

**Supplementary  
Submission  
No 70a**

**INQUIRY INTO BENEFICIAL AND PRODUCTIVE POST-  
MINING LAND USE**

**Organisation:** MeOH GigaBattery

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**A VISION TO RE-ESTABLISH  
VIBRANT HUNTER VALLEY  
COMMUNITIES &  
ECO-SYSTEMS**

## **EXECUTIVE SUMMARY**

<b>Landfill waste upcycled</b>	<b>28m tonne</b>
<b>New sustainable, renewable grid power</b>	<b>200 MW</b>
<b>Jobs created - construction</b>	<b>400</b>
<b>Jobs created – permanent</b>	<b>200</b>
<b>CO<sub>2</sub> emissions reduction</b>	<b>28 m tonne</b>
<b>Brown-field site upcycled</b>	
<b>Communities preserved</b>	
<b>Water table protected</b>	
<b>Existing infrastructure upcycled</b>	

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## VISION

Re-establish Mt. Arthur as an economically vibrant, ecologically sensitive, rural communities' hub, delivering to NSW the mining industry remediation 'gold-standard'.

## INTRODUCTION

Pastures are the cornerstone of any ecosystem, any rural industry and therefore rural communities.

Grasses utilise energy from sunlight to convert water and carbon dioxide into sugars, through the process of photosynthesis. Grasses therefore form the foundation of all food chains. The Hunter is renowned for its pastures.

The re-establishment of improved native pastures, enables the re-establishment the Hunter's traditional grazing and equine industries, retaining, preserving and expanding these skill sets.

The restoration of Mt Arthur's pastures and ecology should however be considered a mine site remediation minimum.

Over the life of a mine, communities are established, societal circumstances change and technologies advance.

These societal and technology changes can - and should - be leveraged to preserve these regional communities providing to NSW:-

- on-going regional employment for these communities as they transition away from mining,
- access to and benefit from modern technologies,
- a modern economy, built on modern technologies, by virtue of already being regionally dispersed, can deliver for NSW economically vibrant and strong regional communities.

Thus, not just mine-site remediation, delivering the future of regional NSW.

## BACKGROUND

True societal advancement occurs when challenges are met by innovative thought and vision, delivering outcomes which surpass the sum of their parts.

MeOH proposes just such a future for the Mt Arthur site.

What is known and well established:-

- society needs to transition to more sustainable energy sources,
- current solutions are immature and still require either, base-load power support in the case of electricity, or continued geological liquid fuel extraction in the case of transportation fuels,
- societal waste products continue to accumulate, and landfill is merely “parking” a problem rather than solving it,

What is known in the NSW context:-

- the State has a desire and a requirement for sustainable liquid fuels,
- as the State retires its coal-fired power station fleet significant grid-firming is required to support wind & solar renewable energy initiatives,
- current gas supplies are limited, require continued geological extraction and are considered as ‘transition’ fuel sources
- its largest city, Sydney, is coming to the end of its’ land-fill capacity for waste ~ 2030.

## PROTECTING OUR PLANET

MeOH diverts societies’ wastes away from landfill - and the environment - upcycling and converting them into valuable, clean biodegradable fuels.

MeOH delivers a low, emission free or sequestered, technology-based process able to co-exist in a symbiosis with regional communities on a compact site footprint thereby protecting the environment.

MeOH provides base-load grid firming, together with sustainable renewable fuels for import replacement or export.

## PROPOSAL

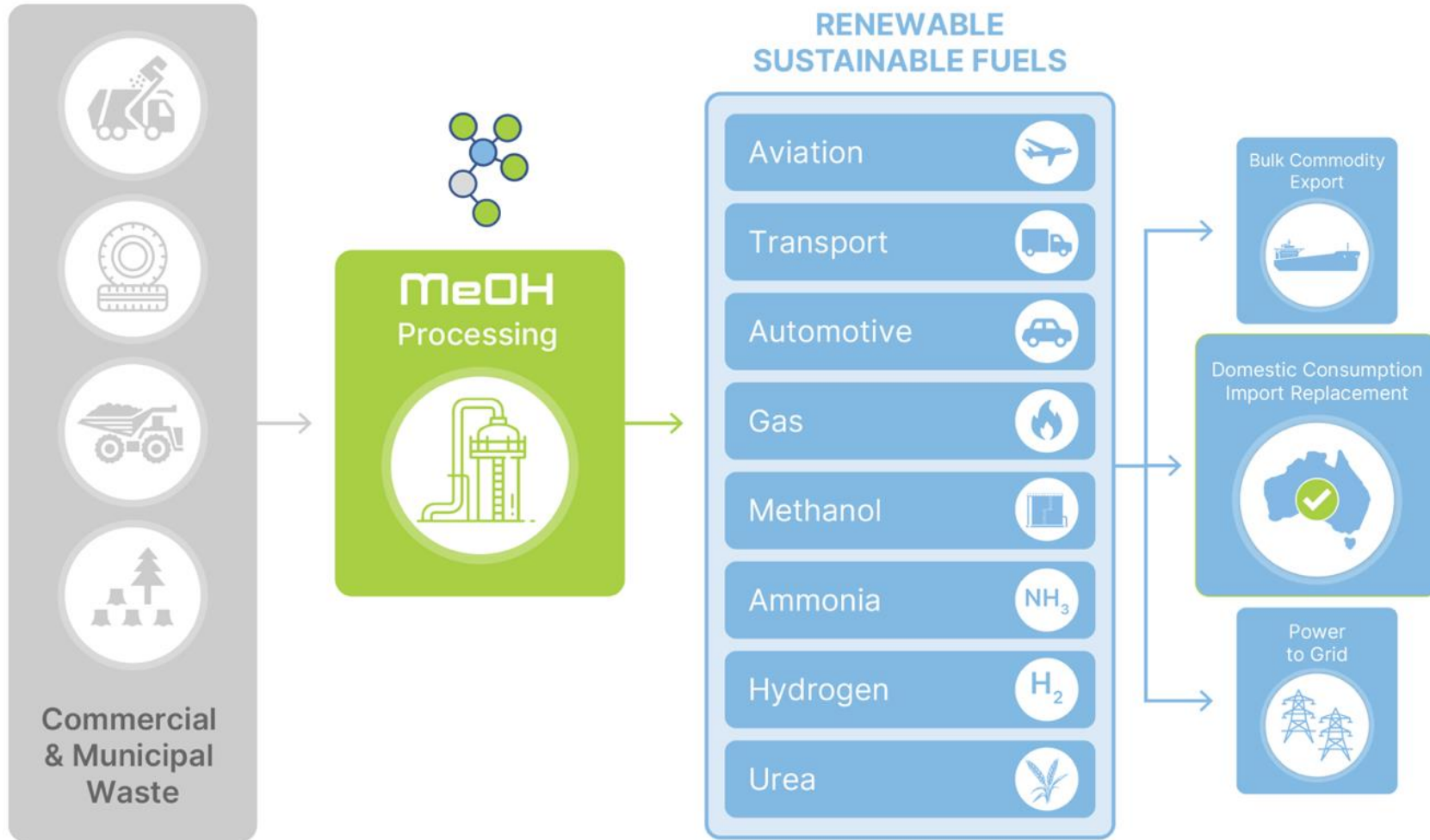
**MeOH – upcycling waste to deliver sustainable fuels, grid scale power, CO<sub>2</sub> sequestration and protecting cropping and grazing, whilst upcycling existing infrastructure and creating jobs that support the community**

MeOH provides NSW an opportunity to upcycle its waste – municipal, construction, industrial & mining – that is:-

- independent of grid-power or gas supplies,
- reduces land-fill volumes by up to 90%, and
- delivers sustainable, renewable fuels and grid-power, from
- a compact operational site-footprint, whilst
- minimising carbon impact.






A powerful argument can be made for upcycling waste on an existing 'brown field' site.

# PROCESS





## OVERVIEW

	<b>Proven Technology</b>	13 commercial installations operating at 6 locations in North America and China
	<b>Established Infrastructure Domestic Demand</b>	100% Domestic Demand for Fuels, Existing infrastructure in place and operational
	<b>Low Operating Costs</b>	Commercially cost competitive
	<b>High Efficiency Carbon Management</b>	Low / No / Negative CO <sub>2</sub> footprints
	<b>Feedstock Flexibility</b>	Focus on upcycled waste products; feedstock flexibility No reliance on gas as feedstock.

## FAST FACTS

- ✓ Modular design
- ✓ 2PJ pa fuel gas production per module, (6,000 GJ/day of fuel gas)
- ✓ 500 ton per day of waste feedstock
- ✓ Multiple feedstock sources – ~90% land-fill reduction
- ✓ Capex ~ \$75m
- ✓ Compact 2 ha site footprint
- ✓ 12 months to Turn-key from approval
- ✓ Ideal brown-site upscale
- ✓ US Dept of Energy initiated project
- ✓ First commercial installation: 1995
- ✓ 13 commercial installations currently operating

## COMMERCIAL BENEFITS

- ✓ Cost competitive
- ✓ Conventional B2B storage and distribution logistics
- ✓ Modular & Scalable
- ✓ Multiple revenue streams
- ✓ Australian produced
- ✓ Security of supply
- ✓ Security of cost
- ✓ Environmentally progressive
- ✓ Community security and resilience

## TECHNICAL DETAIL – STAGE 1

### STAGE 1 – 40MW Waste to Electricity

Project Overview – Commercial GTI Energy, U-Gas Gasification technologies, 500 tonnes per day, (20 tphr) waste in-feed, gasification plant to produce fuel gas, and 100% of production used for generation of 40MW of net power output.

Waste in-feed from Newcastle and/or Sydney:

- 50% waste coal,
- 30% of construction and demolition timber,
- 20% shredded mining and road tyres.

Power to be generated using conventional 5MW gas engine gen-sets.

Capex – ~ \$A140 million

### Grid Firming

MeOH installations can provide instantly dispatchable grid scale power to support the roll-out of wind and solar power generation.

## TECHNICAL DETAIL – STAGE 2

### STAGE 2 – 200MW - Waste to Electricity

Development of four additional modules, each 40MW net power output

After successful commissioning of Stage 1, expand resource recovery centre and process to accommodate a broader in-feed of waste; convert waste into high energy pellets (HEPs) and utilise the portability of these HEPs for fuel gas production at multiple sites of 40MW capacity delivering 200MW of clean dispatchable electricity to the NSW grid.

Commercial advantages:

- ✓ Low Capex & Opex,
- ✓ High efficiency,
- ✓ Use of waste products as in-feed,
- ✓ Base-load & instantly dispatchable grid-firming power.

Benefits of the Project for Hunter Region

- ✓ Significant number of high paying jobs, during construction and on-going operation,
- ✓ Project will establish an upcycling centre for waste in-feed,
- ✓ Project will utilise existing infrastructure:- site, power transmission lines & rail,
- ✓ Use of mining voids - above water table - for disposal of non-processable waste,
- ✓ Use of mining voids – at or below water table - for water collection, storage and recreational pursuits,
- ✓ Will provide peak load power firming for local community and industry,
- ✓ Can provide food grade CO<sub>2</sub> and waste heat for co-located horticulture and manufacture.

## TECHNICAL DETAIL – STAGE 3

### STAGE 3 – Waste to Sustainable Renewable Fuels

All current liquid fuelled vehicles can use synthetic fuels, without modification.

MeOH facilities are designed and built with the capability to produce sustainable, renewable fuels.

- ✓ Aviation Fuel
- ✓ Diesel
- ✓ Gasoline
- ✓ Methanol
- ✓ Hydrogen
- ✓ Ammonia
- ✓ Urea

The State's electricity and liquid fuel requirements can be augmented by re-directing the State's waste away from land fill and upcycling together with MeOH.

Distribution is achieved by utilising existing liquid fuel infrastructure and distributors.

Commencing Q1 2026, the proposed MeOH facilities will commence production of liquid fuels from waste, together with local and regional distribution, delivering NSW's first truly sustainable communities, making the Upper Hunter Valley the model for future mine-site remediation and community sustainability.

**Upcycling of land-fill waste**

**Existing distribution infrastructure**

**Minimised CAPEX**

**Environmental Win**



## BUDGET PROJECTIONS

MeOH								
Headline Budget Projections								
Mt Arthur Project								
	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	TOTAL	Yr40
	2025	2025	2025	2025	2025	2025		Service Life
MeOH Units Installed		1	2	3	4	5	5	
CAPEX \$m - MEOH*	\$75	\$75	\$75	\$75	\$75		\$375	\$375
CAPEX \$m - Upcycling**	\$20	\$20	\$20	\$20	\$20		\$100	\$100
CAPEX \$m - Generator***	\$65	\$65	\$65	\$65	\$65		\$325	\$325
TONS LANDFILL REMEDIATED pa****		145,000	290,000	435,000	580,000	725,000	2,175,000	28,275,000
MWh Generated*****		360,000	720,000	1,080,000	1,440,000	1,800,000	5,400,000	70,200,000
Revenue								
Electricity sales - \$m*****		\$36	\$72	\$108	\$144	\$180	\$540	\$7,020
Waste rebate - \$m*****		\$7	\$15	\$22	\$29	\$36	\$109	\$1,414
<b>TOTAL Projected</b>		<b>\$43</b>	<b>\$87</b>	<b>\$130</b>	<b>\$173</b>	<b>\$216</b>	<b>\$649</b>	<b>\$8,434</b>
Jobs created constrt	400	400	400	400	400		400	400
Jobs created opertn		80	110	140	170	200	200	200
Reduced CO2 emissions -TONS*****		144,000	288,000	432,000	576,000	720,000	2,160,000	28,080,000
* Gasifier								
** Recycling/Pellet Plant								
*** Fuel Gas Generators								
**** 20 Ton per hr x 335 days pa x 90% waste consumption								
***** 45MW x 335 days x 24 hrpd								
***** \$100/MWh								
***** \$50 tonne								
***** 50% reduction vs coal								

## OUR TEAM

### **Edek Choros, *Founding Director***

Edek is the Founder of MeOH. He has 35+ year highly successful career working with solid fuels, he has focussed on improving yields, reducing waste, reducing operating costs, and improving mine-safety. Working internationally, with early-stage projects through to multi-national corporations, he has first-hand experience with exploration programs, feasibility and environmental studies, prime infrastructure project planning, financing, civil works, construction, commissioning, operation, and management. His passion is the utilisation of solid wastes to deliver and secure renewable energy outcomes.

### **Simon Tolhurst, *Chairman***

Simon works as a professional director, specialising in corporate growth, governance and capital raising. After a distinguished 30+ year legal career he was recognised as one of The Australian Financial Review's Best Lawyers®, in the Doyle's Guide and Chambers and Legal Top 500 – specialising in competition law and dispute resolution. Simon brings a no-nonsense strategic approach to his board roles. His competition law experience – being a combination of law and economics – provides Simon with strategic market insights and an ability to clearly articulate growth plans to the market. His dispute resolution experience gives him complex project management skills, strategic insights, and an ability to identify and manage risk. He currently serves on the boards of several growth companies.

### **Michael Spencer, *CEO***

Michael has 20+ years' experience in operations management, business development, feasibility studies, project management and corporate strategy development in the resources sector. He has years of demonstrable experience in enhancing resource value from pit-to-port, including optimising mining, processing, and marketing revenue drivers.

Mick has 15 years' experience in complex and high value technical studies work for BHP Billiton Mitsubishi Alliance, BHP Billiton Mitsui Coal, Wesfarmers Curragh Mine, the Bengalla Mining Company and Qmetco. He has established and led integrated study teams and is well versed in the application of study and project practices.

Technical due diligence and stakeholder relations are among his key areas of expertise. He is well versed at quantifying operational costs, revenue or profits, quantifying insurance related production issues and interacting with between operational and functional stakeholders in addition to C-suite, GM, VP and Board level stakeholders.

**Anthony Campisi, Director**

Anthony has over 35 years' experience in all aspects of solid fuel utilisation (coal, biomass, shale, wastes) including drying, briquetting and agglomeration, combustion, gasification, pyrolysis and carbonisation. In an engineering environment he provides the link between the detailed chemistry and the process engineering, specialising in project studies and experimental evaluations, chemical thermodynamic, kinetic and process modelling, technical reviews, and process audits to ensure sound and conclusive outcomes. Anthony co-invented HRL's IDGCC coal gasification process for power generation from low rank coals that was demonstrated at the 10tph scale in the Latrobe Valley, Victoria, exporting power to the grid.

Anthony holds a BSc(Hons) and PhD in Chemistry from The University of Melbourne. He is a Fellow of the Australian Institute of Energy (AIE) and a Member and Chartered Chemist of the Royal Australian Chemical Institute (RACI).

**Richard Barker, Director**

Richard is a senior finance and accounting executive with 35+ years' investment banking, stockbroking and corporate finance experience; augmented by strategic and operational management experience gained as CEO of a publicly listed company operating globally. He has worked with Potter Warburg, Morgan Grenfell (Aust. and UK), NM Rothschild & Sons Aust. and RBC Capital Markets. Richard has a strong understanding of the capital markets' investment landscape. Focus areas include mergers and acquisitions, financing (including initial public offerings and other capital raisings), disposals, valuations, and general corporate financial advice to both large and small corporates.

Richard holds a BA – Economics and Financial Studies – majoring in Accountancy from Macquarie University, Sydney and is a Fellow of both the Financial Services Institute of Australia (FINSIA) and CPA Australia. He currently serves on several energy company boards.

**Bernard Anderson, Principal Process Engineer**

Bernard has over 35+ years' experience in providing technical and engineering advice in relation to plant design, performance and process optimisation / modelling / control issues in the power and large process industries including process design and development for energy and synfuel projects. He has first-hand expertise in the gasification of biomass, RDF, SRF and coal, including the drying of fuels, CO<sub>2</sub> capture and storage, gas turbine operation, syngas processing, production of Hydrogen, Methanol and Ammonia, production of Hydrogen by Wind & Solar powered electrolysis. Working with HRL Technology as manager of process development, he developed the integrated drying process for brown coal gasification for the emissions reducing IDGCC – (Integrated Drying and Gasification Combined Cycle) facility in the Latrobe Valley.

He holds a BSc. Chemical Engineering from Monash University, and a MSc. Thermal Engineering from Stanford University, is a Fellow of the Australian Institute of Energy (AIE) and a Member of the Inst. of Chemical Engineers.



**Johan du Toit, *General Manager Project Development***

Johan is an experienced mechanical engineer, project- and engineering manager with more than 30 yrs. experience in the mining, petrochemical, oil refinery, alternative fuel (gas-to-liquids, coal-to-liquids, and shale-to-liquids) and oil & gas industries. He has worked in project development, maintenance- and production management for owners. Additionally, he worked for various consultants on multi-billion-dollar projects on PMC, EPC and EPCm contracts. He has with extensive knowledge of equipment and processes, good cultural awareness and extensive experience. He has worked in 26 countries including postings to Australia, South Africa, Malawi, Namibia, UK, Korea and Kuwait.

**Leo Zussino, *Strategic Projects***

Leo is an expert in negotiating infrastructure Take-or-Pay contracts. For the past 30+ years Leo has held senior roles across public and private sectors. The holder of an MBA from the University of Oregon, and a graduate of the Columbia University Business School, Leo is best known as Mr. Gladstone. He has a deep understanding of all aspects of planning, project approval processes, project delivery and commercial operation of major economic infrastructure.

Leo also has extensive experience as a non-executive Chairman of Australian Government and Industry Boards. His major emphasis is on strategic planning, financial outcomes, enterprise cultural development and corporate governance.

**John Kochanski, *CMO***

John is an award-winning marketing professional with over 35 years' experience working in the United States, Europe, UK, Japan, the Middle East & Africa. He is an owner and serves as Chairman of Prodigy+ and 3P Studios, now entering their 20<sup>th</sup> & 10<sup>th</sup> years. The studios are active globally, specialising in providing marketing support to leading listed and un-listed corporations, GOC's and Government Authorities.

His passion lies in using marketing early in an entity's development, enabling emerging company's and technologies to communicate to and enter their market sectors, assisting with adequate capital provision whether by listing, private equity, debt, or combination most efficiently. He has been invited and actively serves on multiple boards.

Thank You.

SIMON TOLHURST  
CHAIRMAN