

Can science make policy-makers think twice?



The role of research results in EU decision-making on biofuels

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Outline

- ▶ Theoretical Background
- ▶ Timeline of the decision-making process
- ▶ Defining critical issues: Comparison of COM proposal, EP Committee report and final directive
- ▶ Scientific Input
- ▶ Stakeholder Input
- ▶ Conclusions



Theoretical Background: What do we mean when we talk about „science“?

Based on Demeritt (2006):

- “sound science” v. science as a social construction of reality

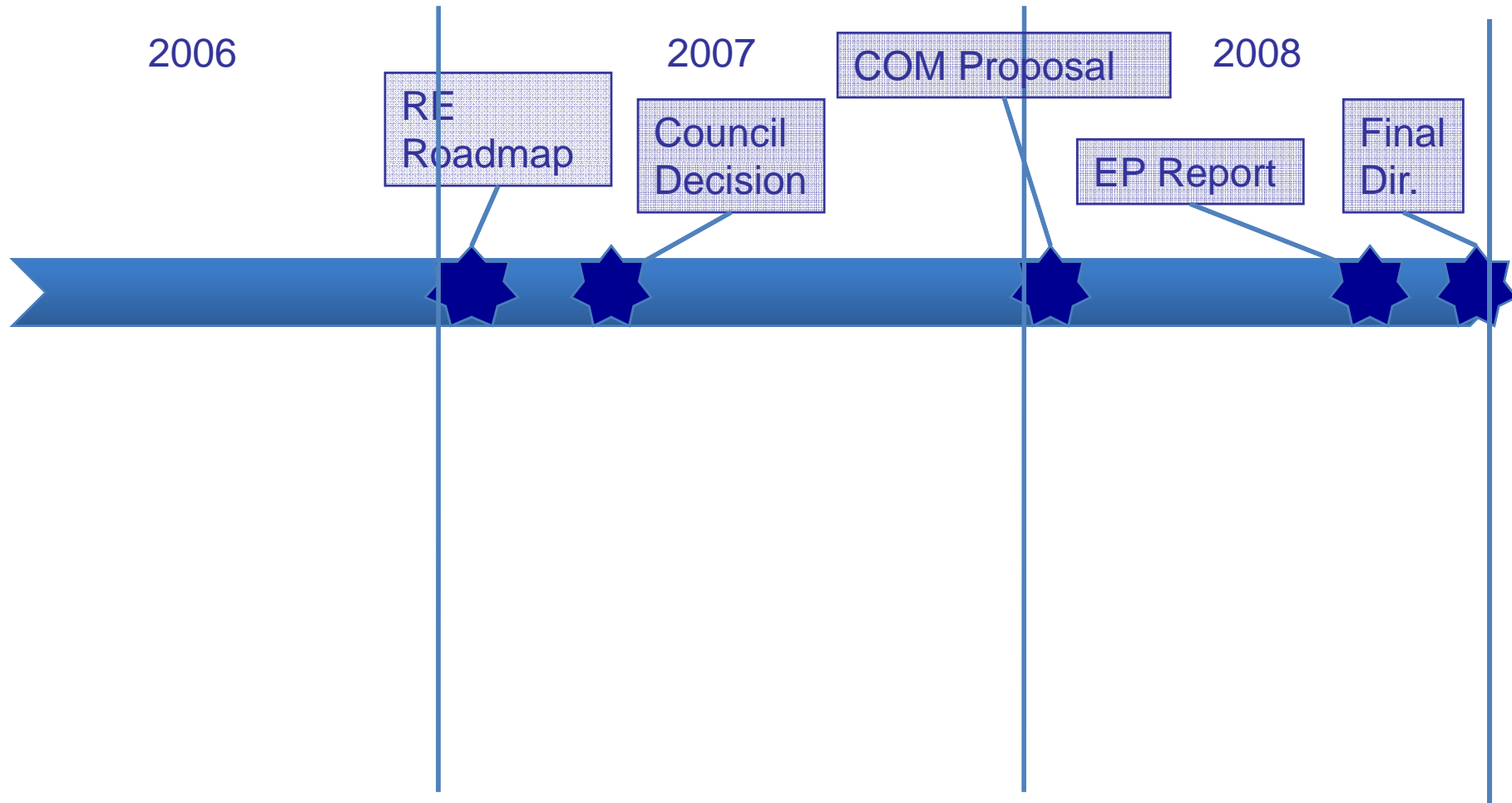
Proposed definition:

Science is a transparent, iterative consensus building process on “if A-so B” type questions.

- differentiation between:

Science – Commissioned Research – Position Papers

Timeline of the Policy-making process



Comparison of policy documents

Art.	COM Proposal	EP Report	Directive
3 (3)	10% share of RE in total consumption of energy in transport by 2020	2015: 5% of which 20% ren. electricity, H2 & 2 nd generation 2020: 10% of which 40% other Total redefined: only road	Total redefined: only energy used in road and rail, not air and shipping Non-conventional biofuels count double
17 (15)	Minimum ghg savings of 35%	Extend certification to all biomass used for energy Ghg savings: 45% ; 2015: 60% Social standards and measures on soil, air, water	Minimum savings 35%; 2017: 50%; 2018: 60% Reporting on social standards and air, water, soil
18 (16)	Verification of standards: agreements & certification	Operator shall prove compliance with social standards	additional reporting on social sustainability, impacts on water, air, soil and indirect land use change

Comparison of policy documents

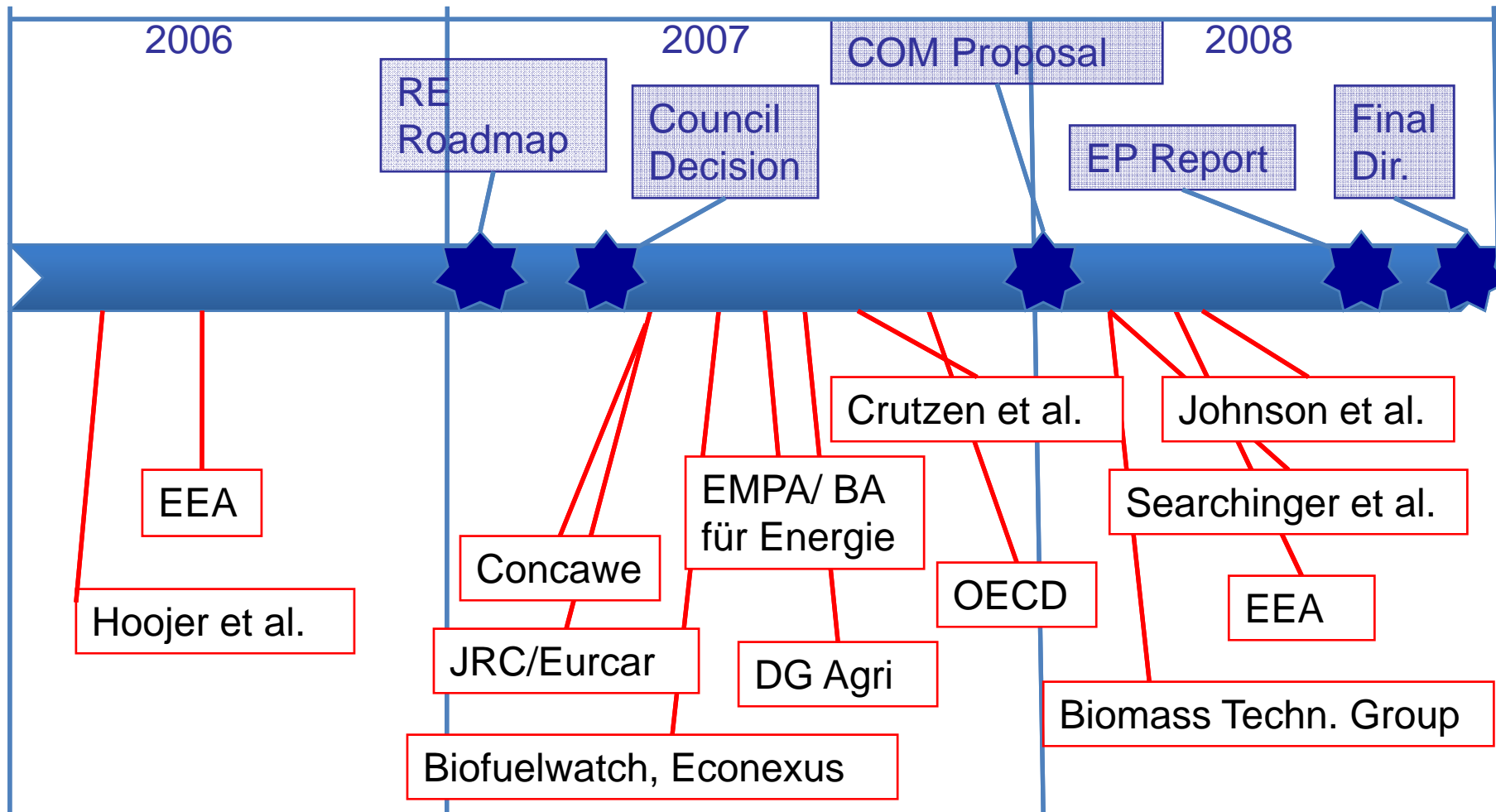
Art.	COM Proposal	EP Report	Directive
19 (17)	GHG emissions calculated through default or actual values	Factor e_{iluc} equal to 0; 2012: 40g CO ₂ eq/MJ unless COM defines other value	COM to report by 2010 on ILUC impacts and, if appropriate, propose methodology– earliest application: 2017
23 (20)	COM to monitor impact of biofuel production on environment and food security & ghg accounting methodology	specific attention to impact on food prices; LUC and ILUC, incl. estimate of associated emissions and land use rights availability of 2nd generation biofuels	Specification of reporting duties, incl. Food prices, availability of alternative technologies and „feasibility of reaching 20% target whilst ensuring sustainability of production at the same time”



Main sustainability issues identified

- ▶ GHG balances / Land use change
- ▶ Food security
- ▶ EU Biofuels target
- ▶ Environmental: Water, Biodiversity, Soil
- ▶ Social: Labour conditions, land tenure, indigenous rights
- ▶ Agricultural markets
- ▶ Cost efficiency

Key scientific input





Key messages from science on main topics:

GHG balance/ Land use change:

- ▶ Eco-balance of biofuels depends on a great number of factors (crop, land use practice, transport) → Biofuels are not necessarily more environmentally friendly than fossil fuels (EMPA 2007) → **High uncertainty on environmental performance** of biofuels (also Concawe, Eucar/JRC 2007)
- ▶ Growing some of the most commonly used biofuel crops releases great amounts **nitrous oxide (N₂O)** - wiping out any benefits in GHG emissions compared to the use of fossil fuels (Crutzen 2007)
- ▶ Demand for biofuel may be causing **an increase in global CO₂ emissions** due to **drained peatlands and land use change** for palm oil plantations in Indonesia and other countries (Hooijer et al. 2006).
- ▶ Use of **croplands** for biofuels **increases greenhouse gases through emissions from land use change** (Searchinger et al. 2008)



Key messages from science on main topics:

Food security:

- ▶ the potential of first generation biofuels to deliver a major contribution to the energy demands of the transport sector without **compromising food prices and the environment** is very limited (OECD 2007)
- ▶ the expansion of biofuels production holds responsibility for **increasing food prices threatening poor people in developing countries** (IFPRI 2008, Biofuelwatch, Econexus etc. 2007)

EU biofuels target and certification:

- ▶ Certification of biofuels is useful for promoting good practices but **cannot be trusted as a safeguard** (OECD 2007)
- ▶ The agreed **sustainability standards do not mitigate the risk** that the increased production of biofuels will lead to further biodiversity loss and environmental destruction (T&E 2009)
- ▶ EEA (2008) – Scientific Committee: EU biofuel target has potentially negative impacts and should be suspended

Key messages from stakeholders

▶ Industry:

- ▶ „biofuels are sustainable“ (referring to examples of positive GHG balances)
- ▶ Ambitious targets are crucial to boost biofuels production
- ▶ Food supply is threatened by a broad range of issues. Biofuels are not (only) responsible for the food crisis
- ▶ Land use change not mentioned

▶ NGOs

- ▶ suspend the EU biofuel target! Moratorium on biofuel subsidies
- ▶ Focus on more efficient biomass uses/ increase efficiency in the transport sector
- ▶ „Certification is not sufficient“

Findings: Topics emphasised in scientific studies

- ▶ Main topic stressed by science: GHG balances → corresponds to high (methodological) effort to ensure positive GHG balance in the directive
 - ▶ “Last minute” revision of default values for GHG balances of relevant biofuels based on unpublished JRC report in October 2008
- ▶ Land use change: Hooijer strong impact
 - ▶ DG AGRI tried to water down the LUC effects by stressing high potential of domestic biomass production
- ▶ Social issues mainly mentioned by NGOs or policy related authors (such as Biofuelwatch, OECD, IFPRI)

Channels of scientific knowledge transfer into policy

- ▶ Public consultation processes (COM)
 - ▶ Biofuel issues in the new RE legislation (May to June 2007)
 - ▶ Requirements for a sustainability scheme for energy uses of biomass (August to Sept. 2008)
- ▶ Studies commissioned by the COM and the EP (e.g. Certification)
 - ▶ COM→ Biomass Technology Group (02/2008): Sustainability Criteria and Certification Systems for biomass production
 - ▶ EP→ Johnson et al. (06/ 2008): Biofuels Sustainability Criteria – Relevant issues to the proposed Directive
- ▶ Internal and public workshops and conferences
 - ▶ EP launched more public events on specific issues
 - ▶ COM held more informal meetings with experts



Influence of science: Did policy-makers think twice?

- ▶ EP – receptive for environmental and social concerns expressed in studies
- ▶ COM – selective influence by certain research results

Policy Outcome:

- ▶ General framing of the policy remained unchanged (target plus sustainability standards)
 - ▶ But: standards have been specified
 - ▶ Additional measures (e.g. reporting duties on social issues)
- ▶ Quantitative efficiency measures and minimum values for other technologies missing

Can the process be improved?

- ▶ Gap between research results and policy is not caused by miscommunication
- ▶ Additional forces (e.g. industry lobbying, national interests) strongly influence decision-making
- ▶ How to deal with uncertainty of scientific results in political decision-making?

Lastly, we also address issues involving direct and indirect land-use changes. We know that scientific evidence is not yet sufficient to take a very clear decision on it, but clearly it sets out a path towards achieving binding arrangements in these areas also. (Andris Piebalgs, in EP, 16/12/08)

→ Consistent application of the precautionary principle?



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Thank you for listening.

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