

**ENERGY AND COST SAVINGS
THROUGH
TELECOMMUNICATIONS AND TELECONFERENCING**

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Introduction

Telecommunications and teleconferencing are proving to be effective means of saving energy and other costs. Both can substitute for commuting and travel thereby reducing travel associated costs.

In states which take advantage of video conferencing, costs of meetings and training sessions are less. The cost of travel in dollars, energy, and time are reduced without sacrificing "face-to-face communications" when video conferencing is employed. More people can participate in meetings than would otherwise be practical if long distance travel were required. Reducing miles traveled can result in significant energy savings. This is particularly important where distances traveled are long.

The purpose of this paper is to present information on the cost and energy savings possible through teleconferencing and telecommunications. Incentives other states have instituted to stimulate the use of teleconferencing and telecommunications, particularly with respect to saving energy, are also addressed. First, results from Nebraska's Video Conferencing Network are reported. Cost saving experienced by other states and some of the incentives offered by other states are then presented.

Nebraska Video Conferencing Network

The Division of Communications of the Department of Administrative Services estimated travel cost savings of \$287,664 from Nebraska's video conferencing network for a twelve month period from October 1991 through September 1992. During that period, 1,602 hours of video conferencing were used. The savings estimate includes staff time and mileage and, where applicable, meals and lodging. Mileage included was estimated at \$66,884, of which \$33,442 represents the cost of gasoline saved. (Assuming \$1.15 per gallon for gasoline and average mileage of 20 miles per gallon.)

Hours of video conferencing have grown in subsequent years. In 1993, 4870 hours were used. By the end of 1994, annual hours of video conferencing had grown to 7,526--a 54.5 percent increase. Although cost and energy savings have not been estimated for more recent years, the high volume of video conferencing indicates that savings would be substantial. The growth in hours used also indicate improvements in the quality of meetings and training in the sense that a larger audience is allowed to participate at less cost than if they had personally attended.

Other States

According to a survey by the National Association of State Telecommunications Directors, 32 state governments have provided for video networks as part of state telecommunications systems. The number of video locations served by each state network

ranges from 2 (Maine) to 679 (South Carolina). The median number is 20; Nebraska is slightly above the median with 26 video locations served.

In **Kansas**, users of the state's telecommunications network average 600 hours a month of compressed video conferencing time. This includes distance learning activities, telemedicine applications and administrative teleconferences.

Illinois estimates it saves \$500,000 annually by offering agencies, boards, commissions and universities use of two video conference facilities in Springfield and Chicago.

Oregon. In 1980, legislation permitting tax credits to businesses for transportation demand management was passed. In 1993, the legislation was reviewed and the Energy Office was allowed to interpret the law to recommend tax credits for measures that save transportation fuel. Telecommunications equipment is included under the interpretation. There has been some interest by businesses in video conferencing for distance learning.

A loan program for energy improvements has been in effect in Oregon since 1981. Telecommuting and teleconferencing equipment that can demonstrate energy savings qualify under this program. A major pipeline company in Oregon which uses the program is implementing a number of measures to reduce personnel transportation. It has been estimated that the installation of video conferencing equipment will save \$7,790 in air fare and automobile travel, exclusive of staff travel time and other travel expense.

Washington. In 1991, the Washington State legislature passed the Commute Trip Reduction law. The goals of the law are to reduce traffic congestion, energy use, and emissions in the state. Large employers in eight Washington counties are required to implement programs that encourage their employees to use alternative modes of transportation to commute to work. The law gives special consideration to telecommuting by requiring that each trip eliminated by telecommuting be counted as 1.2 trips eliminated--a 20 per cent extra credit.

In 1990, the Washington State Energy Office launched the Puget Sound Telecommuting Demonstration at 25 public and private organizations. The demonstration project lasted about two years, including recruitment, research and evaluation, and report writing.

The average telecommuter saved about 34 commute round trips annually, 1,220 miles, 49 gallons of gasoline (assuming 25 miles per gallon fuel efficiency), and 42 hours of commute time. All the telecommuters in the demonstration taken together saved about 6,460 round trips, 231,800 miles, and about 9,300 gallons of gas per year.

While the primary impact on energy use was saving transportation fuel, net energy savings must take into account slight increases in home energy use. The energy saved at offices by turning equipment off was offset somewhat by the increase in equipment use in homes. The estimated transportation energy savings were about 5.2 MBtu annually per

telecommuter, and the increase in home energy use was about 0.7 MBtu per telecommuter. Net energy savings taking all impacts into consideration, was about 4.8 MBtu per telecommuter per year. For comparison, a car traveling 1,000 miles and getting 25 miles per gallon would consume 5 MBtu, and a typical all-electric home in the demonstration area uses about 75 MBtu per year.

Summary

This report has presented information on some of the energy and cost savings obtainable by using telecommunications and teleconferencing. Energy and cost savings to users represent savings in transportation fuel, meals and lodging and commute time. That these savings can be substantial is attested to by the savings reported and growth in the use of telecommunications throughout the nation.

Telecommunications and teleconferencing equipment in Nebraska's schools would allow them to reap the benefits of energy and cost saving by using these facilities for meetings, training and interschool interfaces as well as enabling innovative strides in education in the state.

Adding Internet connections will only enhance energy savings realized by Nebraska's schools as well as greatly enlarge the information obtainable to the schools. This is an innovation that not only saves energy but increases the quality of the school. Students in remote areas will have access to information which previously had been available only to students in metropolitan areas. Energy will be saved because of reduced need to travel to obtain information, reduced use of the mails for sending and delivering information, and reduced use of stationery and packing materials.

References

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