



1 October 2019

**AIR FUTURE GROUP**  
(In conjunction with MDI)

**Compressed Air Clean Vehicle Project**  
(Demonstration of the MDI vehicles)

**- Manufactured within Australasian regional micro factories -**

**- This Project -**

*This project seeks to present and to demonstrate the MDI compressed air technology, its current and pipeline vehicles, and its huge development advantage in bringing the clean and affordable technology into many areas of transport.*

*It seeks to confirm the numerous markets ranging from consumer to commercial to the future. It especially seeks to explore local markets, and any immediate opportunities or hurdles benefiting the current focus on clean transport.*

*Rather than simply demonstrating we seek to establish a three tier working team between third party clean transport sponsors, MDI product specialists re capability and development, and AFG to establish the markets, channels, and manufacture.*

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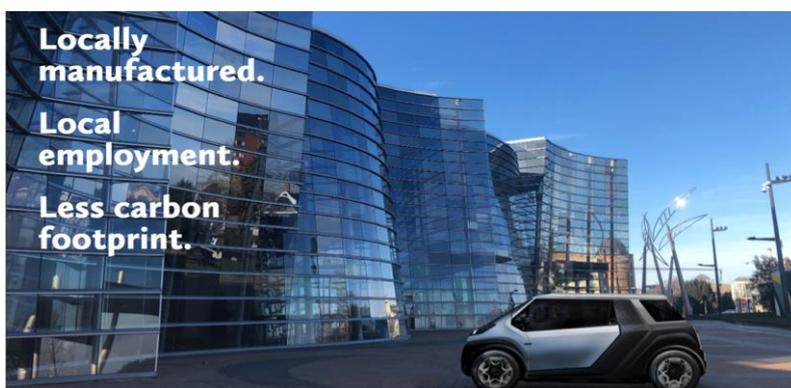
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We use some pictures herein to demonstrate MDI technology and vehicle products. Products range from being existing, to in development, and to planned. Further information and pictures can be sought from references.



#### **References:**

- Air Future Group Business - Introduction
- Air Future Group Business - Overview
- Air Future Group - Website: [www.airfuture.com.au](http://www.airfuture.com.au)
- MDI - Website: [www.mdi.lu](http://www.mdi.lu)

## INTRODUCTION

### Who we are...

**Air Future Group:** Air Future Group (AFG) is an Australian private company with subsidiary operating companies in distributed energy, Air To Energy (ATE), and in clean transport, Air Volution Limited (AVL). AFG group has exclusive licences for Australasia for local turnkey manufacture and to market MDI compressed air products.

**MDI technology partner:** MDI based in France is a world leader in having developed patented compressed air distributed energy storage and clean light weight vehicles. Critical benefits for MDI products are their affordability and economical scaling, plus for vehicles lightweight construction and speedy new product development. MDI product manufacture is via distributed turnkey micro manufacture.

**Australasian commercialisation:** AFG group was established to manufacture and commercialise the MDI technology products throughout Australia, New Zealand and the Pacific Islands. MDI do not themselves commercialise.

*This project aims to demonstrate and prove the capabilities of the technology and products, their market acceptance, and be investor ready to construct factories and rollout product via key channels.*

- Overleaf are project explanatory pictures -

- Quotation -

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**BloombergNEF – 11 Sept 2019**

(Week in review)

Global investment into renewable energy capacity over the decade – 2010 -2019 inclusive – is on course to hit USD 2.6 trillion, with more gigawatts of solar capacity installed than any other generation technology. According to the Global Trends in Renewable Energy Investment 2019 report, this investment is set to roughly quadruple renewable energy capacity (excluding large hydro) by when the decade closes at the end of this year.

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***Electric vehicles are predicted to become a major portion of the global transport market with major manufacturers including technology companies committed to the shift away from gasoline vehicles. But the energy implications have not yet been mastered, and the vehicle hurdles of affordability, range, design, electricity load and manufacturing pollution are yet to fully surface.***

***MDI's solutions and products are presented in this project.***

## **Project Pictures**

For larger pictures or greater explanation refer to references on Contents page.

### ***One set of MDI technologies producing many transport models.***

*Via six demonstrations it is intended in some cases to provide a demonstration on site, and in others to present the product specifications or operations from elsewhere. In all cases the focus is on the markets, the regional regulations, and the channels for promotion and sales distribution leading to manufacture ready.*

### **Demonstration 1: MDI vehicle technology**

The MDI core technologies enable compressed air energy storage to efficiently power a vehicle, use lightweight strong composite material construction, integrated body functionality, and distributed advanced manufacture. Together these create the framework for multiple solutions for transport and mobility. The solutions are affordable, efficient, have range, and models can be more quickly developed.

Below are MDI 7kW and 60kW uniquely patented efficient engines at the core of the compression and expansion. Via expansion from tank, stored energy is applied to vehicles or to electricity generation. Vehicles are made with extra strong composite materials as used in exotic vehicles and racing, and can be filled from compressed air filling stations (mobile or fixed), or from other energy.



**Efficient Engines**



**Factory Moulds**



**Light Construction**

### **Demonstration 2: Consumer market**

The consumer market initially has the GreenAir and AirPod models, with the larger AirOne vehicle in development. The project will seek to use these vehicles to promote awareness of the technology, and commence road certification in markets where not already existing. This will lead to prioritising markets and their sales and services channels leading to regional micro manufacture.



**GreenAir**



**AirPod**



**AirOne**

### **Demonstration 3: Commercial & industrial market**

Commercial markets will also have on road regulatory requirements subject to region, but they also have a large off road component as well. Made in the same factory with the same process these markets are key to progress as they add to the factory productivity volume, vis: consumer, commercial, industrial, recreational, on road, off road, regional and export.



**Flexibility**



**Pickup**



**Cargo**



**KLM Schiphol airport**



**GreenAir utility**



**Veolia AirBom**

### **Demonstration 4: Future development**

Enabled by their core technology components and the manufacturing processes MDI can quite speedily and at low relative cost develop new products. Thereby the future markets are huge. To further enable this MDI is amenable to joint ventures with substantiated specialist parties to for joint venture development, addressing markets, funding, manufacture, and commercialisation. MDI licensing can enable an external party to bring major capabilities aligned with MDI's technology to rollout into specialist markets. Some examples follow.



**Already demonstrated the range from golf cart to waste vehicle**

**Automotive**



Scalable from Air Bike, to AirPod, to AirFamily, to Air MultiBus

**The intention: MDI compressed air technology plus unique manufacture can cover all markets and all applications**

**Commercial vehicles**

**Consumer vehicles**



**To participate in these developments as a joint venture is a major opportunity for specialist markets in the future of clean vehicles.**

**- The future for MDI markets -**



**Demonstration 5: Global market**

Within this project and subsequent commercialisation we acknowledge the global variation in different political approaches, warranting project prioritisation. One such market is South East Asia (SEA), with is eleven countries. Australasia is especially close to SEA in proximity, political connections, trade, and trust. SEA regional and global politics are strong drivers potentially supporting the range of MDI products and licensed manufacturing, and in the interim are export opportunities

Potential MDI SEA solutions

**MOTORBIKE** 🏍️ **BUS** 🚌 **TRAIN** 🚆 **TAXI** 🚗 **BICYCLE** 🚲 **AIRPLANE** ✈️ **BOATS** 🚤

Yes                      Yes                      -                      Yes                      Yes                      -                      Yes

Pollution and traffic congestion are major issues in SEA and MDI solutions are affordable and speedy with country political and employment benefits as well.



**SEA uses many transport forms**



**Roads are congested**



**Compressed air vehicles are great city solutions with easy charging**

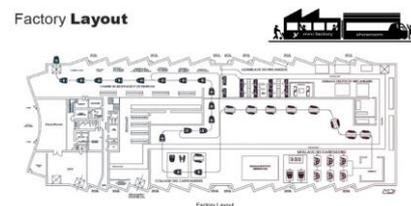
### **Demonstration 6: Distributed manufacture**

Legacy gasoline vehicles are heavy, large, go very fast relative to speed limits, and have fast acceleration. This requires a lot of surplus power and pollution generation. Apply the same concept to electric vehicles then the batteries will be large, expensive, and the cradle to grave manufacturing process will be polluting.

Legacy centralised manufacturing comes at a huge cost. MDI technology enables distributed manufacture on land of 4,500 square meters or 15,000 including surrounding land. The vehicles are targeted for the clean revolution, as well as the digital and the city infrastructure revolutions. It also aims to enable average families to readily afford clean vehicles and achieve their climate commitments.



**Distributed regional micro factories**



**MDI turnkey uniform factories**

## **PROPOSITION**

### **1. Current electric vehicles & battery hurdles**

The transition in the automotive industry away from internal combustion engine vehicles is well underway. The shift relies on batteries (generic term) making further progress on costs, energy density, and range. That still leaves the issues of manufacturing pollution and end of life disposal.

Large vehicles continue to pollute, and electric vehicles under current legacy manufacture tend to replicate their design. This is limiting their global take-up to the more expensive markets with non-usable over-performance capability. When considering the clean vehicle opportunity beyond simply the open road, into city congestion, commercial applications, industrial transport pollution, and the future of autonomous digital developments, clean vehicles face many hurdles.

And hurdles spell innovation and competition. The climate revolution for transport has opened the door to new entrants ranging from China through to the digital technology giants. And also new technology applications. Of these compressed air and MDI are potentially the most novel with huge markets.

### **2. MDI clean vehicle compressed air solutions**

MDI is at the forefront of an innovative holistic approach to clean vehicles, to transport, and to customer trends and regional micro manufacture.

Key objectives of this project include the following:

- (1) Transfer and demonstrate** the MDI world leading compressed air technology applications for clean vehicles and their production.
- (2) Demonstrate rationale for affordable and efficient vehicles** and establish the markets and production budget.
- (3) Establish delivery channels** for the numerous markets that will take the product to market and carry out sales, installation, and service.
- (4) Initiate regional factory construction** ranging from regulation to sponsors and partners to funders to land and recruitment.

## **THE PROJECT**

### **3. MDI clean vehicle demonstration & markets**

This vehicle demonstration and market development project is in 10 identifiable steps:

- (1) Establish sponsors & partners
- (2) Define the project team
- (3) Design the demonstration field criteria
- (4) Confirm the criteria with MDI or modify
- (5) Prioritise the markets
- (6) Equipment shipping & storage
- (7) Conduct demonstrations, showcase & generate promotion
- (8) Establish market channels & partners

Following completion of the above continue with the following:

- (9) Define project for factory construction & operations
- (10) Establish preliminary interest in funding & partners

MDI also has an advanced mode engine using dual energy where the air can be heated at lower temperature to triple the capacity. An important application for vehicles, this advanced technology will be presented to specialised parties.

#### **4. Manufacture of vehicles in local turnkey factories**

Progress to distributed manufacture requires the following goals of the project:

- Demonstrate the ten steps of the project
- Establish potential partners and land
- Plan the construction and regulations
- Establish the recruitment and operations
- Establish the funding and partners

This may be conducted in isolation by AFG or in joint venture partnerships. The benefits of regional manufacture will be presented to government and industry.

### **EXECUTION**

#### **5. Management & project resources**

Based on the ten project steps the following will be the project team.

- AFG project team
- Regional project partner(s)
- MDI team (France)
- Industry & government regulatory
- Channel parties & specialists
- Sponsors or funding resources

Once the project is progressing satisfactorily activity can commence in the following areas in parallel: factory management, MDI turnkey support, logistics & procurement, land, construction & utilities, recruitment, HR & regulatory, and sales & market channels. This will be carried out by the project team or in partnership with potential factory interests.

## 6. Timelines & resources

The following shows the project activities, the responsibilities, and the timeline.

<u>Project Steps</u>	<u>Responsibility</u>	<u>Timeline</u>
1. Establish sponsors & partners 2. Define the project team	* AFG project team	Dec - Jan
3. Design the demonstration field criteria 4. Confirm the criteria with MDI or modify	* Regional project partner(s) * MDI team (France)	Feb - Mar
5. Prioritise the markets 6. Equipment shipping & storage	*Industry & government regulatory *MDI team (France)	Apr - May
7. Conduct tests, showcase & generate promotion 8. Establish market channels & partners	*Regional project partners *Industry & government * Channel parties & specialists	Jun-Jul
9. Define project for factory construction & operations 10. Establish preliminary interest in funding & partners	*Sponsors or funding resources *Industry & government regulatory	Jul-Aug

Whilst the above allows 10 months for full project completion to factory ready, in reality it is anticipated there is much overlap. The real timeframe will depend largely on items 1, 3&4, and 7&8. The others will function in parallel.

## OUTCOMES

### 7. Project proofs and funding

The project seeks to demonstrate sought after technology, substantiate markets and sales budgets, distribution and service channel support, confirm the distributed turnkey factory construction and present the factory financials. It is intended for the project to demonstrate investor ready for small start factory.

In conducting this project AFG will seek some project and working capital funding. The project financial budget and separate AFG working capital will be confirmed with participants during steps 1&2 or prior.

Local manufacturing seeks to provide the following benefits:

- Political: Regions can better control their own energy
- Manufacturing: Generating employment and suppliers <sup>[SEP]</sup>
- Communities: Benefit from energy price and capacity <sup>[SEP]</sup>
- Financial: Funding of micro factories is profitable

***The goals of the Air Future Group commercialisation of the MDI compressed air vehicles and energy storage are to enable communities to use multiple MDI products directly or indirectly with a cleaner and affordable lifestyle.***

