Our Next Energy

400 FTE
Michigan & California

20 GWh

Our Next Energy

MIT Mobility | Boston, Massachusetts | Nov. 13, 2023

$1B+ Capital Raised
The Problem

Benchmarking Data Source: A2MAC1

Aries and Gemini offer 350-600 mile range

Lead Acid - The 100 km era

* Benchmarking Data Source: A2MAC1
The Problem

- Benchmarking Data Source: A2MAC1

Aries and Gemini offer 350-600 mile range

- 20 kWh, 110 L, 254 kg

- 24 kWh, 266 L, 294 kg

GM Spark EV

- 20 kWh, 110 L, 254 kg

Nissan Leaf

- 24 kWh, 266 L, 294 kg

* Benchmarking Data Source: A2MAC1
The Problem

- Benchmarking Data Source: A2MAC1

Aries and Gemini offer 350-600 mile range

2015 - 500 km platform architecture

- Efficient platform (Cd=0.21)
- Large battery (424 liters, 540 kg)
- High energy chemistry (700 Wh/L)

4 Ah cell mitigates safety risk
Recalls: Nickel - Cobalt Thermal Runaway

Battery Pack VED, Wh/L

Battery Pack GED, Wh/kg

2020 - 2023: 6 NHTSA recalls due to thermal runaway

* Benchmarking Data Source: A2MAC1
Thermal Runaway: NCM made of 33% O$_2$

The Problem
Aries and Gemini offer 350-600 mile range
Thermal Runaway: NCM made of 33% O$_2$
Mission: Accelerate Electrification

Range
Double EV range by advancing energy density

Safety
Avoid Nickel & Cobalt thermal runaway

Supply
Develop a Sustainable NA cell and material supply
Localized supply chain requires abundant materials.

Iron’s abundance translates to price stability:
- Price volatility in past 12 months:
  - Fe: $3.10
  - Mn: $2.06
  - Ni: $22.43

Earth’s Crust:
- Fe: 5.0%
- Mn: 0.1%
- Ni: 0.008%
- Co: 0.003%

Strategy: Abundant, sustainable, safe materials.
LFP 2.0: Improving LFP Energy Density

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Aries and Gemini offer 350-600 mile range

LFP (power)

2020 - 400 km re-introduction of LFP

2021 Model 3
Model 3 Standard Range Plus Rear-Wheel Drive
24,558 mile odometer
Walnut, CA

$34,400
$532/mo (1)
Est. Transport Fee: $2,000

262 mi
Range (EPA est.)

140 mph
Top Speed

5.3 s
0-60 mph

23°C (50%)
200 km real world

400 km EPA
0°C

Pearl White Paint
18" Aero Wheels
All Black Partial Premium Interior

Autopilot
✓ No Reported Accidents/Damage
✓ 30-Day Premium Connectivity Trial
Crossing the Chasm - this time!

The Chasm

Past

1900
Innovators 2.5%
Early Adopters 13.5%
50 km

1910
Minimum Feature Set

1920

The Range and Cost Barrier

Present

2000
Innovators 2.5%
Early Adopters 13.5%
300 km

2010
Minimum Feature Set

2020
Early Majority 34%
Late Majority 34%
Laggards 16%

Future

Range and Cost Barrier

The Problem

Aries and Gemini offer 350-600 mile range
Crossing the Chasm - this time!
Iron. What’s Next in Electric.

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Aries and Gemini offer 350-600 mile range

Aries II 600 km

Gemini 1000 km

Battery Pack GED, Wh/L

Battery Pack VED, Wh/kg
Disruptive Cost through Manufacturing

The Problem

Aries and Gemini offer 350-600 mile range

Disruptive Cost through Manufacturing

1900 - 1st in 50 mi race
1901 - 1st to 57 mph
1902 - 1st to 100 mph

1907 - Over 100 models sold; EVs reach 38% of market
Commercial Truck, Bus, & Marine
300-900V Auto Series- Parallel BMS

Utility Grid Stationary Storage
3.5 MWh DC or AC System - 4-12 hour duration

Passenger Automotive
100-400 kWh solutions for passenger automotive