



Connect
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Influence



Low Emission Cities Workshop

Best practice measures for increasing the take up of low pollution and carbon vehicles in cities

Wednesday, 18th November 2015, Sheffield

Going Green – biomethane bus fleet

John Bickerton, Chief Engineer, Reading Buses





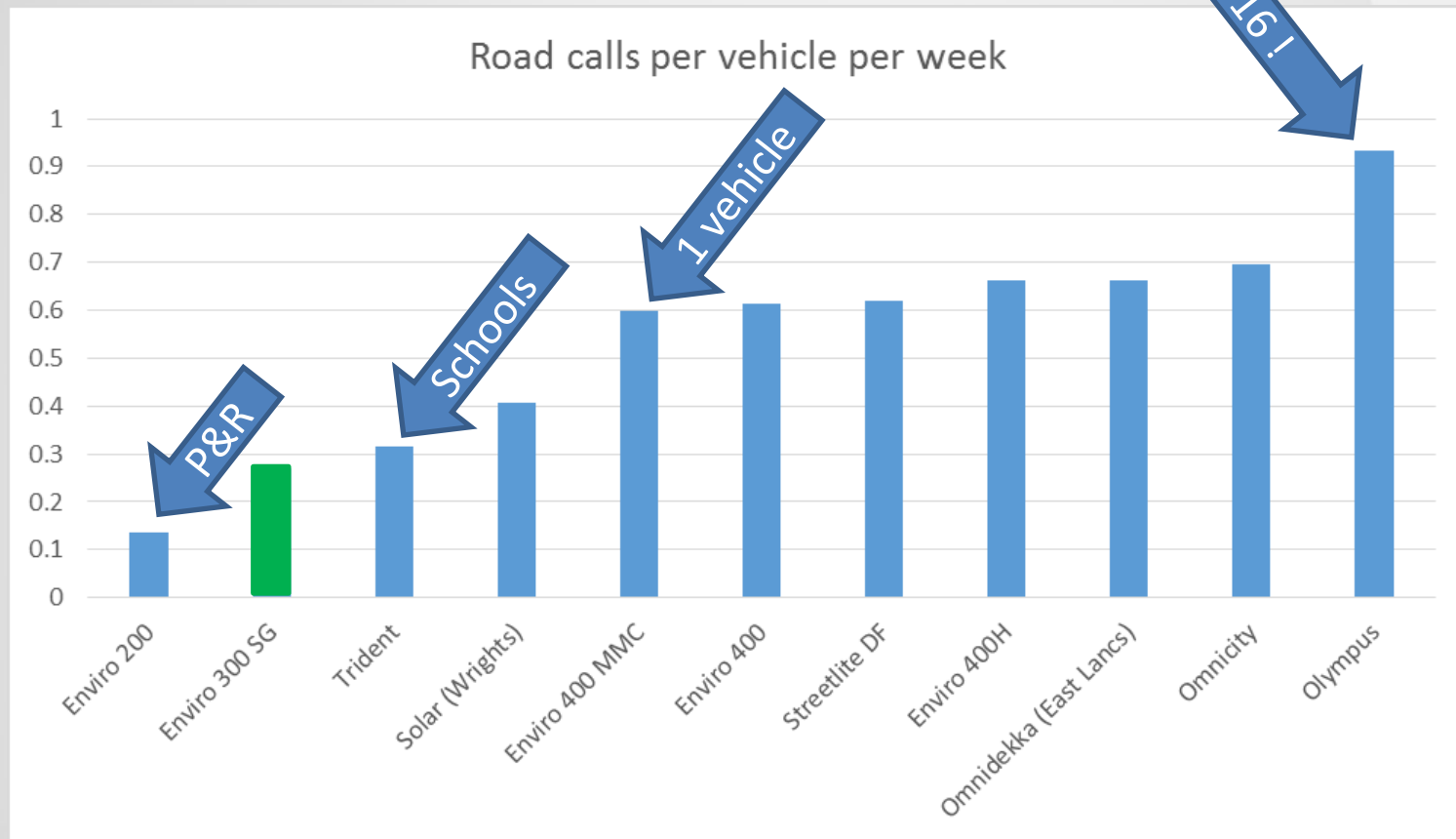
Readingbuses

Operating costs

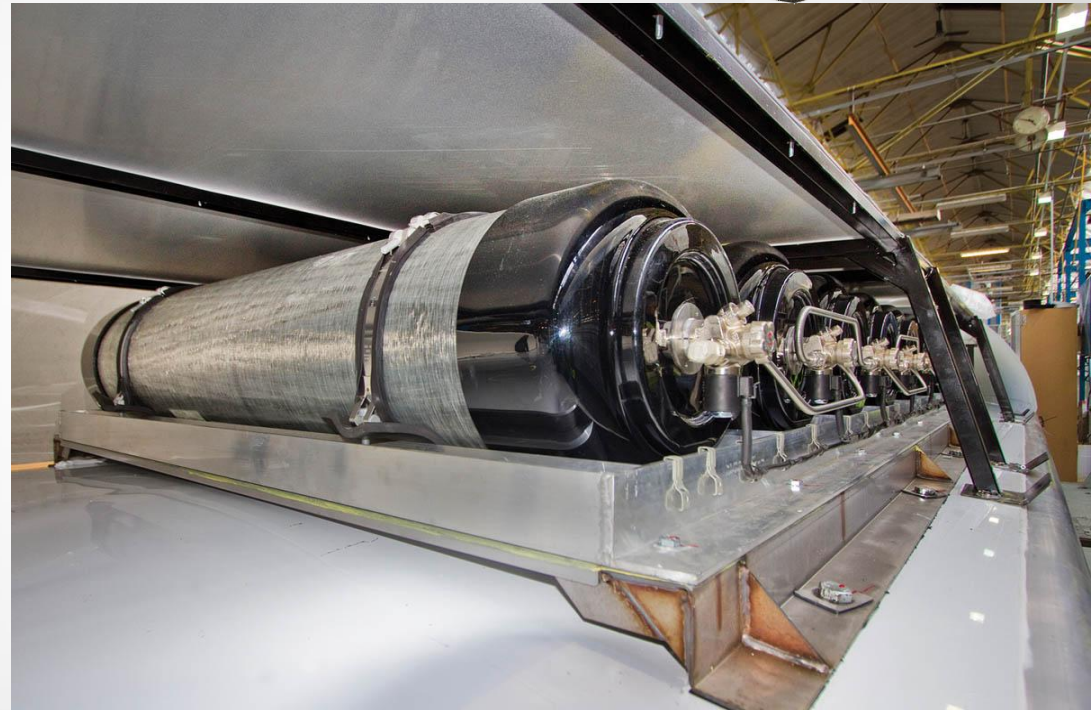
Vehicle	Pence per mile	Avg miles between breakdowns (normalised)	Servicing interval
CNG single deck	13	220	8 wks
Diesel single deck	26	144	8 wks
Diesel double deck	28 - 32	100 - 132	8 wks



Reliability

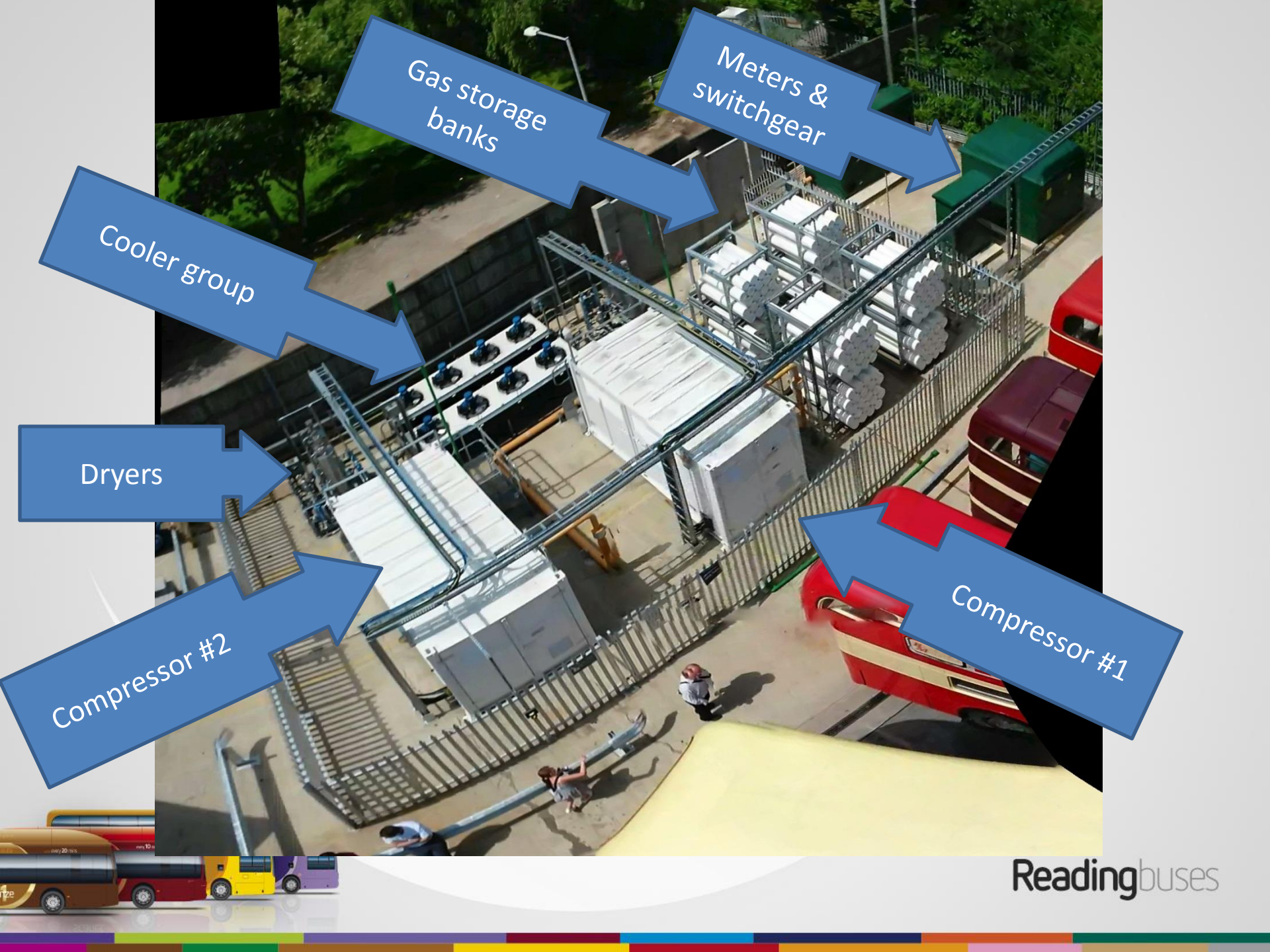


Vehicles



Facilities





Gas storage banks

Meters & switchgear

Cooler group

Dryers

Compressor #2

Compressor #1

Fuel



Complexity



Complexity



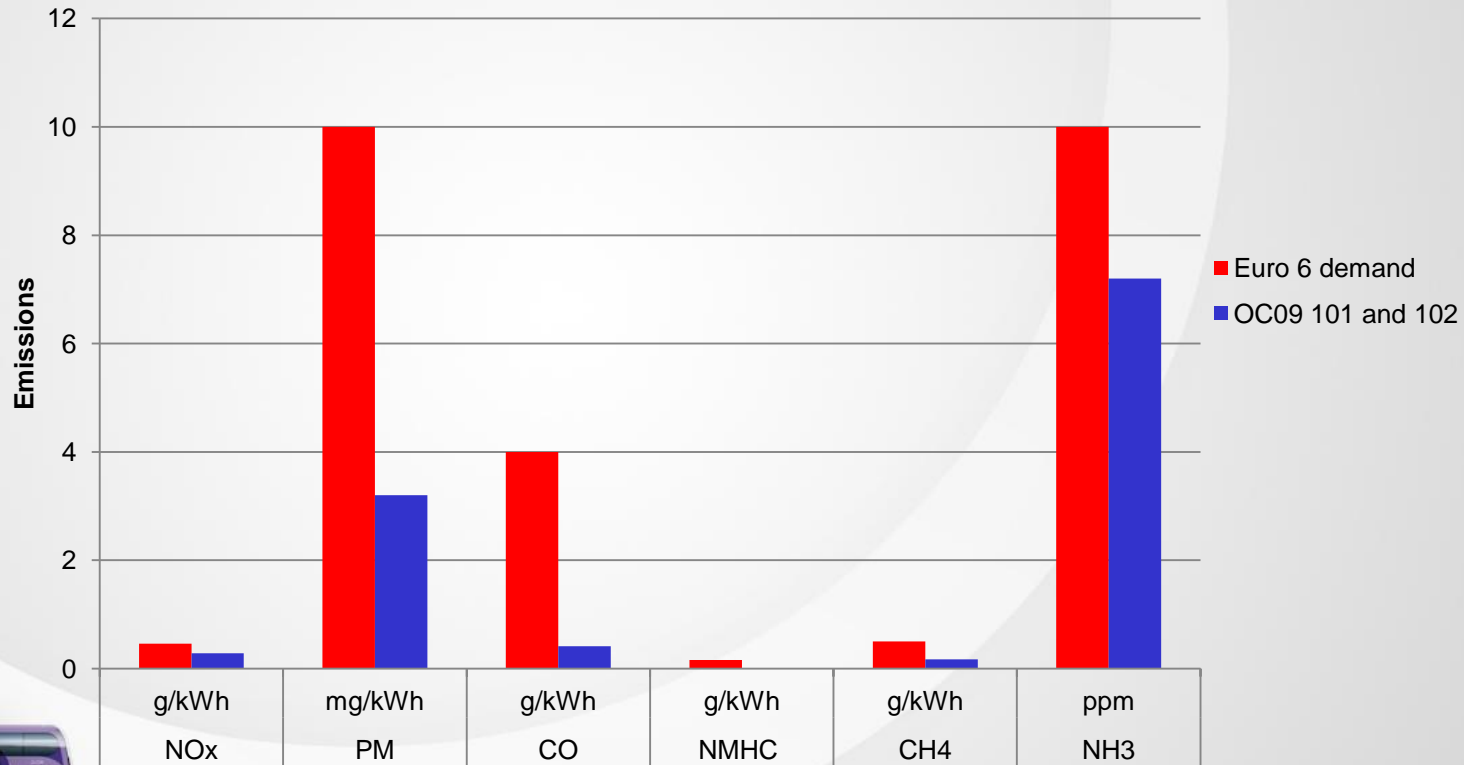
Maintenance



Air quality

Emissions OC9 101/102; Euro 6 gas 280hp and 340hp

Emissions	NO _x	PM	CO	NMHC	CH ₄	NH ₃
	<i>g/kWh</i>	<i>mg/kWh</i>	<i>g/kWh</i>	<i>g/kWh</i>	<i>g/kWh</i>	<i>ppm</i>
Euro 6 demand	0,46	10	4	0,16	0,5	10
OC9 101 and 102	0,28	3,2	0,41	0,01	0,17	7,2
% of limit	61	32	10	6	34	72





BusHound - 80.7mph

19th May 2015, Millbrook
#projectvroom



Readingbuses

the fastest bus in the world how we did it

80.78 MPH
TOP SPEED

carbon neutral bio-methane
compressed natural gas from cows,
supplied by Gas Bus Alliance

driver's safety frame
by Readingbuses
engineering team

body integrity and technical
support from Alexander Dennis

racing seat from
TEK seating
and USSC

Scania K270 gas engine
with ECU modification
and technical
support from Scania UK

live telematics and
remote monitoring
by Mix Telematics

brand new, fully x-rayed, XZE2
tyres and technical support
supplied by Michelin

test & record setting venue
Millbrook Proving Ground

cow print livery
by Best Impressions
fitted by Numbercraft

risk consultancy and
independent timing from
Malcolm Pittwood and
the UK Timing Association

promotion and professional
development from IMechE,
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Readingbuses

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Bus Hound Reading

Posted by David Cole on Mon 20th April 2015 - 16:17PM 10 Comments



Raising the profile of gas buses

After choosing them for the Greenwave network in 2013, Reading Buses has a successful fleet of 34 biomethane gas powered Scania buses with ADL Enviro 400.

In 2014 the company added a state of the art gas filling station to its depot, being progressed to grow the fleet with the UK's first biomethane gas dual Euro6 standard. The biomethane gas is produced remotely from farm waste into the national gas grid, the whole process being essentially carbon neutral.

Despite this successful reference project, the profile of gas power for buses, exceptions, remains low across the UK. Reading Buses and its partners have a profile could be raised and have a strategy to increase the use of the sustainable technology.

News

Please note: no cows were harmed in this world record attempt

A Scania single-decker operated by Reading Buses of Berkshire is set to lay claim this month to one of the most driving around the Millbrook track the driver will even issue a "high-speed ticket", though there will be no passengers on the 34 Alexander Dennis-bodied Scania in the Reading Buses fleet running on biomethane compressed natural gas (CNG) (named in British Standard BS 6891) (plus land-filling gas) has strands to and Bickerton serious

the concept of cow poo power may sound novel, it is growing in popularity each day. For me this project is about challenging the perceptions of bus travel, demonstrating the credibility of bio-methane and promoting science, technology and innovation in our industry." The gas used to power the Reading bus is described as "nearly carbon-neutral". The fuel is supplied by Gas Alliance Group and comes from an anaerobic digester fed with vegetable and animal waste

routeone

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HOME INDUSTRY NEWS JOBS VEHICLES PEOPLE LEGAL



BusHound aims to set world record for a gas bus

BY MEL HOLLEY ON APRIL 22, 2015 TECHNOLOGY

Reading Buses has laid down a marker as it revealed its aim to set a world speed record for a 'standard' gas-powered single-decker bus.

Launching the project at Brooklands Museum, Surrey – home of the famous banked circuit used for motor-racing in the 1930 – the municipal operator is not only aiming to enter the record books, but also significantly raise the profile of bio-gas as a sustainable fuel.

As a result, the project – dubbed BusHound, in homage to the British Bloodhound project which aims to push the 763mph land speed record to 1,000mph next year – has the backing of 14 sponsors: Scania, Michelin, USSC, Ticketer, Millbrook, ZF, Mix Telematics, Nimbus, Gas Alliance Group, Alexander Dennis, TEK Seating, Brooklands Museum, routeone magazine and the Institution of Mechanical Engineers. Also, during the attempt, the driver will



to spread about the if bio-gas as nable truck fuel and to like bus ore e to the especially nger public. ling Buses first UK r to order eam crea Scania in Vehicle 31," says the il has proven reliable and ion. While (hence the delicate "cow poo" reference). John Bickerton dismisses any suggestion that an attempt on a land-speed record of any kind is hardly the sort of activity in which a responsible bus fleet engineer ought to be engaged. He spells out the BusHound project's clear objectives: "to take a vehicle to Millbrook and return safely; promote Reading Buses as a fast, safe and carbon-neutral operator, and an employer of choice; promote our sponsors and particularly gas as a fuel; bring together the Reading team to show ourselves and others that we can lead the industry; and achieve a speed record." □

Capturing the imagination



CNG helps us go green!

- Can be carbon neutral, lower cost-per-mile, simpler vehicles
- Tailpipe emissions on par with range-extended hybrids
- Reliable in operation - better than diesel
- Real alternative to electric vehicles, today
- Needs on-site equipment (amortised capital)
- More to come! Double deck OLEV bid submitted Oct 2015.



Reading buses



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Questions?