

6 - TRANSPORTATION

This section will discuss various ways your tribe can integrate transportation into your energy plan to reduce energy needs while creating new economic and job opportunities. For more detailed information on the specifics of transportation planning and financing such projects in the Northwest, you may find the Washington Department of Transportation's *Transportation Guide for Indian Tribal Governments* (<http://www.wsdot.wa.gov/NR/rdonlyres/4FCC0C73-6CID-4844-BF10-60D7D515A77A/0/TransportationGuideforIndianTribalGovernments.pdf>) or the Northwest Tribal Technical Assistance Program (<http://www.ewu.edu/x24920.xml>) helpful.

Relating Transportation Planning to Your Energy Plan

While many people think of energy in relation to heating and lighting their homes, transportation and the movement of people and commodities between places expends energy as well, primarily through the use of fuel. The cost of oil at the time of writing was over \$100 USD/barrel, up nearly \$70.00 USD from 2003 rates. The price of gasoline is not expected to drop significantly either as demand continues to rise with the depletion of supply. In addition, CO₂ and other polluting emissions from vehicle use are a significant contributor to greenhouse gas emissions and global warming. In order for communities to adapt to rising oil prices and ensure a healthy environment for future generations, it is crucial to begin considering alternative means of transportation. Reducing individual car use provides extra funds for other

necessities including housing, food and clothing, while providing alternative fuels reduces emissions and creates jobs-- resulting in a healthier environment and community.

There are several alternatives to driving your car alone or operating transportation vehicles with traditional gasoline. These include biking, walking, busing, carpooling and using biofuels. While busing, biking and walking may necessitate additional infrastructure in order to make such methods a safe and viable option for the community at large, carpooling can easily be established through educational programs and targeted outreach. These strategies, however, serve as a method of reducing energy demand, similar to energy efficiency and conservation measures, which are important first steps when considering any energy program. Communities with large biomass resources may want to take their transportation plans a step further to consider producing and fueling vehicles with biofuels. Biofuels are a great way to lower emissions, encourage energy independence and promote economic development through fuel sales.

Public Transportation

A good bus system offers tribes an alternative to individual vehicle use and ownership. Designing such a system in a rural area can present challenges different from those in more urban centers however. Shuttle systems such as the Makah Public Transit program (see case study), can create efficient connections between tribal communities and urban centers. Some considerations for designing and operating a bus system include:

- Education**

Post information about fares, schedules and route maps at stops and throughout the community. Also consider developing a website.

- Safety**

Well-marked and lit stops create a safe and secure environment for passengers.

- Schedule**

In addition to stopping at the most convenient locations, the best bus systems run frequently and efficiently, lending them useful to more users throughout the day. Surveying your community to better understand the transportation needs of the tribe will allow you to design a system that operates within budget but to the benefit of the greatest number of users. Depending on the needs of the community you may find a system that caters to the needs of individuals on a case by case basis a more efficient use of resources than a full-time bus service operating on a set schedule and route.

- Accessibility**

In addition to being accessible to both bikers and pedestrians, buses and stops should be easily accessed by people with special needs. Consider crosswalks, sidewalks and shoulders, lighting, wheelchair accessibility, as well as bike rack options, when planning stop locations and purchasing fleet vehicles.

- Cost**

The less it costs to ride the bus, the greater incentive people will have to take it. Grants, including the Federal Transit Administration's Tribal Transit Program, and other funding opportunities are available to

make taking and operating a bus affordable.

- Fuel**

When choosing buses or shuttles, it is important to consider purchasing vehicles that are efficient and biofuel compatible.

Case Study

With a Capital Grant and operating assistance from WSDOT, the Makah Tribe, remotely located in the north-western corner Washington State, has successfully been operating a bus and shuttle program since 1999. This program is designed to meet the needs of all members of the Makah Tribe and includes service to the Makah Employees' Park'n'Ride, special door-to-door services for elderly persons over 62 and people with disabilities, as well as extended summer service to meet the needs of tourists visiting Cape Flattery. Aside from providing service to a diverse demographic, the bus system connects members to other transit systems connecting the rural community to urban centers including Port Angeles, Seattle and communities in West Jefferson County. For more information about the Makah Public Transit

Carpools

Many community members may already depend on family members or neighbors to meet their transportation needs; however, in areas not served by buses or shuttles, facilitating a carpooling network can go a long way toward

meeting a community's transportation needs and reducing emissions from single occupancy vehicle use. Following are a few suggestions for encouraging carpoools:

- *Rideshare Board*

Post carpooling or rideshare opportunities in a central location like a community center.

Those who want to participate can post their information on the board. For ease of use, it is useful to divide the board by general destinations and create a clear distinction between drivers and passengers.

- *Casual Carpool*

Designate areas where passengers can wait to be picked up by drivers going in their direction. Conversations spurred during impromptu meetings may lead to more permanent arrangements between drivers and passengers.

- *Shopping runs*

If communities are located in particularly rural locations where grocery stores, banks, etc. are several miles away, it may be useful to designate a time and location people can meet and do their errands together while sharing the cost of gas and burden of driving. This arrangement can be advertised on fliers, at the community center, in the newspaper or community newsletter, and even at the local gas station if permitted.

- *Carshare*

Carshare programs are meant to meet the needs of people who don't need a car on a daily basis but do for running errands or emergencies, thus reducing individual car use. Tribes wishing to purchase a fleet for

community use would most likely wish to consider cars that run on biofuels.

Biking And Walking

Biking and walking are healthy modes of transportation. Unfortunately many communities have not been designed with this in mind. Narrow roads with little or no shoulder and neighborhoods with no sidewalks are a few examples of how many communities have been planned for vehicle use while neglecting alternatives. As owning a car becomes more costly it is becoming more important to recognize the opportunities offered by walking and biking. Integrating these modes of transportation into long-term planning can reduce pollution and the need for fuel while promoting healthy living. Following are some ideas for creating more walkable and bikable communities:

- *Free Bike Rentals*

Similar to purchasing a fleet of cars for community use, tribes may want to consider purchasing bikes for community rental. Bikes could be rented for a fixed period of time, say, to run errands or, if located appropriately, as a way of connecting members to public transit locations nearby.

- *Roads, sidewalks and paths*

Planning future developments and improvements with the needs of bikers and pedestrians in mind is an integral way of ensuring such choices are viable options for the community. When planning new roads, consider integrating wider shoulders, well lit sidewalks and paths, or crosswalks and pedestrian barriers (such as bulbheads and

planter boxes) to create safer and more secure environments for those on foot.

- Education*

Whether it's a class on bicycle maintenance or a brochure with safety tips for walking and biking in your community, providing tribal members with information to make them more confident about their transportation choices will go a long way.

Biofuels

Similar to turning off the lights and switching to energy efficient appliances, taking the bus, walking or carpooling are all ways of using less energy while still meeting your daily needs. These alternatives still consume some energy in the form of fuel, however, so it is important to give careful consideration to alternative fuel sources. Biofuels are a great way to reduce emissions while encouraging economic development. Examples of biofuels include:

- Bioethanol*

This fuel is made from sugary or starchy crops, grasses, and woody/cellulosic biomass. Bioethanol can be mixed with gasoline.

- Biodiesel*

Made from oily seeds, algae, or waste oil. Biodiesel can be mixed with or used to replace diesel.

- Methane-based biogas*

This fuel can be made through anaerobic digestion of animal droppings, landfill waste, or food or paper processing waste. Biogas can be mixed with or used to replace gaseous fuels like natural gas and propane.

- Syngas*

This gas mixture can be made from gasification of a variety of feedstocks and is used for industrial synthesis of fuels and other chemicals.

All of these fuels can be used for on-road personal and fleet vehicles, off-road vehicles for farm or construction use, home heating oil, and boats.

Production

Tribes in the Northwest are in an excellent position to start taking advantage of biomass energy, since every tribe has a forestry, ranching, farming, or restaurant enterprise that produces usable biomass that is currently going to waste. Energy from biomass is renewable, but not all land use and industrial practices associated with biomass energy will be sustainable for your tribe. Another key factor in profitability is scale. In general, it is more economical to build a single larger biomass processing facility that draws biomass from several tribal agricultural or forestry enterprises than for each enterprise to construct its own facility. Such co-ops are beneficial because they reduce the capital and operational investments required from each enterprise and centralize the marketing and sale of the bioenergy products and byproducts. For more additional resources consider the referenced ATTRA publications on bioethanol, biodiesel, and biogas. The Washington State University Extension Energy Program has many resources as well.

Distribution And Sales

The primary source of revenue from a biofuels-for-vehicles project will be the sale of the biofuel or feedstock itself. Wholesale markets for ready-

to-use biofuels include gas stations, fuel distributors, and organizations with vehicle fleets. If your tribal administration, school district, transit service, fishery, or other tribal agency operates a fleet, this is an excellent local market for biofuels (especially if the fleet already includes vehicles or boats that can run on the biofuel supply). If not, potential fleet markets abound in the Northwest.

As interest in biofuels grows, so too will demand, and offering locally-produced biofuel at your tribe's gas station will be an increasingly profitable endeavor. This will provide a market for the biofuel, keep the profits in the local economy, and attract additional business from tourists and neighboring communities. It may also be economical to distribute your tribe's biofuel to gas stations in other areas of the Northwest where demand exceeds supply. Note that the farther you transport your product, the higher your costs and the more fossil fuel you may use—as always, you will benefit from a well-thought-through business plan.

Integrating Programs

When considering transportation in energy planning it is important to take a holistic approach and consider all the various programs and modes of transportation that might alleviate energy needs and reduce consumption. A well-designed program will also make connections between other programs to ensure efficient planning and maximize available opportunities. For example, a website displaying bus information might also have a rideshare board. Or when purchasing a fleet of buses or vehicles for community use, the fleet's compatibility with

local biofuel options should be considered. This method of planning provides tribal members with choices and options to meet their specific transportation needs.

