



# **METRANS Transportation Consortium** **Maritime and Goods Movement Research** **Agenda Development:**

*A Summary of the April 8 Discussion on “Identifying Opportunities, Challenges, and Existential Threats Across the Supply Chain”*

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## **OVERVIEW**

This meeting brought together industry leaders, public agencies, labor, and stakeholders to identify research priorities for a forward-looking academic research agenda on maritime and goods movement. The day-long session coalesced around four central themes:

1. The Changing Landscape of Ocean Shipping
2. Transformational Technologies
3. Barriers to Commerce and Innovation
4. Sustainability and Environmental Impact

## **PART I: THE CHANGING LANDSCAPE**

### **CHALLENGES**

The Los Angeles and Long Beach Ports operate as a highly complex maritime system. Central to this discussion were the 13 international container terminals serving as the nation's primary port of entry. Stakeholders highlighted persistent inefficiencies that are further exacerbated during cargo surges. One key example was the lack of a single portal for truckers to log on to access appointments to pick up a loaded container. More importantly, such a system should be dynamic, providing real-time information that allows for adjustments in scheduling.



A major challenge facing U.S. ports is ongoing uncertainty in the maritime sector—driven by trade policy volatility, particularly tariff threats. This climate has hindered regulatory progress, including key trucking initiatives from the California Air Resources Board (CARB). The withdrawal of federal support for the Advanced Clean Fleets (ACF) regulation introduced significant delays, disrupting planning by original equipment manufacturers (OEMs) and carriers who rely on long lead times for implementation. The Clean Truck Rule, requiring early zero emission (ZE) truck adoption without adequate infrastructure, deepened industry concerns. Without national backing, California may resort to more extreme regulatory measures to meet climate goals, such as expanding indirect source rule (ISR) control strategies.

## **OPPORTUNITIES**

Regulatory uncertainty offers an opportunity to rethink the ZE truck rollout strategy and the role of alternative and transitional cleaner fuels, including hydrogen and low-emission alternatives. A new, collaborative roadmap—crafted jointly by regulators, industry, and utilities—could better align infrastructure build-out with fleet transitions. Integrating the electric utility sector into any ZE plan will be essential. Integrating infrastructure providers more broadly (e.g., into hydrogen truck planning) will also be essential.

## **RESEARCH AGENDA**

1. Business risks of being a “first mover” under ACF, including impacts on OEMs, carriers, and truckers.
2. Designing effective, voluntary ZE trucking adoption incentives.
3. Full cost analysis of Indirect Source Rules (ISR).
4. Identifying institutional barriers to a unified LA/LB Port truck appointment system that includes real-time data. Consideration should be given to a virtual driver check-in from remote locations to reduce terminal queues, driver time and emissions
5. Developing a stakeholder-driven ZE truck turnover strategy and incentivizing a second-hand zero-emission truck market.
6. Modeling cost-benefit impacts of proposed regulations.
7. Assessing the real-world effectiveness, both beneficial and adverse impacts, of air quality regulations.

## **PART II: TRANSFORMATIONAL TECHNOLOGIES**

### **CHALLENGES**

Automation's labor impact remains opaque due to limited data. Current studies often rely on anecdotal evidence as data from marine terminal operators and third-party technology providers is not publicly available. Thus it is difficult to isolate the benefits of automation from other terminal improvements. For example, faster truck turn times at the Long Beach Container Terminal (LBCT) and APM Terminals are partly due to off-terminal chassis pick-up—not automation alone.

Labor stakeholders raised concerns that OEMs remotely operate and maintain automated systems under warranty agreements, excluding the ILWU from meaningful software training. While mechanical upskilling occurs, comprehensive workforce integration is lacking. There is skepticism over whether automation delivers a return superior to lower-cost, alternative terminal improvements, available at terminals with conventional, human operated facilities.

### **OPPORTUNITIES**

- Explore if the World Bank's global freight movement models can be applied or adapted to California or the U.S.
- Proactively coordinate for the 2028 Olympics to mitigate logistics disruptions.
- Improve cross-sector communication before issues escalate into crises.
- Explore opportunities for 24/7 operations at marine terminals and warehousing.

### **RESEARCH AGENDA**

1. System-wide tradeoff analysis of California's energy transition, including life-cycle analyses.
2. Impacts of off-terminal chassis storage on BIT (back-in-time) performance.
3. Logistics strategies for minimizing disruption during the 2028 Olympics.
4. Logistics strategies for unanticipated or unusual events (mega-events, disasters).
5. Leveraging payroll data to quantify labor impacts (not addressed at the meeting but raised during sidebar).
6. Defining effective upskilling pathways for automation-era port labor.
7. Investigate and analyze the cybersecurity costs and risks to the supply chain.

## **PART III: BARRIERS TO COMMERCE AND INNOVATION**

### **CHALLENGES**

The Southern California freight ecosystem excels in crisis response but struggles with proactive reform. Small inefficiencies are tolerated in normal conditions but create cascading issues during peak demand. Stakeholders often retreat into defensive silos, delaying solutions until external political or regulatory pressure forces action—often in the form of blunt mandates like ISR. However, the ISR debate has united labor and industry, offering a model for collaboration on shared challenges.



## **OPPORTUNITIES**

- Proactively tell the national story of LA/LB ports and their economic significance in every congressional district.
- Maintain the urgency and collaborative energy seen during crises to address smaller inefficiencies.

## **RESEARCH AGENDA**

Most of the topics raised here were already covered in other sections.

## **PART IV: SUSTAINABILITY AND ENVIRONMENTAL IMPACTS**

### **CHALLENGES**

The industry supports science-based approaches and balanced policymaking that incorporate workforce development and economic goals alongside environmental goals. The transition to clean technologies must avoid unintended consequences—such as workforce displacement or cost imbalances.

Participants expressed concern that California's leadership on sustainability has weakened due to a lack of national and international alignment. The failure of ACF was cited as a warning: without consensus and coordination, regulatory ambition can falter. The U.S. walk-out from the International Maritime Organization's (IMO) Marine Environmental Protection Committee (occurring the same day as this session), where ocean carriers supported carbon fees, further undermines U.S. credibility. Meanwhile, international peers like China continue leading infrastructure build-out, such as solar and transmission lines.

The fragmented nature of U.S. governance—where different agencies regulate trucks and the power supply separately—contributes to market uncertainty and delays electrification.

California climate goals and timelines appear to be unreachable. Goals are established often without a realistic implementation strategy resulting in fractious relationships among industry and regulators. Yet industry and regulators both support the movement toward zero-emissions. In light of recent events, there is no clear pathway forward.

## **OPPORTUNITIES**

- METRANS can serve as a bridge between academic research and industry practice.
- Return to comprehensive economic modeling to support decisions surrounding potential future regulations.

## **RESEARCH AGENDA**

1. Strategies for advancing an equitable industrial transition.
2. Modern economic models to assess regulatory costs and benefits.
3. Adapting to trade realignments and strategies for California to retain and regain market share.
4. Studies of institutions and effective institutional design for sustainable industrial transition.

## **NEXT STEPS: UNIVERSITY– STAKEHOLDER RESEARCH PARTNERSHIPS**

### **REGULAR MEETINGS**

METRANS meets with its advisory board every 3–4 months and hosts signature events, including the biannual International Urban Freight conference. These meetings, while helpful, are too narrow and too limited to advance a dialogue on maritime-related research needs. One strategy would be to convene a different or broader maritime advisory group, or to fold such an effort into existing METRANS advisory bodies.

### **ANNUAL RESEARCH AGENDA**

An external body of the sort described above could bring a short number of study topics to METRANS annually. METRANS distributes a request for proposals (RFP) to faculty researchers each year in the first week of February. For research topics to be included in that RFP, the research agenda should be developed in coordination with stakeholders in the October – December timeframe.

### **INCREASING THE GEOGRAPHIC SCOPE OF METRANS RESEARCH**

Several topics described above either require, or would benefit from, a broader national or international focus. Some of that broader focus was not discussed in the April 8 convening, possibly reflecting that most representatives were from California. Some examples of broader topics:

- Research on the national goods movement system, the potential for diversion from port to port, the role of regulations, economic (e.g., warehousing, labor) ecosystems, and external shocks on the national system.
- International shore power adoption and the potential for California and selected other ports to influence the shore power market.

- Supply and distribution of alternative maritime fuels.
  - Modeling international goods movement trends, opportunities, and threats.
  - Advancing commercial shipbuilding industry in the U.S. and how that might affect ports.
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## **BACKGROUND & ACKNOWLEDGMENTS**

This summary is the result of a convening of supply chain industry, agency, labor, and stakeholder experts hosted by METRANS on April 8, 2025 at the USC Hotel in Los Angeles, California.

Thank you to Dr. Marlon Boarnet, Director of METRANS Transportation Consortium, and Dr. Tyler Reeb, Director of the Center for International Trade and Transportation (CITT), for convening the event.

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Sharvari Rajwaday  
Zoelli Ortiz

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## APPENDIX

### LIST OF ATTENDEES

*Please note that any comments or recommendations do not reflect the position of any attendee or individual and only reflect the opinions of the authors and organizers.*

Name	Position	Affiliation
Erika Bernal	Associate Dean for Advancement	University of Southern California, Sol Price School of Public Policy
Carlo Bertani	Decarbonization and Renewable Energy Procurement	A.P. Moller - Maersk, the Americas
Jackie Birdsall	Senior Engineering Manager	Toyota North America
Marlon Boarnet	Director and Professor of Public Policy	METTRANS Transportation Consortium, University of Southern California
Patrick Burgoyne	Chief Operating Officer	Logistec
Michael Cano	Executive Officer, Multimodal Systems & Corridors	Los Angeles Metro
Kerry Cartwright	Director of Goods Movement	Port of Long Beach
Christine Casey	Deputy Secretary, Freight Policy	California State Transportation Agency
Kristin Decas	Chief Executive Officer	Port of Hueneme
Maged Dessouky	Professor of Industrial and Systems Engineering	University of Southern California, Viterbi School of Engineering
Sal DiCostanzo	Port Liaison - LRC Representative	International Longshore and Warehouse Union (ILWU) Local 13
Aaron Dyer	Senior Manager – Program Design & Development	Southern California Edison

Name	Position	Affiliation
Cindy Elliott	Director, Business Industry Sector	Esri
Genevieve Giuliano	Professor of Public Policy	University of Southern California, Sol Price School of Public Policy
Adrian Granda	Director of Government Relations	Port of Long Beach
Michele Grubbs	Vice President	Pacific Merchant Shipping Association (PMSA)
Gary Herrera	President	International Longshore and Warehouse Union (ILWU) Local 13
Hasan Ikhata	Former Chief Executive Officer	Southern California Association of Governments (SCAG)
Fran Inman	Senior Vice President	Majestic Realty
Petros Ioannou	Professor of Electrical and Computer Engineering, Aerospace and Mechanical Engineering, and Industrial and Systems Engineering	University of Southern California, Viterbi School of Engineering
Aravind Kailas	Advanced Technology Policy Director	Volvo Group North America
Isaac Kardon	Senior Fellow, Asia Program	Carnegie Endowment for International Peace
John Keisler	Chief Executive Officer	Sunstone Management
Geraldine Knatz	Professor of the Practice of Policy and Engineering and Civil and Environmental Engineering	University of Southern California, Sol Price School of Public Policy, Viterbi School of Engineering
Charles Kunaka	Lead Transport Specialist, Transport Global Practice	The World Bank

Name	Position	Affiliation
David Libatique	Deputy Executive Director, Stakeholder Engagement	Port of Los Angeles
Alan McCorkle	Chief Executive Officer	Yusen Terminals
Annie Nam	Deputy Director, Transportation	Southern California Association of Governments (SCAG)
Elaine Nettle	Executive Director	Coalition for America's Gateways and Trade Corridors (CAGTC)
Thomas (Tom) O'Brien	Associate Dean of the College of Professional and Continuing Education (CPaCE)	Cal State University, Long Beach
Joel Perler	Manager, International Engagement & Strategic Advocacy	Port of Long Beach
Tyler Reeb	Executive Director	Center for International Trade and Transportation, Cal State University, Long Beach
David Reich	Deputy Executive Director for Mobility Strategy	Los Angeles World Airports (LAWA)
Binyam Reja	Global Practice Manager, Transport Global Practice	The World Bank
Matt Schrap	Chief Executive Officer	Harbor Trucking Association
Daniel Smith	Principal	Tioga Group
Elizabeth Warren	Senior Industry Liaison	Center for International Trade and Transportation, Cal State University Long Beach
Jiachen Zhang	Assistant Professor of Civil and Environmental Engineering and Spatial Sciences	University of Southern California, Viterbi School of Engineering