



**ICAO AVIATION AND SUSTAINABLE
ALTERNATIVE FUELS
WORKSHOP**

ICAO Headquarters, Montréal, Canada

18 to 20 October 2011



Fuel Infrastructure at Airports

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Outline of Presentation



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



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Fuel Infrastructure Survey



24 Airport responses

Size	Responses
> 50 M pax	4
25 – 50 M pax	7
10 – 25 M pax	8
< 10 M pax	5

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

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

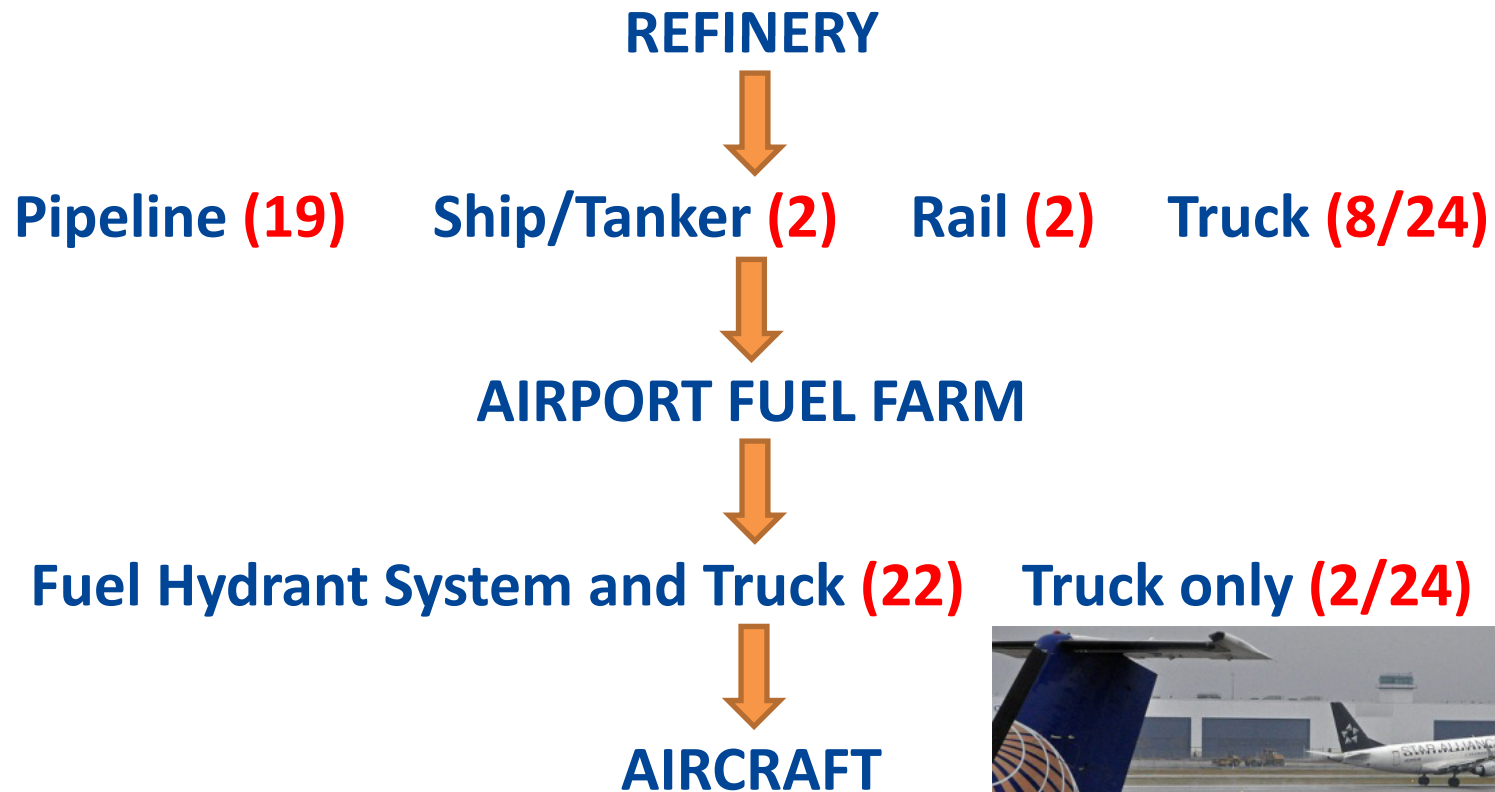
All had Fuel Farms on or near airport (some both)



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Fuel Handling





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Fuel Infrastructure Survey



Ownership or Operation of Infrastructure

	Refinery to Fuel Farm	Fuel Farm	Delivery to Aircraft
Airport authority	3	8	7
Consortium of Airlines	1	7	7
Consortium of Oil Companies	7	7	9
Other Company/ Contractor	15	8	6

(Including cases with different owners and operators)



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Delivering Fuel to Aircraft



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



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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



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Introducing Biofuels



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)



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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?**



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Thanks

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