Department for Transport

Low Carbon Fuels, Stakeholder workshop
02 July 2015,
10am – 12.30pm

Agenda

- **Guest speaker – GHG reporting scheme in Germany**
- **LCF Policy update –**
  - **Transport Energy Taskforce**
  - **ILUC**
- ***Comfort break / networking session***
- **Implementing FQD7a & meeting the 2020 targets**
- **Advanced biofuels competition – Update**

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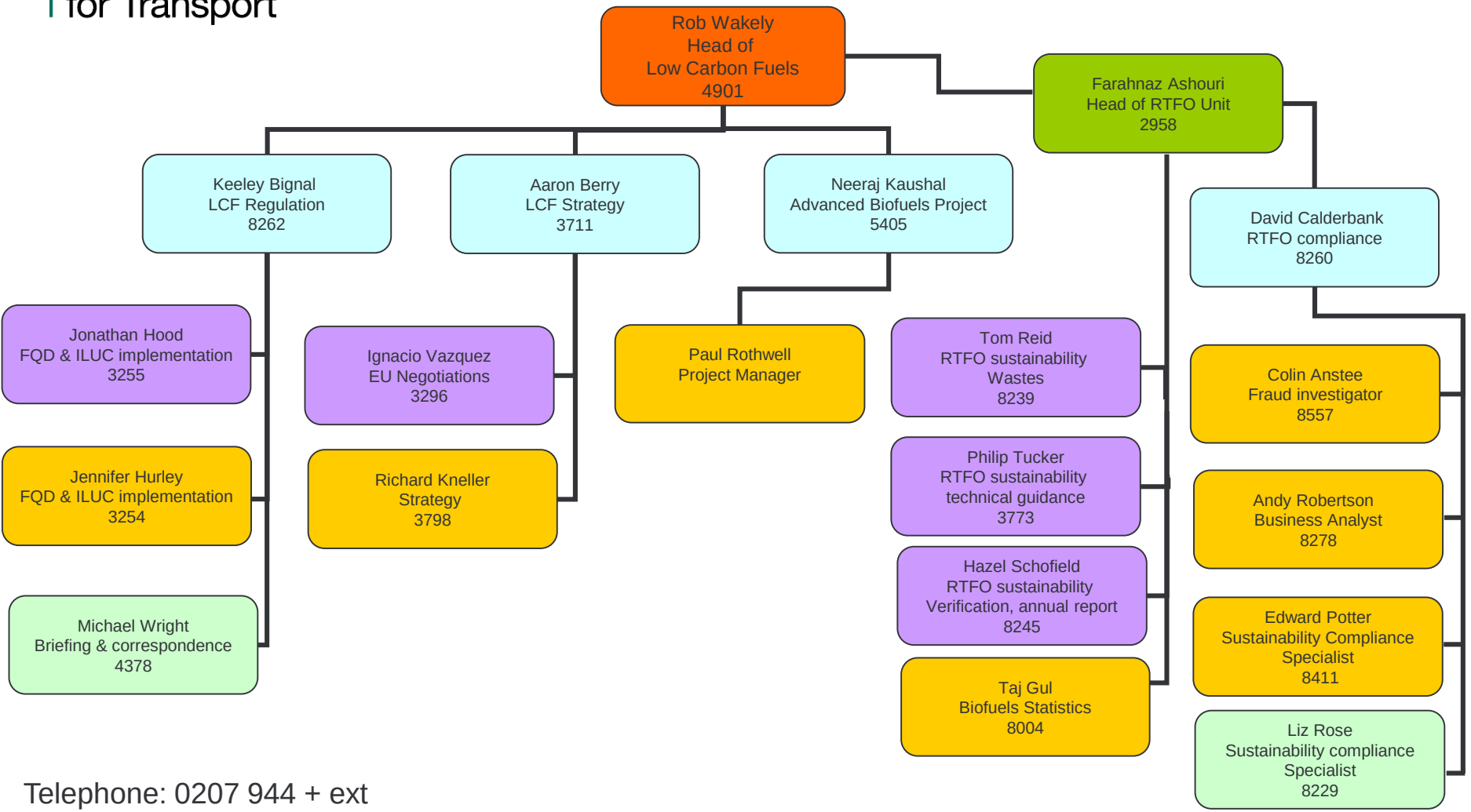
Low Carbon Fuels - Organogram



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Federal Ministry for the
Environment, Nature Conservation,
Building and Nuclear Safety

Greenhouse Gas Targets for Fuels in Germany

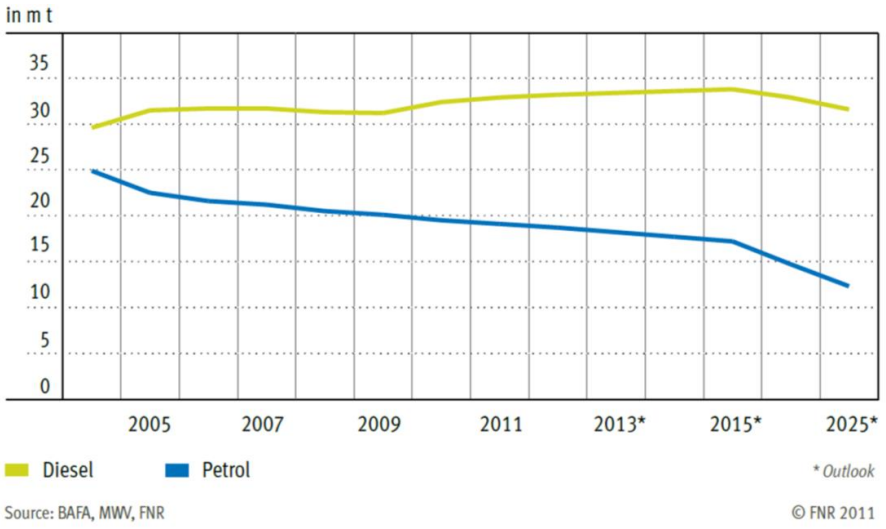
Quarterly Stakeholder Workshop

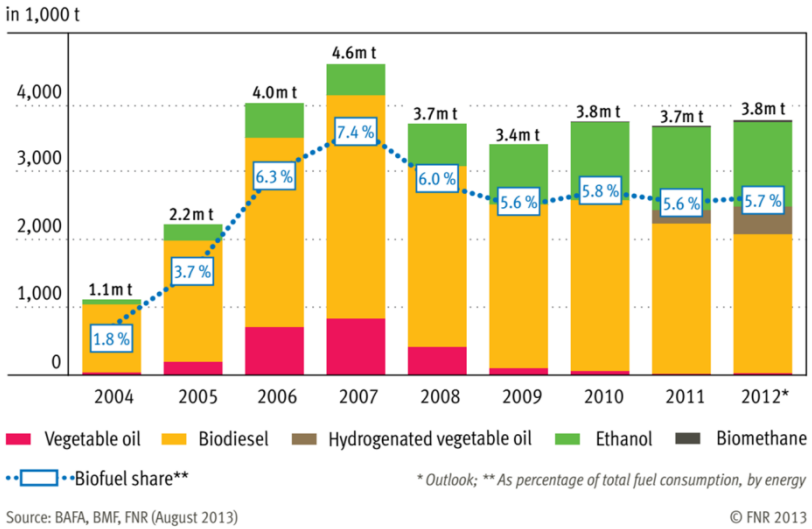
2nd July 2015

Market data: Fuels / Biofuels

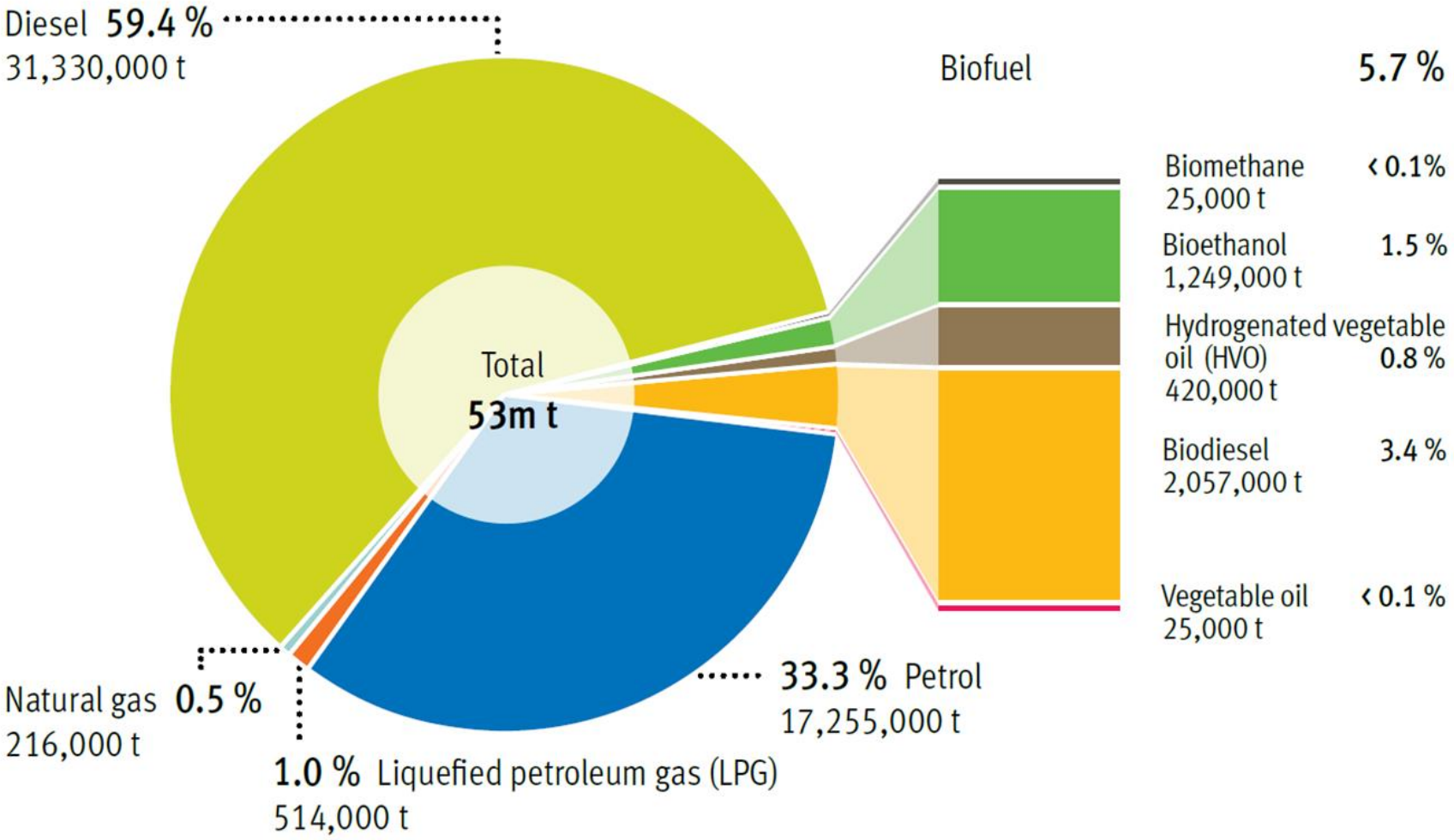
- Fuels market:
  - Diesel 36,5 Mio. t
  - Petrol 18,8 Mio. t
- Biofuels share:

  ca. 5,2 % (by energy)
- Main biofuels:
  - Biodiesel, HVO: 2,3 Mio. t
  - Bioethanol: 1,2 Mio. t





Market data: Fuels / Biofuels



Source: BAFA, erdgas mobil, DVFG, BMF, FNR (2013)

Market data: Fuels / Biofuels

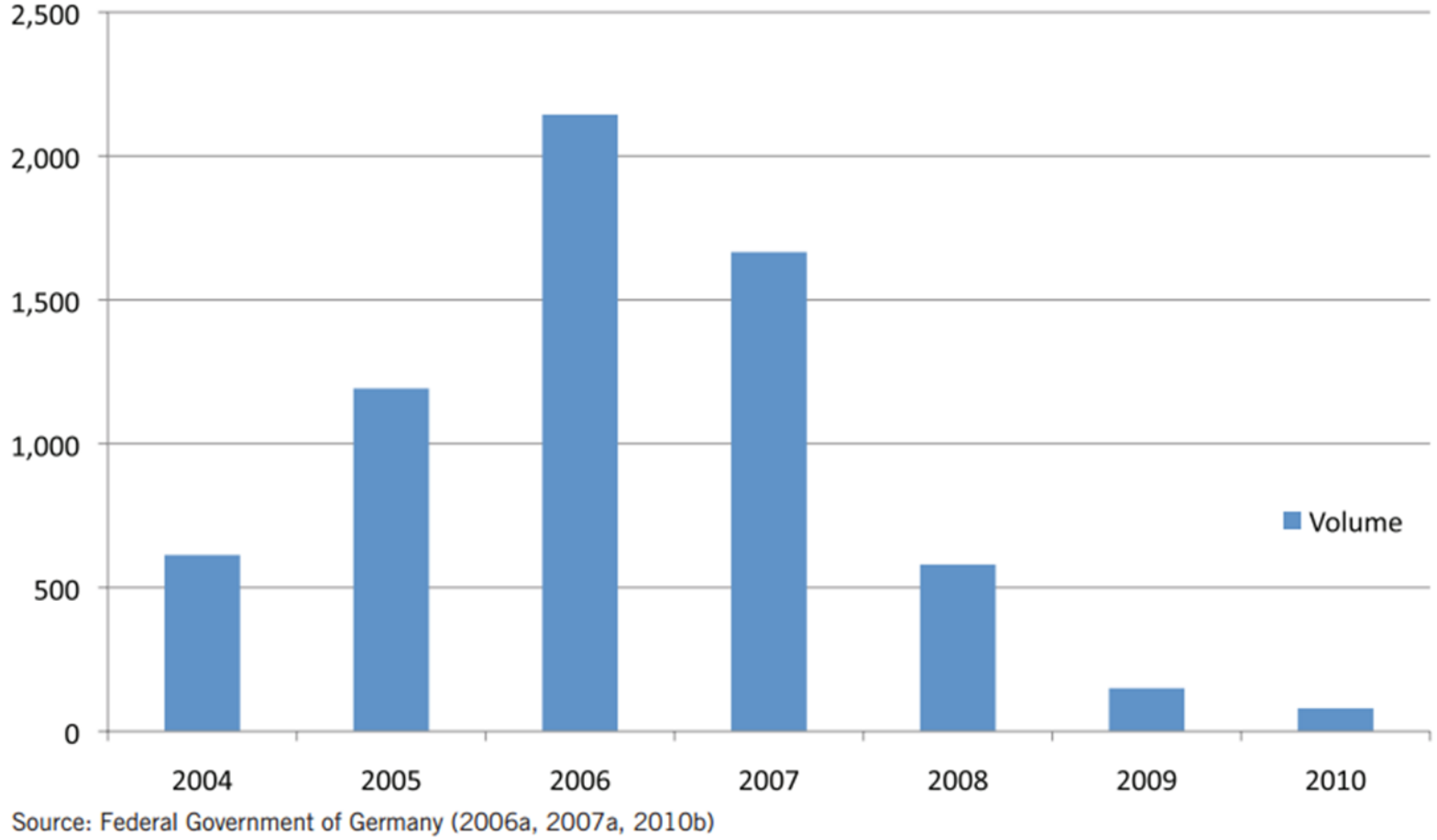
- around 15000 gas stations
- Other fuels:
  - LPG (around 6500 gas stations)
  - CNG (around 1000 gas stations)
  - E85 (around 350 gas stations)
- Biofuel production capacities (2013):
  - Biodiesel: approx. 4,8 mio. t
  - Bioethanol: approx. 0,95 mio. t

Fuel taxes

	– 7 /2006	8–12 /2006	2007	2008	2009 – 2012	2013-2015	Ab 2016
Pure biodiesel (from 2007 only outside quota)	0	9	9	15	18	45	
Vegetable oil (from 2007 only outside quota)	0	0	2	10	18	45	
E85 (from 2007 only outside quota)	0	0	0	0	0	0	65
Biodiesel / Vegetable oil / E85 within quota	–	–	47 / 65				
BtL / Cellulosic bioethanol	0						47 / 65
Diesel	47						
Petrol	65						

Tax exemption

(in Million Euros)



Source: Federal Government of Germany (2006a, 2007a, 2010b)

Support schemes for biofuels in Germany

- Up to 2006 only tax reduction for biofuels
- Biofuels quota from 2007 largely gradually replaced tax reduction (§§ 37a-37g Bundes-Immissionsschutzgesetz / Federal Immission Protection Act)
- Obligation to sell a specified minimum share (quota) of fuel as biofuels
- Up to 2014 amount was determined as percentage regarding the energy content
- Within the quota, biofuels are fully taxed

Fuel Quality Directive

- GHG reduction target for fuels:
  - Fuel suppliers are required to reduce GHG emissions of fuels by 2020 by **at least 6%** compared to fossil fuels in 2010.
  - *"Member States shall require suppliers to **reduce as gradually as possible** life cycle greenhouse gas emissions per unit of energy from fuel"*
- Reduction methods:
  - **biofuels**
  - *reductions in flaring & venting*
  - *GHG savings in EV, hydrogen, renewable methane*

GHG targets

- Decision to move to GHG targets was made in 2009 after the adoption of the FQD:
  - no longer biofuels amount, but rather GHG performance
  - technology neutral instrument
- Biofuels counted according to their life cycle GHG emissions
- Effects on biofuels:
  - **GHG performance** affects **value** of biofuels
  - **smaller amount** of biofuels needed in case of better performance
  - biofuels with a **below-average GHG performance**: a **larger overall amount** of biofuels is needed

GHG targets

- Annual GHG targets:

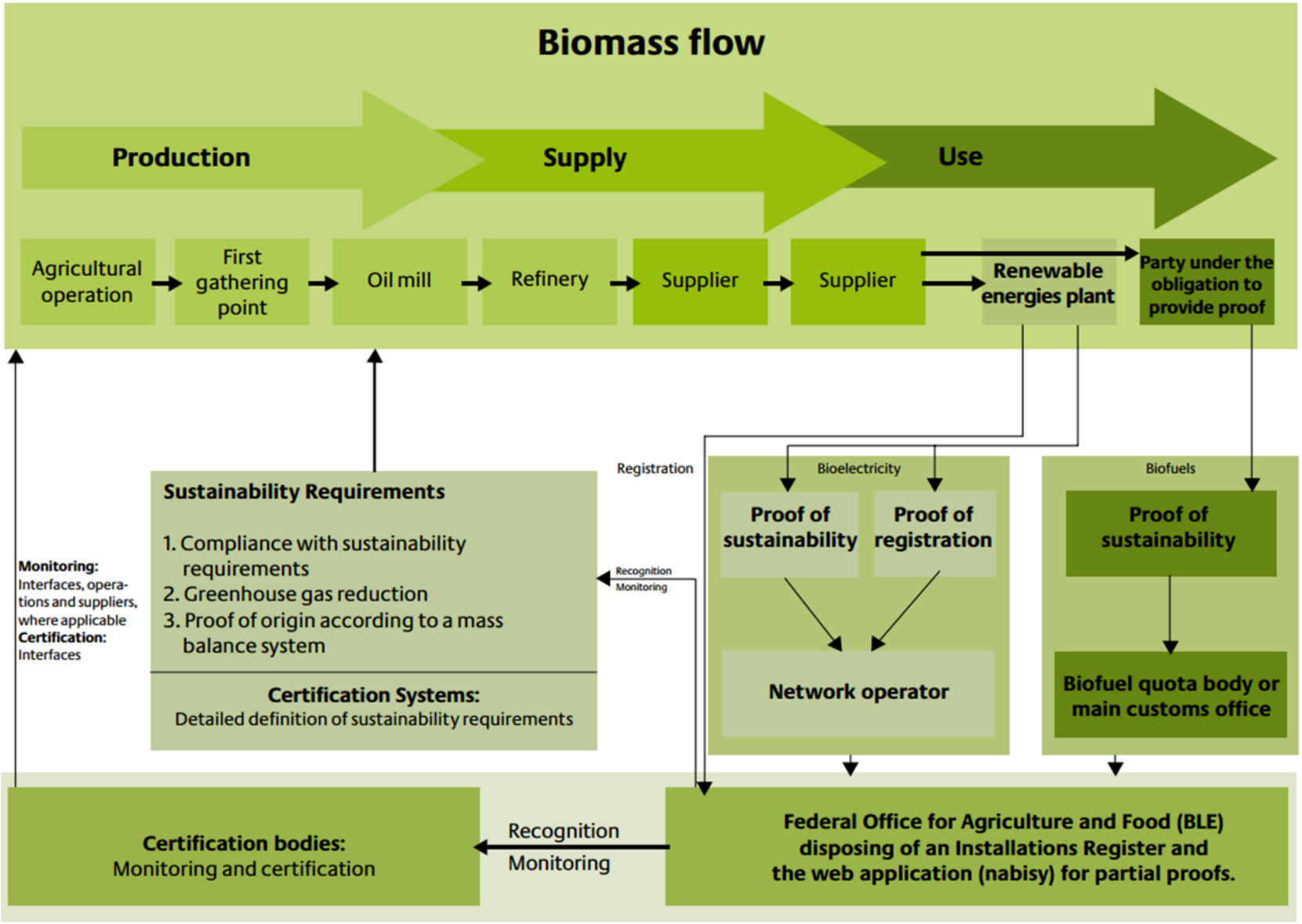
Years	GHG target
2015-16	3,5 %
2017-2019	4 %
from 2020	6 %

- Target continues after 2020 at the level of 6 %
- Biofuels are currently the only way to fulfil the target, other instruments will follow

Modalities

- Biofuels have to be sustainable also under the greenhouse gas targets (as required under Article 7b of the FQD)
- Sustainability criteria (RED, FQD, Biokraftstoff-Nachhaltigkeitsverordnung) continue to apply
- If biofuels do not fulfil these criteria they are assigned the GHG balance of fossil fuels

Sustainability



Source: BLE

Modalities

- GHG emissions of biofuels to be calculated on life cycle basis according to **GHG methodology in RED/FQD**
- **National schemes** and **EU voluntary schemes** are **recognized**:

  *"the certification of greenhouse gas emissions by recognized **voluntary schemes** is as **valid for the purposes of Article 7a** as it is for the purposes of Article 7b(2) of Directive 98/70/EC"* (Council Directive 2015/652)

Modalities

- Obligated entities: companies placing fossil fuels on the market
- Target has to be achieved over the **calendar year**
  - i.e. not for every liter
  - GHG reductions can vary throughout the year / geographically
- **Annual Reports** by suppliers by **15 April** the following year
- Additional GHG reductions above annual target may be **transfered to the following target year**
  - could be an interesting option for 2015/16 in view of 2017 target increase
- Below-target GHG reductions will result in a **penalty**

Modalities

- Obligated entities can delegate their quota requirements to a third party through bilateral contracts
- Third party has to place biofuels on the market within the quota year
- Third party does not have to be an obligated entity (could also be biofuel producers)
- In case the third party does not fulfil the contract the originally obligated entity has to pay penalty

Outlook

- Transposition of Council *Directive (EU) 2015/652*, i.a.:
  - Hydrogen, Renewable Methane
  - Electric vehicles
  - Upstream emission reductions
  - Reporting requirement for fuel suppliers (MCONs, place of purchase)
- European Commission will publish non-legislative guidelines on UERs
- ILUC transposition, i.a.:
  - Cap
  - Target for advanced biofuels
- Transposition into national legislation within 24 months

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Thank you!

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Low Carbon Fuels – Policy update

2 July 2015

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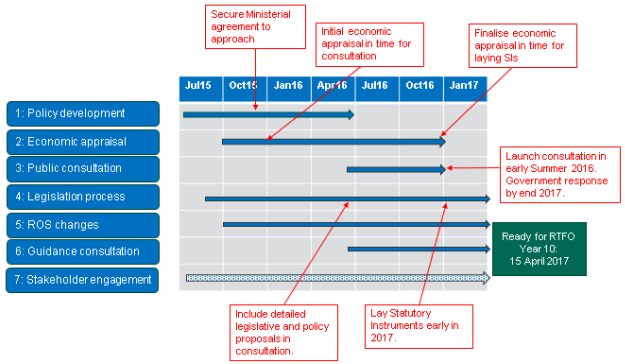
Summary

EU negotiations

Transport Energy Taskforce

Policy next steps



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EU Negotiations

Political compromise

- **Limit food based biofuels**- Up to 7%
- **Promote advanced biofuels**- Ability to set sub-target
- **Increased transparency**- ILUC emissions reporting
- Further incentives to **RES in road and rail**.

Timeline

- EP plenary vote 28 April.
- Final vote expected **Council 13/14 July**.
- Likely **transposition deadline September 2017**.

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Stakeholder Taskforce

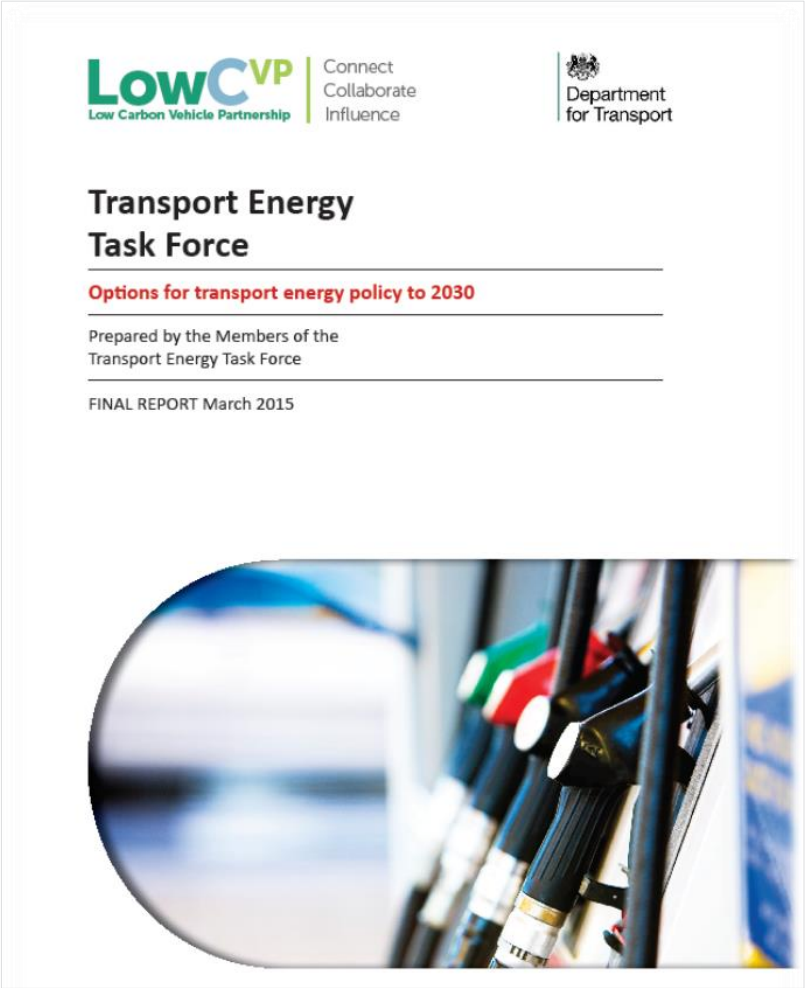
Why?

1. agree evidence
2. develop options
3. find consensus

5 Working groups

1. evidence
2. policy objectives
3. policy mechanisms
4. consumer issues
5. alternative fuels

Published in March



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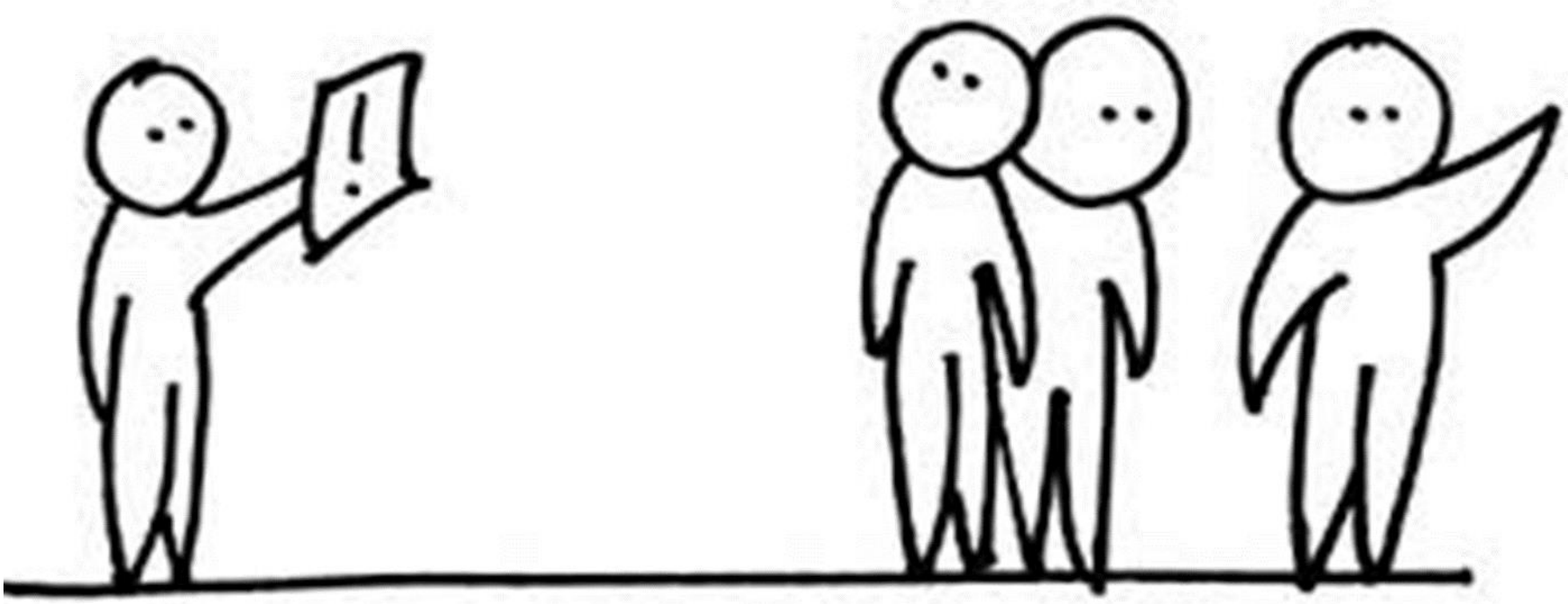
What did we achieve?



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1. Did we agree the evidence base?

Is there a need for low carbon fuels given electrification?

What kind of fuels would be delivered given different policy scenarios?

How much will it cost?

Do we need E10 to meet the 2020 targets?

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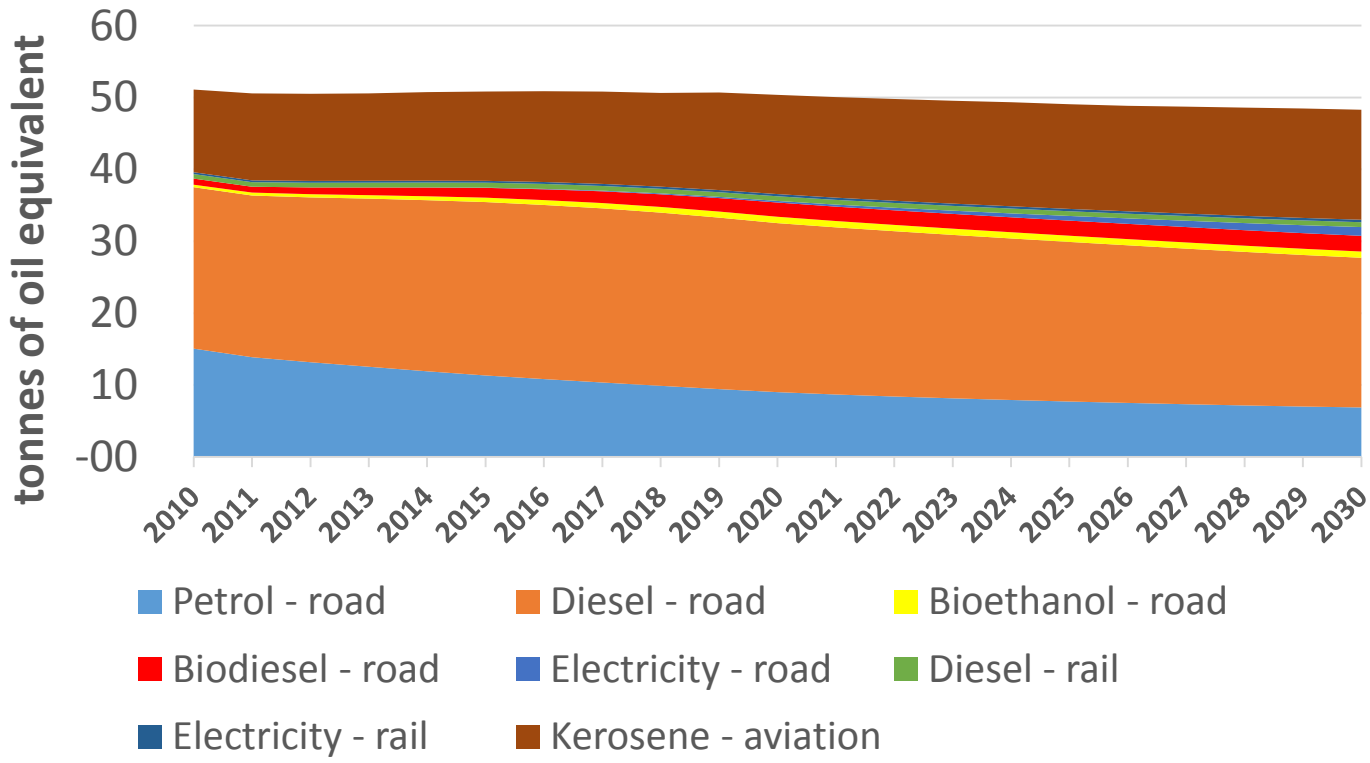
Fossil fuels likely to still be dominant in road transport to 2030 and beyond

Projected transport energy consumption by fuel - high abatement scenario (carbon plan 2011)



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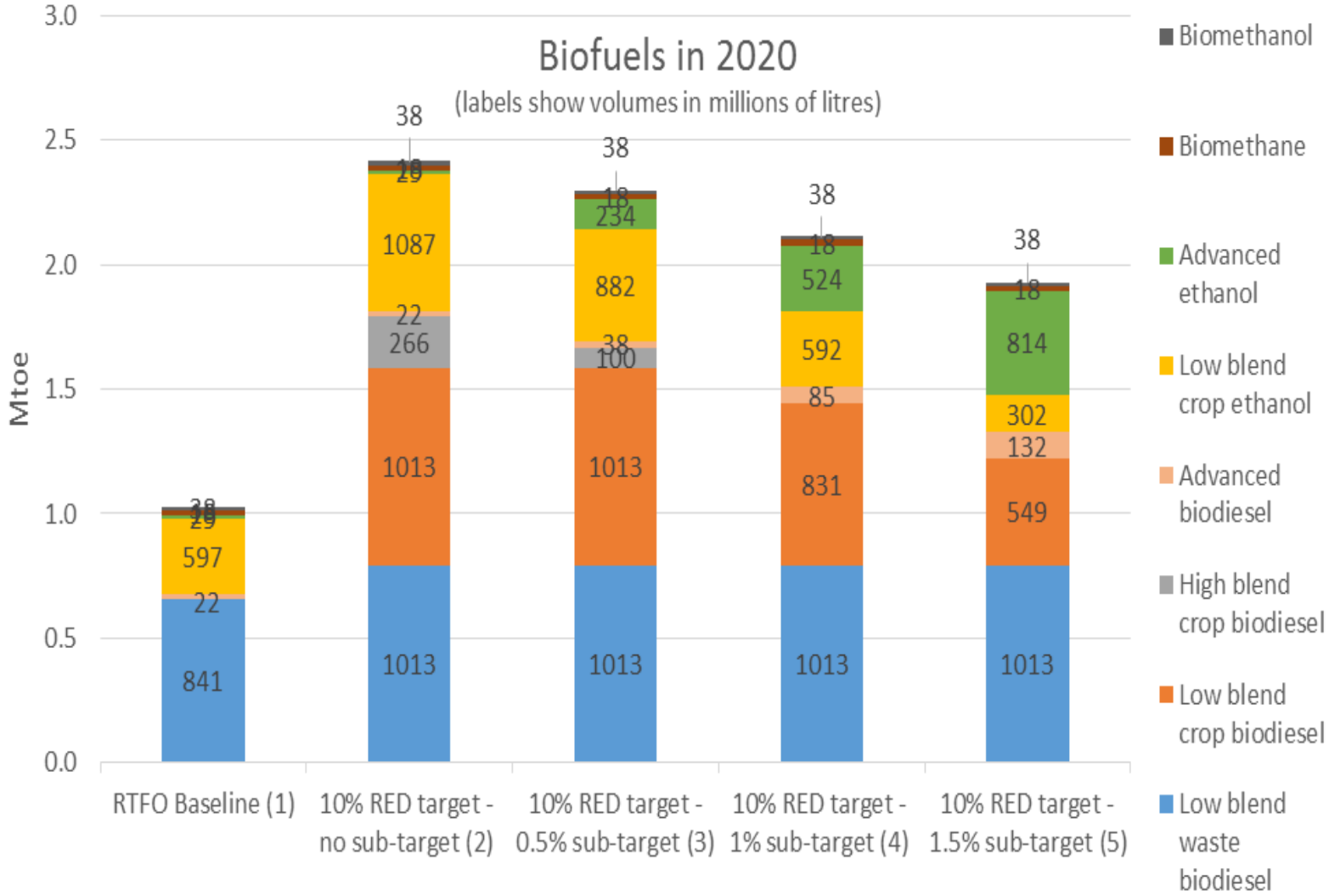
What will the market deliver?



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How much will it cost?

			10% RED Target, Central Waste			
		RTFO Baseline (1)	No sub-target (2)	0.5% sub-target (3)	1% sub-target (4)	1.5% sub-target (5)
Additional cost in 2020 (total)	**£m, 2014**	361	694	742	834	934
Additional cost (per MWh)	**£/MWh**	30	25	28	34	42
Reduction in emissions	**MTCO2e**	2.7	3.5	3.7	4	4.3
Abatement cost	**£/tCO2**	133	197	201	208	216
Crop %	**%**	0.82	4.22	3.58	2.58	1.58

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Do we need E10?

- Most scenarios - yes

But:

- consumer acceptance challenges
- compatibility issues – historic fleet
- NGOs opposed

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Do we understand the areas of uncertainty?

- How much waste derived biodiesel will be available to the UK?
- Will E10 be deployed?
- How much advanced biofuels will be available?

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2. Did we develop policy options?

Future trajectories

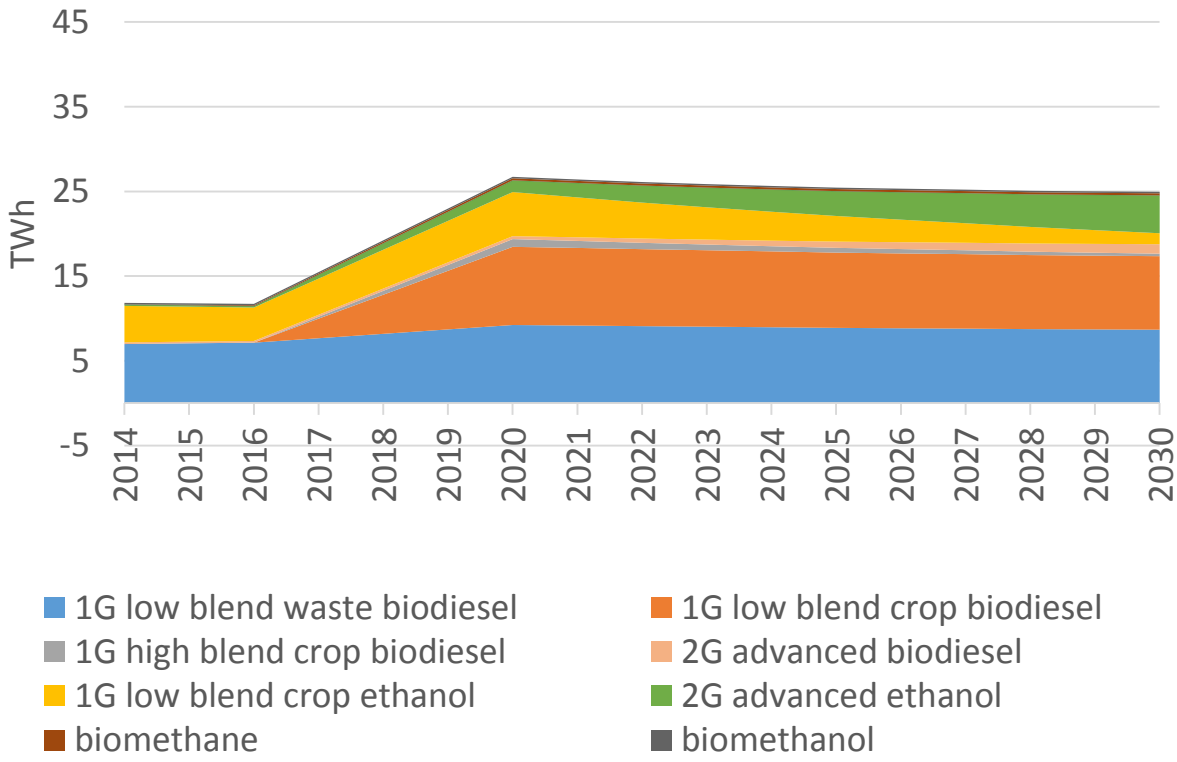
RTFO or other

Crop cap

Advanced sub target

Measures to support E10

Aviation biofuels



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3. Did we find consensus?

Evidence base ✓

Policy objectives ✓

Policy options ✓

What the Government *should* do ?

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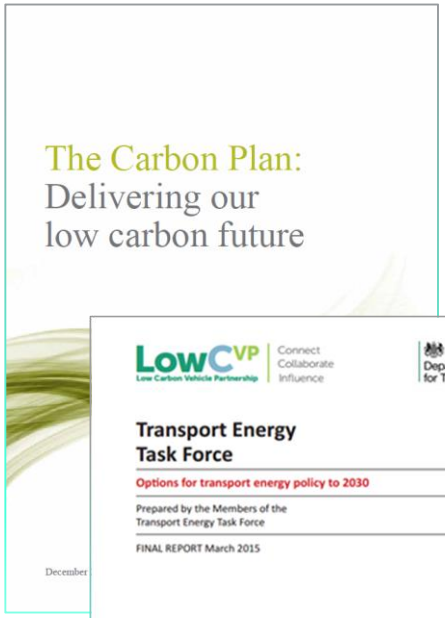
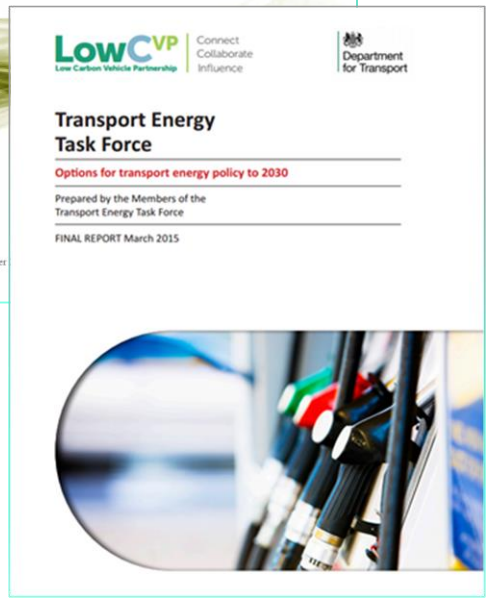
What happens next?





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Work to be done

Policy development

- UERs
- GHG obligation?
- Defn advanced fuels
- …..

Government agreement

- Consumer costs
- RED & carbon targets
- Regulatory reform
- ……

Legislative development

- Scrutiny committees
- Cabinet clearances
- Securing parliamentary debates
- ……

Operational development

- Operational design
- Ros development – multiple RTFCs
- Aviation?
- IT procurement
- …….

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Project planning – illustrative milestones

- 2 year implementation programme, comprising seven project workstreams:

1. **Policy development:** agree approach with Ministers during 2015, then develop detailed policy and legislative proposals.
2. **Economic appraisal:** initial cost benefit analysis and impact assessment by Spring 2016 – ready for consultation. Finalise by end of 2017 and publish with legislation.
3. **Public consultation:** publish detailed consultation document early in Summer 2016. Assess responses and issue Government response by end of 2017.
4. **Legislative changes:** Statutory Instruments to amend RTFO Order and GHG regulations. Lay early 2017, enter into force in time for RTFO Year 10 (April 2017).
5. **RTFO technical guidance consultation:** consult early 2017, publish Government response in Spring 2017 alongside updated guidance for RTFO Year 10.
6. **RTFO Operating System (ROS) changes:** scope now, implement for RTFO Year 10.
7. **Stakeholder engagement:** do this throughout process - meetings, workshops etc.

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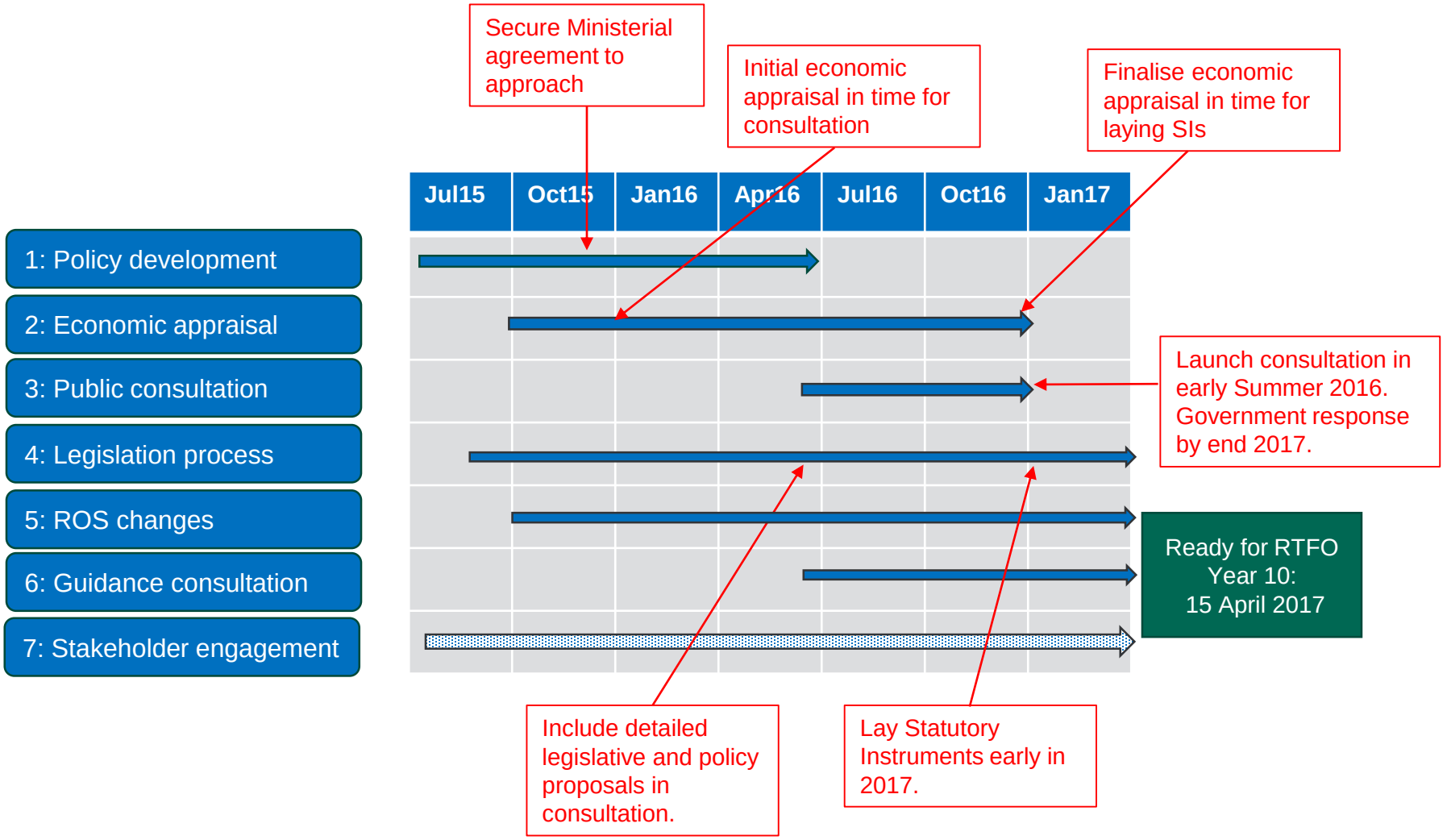
Illustrative Gantt chart



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Implementing FQD7a & meeting the 2020 targets

Dr Keeley Bignal
Head of LCF Regulation

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Talk outline

Implementing FQD7a

- Background/policy goals
- Requirements:
  - Supplier and Member State reporting
  - Upstream emission reductions (UERs)

Meeting the 2020 targets

- What is the mechanism for meeting FQD7a? Certificate trading?
- Do we need to move to a calendar year?
- Do we allow carry over of RTFCs into 2020?
- Buy out & State Aid – do we keep recycling of funds

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Fuel Quality Directive: Article 7a - background

- Latest substantive amendment to FQD in 2009
- Article 7a sets a 6% GHG reduction target by 2020 (relative to 2010)
- Requirement is on *suppliers* of road transport fuels (& non-road mobile machinery)
- Negotiations now concluded
- Implementing measure published in Official Journal in April 2015 – required to be implemented by 21 April 2017

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Meeting the FQD 6% GHG reduction target

- RED target biofuels expected to contribute ~4% of the FQD target
- Additional contributions possible from:
  - Better biofuels
  - More biofuels
  - Upstream emission reductions e.g. reduced flaring
  - Switching to electricity or gas, or from diesel to petrol

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Supplier penalties for missing the FQD target

- Penalties must be effective, proportionate and dissuasive
- Penalties for both non-compliance and missing the target
- Civil penalties under current RTFO/GHG Regs:
  - must not exceed £50k or 10% of turnover.
- But how should penalties for missing the 6% target be calculated?
- One option might be for a civil penalty as now + a buyout for the ‘typical’ volume of biofuel needed to meet the GHG reduction shortfall
- Does this seem effective, proportionate and dissuasive?
- Are there other suggestions?

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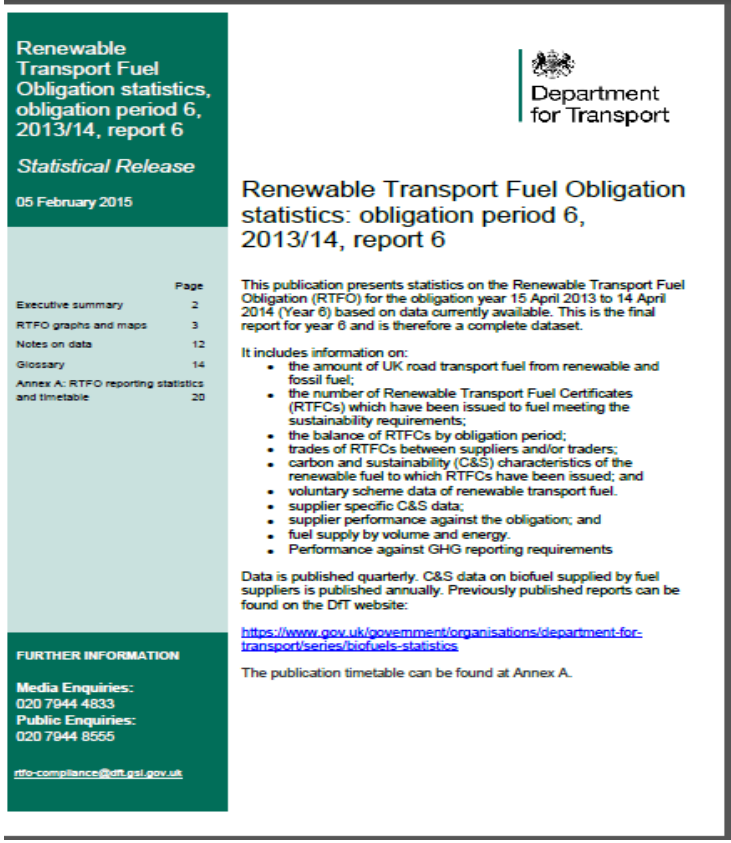
Supplier reporting – information we already collect

Biofuels

- Fuel type
- Volumes
- Sustainability including GHG emissions
- Origin = biofuel production pathway i.e. fuel type & feedstock
- Place of purchase (country)

Fossil fuels

- Fuel type
- Volumes



Renewable Transport Fuel Obligation statistics, obligation period 6, 2013/14, report 6

Statistical Release

05 February 2015

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Renewable Transport Fuel Obligation statistics: obligation period 6, 2013/14, report 6

Page

Executive summary 2
RTFO graphs and maps 3
Notes on data 12
Glossary 14
Annex A: RTFO reporting statistics and timetable 20

This publication presents statistics on the Renewable Transport Fuel Obligation (RTFO) for the obligation year 15 April 2013 to 14 April 2014 (Year 6) based on data currently available. This is the final report for year 6 and is therefore a complete dataset.

It includes information on:

- the amount of UK road transport fuel from renewable and fossil fuel;
- the number of Renewable Transport Fuel Certificates (RTFCs) which have been issued to fuel meeting the sustainability requirements;
- the balance of RTFCs by obligation period;
- trades of RTFCs between suppliers and/or traders;
- carbon and sustainability (C&S) characteristics of the renewable fuel to which RTFCs have been issued; and
- voluntary scheme data of renewable transport fuel.
- supplier specific C&S data;
- supplier performance against the obligation; and
- fuel supply by volume and energy.
- Performance against GHG reporting requirements

Data is published quarterly. C&S data on biofuel supplied by fuel suppliers is published annually. Previously published reports can be found on the DfT website:

https://www.gov.uk/government/organisations/department-for-transport/series/biofuels-statistics

The publication timetable can be found at Annex A.

FURTHER INFORMATION

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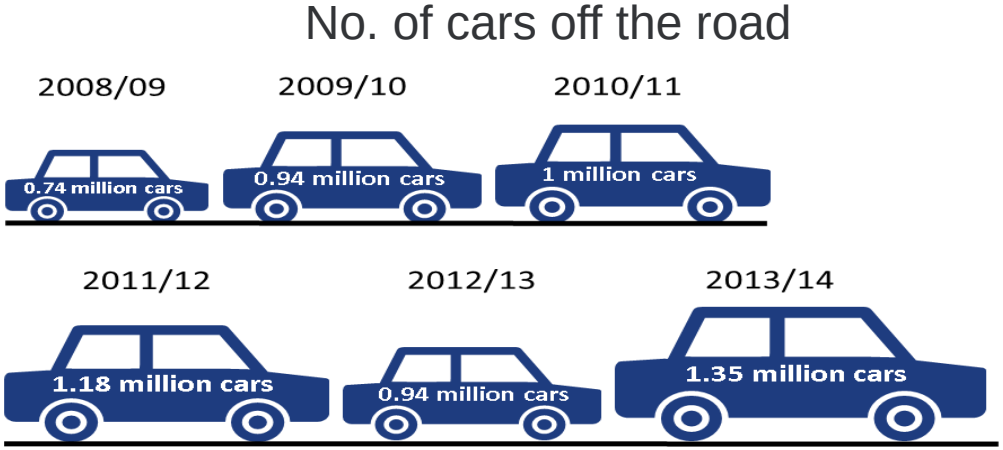

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Supplier reporting – new information

Fossil fuels

- GHG average default values per fuel type
  - Based on 2010 estimated EU feedstock mix.
  - No methodology to report actual values
- Origin = feedstock trade name/MCONs
- Place of purchase = country and processing facility

- Suppliers can report jointly – via certificate/credit trading?

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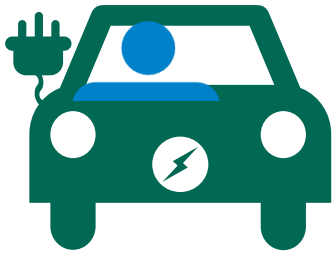

Reporting – new information

Contribution from electricity

- The amount of electricity consumed in road vehicles or motorcycles
- Distance travelled (km) x electric energy consumption efficiency (MJ/km)
- MS to use national average life cycle default values OR
- Suppliers to establish GHG intensity values

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Upstream emission reductions – what are they?

- FQD7a, article 2: ‘upstream emissions’ means all greenhouse gas emissions occurring prior to the raw material entering a refinery or a processing plant where the fuel… was produced

- Projects to reduce flaring and venting are probably the most feasible options
- Carbon capture and storage?

- EC to release non-legislative guidance on UERs
  - Two informal MS-EC meetings on FQD7a implementation to date – next in September

22. **Annex XII: Carbon abatement costs and potential (Source: ICF/Vivid Economics)**

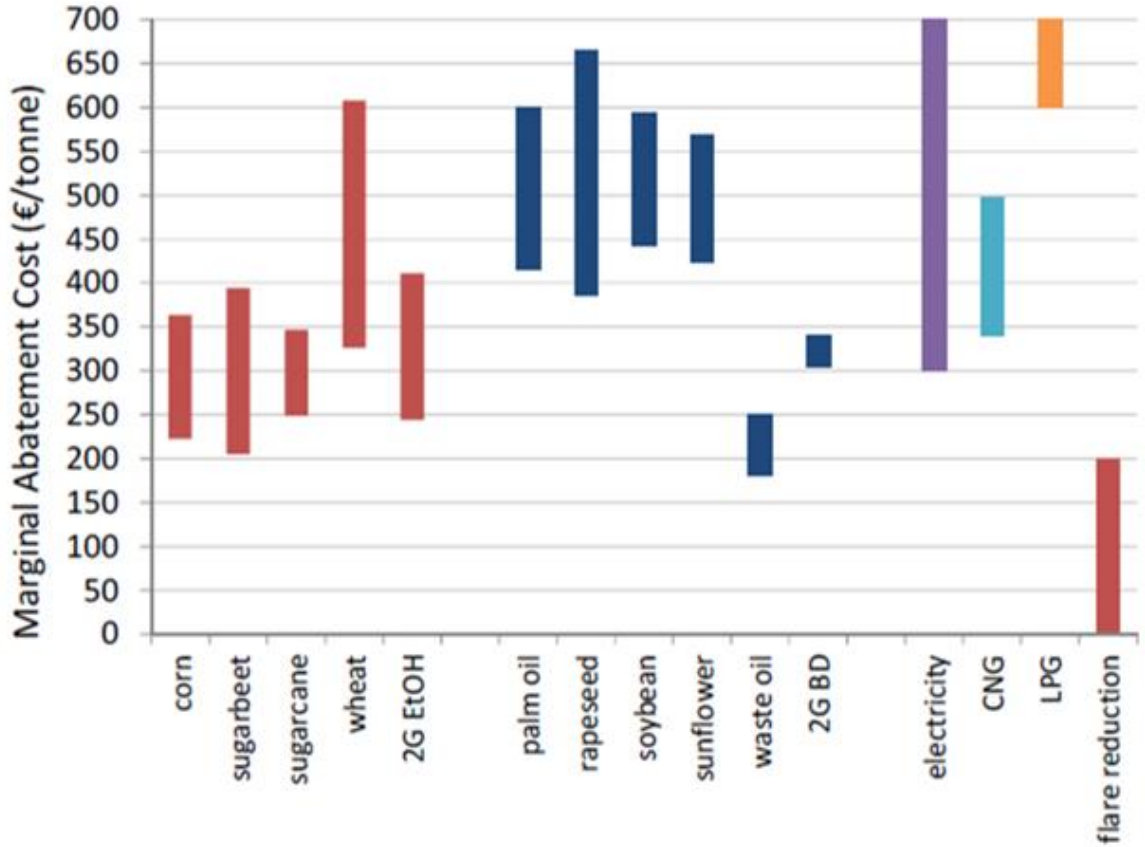

Figure 7: marginal abatement costs (euro/tonne)

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Annual flared emissions ($MtCO_2e$)

Russia	56.2
Azerbaijan	0.2
Turkmenistan	1.8
Venezuela	4.5
Algeria	8.6
Libya	6.0
Egypt	2.3
Nigeria	24.2
Gabon	2.7
Angola	6.5
Zaire	3.0
Benin	NA
Iran	18.0
Iraq	14.5
Saudi	5.0
Total	**153.5**

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UERs – which projects count?

- **Eligibility**: Annex 1. Part 1. (d)(i)
  - UERs must be less than the upstream emission's part of the default values for petrol, diesel, CNG or LPG
  - UERs can originate from any country and from any feedstock supplied by any supplier
  - **Start date**: Projects must have started after 1 January 2011
    - But can GHG emission savings delivered before 2020 count?
    - When does a project start? When first GHG savings were delivered?

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UERs – which projects count?

- **Eligibility**: Annex 1. Part 1. (d)(i)
  - Do not need to prove that the UER project would not have taken place without FQD7a
- BUT Annex 1. Part 1. (d)(ii) –
  - GHG savings calculation refers to ISO standards – these refer to establishing the reference GHG **baseline** so infer an element of **additionality**
- **Trading of UER credits** – pan-EU database for tracking and fraud prevention?
  - Who pays/develops?

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UER reporting by suppliers

- Start date of the project
- Annual GHG emission reductions
- Duration of the GHG reductions
- Project location in latitude and longitude
- Baseline annual emissions prior to installation of reduction measures
- Annual emissions after the reduction measures have been implemented
- The non-reusable certificate number uniquely identifying the scheme, the claimed greenhouse gas reductions and the calculation method
- Where the project relates to oil extraction, the average annual historical and reporting year gas-to-oil ratio (GOR) in solution, reservoir pressure, depth and well production rate of the crude oil.

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Meeting the FQD7a target - what is the mechanism?

- **No trading of GHG savings** – calculate GHG emissions for each supplier based on biofuel and fossil fuel supplied.
- **RTFC 'GHG labelling'** –Could bolt on a separate mechanism for trading fossil fuel savings
- **Assign each RTFC the 'average' GHG saving** – Could bolt on a separate mechanism for trading fossil fuel savings
- **Dual certificates** – creating a 'GHG credit' in parallel to current RTFCs – can apply to all fuels (fossil and bio)
- Move completely to a **GHG based scheme** - issue only GHG credits/certificates
- Other?

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Meeting the 2020 targets: calendar year RTFO?

- Member States must report to EC by 31 December 2021 on 2020 supply - including whether met RED and FQD targets
- RTFO operates 15 April to 14 April – final supply known end November
- GHG regulations already operate on a calendar year basis BUT supplier reporting deadline is also end November due to reliance on RTFO data
- Will EC accept April to April supply in meeting the 2020 target?
- Even if acceptable to EC:
  - leaves insufficient time for UK to compile the reports for the EC
  - Difficulties of using different fuel supply to meet the two targets as timetable for the two legislative instruments do not align

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Meeting the 2020 targets: calendar year RTFO?

Potential solutions:

1. Reduce time to ‘close down’ RTFO year
   - e.g. decrease time after final biofuel supply to final RTFC applications to 45 days?

2. Move RTFO to calendar year also?
   - amend legislation in April 2017
   - short obligation period April 2018 to Dec 2018
   - 2019 would be first calendar year

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Meeting the RED target: options for carry over of RTFCs into 2020 (or 2020/21)

	Flexibility for suppliers?	Risk of increased cost at pump?	UK meets target?
No change – carry over permitted	Yes	Risk reduced	No? Unless EC agree we can count the carried over RTFCs towards target
Carry over permitted + set obligation higher than 10%	Yes	Yes – higher supply & potential oversupply	Yes? Risk of not meeting if set too low BUT NGO /public acceptability of high 'target'?
No carry over	No	Yes due to reduced flexibility in supply	Yes
Carry over 'skips a year'	Yes (though reduced)	Risk reduced	Yes

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Buy out & State Aid do we continue to recycle the funds?

- Suppliers are allowed to ‘buy out’ of their RTFO obligations (30p/litre)
- The buyout fund is then recycled back to all who have redeemed or surrendered their RTFCs
- The buyout fund is either zero or very small
- State Aid and the RTFO – public resources are engaged i.e. there is “state aid” where buyout is recycled
- Need to notify of any changes – can take one year or more!
- Should we remove the recycling element of the buy out fund?

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Next steps

- Stakeholder engagement/working groups:
  - UERs
  - Fossil fuel supplier reporting – feedstock trade names/MCONs
  - Meeting the targets (certificate trading, calendar vs financial year reporting, carry over)
  - Definition of advanced biofuel
  - Aviation
  - E10?
  - Other?
- Expressions of interest to biofuels.transport@dft.gsi.gov.uk by 17 July

Thank you

Keeley.Bignal@dft.gsi.gov.uk

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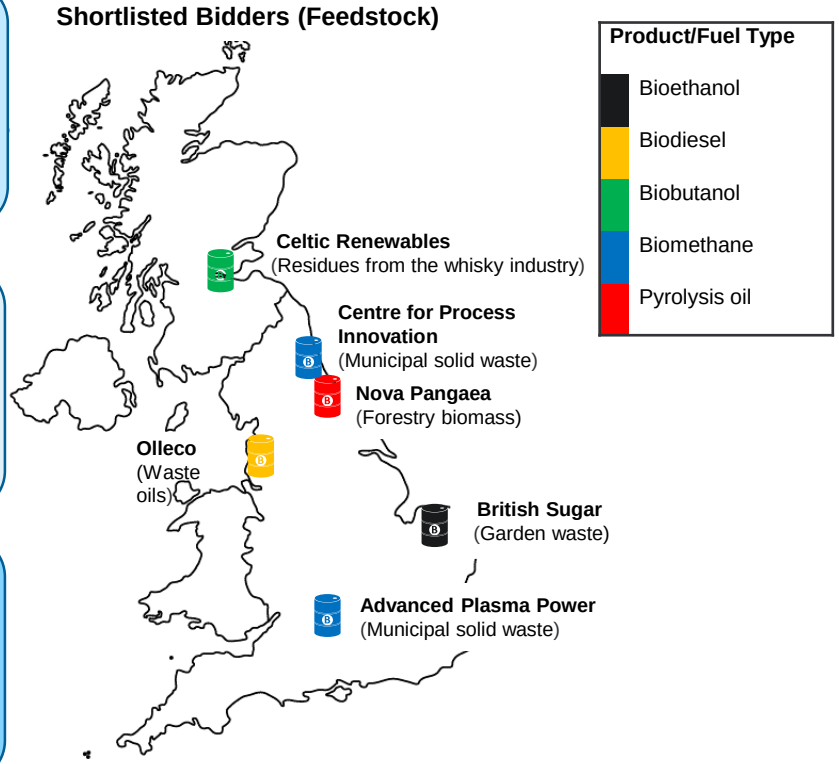
The £25m Advanced Biofuels Demonstration Competition - shortlist

- A £25m competition to support development of the industry to put the UK on the global map of producers.
- Converting waste to transport fuel could be worth up to **£130 million gross value added to the UK by 2030**, and potentially up to **£500 million** per year including exports.

- The 6 shortlisted bidders represent a range of feedstocks and technologies.
- The winners will be expected to have biofuel-ready facilities by **December 2018** and produce at least **1 million litres of biofuel a year**
- A decision to award the £25m grant to winners will be required in **July.**

- The competition complements our strategy to stimulate investment in advanced biofuels production facilities:
  - Negotiating a sub-target for advanced biofuels through EU regulation.
  - Double rewards for suppliers and producers of waste-to-transport fuel.

Shortlisted Bidders (Feedstock)



Department for Transport

Advanced Biofuels Demonstration Competition - Evaluation process