

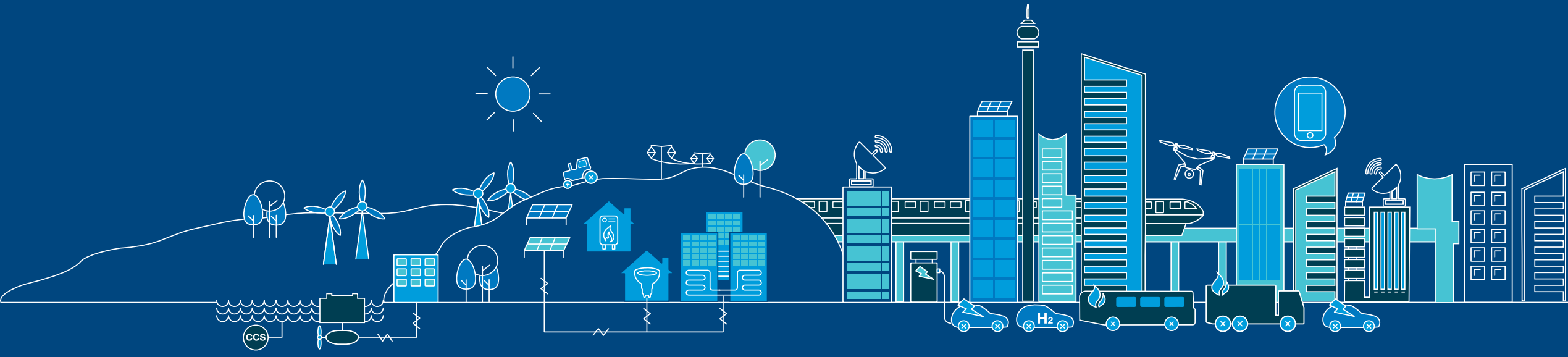


# Guest speaker

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## Justin Laney

### General Manager – Fleet, John Lewis Partnership



# Biomethane in Commercial Vehicles

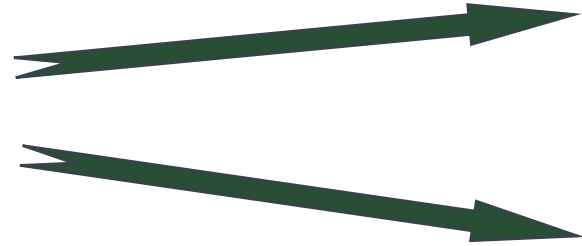
Justin Laney

General Manager - Fleet



# How do we reduce transport emissions?

Fewer miles



Scheduling, backhaul, forward haul, load utilisation, collaboration, 3D printing

Double deck trailers, longer trailers

Reduce fuel burn per vehicle



Telematics, **drag reduction**, engine spec, **fridge drive**

Alternative fuels



Natural gas, **biomethane**, hybrids, **sustainable synthetic fuels**, **electric vehicles**, **CCS**

Includes Air Quality and Noise



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## Why diesel ?

- It's energy dense, cheap, stable, available...
  - One litre will take 1 tonne a hundred miles
  - 1 litre holds the same energy as 40 kg of Li-Ion batteries, costing £2000, or 8,500kCal



From 'Assessing the Sustainability of HGV Fuel Options' – Daniel Kieve

## Biofuel Sustainability Scorecard

Biofuel Category	Biofuel Feedstock	Final Score	Biofuel Category	Biofuel Feedstock	Final Score	Biofuel Category	Biofuel Feedstock	Final Score		
Biomethane	Landfill gas	5	Biodiesel	Soy	23	HVO	Oil seed rape 1 Meal as livestock feed	19		
	Food waste 1	10		Oilseed rape 1 Meal as livestock feed	21		Oil seed rape 2 Meal as fuel	18		
	Food waste 2	6		Oilseed rape 2 Meal as fuel	19		Sunflower 1	19		
	Dry Manure	5		Sunflower	16		Palm Oil 1	20		
	Wet Manure	5		Oil Palm	20		Palm oil 2	17		
	Chicken manure	6		Oil Palm (CH4 capture)	17		UCO from unknown source, unaudited	13		
	Sewage sludge	7		UCO from unknown source, unaudited	14		UCO from known source in UK or EU, audited	7		
	Maize silage	21		UCO from known source in UK or EU, audited	7		Tallow	9		
	Rye Grass	14		Tallow	9		Tall oil	6		
	Switch grass	11		Tall oil	6					
	Hemp	13		Bioethanol	Corn 1 (from outside EU)		24	Biobutanol	Corn	24
	Miscanthus	12			Corn 2 (from UK)		22		Corn 2 (from UK)	23
	Ley plants/ wild flowers	13	Wheat 1 (DDGS as feed)		22	Wheat 1 (DDGS as feed)	23			
	Maize + barley double cropped	13	Wheat 2 (DDGS as fuel)		21	Wheat 2 (DDGS as fuel)	22			
	Maize + ley crops double cropped	10	Sugar beet		18	Sugar beet	19			
	Mixture 1 100% waste mix	8	Sugar beet slops for biogas		14	Sugar beet slops for biogas	17			
Mixture 2 80% waste / 20% PGCs	8	Sugar cane 1 (irrigated)	20		Sugar cane 1 (irrigated)	21				
Mixture 3 60% waste / 40% PGCs	10	Sugar cane 2 (rain-fed)	14		Sugar cane 2 (rain-fed)	15				
Mixture 4 20% waste 80% PGCs	16									



## Compressed (CNG)



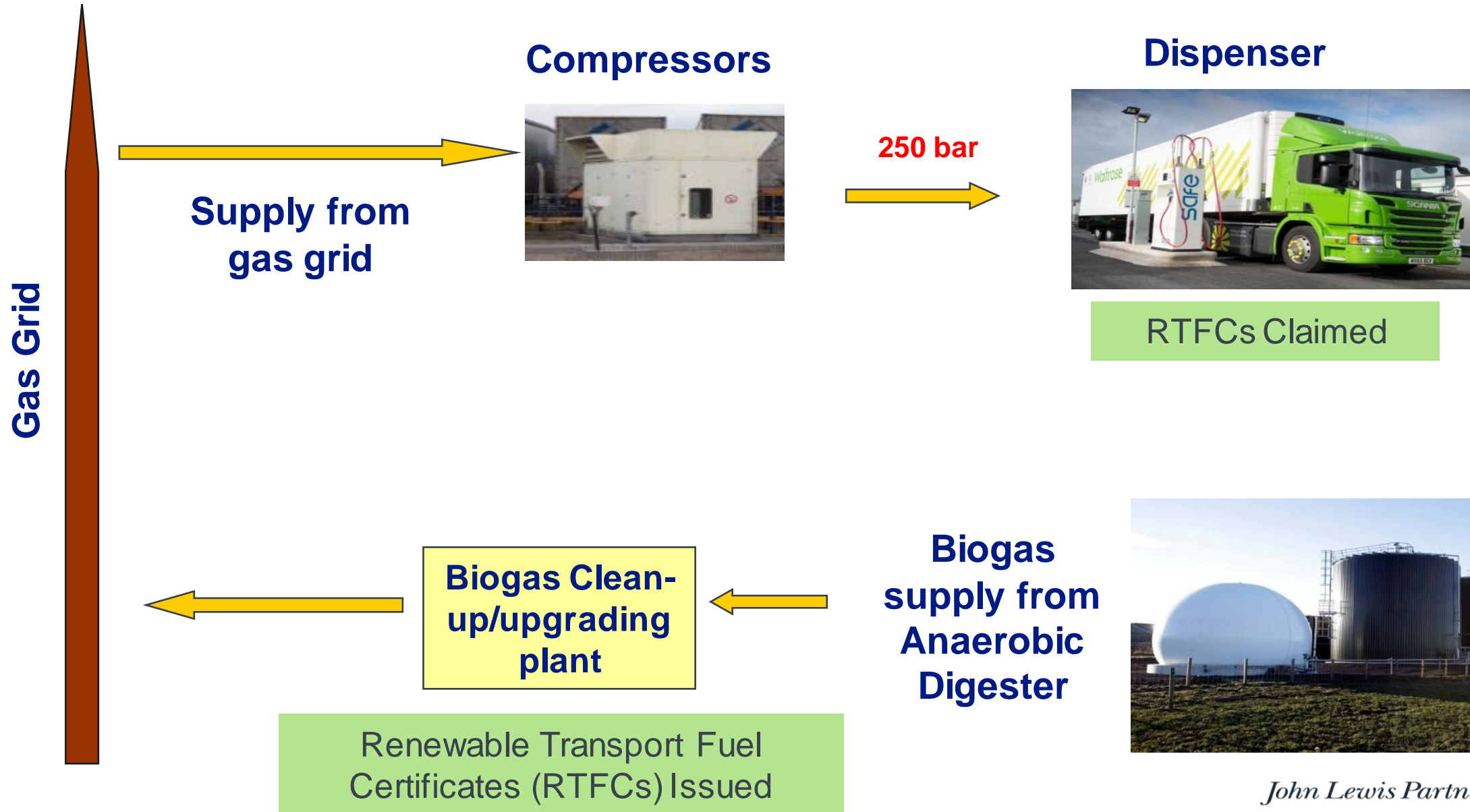
- CO<sub>2</sub>e
- Cost
- Filling

## Cryogenic (LNG)



- Energy density
- Access

# Compressed Biomethane









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# Dedicated Gas - Challenges

- Availability of trucks
- Availability of fuelling stations
- Fuel duty uncertainty – now fixed to 2024
- Biomethane reporting – now recognised
- Range – now 500 miles achievable



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# Outcomes

- 83% reduction in WTW CO<sub>2</sub>
- 35% reduction in fuel cost
- 50% (approx.) reduction in noise
- Good driver reaction

12 dedicated gas trucks, 40 more ordered



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# Long Distance Trunking

- Largest useable payload
- Low height, clean shape
- Clean fuel





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# Clean refrigeration

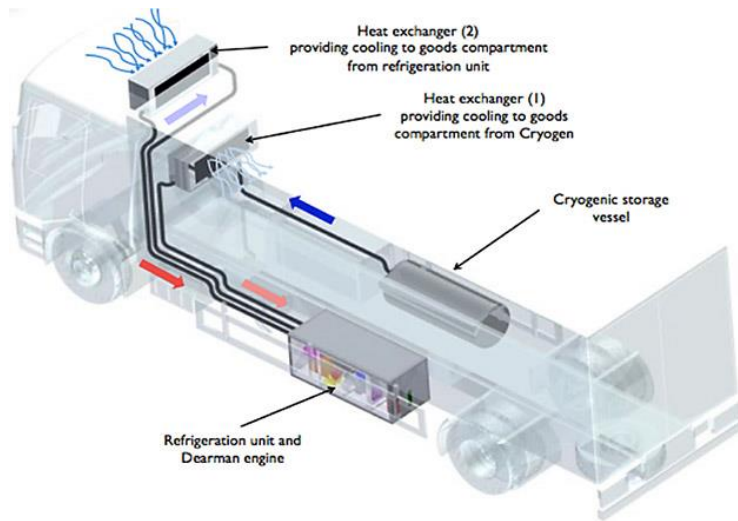
Typical trailer fridge units engines need to be:

- More efficient
- Cleaner
- Quieter

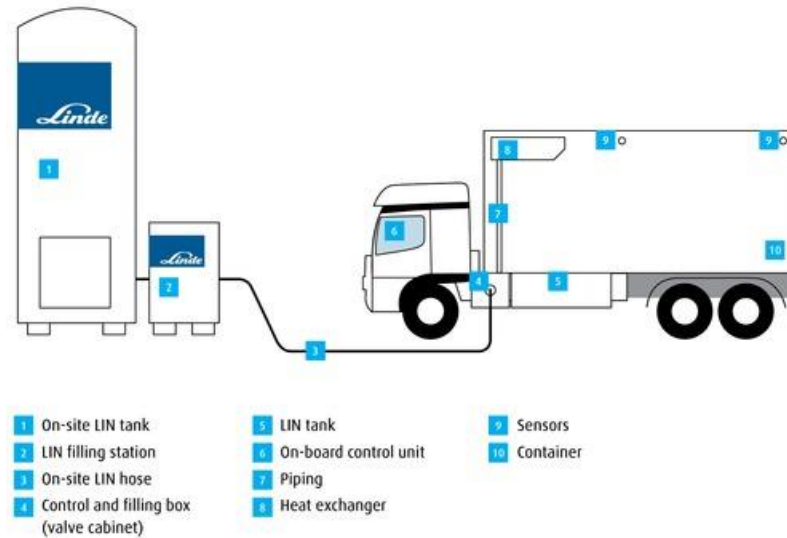


# Alternatives

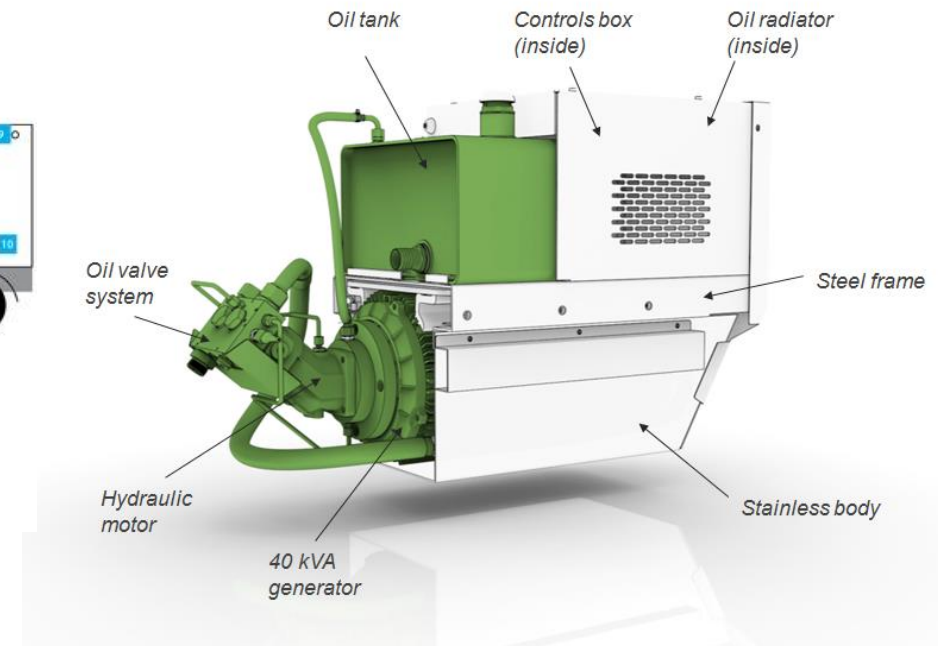
## Dearman



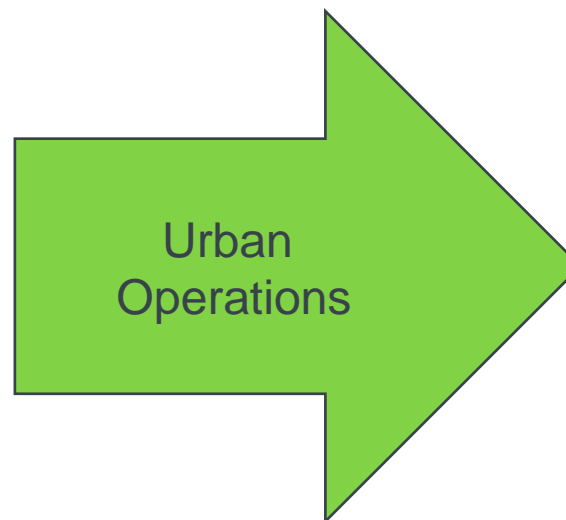
## Cryogenic



## Alternator Drive



- Gas engine, clean fridge
- Enhanced safety
- Low noise
- Best practice behaviour



Create  
Standard  
offering  
enhanced  
access





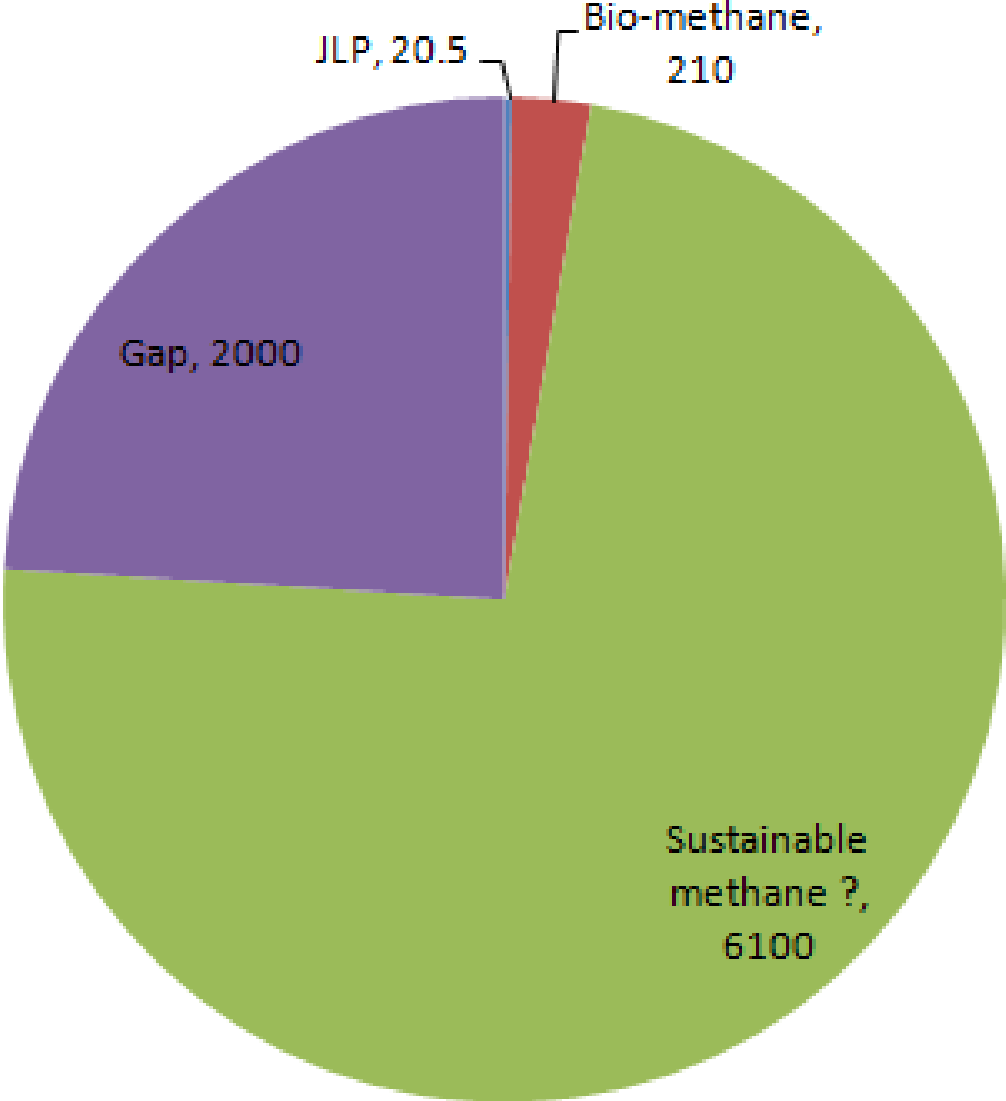
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# Urban 4.25 tonne Vehicle Proposal

- Alternative fuelled, ie electric or CNG
- Same regulations as 3.5 tonne diesel
- Safeguards, ie speed limited, AEB, driver certification
- 50% greater payload potential drives business case



# Can this make a significant impact ?



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# How to best use clean power ?

- Electrify infrastructure ?
- Hydrogen ?
- Synthetic liquid or gaseous fuels ?





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## Next Steps

- Efficient supply chain
- Determine the optimum technology
  - Clean, efficient
  - Sustainable fuel supply chain
  - Business case
- Help create the conditions