Backgrounder

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Air Cargo Security: How to Keep Americans Secure without Harming the Economy

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Abstract: *In 2007, Congress mandated that the Transportation Security Administration must screen 100 percent of all cargo carried by passenger planes by August 2010. Screening each and every piece of cargo—approximately 7.6 billion pounds are transported by U.S. air carriers every day—places a tremendous burden on an already struggling economy, not to mention American taxpayers. While security must be the utmost priority, there are ways to protect Americans from cargo-related terror attacks without harming the economy. With the August deadline looming—and the total-screening goal far from being achieved—Heritage Foundation national security analyst Jena Baker McNeill lays out a plan that boosts security and sound fiscal management.*

In 2007, Congress enacted legislation that would require the Transportation Security Administration (TSA) to screen 100 percent of all cargo loaded onto passenger aircraft by August 2010. With 7.6 billion pounds of cargo transported on U.S. air carriers each day, roughly 20 percent of which is carried on passenger aircraft, screening each and every item of cargo would place a tremendous burden on an already struggling economy.[1] As Congress is highly unlikely to repeal its mandate altogether, TSA must find a workable solution that meets the mandate in the near future.

Keeping the economy vibrant creates jobs, facilitates wealth creation, and makes all Americans prosperous. At the same time, there is a legitimate need to

Talking Points

- In 2007, Congress required the Transportation Security Administration (TSA) to screen 100 percent of all cargo loaded onto U.S. passenger aircraft by August 2010.
- With 7.6 billion pounds of cargo transported on U.S. air carriers each day, roughly 20 percent of which is carried on passenger aircraft, screening each and every item of cargo would place a tremendous burden on an already struggling economy.
- Furthermore, determining and certifying the right technologies and obtaining compliance from other nations complicate the TSA's ability to ensure the screening of 100 percent of cargo on passenger planes.
- Faced with the fact that Congress is highly unlikely to repeal such a mandate altogether, the TSA must find a workable solution that meets the mandate in the near future. The TSA needs more flexibility so it can accommodate both security and supply chain realities.

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protect Americans from the daily threat of terrorism. The best way to achieve both of these goals, while meeting the mandate set in place by Congress, in terms of air cargo security, will be for Congress to allow the TSA more creativity and flexibility to meet the 100 percent screening mandate in a way that is cost-effective, feasible (in terms of logistics and available technology), and reflective of supply chain realities. To do so, Congress and the Department of Homeland Security (DHS) should:

- **Expand the Certified Cargo Security Program (CCSP),** which allows more flexibility for the domestic private sector in meeting the 100 percent screening mandate;
- **Push for more intelligence and information sharing** to obtain a more accurate picture of the risk to air cargo and to stop terror plots aimed at aircraft in the earliest stages;
- **Resist federalization of the air cargo screening process**—which would waste taxpayer dollars and create a larger bureaucracy for little to no added security benefit;
- **Educate the public on aviation security** in order to help the public better understand the nature of the threats and challenges facing the aviation industry; and
- **Embrace risk-based solutions** in the long term, such as automated risk targeting, which would give TSA a risk rating for cargo.

From the Factory to the Shelves

Beginning at manufacturing facilities, products may be shipped to stores in any number of ways. The benefit of shipping goods by air is a matter of timing. Trucking, for instance, is likely to take several days to transport goods from California to South Carolina; by air the goods can arrive in a matter of hours. This quick delivery is especially important for perishable goods.

There are two ways that manufacturers ship goods by air. The first begins at the companies themselves, where goods are directly tendered to air carriers. Another option is for the company to tender the items to freight forwarders (also known as indirect air carriers) who consolidate shipments into containers and pallets and then pass on these items to the over 300 air carriers and 450 airports that transport air cargo throughout the United States.[2] Once in the hands of the air carriers, cargo is then transported to sorting or handling facilities where it is loaded onto either passenger planes or cargo planes.

While the majority of air cargo is transported on cargo planes, air-cargo security measures have largely centered on the 20 percent of cargo that is transported on passenger flights, due to concerns over passenger safety.[3]

Over the past 30 years, air cargo transport has offered a means by which to expeditiously move cargo from points of production and manufacture to points of distribution and sales. "Since 1980, the freight mileage [tons of freight carried per mile] of goods shipped by air has increased by 240%" with roughly 7.6 billion pounds of air cargo transported by air today.[4] Without this extensive system of air cargo shipping, many of the products on store shelves, from produce to pharmaceuticals to electronics, would not arrive at their destinations in a timely and cost-effective manner.

The TSA's Risk-Based Approach

The terrorist attacks of 9/11, as well as subsequently foiled plots, are indeed a reminder of the

1. U.S. Department of Homeland Security, Transportation Security Administration, "What We Do: Layers of Security," at *http://www.tsa.gov/what_we_do/layers/index.shtm* (May 28, 2010).
2. U.S. Department of Homeland Security, Transportation Security Administration, "Air Cargo: Transportation Sector Network Management," at *http://www.tsa.gov/what_we_do/tsnm/index.shtm* (June 8, 2010).
3. Bart Elias, "Aviation Security: Background and Policy Options for Screening and Securing Air Cargo," Congressional Research Service *Report for Congress* No. RL34390, February 25, 2008, at *http://fas.org/sgp/crs/homesec/RL34390.pdf* (May 28, 2010).
4. Elias, "Aviation Security," p. 6, and U.S. Government Accountability Office, "Aviation Security: Preliminary Observations on TSA's Progress and Challenges in Meeting the Statutory Mandate for Screening Air Cargo on Passenger Planes," GAO-09-422T, March 18, 2009, at *http://www.gao.gov/new.items/d09422t.pdf* (May 28, 2010).

risk to human life from the detonation of a bomb or incendiary device on a passenger flight. Cargo containers could potentially serve as a conduit for such an attack. The TSA (and its predecessors) have been attempting to deal with this vulnerability long before September 11, 2001, in the form of the "known shipper" program (KSP). This program is one in which air carriers and freight forwarders are allowed to accept shipments only from those companies designated by Customs and Border Protection (CBP) as "known" shippers. In order to become a known shipper, a company must have an established and documented business history with a U.S. or international air carrier or freight forwarder, as well as customer records that clearly verify the validity of a company (providing a proven address, phone number, and sources of payment or credit history).

Collecting this information and achieving "known" status for their shippers is the responsibility of the air carriers and freight forwarders that work with that shipper. All KSP information is submitted and screened through a centralized database, the Known Shipper Management System.

The KSP recognizes that a majority of the cargo moving through the supply chain is legitimate and indeed not a threat to the United States, and that by figuring out who the "good guys" are, TSA will have more resources to focus on real threats. No cargo or packages that are from unknown shippers are permitted on passenger planes. In general, packages from anyone, known shipper or not, who has refused to give consent for search or inspection of cargo will also not be transported into the United States. All known shipper cargo is further subject to random screening by TSA and the airlines, as well as additional screening if cargo is identified to be high-risk, due to some sort of actionable intelligence obtained from CBP that demonstrates that the cargo could be used to conduct an act of terrorism.

Beyond the Known Shipper Program, TSA has increased personnel and physical security at airports. While the most effective strategy to prevent an attack on an airliner begins before a terrorist plants a bomb or embeds radioactive, biological, or chemical agents in a particular piece of cargo, security measures and well-trained personnel can have some impact on the safety of airports and decrease the need for the 100 percent screening approach. In fact, there are 420 Transportation Security Inspectors (TSIs) around the country who focus solely on inspection of cargo deemed to be high-risk. Assisting these inspectors are 85 canine explosives detection teams dedicated to cargo inspection at the nation's 20 highest-volume airports, with more canine support to come in the FY 2011 federal homeland security budget.[5]

In addition to these efforts, TSA has thousands of personnel working at airports nationwide. Given the high volume of traffic through these airports, TSA has been working to ensure the security of cargo by demanding that airports perform more stringent criminal history record checks (as required by the Aviation and Transportation Security Act) of all employees who have unescorted access to cargo facilities, as well as stronger physical security measures around such facilities. To further support these measures, the TSA has also developed the Air Cargo Watch program, which teaches airport personnel to identify and report suspicious activity surrounding the air cargo supply chain.

The 100 Percent Mandate

Despite the existence of this robust security framework, Congress insisted on regulating the industry further. In 2007, the Implementing Recommendations of the 9/11 Commission Act was enacted, which required that 100 percent of all cargo transported on passenger planes be screened by August 2010, with an interim requirement of 50 percent by February 2009. The level of security and screening provided by such measures was to be commensurate with levels provided by the full screening of checked baggage as already conducted by TSA—meaning at a much more extensive level. It was also further required that such screening was to be conducted by x-ray technology, explosive detection systems (the current technology used in

5. Government Accountability Office, "Aviation Security: Preliminary Observations on TSA's Progress and Challenges in Meeting the Statutory Mandate for Screening Air Cargo on Passenger Aircraft," p. 3.

baggage screening), explosive trace detection, canine teams, or manifest verification coupled with physical searches.[6] While the TSA was given the ability to develop other approved security measures, simple manifest verification or vetting programs, such as the Known Shipper Program, were no longer sufficient security measures in and of themselves.

The first half of this mandate was considered by the TSA to be the "low hanging fruit," meaning the easiest benchmark to achieve, because the TSA was already close to meeting this screening under the risk-based model.[7] Therefore, when the deadline for that level of screening passed in February 2009, the TSA was able to cite it as a success (even so, the TSA lacks the means by which to verify that the 50 percent benchmark has been achieved due to the lack of a reporting system for air carriers to submit this data to the government security personnel).

To try to achieve 100 percent screening, since October 2008 the TSA has focused its efforts on narrow-body airplanes (those with a single aisle).[8] About 96 percent of passenger airplanes are narrow-bodied, which has helped the TSA make some progress on achieving the mandate. However, achieving 100 percent screening with both wide-bodied and narrow-bodied planes remains a significant challenge for the following reasons:

- **The International Dimension.** One of the initial disagreements that arose over the 100 percent screening mandate was whether "all cargo" included international cargo entering the United States. Congressman Edward Markey, Chairman of the House Transportation and Infrastructure Committee, however, emphasized to DHS, much to DHS's surprise, that this designation includes international flights. DHS had interpreted the provision to apply only to domestic flights—based on the statutory language, which equated the level of air cargo screening with that of checked passenger baggage. Since checked passenger baggage is not required to be screened by the TSA before entering the United States, DHS and the TSA assumed that this was also the case for air cargo. This new dimension added a number of challenges that are not present in domestic situations. DHS has attempted to meet this mandate through several avenues. One is an attempt to sign bilateral agreements with all of the approximately 100 airports (and therefore countries) that ship cargo to the U.S. to harmonize security standards to meet U.S. law. Instituting such agreements could take decades. History demonstrates that other countries are unlikely to submit to U.S. auditing or compliance checks because countries tend to be jurisdictional in terms of their security policies. In most cases, there is also a lack of infrastructure that does not allow the mandate to be met right away. The second is the use of an Automated Targeting System which would rate cargo on the basis of risk from a particular country. While this method does have some promise, there are serious doubts about whether this measure will pass muster under congressional oversight. Given these challenges, Secretary of Homeland Security Janet Napolitano has already stated that this mandate will not be met for years to come.
- **Logistics.** In 2002, computer models generated by the TSA estimated that if a policy requiring full physical screening of cargo were implemented, only 4 percent of cargo could actually be processed due to the time required to break down pallets, individually screen cargo, and reassemble the pallets.[9] This is exactly what the 100 percent air cargo screening mandate requires. While the TSA is close to achieving the mandate on the domestic front, many remaining challenges will make 100 percent screening nearly impossible.

6. Implementing Recommendations of the 9/11 Commission Act of 2007, Public Law 110-53.
7. "As Deadlines for 100% Cargo Screening Loom, Many Roadblocks Still Exist," *Supply Chain Digest,* March 24, 2009, at *http://www.scdigest.com/assets/On_Target/09-03-24-3.php?cid=2346&ctype=content* (May 28, 2010).
8. Transportation Security Administration, Programs and Initiatives, "Air Cargo: Narrow Body Screening Amendment," at *http://www.tsa.gov/what_we_do/tsnm/air_cargo/programs.shtm* (June 8, 2010).
9. Elias, "Aviation Security," p. 3.

Air carrier facilities were simply not designed with enough room to conduct piece-level scanning. These infrastructure issues have only been enhanced by legislative interpretations of the 100 percent mandate. As instructed by Congress, the TSA determined that cargo screening measures were to apply not only to cargo on domestic flights, but to international in-bound flights as well, thereby increasing the volume of cargo to be scanned and adding the difficulty of obtaining international compliance with the 100 percent mandate.

The economic downturn is said to have caused a 35 percent decrease in the total movement of air cargo in the past two years, therefore economic recovery is sure to bring an increased volume of air cargo into the system as well, making the logistical challenges all the more significant.[10]

- **Technology.** The only TSA-approved cargo-screening mechanisms are x-rays, explosive detection systems (EDS), explosive trace detection systems (ETD), and decompression chambers—which all have serious limitations.

  EDS, a technology that uses tomography x-rays and computer analysis to determine if an object poses a threat, has been used to screen all carry-on luggage and checked baggage for years, and is thus the only technology with significant operational testing. Nevertheless, baggage differs from cargo most particularly in size, and EDS is not capable of screening containerized and palletized material that generally contains some 200 individual pieces.[11] Cargo scanned by EDS must be taken apart to the piece level. In addition, EDS technology has a high false-alarm rate, leading to secondary inspection and subsequent delays before the cargo is loaded.

  X-ray screening is very labor intensive, requiring personnel to view and examine every scan, a fact that leads to a large possibility of human error. Explosive trace detection systems (also known as Chemical Trace Detection Systems) analyze the chemical composition of residue on objects to determine if it is a hazardous substance, and has been used with carry-on luggage and baggage as a secondary screening to EDS. ETD, however, is also labor-intensive and time-consuming and is best used only as a secondary screening measure.

  Decompression chambers, mimicking the depressurized environment of an airplane cargo hold, are capable only of detecting explosive material, not any other materials that may pose a threat.

  There are several technologies that TSA has yet to certify that might allow inspectors to avoid scanning each and every item. As such, shipping companies as well as airports remain hesitant to purchase any of these screening technologies when the TSA has not finalized its decision on which technologies to approve for meeting the 100 percent screening mandate. As the August 3, 2010, deadline is quickly approaching, there is no room for these companies to delay.

- **Cost.** The 100 percent screening mandate truly is an unfunded mandate on the private sector. David Wirsing, former executive director of the Airforwarders Association, estimated that 100 percent screening of air cargo would cost more than $700 million just in the first year of implementation.[12] While not an official TSA estimate, TSA spokeswoman Andre McCauley has estimated costs around $3.6 billion over 10 years.[13] The Congressional Research Service, basing its

10. U.S. Department of Homeland Security, Transportation Security Administration, "TSA is Concerned About Lack of US Shipper's Impact Awareness About 100% Screening Issues," June 5, 2009, at *http://www.tsa.gov/assets/pdf/ccsp_at_a_glance.pdf* (May 28, 2010).
11. James C. May, "100% Air Cargo Screening: Can We Secure America's Skies?" testimony before the Subcommittee on Transportation Security and Infrastructure Protection, Committee on Homeland Security, U.S. House of Representatives, March 18, 2009, at *http://homeland.house.gov/SiteDocuments/20090318144726-73418.pdf* (May 28, 2010).
12. Elias, "Aviation Security," p. 21.
13. *Ibid*.

estimates on the costs of 100 percent baggage screening projected to the total volume of air cargo, estimates roughly the same costs—$3.8 billion over 10 years.[14] Not only is the technology to screen the cargo costly, ranging from $50,000 to $500,000 per facility, but there is the cost of hiring and training personnel to run it.[15]

These costs, under an airport-centric model for meeting the 100 percent screening mandate, will be placed on the American taxpayer. Additional costs are also likely to present themselves, stemming from delays in the system caused by bottlenecks and slowed cargo delivery—a bill that will be handed to the private sector. Delays are liable to cause higher consumer prices of products, increased air-shipping costs as air carriers seek to compensate for screening costs, and significant business losses. Furthermore, several cargo shippers have indicated that they will forgo passenger planes in favor of shipping their goods on cargo planes, which are subject to fewer regulatory requirements. Such a switch is likely to have a major economic impact on an already struggling passenger aviation industry where airlines rely on cargo for 20 percent to 25 percent of their profit.

Overcoming these challenges has posed much less of a problem for smaller airports, which service mostly narrow-bodied planes, but for the 20 major gateway airports, these challenges may prove insurmountable.

The TSA Solution

The TSA, recognizing the challenge of 100 percent screening, has developed a program to carry out this mandate while taking the pressure off the private sector and giving industry more flexibility—the Certified Cargo Screening Program (CCSP).

CCSP is a voluntary program that seeks to distribute the responsibility of 100 percent screening throughout the supply chain. Any manufacturer, shipper, distribution center, or freight forwarder who transports cargo directly to an air carrier may apply to become a Certified Cargo Screening Facility (CCSF). These applicants are vetted for compliance with TSA-mandated security protocols, and once approved are allowed to screen cargo directly at their location before it is transported to an air carrier facility—allowing significantly more time to perform the inspection, and ensuring that goods are not damaged or tainted in the process, among other liability concerns.

In 2008, the first phase of the program began at 18 of the major cargo airports in the U.S. with shippers in nine of these locations and freight forwarders in all 18 (also known as the Indirect Air Carrier (IAC) Screening Technology Pilot Program). These 18 airports account for 96 percent of cargo that is transported on the larger, wide-bodied planes (those with more than one aisle), and 65 percent of all cargo transported on all passenger planes in general.[16] Already, roughly 487 facilities have been certified in the CCSP.[17]

Allowing screening to occur at different points in the supply chain has offered various benefits. CCSFs are fully responsible for the screening, allowing the TSA to better focus its limited resources on high-risk cargo and that which is not yet being screened by program participants. Industry partners, likewise, receive the benefit of being able to screen their own cargo, or trusting a freight forwarder to do so, reducing the risk that third parties would damage or taint the goods as well as other risks from disassembling and screening cargo at airports, and decreasing potential clogs in the supply

14. *Ibid.*, p. 22.
15. Brandon Fried, "100% Air Cargo Screening: Can We Secure America's Skies?" testimony before the Subcommittee on Transportation Security and Infrastructure Protection, Committee on Homeland Security, U.S. House of Representatives, March 18, 2009, at *http://homeland.house.gov/SiteDocuments/20090318144639-43303.pdf* (May 28, 2010).
16. Edward Kelly, "100% Air Cargo Screening: Can We Secure America's Skies?" testimony before the Subcommittee on Transportation Security and Infrastructure Protection, Committee on Homeland Security, U.A. House of Representatives, March 18, 2009, at *http://homeland.house.gov/SiteDocuments/20090318144700-36589.pdf* (May 10, 2010).
17. Scott Powers, "New Rules Could Delay Air Cargo," *The Columbus Dispatch*, December 2, 2009, at *http://www.dispatch.com/live/content/business/stories/2009/12/02/airline_cargo.ART_ART_12-02-09_A8_5DFS0DK.html?sid=101* (May 28, 2010).

chain. Goods can be screened before they are ever put on a shipping pallet—eliminating the need for disassembly.

The IAC has allowed the TSA to begin testing cargo screening technology in 18 cities to determine the best screening technologies to help achieve the mandate. IAC is open to all high-volume indirect air carriers, or freight forwarders, in the select cities. The TSA provides limited funding to such companies to purchase screening technology, and the companies report data on cargo commodities and technology effectiveness. There are currently 600 CCSP participants. However, CCSP only services half of the problem because only domestic participants can qualify.

A Congressional Roadblock. One of the largest roadblocks to the use of CCSP as a way to meeting the 100 percent screening mandate has been Congress. In fact, the trouble with Congress began in the earliest stages of implementation. The TSA originally interpreted the 100 percent screening mandate as applying only to domestic flights**.** Congress emphasized that the mandate was meant to cover *all* cargo, both domestic and international, and that the TSA would have to work with international partners to ensure compliance—an extremely difficult task. As the TSA has sought to find screening methods that would allow more flexibility for the private sector, Members of Congress have grown increasingly uncooperative. This is especially the case with CCSP, as relations between Congress and the TSA have become so combative that Congressman Ed Markey has threatened to federalize the air cargo process altogether—a move that would add senseless bureaucracy and waste millions of taxpayer dollars on an effort that can be accomplished efficiently by the private sector. In fact, the TSA has not been able to assure the private sector that Congress will see full CCSP compliance as a fulfillment of the mandate.

These threats have made the private sector reluctant to join CCSP. TSA for its part has been reluctant to voice much frustration about meeting the mandate, fearing the legislative repercussions that could result from such complaints. Congress needs to listen to TSA and resolve these differences quickly so that the private sector has a clear idea of which steps must be taken to meet the law.

A New Era of Air Security

The problem with the 2007 mandate has always been that it left the private sector out of the process. Making the mandate work in the future will require flexibility by Congress—and that flexibility should be based on supply chain realities and the voices of the industry participants that are subject to the new requirements. Of course, future efforts should also be based on the actual threats from terrorists. Next steps for Congress and DHS should be to:

- **Expand the Certified Cargo Security Program,** which allows more flexibility for the private sector in meeting the 100 percent screening mandate. Congress and DHS should look for ways to expand participation in the program by cargo shippers and forwarders. A steady increase in new participation is critical so that there is not a rush near the deadline which would clog the application and approval process. Congress should give TSA the green light that this program fully meets the standards of the 100 percent screening mandate.
- **Push for More Intelligence- and Information-Sharing** by law enforcement and the intelligence community in order to obtain a more accurate picture of the risk to air cargo and airlines in general, and to stop plots aimed at cargo in the earliest stages. Waiting until cargo reaches the airport is too late in the process to focus on stopping these types of plots. Furthermore, this type of intelligence helps inform screeners so that they can better ascertain whether cargo is indeed high-risk and should be subject to additional scrutiny.
- **Resist Federalization of the Air Cargo Screening Process.** Such a move would waste taxpayer dollars and create a large bureaucracy for little to no added security. Furthermore, it is unnecessary, given the potential for CCSP to work effectively.
- **Educate the Public on Aviation Security.** Public perception of the aviation industry is distorted. Due to the terror attacks of 9/11, anxieties about aviation security have run high. It is often

these—highly warranted—fears that serve as the impetus for skewed policies such as 100 percent screening. To counter this anxiety, Congress and the TSA should seek to better educate the American public on the general aviation industry, informing them of the nature of the threats to aviation, how the sector operates, and of the economic realities.

- **Embrace Risk-Based Alternatives**. Efforts such as the Automated Targeting System, which would subject cargo to a risk rating that determines whether it should be given additional screening, are the right way forward in terms of effective air cargo security. Congress and DHS should explore these alternatives and look for ways to move away from a blanket screening process.

The 100 percent screening mandate deadline is approaching. While Congress can sit back and watch the TSA flail about trying to meet the mandate, Americans would be better served by a solution that will achieve security while allowing the private sector the flexibility to maintain the supply chain. The American people deserve both security and economic recovery.

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