

Nanoramic Laboratories

**Transforming Batteries for Optimized Performance,
Cost, and Sustainability**

www.nanoramic.com

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Nanoramic Laboratories



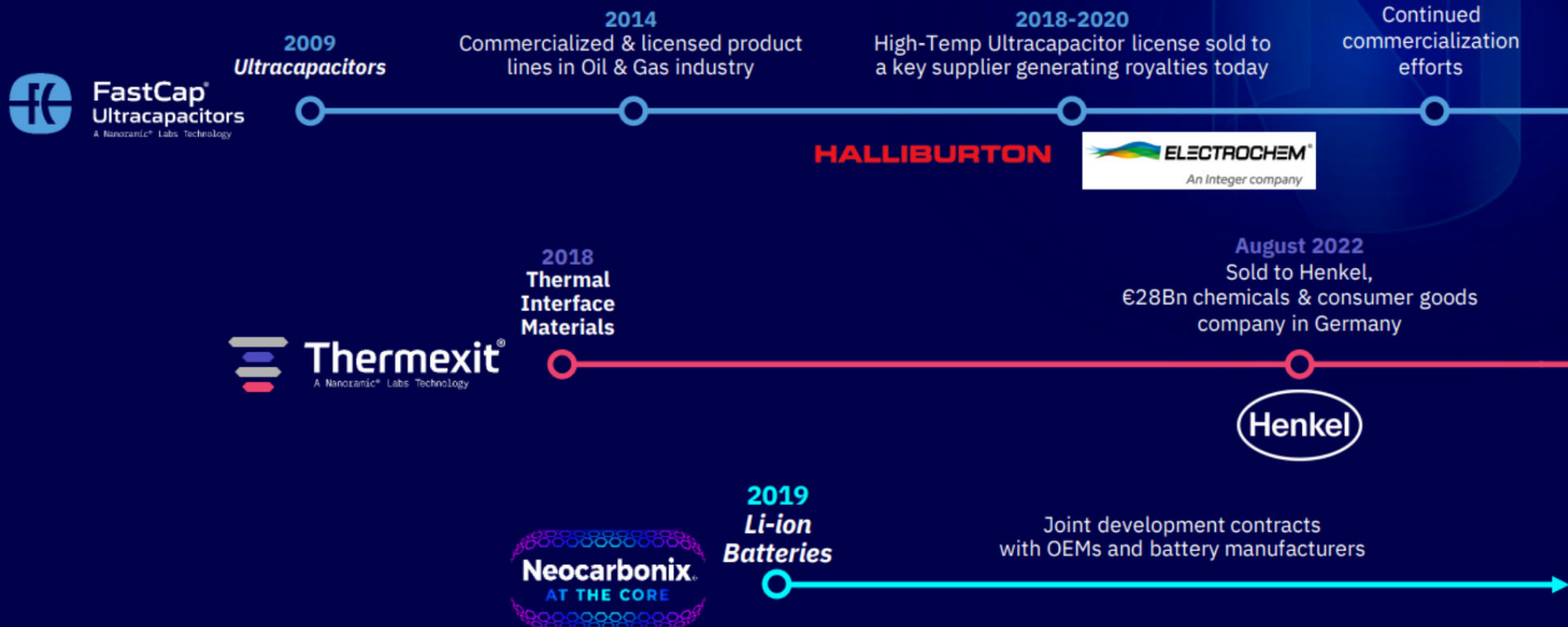
The world is seeing a once
in a lifetime shift to
electric vehicles

Production of low-cost,
high-performance
batteries is a key
constraint

A complete Li-ion battery
solution that unlocks low-cost,
high-performance batteries,
manufacturable today

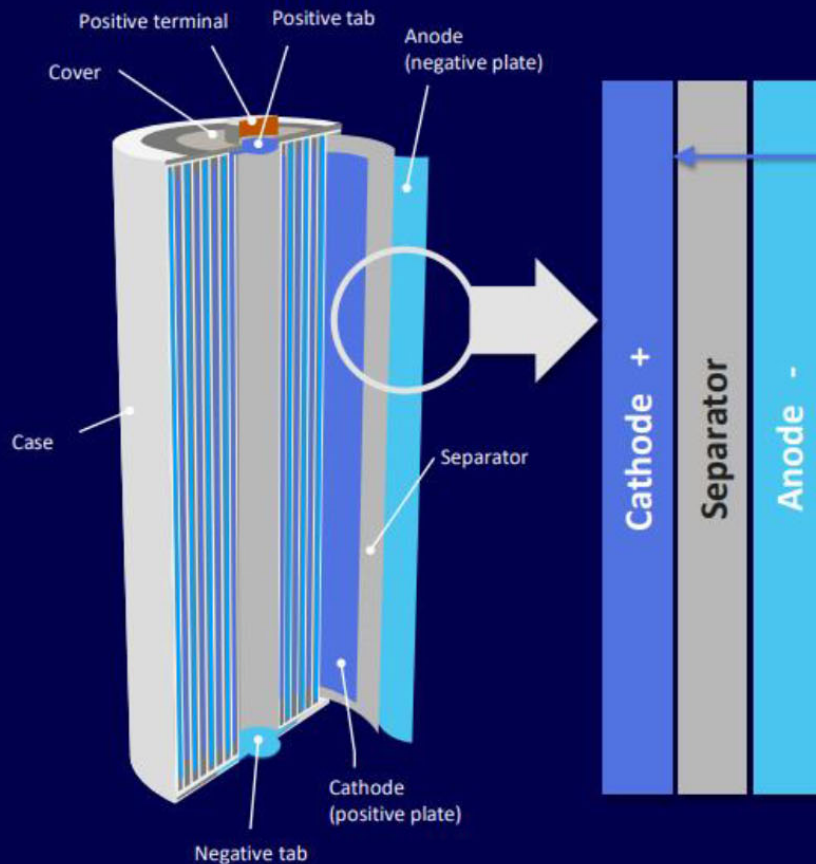


Track Record of Successfully Researching, Developing, Commercializing and Licensing Proprietary IP

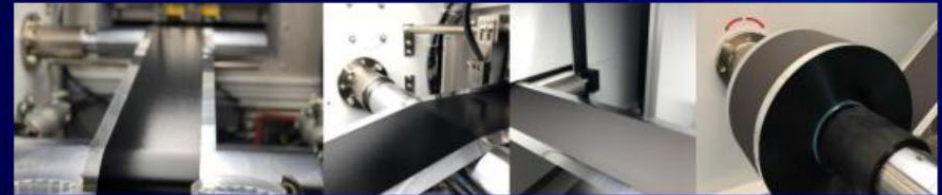


Battery Breakdown – Neocarbonix a Electrode Technology

Confidential



Neocarbonix® High-Performance Cathodes



Neocarbonix® Si-Dominant Anodes



Neocarbonix® at the Core



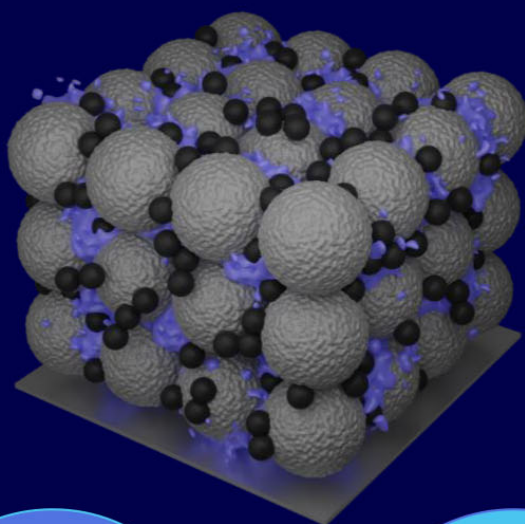
An electrode technology platform that replaces conventional binders with a nanocarbon mesh.

Neocarbonix eliminates fluorinated polymers and NMP while re-using existing manufacturing equipment.



3D Carbon Nanostructure: Formed During Slurry Drying in R2R Coating Process

Conventional Electrode

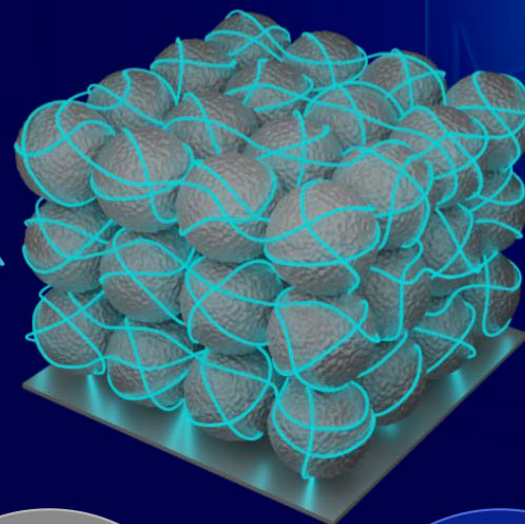


NMP-free

**PVDF-free
PTFE-free**



Neocarbonix®
at the Core



**Cohesive &
Adhesive
Binding
Properties**

**Increased
Volumetric
&
Gravimetric
Energy
Density**

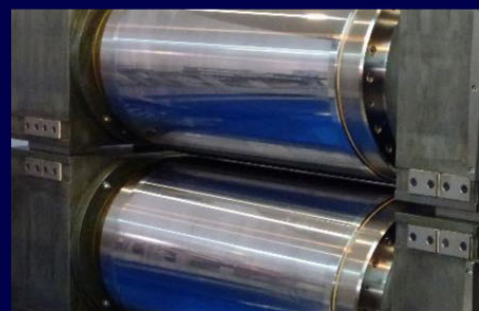
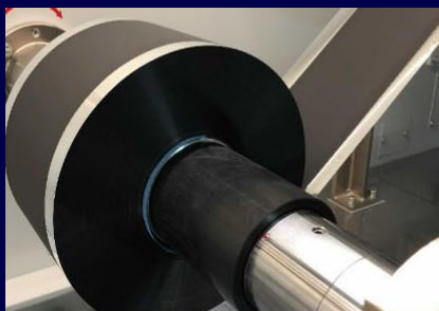
A Rapidly Scalable Technology

Slurry
Preparation.
NMP-free

Coating and
Drying

Calendering

Cell Assembly



**EtOH, Water, or other
solvents**

+

Standard Manufacturing Process

=

Optimized Output

Neocarbonix® at the Core – High Speed Coating Process with NX

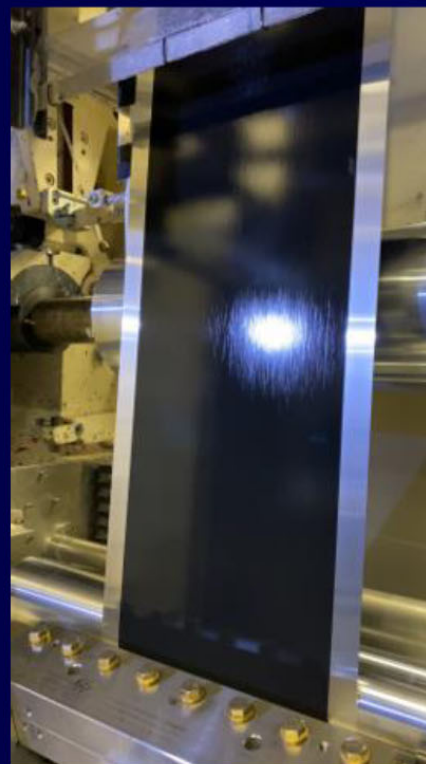
Standard Coating Process With NMP

The limit for NMP with an identical setup is ~12-15
m/min



Enables >3x faster coating speed

Cathode Coating w/ Neocarbonix
at 60 m/min with 18m oven. Solvent: EtOH



Practical Solutions for Coating High Loading Electrodes (6mAh/cm²)



Manufacturable R2R



**Low surface tension
solvents, no cracking, fast
drying, shear thinning**

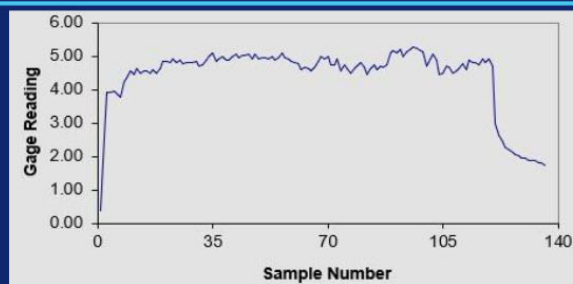
**Higher electrical
conductivity**



**10x higher than
conventional electrodes**

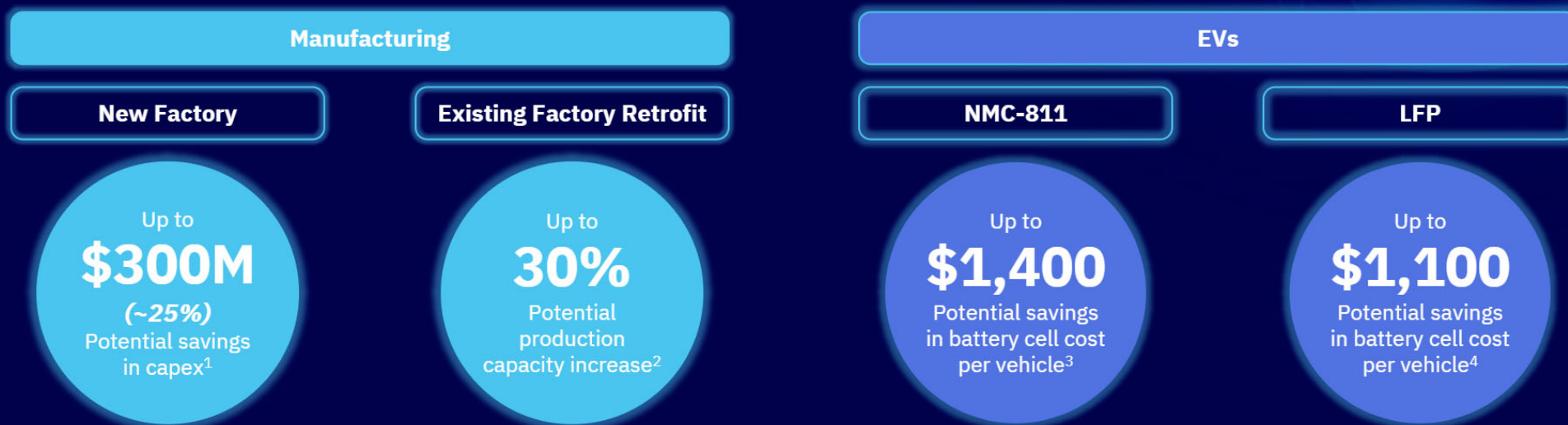
Mechanical Adhesion

NX NCM811 Ni83, 98.75%CAM
23.1mg/cm² 3.48g/cm³



Sample	NX NCM811 Ni83, 98.75%CAM 23.1mg/cm ² 3.48g/cm ³
Max.(N/m)	208
Avg.(N/m)	173
Std. Dev.(N/m)	38

Lower Sticker Price For EVs



Source: Porsche Consulting Neocarbonix® Cost Report

1. When constructing a new 20 GWh cell factory when using Neocarbonix® Si-dominant technology
2. When retrofitting an existing 20 GWh factory with Neocarbonix® Si-dominant technology
3. When using Neocarbonix® Si-dominant technology with NMC-811 cathode in a 100-kWh battery pack
4. When using Neocarbonix® Si-dominant technology with LFP cathode in a 50-kWh battery pack

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Stay Ahead of PFAS Restrictions



Limited Resources for
Conventional Battery
Manufacturing



No Impact on
Neocarbonix Battery
Manufacturing



Meet Your Safety and Sustainability Goals



- **NMP:** currently cannot be used alone or in concentrations $\geq 0.3\%$ ¹
- **PFAS:** to be restricted by 2027¹

- **NMP:** presents unreasonable risk of injury to health, regulations pending³
- **PFAS:** proposed rule to designate two PFAS, PFOA and PFOS, as hazardous substances, more PFAS restrictions pending³

**NMP-free
PFAS-free**



- Carbon footprint declaration, classification, and thresholds will be enforced by 2027²

- GHG emission standards for passenger vehicles & light trucks in model year 2023 - projects at least 60% of all new passenger vehicles sold in U.S. will be electric by 2030³

**Reduces Carbon
Footprint by 25%**
(over 500,000 Tonnes of CO₂ per year per gigafactory)



- Min levels of recycled content: Co (20%) Pb (85%) Li (10%) Ni (12%) by 2035²

- **The Inflation Act:** requires $\geq$ two-fifths of the critical minerals used in LiBs be extracted and processed locally in the U.S.⁴

Simplified Recycling

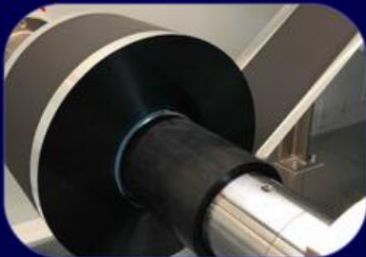
Collaborative, Scalable Business Model

Nanoramic

Slurry



Electrode



Cell



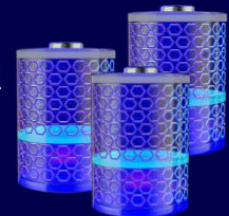
Technology Transfer

Design
Manufacturing
Brand
IP

Manufacturer



Commercial Product



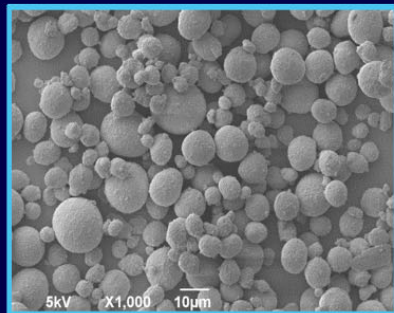


— collaboration —

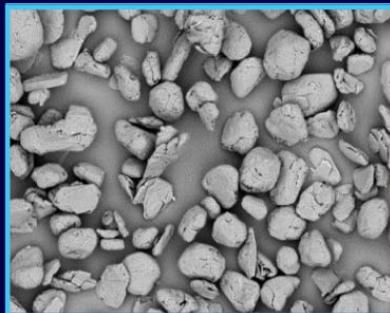
**Works with any off the shelf
CAMs and AAMs targeting both budget
and luxury segments**

**Chemistry and form factor agnostic
while using conventional
manufacturing equipment**

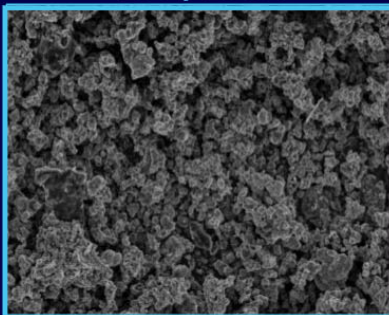
NMC (poly and SC)



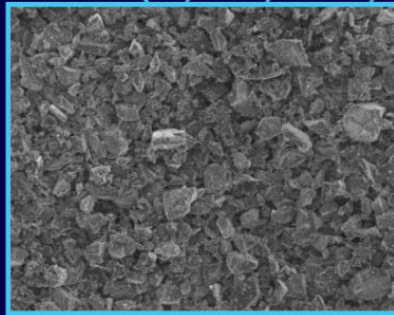
Graphite



LFP/LMFP



Silicon (Si, SiC, SiOx,..)



Cathode Chemistry

LFP
NMC
NCA
LCO

Anode Chemistry

Si-Dominant
Micro-Silicon
Silicon Oxide
Graphite

Cell Formats



Pouch

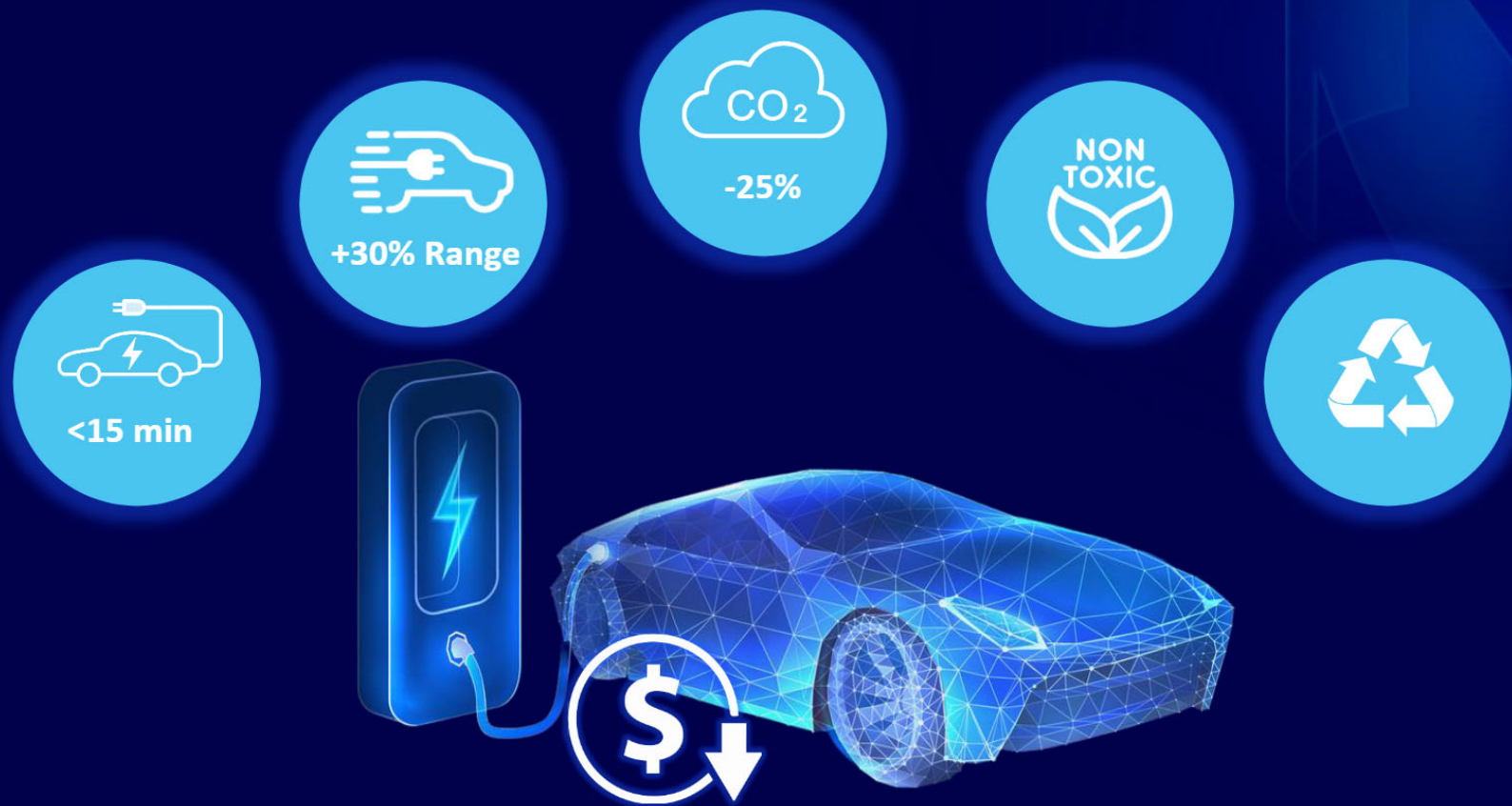


Cylindrical



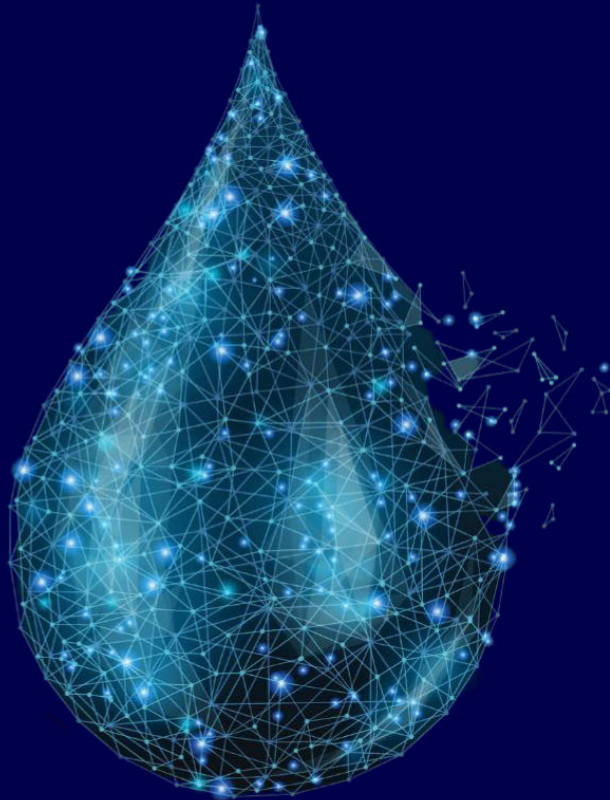
Prismatic

Nanoramic Value Proposition for BEV





The All Water-Based Manufacturing Plant

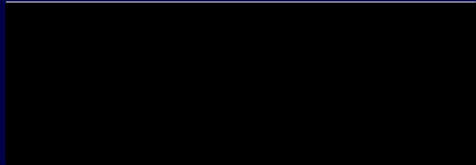


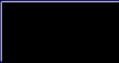
+

LFP =

Just Water

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in



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