

ACI-NA ENVIRONMENTAL GOALS

Adopted February 6, 2009

GENERAL ENVIRONMENTAL

1. **Environmental Policies:** Every ACI-NA member airport will strive to have an environmental policy statement by 2010.
2. **Environmental Management Systems:** Every ACI-NA member airport will strive to have an Environmental Management System in place by:
 - 2014 at large airports.
 - 2016 at medium airports.
 - 2019 at small airports.

AIR QUALITY, CLIMATE, AND ENERGY

1. **Low Emission Airport Vehicles and Ground Support Equipment (GSE):** ACI-NA member airports will strive to convert airport-owned and operated ground vehicles and GSE to low emission vehicles with an industry-wide average goal of 50% of vehicle conversion by 2019.
2. **Low Emission Access Vehicles:** By 2010, every ACI-NA member airports will strive to implement an incentive program to encourage taxi, shuttle, limo, and rental car companies to use low emission vehicles.
3. **Low Emission Vehicle Infrastructure:** Half of ACI-NA member airports will strive to provide low emission vehicle support infrastructure by 2019.
4. **Energy Conservation:** By 2014, every ACI-NA member airport will strive to implement an energy conservation program that includes adoption of an airport-specific goal to reduce non-renewable energy consumption.
5. **Loading Bridges Equipped with Pre-conditioned Air and Power:** Every ACI-NA member airports will strive to have at least 25% of their loading bridges equipped with pre-conditioned air and 400 Hz electrification by 2019.
6. **Reduced Fee and/or Parking Incentives for Low Emission Passenger Vehicles:** Half of ACI-NA member airports will strive to provide incentives and/or reduced fee parking for low emission passenger vehicles by 2011.
7. **Greenhouse Gas Emissions Inventories:** Half of ACI-NA member airports will strive to conduct greenhouse gas emissions inventories by 2015.

NOISE

1. **Noise and Land Use Compatibility Policies:** Every ACI-NA member airport will strive to develop a noise and land use compatibility policy by 2019.

WASTE MANAGEMENT

1. **Recycling Programs:** Every ACI-NA member airports will strive to have a basic recycling program in place by 2011. Half of airports will have more extensive recycling programs by 2014.

WATER QUALITY

1. **Water Conservation:** By 2014, every ACI-NA member airport will strive to implement a water conservation program that includes adoption of an airport-specific goal to reduce water consumption.
2. **Spill Reduction Training:** ACI-NA member airports will facilitate awareness and training with a goal of reducing spills by 25% from 2005 levels by 2015. ACI-NA airports will strive to have no releases of petroleum-based spills.

SUPPORTING DOCUMENTATION FOR ACI-NA ENVIRONMENTAL GOALS

GENERAL ENVIRONMENTAL GOAL 1: Environmental Policies

A. GOAL: *Every ACI-NA member airport will strive to have an environmental policy statement by 2010.*

B. Goal details

Developing and adopting an environmental policy can be done in the context of an airport's strategic planning, business planning, master planning, or other existing opportunities for setting policies. If the airport already has an environmental policy, it should be evaluated to determine if it should be broadened to include sustainability principles (such as community relations or economic efficiency). An airport may decide to have both an environmental and a sustainability policy, or a sustainability policy that encompasses its environmental policy. Ideally, the environmental policy should identify the airport's priorities, and should set the stage for the development of performance targets.

C. Data on existing use

While no official data is available, the Environmental Affairs Committee is aware of a number of airports that have adopted both formal and informal environmental policies. Additionally, many airports have sustainability policies.

D. Benefit of initiative

- **Environmental:** Adopting an environmental (or sustainability) policy can set the stage for establishing an environmental performance baseline that will allow airports to set performance criteria in areas relating to water and air quality, noise, energy/climate change, natural resources, etc. Once an environmental baseline is determined, environmental benefits can be quantified.
- **Cost savings:** Adopting an environmental policy will not provide cost savings. Accompanying environmental and sustainability programs can demonstrate cost savings, often when lifecycle costs are taken into account. Also, there are many "avoided costs" airports gain by taking actions resulting in greater public acceptance of their activities and growth, such as less litigation or delay in projects.
- **Other:** Adopting an environmental policy shows the airport's commitment to reducing environmental impacts, which can be viewed positively by the neighboring communities. A broader sustainability policy, including social and economic aspects, can have additional benefits to the local area and region.

E. How initiative can be put in place

- **Associated cost/staff/resources needed:** Limited resources are associated with adopting an environmental policy.
- **Resources/funding available:**
 - Findings from the ACRP Synthesis S02-02 Project “Airport Sustainability Practices” provide a review of sustainable practices, including environmental practices, and their use at airports.
 - Findings of ACI-NA 2008 Environmental Benchmarking Survey identify a number of environmental programs in use at member airports.
 - Information at <http://www.aci-na.org/sustainability/index.html>.
- **Actions ACI-NA can assist with:**
 - Recognizing that many airports have already developed environmental policies, ACI-NA can solicit airport members for example statements to be used by other airports as guidance in developing and adopting their own environmental policies.
 - ACI-NA can develop a template environmental policy for use by its members.

GENERAL ENVIRONMENTAL GOAL 2: Environmental Management Systems

- A. GOAL: *Every ACI-NA member airport will strive to have an Environmental Management System in place by:*
- 2014 at large airports.
 - 2016 at medium airports.
 - 2019 at small airports.

B. Goal details:

An Environmental Management System (EMS) is a framework that provides a systematic approach for identifying, prioritizing, and managing significant environmental aspects (those products, goods and services that impact the environment). EMSs may be certified by a third party organization such as the International Organization for Standardization (ISO). For the purposes of this goal, an individual airport or airport system meeting the goal must have the following components:

- Environmental policy signed by the organization’s chief executive
- Operational controls (procedures)
- List of significant environmental aspects
- Targets and objectives
- Legal and other requirements lists
- Training program
- Roles and responsibilities
- Compliance calendar
- Continual improvement goals
- Auditing
- Management review

C. Data on existing use

According to ACI-NA 2008 Environmental Benchmarking Survey, based on 74 responses:

- 23 airports have an EMS.
U.S.: 7 large, 9 medium, 1 small, 3 non-hub; Canada: 3 airports
- 6 of those airports have a certified EMS.

D. Benefit of initiative

- **Environmental:** Facilitates management and compliance with regulatory programs through the process of formally identifying regulatory requirements, establishing a compliance calendar for inspections, reporting, etc., and conducting internal and external audits.
- **Cost savings:** Avoided costs include avoided financial penalties, supplemental environmental projects, litigation, etc. for maintaining compliance. Some airports may experience a decreased need for additional staff because roles and responsibilities and processes are well defined. Could also result in reduced costs for environmental

insurance. Continual improvement projects such as waste minimization, conservation, etc. also reduce overall operational costs. The availability of an EMS could also assist the airport with undertaking NEPA documents for airport improvements.

- **Other:** Provides credibility for the organization when dealing with FAA, EPA, and state and local regulatory agencies. As EMSs require thorough consideration of environmental issues, it makes outreach to regulatory parties part of the business practices, which benefits the airport in many areas.

E. How initiative can be put in place

- **Associated cost/staff/resources needed:** Limited budget may be required to hire a consultant to develop templates and maneuver through the standard (if certification is desired). Depending on current airport resources, many documents can be written with existing staff if sufficient expertise exists within the environmental department.
- **Resources/funding available:**
 - EMS documents for several airports available online.
 - Various State leadership programs.
 - According to [FAA Advisory Circular 150/5050-8](#), large and medium hub airport sponsors may use federal funding to develop an EMS.
 - ISO 14001 standard and guidance: [ISO Guidelines](#).
 - [EPA Performance Track](#)
 - [EPA EMS Guidance](#)
- **Actions ACI-NA can assist with:** To achieve this goal, ACI-NA can:
 - Seek modification of FAA AC 150/5050-8 to include federal funding eligibility for:
 - airport EMS biannual reviews and revision.
 - airports of all sizes.
 - Keep descriptions of approved airport EMSs and maintain a library of published EMSs.
 - Work with EPA on EMS acceptance. EPA must actively promote EMS development – engage enforcement staff to overcome negative perceptions and improve understanding of the benefit of EMS.
 - Work with FAA to streamline project reviews for airports with EMSs.
 - Develop compendium of resources for interested airports.
 - Organize an EMS workshop.
 - Develop a template for the major components of an EMS.

**AIR QUALITY, CLIMATE CHANGE, AND ENERGY GOAL 1:
Low Emission Airport Vehicles and Ground Support Equipment (GSE)**

A. GOAL: *ACI-NA member airports will strive to convert airport-owned and operated ground vehicles and GSE to low emission vehicles with an industry-wide average goal of 50% of vehicle conversion by 2019.*

B. Goal details

ACI-NA members will strive to convert half of the vehicles owned and operated by their airports to low emission vehicles, for which there are low emission replacements available by 2015 over the fleet of vehicles that the airport operator had effective December 31, 2004.

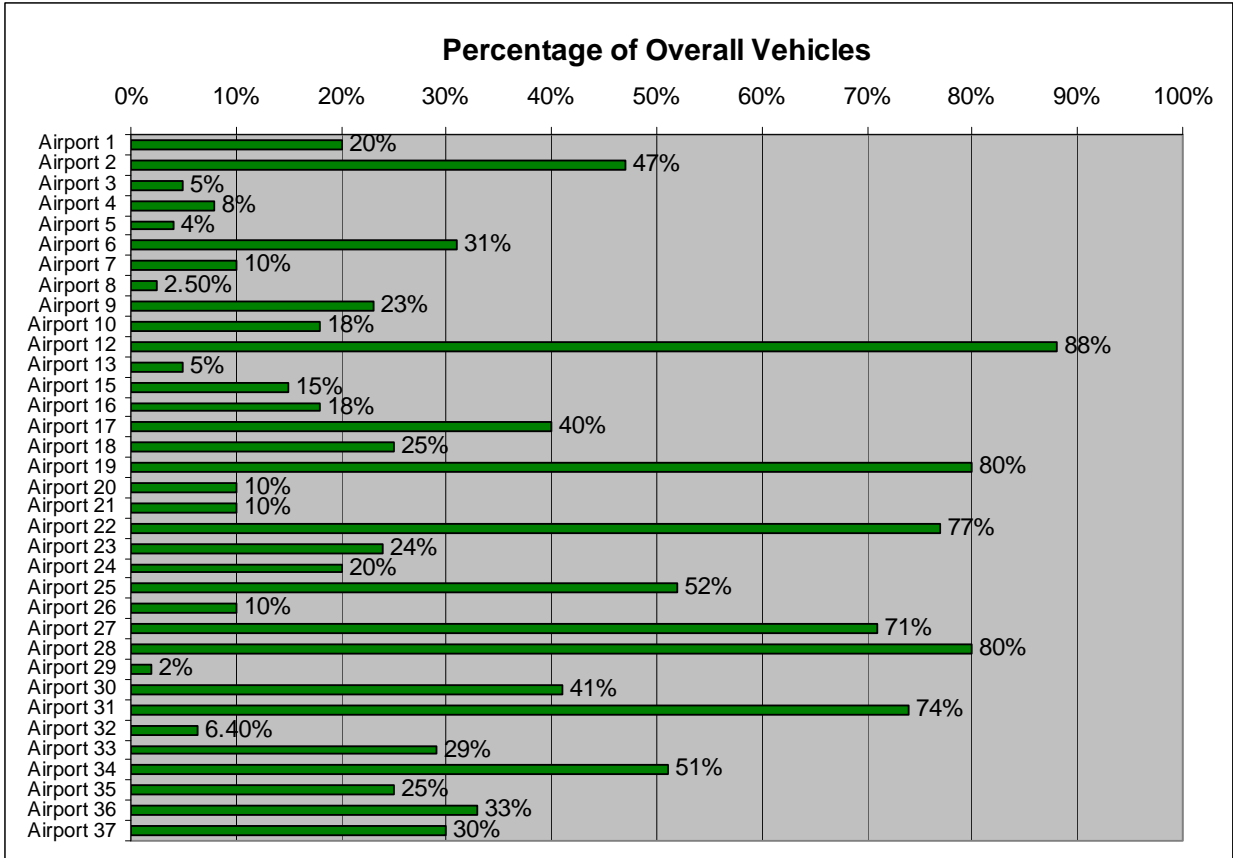
For purposes of this goal, and to be consistent with the FAA’s Voluntary Airport Low Emissions (VALE) grant program, low emission vehicles can include:

- Electricity
- Natural gas and liquid fuels domestically produced from natural gas (compressed or liquefied natural gas (CNG or LNG))
- Liquefied petroleum gas (LPG/propane)
- Mixtures containing 85 percent or more by volume of alcohol fuel with gasoline, including denatured ethanol (E85) and methanol (M85)
- Hydrogen
- Coal-derived liquid fuels
- Biodiesel (B85 to B100-biofuel)
- P-series fuels

C. Data on existing use

According to ACI-NA 2008 Environmental Benchmarking Survey, Clean/Alternative Fuel Vehicles by Airport for the responding airports:

Range	Number of Alt Fuel Vehicles Per Airport	Percentage of Alt Fuel Vehicles Per Airport
Minimum	1	2%
Maximum	550	88%
Median	37	24%
Average	96	31%



D. Benefit of initiative

- **Environmental:** Conversion of airport support vehicles to cleaner burning fuels can reduce airport-related local emissions, global greenhouse gas emissions, as well as reliance on foreign fuels. Example emission reductions can be found at <http://www.eere.energy.gov/afdc/vehicles>
- **Cost savings:** Most fleet managers report a lowering of fuel and maintenance costs associated with alternative fuel vehicles and in some cases a longer engine life.

Some alternative fuel vehicles are more costly than conventional technology vehicles. VALE funding is available for nonattainment/maintenance area airports to address this incremental cost.

Depending on the type of vehicles and applications, users can achieve cost savings of 40% over using gasoline when using alternative fuels, largely due to tax credits and in some cases the favorable cost of procuring alternative fuel.

- **Other:** Many fleet managers may express concern initially with the conversion of alternative fuel vehicles. However, airports that have undertaken vehicle conversions typically report support for the vehicle conversions after experience is gained with the maintenance and operation. While some alternative fuels require little infrastructure to support the vehicle use, some fuels require separate fueling and maintenance practices.

E. How initiative can be put in place

- **Associated cost/staff/resources needed:** The incremental cost associated with alternative fueled vehicles depends on the size of the vehicle, alternative fuel, and vehicle mission. Some states have rebate programs and tax incentives available for the purchase of alternative fuel vehicles. Additionally, FAA's VALE program has established an initial cost-effectiveness evaluation.
- **Resources/funding available:** The FAA's VALE grant program is available to assist about airport operators with the incremental cost associated with vehicle conversions. Additionally, the Department of Energy's Congestion Mitigation and Air Quality (CMAQ) Improvement Program provides a flexible funding source for state and local governments to fund transportation projects and programs to help meet the requirements of the Clean Air Act (CAA) and its amendments.

Information Resources:

- Department of Energy, Alternative Fuels and Advanced Vehicles Data Center web site: <http://www.eere.energy.gov/afdc/vehicles/index.html>
 - Various State programs
 - FAA VALE program web site: http://www.faa.gov/airports_airtraffic/airports/environmental/vale/
 - Alt Fuel Vehicle Buyers Guide: <http://www.netac.org/pdf/reports/Clean%20Cities/fleetbuyer.pdf>
 - DOE Clean Cities program: www1.eere.energy.gov/cleancities/index.html
 - California Energy Commission's 1996 *The ABCs of AFVs: A Guide to Alternative Fueled Vehicles*: <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.41.4090>
 - Alternative Fuel Institute: <http://www.afvi.org/>
- **Actions ACI-NA can assist with:**
 - Identifying opportunities for funding assistance.
 - Develop guidance for airports to set up uniform registration protocol for tenant GSE and set date for industry implementation.
 - Work with FAA to expand VALE eligibility.

AIR QUALITY, CLIMATE CHANGE, AND ENERGY GOAL 2: Low Emission Access Vehicles

A. GOAL: *By 2010, every ACI-NA member airports will strive to implement an incentive program to encourage taxi, shuttle, limo, and rental car companies to use low emission vehicles.*

B. Goal details

Reducing air emissions is an issue facing all airports. While the majority of emissions at airports (typically aircraft and on-road vehicles) are well outside the control of airport operators, measures aimed at reducing emissions can result in real environmental benefits and can demonstrate that airport operator's commitment to incremental environmental improvements. This program would implement an incentive program, such as a reduced ground access fee, for operators willing to convert some of all of their fleet to low emission vehicles.

Many airports charge a ground access fee for private companies operating at their facility. These fees typically fund transportation infrastructure maintenance and improvement costs and administrative and/or staff costs of operating taxi pools, bus/limo pools, and related facilities. It is likely that different types of fee reductions/incentives might be applied to different classes of operations, as follows:

- **Private Service Fleets:** Depending on the fee structure, a 25% to 50% reduction in the ground access fee would be applied to all eligible low or no emitting vehicles. This could include limos, shuttle/shared van services, fleet buses, etc.
- **Taxicabs:** Allowing limited "front of line" privileges in an airport's taxi pool for alternative fuel or hybrid vehicles, effectively provides more trips (and revenue) per shift to the owner/operator of clean vehicles as compared to traditional vehicles. Whether a fleet conversion to clean vehicles is mandated or voluntary, the added revenue/shift can be a determinant in the success of the program through offsetting the added cost of replacement taxis and through savings in fuel costs to the taxi driver. Such a program is useful in jump-starting the conversion of a taxi fleet, but not useful once critical mass is reached.
- **Rental Car Fleets:** Depending on lease agreements with rental car companies, it may be possible to implement a discount on leased areas, transaction fees or other incentives for the percentage of the rentable fleet which is either low or no-emitting.

C. Data on existing use

According to ACI-NA 2008 Environmental Benchmarking Survey, out of 74 respondents, currently 28 airports in North America encourage or require low emissions rental cars, taxis, shuttles, or other ground access vehicles.

D. Benefit of initiative

- **Environmental:** This initiative would have an incremental environmental benefit both on-airport and regionally by creating a financial incentive to operate lower-emitting vehicles. The estimated emissions reduction could be tracked on a quarterly or annual basis according to miles driven by low emitting vehicles as compared to a traditional power source.
- **Cost savings:** This program would incrementally reduce airport revenues by lowering the access fee for clean-fuel vehicles.
- **Other:** As outlined above, in addition to the direct environmental benefit, implementation of such a program is a clear demonstration that individual airports are committed to developing innovative programs to reduce emissions under their control.

E. How initiative can be put in place

- **Associated cost/staff/resources needed:** Probably limited once documentation procedure was established.
- **Resources/funding available:** Unknown since this is a policy implementation rather than infrastructure or equipment costs.
- **Actions ACI-NA can assist with:**
 - Serve as a clearinghouse to collect documentation on any existing policies, pricing incentives, and other legal and administrative procedures.
 - Act as a resource for outlining the environmental and community benefits of program implementation.
 - Gather information on clean fuel vehicle technology as it develops, including environmental benefits per vehicle.

AIR QUALITY, CLIMATE CHANGE, AND ENERGY GOAL 3: Low Emission Vehicle Infrastructure

A. GOAL: *Half of ACI-NA member airports will strive to provide low emission vehicle support infrastructure by 2019.*

B. Goal details

As airlines, rental car companies and other tenants and users of the airport modify their road and off-road fleets to lower emissions vehicles, the need for support infrastructure will be more apparent. This infrastructure may come in the form of quick charge stations on the ramps for electric GSE or at rental car ready and parking lots for hybrid cars, CNG or LPG fueling stations, or fuel storage for biodiesel and ultra low sulphur fuel. Also, for passenger cars, electric quick charge may be needed in designated long term parking structures.

Airports without existing infrastructure should also, by 2012, develop a fueling master plan for airport fleet, rental car companies, airline and airport GSE, at a minimum, based on discussions and projections with tenant companies. Install fueling master planned elements during new construction, or in stand alone projects.

Set aside and advertise availability at parking structure/lot stalls that have dedicated electric hybrid spaces; track use to determine space utilization and recharge infrastructure needed.

C. Data on existing use

According to ACI-NA 2008 Environmental Benchmarking Survey, of the 74 respondents:

- 34 airports provide infrastructure for alternative fuels for vehicles (e.g., fueling stations, charging stations).
- 28 airports in North America currently encourage or require low emissions rental cars, taxis, shuttles, or other ground access vehicles.

D. Benefit of initiative

- **Environmental:** This initiative would have an incremental environmental benefit both on-airport and the region it serves by supporting the purchase and operation of lower-emitting vehicles. The estimated emissions reduction could be tracked by tenant owner or via fuel/electricity consumed.
- **Cost savings:** Short term expenditure for infrastructure. Long term, allows diversification of fueling source/types across airport with resultant scale down of tank farms, etc. as well as man-hours and vehicle-miles traveled spent driving GSE, etc. to off-concourse fueling stations.
- **Other:** Diversifies fueling sources/types, increasing continuity of operations.

E. How initiative can be put in place

- **Associated cost/staff/resources needed:** As an example from one airport's analysis, construction of a CNG fueling station can cost \$1.8M hard costs/ \$600,000 for design,

inspection, safety, staff, etc. Additionally, construction of GSE electric charge stations vary widely based on the number of units to be charged and the electrical needs. An internet review indicates that such units could range from \$15,000-30,000 per vehicle station with the greater costs being associated with the multi vehicle units (*i.e.*, a 10 vehicle charging station could cost about \$200,000 per *PosiCharge*).

- **Resources/funding available:** VALE program availability. Also, many airports charge a ground access fee for private companies operating at their facility, which can be used to fund transportation infrastructure maintenance and improvement costs.

- **Actions ACI-NA can assist with:**
 - Keep North America database of major tenant requests/plans for conversion to low emission vehicles to track trends, and infrastructure needs for airports' use.
 - Attempt to gain additional VALE funding and expanded eligibility.

AIR QUALITY, CLIMATE CHANGE, AND ENERGY GOAL 4: Energy Conservation

A. GOAL: *By 2014, every ACI-NA member airport will strive to implement an energy conservation program that includes adoption of an airport-specific goal to reduce non-renewable energy consumption.*

B. Goal details

Energy use reduction, particularly in existing airport buildings, is among the most useful initiatives the aviation community can do to minimize impact to the environment. It reduces energy generated air emissions, water pollution and waste, while reducing airport costs and infrastructure needs.

Federal energy conservation standards for equipment have allowed airports to gain greater energy efficiency in the normal course of equipment purchase. (Energy Policy Act of 1992/updated 2005). However, in the course of daily operations at an airport, the development of energy conservation policy and planning often is given secondary consideration, and ‘valuing engineering’ of new equipment purchases gives more weight to first cost than long-term energy savings or life cycle cost.

Lack of resources to adequately track energy use, the continual remodeling of terminal areas without adequate ‘retro-engineering’ of climate systems or lighting, limited use of asset management tools, and new equipment funding problems make energy conservation a challenge. Comparisons to any chosen baseline year may be normalized by comparison of energy used against passenger numbers or by building footage to account for airport growth. Comparison complications arise with installation of newer technology (and resultant energy use) for programs like: in-line EDS, PIDs, gate power and air.

Tenant contribution to energy use is difficult to ascertain due to different airport models for tenant utility tracking, which may not be sub-metered, but calculated for tenant charges by square footage leased.

Airports in various areas of the county use different power sources (natural gas, electricity, fuel oils, combination) which will not facilitate airport-to-airport comparisons and may require comparison by energy type versus environmental effects, via BTUs. Finally, airport development of on-site or purchase of off-site renewable energy might be included in energy reduction calculations, but would not keep focus on needed equipment efficiency improvements.

Recognizing that each airport operates under unique circumstances and that many airports have made significant strides in increasing energy efficiency, airports are encouraged to develop an energy conservation program specific to their airport. As part of these programs, airports should also develop a target to reduce non-renewable energy use. To develop a target, airports may use an existing baseline or establish a new baseline. Possible metrics for energy consumption can include per square foot of terminal space or passenger which will allow for growth in building infrastructure and passenger traffic. Credit will also be given to those airports utilizing renewable energy sources by focusing on non-renewables.

C. Data on existing use

All airports should have data on energy consumption and the size of the facility. Some airports already have started the planning to reduce the consumptions and some are implementing the plans.

Airport Energy Consumption Data (from ACI-NA 2008 Environmental Benchmarking Survey)

	Canadian	GA	Non-Hub	Small	Medium	Large
	(kWhr/Sq Ft/Year)					
Number of Respondent Airports	3	7	1	2	6	12
Percentage of Airport Respondents	75%	41%	20%	22%	33%	57%
Minimum	25	3.06	2.5	1.58	0.072	0.02
Maximum	64	38.81	2.5	3.71	45.05	43.7
Median	45.8	28.645	2.5	2.655	15.675	20.41
Average	44.93	24.28	2.5	2.64	18.62	22.22

D. Benefit of initiative

- **Environmental:** Air, waste and water emissions from electric power plants and/or from petroleum drilling and refining reduced. Reduced ecological impact from siting of transmission infrastructure.
- **Cost savings:** Reduction in operating cost includes reduced utility bills; reduced cost for airport infrastructure.
- **Other:** Reduces energy costs billed to tenants. However, cost for audit, new sub-metering, and especially costs for equipment replacement to more energy efficient models requires capital expenditure.

E. How initiative can be put in place

- **Associated cost/staff/resources needed:**
 - Capital funding to install efficient infrastructure, as well as changes to operation practices to reduce resource consumption.
 - Per airport: energy conservation staff/team; sub-metering, computerized energy management systems; auditing consultant; cost of new equipment and controls.
 - Possible Department of Energy funding.
- **Resources/funding available:**
 - ACRP Project: [Model for Improving Energy Use in U.S. Airport Facilities](#)
 - CIP; Fees to tenants (to be refunded by energy savings)
- **Actions ACI-NA can assist with:**
 - Lobby for modification of the VALE program to clearly state that ‘increasing energy efficiency’ within the airport boundary justifies funding for energy conserving equipment; modify section 6.2.1 of the VALE guidance to discuss emissions reductions not located on airport if for airport equipment.

- Start a report (or enhance the existing ACRP report) or database of new energy conserving technology and equipment airports can share (ex: Eco-Start vs. Soft-Start for people movers).
- Get special earmarked Federal funding or grant eligibility for airports to perform energy audits, citing Executive Order.

**AIR QUALITY, CLIMATE CHANGE, AND ENERGY GOAL 5:
Loading Bridges Equipped with Pre-conditioned Air and Power**

A. GOAL: *Every ACI-NA member airports will strive to have at least 25% of their loading bridges equipped with pre-conditioned air and 400 Hz electrification by 2019.*

B. Goal details

While aircraft emissions are outside the control of airports, one significant measure that airports can take to reduce emissions from aircraft operations is providing 400 HZ power and preconditioned air (PCA) infrastructure at all gates. Availability of 400 HZ power and PCA allows aircraft to shut off their engines and diesel-powered auxiliary power units (APU) while standing at the gates, instead relying on cleaner power sources.

SeaTac airport recently reported that availability of this infrastructure resulted in a savings of 1 million gallons of fuel per year. While there are obvious financial incentives associated with fuel conservations, the reduced fuel burn also translates directly to reduced air emissions. The reduction in carbon emissions associated with a 1 million gallon fuel reduction would be approximately almost 3,100 tons. Additional emission reductions of NOx, VOCs, and PM may be achieved.

While installation of 400 HZ power and PCA can range from \$50,000 -150,000+/gate depending on existing conditions and equipment types and whether this is a retrofit or new construction, however, rising fuel costs will continue to enhance the cost benefit of such a program to airline tenants.

Design of this infrastructure should incorporate technology to monitor use by gate as a measure to track/evaluate effectiveness. Airports should also work with airlines from a global/corporate level to encourage consistent corporate wide-policies on APU use.

C. Data on existing use

According to ACI-NA 2008 Environmental Benchmarking Survey,

Loading bridges with 400 Hz power or pre-conditioned air (74 airports reporting)

Total Loading Bridges: 2636						
	Total loading bridges with listed options (power or air)	Percent of total loading bridges with listed options (power or air)	Min % reported gates	Max % reported gates	Median % reported gates	Average % reported gates
400 Hz Power	2190	83%	0%	100%	100%	84%
Pre-Conditioned Air	1639	62%	0%	100%	59%	54%

D. Benefit of initiative

- **Environmental:** Reduced air emissions
- **Cost savings:** Reduced fuel use
- **Other:** Demonstration that airport is implementing measures to offset air emissions within their control. Potential permitting benefits.

E. How initiative can be put in place

- **Associated cost/staff/resources needed:** Design and construction costs, construction management, staff time to track effectiveness and to maximize utilization
- **Resources/funding available:** For airports located in nonattainment and maintenance areas, VALE funding may be possible.
- **Actions ACI-NA can assist with:** Information sharing between airports on technologies, environmental benefits, infrastructure costs and funding sources.

AIR QUALITY, CLIMATE CHANGE, AND ENERGY GOAL 6: Reduced Fee and/or Parking Incentives for Low Emission Passenger Vehicles

A. GOAL: *Half of ACI-NA member airports will strive to provide incentives and/or reduced fee parking for low emission passenger vehicles by 2011.*

B. Goal details.

In an effort to promote the air quality benefits of lower emitting vehicles, some airports have offered preferred parking spaces, and/or reduced rates for passengers utilizing low emission vehicles. These programs would be advertised through airport websites, printed media in airport terminals, and other public areas at the airport. The initial opening of such areas or programs provides an excellent opportunity for media coverage to promote the airport's proactive measures to reduce on- and off-airport emissions.

Eligible vehicles would be based upon the U.S. DOT's Alternative Fuels and Advanced Vehicles Data Center information available at <http://www.eere.energy.gov/afdc/vehicles/index.html>, or other government sources such as US EPAs green vehicle guide found at <http://www.epa.gov/greenvehicles/Index.do>.

Implementation of the priority parking areas can be implemented very quickly at relatively low cost (signage, parking area markings and promotional literature). Reduced fee parking would necessarily have a revenue impact and may require broader fiscal consideration and legal implementation. Any reduced rate incentives would be proportional to that airport's specific parking rate structure. With both programs, the opportunity to promote clean air and the airport's commitment to those goals is a primary benefit.

C. Data on existing use

Unknown

D. Benefit of initiative

- **Environmental:** Incremental benefit from encouraging the use of lower emitting vehicles when other public transit or high occupancy vehicle (HOV) modes do not meet individual travel needs.
- **Cost savings:** Parking rate reduction, if adopted, would reduce revenues; preferential parking location programs would not.
- **Other:** As outlined above, in addition to the direct environmental benefit, implementation of such a program is a clear demonstration that individual airports are committed to developing innovative programs to reduce emissions under their control.

E. How initiative can be put in place

- **Associated cost/staff/resources needed:**
 - Priority parking spaces program would require staff time to identify suitable “incentive” areas, properly mark the priority locations and develop appropriate program signage and enforcement capabilities to ensure use by designated vehicles. A media program would also be required to promote the program.
 - Reduced rate parking incentives would need fiscal analysis and may require legal and or board actions to implement due to potential revenue impacts.

- **Resources/funding available:** Unknown

- **Actions ACI-NA can assist with:**
 - ACI-NA could serve as a clearinghouse to collect documentation on any existing policies, pricing incentives and other legal and administrative procedures.
 - ACI-NA could be a resource for outlining the environmental and community benefits of program implementation

AIR QUALITY, CLIMATE CHANGE, AND ENERGY GOAL 7: Greenhouse Gas Emissions Inventories

A. GOAL: *Half of ACI-NA member airports will strive to conduct greenhouse gas emissions inventories by 2015.*

B. Goal details

Because greenhouse gases (GHG) are a global issue, the initial investigation of GHGs has occurred at a national level. In the U.S., the USEPA has prepared a top-down inventory prepared that includes aviation, reflecting the fuel consumed by commercial aviation. However, in response to local climate action plans and sustainability initiatives, some airports have begun to consider their contribution to greenhouse gas emissions.

The baseline for a greenhouse gas inventory should be developed based on state and local climate action plans. The Kyoto Protocol established an emission reduction goal based on emissions occurring in 1990. However, many states, counties and cities are establishing goals based on a baseline of 2000 or 2005. For instance, the Western Climate Initiative has established 2005 as its base year. However, the State of Washington, a member of the WCI, has adopted 2000 for its climate action goals.¹ California's Global Warming Solutions Act uses 1990 as a baseline. If a local requirement has not been established, the airport should be consistent with the Kyoto Protocol the year 1990 (or 2000 if data has not been retained for 1990) may be considered as a baseline year.

Airport-related emissions are identified and calculated in three general categories that are used by climate action registries:

- Direct/Scope 1 (primarily emissions from sources owned and controlled by the airport operator),
- Indirect/Scope 2 (e.g. airport operator purchased electricity, operator employee commute),
- Optional/Scope 3 (e.g., tenant and public caused emission).

For each category of emissions, numerous calculation approaches can be used but generally focus on either a Top Down or a Bottom Up approach. The Top Down approach, using gross energy usages, gives a quick magnitude of emission to be considered while the Bottom Up, considering each component of the gross number, identifies opportunities to reduce the emission. All emission, including aircraft emissions from ground to 3,000 ft and above 3,000 ft should be calculated to determine total effect of the aviation industry.

C. Data on existing use

According to ACI-NA 2008 Environmental Benchmarking Survey,

- 15 airports have conducted greenhouse gas emissions inventories.²
- The ACRP Guidebook will contain a summary of the inventories disclosed to that project and contrast the results.

¹ A good summary of climate action goals is available at <http://www.pewclimate.org/states-regions>

² Based on ACRP project findings of 10 inventories, this data may reflect planned inventories.

D. Benefit of initiative

- **Environmental:**
 - Emissions can not be properly managed and controlled unless the context of the emissions is understood through the preparation of an inventory.
 - The ACRP Guidebook will provide the industry with a methodology to present consistent inventories that will enable the inevitable comparison of emissions from one airport to another.
 - The approach to greenhouse gas inventories generally follows an “ownership and control” approach to identifying emissions; emissions are categorized by the party that owns and controls the source. The benefit to airports from this approach is that the airport operator is only responsible for controlling the emissions from sources it owns and controls.
- **Cost savings:** Inventories can help airports identify where greenhouse gas emission reductions can be achieved. While not a direct benefit of conducting an inventories, as part of a climate action plan the reduction in resource consumption allows the growth of the industry without attendant adverse environmental impact, improves efficiency by eliminating waste. In short, we are compelled to do more with less.
- **Other:** Inventories will assist airports with identifying key sources (sources that represent notable contributions to overall GHG emissions). Once the key sources are identified, airports can then voluntarily undertake emission reduction steps. This may give rise to discovery of new innovations to increase productivity and new areas of economic growth.

E. How initiative can be put in place

- **Associated cost/staff/resources needed:** Airports would individually prepare their inventories following a consistent inventory approach. The cost to prepare the inventories could range from \$10,000 to more than \$50,000 in staff or consulting cost depending on the size of the airport and the availability of data. In some cases, airport staff has the tools available to prepare the inventories, but in many cases the airport may choose to contract for the preparation of the inventory.

Including ensuing mitigation measures, the first approach payback is between 1 to 10 years after which it is all savings, the second approach has instant return and practically no investment, and third approach currently requires major investment and incentives but may become economically viable in the next 5 to 10 years.

- **Resources/funding available:** ACRP Project 02-06 will result in methodology for conducting airport GHG emissions inventories. The project report should be final by early 2009.
- **Actions ACI-NA can assist with:** One of the most costly evaluations in preparing an inventory is the estimation of aircraft emissions. ACI-NA can work with FAA to have the FAA prepare annual analyses using the SAGE model that can be parsed into the local airport level, thus ensuring that the local level inventories can be rolled up into a consistent national emissions level.

NOISE GOAL 1: Noise and Land Use Compatibility Policies

A. GOAL: *Every ACI-NA member airport will strive to develop a noise and land use compatibility policy by 2019.*

B: Goal Details

Aircraft noise exposure and compatible land use conditions at each airport are unique. Although no single solution or approach is appropriate for all airports, it is in the best interests of airports and their communities to enhance the compatibility of airport activities and community development. In some cases, airport noise and land use compatibility policies may reflect programs developed through Federal Aviation Regulation (FAR) Part 150, Noise and Land Use Compatibility Planning. Alternatively, airports may develop policies reflecting local conditions and historical decisions outside of FAR Part 150.

C. Data on existing use

Over the last 30 years, many airports have worked to reduce noise exposure and land use conflicts their environs. Since 1982 a total of 273 airports have developed noise and land use compatibility plans under the auspices of FAR Part 150. Numerous other airports have established noise offices to manage their noise and land use compatibility efforts. Over \$8.3 billion in FAA noise compatibility grants and passenger facility charge proceeds have been spent to reduce noncompatible land use.

D. Benefit of initiative

- **Environmental:** Adopting a noise and compatible land use policy would establish a baseline that recognizes the progress made in reducing noise exposure and noncompatible land use, while providing a benchmark for assessing continued progress.
- **Cost savings:** Adopting a noise and land use compatibility policy will not in itself reduce costs. Such a policy could provide a mechanism for documenting historical investments in noise reduction and compatible land use that will be useful in assessing the benefits and costs of future investments.
- **Other:** Adopting a noise and compatible land use policy shows the airport's continued commitment to reducing noise impacts and enhancing compatible land use planning.

E. How initiative might be put in place

- **Associated cost/staff/resources needed:** Limited resources would be required to adopt a noise policy.
- **Actions ACI-NA can assist with:**
 - Recognizing that many airports have already developed noise and land use compatibility programs, ACI-NA can solicit airport members for suggestions regarding the content of a noise policy.
 - ACI-NA can develop a template noise policy for use by its members.

WASTE MANAGEMENT GOAL 1: Recycling Programs

A. GOAL: *Every ACI-NA member airports will strive to have a basic recycling program in place by 2011. Half of airports will have more extensive recycling programs by 2014.*

B. Goal details

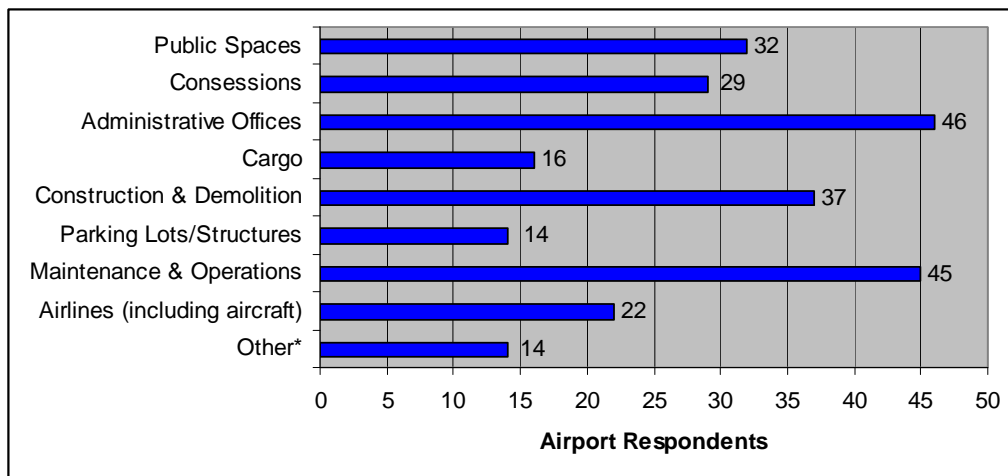
By 2011, all ACI-NA member airports will aim to have a basic recycling program in place. This program should include the recycling/reuse of the following waste streams: aluminum cans, plastic beverage bottles, office paper, newspaper, magazines, and used oil. By 2014, half of all ACI-NA member airports will have a recycling program for the commodities listed above as well as the following additional commodities: universal waste (batteries, aerosol cans, electronics, fry oil, organics (food and wood waste), and construction and demolition debris. The metric for monitoring the effectiveness will be pounds of solid waste per passenger (total number of passengers) disposed in the landfill per year. This will require an estimate in some cases of the roll off container weights and should be based on all airport owned and operated facilities and common use facilities (excludes tenant leased and operated facilities).

C. Data on existing use

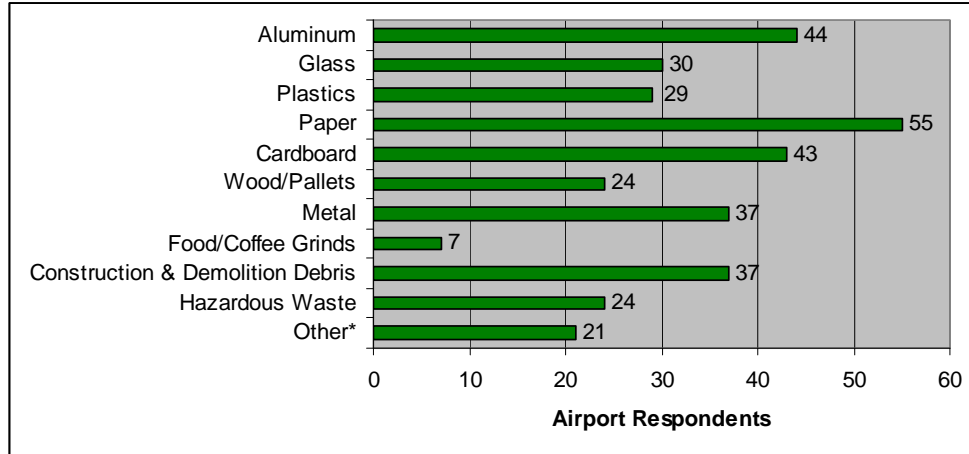
According to ACI-NA 2008 Environmental Benchmarking Survey,

- 53 airports have a recycling/reusing/composting program.
- Some additional airports indicated certain materials are recycled, although they do not have a formal recycling program

Areas covered by waste recycling/reusing/composting program:



Materials included in waste recycling/reusing/composting program:



D. Benefit of initiative

- **Environmental:** Conserves natural resources, reduces greenhouse gas emissions.
- **Cost savings:** In most cases, recycling reduces costs by eliminating disposal fees and reducing hauling costs (dependent on market). Airports can also realize revenue from recycling commodities (again, dependent on market).
- **Other:** Recycling can stimulate job growth through creation of a new market for recyclable materials (processing for example). Possible reduced regulatory burden.

E. How initiative can be put in place

- **Associated cost/staff/resources needed:** Containers for public and airport spaces; capital investment on containers for consolidating wastes (should be the responsibility of the service provider); expertise on solid waste/recycling market; staff to monitor containers and track performance.
- **Resources/funding available:** EPA grant funding for recycling; state grant programs; utilize cost savings from recycling for capital investment for new waste streams; partnerships with local solid waste entities (city, state) and with waste management companies.
- **Actions ACI-NA can assist with:**
 - Collaborate on development of best practices for airport waste management.
 - Facilitate information sharing, workshops and other mechanisms to help airports better understand and adopt best practices.
 - Support draft legislation for federal funding to develop airport waste management programs.
 - Provide compendium of waste management bid documents (scopes of work, etc.) to assist airports in evaluating opportunities.
 - Market research assistance
 - Collaborate with airlines and tenants on programs most effective for increasing recycling

WATER QUALITY GOAL 1: Water Conservation

A. GOAL: *By 2014, every ACI-NA member airport will strive to implement a water conservation program that includes adoption of an airport-specific goal to reduce water consumption.*

B. Goal details

Airports and their tenants can be large consumers of water. Water supplies are limited in many areas of North America, and many are subjected to drought conditions. Recognizing that each airport operates under unique circumstances and that many airports have made significant strides in water conservation, airports are encouraged to develop a water conservation program specific to their airport. To develop a target, airports may use an existing baseline or establish a new baseline. As part of these programs, airports should also develop a target to reduce water use. Possible metrics for water conservation can include gallons per enplaned passenger which will account for those airport initiatives recently put in place to reduce water consumption.

C. Data on existing use

ACI-NA member airports have implemented many measures to reduce water consumption. According to ACI-NA's 2008 Environmental Benchmarking Report, based on 74 airports:

- 56 airports have automatic shutoff fixtures.
- 48 airports have low-flow plumbing fixtures.
- 5 airports have waterless urinals.
- 7 airports have a water reuse program
- 23 airports use water-conserving landscaping techniques.

D. Benefit of initiative

- **Environmental:** Conserves water resources.
- **Cost savings:** Reduced water usage equates to lower water bills.
- **Other:**

E. How initiative can be put in place

- **Associated cost/staff/resources needed:** Cooperation is needed with engineering, planning, and maintenance staff.
- **Resources/funding available:** Airports can work with local utilities to conduct water audits (often free of charge). Rebate programs may be available for replacement of fixtures and equipment that have high water use.
- **Actions ACI-NA can assist with:**

WATER QUALITY GOAL 2: Spill Reduction Training

A. GOAL: *ACI-NA member airports will facilitate awareness and training with a goal of reducing spills by 25% from 2005 levels by 2015. ACI-NA airports will strive to have no releases of petroleum-based spills.*

B. Goal details

While airports cannot control third-party actions, airports can educate those parties in efforts to reduce petroleum-based spills. Many ACI-NA member airports have already established a baseline of petroleum-based and spills; otherwise, a 2005 baseline will be utilized.

C. Data on existing use

Most airports have active spill management programs.

D. Benefit of initiative

- **Environmental:** Less spills means reduced impacts to water quality.
- **Cost savings:**
- **Other:**

E. How initiative can be put in place

- **Associated cost/staff/resources needed:**
- **Resources/funding available:**
- **Actions ACI-NA can assist with (info gathering, legislation, etc.):**