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Advanced carbon environmental solutions

INVESTOR PRESENTATION  
June 2023

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- Carbonxt produces patented Activated Carbons used to remove toxic pollutants from air and liquid phase applications.
- Current manufacturing capacity supplies products to coal fired-fired power and cement plants and other industrial processes.
- US EPA PFAS regulatory change will require removal of per- and polyfluoroalkyl substances ("PFAS") from drinking water and thus greatly expand the drinking water treatment market for activated carbon .
- New joint venture plant in Kentucky allows Carbonxt entry into the large and lucrative PFAS removal market for drinking water.
- The Kentucky plant is under construction and is expected to achieve commercial sales in the first half of calendar 2024.



## COMPANY SUMMARY

Share Price (\$) <sup>1</sup>	\$0.081
Shares on Issue (m)	275.30
Market Cap. (\$m)	\$22.30
Cash (\$m) <sup>2</sup>	\$6.17
Debt (\$m) <sup>2</sup>	\$5.39
Enterprise Value (\$m) <sup>1</sup>	\$23.08
Options/Warrants (m)	16.56

- As at 22 June 2023
- As at 31 Dec 2022



## SHARE REGISTER

L A Andrews	5.5%
Total top 20 shareholders	42.8%



## BOARD OF DIRECTORS

Name	Position	Shares (m)
Matthew Driscoll <sup>1</sup>	Chairman	2.08
Warren Murphy <sup>2</sup>	MD	1.38
David Mazyck <sup>3</sup>	Director	0.43

- Matthew Driscoll holds 2,250,000 options exercisable at \$0.30 (1m) and \$0.45 (1.25m).
- Warren Murphy holds 6,000,000 options exercisable at \$0.30 (3m) and \$0.45 (3m).
- David Mazyck holds 5,250,000 options exercisable at \$0.30 (2.25m) and \$0.45 (3m).



## PRICE CHART

Daily Volume Millions



1

Signed legally binding Joint Venture Agreement with US partner Kentucky Carbon Processing, LLC (KCP) to establish a new state-of-the-art 10,000 tons per annum activated carbon Plant (NewCarbon Processing, LLC, "NewCarbon") in Kentucky, USA.

2

Secured funding of \$18m through debt and equity to complete construction of NewCarbon and cover working capital and contingency.

3

Plant is under construction. Sales to commence 1H24. Attractive pricing of activated carbon products: CG1 currently securing on average above US\$4,000/ton for Activated Carbon Pellets.

4

NewCarbon products allow entry into the large (~US \$600 m) and lucrative (approx. 50% gross margin) US market for the removal of PFAS from drinking water. Market is expanding because of the reduction in the PFAS concentrations permissible under the expected US EPA regulations.

5

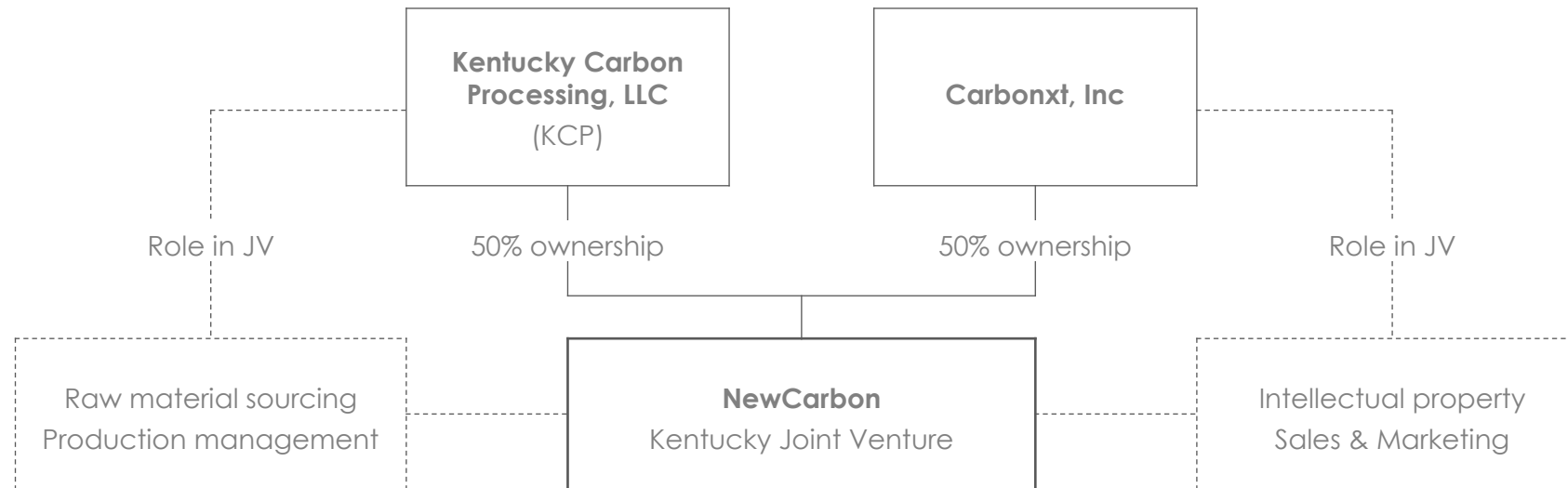
US\$10 billion in funding available under the Bipartisan Infrastructure Law to water utilities to meet the anticipated PFAS regulations. Final regulations are to be finalised by Dec 2023 and require compliance between 2024 and 2028.



# Kentucky Joint Venture – NewCarbon



- Incorporating KPC's existing assets into NewCarbon has reduced the cost and time to market
- The JV Agreement has been executed and funding has been secured
- NewCarbon facilitates entry into the lucrative liquid-phase market with best-in-class products leveraged by Carbonxt's manufacturing technology and secure access high-quality coal through KCP. Margins are estimated at c.50%
- Management expects manufacturing and sales to commence in 1H2024 to coincide with finalisation of the new PFAS legislation
- Joint venture ownership and roles:



# Key Features of the NewCarbon JV



- Secured supply of high-quality, low ash bituminous coal raw material to convert into activated carbon.
- Capital investment has been reduced by approx. US\$3.5m by re-purposing the existing KCP power station assets.
- Carbonxt has reduced Project execution risk and time to market. Carbonxt's payments to NewCarbon are partially linked to milestones and 45% of the cost is planned to be paid from Carbonxt's share of the distributions generated after NewCarbon is operating. Leveraging existing assets allows market entry in H124.
- Low-cost option available to increase capacity from 10,000 tons per annum to 20,000 tons per annum.
- Plant has reduced CO<sub>2</sub> footprint and operating cost by generating its own electricity from gas produced during activated carbon production. Uses turbine on site.

	IMPROVED TERMS
Stake in JV	50%
Location	Kentucky
Development	Retro-fit of existing Waste-to-energy facility
Target initial production	10,000 tons p/a
First production	1Q 2024
Cost to CG1 (ex Contingency)	US\$10.0m
Payment timing	US\$5.0m upfront (US\$0.5m already paid)
Payment timing	US\$0.5m on project completion
Payment timing	US\$1.125m average across each of the 4 Qtrs. post operation

# Conversion of existing waste-to-energy plant (“Inez”) to NewCarbon

- The Inez Plant is already a significant and operational facility with well trained staff. Staff shall be deployed to operate NewCarbon.
- Conversion of the existing facility, rather than building from new, has reduced costs and construction risks.
- NewCarbon is repurposing the existing kiln, turbine and extensive physical infrastructure

## Project Timeline

2Q2023	Funding Secured	Complete
2Q2023	Revision of JV Build plan	Complete
Mar-23	Long lead items ordered	Complete
Mar-23	Initial US\$0.5m paid	Complete
Apr-23	Site work begins	Initiated
May-23	JV Agreement	Complete
May-23	Loan Documentation	Complete
May-23	Establishment of JV and team	Initiated
2023	Sales & Marketing	Initiated
1Q2024	Build Commissioning	
2Q2024	Manufacturing launch	



External



Turbine Generator



Kiln



Ash Hoppers



# What is Activated Carbon?

- Activated Carbon is used to remove contaminants from water and air. It is processed (activated) to have pores that increase the surface area available for adsorption.
- Due to its high degree of microporosity, one gram of activated carbon has a surface area in excess of 1,000 m<sup>2</sup>.
- Activated carbon is usually derived from carbon sources such as coconut husks and coal. Typical industrial uses include:
  - Trapping mercury emissions from coal-fired power stations
  - Groundwater remediation and removing contaminants from drinking water and improving its taste and odour.
  - Air and gas purification to remove oil vapours, odour, and other hydrocarbons emissions.
  - PFAS (see later)
- The number of industrial uses cases for Activated Carbon continues to expand.
- There is considerable intellectual property (IP) in making Activated Carbon to address individual use cases and this is reflected in the pricing, which for large scale use ranges from \$2,000 per tonne for products requiring little IP to >\$6,000 per tonne for specialised high quality products requiring significant IP.

Current Product:  
**Powdered**



Current Product:  
**Pellet**



New Product:  
**Granular**

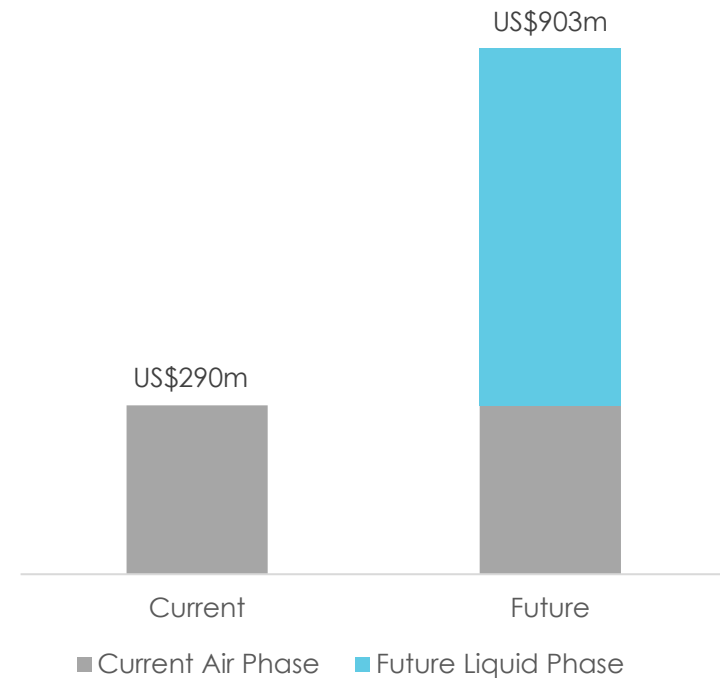


# Carbonxt is well positioned to win in the PFAS removal market



- Adsorption by activated carbon remains the most effective way of removing PFAS.
- Carbonxt currently manufactures activated carbon.
- Based on the current areas of specialisation, Carbonxt has an addressable US market of US\$290m mostly in air phase applications.
- NewCarbon will significantly expand the Company's addressable market by ~\$600m, mostly due to PFAS removal in drinking water.
- NewCarbon is expected to earn significantly higher gross margins on the new volumes.
- The Company is receiving several inquiries a week from water companies looking for activated carbon to become compliant with impending PFAS regulations.

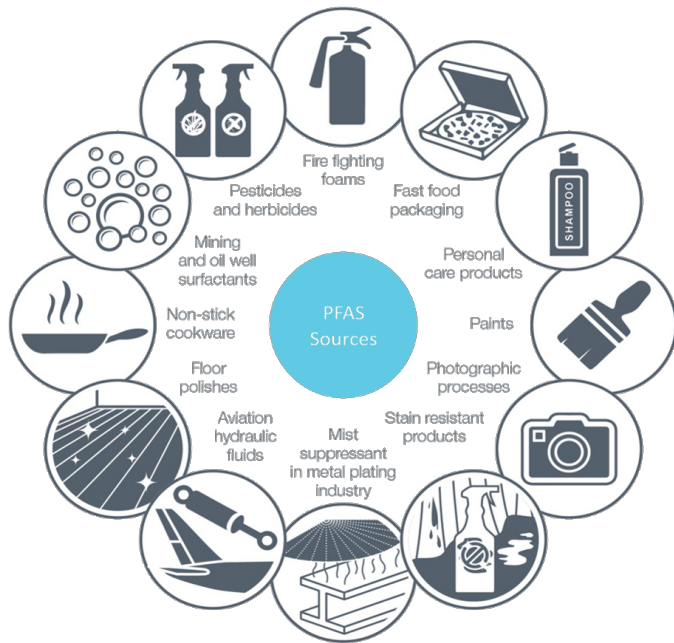
Carbonxt's Product Addressable Market



Source: <https://www.freedoniagroup.com/freedonia-focus>

## What are PFAS?

- Per- and Polyfluoroalkyl Substances ("PFAS") are widely used, long lasting chemicals, components of which break down very slowly over time.
- PFAS are found in soil, water, air, fish, and humans across the globe.
- Scientific studies have shown that exposure to some PFAS may be linked to harmful health effects, including cancer, thyroid disease, birth defects and high blood pressure.

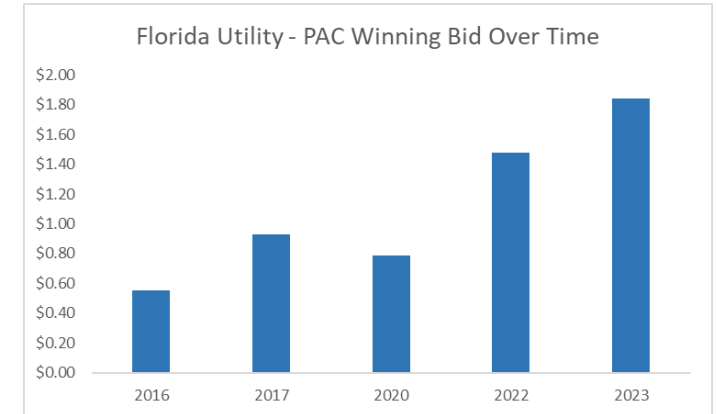


## Impending Regulatory Change - EPA

- The US EPA is establishing National Primary Drinking Water Regulations for PFAS.
- These new regulation will be finalised in 2023, with enforcement to begin 2024-2028.
- Minimum Reporting Thresholds will move from 'parts per million' to 'parts per trillion'. Most water treatment plants will be need to upgrade their treatment techniques.
- The US Government will provide US\$10 billion in funding under the Bipartisan Infrastructure Law to support operators' costs to comply with the improved standards.
- Carbonxt's NewCarbon Plant shall produce products that shall allow customers to meet the new PFAS limits when these regulation come into force.
- Further information: *Release from 14 March 2023*

<https://www.epa.gov/newsreleases/biden-harris-administration-proposes-first-ever-national-standard-protect-communities>

- Industry demand for Powered and Pellet products remains strong and prices have increased significantly over the past 12 months.
- An example of the pricing trends (c/lb) for a Florida based water utility is shown here
- Granular contract prices are trending higher due to the expected increase in demand driven by new EPA regulation.
- A study released by the American Water Works Association on 7 March 2023 found that the estimated national costs for water systems to install treatment systems to remove PFOA and PFOS to levels required by the EPA proposal would exceed \$3.8 b annually.
- Public announcements from other activated carbon groups in respect of price increases include:
  - Calgon announced price increases of 15% -40% in Dec 2022 (see formal press release: <https://www.calgoncarbon.com/12122piqdfgf/> )
  - Similarly, ADES had earlier announced price increases of 15%-20% (see formal press release <https://www.advancedemissionssolutions.com/News/press-release-details/2022/Advanced-Emissions-Solutions-Will-Increase-Prices-on-all-Activated-Carbon-Products-and-Front-End-Coal-Additives/default.aspx>)







## INDEPENDENT CHAIRMAN

Matthew Driscoll

Matthew has significant experience across several industries, including online technologies, financial services, fintech, property and resources. He has more than 30 years' experience in capital markets and the financial services industry and is an accomplished company director in roles across listed and private companies.



## MANAGING DIRECTOR

Warren Murphy

Warren was Co-Head of the Australian Infrastructure & Project Finance Group and Head of Energy at Babcock & Brown. Warren led the development of Babcock & Brown's energy sector capability in Australia and New Zealand, including the founding of Infigen Energy. He was also a director of the ASX listed Alinta Limited and Sydney Gas Limited, and development of over 2,000MW of Greenfields power stations and the acquisition of over 3,000MW of generation.



## EXECUTIVE DIRECTOR

Dr. David Mazyck

David is a world-leading expert on activated carbon (AC) and its applications including mercury capture. He has developed AC products for the major multinationals.

**Dr. Mazyck is the former Chairman of the Activated Carbon Standards Committee for the American Waterworks Association** and has developed products for NASA. He is a member of the World Coal Association and an appointee to the United Nations.



## SENIOR EXECUTIVE

Dr. Regina Rodriguez

Regina has a Ph.D. from the University of Florida, where she received the prestigious National Science Foundation Graduate Student Fellowship.

**Dr. Rodriguez currently sits as the Chairperson of the Activated Carbon Standards Committee for the American Waterworks Association.**

Dr. Rodriguez holds 9 patents. Her leadership has resulted in one-of-a-kind sorbents and systems for power stations and water treatment.

## CONTACT

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