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# Legal and regulatory reviews

## The law of aviation-related climate change: The airport proprietor's role in reducing greenhouse gas emissions

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### Abstract

*Considerable effort has been made to evaluate the aviation industry's contribution to global climate change. Relatively little attention has been given to the proper role of the various parties associated with these emissions in reducing them. This paper examines the legal role of airport proprietors in reducing greenhouse gas emissions. The paper begins with a summary of recent efforts to address greenhouse gas emissions from aviation. The second half of the paper examines the legal issues surrounding steps that airport proprietors might take to reduce emissions.*

### Keywords

*climate change, greenhouse gas, emissions, clean air act, proprietor's exception*

### INTRODUCTION

The aviation industry is coming under increasing scrutiny for its contribution to global climate change. While a number of uncertainties remain, understanding of aviation's contributions to climate change is advancing principally through better understanding of the effects of greenhouse gas (GHG) emissions on climate and better accounting of the GHG emissions of aircraft.

As is often the case, the regulation of GHG emissions has trailed behind scientific understanding. Fundamental legal questions, such as who should be responsible for

reducing aviation-related GHG emissions, have not yet been resolved.

The purpose of this paper is to examine the role of airports in reducing GHG emissions. Historically, airports have had to take a lead role in reducing some aviation-related impacts, such as noise. Several communities in the USA already have focused on airports as a significant contributor to the community's GHG emissions. Political and legal pressures are almost certain to intensify, particularly at airports operated by general purpose governments looking to reduce their emissions community-wide.

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At present, airport proprietors are operating without a roadmap. The regulation of previously identified pollutants may not provide a good model for how GHG emissions will be regulated. Further, airport proprietors must be mindful of the fact that the preliminary steps they take today may create expectations as to future action.

The most challenging issue for airports will be identifying their appropriate role, if any, in addressing GHG emissions from aircraft. The scientific review to date, particularly of airport-specific inventories, indicates that GHG emissions from aircraft dwarf the GHG emissions from all other airport-based sources (buildings, ground service equipment, ground access vehicles, airfield lighting, etc). At the same time, airport proprietors have very limited legal authority, under current conditions, to require or encourage reductions in GHG emissions from aircraft.

This paper summarises the current legal setting, presents predictions as to the future trajectory of regulation, describes the legal limits on airport proprietors that may affect their ability to address GHG emissions, and evaluates the legality of specific actions that airport proprietors might take in the future.

## AVIATION'S CONTRIBUTION TO CLIMATE CHANGE

Like other industries that rely on the combustion of fossil fuels, aviation contributes to climate change. While much of the media attention has focused on carbon dioxide (CO<sub>2</sub>), there are a number of

emission types associated with aviation that are believed to affect the climate, including ozone, methane, sulphate, soot, contrails and cirrus clouds.<sup>1</sup> Some of aviation's effects may reduce GHGs, like methane, but the net effect is to contribute to warming.

Studies conducted by the Intergovernmental Panel on Climate Change (IPCC) in 1999 concluded that aircraft were responsible for about 2 per cent of global CO<sub>2</sub> emissions in 1992.<sup>2</sup> However, because of the other climate-related effects of aviation, the IPCC concluded that aircraft accounted for about 3.5 per cent of total global contributions to global warming in 1992.<sup>3</sup>

These impacts are expected to increase in the future because of the anticipated growth in worldwide aviation activity. Depending on underlying assumptions, the IPCC estimated that the share of climate-related impacts associated with aircraft in 2050 would grow to between 4 to 17 per cent.<sup>4</sup> Some observers believe that a range of 6 to 10 per cent is most likely.<sup>5</sup>

In response to increasing public and political pressure, several communities have developed GHG inventories on a more local scale that isolate the contributions of aviation at particular airports.<sup>6</sup>

As an interesting example, in May 2007, the City of Denver, Colorado released an inventory of GHG emissions attributable to the city.<sup>7</sup> The report included estimates for GHG emissions associated with Denver International Airport (DIA) — see Table 1. The report calculated the total emissions associated

**Table 1** Denver International Airport (DIA) greenhouse gas inventory results

Source	Aircraft fuel use	Airport and airside ground fleets	Airport buildings	Ground transport to/from DIA	Incinerated airline waste
Metric tons of CO <sub>2</sub> equivalents	4,569,696	14,051	211,000	21,968	6

Source: City of Denver, Greenhouse Gas Inventory for the City and County of Denver (May 2007).

with the burning of jet fuel from DIA (including emissions at cruise altitudes) and also reported a share for which Denver residents (as opposed to other local communities) were responsible based on their share of enplanements at DIA. Using the latter measure, Denver attributed 6 per cent of total city GHG emissions to air travel.

The results are noteworthy in several respects. The GHG emissions from aircraft dwarf the other emissions associated with air travel, including the ground service equipment, terminal buildings and ground access vehicles, and account for 95 per cent of emissions relating to the airport. Among the non-aircraft emissions attributed to DIA, the airport buildings (including electricity use, heating and cooling) were by far the largest source, accounting for 85 per cent of non-aircraft emissions. Indeed, the report concluded that 'DIA airport buildings alone contributed about as much greenhouse gas emissions as all city government operations combined'.<sup>8</sup>

This contribution will vary airport to airport depending on the airport facilities and the source of electricity. Under the methodology used for Denver, airports that draw on electrical power with a significant share of hydroelectric or nuclear generation will have lower attributed GHGs.

## **PRESENT AND POSSIBLE FUTURE REGULATION OF AVIATION-RELATED GHG EMISSIONS**

### **International efforts**

The International Civil Aviation Organization (ICAO) plays a central role in addressing emissions from aircraft pursuant to the 1944 Convention on International Civil Aviation (Chicago Convention).<sup>9</sup> The Kyoto Protocol

(of which the USA is a signatory, but has not ratified) acknowledged the ICAO's role in the regulation of aircraft emissions, by leaving the recommendation regarding GHG emissions in international flights to be determined by the ICAO.<sup>10</sup> The ICAO makes recommendations to the signatory nations, however, it has no direct regulatory authority.

To date, the ICAO has not made recommendations to the signatory nations regarding GHG emissions. The ICAO considered the development of an aviation-specific emissions cap and trading system. In 2004, however, the ICAO Committee on Aviation Environmental Protection (CAEP) concluded that an aviation-specific emissions trading system under ICAO auspices was 'sufficiently unattractive that it should not be pursued further'.<sup>11</sup> Instead, the ICAO found that general emissions trading that would allow trades with other sources like power plants or forestry would be preferable and committed to the development of non-binding guidance on how to incorporate aviation emissions into general emissions trading systems.<sup>12</sup> This guidance is scheduled to be finalised in late 2007.

The Kyoto Protocol left each of the ratifying nation states with the responsibility of addressing emissions from domestic aviation as part of the general obligation of each country to reduce its GHG emissions to 7 per cent below 1990 levels.

The European Union (EU) has gone the furthest in addressing CO<sub>2</sub> emissions from domestic (intra-EU) and international flights. The European Commission has recommended that aviation-related emissions of greenhouse gases be included within the EU Emission Trading Scheme (ETS) starting in 2011. The ETS is a cap-and-trade system that became effective in Europe for some industries (not including

transportation) in 2005. A cap-and-trade system identifies the total amount of emissions allowed for a pollutant, provides a means to allocate allowances to pollute up to this amount, and then allows parties to trade allowances. The ETS includes national caps for GHGs and relies on the EU member states to distribute the GHG allowances to sources.

The European Commission has proposed that airlines be responsible for aircraft emissions of GHGs:

‘Like industrial installations, airlines will receive tradable allowances to emit a certain level of CO<sub>2</sub> per year from their flights. After each year operators must surrender a number of allowances equal to their actual emissions in that year. The total number of allowances available to airlines in the future will be capped at the average level of emissions in the years 2004–2006.’<sup>13</sup>

Airlines whose aircraft would emit CO<sub>2</sub> at a level exceeding their allowances would need to reduce their emissions and/or purchase additional allowances from the market to get under the cap.<sup>14</sup>

Aviation-related emissions from sources other than aircraft (such as ground support equipment) are not currently included in the proposed ETS. Reductions in emissions from ground-level sources like on-airport vehicles could be used as part of the process of offsetting excess aircraft emissions, but are not required. The Commission proposed to include intra-EU operations within the ETS starting in 2011 and operations originating or arriving at EU airports in 2012. The EU has not yet taken action on this proposal.

While the EU has considered expansion of the ETS cap-and-trade requirements to other industries, it has not taken steps that

would specifically make airports responsible for non-aircraft emissions. The details regarding future regulation of transportation sources remain to be developed.

### US efforts to address GHG emissions

US Congress has not developed any specific laws or proposed laws addressing aviation-related GHG emissions on a large scale. Bills pending before Congress for the reauthorization of the Federal Aviation Administration (FAA) contain provisions to provide more funding for research on improving fuel efficiency for aircraft and the use of alternative fuels, but no provisions for regulating GHG emissions.<sup>15</sup>

GHG emissions could be regulated under current provisions of the federal Clean Air Act of 1990. Under the Clean Air Act, the Environmental Protection Agency (EPA) has both the power and the duty to identify pollutants that may endanger public health or welfare.<sup>16</sup> Similarly, the EPA has the power and the duty to regulate sources of such air pollutants, such as aircraft engines, cars or power plants.<sup>17</sup>

Historically, the EPA did not consider GHGs to be pollutants that should or must be regulated pursuant to the Clean Air Act (at least due to their climate effects). However, the US Supreme Court called this policy into question in the April 2007 case of *Massachusetts v EPA*.<sup>18</sup> In *Massachusetts*, the plaintiffs challenged the EPA’s failure to regulate automobile emissions of GHGs under the Clean Air Act. The Act provided that the EPA ‘shall’ set emission standards for ‘any air pollutant’ from new automobiles or vehicle engines ‘which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare’.<sup>19</sup>

The Court ruled that GHGs constitute a pollutant subject to EPA regulation under the Clean Air Act. It also found that the EPA can avoid regulation 'only if it determines that greenhouse gases do not contribute to climate change, or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do'.<sup>20</sup>

The EPA has not determined whether or how it will respond to the Court's direction in *Massachusetts*. Nonetheless, it probably will act on GHGs pursuant to the Clean Air Act, even if the form and timing of such action remain to be seen. Because the provision in the Act relating to motor vehicles is very similar to the provision relating to the emissions of aircraft engines,<sup>21</sup> it is quite possible that the EPA could also at some point regulate aircraft GHG emissions standards under the Clean Air Act.<sup>22</sup> However, it would need to do so in concert with the FAA, which prefers to work within the framework of the ICAO.

It is not clear whether the EPA's power to regulate GHGs under the Clean Air Act will result in the Act becoming the primary tool for GHG emissions. Congress structured the Clean Air Act primarily to address localised or regional air pollutants like ozone or carbon monoxide. GHG emissions may not be best addressed through the technological controls that form the centrepiece of the Clean Air Act's regulation of stationary sources and surface vehicles. Nonetheless, *Massachusetts* and future regulatory action will make climate-specific action by Congress more likely.

Congress is likely to continue to impose responsibility for emissions in a similar fashion to the Clean Air Act. Under the Clean Air Act, the manufacturers of and fuel providers for mobile sources are primarily responsible for

emissions reductions rather than the facilities that accommodate them (eg shopping centres, parking garages or roadways).<sup>23</sup> Similarly, manufacturers and operators of aircraft are more likely to be responsible for controls than the airports that accommodate aircraft. However, airports that have significant stationary sources of GHGs (such as heating plants) could face liability directly.<sup>24</sup>

Climate change bills pending before Congress provide added insight into possible future legislation on aviation-related GHG emissions. As under the Clean Air Act, the onus of proposed mandates generally appears to fall on those entities that have the most direct control over emissions activities, such as the owner of a power plant or the manufacturer of engines.<sup>25</sup> The bills also rely heavily on cap-and-trade, incentive and product-based emissions limitations (such as vehicle fuel economy or fuel requirements).<sup>26</sup> Much of the proposed regulation is focused on relatively large stationary sources of emissions like refineries and power plants, with no rules or guidance on other sources.<sup>27</sup>

In advance of regulation, the FAA may increase attention to climate change (or be forced to do so) in its review of projects pursuant to the National Environmental Policy Act (NEPA).<sup>28</sup> To date, climate issues have not been a significant issue in environmental reviews, because very few projects would cause significant increases in GHGs and none have been considered significant on a global scale. However, pressure is building on the FAA and other federal agencies to consider the climate implications of federal actions in the NEPA process.

As with other areas of environmental law, a number of the states are innovating on climate change ahead of federal efforts. For example, the California Global

Warming Solutions Act 2006 requires California to reduce state-wide emissions of GHGs to 1990 levels by 2020.<sup>29</sup> The Act charges the state's Air Resources Board (ARB) with the responsibility for developing the regulations needed to implement the Act. The ARB is considering cap-and-trade proposals as part of the process for doing so, including linkages to the EU's ETS.<sup>30</sup> There are not yet specific proposals regarding whether and how aviation could be included in this programme.

In a similar fashion, nine states in north-east USA have entered into a memorandum of understanding to develop a Regional Greenhouse Gas Initiative (RGGI). The RGGI is developing a cap-and-trade programme for emissions from power plants in the RGGI states, which could also be linked with California and the EU ETS.

Other private and public entities such as the City of Chicago, the City of Portland and United Technologies Corporation participate in the Chicago Climate Exchange (CCX). Entities join the CCX voluntarily, but the CCX requires contractual obligations to reduce CO<sub>2</sub> emissions once an entity joins. Emissions reductions in excess of the contractual obligations or from certain offset vendors can be sold to other entities to meet their reductions targets. As of July 2007, one ton of carbon emissions reductions was trading at about \$3.75.<sup>31</sup>

### **Other sources of potential airport proprietor responsibility for GHG emissions**

In addition to formal regulatory programmes, it is conceivable that private or public plaintiffs in the future may bring GHG-related lawsuits under common law theories.<sup>32</sup> These suits could be under

nuisance or taking of private property and related theories, and seek damages or an injunction against further pollution.<sup>33</sup>

Airport proprietors are familiar with these types of liability, because they have faced potential liability for noise and localised air pollution from aviation operations for decades. In 1962, the US Supreme Court determined in *Griggs v Allegheny County* that airport proprietors, rather than airlines or the Federal Government, should be responsible for takings of property due to noise and other effects from aircraft overflights.<sup>34</sup> The Court concluded that airport proprietors should be responsible because they site the runways, acquire property for the airport (sometimes insufficiently, in the Court's view) and determine the directions in which the runways are oriented. Similar reasoning has supported state and federal litigation against airport proprietors for noise and localised air quality effects undertakings, nuisance and other theories.<sup>35</sup> This is despite the fact that, especially under current conditions, airlines and the FAA have far more control over local noise and air quality effects of aircraft operations than airport proprietors.<sup>36</sup>

Successful litigation against airport proprietors on taking, nuisance and other theories in the climate context appears highly unlikely. Unlike noise or localised air quality problems directly attributable to an airport, impacts from climate change have only small and distant links to any particular airport. Climate change is a diffuse, global problem that is not linked in a meaningful way to the particular siting of airports, the location of their runways or the purchase of adequate surface rights or navigation easements. Instead, the manufacturers and users of aircraft, along with FAA air traffic control, have the greatest control over aircraft emissions of GHGs. Causation and other

problems would loom large for potential plaintiffs. Thus, it appears unlikely that the common law will provide a significant potential source of liability or regulation for airports.

### **Predictions regarding airport proprietor responsibility for GHG emissions**

While many details remain to be developed in the regulation of aviation and airport emissions of GHGs, a few predictions are reasonable. It is unlikely that airport proprietors will be held responsible under federal law or common law theories for emissions from aircraft. Instead, the burden of regulation is likely to fall on airlines and aircraft and engine manufacturers.

Airport proprietors are likely to be responsible for emissions from buildings and facilities such as heating plants, either independently or jointly with energy providers. It is less clear whether and how emissions from ground support equipment, ground access vehicles and other possible sources would be handled. Airport proprietors have influence, but not complete control, over these sources. It is most likely that emissions from surface vehicles will be addressed through regulation (including market-based systems) of vehicle manufacturers and fuel providers; however, airport proprietors can play a role in affecting their use at airports.

### **AIRPORT PROPRIETOR ACTIONS TO REDUCE GHG EMISSIONS**

These legal conclusions are unlikely to ameliorate the intensifying political pressure on airport proprietors to address GHG emissions, including emissions of aircraft. Communities may look to airport proprietors to voluntarily step up efforts

to reduce GHG emissions, and state and local governments may try to compel airport proprietors to take action.

One relevant question is how actions by airport proprietors to lower GHG emissions would fit within the existing regulatory structure of airports. This is particularly important as voluntary measures and state or local requirements would be unlikely to be accompanied by changes in federal law.

There are numerous constraints on airport proprietors that, if left unchanged, would limit their ability to reduce GHG emissions associated with airport operations. These include federal laws preempting certain actions by airport proprietors to regulate air carriers, the ban on passenger head taxes, the prohibition against diverting airport revenue for non-airport purposes, and the requirement to impose only reasonable and not unjustly discriminatory terms and conditions on aeronautical users.<sup>37</sup>

### **Regulation of aircraft to reduce GHG emissions**

Because the highest contribution of aviation-related GHG emissions is from aircraft, an initial reaction for airport proprietors may be to target aircraft. However, the patchwork of regulation leaves airport proprietors with very limited authority to reduce GHG emissions from aircraft or to offset those emissions in other ways.

As a threshold matter, airport proprietors are barred entirely from regulating the operation of aircraft in flight, to reduce GHG emissions or for any other purpose, as a result of the Federal Government's plenary jurisdiction over airspace.<sup>38</sup> Thus, airport proprietors will play only a nominal role, beyond making recommendations to their users, in one

promising approach to reducing GHG emissions: changing routes and procedures to reduce fuel burn.

There remain at least four theoretical ways in which airport proprietors could control aircraft-related GHG emissions: limit an airport to aircraft with low GHG emissions; require operational procedures on the airport to minimise fuel burn; develop a graduated system of rates and charges to account for the GHG emissions of aircraft; and fund projects and programmes to offset aircraft-related GHG emissions.

The first option is untested but would be subject to challenge. The Clean Air Act pre-empts entirely any state or local regulation 'respecting emissions of any air pollutant from any aircraft or engine thereof'.<sup>39</sup> As examined above, it is now settled that GHGs can be air pollutants covered by the Clean Air Act. Further, the scope of pre-emption under the Clean Air Act is extensive and may preclude actions by an airport proprietor to limit use of the airport based on an aircraft's GHG emissions.<sup>40</sup>

Additionally, it is unclear whether and how the longstanding body of law on another aviation-related pollutant, noise, would apply to efforts by airport proprietors to control GHG emissions. Federal law recognises the right of airport proprietors to impose reasonable restrictions to reduce aircraft noise.<sup>41</sup> While a few courts have stated that this authority extends to actions to address other local environmental concerns, the precise limits of this power have not been established.<sup>42</sup> Even if this authority extends beyond noise, it is uncertain whether climate change constitutes a sufficiently *local* concern to be covered.

Further complicating the application of the so-called 'proprietor exception' to GHG-based restrictions is the fact that

this doctrine is rooted in airport proprietors' liability for noise impacts in surrounding communities, as explained above. Although some courts have eschewed the notion that liability is a necessary predicate to exercising the proprietor exception,<sup>43</sup> it clearly is a factor. To date, no court has found an airport proprietor liable for GHG emissions attributable to aircraft. As discussed in the preceding section, it is unlikely that any court will do so under current legal principles. Therefore, airport proprietors may not be able to call upon the proprietor exception as a basis for regulating aircraft to reduce GHG emissions.

A final open question is whether a GHG-based restriction on aircraft would be subject to the Airport Noise and Capacity Act 1990.<sup>44</sup> The principal functions of the Noise Act were to phase out commercial Stage 2 aircraft and to establish procedures and standards for local restrictions on Stage 2 and Stage 3 aircraft. While the text and legislative history of the Noise Act reflect congressional concern with local *noise* rules, the statute and regulations refer to noise *or access* restrictions and capture myriad restrictions that affect the operation of jet aircraft. It would remain for the FAA and reviewing courts to determine whether the Noise Act applies to restrictions imposed in the interest of reducing GHG emissions. If the Noise Act does encompass such restrictions, airport proprietors would have to follow rigorous procedural and substantive requirements, including FAA approval, before implementing a restriction.

The second option, on-airport controls, might include limiting the amount of time for which aircraft are permitted to idle at a parking position, limiting engine run-ups, requiring that aircraft be towed or use one engine for taxiing, and similar

measures. These alternatives might be less controversial than barring the airport to certain aircraft. In the interest of improved air quality, some of these measures are already in place.

The Federal Government's legal interest in the operation of aircraft arguably begins at the point at which aircraft taxi onto the runway, leaving some room for limitations of aircraft operations on the ground.<sup>45</sup> Nevertheless, these restrictions present many of the same basic questions about the inherent power of an airport proprietor to limit aircraft operations to reduce GHG emissions. Further, even mandatory measures on aircraft ground operations would address only a small fraction of total GHG emissions.

As a practical matter, airport proprietors would have to weigh the potentially limited benefits of such measures against the risks. It may prove to be the case, for example, that an airport proprietor could achieve the same or greater efficiencies by making capital improvements to the airfield, where physically possible, that would reduce aircraft taxi time and delay. Further, airports may seek to achieve airline adoption of GHG-reducing ground practices through incentives, agreement, moral suasion, purchase of critical equipment (like tugs) or other steps short of regulation. Indeed, airlines are already experimenting with and implementing many of these measures voluntarily due to their own compelling need to reduce fuel consumption.

Thirdly, airport proprietors could adjust their rates and charges to reflect the GHG emissions of aircraft. Airport proprietors are obligated to charge only reasonable rates for aeronautical use of an airport.<sup>46</sup> While weight-based landing fees do not take into account concepts such as fuel efficiency, fuel flowage fees do

promote fuel efficiency, albeit indirectly and nominally.

Airport proprietors have quite limited authority to impose surcharges on landing fees and fuel flowage fees simply to promote a policy goal of combating climate change. As discussed below, airport proprietors may have more success in imposing charges for capital projects designed to enhance operating efficiencies and reduce GHG emissions. Equally important, airport proprietors may be able to apportion costs of those capital projects specifically designed to reduce GHG emissions based on the emissions attributable to airlines and other airport users.

Congestion pricing is a tool recognised by the FAA that may prove valuable in reducing GHG emissions.<sup>47</sup> Congestion pricing is tied most directly to congestion and delay; however, increasing efficiencies by spreading flights throughout the day would have GHG-related benefits. There is no legal bar to incorporating this objective into the structure of a programme or, at a minimum, recognising the GHG-related benefits of such programmes.

Finally, to avoid the myriad pitfalls associated with direct and indirect regulation of aircraft, airport proprietors might consider ways to offset the GHG emissions attributable to aircraft operations to and from the airport. A few domestic and foreign airlines have taken a lead role by offering passengers the option of paying a premium that would be used to offset GHG emissions.<sup>48</sup> These initiatives are in addition to other programmes, often referred to as 'green tags', which permit any traveller to offset the GHG emissions of travel.<sup>49</sup>

Because only a few domestic airlines currently offer passengers a means to offset their GHG emissions, airport proprietors might pursue this approach airport-wide. Any effort by an airport proprietor to

impose a mandatory charge on passengers using the airport would be barred by the Anti-Head Tax Act of 1973.<sup>50</sup> However, airport proprietors could avoid this restriction by creating a voluntary programme by which passengers could contribute, for example, at automatic kiosks located throughout an airport. The City of Denver recommended implementing such a programme at DIA as part of its recent inventory report.

While this voluntary approach would avoid potential conflicts with the Anti-Head Tax Act, airport proprietors would need to consider federal restrictions on the use of airport revenue. These restrictions essentially require that airport proprietors use revenues only for the capital and operating costs of the airport.<sup>51</sup> Funds paid to an airport proprietor explicitly for the purchase of off-airport emissions offsets might be justified under revenue use principles, but have not been tested with the Department of Transportation. To avoid this risk, airport proprietors might consider permitting a non-governmental organisation to offer this service with the proprietor's endorsement.

Permissible use of the proceeds of a voluntary programme funded by passengers could also include retrofitting facilities for energy efficiency, installing photovoltaic cells to provide energy for airport systems, purchasing renewable electricity for airport operations if such power came at a higher price, or using the proceeds as financial incentives to airlines using aircraft with low GHG emissions.

### **Regulation of non-aircraft sources to reduce GHG emissions**

Although airport proprietors may have limited authority to reduce or offset emissions attributable to aircraft, they have

far greater control in regulating other activities by airport tenants, users and contractors. These efforts could be pursued through leases, permits and contracts or through changes to an airport's rules and regulations.

Examples of some of the more aggressive options include requiring airlines and their aeronautical service providers to use ground support equipment powered by alternative fuels; requiring building and hangar owners to use energy efficient systems and designs in new construction and renovation; requiring rental car, parking lot and other shuttle services to use alternative fuel vehicles; and requiring analogous commitments from airport construction contractors. In short, airport proprietors could take steps to mandate that their users become GHG-neutral. Of course, these potential regulations go far beyond the more cooperative and less aggressive measures that may be tried first or as part of an overall plan.

The primary legal obligation implicated by these options is the requirement that airport proprietors impose only reasonable terms and conditions on aeronautical users of the airport.<sup>52</sup> Because this requirement applies only to aeronautical users, it does not affect the examples offered above relating to landside activities. As with the imposition of access charges and other conditions, airport proprietors have a relatively free hand in dealing with non-aeronautical users.<sup>53</sup>

Even with respect to aeronautical users, there is only limited guidance on the extent to which an airport proprietor can impose environmental requirements that go beyond the environmental and building requirements of federal, state and local law. While airport tenants and users may balk at the costs associated with such requirements, airport proprietors have considerable discretion to

impose requirements that would reduce the GHG emissions from these activities.

Indeed, it appears that the principal reason that airport proprietors have not yet pursued these measures has more to do with the interdependence of airport proprietors and their tenants and users than any legal prohibition. This relationship is not immutable. As airport proprietors face pressure, politically and legally, to reduce the GHG emissions attributable to the airport, they almost certainly will look for ways to require reductions from their tenants and users.

### **Using airport capital projects and operational measures to reduce GHG emissions**

The one area where airport proprietors are already making gains is in pursuing capital projects to promote sustainability in general and GHG emission reductions in particular. The types of steps that airport proprietors can take are extensive and include, for example, airfield improvements to enhance aircraft operating efficiencies, building and renovating airport terminals and concourses to improve energy efficiency, and seeking to generate energy more efficiently and with renewable sources on-airport.

From a legal perspective, these types of initiatives also raise presently unanswered questions. The first question concerns the availability of funding for these projects. While projects designed to improve energy efficiency over the long term may be quite cost-effective, the initial capital outlay for such projects may exceed the cost of more traditional design and building.

Because airport proprietors typically use a variety of sources to fund capital projects, including some combination of airport improvement programme (AIP)

grant funds, passenger facility charge (PFC) revenues, and rates and charges imposed on airport tenants and users, airport proprietors must be vigilant to ensure that the cost of such projects can be covered by any or all of these sources.

At present, federal eligibility standards for AIP and PFC do not deal explicitly with these types of projects. Eligibility is typically determined based on the nature of the project, ie airport development.<sup>54</sup> Congress declared that construction of facilities and purchase of equipment to enhance air quality are an eligible use of PFC revenue in certain circumstances.<sup>55</sup> There is presently no guidance on whether airport proprietors would be eligible for assistance to pursue a capital project designed expressly for the purpose of achieving GHG-related benefits or, perhaps more realistically, whether any and all increased capital costs to incorporate GHG-related benefits into a project designed to enhance capacity would be eligible for federal participation.

In addition or as an alternative to AIP and PFC funds, airport proprietors may attempt to pass these increased capital costs on to airport users through rates and charges. In general, airport proprietors can impose only reasonable rates and charges on air carriers and other aeronautical users of an airport.<sup>56</sup> FAA policy recognises that airport proprietors may pass 'reasonable environmental costs' that are actually incurred on to airport users.<sup>57</sup> In theory, airport proprietors should be able to pass on increased capital costs incurred in the interest of reducing GHG emissions just as they can pass on the cost of architectural elements of capital projects that are not strictly *necessary* to serve an aeronautical purpose.

Similarly, airport proprietors may attempt to pass on increased costs incurred in the operation of existing or

new facilities. For example, many utility companies offer customers the ability to pay a premium for energy generated from renewable sources. Airport proprietors may decide to participate in such programmes in recognition of the energy consumption by the large facilities they operate.

Although airport users may accept financial responsibility for certain increased capital and operating costs, there may be a tipping point, particularly if such initiatives are undertaken at several airports and/or the initiatives are unrelated to capital projects designed to serve the specific needs of users. The Department of Transportation may at some point be called upon to consider the reasonableness of increases in airport rates and charges attributable to an airport proprietor's GHG-related initiatives.

## CONCLUSION

Airport proprietors are in an awkward position right now, with increased interest and pressure to address GHG emissions, but little certainty regarding the shape of future regulation or even the nature and scope of their current powers to take action. Nonetheless, a few principles should guide airport proprietors' actions relating to climate change.

First, airport proprietors involved in preparing GHG inventories are generally right to acknowledge GHG emissions associated with all aspects of airport operations, including aircraft, ground support equipment, terminals, ground access vehicles and other sources. However, airport proprietors should carefully segregate emissions into those they can control, those they can influence, and those they have no effective power to address. Grouping aircraft emissions with emissions from facilities may create a false

expectation that airport proprietors can reduce emissions from both sources. Instead, airport proprietors should focus on those emissions they can control or meaningfully influence. As with noise impacts, airport proprietors face a difficult public education challenge in explaining that they do not control aircraft emissions and have only limited influence over users.

Secondly, airport proprietors interested in addressing GHG emissions should start with those areas most clearly within their control, such as airport facilities and fleets. Denver's inventory and other inventories suggest that there are considerable opportunities for GHG emission reduction without significant legal risks. There are also opportunities to work with airlines and others to reduce GHGs without mandatory regulations, such as efforts to reduce the consumption of jet fuel while aircraft are on the ground.

Finally, airport proprietors should carefully track and record their progress. Even if the principal reason for taking action is to respond to community pressure, airport proprietors should look for every opportunity to sell credits achieved through GHG reductions, secure credits for traditional air quality improvements, and consider early-action credit under potential state or federal climate change cap-and-trade programmes.

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- (3) *Ibid.*, p. 8. It is important to note that the assessment of the contribution to global warming is quite dependent on methodology and a number of assumptions that are subject to continuing assessment and dispute.
- (4) Royal Commission on Environmental Pollution (2007) 'Report: The Environmental Effects of

- Civil Aircraft in Flight', p. 18., available at <http://www.rcep.org.uk/aviation/av05-s3.pdf> (accessed 1st October, 2007).
- (5) *Ibid.*, p. 19.
- (6) Communities that have published their inventories include Seattle, Washington (2002), the State of California (2004), Aspen, Colorado (2006) and Denver, Colorado (2007).
- (7) City of Denver (2007) 'Greenhouse Gas Inventory for the City and Country of Denver', available at: [http://www.greenprintdenver.org/docs/Denver\\_GHG\\_Inventory\\_Report.pdf](http://www.greenprintdenver.org/docs/Denver_GHG_Inventory_Report.pdf) (accessed 1st October 2007).
- (8) *Ibid.*, p. 43.
- (9) International Civil Aviation Organization (1944) 'Convention on International Civil Aviation', available at: [http://www.icao.int/icaonet/arch/doc/7300/7300\\_orig.pdf](http://www.icao.int/icaonet/arch/doc/7300/7300_orig.pdf) (accessed 1st October 2007).
- (10) United Nations (1998) 'Kyoto Protocol to the United Nations Framework Convention on Climate Change', available at: <http://www.unfccc.int/resource/docs/convkp/kpeng.html> (accessed 1st October 2007).
- (11) Commission of the European Communities (2006) 'Summary of the Impact Assessment: Inclusion of Aviation in the EU Greenhouse Gas Emissions Trading Scheme', Commission Staff Working Document, Brussels, p. 2 (citing Committee on Aviation Environmental Protection (2004) 'Report of the Committee on Aviation Environmental Protection Sixth Meeting', CAEP/6).
- (12) *Ibid.*
- (13) European Commission (2006) 'Questions and Answers on Aviation and Climate Change', Brussels, pp. 3–4.
- (14) *Ibid.*
- (15) See FAA Reauthorization Act 2007, H.R. 2881, ss. 505, 509 and 510 (2007); Aviation Investment and Modernization Act 2007, s. 1300, ss. 602–603 (2007). Note that some of the provisions relate more to perceived energy security than improvement in GHG emissions, eg coal-to-liquids programmes.
- (16) 42 USC. s. 7408.
- (17) For example, 42 USC. ss. 7411 (New Source Performance Standards), 7475 (Prevention of Significant Deterioration), 7503 (New Source Review) and 7521 (Motor Vehicle Emission Standards).
- (18) *Massachusetts v EPA*, 127 S.Ct. 1438 (2007).
- (19) 42 USC. s. 7521(a)(1).
- (20) *Massachusetts v EPA*, 127 S.Ct., p. 1462.
- (21) Compare 42 USC. s. 7521 with 42 USC. s. 7571.
- (22) However, it is worth noting that a proposed element of the House of Representatives' current draft of the FAA Reauthorization Bill would direct a study to determine if the responsibility for regulating aircraft emissions should be moved from the EPA to the FAA. H.R. 2881.
- (23) 42 USC. s. 7521.
- (24) 42 USC. ss. 7475, 7503; 40 C.F.R. ss. 52.21, 52.24.
- (25) Climate Stewardship Act 2007, H.R. 620; Climate Stewardship and Innovation Act 2007, s. 280; Global Warming Pollution Reduction Act 2007, s. 309; Global Warming Reduction Act 2007, s. 485.
- (26) See eg s. 485, § 201 (Expansion and Extension of Alternative Motor Vehicle Credit); s. 309 § 704 (Global Warming Pollution Reductions); s. 280, s. 351 (Low- or Zero-Emissions Electricity Generation).
- (27) See Bills on climate change, ref. 25 above.
- (28) 42 USC. ss. 4321, *et seq.*
- (29) California Health and Safety Code 2006, s. 38550.
- (30) Market Advisory Committee to the California Air Resources Board (2007) 'Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California', available at: [http://www.climatechange.ca.gov/documents/2007-06-29\\_MAC\\_FINAL\\_REPORT.PDF](http://www.climatechange.ca.gov/documents/2007-06-29_MAC_FINAL_REPORT.PDF) (accessed 1st October 2007).
- (31) See Chicago Climate Exchange (2007) 'CCX CFI Monthly Summary', available at: <http://www.chicagoclimatex.com/market/data/monthly.jsf> (accessed 31st July, 2007).
- (32) See eg Grossman D. (2003) 'Warming up to a not-so-radical idea; Tort-based climate change litigation', *Columbia Journal of Environmental Law*, Vol. 28, No. 1, pp. 1–61; Healy J, Tapick J. (2004) 'Climate change: It's not just a policy issue for corporate counsel – It's a legal problem', *Columbia Journal of Environmental Law*, Vol. 29, No. 1, pp. 89–118; Merrill T. (2005) 'Global warming as a public nuisance', *Columbia Journal of Environmental Law*, Vol. 30, No. 2, pp. 293–333.
- (33) *Ibid.*
- (34) *Griggs v Allegheny County*, 369 US 84 (1962).
- (35) See eg Zitter, J. (1983) 'Airport operations or flight of aircraft as constituting taking or damaging of property', *American Law Reports*, Vol. 22, No. 4, pp. 863 *et seq.*
- (36) See eg *City of Burbank v Lockheed Air Terminal, Inc.*, 411 US 624 (1973); Airport Noise and Capacity Act, 49 USC. App. ss. 2153–2156.
- (37) 49 USC. ss. 41713(b), 40116(b), 47133 and 47107(a)(1).
- (38) 49 USC. s. 40103(a) ('The United States Government has exclusive sovereignty of airspace of the United States'); *ibid.* s. 40103(b) (delegating responsibility to the Federal Aviation Administration to 'develop plans and policy for the use of the navigable airspace'); *National Helicopter Corp. of Am. v The City of New York*, 137 F.3d 81, 92 (2d Cir. 1998).

- (39) 42 USC. s. 7573.
- (40) See *California v Dept. of Navy*, 431 F.Supp. 1271, 1287 (N.D. Cal. 1977) ('[t]he scope of federal aircraft pollution prevention is limited to pre-emption of state regulations which touch upon (directly or indirectly) the engines, their design, manufacture, operations, etc').
- (41) 49 USC. s. 41713(b)(3) (recognising the right of an airport proprietor to carry out its 'proprietary powers and rights' as an exception to the pre-emption of local government regulation 'related to a price, route or service of an air carrier'); *British Airways Bd. v Port Auth. of New York and New Jersey*, 558 F.2d 75, 85 modified by 564 F.2d 1002 (2d Cir. 1977) ('Congress has reserved to proprietors the authority to enact reasonable noise regulations, as an exercise of ownership rights in the airport, because they are in a better position to assure the public weal').
- (42) *American Airlines, Inc. v City of Dallas*, 202 F.3d 788, 806 (5th Cir. 2000) ('The precise scope of an airport owner's proprietary powers has not been clearly articulated by any court').
- (43) *British Airways Bd.*, 558 F.2d at 83; *American Airlines*, 202 F.3d at 806. See also Initial Decision, *In The Matter of Compliance With Federal Obligations by the Naples Airport Authority, Naples, Florida*, 2003 WL 21876635 at \*16 (FAA) ('I do not find that proof of actual or potential liability must be shown by an airport proprietor in order to fall within the scope of this exception to federal pre-emption. To the extent that actual or potential liability remains the basis for the proprietary powers exception, no further *indicia* of liability needs to be shown other than proof that the entity is the proprietor of the airport') overruled on other grounds by *City of Naples Airport Auth. v FAA*, 409 F.3d 431 (DC Cir. 2005).
- (44) 49 USC. ss. 47521–47533.
- (45) See *Northwest Airlines v State of Minnesota*, 322 US 292, 303 (1944) (J. Jackson concurring) ('The moment a ship taxis onto a runway it is caught up in an elaborate and detailed system of controls').
- (46) 49 USC. s. 47107(a)(2).
- (47) See FAA (1996) 'Policy Regarding Airport Rates and Charges', 61 Fed. Reg. 31994, 32021, § 3.2 ('A properly structured peak period pricing system that allocates limited resources using price during periods of congestion will not be considered to be unjustly discriminatory').
- (48) Airlines currently offering passengers the option of purchasing carbon offsets include Scandinavian Airlines, British Airways, Delta Airlines and Virgin Blue Airlines.
- (49) See eg, Bonneville Environmental Foundation (2007) 'Green tags', available at: <https://www.greentagsusa.org/GreenTags/index.cfm> (accessed 31st July, 2007).
- (50) 49 USC. s. 40116(b) ('[A] State or political subdivision of a State may not levy or collect a tax, fee, head charge, or other charge on — (1) an individual traveling in air commerce; (2) the transportation of an individual traveling in air commerce; (3) the sale of air transportation; or (4) the gross receipts from that air commerce or air transportation').
- (51) 49 USC. ss. 47107(b) and 47133.
- (52) 49 USC. s. 47107(a).
- (53) See *Four T's, Inc. v Little Rock Muni. Airport Comm'n*, 108 F.3d 909 (8th Cir. 1997).
- (54) See 49 USC. ss. 40117 (PFC) and 47106 (AIP).
- (55) 49 USC. s. 40117(a)(3)(G).
- (56) 49 USC. s. 47107(a)(2).
- (57) FAA (1996) 'Policy Regarding Airport Rates and Charges', 61 Fed. Reg., p. 32019, § 2.4.2, as ref. 47 above.