

Program: California Sustainable Freight Action Plan Pilot Project Ideas

Submission Date: November 24, 2015



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2. Project Title: Sustainable, Electric, Zero Emissions Maglev Freight Transportation System

3. Project Location:

Wilmington, CA 90744 - Near Alameda Corridor/Port of Los Angeles/Port of Long Beach

4. Executive Summary:

American Maglev Technology (“AMT”) and its world-class team, including Ricardo and GlobalVIA, propose to build a one-mile Demonstration Project showcasing sustainable, electric, Zero Emissions Maglev (“ZEM”) freight transportation of a 40-foot Oceangoing Container (“TEU”) near POLA/POLB. AMT proposes to build a ZEM transportation system that is capable of placing an oceangoing cargo container onto a ZEM vehicle, safely locking the container into place



onboard the vehicle, transporting the container to another location roughly one mile away, coming to a complete and controlled stop, safely unloading the container and then dispatching the vehicle back to its origin. AMT has already completed more than seven years of proof-of-concept testing of the ZEM technology onboard an operational passenger vehicle at its test track in Powder Springs, GA.

The project will require a remarkably low level of energy, as the practically noiseless ZEM vehicles operate atop a nearly frictionless magnetic field, with no wheels or rails. As part of the demonstration, AMT will include new innovations in energy savings, such as an innovative, overhead Solar Panel Array Renewable Energy Network and a Lithium-Ion Battery Energy Storage Power Supply System. These components are expected to provide the majority of power needed to operate the Demonstration Project. This disruptive technology has the capability to clean the air by eliminating emissions, reduce the noise at the ports, and create a new industry in Southern California. The new loading and unloading innovation will allow fix rail to be integrated with a clean last mile distribution system and the combination of fixed guideway (new capacity) and last mile (where we have capacity) addresses The Port’s and California’s infrastructure deficiency at the same time.

5. Project Description:

This project is being proposed because there is a significant need for California to transition into 21st century freight technology using new, sustainable zero-emission technology, advanced logistics technology and renewable energy resources. AMT and its partners can also provide private financing for the construction of future large-scale ZEM technology transportation projects.

Magnetic Levitation Electric Train Brief History.

The first maglev technology patent was a US patent for a linear motor propelled train, awarded to German inventor Alfred Zehden on February 14, 1905. Since that time, numerous other patents have been awarded for a wide variety of applications of the technology. Early demonstration projects were conducted in New York (1913), Hamburg (1979), London (1984), Japan (1969), Vancouver (1986) and Berlin (1989).

There are currently high-speed and low-speed operating maglev passenger trains in Shanghai (April 2004), Japan (March 2005) and South Korea (May 2014).

In spring 2006, AMT began construction of a full-scale test site with 2,000 feet of elevated track in Powder Springs, GA, which was completed and operational in summer 2007. The company has completed a rigorous testing program of its ZEM technology at this site.

Maglev Train Sustainability & Energy Efficiency.

A maglev train is a sustainable freight transportation solution because it is a completely electric system with an overhead full cantilever roof with a renewable energy solar panel array network along the length of the track. The solar panel energy is then stored in rechargeable Lithium-Ion batteries. To assure electric power at all times, including nights or continuous rainy days, project partner Southern California Edison will provide grid power to the pilot project site.

A unique feature of ZEM technology is that the entire track does not need to be electrified, only the portion of the track where the vehicle operates at the given time. This is a significant power savings compared to an overhead catenary wire train power system.

A Maglev Vehicle requires significantly less maintenance and cost since it does not have a fuel engine, therefore requiring no petroleum fossil fuel such as diesel or LNG. It also does not have a standard transmission with transmission fluid, or wheels or bearings to maintain

In addition to lower life cycle costs, greater efficiencies and safety and operational improvements, the Linear Induction Motors (LIMs) approach used in the maglev system provides “regenerative braking” – the concept in which vehicles are stopped by using the electromagnetic motors, allowing over 50% of the kinetic energy onboard the railcar to be recaptured and stored in wayside batteries for the next departure. AMT calls this its Regenerative Storage System (RSS), which has already achieved a 30% increase in efficiency by employing the regenerative braking energy storage at its test track. This energy savings can reduce the overall operating cost of freight movement and create an emission-free, energy efficient means of cargo transport.

Not only does AMT ZEM technology use clean, renewable energy, but its level of energy usage is also significantly less than conventional “steel-wheels-on-steel rail” and “rubber-wheels-on-concrete” technologies. Opposed to an average conventional steel rail transportation energy usage rate of 6 kilowatts hours per kilometer (kwh/km), AMT ZEM technology uses approximately 1.8kwh.km, or 70% net less energy to move the same payload.

ZEM vehicles in this Demonstration Project will also include and introduce a new innovative automated fail-safe magnetic container locking mechanism. Rather than employing conventional labor and cost intensive mechanical locking techniques, AMT will introduce unique magnetic locking devices installed onto each vehicle for secure container transport. One of the most labor-intensive tasks involved in container-based goods movement is the installation of steel pins between the trailers/flatcars and the ocean-going containers for secure movement, and using magnetic offers several advantages over conventional locking mechanisms. AMT has worked with the Navy to use proven and reliable magnetic fields, and has demonstrated proficiency in modeling the physics of these passive devices, which will automate the container loading process.

The guideway track design requires no moving or electronic parts, making it a relatively low-cost, completely passive system component.

Maglev Vehicle Environmental Benefits.

Maglev Vehicle Environmental Benefits Include:

- An all-electric technology
- Renewable energy power supply
- No greenhouse gas emissions
- No fossil fuel requirement
- No Transmission fluid requirement.
- No brake fluid requirement
- No power steering fluid requirement
- No hazardous waste or material landfill disposal
- Practically no noise
- Practically no vibration or friction

Maglev Vehicle Public Safety Benefits.

Maglev Vehicle Public Safety Benefits Include.

- Does not use flammable or explosive fuels
- Does not use flammable or explosive oils & fluids
- Employs superior emergency rapid braking system
- Employs superior anti-derailment design technology
- No need to transport flammable or explosive fuels over public highways, freeways, street & bridges to get to rail site
- No need to transport flammable or explosive oils & fluids over public highways, freeways, street & bridges to get to rail site
- No need to transport hazardous waste over public highways, freeways, street & bridges
- No need to store flammable or explosive fuels on-site
- No need to store flammable or explosive oils & fluids on-site

- No need to store hazardous waste on-site

Maglev Train Advanced Logistics Technology Options.

Maglev Vehicle Logistics Benefits Include:

- A Maglev Vehicle can travel 2x-3x faster than a traditional Locomotive Engine Train. The typical maximum travel speed would be set at 60MPH.
- The system utilizes a service-proven Communications Based Train Control (CBTC) system to provide a completely automated control and monitoring of all Maglev Vehicles in the system. The CBTC system is in communications with each and every vehicle at all times and knows all locations to within a high degree of accuracy. This allows a moving block arrangement to be used vs. the fixed block on typical rail systems resulting in the possibility for higher traffic density. The CBTC allows faster individual Maglev Vehicle programming, deployment, carrier loading/unloading, destination planning and transport.
- Each Maglev Vehicle transmits status data of the various subsystems on the vehicle, which allows central control to monitor the health of the vehicle and identify problems before they impact system operation.
- RFID tags are embedded in the guideway provide absolute location information. Redundant readers in the vehicle sense the RFID tags and transfer the location information to central control. Central control, knowing the precise location of all vehicles in the system, then makes a decision regarding the dispatch of the vehicle.
- Each Maglev Vehicle has its own built-in magnetic levitation and propulsion technology, which allows individual vehicles or small vehicle groups to proceed to a destination, compared to the need for multiple Locomotive Engine Trains to first hook-up and connect 200-250 train cars, which can take 1-2 days.
- The footprint is similar to standard railroad with a constant width of 20ft for a dual track and 6ft for a single rack. An elevated guideway consists of five-foot (diameter) columns at an average spacing of 88 feet.
- The entire system will comply with the requirements of ASCE 21 in all respects. The guideway will be designed in accordance with the latest AASHTO Bridge Design Specifications.
- The Maglev System can accommodate standard 20' and 40' Dry Cargo Containers, Refrigerated Cargo Containers, Flat Bed Platform Bulk Products and Dry & Liquid Tank Cargo.
- The Maglev System uses commercially available off-the-shelf components, systems and materials from 120 different US companies from 26 states.
- The Project does not require stops to fill up the diesel fuel gas tank.
- The Project does not require fuel trucks to drive onto train tracks to fill up gas tank.
- The Project does not require fuel trucks to fill up storage tanks on-site.
- The Project does not require frequent locomotive Engine tune-ups & calibration.

- The Project does not require any dedicated large maintenance building facility.
- The maintenance of a Maglev Vehicle can easily be performed on the guideway at any location.

Maglev Train Technology Nuts & Bolts.

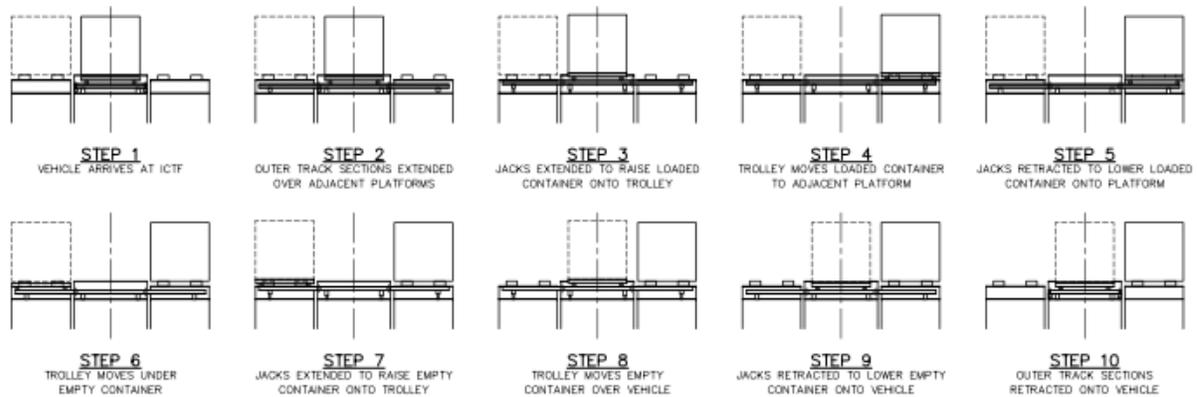
The AMT Maglev Vehicle is approximately 60 ft long and 10 ft wide, designed to haul one forty-foot (40') oceangoing container, or the equivalent of two TEUs in both size and weight. The vehicles' undercarriage is uniquely outfitted with twenty-four (24) independent, computer-controlled electromagnets that provide both vertical lift and horizontal stability. Two LIMs propel the Maglev Vehicle along the guideway track.

When the vehicle is given the command to levitate, each electromagnet independently attracts to the steel rail, creating a one-centimeter air gap between the Maglev Vehicle and the guideway track. Each magnet's levitation gap is carefully monitored by proprietary onboard controls that constantly adjust the magnetic fields at 10Khz (10,000 times per second) to maintain this near-frictionless air gap between the container and the track. Any disturbance in the track is mitigated by the airbag suspension system, ensuring a safe and smooth ride.

As energy is provided to the LIMs they generate electromagnetic waves that propel the Maglev Vehicle and provide 1150 horsepower (7000 pounds of thrust at speed) to accelerate and decelerate the Maglev Vehicle, depending on the direction of the induced currents. There are always two LIMs working on each individual Maglev Vehicle Railcar, with the total available thrust of 10,000 lbs. This thrust provides a huge safety factor when compared to the rolling resistance of the rail car plus container (one percent (1%) of 90,000 pounds gross laden) plus grades up to 3%, plus wind resistance, or an estimated 4000 pounds total resistance at the worst case.

The LIMs work in unison with a 1/4 inch piece of aluminum that runs the length of the track and acts as the stator for the LIMs. As the container carrier traverses the track, the LIMs generate powerful eddy currents that push the vehicles along the guideway track. Once the vehicle reaches its destination and begins to decelerate, the container carrier employs regenerative braking, where the LIMs are able to recapture 53% of the vehicles kinetic energy. This energy is stored in batteries trackside and used for future departures.

A maglev train is also safer than a traditional locomotive train due to its unique vehicle carrier and guideway track design, which prevents derailments. The undercarriage is specifically designed to include a fail-safe protection pad to fortify the platform during loading and unloading that is similar to current proven technologies. To ensure safety, fail-safe friction brake pads are also present on board the vehicle so that in the event of an emergency or loss of power, the container carrier can safely delevitate to a stop at a rate of 0.25g. The figure below shows the general completely automated loading and unloading strategy.



The vehicles will be completely automated using a CBTC system that is computer controlled, allowing each vehicle to communicate with each other as well as the control center for the system. Each vehicle is equipped with redundant sensors and actively monitors speed and stopping profiles as well as vehicles' activity and location in real time, ensuring continuous monitoring and communication with all vehicles at all times. A maglev vehicle can also be built with a traditional upfront driver operator if desired.

Maglev Vehicle Project Economic Benefits.

Pilot Project Short Term Benefits

- 1st Zero Emissions Maglev Freight Transportation Technology Project in the United States
- 1st Major EJ Community Benefit Project in California
- Local increase in construction labor
- Local increase in purchase of parts & materials revenues
- Local increase in hotel lodging , meals and transportation revenues
- Opportunity for local universities, community colleges, trade schools to learn new technologies & develop curriculum and classes

Future Deployment Benefits

- Local increase in construction labor
- Long-term permanent employment-operations & maintenance
- Local increase in purchase of parts & materials revenues
- Opportunity for local universities, community colleges, trade schools to learn new technologies & develop curriculum and classes
- Lower freight transportation costs
- Lower manpower costs
- Lower grid energy use costs
- Lower long term energy grid infrastructure expansion & replacement costs
- Decrease in petroleum fossil fuel usage
- Decrease in public health care costs
- Decrease in port freight transportation traffic congestion
- New emerging technology job career training

Maglev Vehicle Pilot Project Demonstration Site Location.

The pilot project demonstration track does not necessarily have to be built at a port terminal or railyard to prove its feasibility. There are numerous potential public and private unoccupied land site locations and container storage yards in the industrial areas of Wilmington which can be utilized for the test demonstration.

The two ideal potential site locations:

- a. Along the Dominguez Channel Watershed (DCW) parallel to the Union Pacific ICTF and proposed BNSF SCIG. The DCW is a concrete channel approximately 15.7 miles long. It begins in the city of Hawthorne and discharges into the Los Angeles Harbor East Basin at the Port of Los Angeles. It is operated by the City of Los Angeles LA Stormwater Program. The Maglev Vehicle guideway track would be a straight track along the top edge of the channel.
- b. One of the numerous available private container storage yards located in Wilmington. Many already have a rail spur access to the main rail lines which connect to the Ports of Los Angeles and Long Beach. The Maglev Vehicle guideway track could also wrap partially around the exterior of a Container Storage Yard which are typically rectangular in shape.

Maglev Vehicle Project Future Deployment

Upon completion of the pilot demonstration project and successful demonstration of the technology, further deployments can be introduced in phases. The greatest need for this clean sustainable freight technology is at major international ports, railyards and freight transportation corridors near Environmental Justice Communities who are most impacted by air pollution, noise, vibration, traffic congestion and health problems.

Near Term Introduction

Recommendation # 1

ZEM Trains can be first introduced for Short Haul Container Routes and to replace current Diesel Fuel Locomotive Trains servicing the Union Pacific ICTF Intermodal Facility located approximately 4 miles north from the Ports of Los Angeles and Long Beach. UP ICTF is located in the City of Los Angeles community of Wilmington and bordering West Long Beach and South Carson.

Recommendation # 2

ZEM Trains can next be built to replace Diesel Fuel Locomotive Trains at the Alameda Corridor. The Alameda Corridor is a 20-mile-long rail cargo expressway linking the ports of Long Beach and Los Angeles to the transcontinental rail network near downtown Los Angeles. The Alameda Corridor was designed and built for the future transition into an electric freight train route.

Recommendation # 3

ZEM Trains can next be introduced for Short Haul Container Routes by the proposed BNSF SCIG Project Intermodal facility to be located adjacent to the Union Pacific ICTF Facility. It would also be located approximately 4 miles from the Ports of Los Angeles and Long Beach. It would also replace current proposed Diesel Fuel Locomotive Trains.

Long Term Deployment

There would be unlimited regional and statewide opportunities for future Maglev Freight Transportation expansion linking marine ports and airports to major retailer warehouses, distribution centers, agricultural hubs, etc. New Maglev Railways could be built on, above or adjacent to existing California highways, freeways and waterways such as the Dominguez Channel and California Aqueduct.

Special Note

SSA Terminals at the Port of Long Beach has previously submitted a Letter of Intent to AMT, expressing its interest in participating in a demonstration project.

6. Budget:

The one-mile Demonstration Project will serve as a validation model of the technology to the local government, Port officials and future investors. It will be built on Port property, above grade. Upon completion of the Project, contingent upon the satisfactory demonstration of its ZEM technology and achievement of agreed upon performance metrics, AMT would then begin to work with the Ports to proceed with subsequent expansion and phases of its container goods movement Project.

During the Demonstration Project system testing and integration period, AMT will seek to enhance and expedite the loading and unloading process that traditionally delays intermodal rail service by relying on the core competencies of strategic partners Jervis Webb and Ricardo, ensuring “just-in-time” freight service. AMT anticipates that funding for the ZEM system will come from CARB funding and in-kind contributions from its partners. A representative capital expenditure budget for the Demonstration Project is shown below. The aforementioned in-kind contributions are shown in blue.

Project Phase Assumptions

California Sustainable Freight Pilot Project

	<u>Unit</u>	<u>Unit Cost \$</u>	<u># of Units</u>
I Civil Works			
Site Prep & Restoration	Ml/87'	5,964	61 \$
Concrete Substructure (elevated)	Ml/87'	25,000	61
Aerial Span Structure	LF	360	5,280
Guiderrail Structure	LF	300	5,280
Electrification	Mil	1,000,000	1.00
Design & Inspection	% CAPEX	8.0%	
Contractor Indirect Costs	% CAPEX	20.0%	
Contractor Mark-up	% CAPEX	10.0%	
Total \$			11,225,297

II Technology			
Sensors	LF	70	5,280 \$
Control Hardware	LS	400,000	1.00
Software Development	LS	750,000	1
			\$ 1,519,600
Vehicles	EA	2,800,000	1
			\$ 2,800,000
Total \$			4,319,600

III Station(s) and Development Costs			
Loading Station A	SF	250	2,000 \$
Loading Station B	SF	250	2,000 \$
			\$ 1,000,000
Project Reserve	% CAPEX	13.5%	2,233,561
Permitting and Legal	% CAPEX	1.0%	165,449
Container Locking Mechanism	% CAPEX	5.0%	827,245
Automated Loading and Unloading	% CAPEX		947,195
Operations/Testing Labor	% 1st yr. Ops Exp.	50.0%	570,420
Testing and Reports	% Ops. Exp.	8.0%	91,267
			\$ 4,835,137
Total \$			5,835,137

EPC Total			21,380,034
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Notes:
 (1) Unit Abbreviations: EA - Each; km - kilometre; LF - Linear Foot; LS - Lump Sum; Mil - Mile; SP - Space; SF - Square Foot
 (2) Blue denotes AMT "In-Kind" Contribution, other funds invested by ARB

- Note 1. AMT has invested over \$1M to complete a Proof-of-Concept Study and a business plan concept at POLA/POLB.
- Note 2. AMT has invested over \$2M in engineering and hardware demonstrations with Ricardo PLC, to date.
- Note 3. AMT has invested over \$50M to date on R&D, and construction and testing at its Test Track.
- Note 4. Southern California Edison has agreed to contribute up to \$ 100,000 to the pilot project to bring the electric grid power to the site location.

Potential Pilot Project Funding Sources

1. Greenhouse Gas Fund - AB32 Global Warming Solutions Act of 2006 - 100% Funding
2. Proposition 1B - The Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 – Trade Corridors Improvement Fund - 100% Funding
3. California Energy Commission
 - Alternative and Renewable Fuel and Vehicle Technology Program - 2016-2017 Investment Plan Update
 - EPIC 2015-2017 Investment Plan
 - Regional Energy Innovation Clusters GFO-15-306
 - Sustainable Energy Entrepreneur Development Initiative RFP-15-305
 - Emerging Energy Technologies & Strategies To Market Needs & Opportunities RFP-15-304
4. USDOT Federal Railroad Administration
 - Magnetic Levitation Projects Grants
 - Research & Development Grants
 - Transportation Infrastructure Finance & Innovation Act (TIFA)
 - Build America Bonds-American Recovery & Reinvestment Act
5. Harbor Community Benefit Foundation (www.hcbf.org)

Potential Future Long Term Project Expansion Funding

1. Greenhouse Gas Fund - AB32 Global Warming Solutions Act of 2006 - 100% Funding
2. Proposition 1B - The Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006 – Trade Corridors Improvement Fund - 100% Funding
3. Federal Highway Administration-Federal Transportation Bills 100% Funding , MAP - 21), Highway & Transportation Funding Act of 2014, as Amended. Currently expires in 2015 and currently under discussion. Now is the time to insert Maglev Train Technology as eligible for funding..
4. USDOT Federal Railroad Administration
 - Transportation Infrastructure Finance & Innovation Act (TIFA)
 - Build America Bonds-American Recovery & Reinvestment Act
 - Private Debt Financing Bonds (PABS)
 - Section 129 Loans

8. Progress Analytics:

Air Emissions - Can be measured using standard off-the-shelf test equipment following approved test protocols.

Noise - Can be measured using standard off-the-shelf test equipment following approved test protocols.

Vibration - Can be measured using standard off-the-shelf test equipment following approved test protocols.

Energy Generation & Efficiency - Can be measured using onboard and wayside equipment to verify power requirements

Logistics Destination Travel Speed - Can be measured using onboard and wayside equipment to verify speeds

Logistic Loading/Unloading Time - Can be measured using wayside equipment to verify time to load container, travel to destination and unload container.

9. Interagency Partner Roles:

Governor's Office of Business & Economic Development (BED)

BED can participate in the technology, business and labor economic cost assessments and benefits.

California EPA/Air Resources Board (ARB):

ARB can verify the Maglev Technology is a zero emissions technology and releases no greenhouse gases. ARB can verify near noiseless operation and near vibrationless operation. ARB can quantify potential public health care and cost benefits.

California Energy Commission (CEC):

CEC can validate the amount of renewable energy being generated, energy being used, compare energy efficiency to a traditional locomotive train.

California Department Transportation (Caltrans) Office of Freight Planning:

Caltrans can verify test operations, logistics data, assess potential integration into existing transportation infrastructure and land-use-right-a-ways.

Department of Toxic Substances Control (DTSC):

DTSC can verify the minimum waste and waste disposal of Maglev Train Technology compared to traditional Locomotive Train technology. DTSC can verify Maglev Technology use and disposal of non-toxic chemicals and hazardous materials

Attachment - A

Sustainable, Electric, Zero Emissions Maglev Freight Transportation System

Project Team Summary

American Maglev Technology, Inc. (AMT) (www.american-maglev.com) is a US-based (Marietta, GA) small business that is a technology developer focused on innovating and commercializing novel intellectual property, chiefly focused on magnetics. AMT will be the technology developer. AMT has a full-scale, fully loaded passenger maglev train at their Power Springs, GA test track. A modified version of this vehicle's base chassis will be used to engineer the ZEM vehicle. AMT and its team are capable to design, privately finance, build and operate the ZEM Freight Transportation System.

Ricardo (www.ricardo.com) is the US division of the Ricardo Group (UK). Ricardo is a global, world-class, multi-industry consultancy for engineering, technology, project innovation and strategy. With a century of delivering value, Ricardo employs over 2100 professional engineers, consultants and staff. Ricardo's client list includes the world's major transportation OEMs, supply chain organizations, energy companies, financial institutions & governments. Ricardo's US offices are located in Detroit, MI, Chicago, IL and Santa Clara, CA. Ricardo will be the vehicle manufacturer and system integrator on the Maglev Train Container Movement System.

GlobalVia (www.globalvia.com) headquartered in Madrid, Spain is a worldwide engineering consulting company and concessions management company that design, builds, maintains and operates transport projects and infrastructure. It is ranked the 2nd largest infrastructure asset management firm in the world in 2013 by number of concessions according to the 2013 Survey of Public-Private Partnerships list of the World's Largest Transportation Developers published by the Association for the Improvement of American Infrastructure (AIAI). The company, established in 2007, manages 29 projects in seven different countries, including highways, railways, hospitals and ports. Globalvia's strategic objective is to generate value for its shareholders by managing its asset portfolio to continue to be a benchmark in the infrastructure-management market. Its corporate purpose is infrastructure development and operation. Globalvia's target markets are OECD countries with special emphasis on Spain, European Union member-states and North America. In addition this would be an investment opportunity for CALPERS.

Southern California Edison (www.sce.com) SCE is one of the largest electric utilities in the United States and a longtime leader in renewable energy and energy efficiency. With headquarters in Rosemead, Calif., SCE serves more than 14 million people in a 50,000 square-mile area of central, coastal and Southern California. SCE has provided electric service in the

region for more than 125 years. SCE will provide electric grid power to the project site. Edison International, through its subsidiaries, generate and distribute electric power, and invest in energy services and technologies, including renewable energy.

EJ Organization Partner: Coalition For A Safe Environment (CFASE) is an Environmental Justice Organization with its office located in the Port of Los Angeles community of Wilmington, California. CFASE founded in 2001 has been a leading community science based organization researching alternative, innovative and emerging 21st century technologies that can modernize port operations and mitigate the negative environmental, socio-economic and public health impacts of major international trade ports, freight transportation, energy and petroleum industries. CFASE believes that we must plan and invest in a future sustainable environment and balance the need for economic growth and the public's best interests. CFASE will provide project Community Relations, Public Presentations, Information Distribution, Participate In Media Events, Community Events, and Industry Conferences, Trade Shows and Seminars. CFASE will additionally provide professional photography and HD Videography of the project. CFASE will also participate in the project testing witnessing, technology assessment and final evaluation report.



November 30, 2015

California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Attention: Mary B. Nichols
Board Chairman

Reference: California Sustainable Freight Action Plan Pilot Project Ideas

Dear Ms. Nichols,

On behalf of my Company, Globalvia Inversiones, S.A., I am pleased to write this letter of support on behalf of American Maglev Technology's proposed Maglev Container Mover Demonstration Project. Globalvia Inversiones, S.A. (GVI) is a company with experience in construction and operation of railway transportation systems, toll roads and airports around the world. GVI manages and operates 8 transit systems utilizing conventional LRT/APM technology with a variety of rolling stock manufacturers. GVI and AMT have partnered in the past to develop a zero-emission container mover utilizing AMT's proprietary maglev technology. Upon successful demonstration, GVI would be interested in exploring the opportunity to raise debt to help fund and deliver a fixed guideway commercial container mover which is safe and reliable to alleviate the congestion at the Los Angeles Ports and surrounding areas.

Two important elements of GVI's operation are its expertise in working with different rail agencies, as well as extensive experience in integrating third party components with its systems. This Project opportunity combines GVI's and AMT's experience in designing, building and manufacturing transit systems to bring a zero-emissions container mover to the greater Los Angeles region.

GVI is owned by three of the largest pension funds in the world, with assets totaling more than \$400 billion. Assuming that the Demonstration is successful in the opinion of ARB and all the local public stakeholders, we believe that the Project will lead the way to create a zero emission goods movement system for Southern California that will be the envy of the world. This system would cost more than \$4.4 billion and would result in avoiding more than 250,000 metric tons of carbon emissions in the region over the first twenty years of system operation. It would also create a new logistics company with revenues exceeding \$1 billion annually and a whole new green high tech industry centered in California.

We are confident that the offered Demonstration system will be delivered successfully. We are ready to offer our support and to lead the great private sector effort that will no doubt follow this successful Project. Thank you for the opportunity to be considered. I look forward to answering any questions or clarify any information in this regard and to moving forward, soon.

Sincerely,

Globalvia Inversiones S.A.

Joaquin Madrigal Navarro
Chief Investment Officer

A handwritten signature in blue ink, appearing to read "Joaquin Madrigal Navarro", written over a white background.



November 30, 2015

California Air Resource Board
1001 "I" Street
Sacramento, CA 95814

Attention: Mary B. Nichols
Board Chairman

Reference: California Sustainable Freight Action Plan Pilot Project Ideas

Dear Ms. Nichols,

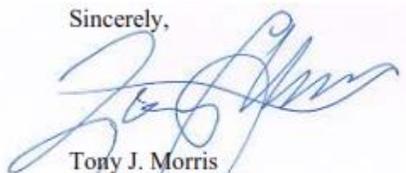
On behalf of my Company, American Maglev Technology of Florida, Inc. (AMT), I am pleased to write this letter of support for our proposed Maglev Container Mover Demonstration Project. AMT, Inc. has designed zero-emitting, next-generation transportation technology that fulfills the increasing worldwide demand for goods movement. Since its inception in 1994, AMT has invested \$50 million dollars in research and development of its advanced technology, which has attracted world-class strategic partners and significant corporate investment. My company is committing more than \$5.6 million in equity and cash contributions to make this California Sustainable Freight Pilot Project successful. We believe that our investment paired with local money can make this demonstration successful and lead to a world class goods movement system in and around the ports of Los Angeles.

We, at American Maglev Technology, Inc. strive to be the leader in sustainable movement of goods, while spearheading the creation of an American industry for green high-tech transportation systems. This new technology will bring hundreds of jobs to the greater Los Angeles region as well as make the port of Los Angeles the envy of all other ports in the world.

We appreciate this opportunity to provide a novel solution for the ports' growing needs. We consider California Air Resource Board to be a valuable partner and look forward to working with you to make this a successful demonstration project and creating a revolutionary goods movement system for the greater Los Angeles region.

Please feel free to contact me to answer any questions or clarify any information in this regard.

Sincerely,



Tony J. Morris
President & CEO
American Maglev Technology, Inc.

109 ANDERSON STREET, SUITE 200, MARIETTA, GEORGIA 30060 USA
TEL 404.386.4036 FAX 770.425.5264 EMAIL info@american-maglev.com