR), was able to fully displace the Australian freight railcar manufacturing market in less than a decade. This stemmed from state-subsidies, below-market rate bank loans, and an aggressive, anti-competitive entry into an unprepared market.[2] Australia's economic dependence on China—especially during the Global Recession—provided further leverage to China's state-owned enterprises to disrupt and distort Australian businesses across the energy, natural resource extraction, construction, railcar manufacturing, and other manufacturing industries.

The United States is at risk of following the same trajectory as Australia. Thanks to strong action by Congress, including legislation and important hearings like the one I had an opportunity to testify at, that window has likely been pushed back. That being said, it is vital to keep the pressure on Chinese SOEs, their unfair practices, and their negative impact on the United States.

Question 3. In your opinion, what would be the most effective way to ensure that state-owned enterprises do not eliminate the United States' freight railcar manufacturing industry?

ANSWER. In my personal opinion, there are a number of measures that will help to protect the economic integrity of the freight (and passenger) railcar manufacturing industry. These measures include: 1) passage of key pieces of legislation like H.R., 2739, the Transit Infrastructure Vehicle Security Act; 2) enacting robust cybersecurity measures aimed at protecting freight and transit rail in the United States; 3) supporting Administration proposals that put economic pressure on the People's Republic of China to abide by market economic principles; and 4) further educating federal, state, and local officials on the predatory nature of Chinese SOEs. Long-run policy measures should focus on pressuring and promoting privatization of globally expanding Chinese SOEs.

Question 4. How can we monitor state-owned enterprises that have already established operations in the U.S. to ensure they aren't taking over the industry?

ANSWER. We can monitor state-owned enterprises in the United States by increasing transparency and oversight on existing contracts including those in the cities of Los Angeles, Chicago, Philadelphia, and Boston—all cities that are currently under contract with the Chinese SOE, CRRC.

Further educating local, state, and federal officials on the economic and national security impacts of SOEs in the United States is also vital to protecting American industries and our broader homeland.

Supply-chain and origin audits should also be conducted by the transit authorities or an authorized objective third party—especially where Buy America provisions apply. This will enable better monitoring of upstream industry displacement effects.

QUESTIONS FROM HON. HENRY C. "HANK" JOHNSON, JR. FOR HAMILTON GALLOWAY, HEAD OF CONSULTANCY FOR THE AMERICAS, OXFORD ECONOMICS

Question 5. The presence of state-owned enterprises can inhibit and shrink competitive markets. CRRC and numerous other SOEs eye competing aggressively in ours, and we must consider its effect on the presence of American jobs in transit and rail manufacturing.

(a) Anti-competitive behavior in the market may threaten the presence of manufacturing jobs—can you provide examples of this in the freight rail sector?

ANSWER. In a recent June 2019 report released by Oxford Economics, we found that state-owned enterprises do not face the same budget constraints as other manufacturers and thus have a greater ability to engage in anti-competitive strategic pricing behavior. Furthermore, CRRC has attempted to use the false narrative of American job creation when our analysis shows that the United States actually loses between 3.5 to 5.4 jobs for every job created by a Chinese state-owned enter-

[2] Oxford Economics, *Will We Derail US Freight Rolling Stock Production?*, May 2017, at 5.

prise in the passenger rail sector. This amounts to a net loss of more than 5,000 middle-class American jobs for every $1 billion in contracts won by Chinese SOEs.[3]

Currently, CRRC has won four major passenger transit contracts across the United States in the cities of Los Angeles, Chicago, Philadelphia, and Boston.

A similar story has played out before. In the mid-late 2000s, CRRC entered the Australian rail market—seemingly on the heels of the Chinese-Australian Free Trade Agreement (ChAFTA). Much like CRRC in the United States, it started to win transit railcar manufacturing contracts in key cities. Once those finite orders were completed, CRRC switched its facilities to freight railcar manufacturing and completely decimated a robust domestic market in less than a decade.[4]

CRRC has attempted to gain a foothold in the freight rail market in North America twice—the first through a joint venture in Wilmington, North Carolina, called Vertex and the second through a partnership called American Railcar Systems in New Brunswick, Canada. The Vertex facility closed due to lack of orders and the launch of the company in Canada appears to be suspended.[5]

CRRC has sought to penetrate both the transit and freight car industries in the United States. These industries directly and indirectly support the jobs of 650,000 Americans and contribute $74.2 billion dollars in GDP according to a September 2018 report by Oxford Economics for the Railway Supply Institute.

(b) How can we mitigate state-owned enterprises trying to manipulate competitive markets so that we don't ultimately suffer significant job loss?

ANSWER. It is all about leveling the playing field in the United States. We are a country that embraces competition to ensure a robust, free, and competitive market. It is vital that the United States protect American jobs and taxpayers by acknowledging that state-owned enterprises do not play by the same rules as private companies. One can try to find ways to mitigate SOEs manipulating competitive markets, but the most strategic way to avoid any job losses in the United States is through risk avoidance, which means not purchasing rail cars from CRRC in the first place—at least not until CRRC conforms to market economy standards.

The Railway Supply Institute estimates that over 650,000 American jobs are directly and indirectly tied to the rail industry. Freight railcar manufacturing industry in the United States alone is responsible for employing over 65,000 Americans, according to a 2017 Oxford Economics analysis.[6] To protect these jobs, it is vital that the United States publicly acknowledge the unfair practices of SOEs and institute commonsense solutions to rebalance the playing field.

(c) If we can mitigate anti-competitive behavior in the market, will this promote the health of our transit and rail manufacturing industries?

ANSWER. In principle, yes. If the United States, through the work of Congress and the Trump Administration, can mitigate Chinese SOE anti-competitive advantages, including ceasing state-subsidies, below market-rate loans, and predatory practices, the United States can ensure that its rail industry remains a strong, family-sustaining wage job creator, and helps bolsters U.S. GDP.

According to an Oxford Economics report for the Railway Supply Institute, the rail supply industry supports over 650,000 jobs through direct, indirect and induced activities. These jobs contribute almost $74.2 billion to the GDP of the United States. It is these jobs, value and economic health that effective policies will both promote and preserve.[7]

QUESTIONS FROM HON. PETER A. DEFAZIO FOR FRANK J. CILLUFFO, DIRECTOR, MCCRARY INSTITUTE FOR CYBER AND CRITICAL INFRASTRUCTURE SECURITY, AUBURN UNIVERSITY

Question 1. General Adams' testimony provides a list of expanding technological capabilities that are being deployed on the rail system, such as onboard freight car location and asset health monitoring sensors, and he references the national secu-

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[3] Oxford Economics, *Assessing How Foreign State-Owned Enterprises' U.S. Based Operations Disrupt U.S. Jobs*, June 2019, at 3.

[4] The Australia experience is based on interviews of railcar manufacturer executives and backed by data. Further information can be found at: Oxford Economics, *Will We Derail US Freight Rolling Stock Production?*, May 2017

[5] Buckland, Tim. *Vertex closing: Rail car maker shuttering Wilmington plant*. StarNews Online. October 26, 2018. https://www.starnewsonline.com/news/20181026/vertex-closing-rail-car-maker-shuttering-wilmington-plant Accessed 6/21/2019.

[6] Oxford Economics. *Will We Derail US Freight Rolling Stock Production?*, May 2017.

[7] Oxford Economics. Tracking the Power of Rail Supply: The Economic Impact of Railway Suppliers in the U.S. September 2018.

rity challenges associated with them. The vulnerability of these types of connected technologies to intrusion is echoed in your testimony, Mr. Cilluffo.

Mr. Cilluffo, do you believe that, once granted access to our rail network, state-owned enterprises would share information gained from connected technologies with the company's home country? Could this be done even without the company's knowledge?

ANSWER. Response was not received at the time of publication.

QUESTIONS FROM HON. ELEANOR HOLMES NORTON FOR FRANK J. CILLUFFO, DIRECTOR, MCCRARY INSTITUTE FOR CYBER AND CRITICAL INFRASTRUCTURE SECURITY, AUBURN UNIVERSITY

Question 2. Mr. Cilluffo, as you noted in your testimony, the China Railway Rolling Stock Corporation (CRRC) has increased its presence in the U.S. mass transit market through its successful bids for railcar manufacturing contracts in several major cities such as Boston, Chicago, Los Angeles, and Philadelphia. And now, given CRRC's expected participation in the Washington Metropolitan Area Transit Authority's (Metro) ongoing procurement for its new 8000 series railcars, the challenge of how to respond to the risks posed by state-owned enterprises has landed right on our doorstep here in the nation's capital.

You noted a number of potential vulnerabilities that could arise as a result of state-owned enterprises manufacturing U.S. infrastructure components. These vulnerabilities range from the theft of information for espionage or computer network exploitation, to the mapping of infrastructure, to physical attacks.

Metro is unique among transit agencies because many of its stations are located near critical hubs of legislative, defense, and transportation operations such as the U.S. Capitol, the House and Senate office buildings, the Pentagon, and Ronald Reagan Washington National Airport.

(a) What security risks could arise from having CRRC build railcars for our Metro system here in the nation's capital?

ANSWER. Response was not received at the time of publication.

(b) What steps should our region's Metro system take to minimize the risks associated with the potential purchase of railcars from CRRC?

ANSWER. Response was not received at the time of publication.

(c) What steps should Congress take to minimize the security risks associated with CRRC railcars in operation throughout the country?

ANSWER. Response was not received at the time of publication.

Intelligence Gathering

Question 3. Your testimony states that the economic impacts state-owned enterprises pose to the transportation sector are intertwined with national security. For instance, you indicate that CRRC's entrance in the transit supply chain provides China a wealth of intelligence.

(a) Is it possible for a foreign actor to use a state-owned enterprise as an unknowing conduit for malevolent actions?

ANSWER. Response was not received at the time of publication.

(b) If yes, has this already happened? Can you share an example?

ANSWER. Response was not received at the time of publication.

QUESTIONS FROM HON. HENRY C. "HANK" JOHNSON, JR. FOR FRANK J. CILLUFFO, DIRECTOR, MCCRARY INSTITUTE FOR CYBER AND CRITICAL INFRASTRUCTURE SECURITY, AUBURN UNIVERSITY

Question 4. The integration of CRRC technology into our transit network is intertwined with national security. With the implementation of GPS, safety features, Wi-Fi systems and numerous other nuanced technologies, China gains considerable access to gather intelligence. This requires hyper-vigilance from our intelligence community.

(a) Should CRRC make its entry as a powerful rail market competitor, how can we work with transit agencies to safeguard against malicious intent?

ANSWER. Response was not received at the time of publication.

(b) Are you seeing evidence of malicious intelligence gathering in sectors other than transportation?

ANSWER. Response was not received at the time of publication.

(c) What does a coordinated U.S. response to malicious intelligence gathering look like?

ANSWER. Response was not received at the time of publication.

QUESTIONS FROM HON. PETER A. DEFAZIO FOR ZACHARY KAHN, DIRECTOR OF GOVERNMENT RELATIONS, NORTH AMERICA, BYD MOTORS LLC

Question 1. Mr. Kahn, in your testimony, you state BYD buses are exceeding Buy America requirements.

(a) Does BYD import their chassis, shell, electric motors, or the drive train?

ANSWER. Yes. To clarify, the shell arrives in five pieces and is built in Lancaster and put onto the chassis in a labor intensive welding and riveting process. The front axle is imported, but from Germany.

(b) How much of the bus uses Chinese steel?

ANSWER. There is steel in the chassis which represents ~3% of the total cost of the vehicle. It should be noted that BYD's C10, 45′ coach bus uses stainless steel in its chassis, sourced from the U.S. and Canada.

Question 2. Mr. Kahn, when the Committee invited you to testify, it did so on the belief you would be testifying on behalf of BYD as a whole. Your testimony and Truth in Testimony statement indicated you are testifying on behalf of BYD Motors. BYD Motors is the sales team subsidiary of BYD US Holdings. Another subsidiary, BYD Coach and Bus, makes the buses.

The House mandated Truth in Testimony statement asks all witnesses to "list any contracts or payments originating with a foreign government related to the subject matter of the hearing." You answered no on behalf of BYD Motors. What would have been your answer if you were testifying on behalf of BYD US Holdings or BYD Coach and Bus?

ANSWER. No.

QUESTIONS FROM HON. PETER A. DEFAZIO FOR PHILLIP A. WASHINGTON, CEO, LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

Question 1. Mr. Washington, your goal of a truly U.S. rail manufacturer has my full support. What do you need from Congress to move forward on developing this proposal into reality?

ANSWER. Thank you for your support Mr. Chairman and for the opportunity to provide a detailed response as to how Congress can support our goal to establish a U.S. based industrial park where bus and rail rolling stock could be manufactured.

I believe there are several areas that Congress can focus on to help achieve the Los Angeles County Metropolitan Transportation Authority's (Metro) goal of creating a rolling stock manufacturing facility—a transportation center of excellence—that allows for the full manufacturing, rather than just the assembly, of rail and bus rolling stock.

First, in order to enhance our goal of creating rolling stock manufacturing facilities in the United States I believe Congress should focus on Buy America laws. To achieve the goal of creating an environment necessary for U.S. rolling stock manufacturers to emerge, Congress should consider further changes to the Buy America rules relating to minimum U.S. content by value for all rolling stock procured with federal funds. The current Buy America rules of 70% minimum domestic content creates an environment that makes large capital investments in rolling stock engineering, design and manufacturing challenging for new U.S. entrants to rail car and bus manufacturing. In addition to increasing the 70% threshold for domestic content, I believe that specific changes need to be made with respect to systems and components used for rolling stock vehicles.

Mr. Chairman, you referenced this issue during the committee's May 16, 2019 hearing, when you raised the example of how a foreign manufacturer of system components can be Buy America compliant if the finished product's sub-components equal 70% of the total value of the finished product and the finished product has its final assembly and testing done in the United States. The current Buy America sub-component rule distorts the true U.S. domestic content value of finished rail cars and buses.

Second, I believe that Congress should work to reinstate a program to allow for geographic hiring preferences and also for geographic preference for contractors to occur when using federal funding for the purchase of rolling stock. In the case of Metro, we provide a majority of the funding for most of our transit projects, including the purchase of rolling stock, through local and state funding. We believe with this change from Congress, it will give transit agencies the tool necessary to attract companies that are willing to invest in the communities that they are supplying with vehicles. Further, Congress should also require the use of the U.S. Employment Plan which is a contractual provision that incentivizes companies to create U.S. jobs through facilities investment.

Lastly, we believe Congress should provide direct funding to give local efforts the extra push needed to become successful in establishing a domestic rolling stock manufacturing facility—a transportation center of excellence—that allows for the full manufacturing, rather than just the assembly, of rail and bus rolling stock.

Specifically, we recommend altering an existing authorized federal transportation program or creating a newly authorized program that would provide grant funds to assist transportation agencies in the development of rolling stock manufacturing centers of excellence. Similar to other innovative discretionary grant programs for various transit pilot programs, it would be very helpful to have the Federal Government's involvement as a funding partner in standing up facilities that could host a rolling stock manufacturer.

QUESTIONS FROM HON. GREG STANTON FOR PHILLIP A. WASHINGTON, CEO, LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

Question 2. In your testimony you discuss the lack of domestic manufacturers of mass transit railcars and the need for fostering an environment where manufacturing of this stock can happen in the United States. And I appreciate the example you shared of the Apache helicopter that is manufactured in Mesa, Arizona.

You outline your vision to create a transportation industrial park in Los Angeles County and in the future—transportation industrial parks in other places across America—to manufacture, not just assemble, mass transit railcars. And most importantly, this vision is focused on making sure the significant investments the transportation authority will make over the next few decades stay local and benefit the local economy.

(a) What are the key barriers you see ahead that will pose the biggest challenge in realizing this endeavor?

ANSWER. In my considered opinion, there are a number of barriers with respect to moving ahead with the development of a domestic rolling stock manufacturing center of excellence. These issues include, but are not limited to, matters related to increasing federal Buy America content requirements, restoring local hire reforms and securing federal funding for such a center of excellence. I will expand on these topics in response to your second question.

Locally, the first barrier we have faced—thus far successfully—is working to identify an appropriate location for such a manufacturing center and dedicating sufficient local resources to ensure its future success. This has required working cooperatively with several levels of local government, including with the County of Los Angeles.

The second barrier we anticipate, after finding the appropriate location for such a facility and working with the appropriate local and state officials on a package of incentives, is going to be building a manufacturing center that would attract a manufacturer to build their rolling stock in Los Angeles County. With respect to this barrier, it is most likely that we will need federal support to ensure that our agency and others committed to developing domestic rolling stock manufacturing centers of excellence, have the resources needed to build such a center.

(b) What steps could the federal government take to help support these types of efforts?

ANSWER. I believe there are several areas that Congress can focus on to help achieve LA Metro's goal of creating a rolling stock manufacturing facility—a transportation center of excellence—that allows for the full manufacturing, rather than assembly, of rail and bus rolling stock.

First, in order to enhance our goal of creating rolling stock manufacturing facilities in the United States I believe Congress should focus on Buy America laws. To achieve the goal of creating an environment necessary for true U.S. rolling stock manufacturers to emerge, Congress should consider further changes to the Buy America rules relating to minimum U.S. content by value for all Rolling Stock procured with federal funds. The current Buy America rules of 70% minimum domestic content creates an environment that makes large capital investments in Rolling Stock engineering, design and manufacturing challenging for new U.S. entrants to rail car and bus manufacturing. In addition to increasing the 70% threshold for domestic content, I believe that specific changes need to be made with respect to systems and components of rolling stock vehicles.

Chairman DeFazio mentioned, during your committee's May 16, 2019 hearing, the example of how a foreign manufacturer of system components can be Buy America compliant if the finished product's sub-components equal 70% of the total value of the finished product and the finished product is final assembled and tested in the U.S. The Buy America sub-component rule distorts the true U.S. domestic content value of all finished rail cars and buses.

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