

Traffic signal priority for heavy duty vehicles using alternative fuels

Smart solution 10
Smart traffic management

Impacts

PRIORITISES

a cleaner fleet

PROMOTES

the transition away from fossil-fuelled transportation

REDUCES

time spent in traffic for renewable fuelled vehicles



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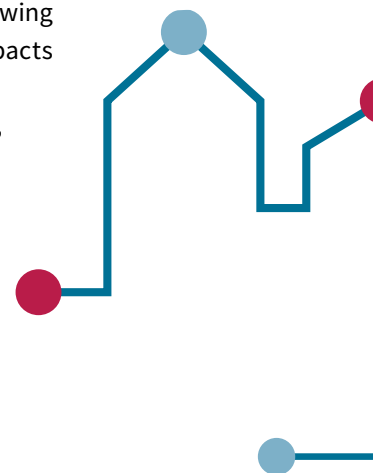
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What is it?

Synchronisation of traffic signals to prioritise freight distribution using renewable fuelled heavy vehicles. The measure aims at reducing environmental impacts and improving safety by improving traffic flow and reducing the number of starts and stops for heavy vehicles.

What did GrowSmarter do?

Carrier incorporated Hydrotreated Vegetable Oil (HVO) fuelled heavy vehicles into their fleet in Stockholm. A test route was proposed but amended following a pre-study that indicated negative impacts for other road users. Alternative routes with fewer traffic lights were identified, making the potential positive impacts of the demonstration smaller, but also reducing the risk of negative impacts for other road users. One of these routes were selected for the test, guidelines were defined, and technical systems were adapted to enable the demonstration. Specially-adapted mobile phones



were programmed and installed into the test vehicles to enable data collection.


Lessons learnt

The process of route selection illustrates the complexity of integrating such a system into a dynamic traffic system. Prioritising one mode of transport, or one type of fuel or technique, will create incentives for small numbers of users, yet risk generating larger negative impacts for other road users not prioritized by the system. The indirect system impacts of such innovation are thus hard to assess.

Of course, by offering an incentive to adopt non-fossil fuels in vehicle fleets, the measure aims to promote a transition to cleaner vehicles and fuels which, if successful, would eventually remove the need for an incentive. However, at this scale, and operating in isolation from other potentially complementary stimuli (e.g. congestion charge rebates or other benefits), the impacts of this action are limited to the CO₂ saving generated by use of HVO in the fuel tank.

Upscaling & replication potential

Upscaling this solution may increase its effectiveness as an incentive but also risk generating short-term negative impacts in terms of congestion or emissions, until the techniques promoted by the incentive become widely-adopted. Integrating signal priority may be desirable on certain intersections or sites, such as ports, or form part of a systemic approach involving zoning, access restrictions or congestion charging. Replication is possible in most cities.



It is important to thoroughly investigate routes and impacts on all kinds of road users. Implementation may proceed slowly due to capacity constraints on the actors involved.

How did the measure work?

Technical feasibility

The measure is technically feasible, but careful selection of the routes is needed in order to avoid negative impacts on other road users.

Economic feasibility

Potential benefits depend on the magnitude. Such measures can be particularly attractive for private businesses in the freight sector.

Replication potential

The measure could be replicated by private actors in the goods distribution sector. The magnitude of implementation influences the potential profitability.

