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Microcatalytic Coal Liquefaction Sample Economics



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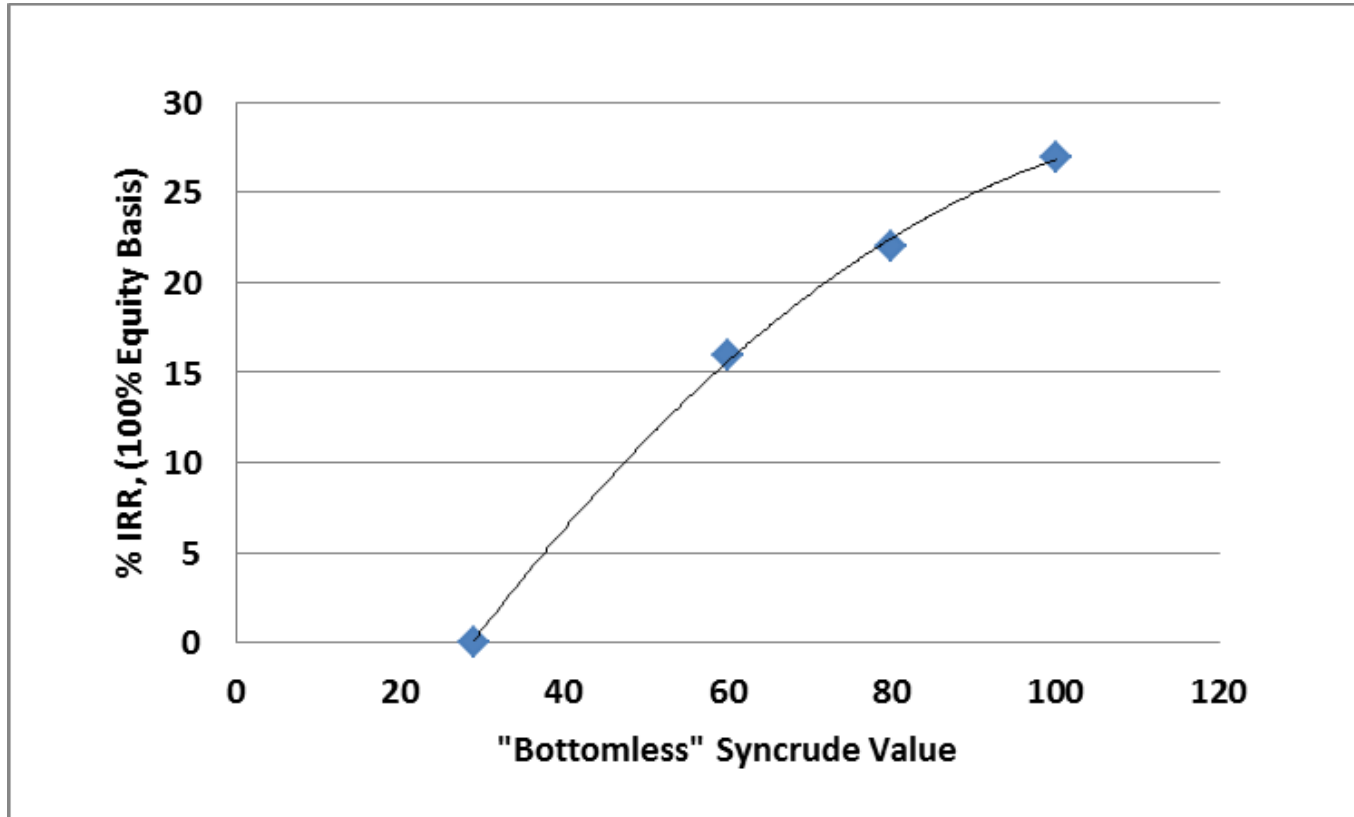
Sample Economics Advanced MCL Plant

- **Overall Basis:**
 - U.S. Gulf Coast Location
 - 72 KB/D
 - Wyoming coal
 - “Bottomless” Syncrude product
 - Natural gas for H₂ production



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Plant Offers High Return On Investment - Resistant to Declines in Crude Value





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Sample Economics Summary

- **Economics are for a specific case**
- **Flow Scheme and product slate can be varied to meet specific needs**
- **Sample case ideal for maximizing U.S. diesel and jet fuel**
- **Utilizes low cost natural gas and coal**
 - Coal cost less than \$ 10/barrel
- **Bottoms sales to cement plant will displace coal and eliminate need for ash landfill**
 - Plant power needs satisfied by power generation via natural gas



MCL Project Evaluation Options

Option	I. Screening Evaluation	II. Feasibility Study	III. Commercial Project
1. Feed Coal Analysis	Proximate Ultimate	Proximate Ultimate Maceral	Proximate Ultimate Maceral
2. Product Targets Mogas, Jet, Diesel, Aromatics, etc.	Yes	Yes	Yes
3. Infrastructure Characteristics	No	Yes	Yes
4. Environmental Targets	No	Yes	Yes
5. Economic Basis Infrastructure Product Valuations Byproduct Valuations Integrations	No	Yes	Yes
6. Pilot Plant Run	No	Yes	Yes
7. CO2 Management Validation	No	Yes	No
8. Design Specifications	No	No	Yes
9. Construction	No	No	Yes