

For Immediate Release

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**STUDIES EXAMINE CONSEQUENCES OF TERRORIST
ATTACKS AGAINST L.A. PORTS AND POWER SYSTEM**

LOS ANGELES (Aug. 7, 2007) – A dirty bomb attack in the Los Angeles/Long Beach port complex would result in serious economic and psychological consequences, and could produce tens to hundreds of latent cancers. But if terrorists caused a blackout in Los Angeles County, various forms of resilience would give electricity customers the ability to mute the potential shock to their businesses by as much as 86 percent.

These are the findings of two new studies by scientists affiliated with the University of Southern California's (USC's) Center for Risk and Economic Analysis of Terrorism Events (CREATE). As the sixth anniversary of Sept. 11, 2001, approaches, the conclusions from these studies should help local transportation and utility authorities with their emergency planning.

The studies -- "A Risk and Economic Analysis of Dirty Bomb Attacks on the Ports of Los Angeles and Long Beach" and "Business Interruption Impacts of a Terrorist Attack on the Electric Power System of Los Angeles: Customer Resilience to a Total Blackout" – appear in a special homeland security issue of the peer-reviewed journal *Risk Analysis* (Vol. 27, No. 3, 2007), which is published by the McLean, Va.-based Society for Risk Analysis.

Heather Rosoff and Detlof von Winterfeldt of USC-CREATE analyzed a possible terrorist attack on the ports using a radiological dispersal device (RDD) -- commonly referred to as a dirty bomb, which combines radioactive material with conventional explosives. Dirty bombs can create large radioactive plumes, cause health and psychological effects, and produce significant economic impacts largely due to decontamination efforts.

The authors found that:

- For the scenario explored, a dirty bomb attack in the United States is possible. But it would not be easy to carry out considering the difficulties associated with obtaining and transporting radioactive materials, building the bomb and detonating the device successfully. Ultimately, however, the bomb could be designed to fit into something as small as a suitcase.

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- Ports are attractive terrorist targets because of the potential for a successful attack to result in lives lost, psychological consequences and economic damage to local businesses, harbor operations and the flow of trade worldwide.
- Such an attack on the ports of Los Angeles and Long Beach (together the fifth busiest ports in the world¹) would not kill many people initially (with high radiological doses being confined to a relatively small area). Over time, it could produce tens to hundreds of latent cancers. Accordingly, the expected mortality is much less than it would be for a conventional nuclear weapon, though still worthy of attention.
- Required evacuations and contamination efforts following a dirty bomb would impact the economy and instill public fear about returning to the contaminated area.
- The most costly economic impact would result from a lengthy shutdown of the ports and time required for decontamination. The length of the port shutdown would depend, in part, on the decision to declare access as safe; this operation will cost \$20 billion for the first month, and this figure would then decline as business and ships are redirected elsewhere.
- The installation of radiation detection devices on the outer perimeter of the harbors, especially in areas where a dirty bomb could cause damage would be one of several useful steps to prevent such an attack.

A study on the direct and indirect economic impacts of an extended power outage caused by a terrorist attack in Los Angeles was conducted by Adam Rose of USC-CREATE; Gbadebo Oladosu of Oak Ridge National Laboratory, Oak Ridge, Tenn., and Shu-Yi Liao of National Chung Hsing University, Taichung, Taiwan. Given the ability of terrorists to target maximum damage, they simulated a total power blackout lasting two weeks. Here is what their research concluded:

- A two-week total electricity blackout would amount to a business interruption loss of \$20.5 billion without any customer resilience, but only \$2.8 billion with the inclusion of several types of resilience, most prominently the rescheduling of production after electric service is restored.
- Inherent aspects of the electricity-economy relationship (e.g., inter-fuel substitution) and adaptive behavioral responses (e.g., conservation, on-site electricity generation) also can help deliver this 86-percent reduction in potential disruption impacts.

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¹ Combined, the ports of Los Angeles and Long Beach handle 11.4 million 20-foot equivalent containers annually for a value of about \$218 billion. In addition, 36 percent of U.S. imports enter the country through these ports.

- Electric power systems are relatively difficult to safeguard. With the exception of nuclear power plants, until recently, no generating station, sub-station, transmission or distribution lines have been constructed in the U.S. with a major emphasis on protection from terrorism.

The authors did not consider the value of lives lost, increased crime, psychological trauma, some infrastructure costs, and property damage.

“There is strong indication that people learn from disaster experiences and that options implemented for one type of disaster apply to others (e.g., purchase of backup electric generators in the aftermath of the Northridge Earthquake), the authors said. “Thus, there is some cause for optimism that resilience to disasters will increase over time.”

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(Note to editors: The complete reports are available upon request from Joseph L. Walker, SRA communications advisor, 703-491-3301 or walkercom2@aol.com; to interview the lead author contact Walker or Kelly Gribben, University of Southern California Center for Risk and Economic Analysis of Terrorism Events, 213-740-5514 or gribben@sppd.usc.edu; visit USC CREATE at <http://www.usc.edu/dept/create/>.)