

# Transportation, Land Use, & Accessibility

In order to facilitate effective policy-making, the Commission has drafted a review and assessment on existing policies and programs pertaining to improving energy productivity via transportation, land use, and accessibility.

## Introduction

Accounting for up to 28.1% of the United States' energy use and 71% of its oil consumption, the transportation sector plays a significant role in affecting national goals of energy productivity, environmental protection, and energy security. This report highlights key historical statistics and transportation programs proven to be successful in promoting said national goals.

## Investment

Strategic investments to improve transportation technologies and the associated land use and transportation systems should be of paramount interest for energy productivity, economic growth, and nationwide mobility. These investments, both public and private, can apply to the mode of transportation (personal vehicle, bus, train, plane, etc.) as well as the infrastructure that creates the land use/transportation system (zoning, roads, rail, sidewalks, etc.).

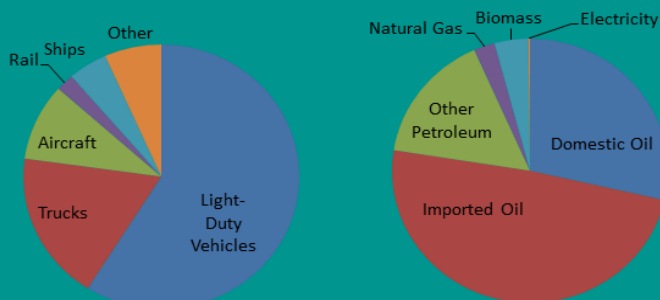
## Technology

Improvements in transportation technologies are critical to realizing the major potential gains in energy productivity in the transport sector. For instance, a technological improvement such as a 10% weight reduction of a passenger vehicle can improve fuel economy some 6–8%. Weight reduction has the potential to improve the efficiency of all types of vehicles regardless of the powertrain technology, and there are over a dozen known materials that could reduce vehicle weight, including high-strength steel, aluminum, and carbon fiber.

## Human Behavior

Many of the opportunities within the transportation sector are associated with providing greater choices to consumers. This including choices for more efficient vehicles, walkable communities and alternatives to car travel including transit, walking, biking, and telecommuting. When consumers, either individually or as decision makers within organizations, are providing efficient choices and the information they need to make educated decisions about their transportation needs, the benefits of increased energy productivity can be realized.

2010 Energy use in the transportation sector by mode (left) and by source (right). Total for both charts is 27.4 quadrillion BTUs. Data adapted from Annual Energy Review 2011 (EIA).



## Case Study: Weighing Housing and Transportation Costs

When comparing central-city neighborhoods and outlying neighborhoods in the Washington, D.C. area, housing costs may be higher for central-city residences, but transportation costs are much lower, leading to savings of up to \$6,000 annually. A mixed-use neighborhood can show significantly higher usage rates of public transit, walking, and biking as modes of transportation, demonstrating the importance of creating accessible transportation or infrastructure.

*Source: 2011 TPB Geographically-Focused Household Travel Surveys Initial Results by the National Capital Region Transportation Planning Board*

These benefits include savings on energy costs, improved local community, reduced congestion and improved environment.

## Governance

All levels of government including federal, state, regional, and local levels have a unique ability to affect energy productivity in the United States. In this role, the government should consider the cost and opportunities in supporting different types of policies and strategies – such as incentives, regulations, and standards - and what it means to provide incentives for more resource-efficient growth patterns. For example, urban growth and road expansion, providing an additional 2 million lane-miles from 2000 to 2025 would cost \$927 billion. By issuing incentives and control measures, local governments could work to encourage resource efficient growth to reduce this to \$817 billion for 1.9 million new lane-miles, creating savings of \$110 billion.<sup>i</sup>

## Barriers

There are many barriers to implementing these initiatives; however, they are also coupled with available opportunities for growth in energy productivity. These might include a perceived lack of demand for efficient vehicles, a lack of coordination among federal, state, and local governments, a lack of information about efficient transportation options, and the long lead times in developing and deploying efficient products and infrastructure. While these obstacles seem numerous, so are the potential solutions to overcome them.

## Opportunities

Opportunities for productivity gains can be found in nearly every facet of the energy sector. Vehicular opportunities can be found in passenger vehicle efficiency, medium- to heavy-duty truck or bus efficiency, and air or ship travel efficiency. Other areas in which energy productivity can be improved include information technology, efficient land use policies, and more resource-efficient transport infrastructure.

## Conclusion

Our economic system and way of life is inexorably linked to the ability to move people and products. The potential to maximize energy productivity through dollars and energy saved can be achieved through effective technological development, investments by the public and private sector, and strategies and policies at the federal, state, and local level.

### **Southern California Association of Governments: Sustainable Communities Strategy**

The Southern California Association of Governments (SCAG) made a commitment to meet the goals set by California's Sustainable Communities and Climate Protection Act. To do so, SCAG emphasized integrated land-use development and transportation system planning in its Sustainable Communities Strategy and Regional Transportation Plan (SCS/RTP). The plan's main strategies include targeting growth around existing planned transit stations, preserving open space, and protecting established residential areas. A few of the anticipated benefits of this project are :

- Double the number of households near high-quality transit
- Return on investment of \$2.90 for every dollar invested in infrastructure
- Cumulative savings of \$5 billion in infrastructure costs to local governments
- Savings of \$1.5 billion per year in health costs

*Source: California Environmental Protection Agency, "Technical Evaluation of the Greenhouse Gas Emission",*

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<sup>i</sup> Burchell and Mukherji, "Conventional Development Versus Managed Growth," 1538.