MAKING TOURISM IN NEW ZEALAND ENERGY-EFFICIENT – MORE THAN TURNING OFF THE LIGHTS

S. Becken

Environment, Society and Design Division, PO Box 84, Lincoln University, Canterbury, New Zealand

ABSTRACT

Energy use associated with tourism has rarely been studied, despite a potentially considerable contribution to global or national energy demand. This study analysed three New Zealand tourism sub-sectors (transport, accommodation, and attractions/activities), and alongside the travel patterns of domestic and international tourists. From this, total energy demand was estimated and options to reduce energy demand were identified. Transport is by far the most important source for energy demand of tourism. For domestic tourists almost all energy use is for transport, mainly by private car or plane. International tourist’s energy demand is more diverse, although still dominated by transport. A segmentation analysis based on tourists’ individual travel choices revealed that there exist different clusters of tourists characterised by ‘typical’ travel patterns and, hence, energy use. The understanding of different tourist types provides a valuable basis for energy conservation and efficiency strategies. It is also important for balancing energy use with other factors, such as the economic returns or social impacts.

INTRODUCTION

Only recently, tourism, energy use and climate change feature as a topic of discussion at international institutions, such as the United Nations Environment Program and the World Tourism Organization, and national bodies, such as the Tourism Industry Association New Zealand. This paper presents results from a doctoral study on energy use of New Zealand tourism. The overall finding was that tourism consumed 25.35 PJ in 2000, which is equivalent to 5.6% of national energy demand in New Zealand. CO₂ emissions from tourism amounted to 1,549 kilo tonnes, or 5.1% of all CO₂ emissions in New Zealand. Domestic tourists are the larger energy consumers (70% of total energy use) as a result of tourist volumes compared with international tourists. In the light of
New Zealand’s ratification of the Kyoto Protocol it is important to develop strategies for reducing energy use overall, and in particular in the fossil fuel dependent tourism sector. This is even more pressing given projected growth numbers of tourism. Selected results are presented here that are believed to be valuable for developing mitigation strategies.

ENERGY USE OF THE TOURISM INDUSTRY

Transport
Transport is the dominant contributor to energy use in the New Zealand tourism sector, making up 85% of a domestic tourist’s total energy use and 69% of the internal energy use of international tourists. Airplanes and cars are the most widely used transport modes, both of which require considerable input of energy on a per passenger kilometer basis. Air travel, the infrequently used sea transport, camper vans and cars are the most energy-intensive forms of transport.

Several options to decrease transport energy use exist. These target, for example, transport providers, such as rental vehicle companies who could change their renting schemes or modernize their fleet to include vehicles with alternative fuel sources. Regional or local government plays a role in that they could encourage public transport systems, shuttle buses to key tourist attractions, develop programs to increase tourists’ length of stay, and establish cycle networks. Tourists themselves have a large range of options to change their transport behavior, for example in choosing more energy-efficient modes or decrease travel distance. The implementation of many of these measures could be supported by government initiatives, either in the form of ‘carrots’ or ‘sticks’. In New Zealand, the ‘sticks’ are currently discussed by the Government in the form of an emission tax at $25 per tonne of CO₂ equivalent.

Accommodation
In New Zealand, there is a large range of accommodation providers. Hotels are the largest accommodation businesses and consequently consume most energy in total, mainly electricity [1]. Hotels also require large energy inputs on a per visitor-night basis (155 MJ/visitor-night). It is believed that (large) hotels have the greatest potential to become energy efficient for several reasons. They are often part of a hotel chain, have more capital than smaller providers, employ more specialized personal, and provide a wide range of functions to which energy saving measures could be applied. The small Bed & Breakfast businesses operate comparatively inefficiently (110 MJ/visitor-night). B&Bs are often family businesses where occupancy rates are low and profit maximization is not the overriding goal. Hotels and B&Bs have been described as ‘service-oriented’ accommodation. In contrast, the more energy efficient motels, campgrounds and backpackers were named ‘purpose-oriented’ accommodation, because they mainly seek to provide the basic service of a place to spend the night.

Tourist Attractions and Activities
Tourist attractions and activities constitute an important part of the holiday experience; however, they contribute less to tourists’ energy use. Generally, tourist attractions and
entertainment attractions consume less energy per visitor (about 6 MJ per visit) than tourist activities (96 MJ) [2]. Activity packages offer an individual style and service orientation that requires energy at different stages. Most energy use in attractions is associated with building functions, which makes it easy to introduce energy measures (e.g. improving insulation). Despite the relative efficiency of most built attractions, they are most important in terms of overall energy use, because of their visitation levels. Activities often rely on the use of motorized vehicles, either to get to the location where the activity takes place or for the activity itself (e.g. jet boat rides). Generally, the input of petroleum fuels is typical of ‘activities’, while ‘attractions’ rely on electricity for their buildings. These findings are important, given New Zealand’s strong marketing focus on tourist activities.

TOURIST BEHAVIOUR AND ENERGY USE

A tourist’s trip comprises different travel choices across the three sub-sectors discussed above. Domestic tourists in New Zealand differ from international tourists in that they take many short trips, mainly by their private car and by air. The diversity of domestic trips is small, and manifests mainly in different travel distances. In contrast, international tourists make many different travel choices to compose their trips. ‘Coach tourists’, for example, travel by coach and domestic air, and tend to stay at hotels. These tourists are also attracted by tourist icons and built attractions (e.g. farm shows). A large proportion of international tourists are ‘touring tourists’, which means that they visit more than one place, whereas domestic tourists tend to travel to a single destination. Multi-destinational travel is often associated with a large total energy use, due to significant transport energy requirements and also because of longer trip durations.

Different travel styles require different energy inputs. Domestic tourists consume about 1,108 MJ per trip and 457 MJ per day across different types of trips. This compares to 4,055 MJ in total and 387 MJ per day for international tourists. Domestic tourists travel less efficiently, mainly because of large travel distances per day. Both the domestic and the international market were segmented into tourist types with typical travel patterns and, hence, energy use. The most energy intensive types are air-based trips, for example domestic business trips. International ‘coach tourists’ also rely on air travel and therefore consume most energy per day (654 MJ) compared with other international tourist types, for example the ‘visiting friends and relatives type’, who consumes 183 MJ per day.

CONCLUSION AND IMPLICATIONS

As a result of current greenhouse gas accounting regulations, the primary focus of energy management is on destination-based energy use. It is, however, important to keep in mind that policies may change and emissions from international travel will be allocated to nations’ accounts by one form or another. For this reason, in the long-term, New Zealand will also have to regulate energy use of international air travel [3].
The analysis of the New Zealand tourism industries showed that energy consumption is a result of complex and multiple interactions between management practices, technological standards and human behaviour. It appears therefore most promising to develop a framework that allows tailoring individual solutions to different business situations. To this end, stakeholders will need to cooperate at business, industry and government levels. In New Zealand it is essential to take into consideration the large number of small and family-operated businesses, where possible costs, lack of knowledge and advice, high staff turn-overs and a general absence of feeling responsible for environmental impacts impede the implementation of energy saving measures [4].

Tourist types and their energy profiles both between and within domestic and international tourists were derived to enable planners to implement energy programmes most effectively. From this typology several questions arise: First, how can we reduce energy use of each type? Second, what tourist types require most urgent action? Third, are there tourist types that are more ‘desirable’ than other types? Finally, what indicators other than energy use should an assessment of ‘desirability’ include? These questions each compel need for further research.

Reducing energy use by tourists could be theoretically achieved in two ways, namely reducing the need to travel and making travel more energy efficient. Given the popularity of traveling – manifested in increasing tourist numbers worldwide – and the difficulty of reversing present structures (e.g. cheap flights, the perceived need for business or conference travel etc.), the solution of making travel more efficient remains. Based on the analysis in this study it is suggested that changing tourist itineraries would have the largest effect on reducing energy use. The tourist itinerary determines the travel distance, and influences to some extent the overall travel pattern. It is, however, extremely difficult to alter individual behavior towards more environmentally friendly actions [5], and tourists only adopt new travel styles when they recognize personal advantages (e.g. cost benefits). To alter travel patterns in the future it is essential to understand the tourists’ motivations, expectations and decision-making processes that lead to present travel behavior.

REFERENCES