



# BP and Fulcrum

Simon Worthington - BP European Govt Affairs  
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# Proprietary, Proven & Efficient Fuels Process



**Feedstock Processing Facility Prepares MSW for Fuels Process**



**Steam Reforming Gasification System Converts MSW to Synthesis Gas**



**Fischer-Tropsch Process Converts Synthesis Gas to Syncrude, Jet Fuel and Diesel**



# Fulcrum BioEnergy Inc.

## High level company information



Municipal solid waste-to-fuels project developer, based in Pleasanton, CA

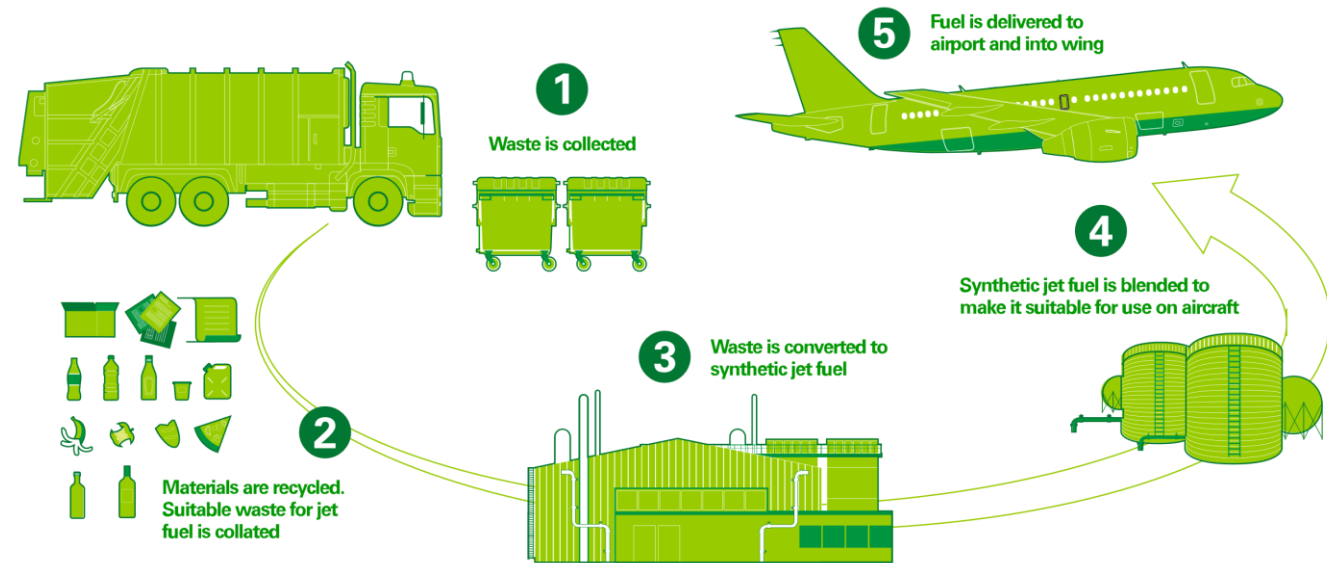
Equity backers include Cathay Pacific Airlines, United Airlines, BP, Barrick Goldstrike (mining) and Waste Management

### Business plan

- First commercial plant 800 bbl/d “Sierra” in Reno, Nevada; start-up 2019/2020
- Subsequent plants at 2500-5000 bbl/d, targeting several over following 5 year period, concentrating on major urban centres (Chicago, etc)

### Business model

- Fulcrum takes unsorted municipal waste direct from waste haulers
- Fulcrum sorts waste, extracting and monetising recyclables, leaving gasification feedstock. Unwanted residues are removed by waste haulers
- Long-term US waste contracts are secured at fixed cost with commitments sufficient for multiple production plants
- Processed waste is fed to a gasifier, producing synthesis gas for Fischer-Tropsch conversion into paraffinic hydrocarbons
- Upgrading to jet, diesel, naphtha either on-site or with refining partner





# Fulcrum status

## First plant financing complete



Fulcrum recently completed the financing of their first commercial plant, to be built in Reno, Nevada. Start-up is expected late 2019 / early 2020

Final plant financing consisted of:

- \$150m tax exempt bond issued by State of Nevada
- US Department of Defence grant
- Fulcrum equity

The success of the tax exempt bond raise has created appetite among the investor community in Fulcrum's next projects



Air BP invested \$30m in Fulcrum in November 2016

This secured BP access to 50 mgal/y of biojet, options to provide supply chain services, and a material ownership stake in Fulcrum

Why Fulcrum:

- Approved pathway, coupled with attractive development plan
- Strong strategic value - commercial potential and geographic footprint overlap
- Mutual Interest in partnership