

# BOS

## Briefing Session



21<sup>st</sup> November, 2017

# TODAY'S AGENDA

- DCCAE – ILUC transposition & consultation
- Industry perspective
- Reaching the 2020 targets
  - Forecasts
  - Other renewable fuels
  - Other biofuel markets
- BOSOS Changes
- Post 2020 – RED II
- Open discussion



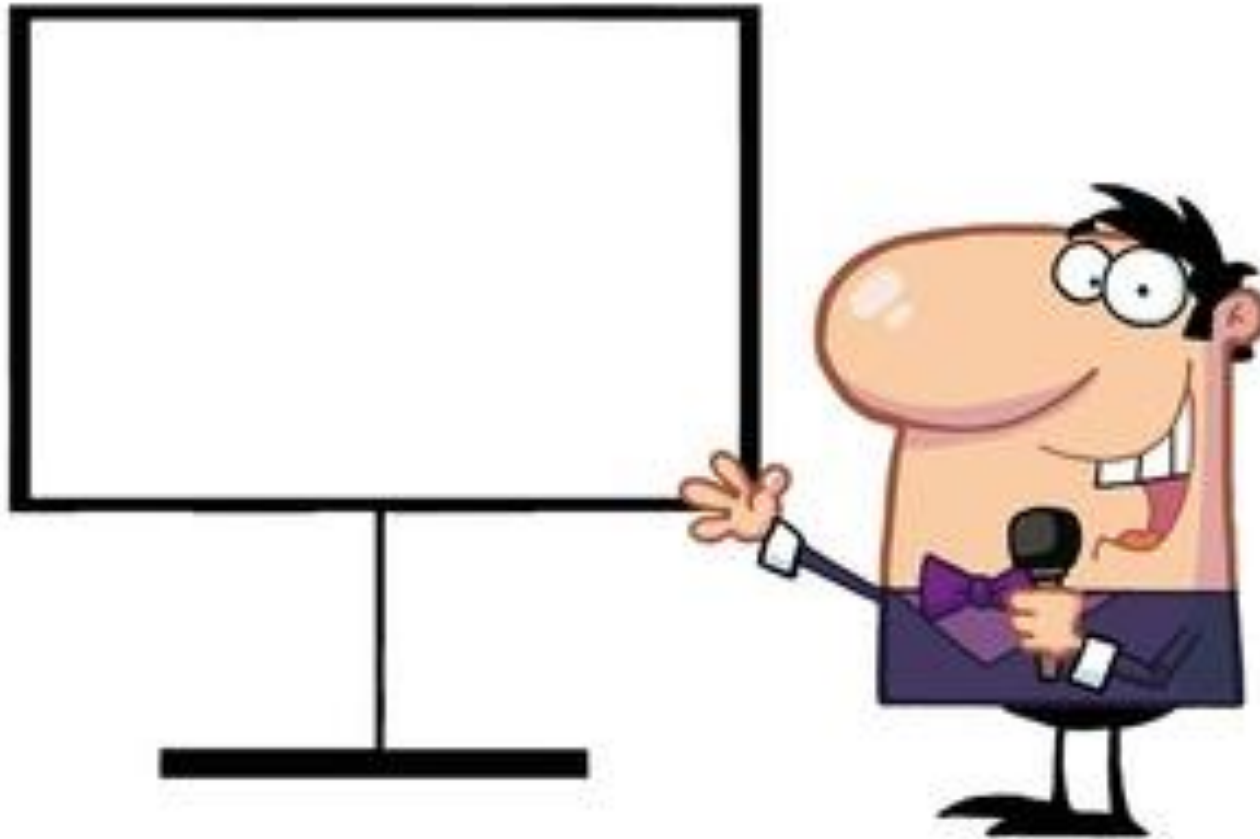
DCCAE

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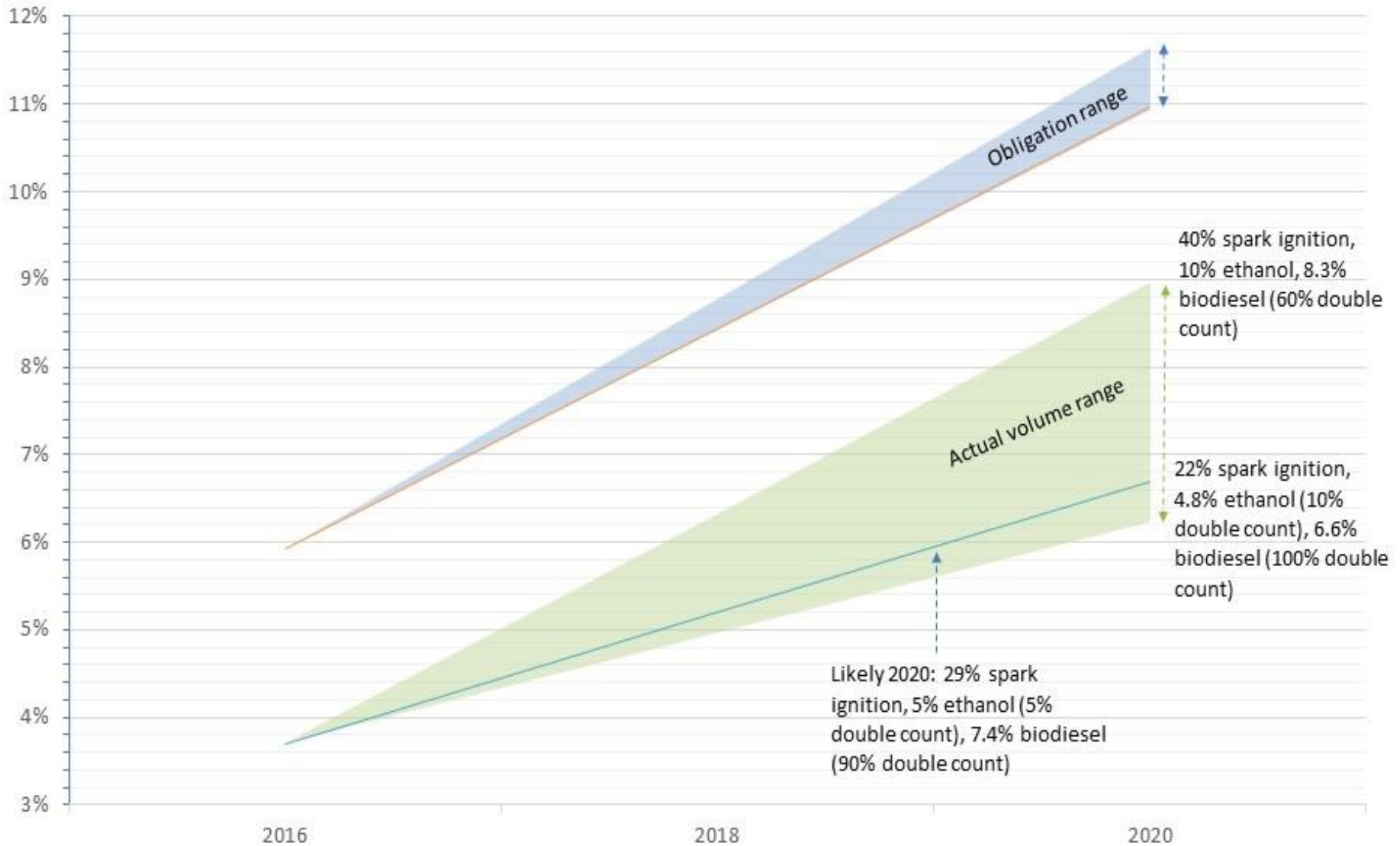
# UPCOMING CONSULTATION & TRANSPOSING THE ILUC DIRECTIVE



# INDUSTRY SPEAKER



# REACHING THE 2020 TARGETS (RED)

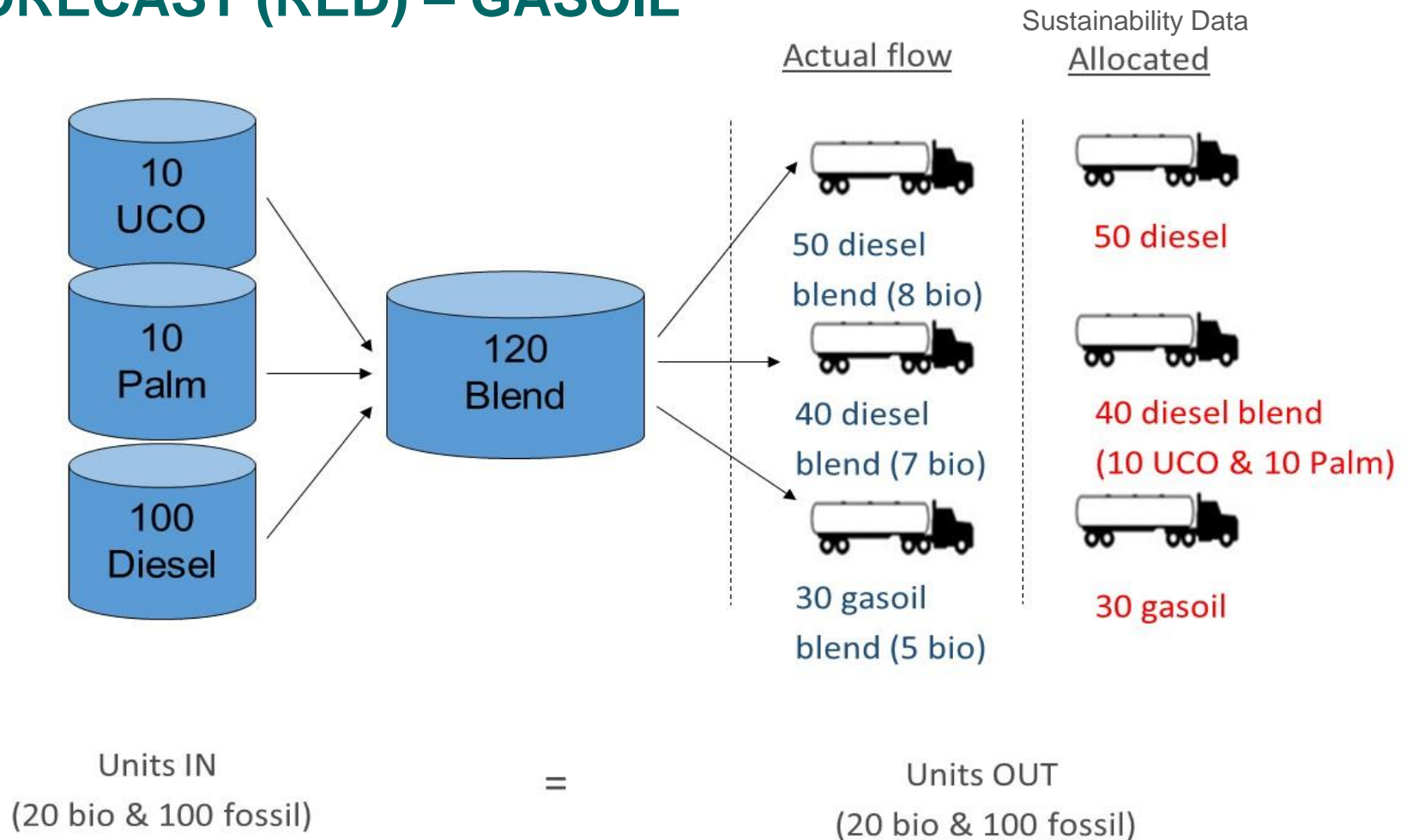


# FORECAST (RED)

Parameter	2020	2016
Gasoline and ethanol (market share)	31%	29%
Diesel and biodiesel (market share)	69%	71%
Ethanol (in gasoline)	5%	5%
Biodiesel (in diesel)	6.5%	3.3%
Double counted ethanol	5%	0%
Double counted biodiesel	90%	100%

- This will achieve 8.8%, by energy
- 100% double count biodiesel would achieve 9.2%

# FORECAST (RED) – GASOIL



- Blend 700 M litres with 4% biodiesel (double count)

# FORECAST (RED) – HVO

- To achieve 10%, need additional 35 M litres of biodiesel
- Increase national blend rate to 7.6% which is not a problem with HVO
- HVO in the past: 4 M litres in 2015 & 5.4 M litres in 2016
- Global capacity c. 3.6 billion litres (in 2014)
- Estimated EU capacity in 2020: 4.3 billion litres





# FORECAST (FQD)

- Using the same RED assumptions

Parameter	2020	2016
Gasoline and ethanol (market share)	31%	29%
Diesel and biodiesel (market share)	69%	71%
Ethanol (in gasoline)	5%	5%
Biodiesel (in diesel)	6.5%	3.3%

- Achieve 3.8% reduction in carbon intensity (2.2% shortfall)

# FORECAST (FQD)

- Blending gasoil to 7% would increase FQD compliance rate to 4.7% (target 6%)
- To meet FQD, need to increase national biodiesel blend rate to 10.3% – HVO would facilitate this
- UERs unlikely to contribute
- Contribution from EVs very small
- E10?

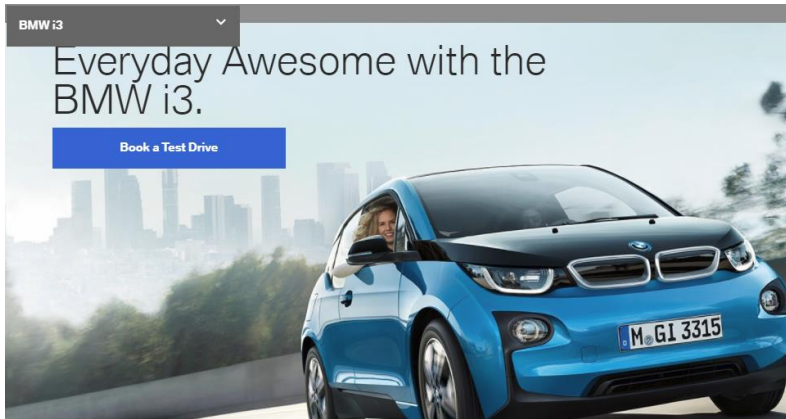


# E10

- What are the difficulties with E10?
  - Forecourt infrastructure
  - Terminal infrastructure
  - Refinery production



# OTHER RENEWABLE FUELS



Are you able to reduce polluting emissions by up to 80%?

# I am.

**T6.180 Methane Power Tractor**  
Discover a new experience in farming.

**CLEAN ENERGY LEADER**  
Sustainable Efficient Technology

*“First biodiesel.  
Then hydrogen  
and propane.  
And now,  
methane”*

**SIMA 2017** Visit our stand  
**HALL 6 - B 027**



# POSSIBILITIES

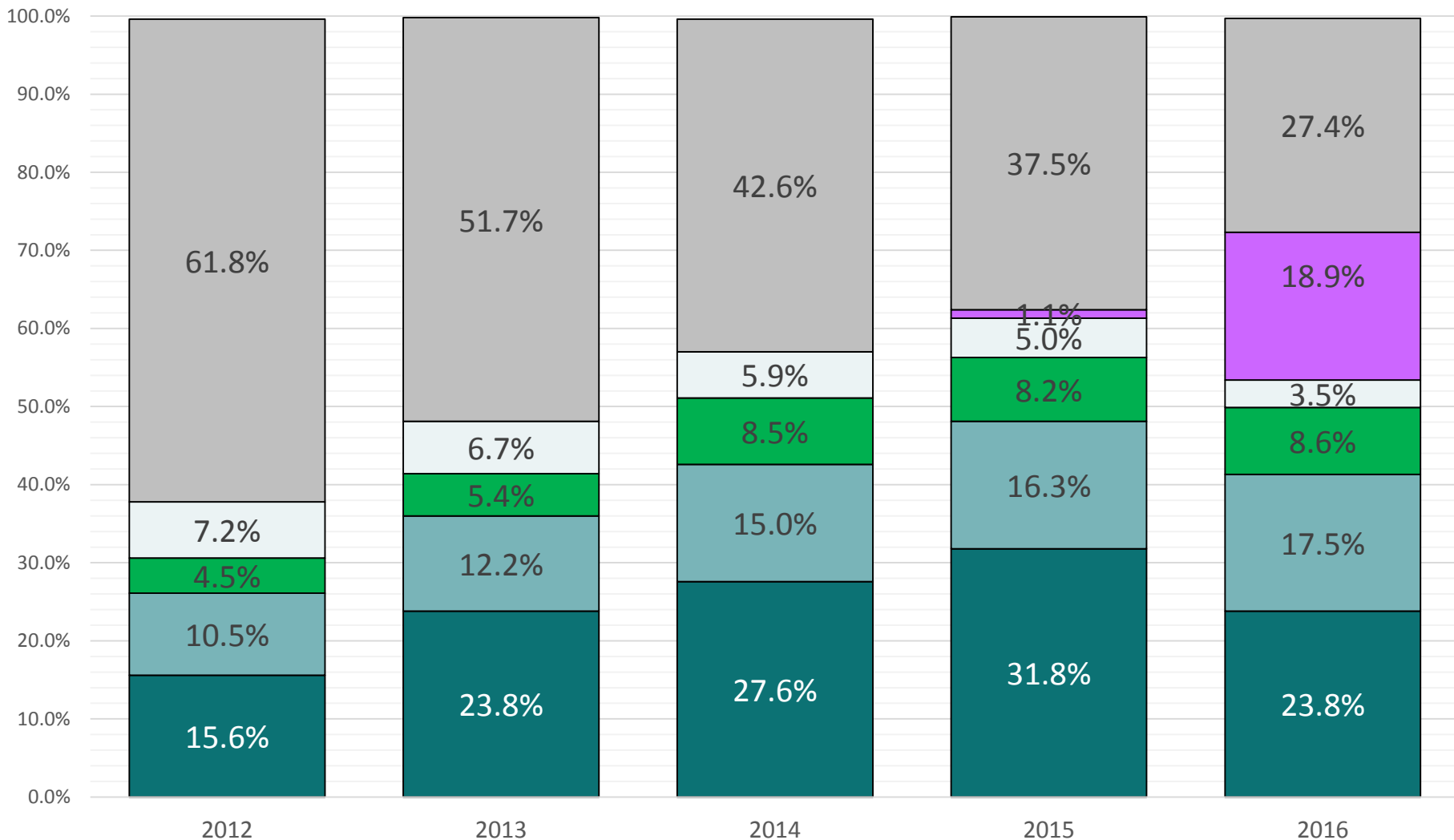
- LPG and BioLPG
  - Carbon intensity of LPG 22% lower than FBS
  - BioLPG has no blend limits and a carbon intensity 90% lower
- Methane and biomethane
- Aviation
  - Biojet spec ASTM D75664
- Use higher blends in captive fleets
- Buy out

# CAPTIVE FLEETS

- CIE consumes c. 2% of road and rail energy

HVO blend rate	RES-T – contribution towards 10%	FQD – contribution towards 6%
10%	0.36%	0.18%
20%	0.71%	0.35%
40%	1.41%	0.72%
80%	2.79%	1.43%
100%	3.47%	1.79%

# SWEDEN – PUBLIC TRANSPORT



■ RME/FAME/Biodiesel

■ Biogas

■ Electricity

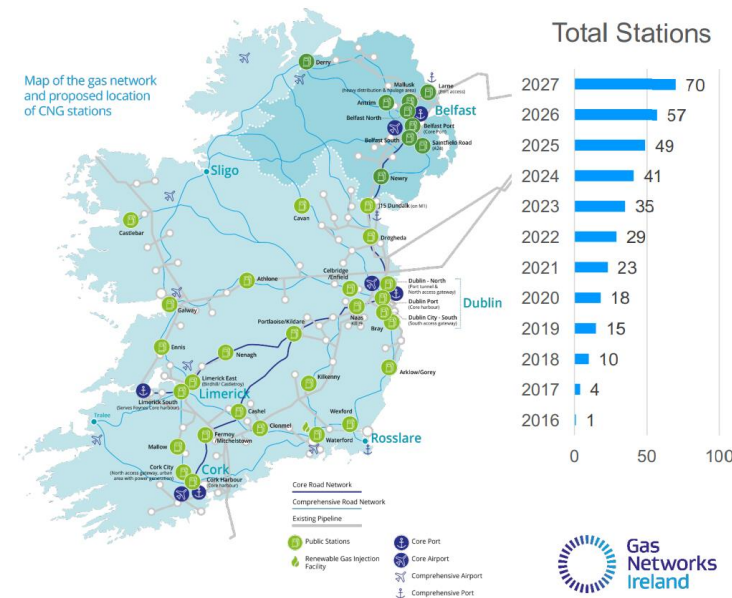
□ Ethanol

■ HVO

■ Fossil fuels

# METHANE & BIOMETHANE

- Life cycle CO<sub>2</sub> savings of 20 – 30% using natural gas (either as CNG or LNG)
- Currently no CNG filling stations in Ireland
- GNI developing 14 CNG stations around Ireland by 2019
- One ‘renewable gas’ injection facility





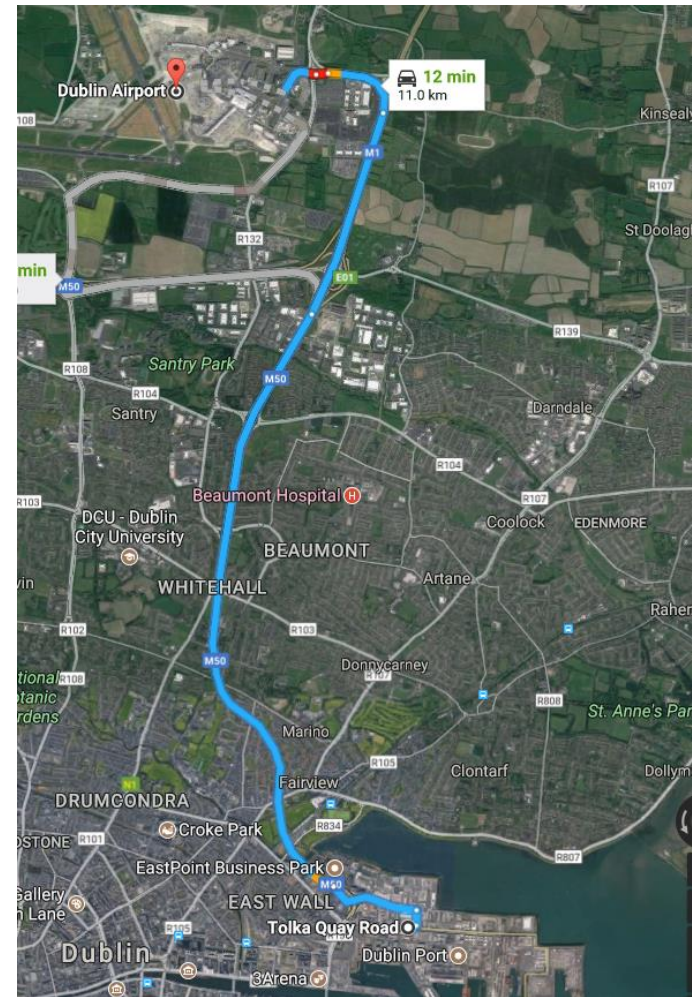
# OTHER BIOFUEL MARKETS – AVIATION



- ASTM 75664 provides for blends between 10 & 50% for biojet produced from four production routes
- Once it meets ASTM 75664, can be recertified as standard ASTM D1655
- Oslo airport supplies biojet through a common hydrant
- Schiphol & Geneva airports plan for biojet in 2018
- Qantas LA aircraft will be 50% biofuel from 2020

# EXAMPLE – AIRPORT ROUTE

- Estimated fuel consumption 219 k litres (7.9TJ)
- Equivalent to electricity consumed in EVs in 2015
- Switching to 100% HVO (or B100), would contribute 0.01% towards RES-T



# CATERING FOR ILUC

- Changes will be required:
  - **Crop cap** (max. 7% of total transport energy)
  - **Advanced biofuel target** (at least 0.25% of total transport energy)
  - **Other advanced biofuels**
- Cater for existing attributes:
  - Year of award ( $Y_n$ ,  $Y_{n-1}$ ,  $Y_{n-2}$ )
  - Double count (yes/no)



# CROP CAP

- Applies to *cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land*
- Vast majority of ethanol feedstocks: corn, wheat, barley, sugar beet, sugar cane
- Biodiesel: rape, soy, palm...



# ADVANCED BIOFUELS

- Sub-target applies Annex IX Part A

## ANNEX IX

Part A. Feedstocks and fuels, the contribution of which towards the target referred to in the first subparagraph of Article 3(4) shall be considered to be twice their energy content:

- (a) Algae if cultivated on land in ponds or photobioreactors.
- (b) Biomass fraction of mixed municipal waste, but not separated household waste subject to recycling targets under point (a) of Article 11(2) of Directive 2008/98/EC.
- (c) Bio-waste as defined in Article 3(4) of Directive 2008/98/EC from private households subject to separate collection as defined in Article 3(11) of that Directive.
- (d) Biomass fraction of industrial waste not fit for use in the food or feed chain, including material from retail and wholesale and the agro-food and fish and aquaculture industry, and excluding feedstocks listed in part B of this Annex.
- (e) Straw.
- (s) Carbon capture and utilisation for transport purposes, if the energy source is renewable in accordance with point (a) of the second paragraph of Article 2.
- (t) Bacteria, if the energy source is renewable in accordance with point (a) of the second paragraph of Article 2.

- Part B contribute to 10%, but not to sub-target

Part B. Feedstocks, the contribution of which towards the target referred to in the first subparagraph of Article 3(4) shall be considered to be twice their energy content:

- (a) Used cooking oil.
- (b) Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council ( <sup>33</sup> )

# CATERING FOR ILUC

10% Obligation - all sustainable biofuel			
<b>0.25% sub-target</b>	<b>7% limit</b>		
If listed in Annex IX Part A and those 'grandfathered'	If not listed in Annex IX and not orange qualified  (a cereal, other starch-rich crops, a sugar crop or an oil crop)	If listed in Annex IX Part B	If not listed in Annex IX and not a cereal, other starch-rich crops, a sugar crop or an oil crop, except where the cereals, other starch-rich crops, sugar crops or oil crops are grown on degraded land.
POME SBE	Barley Corn	UCO Cat 1 tallow	Cat 3 tallow
Double	Single	Double	Single
<b>Green Certs</b>	<b>Red Certs</b>	<b>Orange Certs</b>	

# CARBON SAVINGS – FQD

- 6% reduction in ‘*life cycle greenhouse gas emissions per unit energy*’ in 2020 (Art. 7a)
- How?
  - Biofuels (same sustainably criteria apply)
  - Electric vehicles
  - Upstream Emission Reductions (UERs)

# GREENHOUSE GAS INTENSITY (GHGi)

- Life-cycle greenhouse gas emission per unit energy of fuel

$$GHGi = \frac{GHG \text{ emission}}{Energy} [gCO_{2eq}/MJ]$$

- Depends on:
  - Fuel type (diesel, gasoline, biodiesel ME, bioethanol, etc.)
  - Feedstock (UCO, tallow cat 1/2/3, etc.)
  - Fuel chain (processing, transport, etc.)
- Supplier's must reduce the GHGi of their transport **fuel mix** by 6%



# FQD DIRECTIVE – THE NUMBERS

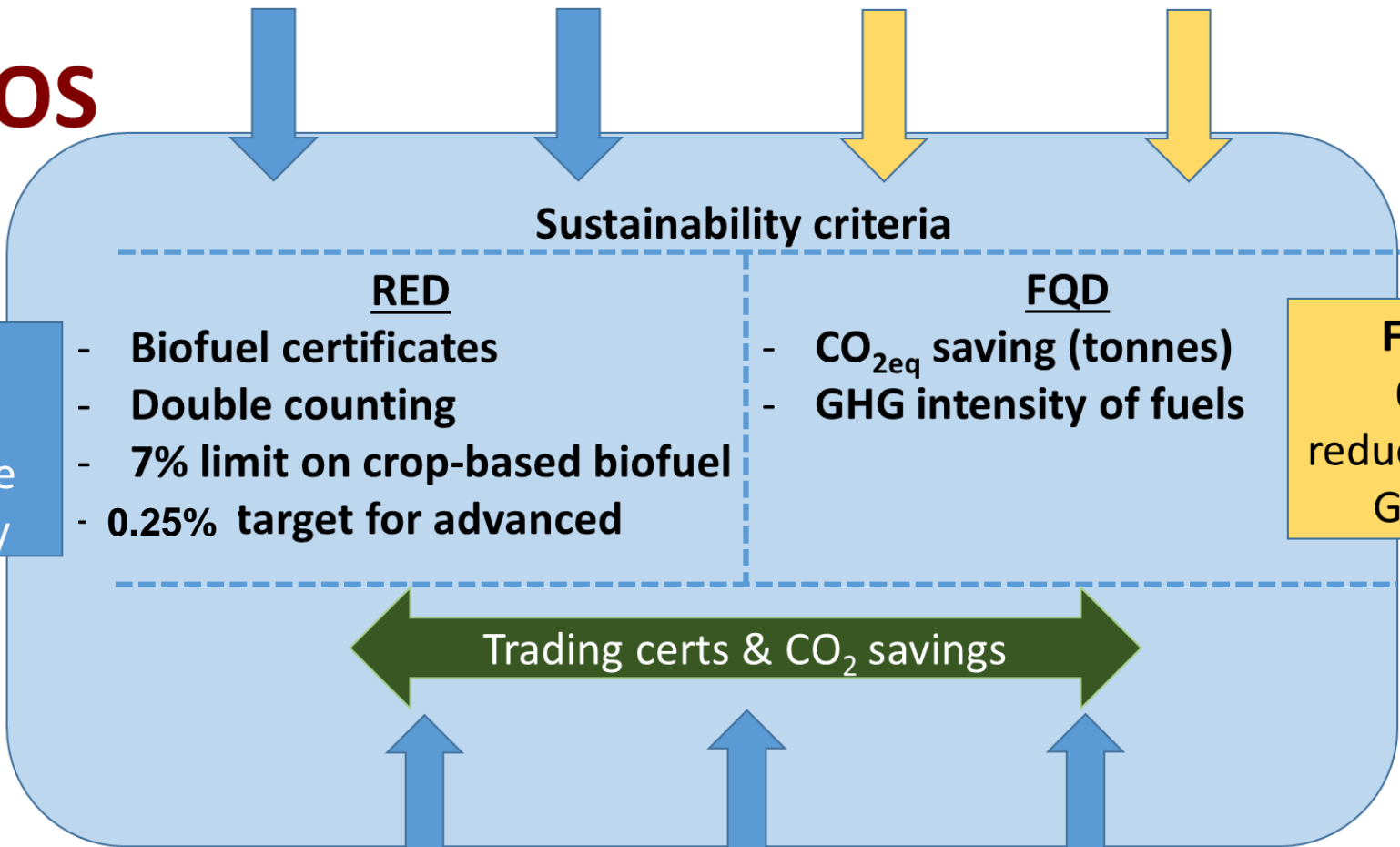


Fuel Type	GHG intensity (gCO <sub>2eq</sub> /MJ)	Reduction in GHGi
2010 baseline	94.1	-
<b>2020 target</b>	<b>88.5</b>	<b>6%</b>
<i>2015 'average' supplier</i>	<i>92.0</i>	<i>2.3%</i>
Petrol (default)	93.3	0.9%
Diesel (default)	95.1	-1.1%
Biodiesel (rape seed)	51.4	45%
Bioethanol (wheat)	39	59%
Bioethanol (EC corn)	26	72%
Biodiesel (UCO)	12.8	86%

# RED and FQD implementation

**BOSOS**

OLA data      Sustainability st.      Electricity      UERs



**RED**  
10%  
Ren'ble  
energy

- RED**
- Biofuel certificates
  - Double counting
  - 7% limit on crop-based biofuel
  - 0.25% target for advanced

- FQD**
- CO<sub>2eq</sub> saving (tonnes)
  - GHG intensity of fuels

**FQD**  
6%  
reduction in  
GHGi

Acc. holder      Acc. holder      Acc. holder

# NEW BOSOS

Live demonstration of new BOSOS portal

## RED II – LATEST REVISION

- Each Member State shall ensure that the share of renewable energy in transport is at least [12%, 15%, ??] by 2030, following a indicative trajectory set by the Member State, starting from 10%
- Sub-target for advanced biofuels (Part A of Annex IX), trajectory may be set out in RED II
- Member States shall implement renewable energy obligations or other measures targeting volumes, energy content or greenhouse gas emission savings
- 7% crop cap
- LPG and hydrogen included in the denominator

## RED II

- *The national targets set for 2020 should constitute Member States' minimum contribution to the new 2030 framework*
- *Under no circumstances the national share of renewables should fall below such contribution and, in case this happens, the relevant Member States should take the appropriate measures to ensure that this baseline is maintained... [older version]*
- *In case Member States report values lower than the national targets set for 2020 from 2021 onwards, the relevant Member States should take the appropriate measures to ensure that this baseline is maintained... [newer version]*

# NEXT UP



-- Thank you for your attention --

-- All invited for lunch at 13:30 --