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for the future

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Senate Standing Committees on Community Affairs
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Submission to inquiry on the impacts on health of air quality in Australia

Total Environment Centre (TEC) welcomes the opportunity to contribute to the Senate Standing Committees on Community Affairs inquiry into the impacts on health of air quality in Australia. In this submission we provide for the Committee's consideration information on the major threats to air quality in Australia; the impacts of current air quality problems; and measures that may be undertaken to improve air quality. TEC has conducted several extensive reviews of air quality improvement programs in for the metropolitan region of Newcastle-Sydney- Wollongong in NSW. The results of these reviews and our recommendations are relevant for metropolitan regions throughout the country and should be used as a template to protect air quality and health for urban citizens.

Urban air quality problems

There are two principle air pollution problems affecting urban areas – photochemical smog and particle pollution.

Photochemical smog is the result of the atmospheric reaction of oxides of nitrogen (NOx) and volatile organic compounds (VOCs), triggered by sunlight. The principal measure of photochemical smog is ground level concentrations of the major smog component, ozone.

Apart from its role in producing ozone, nitrogen dioxide (NO_2) has also been found to trigger asthma and respiratory problems. It has also been found to increase the effects of some allergens and is associated with increased hospital admissions for heart disease.

Particle pollution arises from a variety of natural and human sources. Fine particles with a diameter under 10µm (PM_{10}) are of greatest concern as they are

small enough to be inhaled and remain within the respiratory system. Of these fine particles, those with a diameter under 2.5µm ($PM_{2.5}$), known as very fine particles, pose the greatest health risk as they are inhaled more deeply into the very small airways of the lungs (DECC, 2006).

In the NSW metropolitan region, World Health Organisation (WHO) and National Environment Protection Measure (NEPM) standards for ozone and fine particles are exceeded regularly each year (DECC, 2009a). This has major health and economic implications. Impacts of short-term exposure to common pollutants such as ground level ozone, fine particles, oxides of nitrogen and carbon monoxide include aggravation of existing respiratory and cardiovascular ailments resulting in increased symptoms, hospitilisation and death (DECCW, 2009b). Impacts of long-term exposure include increased risk of respiratory and cardiovascular disease, reduced birth weights and impaired lung development in children (DECCW, 2009b). In the NSW Greater Metropolitan region of Newcastle-Sydney-Wollongong alone, the estimated annual health cost of current levels of air pollution $4.7 billion, or $893 per head of population. Air pollution causes between 640 and 1400 deaths per year in Sydney, between 359 and 784 hospital admissions for respiratory conditions and between 561 and 1206 hospital admissions for cardiovascular conditions (DECCW, 2009b).

Sources or air pollution

Sources of air pollution include emissions from fixed sources such as industry, commercial premises, domestic buildings and mobile sources such as motor vehicles (EPA, 1998). Thus a holistic approach is required that considers emission from all sources. While there has been considerable progress in recent years on reducing emissions from fixed sources there has been little success in curbing mobile emissions. Increases in vehicle fuel efficiency and exhaust emissions are being negated by failure to curb growth in vehicle kilometers traveled (TEC, 2007). Vehicle travel is projected to continue increasing significantly in the foreseeable future (DECCW, 2009b).

Consequently, the contribution of this sector to air pollution is likely to grow (zero emission vehicles are likely to continue to be a small proportion of the fleet for many years) - unless urgent action is taken to improve land use planning and public transport infrastructure. In addition, higher temperatures resulting from climate change are expected to increase the formation of ozone pollution from precursor chemicals in the atmosphere (DECCW, 2009) thus increasing the number of days on which air quality standards are exceeded.

Another concern is the degree of seriousness that air quality is given in development decisions. There are doubts that at the macro and regional planning levels, institutional arrangements have the capacity to treat air quality as an eminent matter, even though it is mentioned in planning strategies. Land use planning has failed to consider cumulative environmental impacts of development decisions (NCC *et al.*, 2012). There has been a long term pattern of urban development in areas lacking adequate public transport, resulting in car dependency and entrenched vehicle use.

Improving air quality in Australia

A major overhaul of the way air quality is considered in metropolitan planning is needed to address air quality problems. Planning should focus on ensuring that decisions regarding land use and transport are compatible with achieving WHO and NEPM air quality objectives. To be effective, consideration of air quality impacts should occur prior to decisions on rezoning, and release of areas for urban development. Failure to consider air quality impacts prior at these initial planning stages will relegate any air quality policies and program to inevitably weak mitigation strategies. Consideration of air pollution loads should consider all current air pollution sources (both fixed and mobile) and projected air pollution sources, including the proposed development itself. Approval of rezoning and release of land for urban and industrial development should be dependent on strict targets that ensure no net detrimental impact on air quality.

Planning for Australian cities should include increased focus on higher population densities near public transport as opposed to urban sprawl with continued development on the fringes of cities. This should be supported by major investment in new public transport infrastructure and strong targets to reduce vehicle kilometres traveled (VKT).

Investment in public transport should be complemented by new initiatives to restrict traffic growth. These include congestion charging/road pricing as well as time of use charging to encourage drivers to travel outside peak periods and switch to other modes of transport. Congestion charging or road pricing offers a funding source to support the development of additional public transport capacity. There are also direct benefits for air quality. The London Congestion Charge resulted in emission reductions of 8% for NOx, 7% for PM_{10} and 16% for CO_2. These reductions are in addition to those due to improved vehicle technology (TFL, 2007).

TEC also recommends that perverse incentives in the taxation system that favour increased vehicle as part of salary sacrifice arrangements be eliminated. We believe that provision should be made to allow public transport fares to be includes in salary packages instead.

TEC urges the Standing Committee to take a bold approach to addressing the serious impacts of air pollution on public health. This will require a major effort to tackle growing emissions from mobile sources such as the national vehicle fleet.

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