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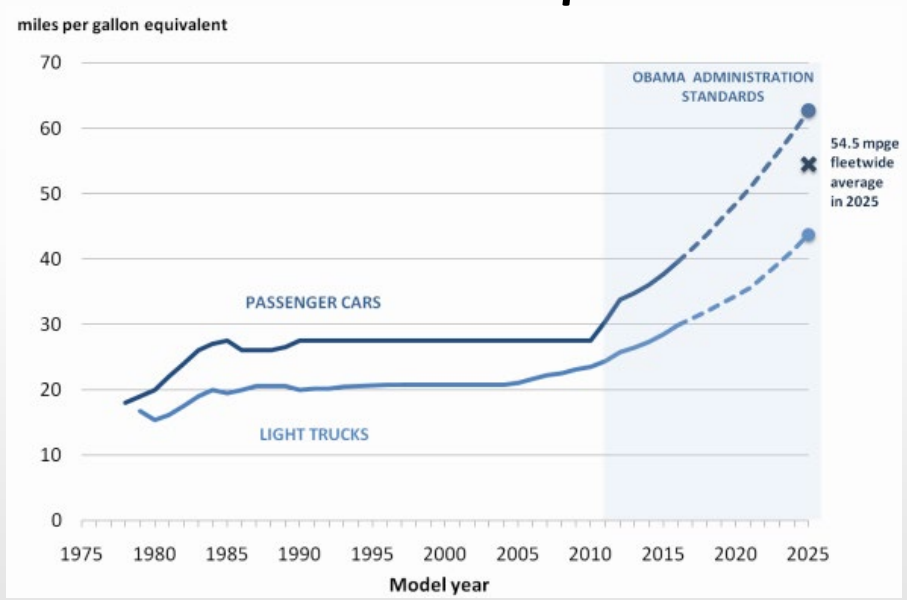
@VartegaCFR

MAKING CARBON FIBER MORE ACCESSIBLE TO MORE INDUSTRIES

Market Demand

$570B Global Plastics Market

$200B fiber reinforced



Today

- 104 models specified with OEM CFRP
- Average CF cost $ 8 – 10 /lb.

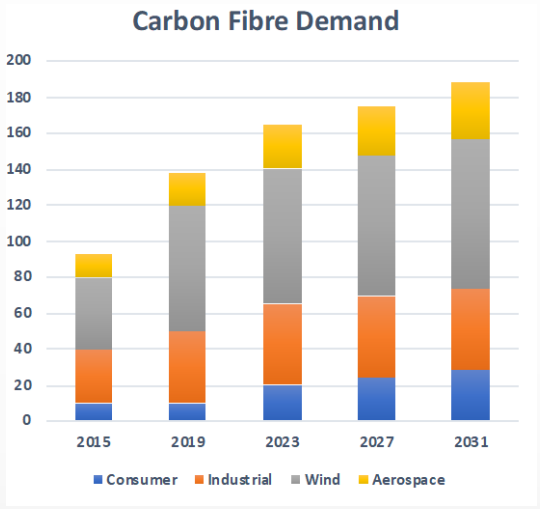
Tomorrow

- 72M pounds per year by 2025
- Average CF cost w/ recycling $ 5 – 6 /lb.

Opportunity: Advanced Materials Recycling

Expensive

Aerospace grade CF is $45/lb.



Strong Market Growth

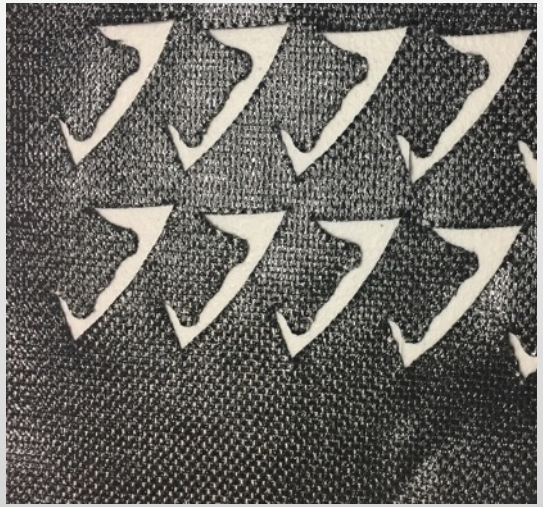
CF material market is growing at 11% CAGR

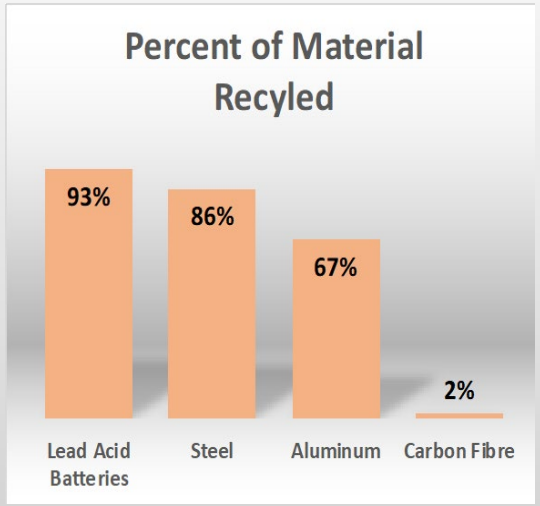
(Source: RECYCLING OF CARBON FIBRE COMPOSITES, 2016 – Turner & Pickering)

Large Scrap Rates

Manufacturing scrap rates are > 30%

Source: Plastics Today Dec, 2018 / Composites World, 2016





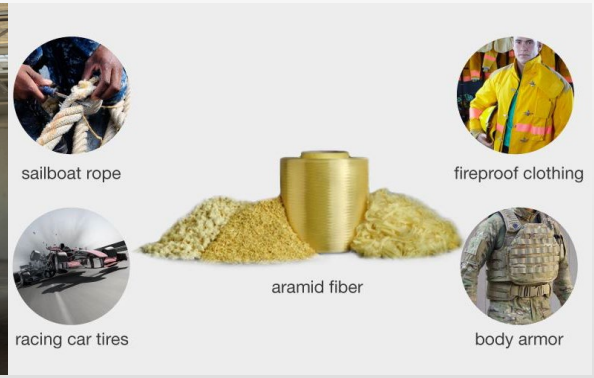
No Substantive Recycling

Only 2% of material is recycled – balance is landfill

"Recycling composites will eventually be as commonplace as recycling aluminum and titanium," - Kevin Bartelson, Boeing's 777 wing operations leader. Dec, 2018

Growth Plan

NOW	NOW	2022	2023	2024
1	2	3	4	5
• Toll Processing	• Recycled Dry Fiber Sales	• Recycled Prepreg Sales	• HaaS Deployment	• Future Materials



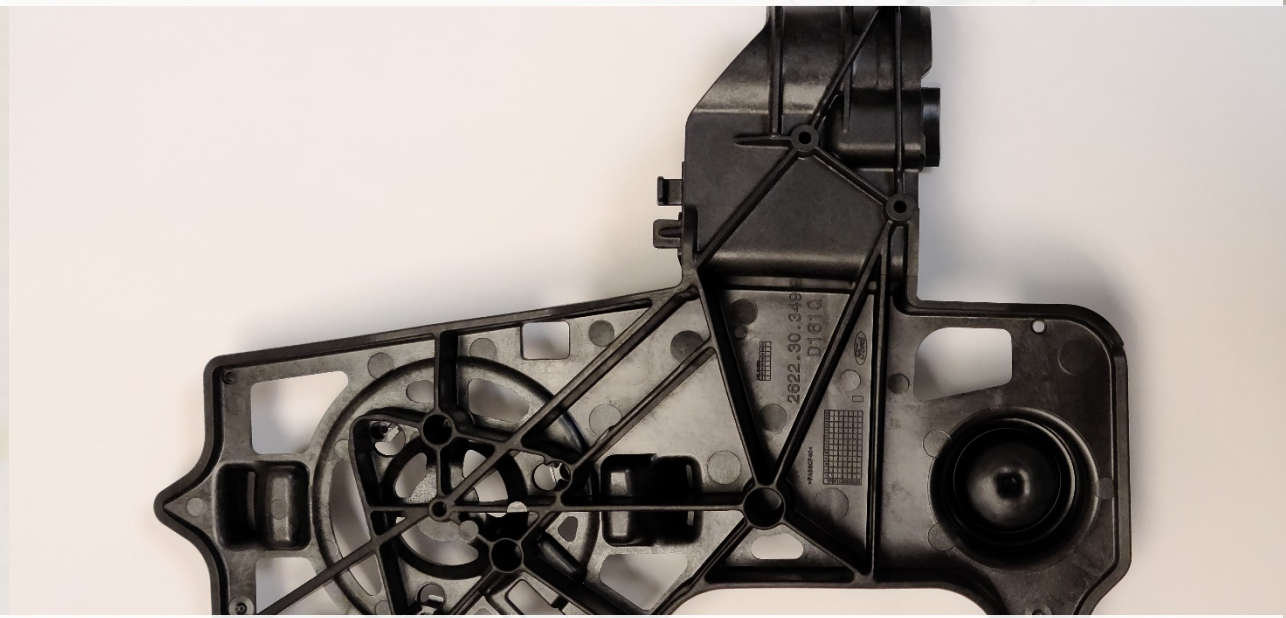
Pathway to a prosperous future by helping our customers achieve their economic and sustainability goals

Proprietary Toll Processing

Recycled Carbon Fiber

EasyFeed Bundles

Thermoplastic Pellets



Injection Molded Part

Composites Recycling Solution

Proprietary Technology

Three US Patents Granted

US10487191B2 US10610911B1 US10829611B1

Two US Patents Pending

One International Patent Granted

WO2017171753A1

Two International Patents Pending

Closed loop, low-cost post-industrial fiber recovery process:

- 95% less energy utilization than virgin carbon fiber
- **50% cost reduction – 35-40% GM**
- Increases the supply of lower cost fibers = accelerates the transition to lighter, more efficient products
- Integrates into the existing fiber reinforcement & composite manufacturing ecosystem

Applications

Additive Manufacturing / Compression Molding / Injection Molding

All parts shown using Vartega recycled carbon fiber

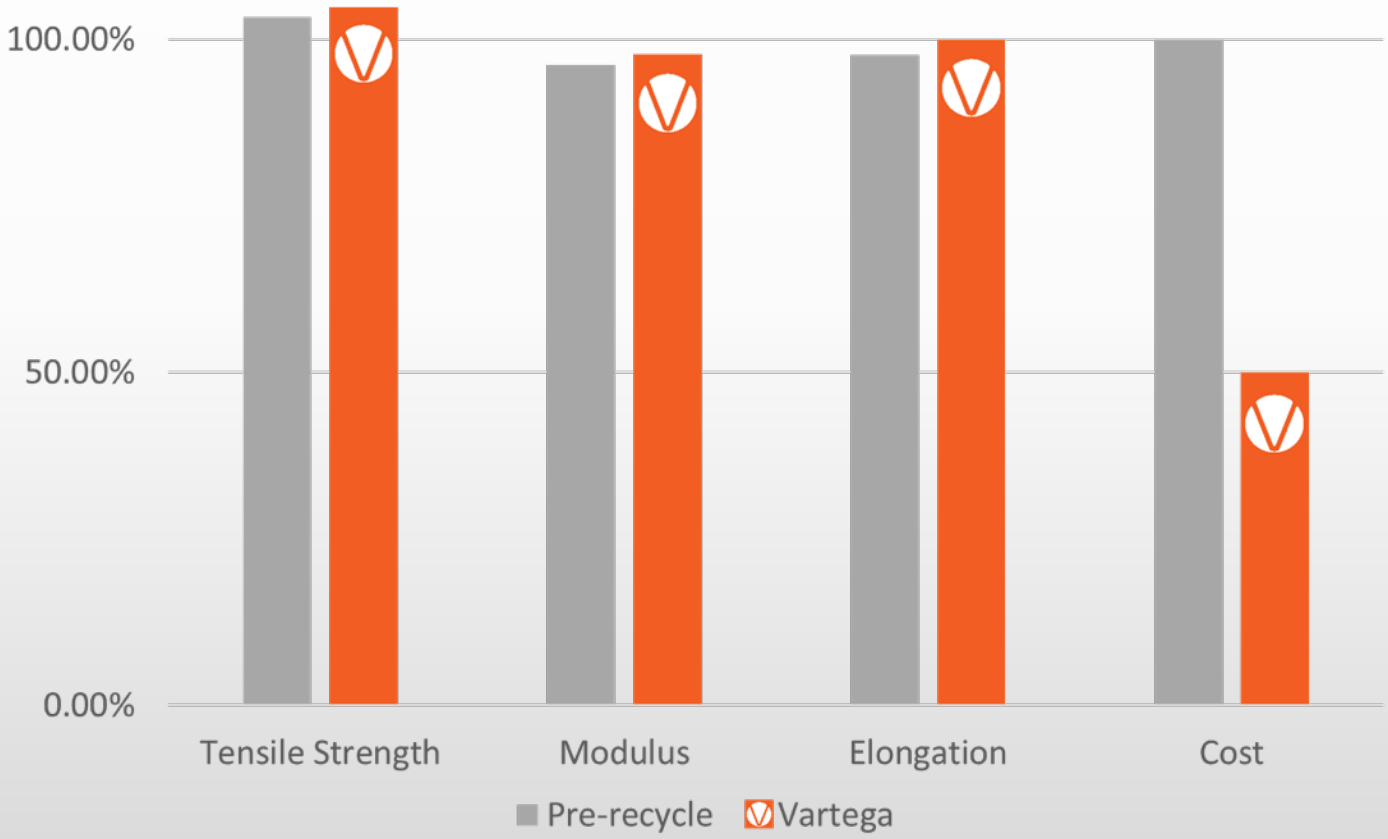
Case Studies

All parts shown using Vartega recycled carbon fiber

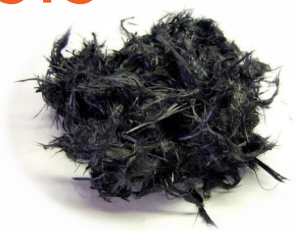
Competitive Product Quality

SGL GROUP
THE CARBON COMPANY

"...best looking recycled carbon fiber we've seen"



Competitive Analysis



Factors	Major Competitors	Vartega
Process	Thermal	Chemical
Fiber Format	Loose & Fluffy (Difficult to Feed)	EasyFeed Bundles
Unit Production Cost	High	Low
Energy Usage	High	Low
Greenhouse Gas Emissions	High	Low
Material Integrity & Consistency	Varies	Consistent Results
Feedstock Changeover Time	Days	Hours
Byproduct Revenue	None	Resin Sales
Distributed Manufacturing - Modular Units	None - Capital Intensive	Low Cost / Scalable

Value Chain & Market Strategy

Fiber Scrap Waste

Recycled Chopped Fiber (Tier 3)

Unfilled Thermoplastic (Tier 3)

Fiber Filled Thermoplastic (Tier 2)

Thermoplastic Part Producer (Tier 1)

Final Assembly (OEM)

AIRBUS
BOEING
TORAY
SGL GROUP THE CARBON COMPANY
HEXCEL
SOLVAY

vartega

EVONIK POWER TO CREATE
AsahiKASEI
Braskem
DUPONT
BASF We create chemistry
ARKEMA
SOLVAY
Celanese

PolyOne
RTP
The Materials Group
DUPONT
BASF We create chemistry
ARKEMA
SOLVAY
Celanese

Multimatic
BOSCH Invented for life
Continental Structural Plastics
MPI
PLASAN CARBON COMPOSITES
faurecia
MAGNA
MAHLE
Driven by performance

Ford
HONDA
TOYOTA
GM
BMW

Partners, Projects, & Pilots

vartega

Current Investors

techstars

BELLE IMPACT FUND

ROCKIES VENTURE CLUB

E8

propel(x)

FA FRONTIER ANGELS

DESERT ANGELS

ATI ARIZONA TECH INVESTORS

Village Capital

Materials Customers

Ford

Braskem

Celanese

TECHMER PM POLYMER MODIFIERS

DUPONT

PolyOne

BASF We create chemistry

The Materials Group "Your Partner in Plastic Materials"

LAVERGNE We make plastic circular™

LEHVOSS North America

MICHELMAN

ZOLTEK Toray Group

MITSUBISHI CHEMICAL ADVANCED MATERIALS

ELG Carbon Fibre Ltd.

Candidate Technology and Equipment Customers

HERITAGE®

AIRBUS

VEOLIA

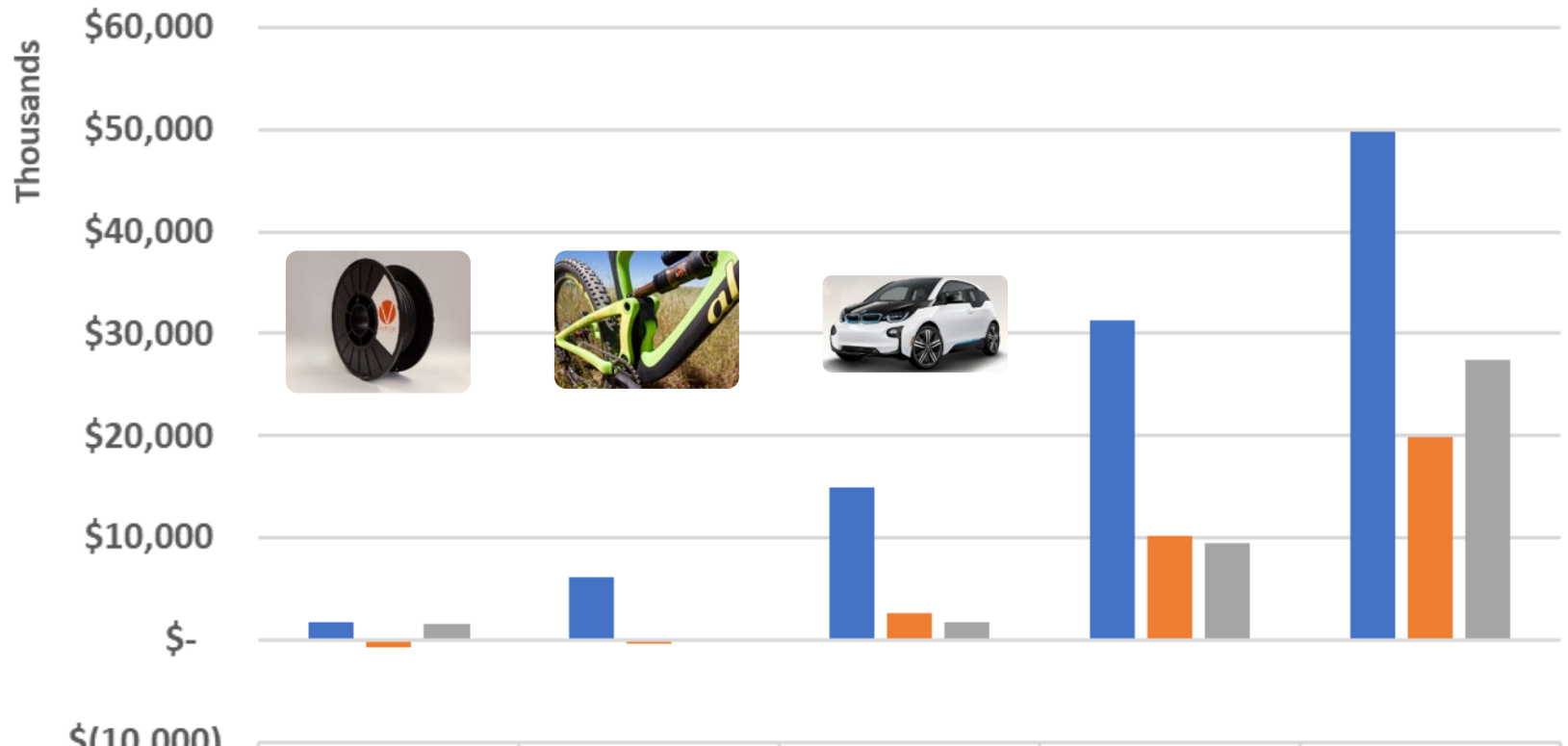
SOLVAY

TEIJIN

Human Chemistry, Human Solutions

https://www.vartega.com/partners

Financial Projections

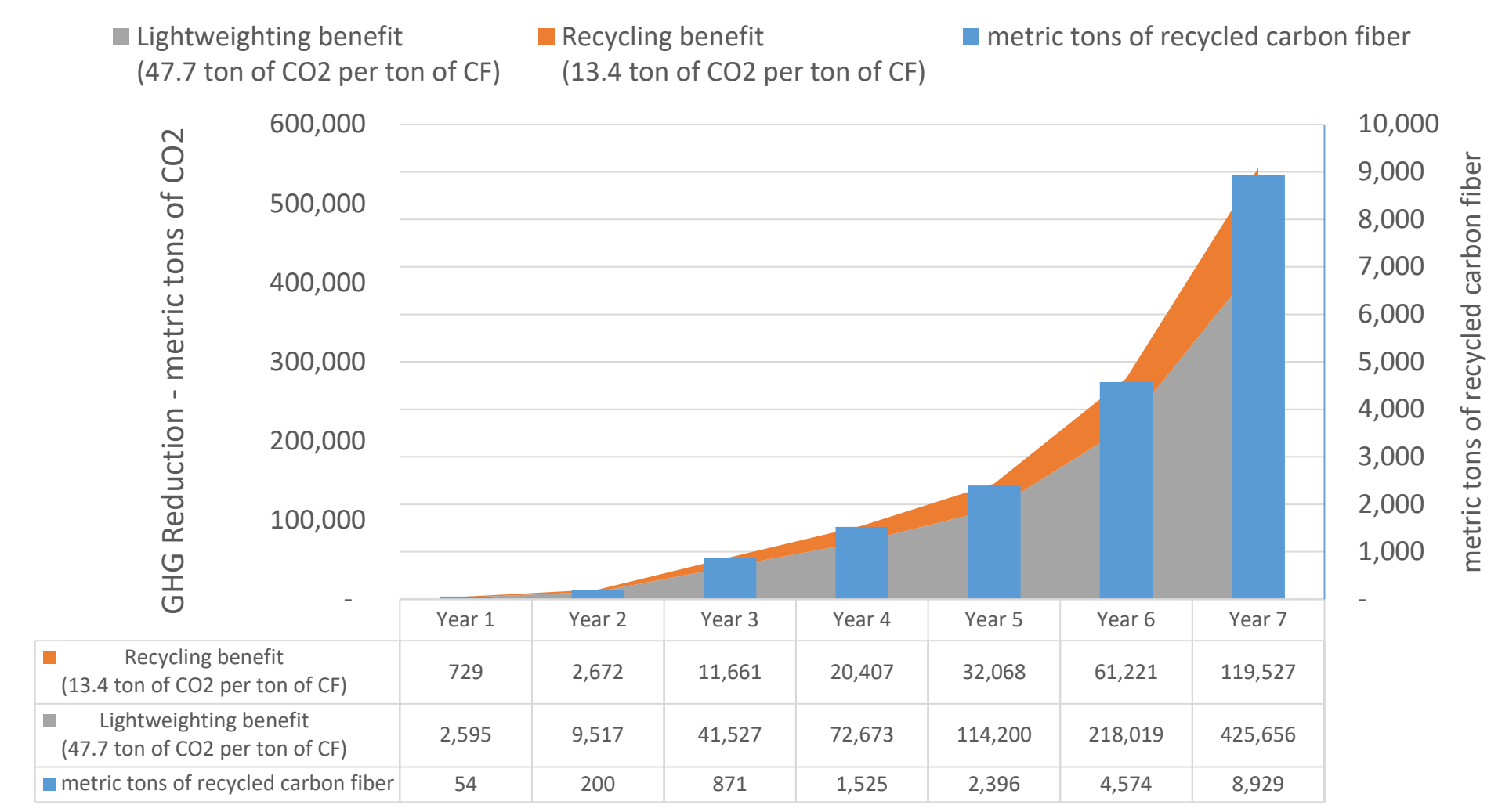


	Year 1	Year 2	Year 3	Year 4	Year 5
Revenues	$1,799,724	$6,060,703	$14,963,998	$31,239,998	$49,727,998
EBITDA	$(718,003)	$(390,763)	$2,674,854	$10,233,971	$19,806,575
Cash Balance	$1,614,721	$170,157	$1,740,478	$9,454,503	$27,432,257

Notes:

- *$290k+ current backlog*
- *$2M+ pending*
- *Timing assumes equity funding at the beginning of year 1*

Impact Proforma



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Recycling benefit (13.4 ton of CO2 per ton of CF)	729	2,672	11,661	20,407	32,068	61,221	119,527
Lightweighting benefit (47.7 ton of CO2 per ton of CF)	2,595	9,517	41,527	72,673	114,200	218,019	425,656
metric tons of recycled carbon fiber	54	200	871	1,525	2,396	4,574	8,929

Source – Vartega calcs and US EPA Greenhouse Gas Equivalencies Calculator

Potential cumulative GHG reduction in excess of half a gigaton by 2050

Prior funding

$2.7M+ private: Techstars, VilCap, RVC, ATI, Desert Angels, Frontier, E8, Propel(x), Belle Impact

$2.25M+ prior and current NRE and grant funding

Current Round - Committed

AUTODESK.

BELLE IMPACT FUND

SAFAR PARTNERS

Team

Andrew Maxey – CEO

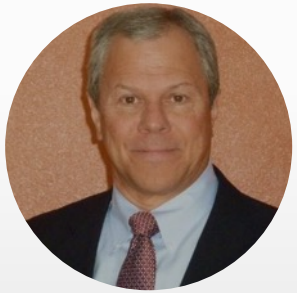
- Former VP Engineering of advanced materials company
- Commercialization of similar hardware and process technology

Jordan Harris – Contract (CTO)

- Startup Engineering experience, recycling urethanes for automotive seating
- Lab to commercial scale for auto applications

Sean Kline – VP, Engineering

- Senior Engineering O&G experience
- Engineering experience for biofuels startup



Ed Williams – Advisor (Finance & Strategy)

- Previous CEO of technology start-ups in advanced materials
- Raised $100M in equity & debt capital and successfully exited early-stage energy storage company

Kylie Van Aken – Mechanical Engineer

- Specializing in materials evaluation, characterization, and process scale-up

Jeff Wheeler Ph.D. – Sr. Research Scientist

- Professor at Colorado School of Mines
- Diagnostic expertise

Board of Directors

Donald Dutton

Andrew Maxey

Ken Knox

Ed Pilpel

Shari Kennett

- Established executive team
- Board in place
- Diverse abilities
- Seasoned advisors

Team

- Lightweighting
- Waste Diversion
- 90-95% less energy than virgin carbon fiber

Impact

- Non-dilutive Grants
- Strategic partners
- Paying customers
- LOIs
- New facility

Traction

- Developed in-house
- Patents granted
- Novel continuous fiber recycling

IP

- Joint development
- Priority rights
- Performance improvement
- Cost reduction

Partner

- Acquisition
- Vertical integration
- High value targets: Auto & Aerospace
- Existing recyclers

Exit

www.vartega.com | andrew@vartega.com | +1-720-841-8399