

CTA BRIEFING NOTE



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Benefits-Costs of Electronic Logging Devices for Driver Hours of Service

What is an ELD?

An Electronic Logging Device (ELD) – also referred to as an Electronic On-Board Recorder (EOBR) – is used to track, collect and record electronic data on a driver's hours of service compliance. The Canadian federal hours of service regulations were designed to be consistent with the science of fatigue and fatigue-management principles. ELD technology comes in several forms. ELDs can be part of sophisticated fleet management system, but they don't have to be. A simple standalone ELD just for hours of service monitoring currently starts at about \$300. Costs will vary from the baseline for ELDs with additional capabilities and features, such as communication with the driver, navigation or dispatch functions.

Benefit-Cost Analysis

No official benefit-cost analysis for ELDs has been conducted in Canada. However, in the United States the Federal Motor Carrier Safety Administration (FMCSA), which is expected to introduce an ELD mandate in early 2014, estimates a net benefit of \$800 million, reflecting \$2.7 billion in benefits versus \$1.9 billion in cost.

Road Safety Benefits

According to the American Transportation Research Institute (ATRI), truck drivers in serious violation (e.g., driving over prescribed limits) of the hours of service regulations are 45% more likely to be involved in an accident than those who are in compliance. Drivers with patterns of non-compliance were found to be at 90% greater risk of collision. Furthermore, carriers that have a pattern of serious hours of service violations have a crash rate 90% higher than the average. A universal ELD mandate would have a direct and immediate impact on curbing this behaviour. Reducing truck crashes will reduce costs for both the private and public sector. A 2009 study from FMCSA which evaluated both the direct and societal costs for heavy combination truck crashes found that property damage only crashes cost an average of more than \$13,000 per incident, non-fatal injury crashes over \$321,000 and fatal crashes over \$7.2 million.

Benefits to the Trucking Industry

An ELD mandate would also benefit the trucking industry:

- **Truck Drivers** – Filling out paper log books, creates leakage from a driver's allowable driving/on-duty time. It is estimated that drivers operating in an ELD environment realize a net gain in available driving/on-duty time of 30 to 120 minutes per 7 day cycle. This potentially translates into an extra 100 miles per week of driving, or approximately \$2,000 in annual earning potential. For individual owner-operators the increased earning potential may be

even greater. In addition, having an ELD track hours of service means a driver's records are always accurate and up-to-date. This means the elimination of roadside violations for what are known as "form and manner" errors, which represent approximately 50% of all hours of service violations, for which a single ticket can cost \$400. Furthermore, truck drivers who use ELDs report that they feel less pressure to operate beyond the legal hours of service limits compared with paper log books.

- **Carriers** – According to leading industry suppliers of ELD technology, carriers that have installed ELDs report a 40%-50% (and in some cases as much as a 75% reduction) in citations for hours of service violations. These statistics are consistent with FMCSA's findings in its Regulatory Impact Assessment conducted for the 2011 EOBR Notice of Proposed Rulemaking (NPRM) which forecast a 66% reduction in form and manner violations and a 40% reduction in more serious hours of service violations. When accounting for the direct costs (e.g. damages, medical costs, insurance costs) and indirect costs (e.g. societal costs such as time delays and indirect administrative costs), a \$25,000 crash can require a motor carrier to generate in excess of \$1 million in revenue to offset the impact on their business. Moreover, carriers are responsible for monitoring their driver's compliance with the hours of service rules. It takes anywhere from 30 minutes to an hour to manually review a driver's paper log book, whereas this is automatic in an ELD environment. This could save a small trucking firm of 50 trucks or less, over \$3,000 per month in staff time.

Benefits to Government

In addition to reduced health care, infrastructure and other costs associated with safer highways, as a result of the expected decline in hours of service violations under an ELD mandate, enforcement resources will be more efficiently and effectively utilized. During a roadside Commercial Vehicle Safety Alliance (CVSA) inspection, the time dedicated to reviewing a driver's hours of service compliance should be reduced from about 15-20 minutes to around 5 minutes. Therefore, an enforcement officer should be able to review about 12 drivers' hours of service compliance per hour, where ELDs are used, compared to three to four drivers who use paper log books. Assuming an enforcement officer costs \$125 per hour, the hours of service component of one CVSA inspection where an ELD is used is about \$10.50, whereas the cost of inspecting a log book is from \$31.25 to \$41.50 – or up to almost three times higher than ELDs. Moreover, where a more in-depth facility audit is being conducted, it can take up to an hour to review one driver's log book, whereas if ELDs are used the review should again take only about five minutes.

For further information contact the Canadian Trucking Alliance at:

555 Dixon Road, Toronto, ON M9W1H8

Tel: (416)249-7401 -- Fax: 1(866)823-4076 – govtaffairs@cantruck.ca -- www.cantruck.ca