

Testimony of Andrew Smith

Good afternoon. I am Andrew Smith, CEO of ATDynamics, a California-based company dedicated to the rapid commercialization of fuel-efficiency technology for the trucking industry. I am here today to describe the benefits our fleet customers have achieved with aerodynamic trailer technology but first I would like to tell a brief story.

Two weeks ago I returned from a business trip in the Middle East where I had the opportunity to visit the United Arab Emirates or the UAE. The UAE is a tiny desert country on the edge of the Persian Gulf, but it is a tiny country sitting on top of 9% of the world's known oil reserves.

The entire United States accounts for 3% of the world's oil reserves. The UAE, therefore, has three times the oil of the United States. Billions upon billions of dollars are piling up there due to our oil dependency. We talk about the need to fix crumbling bridges in the US: the UAE is building luxury islands off its coast just so it has an excuse to build bridges.

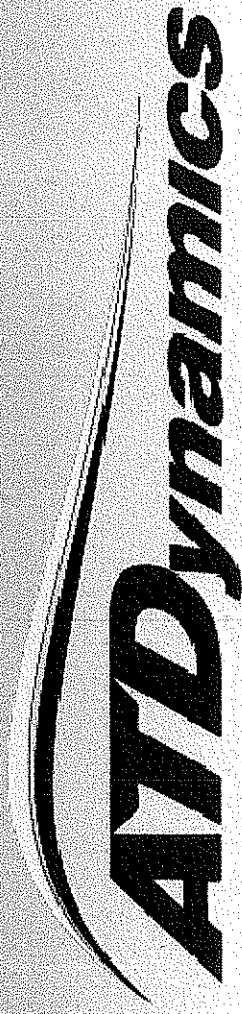
I bring this story up because of the irony that for years US trucking fleets, here in California and across the country, have been unnecessarily sending an additional 2-3 billion dollars annually to this region because of inefficient, box-shaped trailers. ATDynamics and its fleet customers are committed to ending this unnecessary transfer of wealth, making trucking fleets more profitable, and, in the process, reducing greenhouse gas emissions.

Our company's flagship product is the TrailerTail® which reduces the low pressure suction drag at the rear of a trailer, delivering over 5% fuel efficiency gains in industry-standard SAE testing. The TrailerTail® alone allows a fleet to comply with the proposed aerodynamic requirements for trailers – and to do so at a net profit. Our fleet customers achieve a 6-24 month payback period on their investments – and although they don't like regulations in general, they could care less if aerodynamics technology is required by CARB. They will have their fleets fully equipped far in advance of any regulation taking effect.

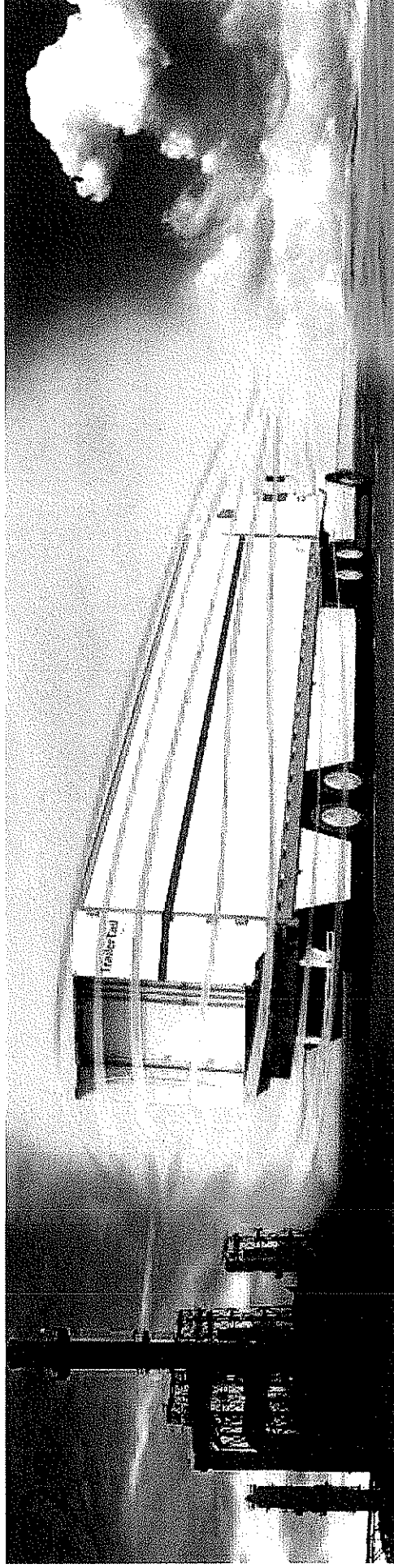
TrailerTails® are designed to open and close in 6 seconds, allow swing-door trailers to back normally into loading bays, are DOT-compliant and are designed to handle snow, ice, wind and rain. Per the request of some operators, you can even have flames painted onto them. For fleets dealing with angled loading bay ramps that expose side skirts to damage, TrailerTails® provide a simple method for full CARB compliance. On the other hand, the most forward-looking fleets are already testing side skirts and TrailerTail® combinations to achieve 9-12% fuel savings.

In summary, our company believes that a more efficient US trailer fleet is far overdue. We are proud to be reducing our nation's dependence on foreign oil, decreasing greenhouse gas emissions, creating green manufacturing jobs and saving trucking fleets money. Thank you.

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Driving the Efficiency Revolution

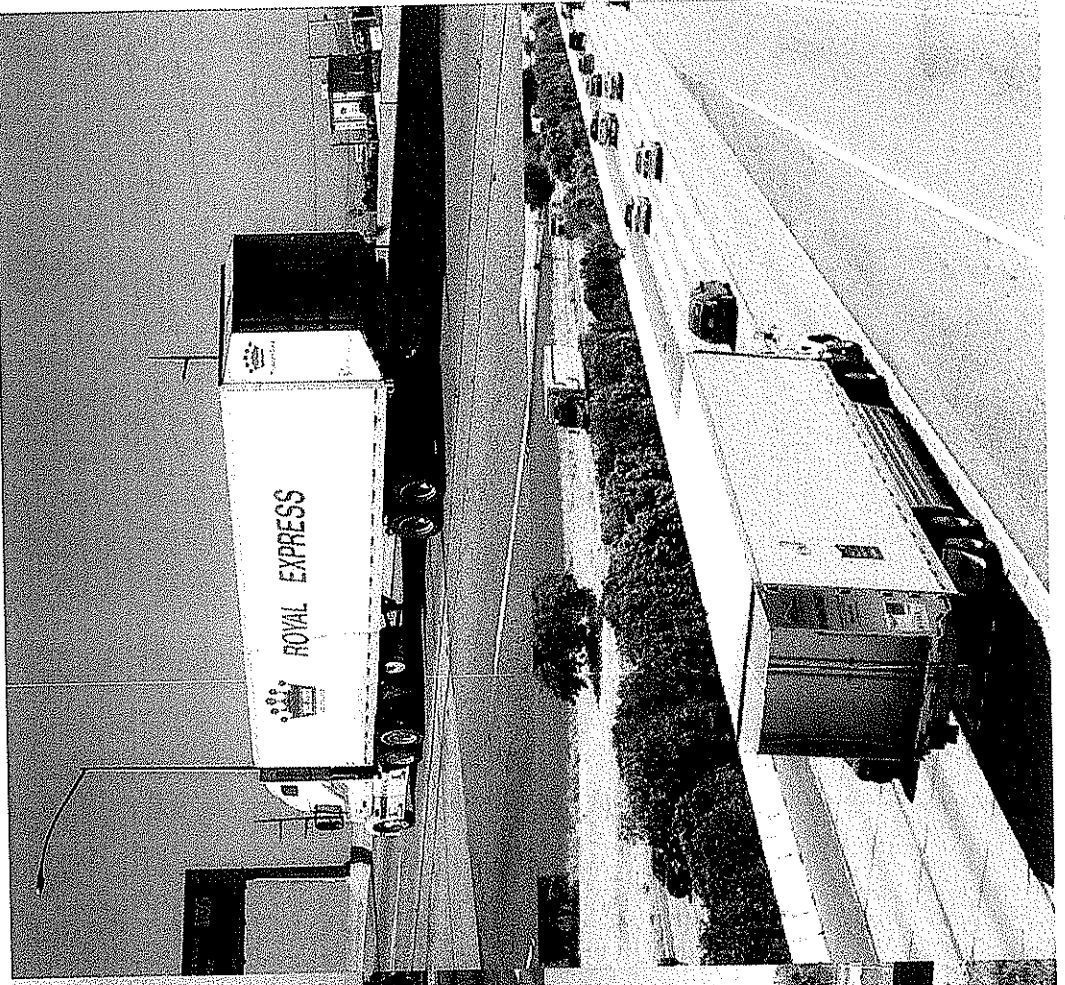
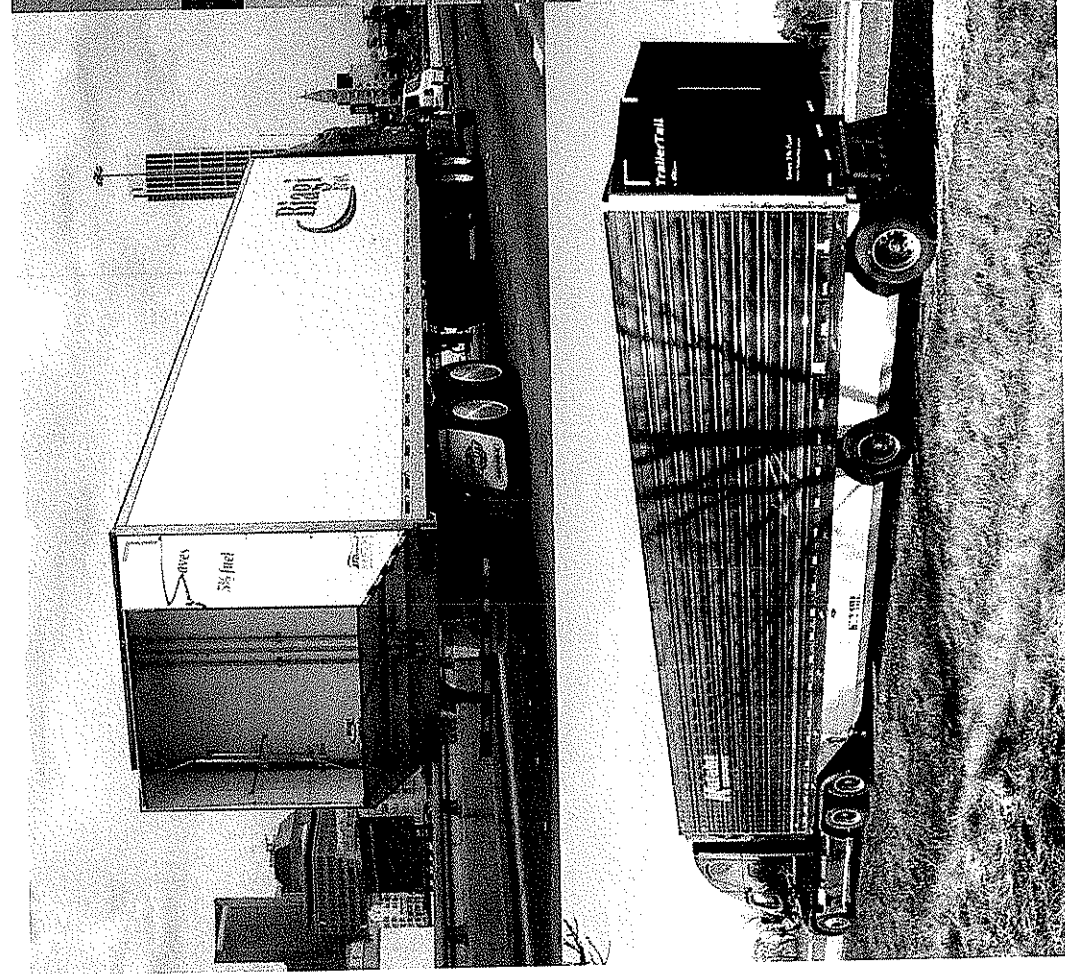


Presentation to the California Air Resources Board

December 2008

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TrailerTails® reduce fuel consumption by 5% at highway speeds (SAE-tested) and do not interfere with standard trucking operations



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December 10, 2008

Clerk of the Board
Air Resources Board
1001 I Street
Sacramento, CA 95814

TO: Chairman Mary Nichols and Members of the Board

FROM: Advanced Transit Dynamics, Inc.

RE: Comments on Regulation to Reduce Greenhouse Gas Emissions from Heavy-Duty Vehicles

Advanced Transit Dynamics, Inc. ("ATDynamics") welcomes the opportunity to provide comments on the proposed Regulation to Reduce Greenhouse Gas Emissions from Heavy-Duty Vehicles ("Regulation"). Located in South San Francisco, ATDynamics is an affiliate of the U.S. EPA SmartWay Partnership and a member of the California Trucking Association. Our SmartWay-approved aerodynamic technologies are developed, manufactured and operated in the State of California. Since October 2007, when the Regulation was first identified as an early action measure under AB 32, ATDynamics staff has expanded from four to eight employees; we plan to add more jobs in early 2009.

ATDynamics supports the Regulation in its proposed form. We appreciate that the Air Resources Board ("ARB") staff, particularly within the Mobile Source Control Division, has developed a sound proposal, as demonstrated in the staff's Initial Statement of Reasons ("ISOR"). We believe, however, that the Regulation's economic and environmental goals may be better served with selective modifications. We therefore provide a set of Comments of Recommendation. We recognize also that sections of the Regulation may be reevaluated during the ongoing rulemaking process. We therefore provide a set of Comments of Support as well.

I. COMMENTS OF RECOMMENDATION

A. Require refrigerated trailers to meet the same aerodynamic standard as dry van trailers.

The Regulation allows that dry vans may be compliant if equipped with aerodynamic technologies that meet or exceed a 5% fuel savings (95303(b)(1)(B)2), while 4% is all that is required of "reefers" (95303(b)(2)(B)2). Since overwhelmingly the same aerodynamic technologies are available to dry vans as to reefers, we consider this double standard to be arbitrary. We presume that the double standard was inserted into the Regulation due to the inability of reefers to accommodate front gap fairings, which generate a fuel savings of 1% to 2%. Yet even if a reefer is not equipped with a front gap fairing, it may still achieve a 5% fuel savings by employing any of three different combinations of aerodynamic technologies: side skirts alone, a rear fairing alone, or side skirts together with a rear fairing. Disregard of these alternatives undermines a fundamental justification of the Regulation: that fleets will have significant flexibility in satisfying their requirements.

The double standard is not supported by the U.S. EPA SmartWay Partnership's lack of specifications for reefers, which reflects a neutral position. Neither is it supported by the impact of the Regulation with the Transportation Refrigeration Unit Rule, which is adequately addressed by the Regulation's compliance schedule for reefers.

Furthermore, since the typical reefer accrues more mileage than the typical dry van, we consider this double standard to restrict the impact of the Regulation. The Regulation would be more reasonable, and effective, if it encouraged fleets to achieve the same level of fuel savings for reefers as for dry vans.

B. Improve the description of the fuels savings range of rear fairings.

The ISOR describes "Fuel Savings Ranges" by category of trailer aerodynamic devices, rather than attribute precise savings to particular devices (Table IX-2). We presume that the use of a range is intended to avoid tacit endorsement of particular devices, along with potential controversy over the accuracy of fuel savings, as well as to encourage fleets to perform their own due diligence. These intentions are laudable, but may in certain instances be damaging.

The approach represented in the ISOR makes more sense for side skirts and front gap fairings than for rear fairings. For example, the range of fuel savings by side skirts (4% to 7%) is

no larger (3%) than the value of its lower bound. In addition, a majority of values within the range satisfy the 5% aerodynamic standard for dry vans and all of values within the range satisfies the 4% standard for reefers. Thus even a random, or uninformed, choice of side skirts would at least bring a trailer close to compliance. By the same token, a random or uninformed choice of front gap fairings, which also have a narrow range of fuel savings (1% to 2%), would inevitably leave a trailer far from compliance, give or take percent. However, in the case of rear fairings, the range of fuel savings extends (1% to 5.1%) is more than four times larger than its lower bound. As a result, although an upper-bound rear fairing would satisfy the aerodynamic standard for both dry vans and reefers all by itself, a lower-bound option leaves a trailer far from compliance – a dramatic difference, unique among the three categories of aerodynamic technologies for trailers.

Because fuel savings from rear fairings correlate strongly with the length of the fairings, it may be useful when describing fuel savings ranges to subdivide rear fairings into long rear fairings and short rear fairings. A useful division point may be three feet in length, since the most common lengths of rear fairings are roughly two feet and four feet. Within the Regulation itself this subdivision would be superfluous. But during Implementation the subdivision would be useful to fleets that may not already understand the strong correlation between length and fuel savings. Although due diligence would eventually lead fleets to learn the facts on their own, a main purpose of outreach is to simplify compliance for regulated entities. Another purpose is to bolster the impact of the Regulation, which better information about rear fairings would also do.

C. Require rear fairings to comply with federal regulation.

Neither the Regulation nor supporting documents indicate that rear fairings are subject to 23 CFR 658.16, “Exclusions from Length and Width Determinations.” Part (b)(4) of this federal regulation requires that a rear fairing (1) is not capable of carrying cargo; (2) does not extend beyond 5 feet of the rear of the vehicle; (3) does not obscure tail lamps, turn signals, marker lamps, identification lamps, or safety devices such as hazardous material placards or conspicuity markings; and (4) has neither the strength, rigidity nor mass to damage a vehicle, or injure a passenger in a vehicle that strikes a vehicle so equipped from the rear. 23 CFR 658.16 is under the purview of the U.S. Department of Transportation – Federal Highway Administration (“FHWA”), which administers regulations governing vehicle size and weight. Upon request of

the manufacturer, FHWA will subject a rear fairing to a determination of compliance. The determination may be based on the results of crash safety and other testing, conducted by an independent laboratory, and reviewed by FHWA in partnership, as appropriate, with the National Highway Traffic Safety Administration and the Federal Motor Carrier Safety Administration. If the rear fairing is found to be in compliance, FHWA will issue a "letter of acceptance" stating that the rear fairing "be excluded from the length measurements for commercial motor vehicles." The letter will be distributed to the manufacturer and to highway transportation officials responsible for on-road enforcement of vehicle size and weight.

Administratively, compliance of a rear fairing with 23 CFR 658.16, regulated by FHWA, is currently separate from its approval under U.S. EPA SmartWay. Thus it is possible for a rear fairing to be SmartWay-approved but not compliant with 23 CFR 658.16. In other words, it is possible for a trailer equipped with a rear fairing to meet the aerodynamic standard of the Regulation but fail to satisfy vehicle length restrictions.

We therefore recommend that the Regulation's "Good Operating Condition Criteria for U.S. EPA Certified SmartWay Trailer Aerodynamic Technologies" (95304(b)) include a provision to the effect that, "The rear trailer aerodynamic technology must be determined by the Federal Highway Administration to be excluded from the length measurements for commercial motor vehicles." Such a provision would ensure regulatory compatibility and draw attention to an issue of importance to manufacturers and regulated entities.

D. Create incentives for fleets to equip trailers with a combination of aerodynamic technologies that meets or exceeds a 10% fuel savings.

The early compliance option (95307(a)(4)) wisely establishes incentives for fleets to bring trailers into compliance before the effective date of the Regulation. Another worthwhile option would reward fleets for going above and beyond the 5% and 4% requirements, respectively, for dry vans and reefers. The ISOR notes that, historically, fleets "have not installed [aerodynamic technologies] despite available fuel savings" (page 46). If true then, just as some fleets have so far done as little as they can – zero – to get by, so might they be satisfied with the Regulation's bare minimum, regardless of cost-effectiveness. It is important to give fleets a reason to consider not only what is required, but what is possible. For example, a trailer equipped with best-in-class side skirts, front gap fairings and rear fairings could boast a sum total fuel

savings from aerodynamic technologies of 14%. Actual fuel savings are not precisely additive but this figure accounts for credit from a 7% side skirt, a 2% gap fairing and a 5% rear drag device. The fully-equipped trailer would substantially outperform its peers; there is no better tool than competition to encourage early adoption.

The “10% incentive” could be similar to the early compliance option. For example, for every one trailer within a fleet that achieves a 10% fuel savings from aerodynamic technologies, the fleet could delay the retrofit or retirement of another trailer for a given number of years, though not extending into 2016. By pursuing the 10% incentive, fleets would rapidly gain familiarity with – and confidence in – the full suite of aerodynamic technologies, facilitating faster adoption. Based on our experience in marketing aerodynamic technology to fleet managers, we strongly recommend the 10% incentive.

E. Provide financial assistance and grant programs to the greatest possible extent.

As outlined in the ISOR (XXI(I)), the Regulation dovetails with a variety of federal and California funding opportunities. Relevant state initiatives include the Carl Moyer Program, Alternative and Renewable Fuels and Advanced Technology Program (AB 118) and Goods Movement Emission Reduction Program (Proposition 1B), as well as the recently created Heavy-Duty Vehicle Air Quality Loan Program, to be implemented through the California Capital Access Program (CalCAP).

We would be pleased to see the ARB maximize the potential of these initiatives by enlarging funding and broadening access available to fleets that prepared to make initial capital investment in SmartWay-approved Technology. For example, the Staff Draft Concept Paper on Proposition 1B (November 2008) states that staff “are evaluating a change to the Program Guidelines to encourage co-funding from other State sources for projects with significant greenhouse gas benefits” (page 20). Clearly the Regulation creates significant greenhouse gas benefits, making it a suitable beneficiary of co-funding.

F. Open the door to independence from the standards of the U.S. EPA SmartWay Partnership.

For several pragmatic reasons, the Regulation mirrors the standards of U.S. EPA SmartWay Partnership. Yet there is one compelling reason to craft the Regulation such that it

allows eventual independence from SmartWay. In the future the cost and/or fuel savings of aerodynamic technologies may improve significantly. If the U.S. EPA does not update SmartWay standards to reflect technological advancement, then the ARB should be able to modify the Regulation independently. Flexibility would follow the imperative of AB 32 to achieve "the maximum feasible and cost-effective reductions of greenhouse gas emissions."

II. COMMENTS OF SUPPORT

A. SmartWay approval has contributed to the development of aerodynamic technologies.

SmartWay approval promotes best practices among manufacturers and provides reliable information to fleets. Not least among the reasons for the historically slow rate of aerodynamic technology adoption is that fleets have been put off by forecasts of revolutionary products that remain perpetually on the horizon, and by dubious performance claims made by manufacturers. To be eligible for SmartWay approval, an aerodynamic technology must be ready for market and demonstrated to achieve fuel savings during SAE J1321 Type II fuel consumption testing; fleets can therefore be assured that the technology is available for sale and guaranteed to save fuel.

The protocol of SAE J1321 Type II testing (also known as TMC RP-1102 testing) is endorsed by the Society of Automotive Engineers and the Technology Maintenance Council. Other methods of testing do exist. For example, prior to purchasing an aerodynamic technology in significant quantity, a fleet will typically subject a limited number of units to in-use testing along its own routes, to validate the performance demonstrated in SAE J1321 Type II testing. Likewise, manufacturers of new aerodynamic technologies often test prototypes with the help of partner fleets. And before a technology reaches the road, it may undergo wind-tunnel testing and computational fluid dynamic modeling. But while each method serves a role in research and development and commercialization, laboratory testing and fleet testing are no substitute for the level playing field of SAE J1321 testing. Laboratories employ an inconsistent array of software and hardware, while fleets often lack the sophisticated data collection and analysis tools necessary to establish statistical significance. By contrast, SAE J1321 Type II testing is based on a series of identical runs performed by monitored drivers, the results of which are measured precisely with tools designed for the purpose.

To enhance SAE J1321 Type II testing, the U.S. EPA SmartWay Partnership is now developing its own version of the protocol that addresses cross winds and other factors which in

extreme circumstances may affect the results of testing. Under such circumstances, however, responsible test practitioners will normally delay runs. Another concern about the protocol is its use of a standard speed of 62 miles per hour. This speed does not correspond to peak capacity fuel savings – which rises along with speed – and is in fact below the national speed limit of 65 miles per hour supported by the American Trucking Associations as a conservation measure.

B. Short-haul exemptions are justified; other operational exemptions are not.

The Regulation's short-haul exemptions are necessary to support the cost-effectiveness of the regulation. Fleets and manufacturers alike recognize that aerodynamic technologies are cost-effective in proportion to vehicle miles traveled and frequency of driving at highway speeds, and that therefore low-mileage trailers – which tend to be low-speed trailers, too – should be exempt from compliance.

On the other hand, the Regulation rightly refrains from establishing exemptions based on other operational factors, such as the exposure of trailers to steep loading ramps. If a fleet is concerned that side skirts will be vulnerable to damage caused by loading ramps, snow banks, parking barriers and other low-lying obstacles, then it can comply with the Regulation by equipping its trailers with rear fairings. Rear fairings alone, or a combination of front and rear fairings, can meet the aerodynamic technology requirements of both dry vans and reefers.

C. Aerodynamic technologies have been adequately tested for durability.

As noted in workshop presentations and the ISOR, the operational performance of aerodynamic technologies for trailers has improved rapidly in recent years. For example, side skirts which used to be brittle are now engineered for flexibility to avoid damage, while the TrailerTail®, a rear fairing, has been subject to high-altitude stress-tests while bearing snow loads of 300 pounds – more than the weight of the technology itself. Operational performance will continue to improve as a function of increased competition.

D. Fleets are not universally opposed to the Regulation.

Generally missing among the many opinions expressed about the Regulation by representatives of the trucking industry is support from fleets. This is due in part to the clear disincentive of fleets which have already equipped their vehicles with SmartWay-approved

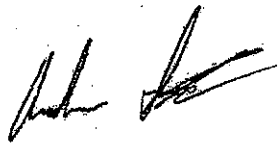
technologies – the early adopters – to support standards that will bring rival fleets up to speed. Early adopters value their competitive advantage. Interviews with fleets, summarized in Appendix E of the ISOR, indicate that fleets already familiar with SmartWay-approved technologies are, at a minimum, less apprehensive about the Regulation than fleets which have not been early adopters.

E. The Regulation points to economic opportunity.

Our company is a testament to the economic opportunity which underlies the Regulation. In 2008 alone we have invested hundreds of thousands of dollars in labor, real estate and manufacturing within the State of California. Our partnerships with OEM manufacturer partnerships and aftermarket distributors add the value of aerodynamic technologies throughout the entire sales chain. Of course, the bulk of that value is captured by our customer fleets saving fuel. As forward-looking fleets continue to adopt SmartWay-approved technology, the option of fuel savings will increasingly be factored into the cost of moving freight. We therefore support the Regulation because it encourages manufacturers and distributors to capitalize on a growth opportunity, and prepares fleets for relentless competition over reduced fuel consumption.

Again, ATDynamics appreciates the opportunity to provide comments on the Regulation. Thank you for considering our Comments of Recommendation and Comments of Support.

Sincerely,



Andrew Smith
Chief Executive Officer
Advanced Transit Dynamics, Inc.



Geoffrey Johnson
Director of Regulatory Affairs
Advanced Transit Dynamics, Inc.