

America Needs a National Magnetic Levitated Network

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On several occasions, before and after the election, President Obama praised the high-speed rail line in Shanghai, China (actually a German built Maglev line), stating that “it puts our railroads to shame”.

In 1966, Drs. James Powell and Gordon Danby invented Superconducting Maglev, the first new mode of transport since the airplane.¹ Maglev vehicles are magnetically levitated above and propelled along a guideway at hundreds of mph, without mechanical contact. Maglev is very energy efficient, does not burn oil, emits no greenhouse gases or pollutants, and is quiet and comfortable. Powell and Danby’s Maglev papers and patent sparked worldwide interest, particularly in Japan and Germany. Visited by their scientists and engineers, the scientists freely shared the details of our work.

Japan and Germany now have commercially ready 1st generation Maglev passenger systems. Japan’s system, which is based on our 1966 inventions, has carried many thousands of passengers at speeds up to 361 mph, the World Record. Japan plans a 300 mile Maglev route between Tokyo and Osaka, to carry 100,000 passengers daily with a trip time of 1 hour. German’s Transrapid Maglev system, which uses conventional electromagnets rather than the much more powerful Japanese super-conducting magnets, now operates in Shanghai.

In contrast, America has done very little to develop Maglev. Work on Maglev quickly died when DOT abolished the Office of High Speed Ground Transport. In 1990 Senator Moynihan’s legislation for a 750 million dollar Maglev program passed the Senate, but was killed in the House by vested transport interests. Had it become law, America would today enjoy Senator Moynihan’s vision – A national 300 mph Maglev Network along the rights-of-way of the Interstate Highway System.

Powell and Danby continue to work on Maglev. The 1st generation passenger Japanese and German Systems are very expensive and limited in revenues. Like High Speed-Steel-Wheel-Rail Systems, they require major government subsidy. To make Maglev attractive for private investment, their new 2nd generation Maglev-2000 innovations include a much lower construction cost, and the ability to transport high revenue highway trucks, freight, and personal autos as well as passengers, at lower cost than flying or driving.

Transporting 3000 trucks daily, out of the 15,000 highway trucks that travel a typical Interstate highway, pays back a Maglev route in under 5 years, enabling private financing. An additional innovation is levitated travel along existing RR tracks whose crossties have been fitted with very low cost aluminum loops. Maglev vehicles can then serve urban and suburban areas without building expensive and disruptive infrastructure.

¹ James Powell and Gordon Danby are the inventors of superconducting Maglev. They received the Benjamin Franklin Medal in Engineering in 2000 for their invention “using superconducting magnets and subsequent work in the field.” They are Directors of the MAGLEV 2000 Corporation and the Interstate Maglev Project (IMP), an initiative to construct an all-electric superconducting maglev network, which will connect the economic centers of the country in a seamless passenger and freight transportation system with the urban light rail service.

With funding of only 1/1000th of foreign Maglev expenditures, Powell and Danby have fabricated and tested the Maglev-2000 components – superconducting magnets, guideway beam and loops, and vehicle body. The next step is to test vehicles on a guideway at a Maglev Test Facility, which requires government-funded support. Once certified, the privately financed 25,000-mile National Maglev Network would enable high-speed travel everywhere in America.

The Maglev Network, in combination with electric autos, would virtually eliminate oil imports, drastically cut U.S. greenhouse gas emissions; create hundreds of thousands of new high tech jobs, generate Billions of dollars in exports, and provide faster, better, cheaper travel for everybody. One year's worth of oil imports would pay for the National Network.

Like Lincoln's Transcontinental Railroad, Teddy Roosevelt's Panama Canal, Eisenhower's Interstate Highway System, and Kennedy's Apollo Project, the National Maglev Network would transform and brighten America's future. All of these major innovations involved great risk and strong government support.

Policymakers are very reluctant to take any risk on new technology. Instead, they prefer existing foreign High Speed Rail and expensive 1st generation Maglev Systems, because they are "proven". Various regions are competing for government funds to build such "proven" systems, even though they do not create new U.S. industries and jobs, and do little for America's long-term transport needs.

Real innovation involves taking risks and opposing vested interests. Sticking to "proven" technology is not innovation. Exhortations for Americans to innovate will remain just empty words.

James Jordan is the Founder and President of the Interstate Maglev Project (IMP). The IMP Consortium believes that given a government financed jumpstart, similar to the engineering development and testing program provided by the German and Japanese governments, they will be able to deliver their 25,000 mile intercity system following along the rights-of-way of the Interstate highway and the railway systems with private investment.