

Sample of English Rewrite

Field: Environmental science

Analysis of the environmental ~~effects~~ benefits of a motorcycles' ~~idling stop~~ idling stop policy at urban intersections

1. Introduction

~~Intergovernmental panel of climate change (IPCC 2007) reported that the~~ The atmospheric concentrations of CO₂ and other greenhouse gases ~~has~~ have already reached the highest point ~~dramatically increased~~ since the ~~pre-industrial period~~ Industrial Revolution. This represents a major cause for concern as ~~The emissions of~~ global climate models show that anthropogenic greenhouse gas (GHG) emissionses (GHG) caused by human being is ~~are~~ highly likely to be the main factorinvolved causing in global warming (IPCC 2007), ~~predicated from the ocean atmospheric global model. A key source of GHG emissions is~~ CO₂, nevertheless, has the greatest impact on warming over the past decade (20% of increase). Thus, reducing CO₂ during conveyance has become a major challenge for transportation authorities in the world.

~~Since~~ the transport sector, which accounts for ~~about~~ approximately 14% of global GHG emissions (Baumert et al., 2005 and Stern et al., 2006). ~~For this reason, it has become a major contributor in GHG emissions~~ reducing GHG emissions from motorized vehicles has become a major challenge for transportation authorities around the world. (Baumert et al., 2005 and Stern et al., 2006). ~~Policies to diminish CO₂ emissions include developing green transport systems, mitigating the growth and use of motor vehicles and improving transport systems' efficiency. Recently some research has focused on exploring and investigating the impacts of climate change (Werner, 2010), carbon tax (Christian et al., 2010), market regulation (Karen et al., 2010) and carbon trading (Janina et al, 2010). Meanwhile, Weiss et al. (2000) analyzed CO₂ emission in the vehicle life cycle and pointed out that CO₂ emission from vehicle use phase is about 75%. Thus, it is important to study in depth that how to reduce CO₂ emissions in the~~

vehicle use phase.

One ~~suggestion way~~ to curb the growth in ~~CO₂ GHG emissions~~ is to encourage ~~drivers or riders road users~~ to turn off idling engines at traffic ~~red~~ lights (~~idling stop idling stop policies~~). A number of studies have been undertaken to examine the effects of ~~idling idling stop idling stop policies stops~~ on ~~saving~~ fuel consumption and ~~reducing~~ carbon dioxide ~~emissions~~. For example, Yoshitaka *et al.* (2002) showed that ~~the~~ fuel savings ~~ratio associated with the idling stop is around of~~ 6–13 percent ~~are possible when idling stop idling stop policies are enforced, with the range varying depending on vehicle type by road type.~~ ~~Data from T~~the Automotive Research and Testing Center in Taiwan (ARTC, 2006) ~~suggested showed~~ that ~~an idling stops~~ can reduce fuel consumption by 5–10 percent for ~~motorbikes motorcycle~~s, and 10–19 percent for ~~motorcycles~~, reducing carbon dioxide emissions by 310,000 ~~thousand~~ tons per year. Josias *et al.* (2005) used a pilot study to estimate ~~the~~ idling emissions of heavy-duty diesel trucks and found ~~that~~ more than 30 ~~tons~~ of emissions ~~per day are~~ produced ~~daily due to idling by these trucks~~. ~~Similarly~~, Linda *et al.* (2006) found that total fuel use by idling trucks was ~~are~~ more than 2 billion gallons per year. ~~Finally~~, Yokota *et al.* (1997) analyzed ~~the~~ air pollution ~~air pollution from of~~ diesel engines at intersections and suggested that if ~~the ratio of the idling stop idling stop policies is were~~ regulated, ~~it will diminish carbon dioxide~~ CO₂ emissions would be decreased by 18 percent and ~~nitride~~ NO_x emissions by 6.7 percent.

While the above studies have focused on the ~~ear potential~~ emission savings of idling ~~stops for cars~~, little attention has been paid to ~~the analysis of the idling stop while riding~~ motorcycles. ~~But However~~, in developing countries, CO₂ emissions ~~is are~~ growing rapidly due to increasing rates of ~~motorcycle ownership, worsening as the ownership of motoreycles grows nonlinearly.~~ For example, in ~~Taiwan~~ Taiwan, there are currently more than 13.94 million motorcycles (1.65 ~~persons own a people per~~ motorcycle) and the motorcycle density is the highest in the world (389 motorcycles per km²). ~~To combat this growing environmental problem,~~ Taiwan's Environmental Protection Administration (TEPA) ~~not only makes has brought in~~ regulation to eliminate two-stroke ~~motorbikes motorcycle engines as well as enforcing but also regulates the~~ a 'no idling' policy for vehicles stopped for ~~more than three minutes while motorbikes are still to curb the CO₂ emission.~~

~~An expansion of this policy is being considered for traffic intersections. The majority of traffic lights in Taiwan have been fitted Additionally, the~~

Comment [TR1]: CHECK: Do you mean "scooter-type motorcycles", "larger motorcycles", or "smaller motorcycles"? "Motorbike" and "motorcycle" are equivalent and apply to any type of two-wheeled vehicle

Comment [TR2]: CHECK: Do you mean "scooter-type motorcycles", "larger motorcycles", or "smaller motorcycles"? "Motorbike" and "motorcycle" are equivalent and apply to any type of two-wheeled vehicle.

Comment [TR3]: CHECK: Do you mean 'metric tons'?

Comment [TR4]: CHECK: Do you mean 'metric tons'?

~~authority has widely constructed the signals with countdown function timers, which, as well as having positive traffic management benefits, eharmonize well with idling stop idling stop policies as road users can leave their engines turned off until just before the signal to leave (Chiou et.al. 2010). an reduce start up delay and saturated headway at traffic light intersections (Chiou et.al. 2010). It may result in positive environmental effects by combining both the idling stop policy and countdown signals.~~