Second generation bioethanol production

EU policies and legislation
• Various routes to sustainable biofuels – Complexity
• How this is being reflected into policy development?
Facts:

Lignocellulosic ethanol is industrially ready.

Other 2G biofuels routes coming soon.
Why from 1 to 2G Biofuels?

- Higher yield per ha, lower cost per t of feedstock
- No land competition with food (not HVO, unless UCO or marginal land) if areas not economically suitable for food crop production or wastes
- Production: higher CAPEX, but lower OPEX
- Possibility to become competitive without support
- High quality fuels (biodiesel vs HVO/FT-Diesel, etc)
- «Drop in» fuels
  - Higher/No blending walls
  - Not only road transport...also SPK/HEFA for air transport.
- Fully compatibile with infrastructure and logistic

→ These should be key motivations to 2G sustainable biofuels industrial deployment & policy....is it really so? To which extent?
Rising Tide
The number of natural disasters since 1996 costing $1 billion or more doubled compared with the previous 15-year period. —Jennifer Daniel

Drought/heat wave caused damage to agriculture and other related industries from June-September $33.6b
Summer drought in central and eastern U.S. $27.7b

Storm of the Century kills 290 people

Hurricane Hugo $34.7b
Hurricane Andrew $44.3b
Hurricane Betsy $32.9b
Hurricane Sandy estimated $69b
Hurricane Katrina $44b
Hurricane Wilma $9.7b
Hurricane Rita $4.7b
Hurricane Ike $26.7b
Hurricane Charley $8.2b
Jeanne $8.5b
Isaias $18.9b
Frances $10.9b

While no cost estimate exists for this summer’s drought, it was the worst in a generation.

136 conventional and renewable energy projects worth $46.9b canceled or halted since 2005. The projects support 186,000 jobs.

$897b

344,000 bbl

186,000 jobs
Which are the driving factors today?

- Is it still **GHG** saving only? ...yes and no...
- Other factors entering into discussion on policy development
- **Land use**: direct and indirect (GHG + also large impacts on agriculture, food vs fuel, land protection-abandonment, etc)
  - This is the key point to be elaborated now
- **Socio-economic** impact of Bioenergy/Biofuels (a «chain»!)
EU vs US, Brasil...

**EU**

- Focus is still on GHG + food vs fuel (EP)
- No specific consideration for 2G biofuels (Council)
- No «real» discussion still in place on
  - Agricultural implications (different situation among various MSs)
  - Economic development opportunities

**US, BR**

- Sustainable biofuels as a strategic goal
- Socioeconomic development a major driver
- Financing measures accompanying this target
...not all MSs are equal...

Agricultural land use in Italy
Commission, EP, Council...

• Main steps
  – Proposal from EC (Oct 2012)
  – EP position (Sept 2013)
  – Council position (expected Dec 2013)

• Fundamental differences, wide debate
  – Cap 1G, waste vs energy crops, advanced biofuels mandates, single/double counting, cascade use of wastes

→ Stall to investments
→ Major projects occurring elsewhere/abroad
Conclusions

• Lignocellulosic Ethanol is ready, other Adv Biofuels coming + industrial Biorefining
• Policy framework is not yet following the R&D and industrial development achieved so far
• Other key issues (+GHG) not yet fully addressed
• Timing is important → EU is slow in deciding
• Investments and industrial development moving outside EU – more practical/applicable systems
• 2020 important, but medium term vision to 2030 even more relevant at the current stage
Thanks for your attention

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