

## Envisioning a National Maglev Network: Highlights and Expected Outcomes

### *The Context and Challenge*

- ⊙ The High Speed Intercity Passenger Rail (HSIPR) program restricts competition and shuts out the developers of innovative alternative transport systems by requiring an unreasonably short period of time, the endorsement of State, Interstate Compact or Amtrak to establish eligibility.
- ⊙ This requirement prevents the participation of projects like that proposed by the Interstate Maglev Project Consortium that can lead to an advanced intercity transport system to meet the future needs of America and the world.

### *The Opportunity is at Hand*

- ⊙ Maglev Transport Offers Many Major Benefits, Including:
  - Very High Energy Efficiency, Very Low Cost and Environmentally Benign Transport
  - Does Not Use Oil, Helps Curb Global Warming; Reduces Trade Deficit
  - New U.S. Industry with Many Thousands of Jobs (potentially 2.2 Million Jobs) & Billions of Dollars in Exports
- ⊙ Passenger Only Maglev and Steel Wheeled HSR Systems Limited In Revenue – Require Major Government Financing and Subsidies.
- ⊙ 2<sup>nd</sup> Generation Maglev System Lower in Cost and More Capable Than 1<sup>st</sup> Generation Systems:
  - Can Carry High Revenue Highway Trucks, Freight Containers, & Personal Autos
  - Levitated Travel on Existing RR Tracks in Urban and Suburban Areas
  - Payback Time <5 years
- ⊙ 25,000 Mile National Maglev Network and Electric Cars Can Eliminate Oil Imports By 2030.
- ⊙ U.S. Can Be World Leader in Maglev, But Must Act Now.

### *What is Feasible with Advanced Maglev Technologies?*

2<sup>nd</sup> Generation Maglev will:

- ⊙ Greatly Reduce Guideway Cost – 1<sup>st</sup> generation Systems Are Too Expensive.
- ⊙ Enable Levitated Operation on Existing RR Tracks in Urban/Suburban Regions at Very Low Cost Without Disrupting Existing Infrastructure.
- ⊙ Electronically Switch at High speed to Off-Line Stations for Scheduled Stops Allowing Many Convenient, Easy Access Stations While Maintaining High Average Speed and Short Wait Times for Service.
- ⊙ Carry High Revenue Highway trucks and Freight That Pays Back Construction Cost in only 5 Years Enabling Private Financing of System.
- ⊙ Passengers Only Experience Earth Ambient Magnetic Field Strength.

4 Roles for maglev technologies in the National Maglev Network:

- ⊙ 300 MPH Intercity Transport –Different Vehicle Types, Include:
  - Passenger Only (Capacity of ~120 passengers)
  - Roll-on, Roll-off Highway Trucks – Capacity of 1 or 2 Depending On Vehicle Used)
  - Personal Autos & Their Passengers (Capacity of 20 Autos)
  - Freight Containers (Capacity of 3 TEU's).

- ⊙ In Urban/Suburban Regions, Intercity Vehicles Can Transition To RR Trackage That Has Been Adapted For Maglev at Very Low Cost, To Serve Multiple Stations in the Region.
- ⊙ 100 MPH Urban/Suburban Passenger Transport.
  - Passenger Transport Within Metropolitan Region
  - Uses Adapted RR Trackage Where Available
  - Multiple Stations – Can Transport Passengers to Intercity Stations.
- ⊙ 40 MPH People Movers
  - Local Transport in High Density Areas, e.g. Universities, Shopping Centers, Theme Parks, etc. (Capacity of ~30 Passengers) Connect to Urban/Suburban Stations In Maglev Network

### *What is the Next Step?*

- ⊙ The implementation of the National Maglev Test & Certification Facility will provide the basis for the National Maglev Network, with its attendant environmental, energy, and economic benefits for America.
- ⊙ The National Maglev Test & Certification Facility (NMTCF) would test and certify proposed passenger and freight transport systems for commercial use.
- ⊙ Applying the best practices of systems engineering, test and evaluation, the NMTCF would thus address system design for operational feasibility, reliability, maintainability, usability (human factors, ergonomics), supportability (serviceability), producibility and disposability (recycling strategies for all materials used in production), and overall design for affordability (cradle-to-grave life-cycle cost).

### *Is the Vision Achievable?*

Financing the National Maglev Network:

- ⊙ Projected Cost For 25,000 National Maglev Network is ~\$600 Billion
  - Constructed Over 15 Year Period, Average Privately Financed Annual Cost Is ~40 B\$ Per Year
  - 40B\$ Per Year raised by sale of Government Guaranteed Bonds
  - Long-Term Benefits Far Exceed Network Cost --\$700 Billion Per Year For Oil Imports @ \$140 Per Barrel will be saved –Even More As Oil Prices Climb in Coming Years.
  - Other Benefits –Lower Cost of Transport, Reduced Global Warming, Large Export Potential, Improved Public Health, Fewer Deaths and Injuries, etc. Far Exceed Oil Savings.
- ⊙ However, Massive Government Debt & Deficit Levels Appear Likely For the Foreseeable Future
  - Goal Is For The National Maglev Network To Be Privately Financed – With Fast Payback Time, e.g. < 5 Years.
- ⊙ Government Must Demonstrate & Certify The Maglev System In Order To Attract Private Investment
  - Projected Cost Is \$600 Million Over 5 Years – Only 4% of the \$15 Billion HSIPR Program included in the ARRA and Proposed in the budget for the next 5 years