

Marubeni Washington Report**Onshoring STS Crane Manufacturing in the U.S.****A Case Study in Geopolitical Demand Signals and Industrial Policy**

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- Eighty percent of the ship-to-shore (STS) cranes used at U.S. port facilities are made in China. At the same time, the U.S. lacks a domestic manufacturing base for STS cranes. Forcing U.S. port authorities to procure them from foreign manufacturers.
- In recent years, Washington has become increasingly concerned about cyber risks associated with Chinese-made STS cranes, including data collection and remote operations. There is growing worry that sensitive security information, including data on materials transported by the U.S. military, is being monitored.
- The Biden administration has announced policies to strengthen port cybersecurity measures and to revitalize the STS crane industry within the U.S.
- Revitalizing the industrial base will take time. In the interim, it is expected that tariffs will be used to enhance the competitiveness of non-Chinese cargo handling equipment manufacturers, aiming to reduce dependence on China.

On February 21, the Biden administration announced cybersecurity measures related to the U.S. Maritime Transport System (MTS). This initiative aims to manage the cyber risks facing MTS, designated as critical infrastructure in the U.S., by addressing the cyber risks posed by the widespread use of Chinese-made STS cranes at U.S. port facilities. Additionally, the initiative includes federal support for the revitalization of the domestic manufacturing base for STS crane.

Regarding the latter, the federal government plans to invest \$20 billion to revive the domestic manufacturing base for STS cranes. Mitsui E&S's U.S. subsidiary, PACECO, announced it would partner with reliable partners to restore port crane manufacturing in the U.S. for the first time in 30 years. According to a fact sheet released by the U.S. government during Prime Minister Kishida's visit to the U.S., the company plans to collaborate with Canadian investment firm Brookfield to build a final assembly plant in California.

Additionally, a proposed regulation announced on May 14 includes a 25% import tariff on STS cranes, aimed at enhancing the competitiveness of non-Chinese manufacturers during the rebuilding of the industrial base. This move is considered an example of industrial policy based on managing China-related risks and is noteworthy as a "reshoring" effort involving collaboration with allied companies, particularly Japanese firms.

1. Washington's Concerns Regarding Chinese-Made STS Cranes

The U.S. government's security measures for the Maritime Transport System (MTS) date back to the 9/11 attacks, but have gained increased attention with the recent escalation of U.S.-China tensions. In particular, cyber risks associated with Chinese-made STS cranes have come into focus in recent years. According to experts involved in the transition of the previous Trump administration, attention to these cyber risks began around 2016. In 2019, a 25% tariff on Chinese-made STS cranes was considered under Section 301 of the Trade Act, but the proposal was shelved due to opposition from port authorities.

Following President Biden's inauguration, there has been heightened attention to domestic critical infrastructure. Concurrently, congressional efforts, particularly by the House Select Committee on China, have intensified, leading to the recent announcement.

【Figure 1】 U.S. Initiative to Bolster Cybersecurity of U.S. Ports (2/21/24)

Strengthening Cybersecurity in the Maritime Transportation Sector

- **Executive Order Bolstering DHS Cybersecurity Authorities:** The Presidential Executive Order grants new authority to the U.S. Coast Guard for managing maritime cybersecurity. Specifically, it grants (1) the authority to mandate that ships and port facilities improve cyber environments that pose a risk to vessels and facilities, (2) the authority to require ships and port authorities to report actual or potential cyber incidents related to ships and port facilities, and (3) the authority to detain vessels that pose or could potentially pose cyber threats to U.S. maritime infrastructure.
- **US Coast Guard Directive on Cyber Risk Management on STS Cranes:** The U.S. Coast Guard has issued new maritime security regulations to manage the cyber risks associated with Chinese-made STS cranes at U.S. Commercial Strategic Seaports (total of 18 locations). These regulations impose new obligations on the owners and operators of the targeted port facilities.
- **US Coast Guard Notice of Proposed Rulemaking on Cybersecurity:** To strengthen the cybersecurity posture of MTS control systems, the US Coast Guard is drafting federal regulations that mandate port operators to implement maritime cybersecurity measures meeting internationally recognized standards set by the shipping industry. Public comment period ended on April 22, and the final regulations are currently being prepared.

Efforts to Reestablish a Domestic Industrial Base for STS Crane Manufacturing

- **Federal Funding Toward the reestablishment for Domestic Industrial Base:** As part of President Biden's domestic revitalization agenda, \$20 billion will be invested in U.S. port infrastructure over the next five years. As part of this initiative, Mitsui E&S's U.S. subsidiary, PACECO, has announced plans to rebuild the manufacturing base for port cranes in the U.S. in collaboration with reliable partners.

Source: White House ([Link](#))

As shown in the diagram above, the announcement regarding Chinese-made STS cranes addresses two main issues: (1) cybersecurity measures, and (2) the establishment of a domestic production base. Concerning the cybersecurity risks associated with Chinese-made STS cranes, it is noted that 80% of the STS cranes used in U.S. port facilities are made in China, particularly by Shanghai Zhenhua Heavy Industries (ZPMC). There are concerns about the potential risks of data collection related to the handling of not only commercial containers but also U.S. military supplies, as well as the remote operation of these cranes. A survey on major U.S. port facilities found that out of 559 STS cranes, 243 (43%) are made by ZPMC.

【Figure 2】 ZPMC STS Cranes at US Ports (2023)

Port	State	# of ZPMC Cranes	Total # of STS Cranes	ZPMC Share (%)
Baltimore	Maryland	8	16	50%
Boston	Massachusetts	3	9	33%
Charleston	South Carolina	20	25	80%
Everglades	Florida	3	12	25%
Houston	Texas	15	27	56%
Jacksonville	Florida	5	21	24%
Long Beach	California	30	77	39%
Los Angeles	California	22	88	25%
Miami	Florida	10	13	77%
Mobile	Alabama	4	4	100%
New Orleans	Louisiana	4	9	44%
New York New Jersey	New York, New Jersey	25	74	34%
Oakland	California	20	33	61%
Philadelphia	Pennsylvania	7	8	88%
Portland	Oregon	2	7	29%
San Diego	California	0	0	0%
Savannah	Georgia	0	29	0%
Seattle-Tacoma	Washington	29	56	52%
Tampa	Florida	2	5	40%
Virginia	Virginia	29	29	100%
Wilmington	Delaware	4	4	100%
Wilmington	North Carolina	3	7	43%
Average		11	25	49%
Total		243	559	43%

Source : Foundation for American Innovation ([Link](#))

Based on these concerns, a bipartisan bill was proposed in Congress last May to mandate inspections of STS cranes produced in countries of concern at U.S. ports (including its control software). This bill is almost identical to a similar bill proposed in 2022, but it includes an additional provision requiring the suspension of crane operations until any threats identified during inspections are rectified. Additionally, the FY2023 National Defense Authorization Act requires the Department of Transportation and the Maritime Administration (MARAD) to submit a report on the cybersecurity and security risks associated with cranes manufactured overseas. The deadline for this report was last December, but it has not yet been submitted.

2. Reestablishing a Domestic Industrial Base for STS Cranes

“...about six, seven weeks ago, Mitsubishi Corporation — no, rather Mitsui Corporation from Japan won a \$20 billion dollar contract to build a crane — ship crane factory here in the United States to replace all the cranes and not have China's cranes in our shipyards across — rather, in our ports across the United States.”

April 9, 2024

Rahm Emanuel, U.S. Ambassador to Japan

STS cranes are currently not manufactured in the United States. Originally, STS cranes were developed by the U.S. company Pacific Coast Engineering Company (PACECO) which began its U.S. manufacturing operations around 1959. During the 1960s, with the rise of containerization in the transportation industry, PACECO began licensing its technology to foreign manufacturers. According to various archives, the last U.S. production site for STS cranes was PACECO's factory in Gulfport, Mississippi, which closed in 1989 when Mitsui E&S acquired the company, marking the end of U.S. domestic production. Subsequently, ZPMC entered the North American market in 1993 with a contract for Vancouver Port in Canada and has since rapidly expanded its presence.

In its efforts to revive the domestic manufacturing base for STS cranes, the Biden administration announced a collaboration with Japan's STS crane manufacturer Mitsui E&S and its U.S. subsidiary, PACECO. While collaborations with other major manufacturers, such as Liebherr (Germany-Switzerland) or Konecranes (Finland) were presumably possible, the selection of a company from an allied nation suggests there may have been geopolitical factors involved. In addition, the selection of PACECO, a company that once represented

American crane technology and manufacturing also holds political considerations. Nevertheless, the decision-making process behind this initiative remains largely unknown to the public.

Additionally, in April, during Japanese Prime Minister Kishida's visit to Washington, the Biden administration released a fact sheet that highlighted a collaboration between Mitsui E&S, PACECO, and Canadian investment firm Brookfield to resume "final assembly of port cranes in California for the first time since 1989." This indicates that the "trusted partner" referred to in the February announcement is Brookfield, a Canadian company. The reason why an American company was not chosen remains unclear.

Another noteworthy aspect of the efforts to revive the domestic industrial base for STS cranes is the full support from U.S. port authorities, who are the primary demand side for cranes. Typically, port authorities aim to procure equipment at the lowest possible cost, making the push for domestic manufacturing, where production costs are higher, somewhat unusual. However, as U.S. Ambassador to Japan Emanuel suggested, amid growing bipartisan concerns about China and supply chains, the "rip and replace" of Chinese-made STS cranes and the associated increases in compliance costs may become unavoidable. This trend is already underway. Last month, the U.S. Trade Representative (USTR) announced a 25% tariff on STS cranes under Section 301 of the Trade Act, which, if implemented, would increase procurement costs for U.S. port authorities. Considering the time required to rebuild the U.S. manufacturing base, procuring from European and Asian manufacturers as an alternative to Chinese-made cranes is expected to increase costs for port planners in the short term.

The effort to establish a domestic industrial base for STS cranes gained momentum following the American Association of Port Authorities (AAPA) announcement to promote domestic production of STS cranes at their March 2023 general meeting (see Figure 3). As part of this initiative, a bill called the "CRANES Act" has been proposed, which applies the subsidy system from the CHIPS Act, aimed at building a domestic manufacturing base for semiconductors, to STS cranes. Although passing the bill within the year might be difficult due to the presidential election, it will be noteworthy to see if it is taken up in the next Congress.

[Figure 3] AAPA Proposal to Reestablish a Domestic Crane Industry

Step 1 – Partner with the U.S. Maritime Administration to Forecast Domestic Port Equipment Requirements

- AAPA will conduct an in-depth survey to forecast domestic port equipment demand, including demand for STS cranes.

Step 2 – Identify Interested Manufacturers

- Based on the survey results, AAPA will identify U.S. manufacturers interested in developing new or expanded product lines.

Step 3 – Pooling Procurement

- AAPA will consider pooling procurement by the port industry to place a single unified equipment order that will provide a powerful financial incentive to U.S. firms considering the manufacture of crane equipment.

Step 4 – Further Incentivize US Manufacturing of Cranes

- AAPA will work with Congress and the administration to provide favorable conditions to further the domestic industrial base for cranes.
- Currently, the AAPA is considering a framework similar to the CHIPS Act, beginning with the establishment of a CRANES for America Defense Fund at the U.S. Treasury that provide grants and loan guarantees to manufacturers.

Source : American Association of Port Authorities

3. Geopolitical Demand Signals

This example demonstrates how escalating U.S.-China tensions have led to significant U.S. government concerns about critical infrastructure, resulting in major industrial initiatives supported by the private sector. Additionally, a petition from labor unions requesting a Section 301 investigation into China's maritime, logistics, and shipbuilding sectors by the USTR has highlighted the absence of domestic STS crane manufacturing in the U.S. Although this petition is not directly related to STS cranes, labor unions naturally welcome the new employment opportunities that come with the revival of the manufacturing base. Consequently, this is an instance of industrial policy aligning the interests of the federal government, industry, and unions. As a strategic "onshoring" framework involving Japanese companies, this case study warrants close attention.

Furthermore, this initiative can be viewed as a business opportunity driven by federal

government demand signals in response to evolving geopolitical conditions. It is similar to the "Secure and Trusted Communications Act," which requires the removal and replacement of Chinese-made telecommunications equipment from U.S. IT infrastructure, and the "CHIPS and Science Act," which aims to onshore semiconductor manufacturing. This model could potentially be replicated across various sectors in the future.

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