Cipher Neutron

Business overview

- Canadian cleantech company focused on **Green Hydrogen Production**
- First North American company in the world to commercialize **AEM Electrolysers**
  - AEM Electrolysers are capable of producing hydrogen without using any PGMs (Platinum Group Metals) including Platinum, Iridium, Ruthenium
  - One of the most affordable and sustainable solutions available commercially to produce high volume and high-pressure green hydrogen
- World's 1st company to have patent pending **Reversible Fuel Cells**
  - Can be used to generate electricity from hydrogen and vice-versa, while also providing an efficient way to store energy
  - Attractive alternative to traditional storage solutions, such as batteries, which require frequent recharging and can be costly to maintain
- Industrial partner of many Canadian universities and public research organizations
- Trusted and funded by governments

Research partners

UNIVERSITY OF ALBERTA

Western UNIVERSITY · CANADA

IONMR INNOVATIONS

Key value proposition

1. **Massive, rapidly growing market opportunity across multiple industries**
2. **Leading AEM technology, which unlike PEM solutions, do not use PGM and toxic PFAS materials**
3. **Few competitors with limited expertise and know-how**
4. **Strong regulatory backdrop supporting the production of green hydrogen and avoidance / ban on PFAS**
5. **Leading management team with over 100 years of combined experience**

AEM technology

Patents

Patent Pending:
Cipher Neutron has patent pending flow field design

Advanced Science

Ink coating:
Unique ink recipe and methodology for ink coating membranes, achieves higher efficiencies

State of the art

AEM:
Uses state-of-the-art Anion exchange membrane to separate H2 and O2 gases

AEM benefits

Highly Efficient
81.73% efficiency vs industry standard of 77% (HHV@ 1.8V)

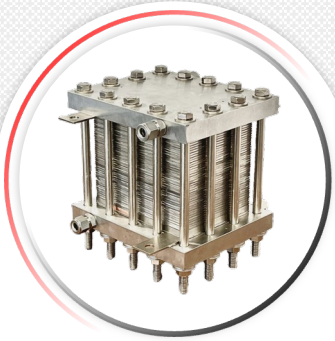
High Ampacity
High current density (1.1 amps/cm2) enables more H2 production per unit area (@1.9 V)

High Pressure
Eliminates the need for expensive secondary compressors up to 30 bars

Compact Design
Enables light weight and smaller footprint electrolysers

No Platinum Group Metals
AEM Electrolysers do not use any precious metals as used in other technologies

Price Reduction
Less than $700 (USD) per kW *(@250 kW Stack)*



A Highly Efficient Way To Produce Green Hydrogen
(Lower OPEX)

Platinum Group Metals Free
(Lower CAPEX)

Longer Lifetime
(Low Maintenance & Less Service)

PFAS Free
(Sustainable)

20 Years of R&D
(Trusted and Tested)

Product launch timeline

2023	2024	2025	2026	2026
Q4 2023	**Q3 2024**	**Q1 2025**	**Q2 2026**	**Q4 2026**
▪ 10 kW AEM Stack	▪ 50 kW AEM Stack	▪ 100 & 250 kW AEM Stack ▪ 5 kW RFC	▪ 10 kW RFC	▪ 10 kW RFC ▪ 50 kW RFC