ACTIVATE THE NEW FRONTIERS OF ENERGY

We are FIREFLY, and we come with the Microcell Carbon Foam advantage

MICROCELL CARBON FOAM

is the key differentiator that'll create the leader in the targeted battery zone.

PROBLEM OF LEAD-ACID BATTERIES

- White lead sulfate crystal sticks to the grid leading to reduced charging and energy storage capability.
- High Corrosion affects performance and battery life.
  - Crystal deposits on grid lead to reduced charging and energy storage capability.
  - Efficiency reduces as you go along.
  - Longer recharging time.

The Microcell Carbon Foam advantage

Improved performance withstanding high temperatures as well as sub-zero temperatures.

Fast charging and discharging capability.

Low cost per KWH, that's at a fraction of a cost of Lithium Ion Batteries.

High AH and Energy Efficiency up to 98%. Throughout Efficiency greater than 98%.

Three times life cycle compared to conventional batteries.

THE MICROCELL CARBON FOAM ADVANTAGE, MOVING NEW FRONTIERS

Renewable Energy storage

- Longer charging cycles, resistant to corrosion.
- Excellent recovery from 100% discharge.
- Performance in extreme climates.

Telecom/UPS

- Longer life cycle.
- Faster recharging capability.
- Extreme temperature performer.
- Superior high discharge capacity.
- Zero capacity loss in partial state of charge (psoc).

Marine/RV and Transportation

- Highly immune to sulfating.
- Longer life cycle.
- Faster recharging capability.
- Zero capacity loss in partial state of charge (psoc).

THE MICROCELL CARBON FOAM ADVANTAGE OVER LEAD AND LITHIUM

Light weight of foam gives lead plate better integrity and strength.

Carbon plate's current carrying capacity and low reaction to chemicals make it heat resistant and corrosion free.

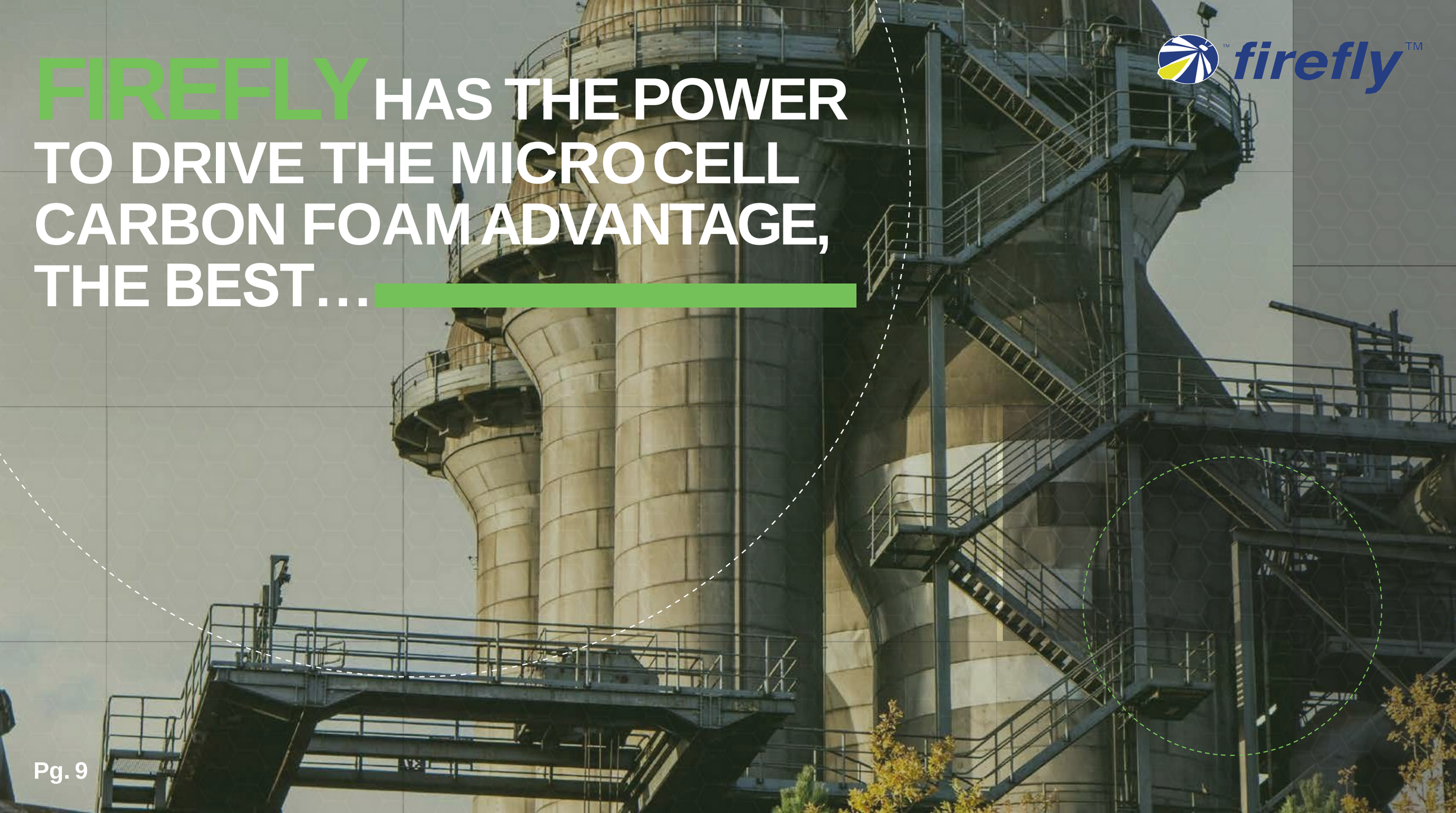
Carbon foam grid gives a very high surface area for electrochemical reaction (approximately 2000 times more than conventional lead batteries), leading to faster charging and discharge capabilities.

Carbon foam being better than lead in storage and durability is a far cheaper option to lithium, without being too far behind in lithium efficiency.

TECHNOLOGY COMPETITIVE LANDSCAPE OF MICROCELL CARBON FOAM

Comparison Parameters	Carbon Foam	Li ion	Lead Acid Battery
Performance for Electric Vehicles	Starting Torque 5 Times	Starting Torque 5 Times	Starting Torque 3 Times
Life (50% Depth of Discharge)	Upto 3600 cycles	1500-3000 cycles	1200 cycles
Discharging Temp Range	-20 ° C to 60 ° C	-10 ° C to 60 ° C	-20 ° C to 50 ° C
Charging Temp range	-20 ° C to 60 ° C	0 ° C to 45 ° C	-15 ° C to 50 ° C
Charging Efficiency	>95%	>95%	<90%
Charging Time	1-3 Hours	1-3 Hours	6-8 hours
Self- Discharge	0.15% per day	Very low	0.3% per day
Partial State of Charge (PSOC) operations	No effect on Life	No effect on Life	Affects the battery life
Serviceability	Maintenance free	Maintenance Free	Maintenance free
Shelf Life(At 27 ° C)	2 years	2 Year	6 Month
Specific Energy (Wh/Kg)	40-45Wh/Kg	100-120 Wh/Kg	33-40 Wh/kg

FIREFLY HAS THE POWER TO DRIVE THE MICRO CELL CARBON FOAM ADVANTAGE, THE BEST…



We have given the exclusive license of Firefly's disruption and advanced battery technology developed by

CATERPILLAR INC

to Firefly Batteries Pvt. Ltd.

The R&D facilities and warehousing facilities are at Peoria, Illinois.

After acquiring the Microcell Carbon Foam technology in 2010, the entire production has moved from USA to India in early 2015.

We've taken ahead the efficiency of **Microcell Carbon Foam** technology and made it the best cost option, too.

Our technological assets:

World class design, testing and validating facilities.

USA, India & China

are our machinery and equipment suppliers, the best in the world.

300,000 KWh p.a.

is the capacity of **our** State of the art manufacturing plant.

OUR VISION FOR OUR GLOBAL DISTRIBUTION NETWORK

Target Markets:

PHASE-I – Till FY 2021

1. USA
2. Japan
3. Canada
4. Australia
5. India

PHASE-II – Till FY 2024

1. North America-Mexico
2. South America- Argentina, Peru, Chile, Brazil
3. Europe
4. Asia- Indonesia, Malaysia, Singapore
5. Africa- Egypt, Chad, Algeria and Morocco

WORLDWIDE CONNECTS THAT "AMP" UP OUR VISION

- Bonds and subsidies on green, clean, gives us a financial advantage.
- Regulations, legislations, and parameters like local grid resiliency and micro diesel displacements make our case stronger.
- EU 2050's proposition of low carbon electricity are a strong reason for us to surge.
- Emerging smart cities and sharp spike ups in population density gives us a heads up.
- A key market like USA is already aware and is widely endorsing our product efficacy.

Being the leading light in the land of the rising sun

APPLICATION – Energy Storage

Our production excellence got us installation orders from SENKO CORPORATION LTD., MIYAZAKI, JAPAN.

Details of Installation & Commissioning

Location: **Miyazaki, Japan**
Customer: **Kyoei Sanyo Ltd.**
End User: **Senko Corporation Ltd.**
Comission Date: **31st January, 2017**
Application: **1.1 MW Solar**
Battery rating: **7.128 MWh**
Batteries supplied: **3960 nos. of 4V–450AH VRLA AGM GEL Firefly Microcell Carbon Foam (MCF) batteries**
No. of containers **22 Nos.**
Inverter Rating per container: **50KW**
Depth of Discharge **50%**
Expected Cycle Life **Upto 15 years**

WHY WE WILL LEAD THE FUTURE

Our R&D is gearing up to be the first to develop the positive carbon foam plate.

We will develop the use of carbon foam with other battery chemistries, to open up brand new technological possibilities.

Our Product Portfolio

OASIS MCF Heavy Duty
4V 450 AH /2V 900 AH

OASIS MCF Marine/RV
12V 116 AH

OASIS MCF Transportation
12V 116 AH

OASIS MCF G31
12V 116 AH

A POWER PACKED TEAM

Mukesh Bhandari

Founder & Chairman

- Met Mr. Kurt Kelly the inventor of MCF Technology at Firefly USA, and used Electrotherm (India) Limited's research and technology base to make the best battery in the world, the best cost option, too.
- Degree in Electrical Engineering from Shree Govindram Seksaria Institute of Technology and Science, (SGSITS) Indore, India.

Raju Patel

Chief Operating Officer

- An Electronics and Communications engineer
- Having 38 years' experience in creating and applying power-management solutions to industrial applications.
- His focus is be to establish a long-lasting business relationship with all customers, based on customer requirements and their satisfaction, both in the product as well as service.

Siddharth Bhandari

CEO

- An Electrical Engineer from Vellore Institute of Technology.
- Masters from Polytechnic Institute of New York University.
- Over 9 years experience in the engineering field and well versed in Business Development.
- Business Development portfolio include Renewable Solar Applications, Transformers & Transmission Line Towers.

Now you can invest in the brilliant promise of a brand that fits the demands of new age technology with amazing ease and simplicity.

Firefly International thanks you, for your time.

www.fireflyenergy.com