ICAO CAEP Alternative Fuels Task Force: Scope of Work

Experiences from Spain in LCA

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ICAO CAEP Alternative Fuels Task Force: Scope of Work

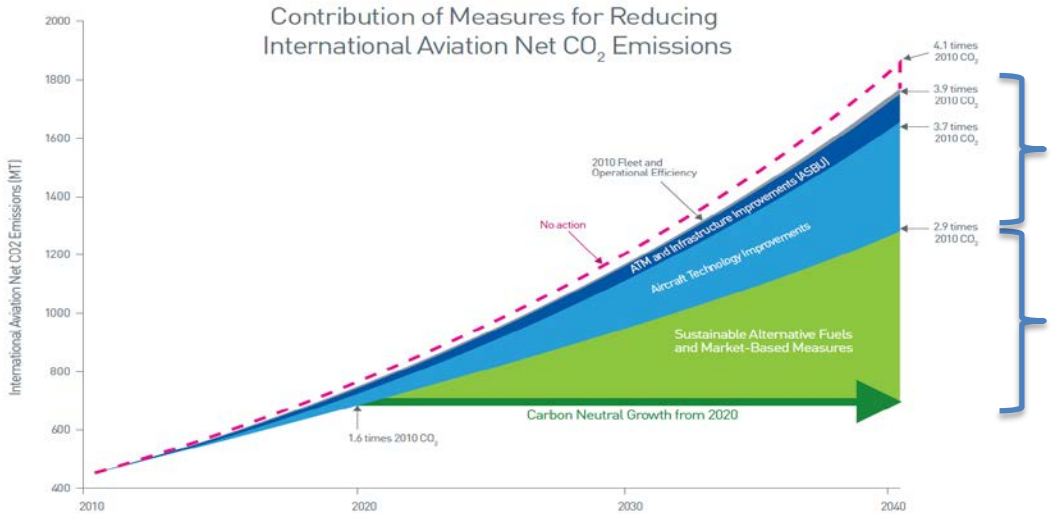
1 Alternative Fuel Task Force (AFTF)

AFTF Background

38th ICAO Assembly

- *Request to the Council to "**collect information on progress of alternative fuels in aviation**, including through States' action plans, to give a global view of the future use of alternative jet fuels and **to account for changes in life cycle GHG emissions in order to assess progress toward achieving aviation global aspirational goals**"* (Resolution A38-18, clause 33, para. l);

- *Request for an **updated trends assessment for the next Session of the Assembly*** (A38-WP/429 – Report from the Executive Committee, paragraph 17.2.7).



Contribution of Alt Fuels to the basket of measures

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1 Alternative Fuel Task Force (AFTF)

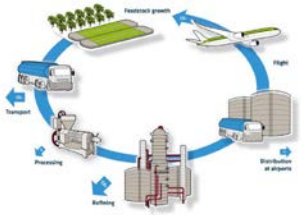
Goals of the AFTF

- ICAO CAEP Steering Group in Dubai.

  November 2013 → Decision to create the AFTF to perform the analysis

- **Purpose:** To evaluate the range of potential GHG emissions reductions from the use of alternative fuels in aviation to 2050.

Assessment of alternative fuels Life Cycle emissions



Projection of up to 2050

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Aplication of the Work

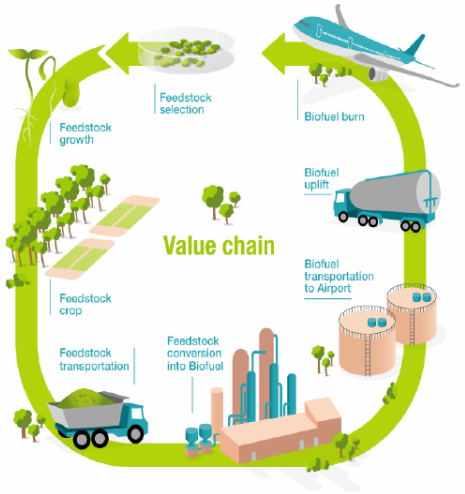
1. Input for the **inclusion of alternative fuels in the CAEP's trends assessment to 2050**, performed by the Modeling and Database Group (MDG).

2. **Definition of a methodology for LCA** of alternative fuels emissions for ICAO's environmental trends assessment

3. Define the portion of the emissions reduction gap that could be filled with alternative fuels

To be reported at:

- to the CAEP Steering Group
- CAEP/10 meeting in February 2016
- ICAO 39th Assembly, in October 2016



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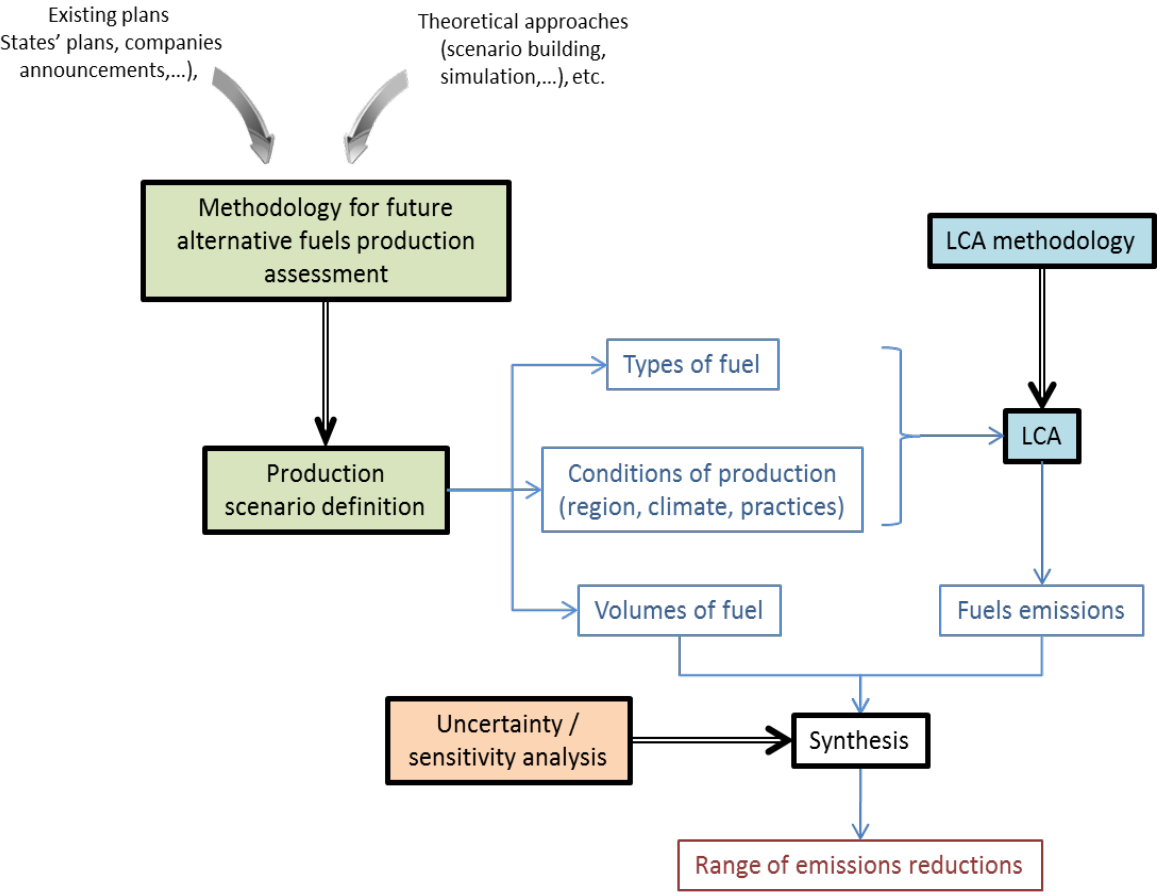
Analysis approach



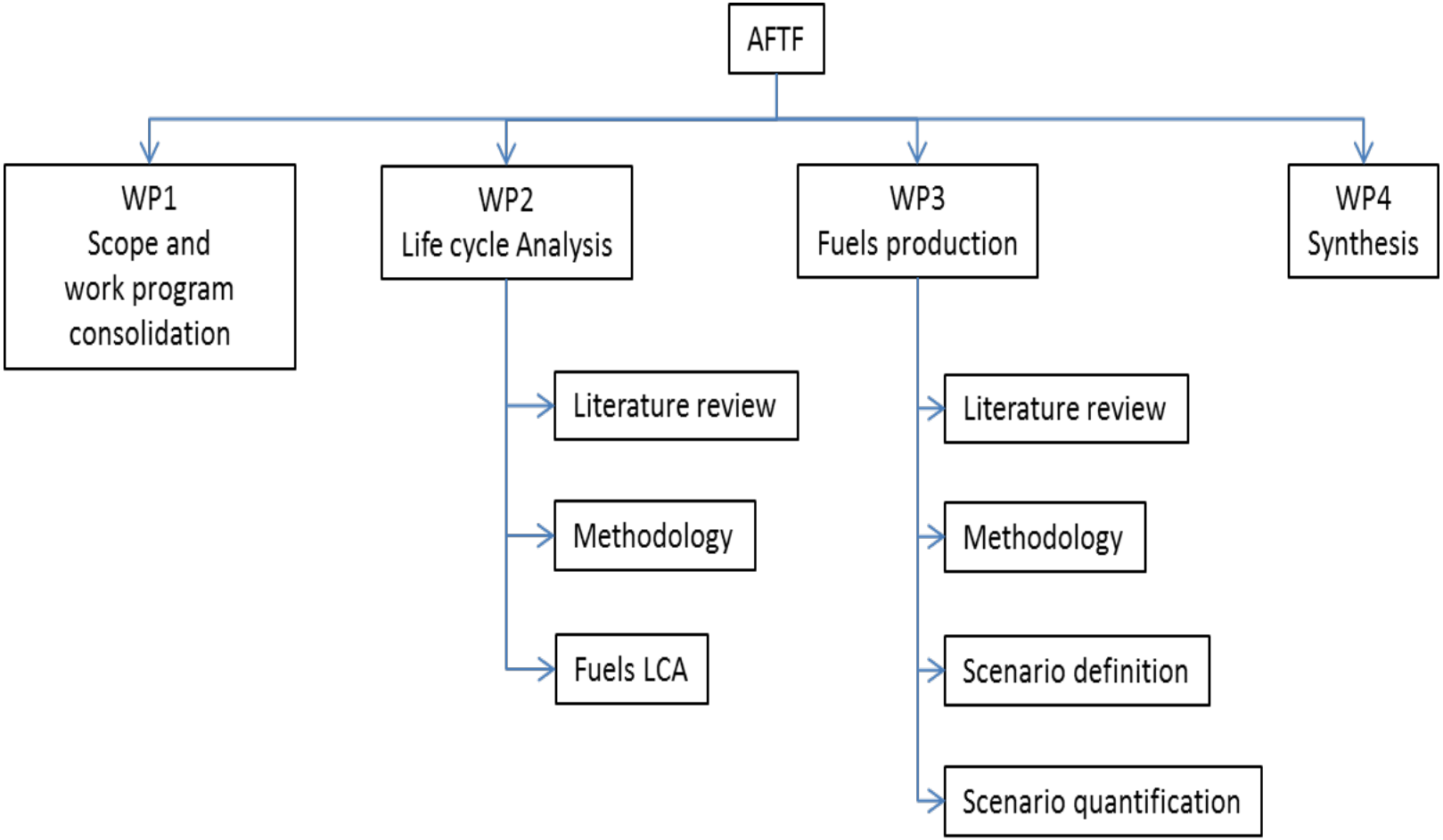
Different LCA methodologies allows the use of different parameters

→ can lead to significant divergence in the evaluation

Need to define a methodology for LCA for ICAO's trend assessment

Alternative Fuel Task Force (AFTF)

Work Breakdown



Alternative Fuel Task Force (AFTF)

Timeframe

Task	Timeframe	Deliverable
Requirement analysis	March 2014	Work plan
Methodology for fuel life-cycle emissions assessment	SG 2014	LCA methodology report (WP to SG2014)
Quantifying fuel life-cycle emissions	CAEP10 2015	Alternative fuel emissions report (WP to CAEP/10)
Review of projected production of alternative fuels	SG 2014	IP
Methodology for future alternative fuels production	SG 2015	Report (WP to SG2015)
Quantification of the range of the production alternative jet fuels to 2050	CAEP10 2016	Report (WP to CAEP/10)
Quantification of the range of emissions from alternative jet fuels to 2050	CAEP10 2016	WP to CAEP/10

Alternative Fuel Task Force (AFTF)

Participants

54 experts from **14 Member States**, and **5 Observers** plus ICAO Secretariat

Member	Representative
Australia	Jennifer Collier
	Flyn van Ewijk
Brazil	Jorge Alves da
Egypt	Amira El-Sayed
	Mahmoud Fathy
France	Chems CHKIOUA
	Anne-Laure
	Nicolas JEULAND
	Myriam HABIB
	Bruno HAMON
Germany	Jan Seven
Indonesia	Yusfandri Gona
	Toto Nugroho P.
	Zarrah Duniani
Italy	David
	Francesco Sepe
Japan	Satoshi OSHIMA
	Hitoshi FUJIWARA
Spain	Cesar Velarde
Sweden	Annika Lindell
Ukraine	Sergiy Boichenko
United Kingdom	Roger Worth

Member	Representative
United States of America	Nathan Brown
	James Duffield
	Minh Favila
	Gregg Fleming
	Jeongwoo Han
	James Hileman
	Kristin Lewis
	Robert Malina
	Lourdes Maurice
	Pat Moran
	David Shonnard
	Mark Stapples
	Parthsarathi
	Michael Wang
	Kevin Welsh

Observer	Representative
European Commissio	*Ivan de Lepinay*
	Laura Lonza
IBAC	Charles L. Etter
IATA	Robert Boyd
	Leigh Hudson
	Timothy Pohle
	Thomas Roetger
ICCAIA	Frédéric Eychenne
	Michael Lakeman
	Jeffery Lovett
	Joseph Zelina
ICSA	Chris Malins
	Mazyar Zeinali
	Pietro Caloprisco

Secretariat	Representative
ICAO	Philippe Novelli

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Experiences from Spain in LCA

Iniciativa española para la producción y consumo de bioqueroseno para la aviación

Initiative Towards A sustainable Kerosine for Aviation

2 European Framework

The Renewable Energy Directive (2009/28/EC) (RED)

- RED sets sustainability criteria for biofuels and bioliquids.

Land Protection

Socioeconomic Impact

GHG Savings

- Minimum greenhouse gas emission savings required
  - For the use of biofuels → 35 %
  - From 2017 on → 50 %
  - From 2018 on (for new installations) → 60%

✓ RED Annex V →**default values of 22 biofuel production pathways**

✓ Other production pathways → **producers must carry out their own calculations** (based on a given methodology)

- Default values may be used for some emissions factors

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2 European Framework

- Provides a list of harmonized conversion values for GHG calculations
- The BioGrace GHG calculation tool→ may be used in combination with other national/voluntary schemes (ISCC, RSB…)

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2 European Framework

GHG gas calculators are being developed by member states:

- ✓ **Spanish** GHG calculator "Calcugei“
- ✓ **Dutch** GHG calculator
- ✓ **UK** GHG calculator

- ✓ Test version **German** GHG calculator (featuring biodiesel, cereals, palm oil, plant oil, sugar beet, sugarcane)

3 The Spanish Case: Camelina production

EU RED - RSB certification scheme used- Why?

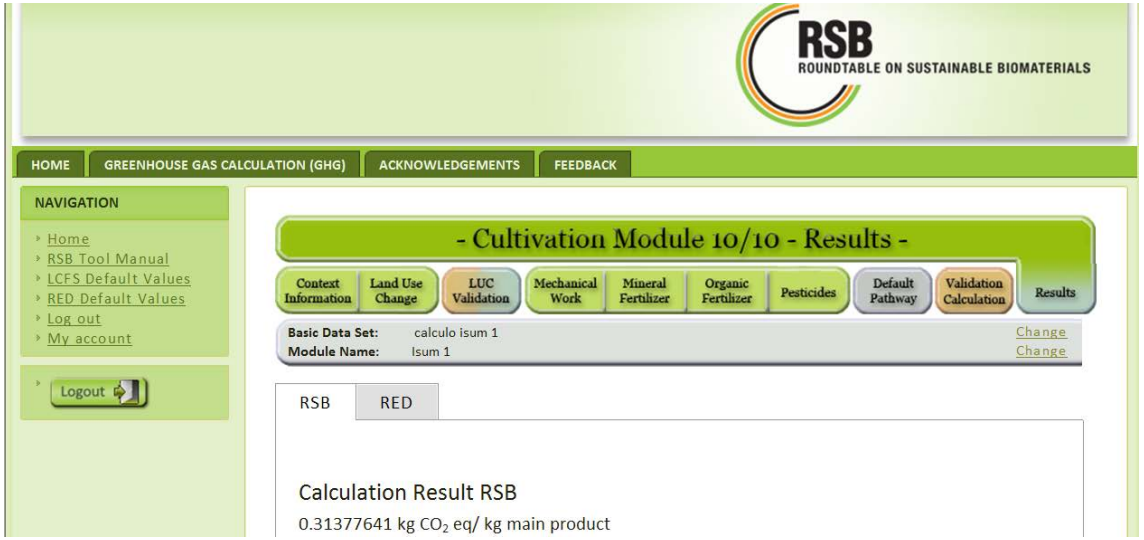
- RSB includes Camelina to jet pathway, while other voluntary and national schemes only include the 22 most frequent pathways.
- Supported by SAFUG
- ITAKA project agreement

Sustainable Aviation Fuel Users Group

- The GHG calculation tool allows 2 calculations:

✓ RSB compliant

✓ RSB EU RED compliant.



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3 The Spanish Case: Camelina production

RSB and EU RED RSB LCA for attribution of GHG to products and by products:

✓Energy-based allocation (EU-RED)
✓Allocation based on economic value (RSB)

Seed

oil

meal

X % of GHG allocation

Y % of GHG allocation

X and Y will depend on:

a) Energetic value of product and by-product

b) Economic value of product and by-product

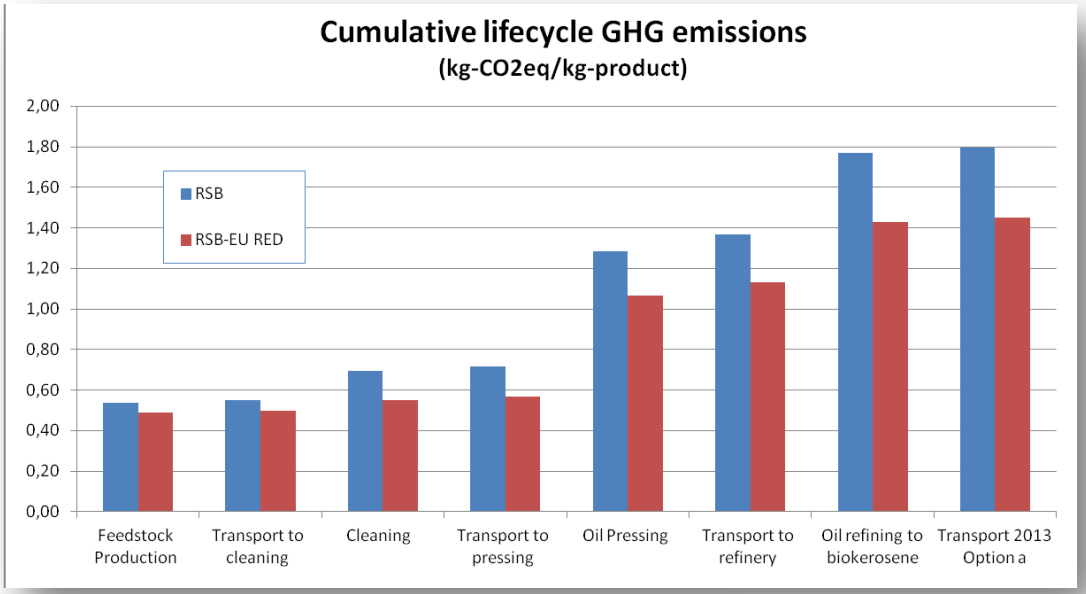
✓US RFS2 LCA uses system expansion for attribution of GHG

oil

100 % of GHG allocation –

Amount of emissions avoided by not having to use land to cultivate extra animal feed

3 The Spanish Case: Camelina production



- Preliminary calculations based on current knowledge of material and energy use
- Still room for improving the GHG performance when all data is obtained from ITAKA project
- 61 % total emission reduction using RSB-EU RED

RSB SERVICES FOUNDATION

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CAMELINA COMPANY EARNS RSB CERTIFICATION

Biofuels and Biochemicals Producer Puts Sustainability First

McLean, VA – October 17, 2013 – The RSB Services Foundation, the implementing entity of the Roundtable on Sustainable Biomaterials (RSB), a global sustainability standard and certification system for biofuels and biomaterials production, is pleased to announce that Camelina Company España (CCE), has earned RSB's sustainability certification. Camelina Company, a leading renewable fuels and chemicals group, pioneered the manufacturing and marketing of fuel and chemicals from camelina.

CCE is a company incorporated as a joint venture with Great Plains Oil & Exploration. Great Plains is the world leader in agronomy, production and commercialization of camelina, and is a global supplier of commercial quantities of biofuel as well as high-protein, omega 3-rich animal feed.

RSB's sustainability certification covers Camelina Company's office in Madrid, over 150 farmers in the regions of Castilla La Mancha and Aragón, mainly, the logistics centre, in Albacete and the grain crushing facility in Tarancon.

- LCA accounting method, are based in different methodological choices such as the choice of allocation method:
  - ✓ RSB methodology attributes a higher portion of emissions to expensive products
  - ✓ EU RED methodology based on the energy content of products

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3 The Spanish Case: Camelina production

Barriers/difficulties for Spanish Camelina LCA

- Since its not a standardized pathway LCA calculation required a high level of data compilation/analysis since Camelina cultivation is

  ✓ Rotational (different data – land use, fertilization volumes, etc.- for each year)

  ✓ Small plots, variety of geographical locations, over 150 farmers

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Thank you

César Velarde (SENASA)

More information in: **www.bioqueroseno.es**

www.itaka-project.eu