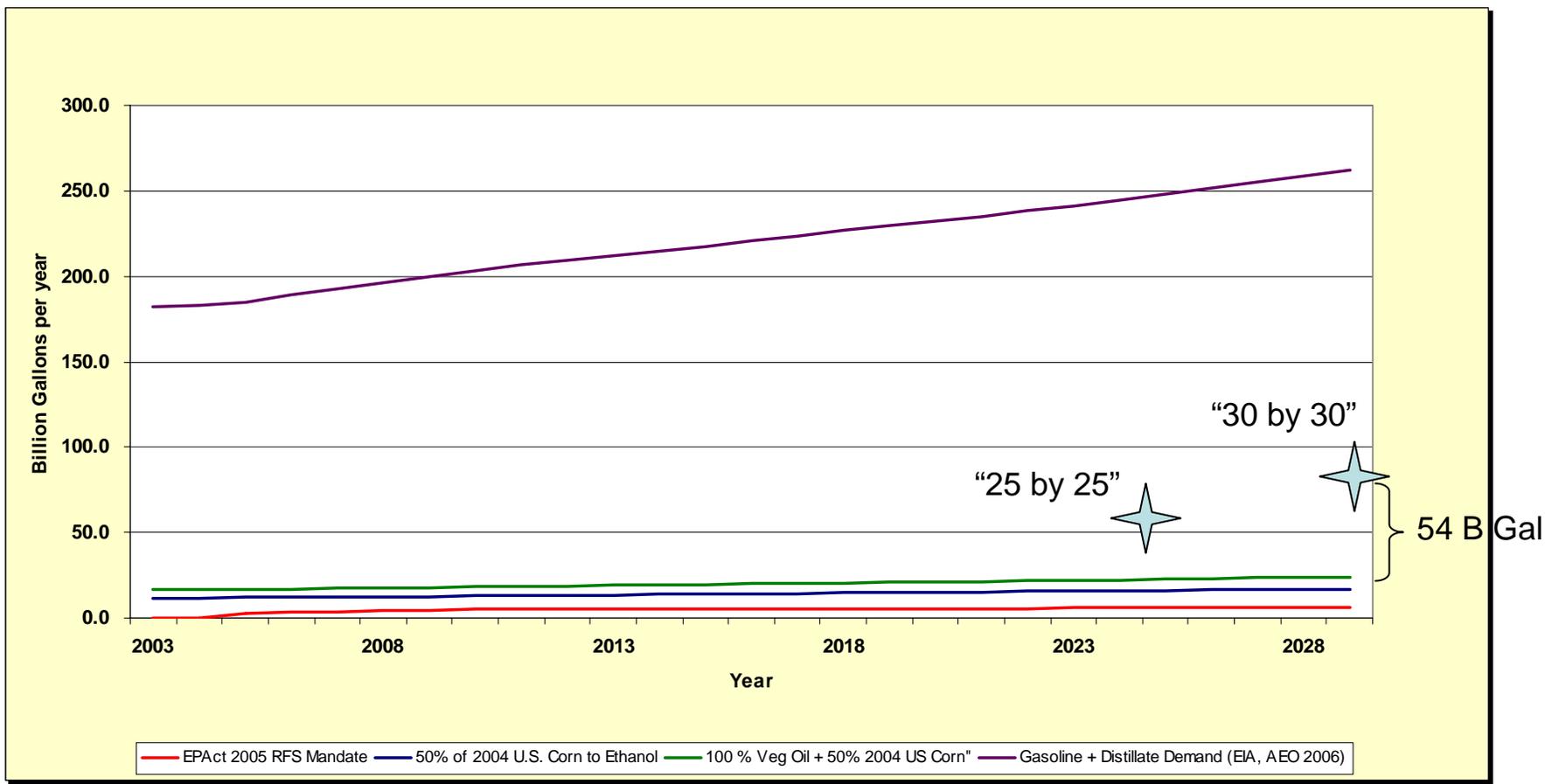


Biofuels at Scale

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1st Generation Fuels Can't Reach Aspirational Targets

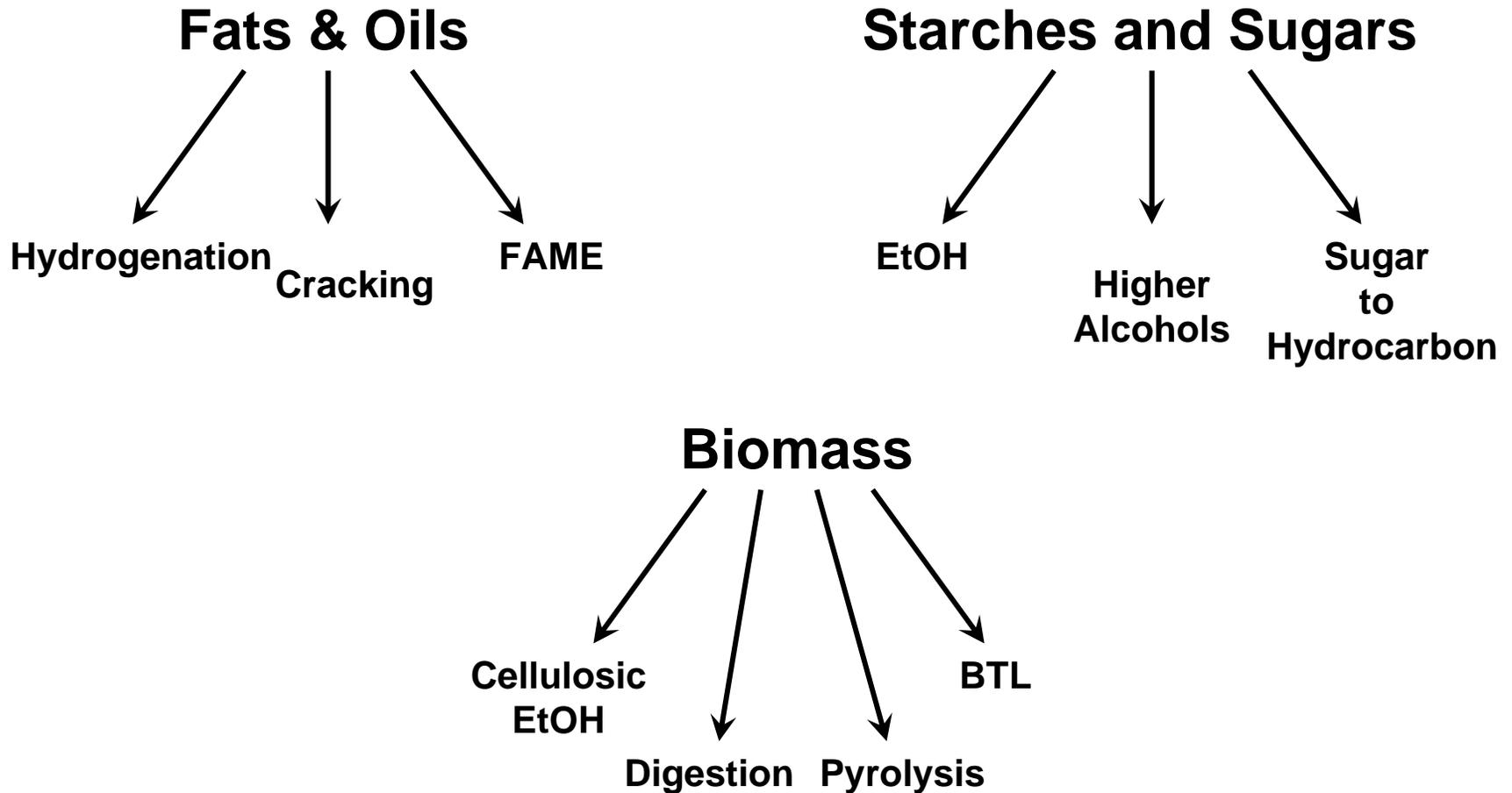


Sources: EIA and ConocoPhillips internal

Second Generation Biofuels Are Needed To Close The Gap

- Require massive low cost resource
 - Ag./forest waste, wood, grass, cane, MSW
- Want omnivorous, efficient conversion technology
 - Makes the most of the resource
 - Should integrate with manufacturing infrastructure
 - Linked to distribution infrastructure
- Need conversion to market compatible fuel
 - Gasoline, Diesel
- Other Issues: Sustainability, Economics

Biofuel Pathways



RFS Language vs Implementation

- RFS General Definition is product neutral
- Regulations and regulators need to avoid choosing winners and losers
 - Ethanol, Biodiesel and Cellulosic Ethanol are “in” and establishing greater special interest inertia
 - The existing subsidies can encumber the economics of competing technologies
- What you talk about sets the stage
 - Hydrogen hype vs hydrogen hangover
 - The reality and goals have not changed

Why A Balanced Vision Should Win

- Multiple Pathways will be required to manufacture biofuels at massive scale
- All pathways to large scale biofuels are full of uncertainty
- All will have unintended consequences
- All are full of entrenched interests
- All are less efficient than petroleum today
- Carbon's impact is uncertain

Facilitate Market Neutrality

- Avoid distortive incentives
 - Where incentives are used, incent the biomass content not the product
 - Support development alternate technologies
- Broaden the language
 - Biofuels instead of Ethanol and Biodiesel
- Be technology neutral
 - Communicate the strengths and limitations of each pathway