

Transportation

The United States consumes about 17 million barrels of oil per day and two thirds of that is used for transportation. Vehicles contribute a substantial amount of greenhouse gas to the atmosphere. Over one car's lifetime, it can emit up to 50 tons of carbon dioxide depending on its gas mileage. Travel to and from sporting events only contributes to greenhouse gas emissions. Some ways sports facilities are trying to cut down on these emissions include encouraging use of public transportation, preferred parking for carpools, use of alternative fuel in grounds equipment, and access to bicycle storage facilities.

Proximity to public transportation can substantially reduce greenhouse gas emissions. For facilities under construction, consideration should be given to locate the project within a half mile of an existing, or planned and funded, commuter rail, light rail, or subway station. The facility could also be located within a quarter mile of public or campus bus lines. For existing facilities, encouraging use of mass transit, bicycles, carpools, vanpools, low emitting, fuel efficient, or alternative fuel vehicles can significantly cut down on the release of greenhouse gases. Ways to make these alternatives more attractive include providing secure bicycle racks and storage areas, preferred parking for carpools and vanpools, and access to alternative fuel refueling stations.

<http://www.solarenergy.org/resources/energyfacts.html>

<https://www.usgbc.org/ShowFile.aspx?DocumentID=3617>

<http://www.usgbc.org/DisplayPage.aspx?CMSPageID=220>

Alternative Fuel

The most popular alternative fuels for sports field use are biodiesel and electric. Most equipment manufacturers now have these options available for sports facilities.

Biodiesel

Biodiesel is produced from renewable resources such as new and used vegetable oils and animal fats. It is a cleaner-burning replacement for petroleum-based diesel fuel because it is nontoxic and biodegradable.

Biodiesel can be legally blended with petroleum diesel in any percentage. The percentages are designated as B20 for a blend containing 20 percent biodiesel and 80 percent petroleum diesel and B100 for 100 percent biodiesel.

B20 biodiesel is the most common blend and can be used in nearly all diesel equipment because it is compatible with most storage and distribution equipment. B20 generally does not require any engine modifications. However, not all diesel engine manufacturers cover biodiesel use in their warranties. B20 provides many benefits including no noticeable difference in performance

or fuel economy. It also avoids many of the cold-weather performance and material compatibility concerns associated with B100.

B100 biodiesel and other high-level biodiesel blends can be used in some engines built since 1994 with biodiesel-compatible material for parts such as hoses and gaskets. Problems associated with these high-level blends include lower energy content per gallon, impact on engines and effect on engine warranties, low-temperature gelling, solvency/cleaning effect if regular diesel was previously used, and microbial contamination.

Because biodiesel is a domestically produced, clean-burning, renewable resource, benefits to its use include increases in energy security and improvement in public health and environment. It lowers greenhouse gas and soot emissions in comparison with petroleum diesel fuel. Biodiesel also provides superior engine lubricity, which results in less equipment downtime. It can be used in existing diesel engines with similar performance benefits while reducing our dependence on foreign oil.

<http://www.afdc.energy.gov/afdc/fuels/biodiesel.html>

Some facilities that use equipment that can accommodate biodiesel include Citi Field, Safeco Field, and Great American Ball Park. During construction of Citi Field, construction equipment will use low-sulfur and ultra low sulfur diesel. All diesel powered motorized groundskeeping equipment at Safeco Field is powered by B20 diesel. Great American Ball Park uses waste cooking oil for their biodiesel.

<http://yosemite.epa.gov/opa/admpress.nsf/d10ed0d99d826b068525735900400c2a/d87469e9e29de0238525740b004fc02c!OpenDocument>

http://seattle.mariners.mlb.com/news/press_releases/press_release.jsp?ymd=20080418&content_id=2547364&vkey=pr_sea&fext=.jsp&c_id=sea

http://mlb.mlb.com/news/article.jsp?ymd=20080421&content_id=2567055&vkey=news_mlb&fext=.jsp&c_id=mlb

Electricity

Many turf equipment manufacturers now have electric operated equipment available for turf use. Vehicles that run on electricity produce no tailpipe emissions. The electricity used to power vehicles is generally provided by the electricity grid and stored in vehicles batteries. Recharging an electric vehicle is as simple as plugging it into an electrical outlet. Although electricity costs depend on location, type of generation, and time of use, if consumers take advantage of off-peak rates, costs are reasonable compared to gasoline.

<http://www.afdc.energy.gov/afdc/fuels/electricity.html>

For more information on alternative fuels being researched for use, please visit the following website: <http://www.afdc.energy.gov/afdc/>