Fuel Infrastructure at Airports

Xavier Oh
Senior Manager Environment
and ICAO Liaison
Airports Council International
Outline of Presentation

- Fuel Infrastructure at Airports
- Ownership and operation survey
- Electricity grid analogy
- Delivering Biofuels to aircraft
## Fuel Infrastructure Survey

### 24 Airport responses

<table>
<thead>
<tr>
<th>Size</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 50 M pax</td>
<td>4</td>
</tr>
<tr>
<td>25 – 50 M pax</td>
<td>7</td>
</tr>
<tr>
<td>10 – 25 M pax</td>
<td>8</td>
</tr>
<tr>
<td>&lt; 10 M pax</td>
<td>5</td>
</tr>
</tbody>
</table>

**Locations** – Europe, Asia-Pacific, N America, Africa, Caribbean

Note: about 190 airports have >6 Mpax, encompassing 80% of global passenger traffic

All had Fuel Farms on or near airport (some both)
Fuel Handling

REFINERY

Pipeline (19)  Ship/Tanker (2)  Rail (2)  Truck (8/24)

AIRPORT FUEL FARM

Fuel Hydrant System and Truck (22)  Truck only (2/24)

AIRCRAFT
Ownership or Operation of Infrastructure

<table>
<thead>
<tr>
<th></th>
<th>Refinery to Fuel Farm</th>
<th>Fuel Farm</th>
<th>Delivery to Aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airport authority</td>
<td>3</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Consortium of Airlines</td>
<td>1</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Consortium of Oil Companies</td>
<td>7</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Other Company/Contractor</td>
<td>15</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

(Including cases with different owners and operators)
Observations

- Airports have different fuel infrastructure systems, with different ownership and operators.
- Whether upstream or at the fuel farm, kerosene from different suppliers will generally be mixed.
- The same blend is loaded on to all aircraft.
- Current kerosene supply streams are handled interchangeably.
Electricity Grid Analogy

Power Generation in New Zealand (2010)

- Hydro-electricity 55%
- Thermal (incl coal, oil) 21%
- Geothermal 13%
- Co-gen (nat gas & industrial heat) 7%
- Wind 4%

Many companies generating and distributing but only one national grid

Consumers can purchase from specific suppliers (eg a wind farm), but then draw power from the one grid
Discussions Points

• Where will biofuels be blended with kerosene? Refinery (initial blending) or fuel farm (secondary blending)? Potential issue tracking the exact mix (% biofuel) in fuel farm.

• How will 50% maximum be monitored (in the interim before 50% biofuel used throughout system)?

• Drop-in biofuels expected to be “indistinguishable” from standard kerosene

• In the longer term, it will not be practical to store and supply separate streams of fuel with different biofuel content (0%, 10%, 50% etc)
Discussion Points

- If an airline purchases biofuel but loads through an airport fuel farm, that exact fuel mix might not be used on a particular flight
- Will fuel supplier and airline users want to keep track different streams of biofuel mix?
- How will rates of biofuel use by an airline be monitored or verified? Will this affect accounting systems such as an airline CO2 inventory or the EU ETS?
- As is the case with electricity supply, will official biofuel usage be based on purchase agreements?
Thanks

Xavier Oh
ACI
xoh@aci.aero