# LILYPAD ELEVATE

Charge node proposal

23-2055





#### Proof of concept

Fly On E is laying the foundations of electric aviation in Australia. Electric aircraft currently available in Australia are now in operation in WA on our early network of charge nodes, proving the viability and capability of electric aviation in its current capacity (as the perfect trainer and recreational sports aircraft solution). There are electric aircraft currently operating in 3 Australian states with a strong growth forecast of LSA and 3-9 seat GA aircraft.



#### BRISBANE AREA -CHARGE NODE NETWORK

The greater Brisbane area is amazingly well positioned to adopt electric aviation for a decarbonisation of flight training operations in the region while offering participating flight schools increased profit margins and recreational aviators a safer, more affordable way to enjoy the skies.

Queensland's first electric charge node and electric aircraft will begin operations in Caboolture in 2023 with an additional charge node at Redcliffe.

This will enable electric flight training at Caboolture and QLD's first electric aviation network.

FlyOnE will then seek to expand operations with charge nodes at Archerfield, Caloundra and Sunshine Coast and additional electric Pipistrel aircraft for operation within flight schools at those locations and for recreational aviators to access pay-per-use.

As new, longer range GA electric aircraft become available, operations can be expanded to include air taxi services and commercial logistics operations.



**Ist** Generation

NOW

Training ops Recreation 2 seats **200** Ceneration

Recreation Short range commercial 2-4 seats



Ceneration

*Commercial ops Corporate transport 5 - 19 seats .5 - 2 tonne Cargo* 

ES-191



#### FLYONE SMART HANGAR

In partnership with world-leading electric aircraft charge and design developer Electro Aero and RBSS batteries, FlyOnE is developing a complete power availability charge solution capable of grid support OR completely OFF-GRID charge solutions for electric aircraft plus further charge capability of other ground vehicles such as cars, farm equipment and even backup power for business and hangar operations. Larger scale commercial aircraft entering service in the late 2020's will require 400-800kW charge capacity per aircraft. This will also require extensive grid engineering and a up to 1000kW battery buffer per aircraft. Costs can only be established with a site specific viability study.



A 250kW battery buffer is recommended for a single 200kW charger or dual 80kW charge node. Approx. Cost. \$330k

200kW

5 seat eCTOL and eVTOL will enter service in 2026 and require 200kW of charge capacity. No grid will support this charge node without buffer support. Estimated cost for a 200kW Charger is \$190k

# 100kW 🔊

A 100kW battery buffer is recommended for a single 80kW charger or dual 40kW charge node. Approx. Cost. \$130k

**BOkW** 

Charge node cost

estimates

4 seat GA electric aircraft will enter operation in 2023 and will require an 80kW charge node (per aircraft) for fast charge. Some metro grids will support this current draw directly.Estimated cost is \$79k



**40kW** 

A 50kW battery buffer is recommended for a 40kW charger. Approx. Cost. \$79k

Current electric aircraft in operation now require 20-40kW charger capability, many metro grids will support this current draw directly. Estimated charger cost is \$39K for 20kW, \$79K for 40kW

### BRISBANE CHARGE NETWORK - ROI FORECAST

This ROI forecast projects the requirements, costs and usage/revenue potential of the hardware proposed for the projected electric aircraft operations volume in the coming years.

	Charger requirement (kW)					Battery requirement (kW)			Annual estimated flagfalls and revenue					
Power Requirements	20	50	40	100	80	250	200	Cost \$	Daily use in kW	Charges per day	\$5 Flagfall per charge	Energy cost p/kW	Revenue from energy (100% markup)	Total ROI
2022	2							60k	54	3	\$5475	40c	\$7884	\$13359
2023	4							+60k	162	9	\$16425	40c	\$23652	\$40077
2024	5		1	2	2			+240k	408	12	\$21900	40c	\$59568	\$81468
2025	5		1	2	2			+0	508	14	\$25550	50c	\$92710	\$118260
2026	5		1	2	2			+0k	508	14	\$25550	50c	\$92710	\$118260
2027	5		1	3	4			+290k	908	22	\$40150	50c	\$165710	\$205860
2028	5		1	3	4			+0k	908	22	\$40150	50c	\$165710	\$205860
Totals								\$650k						\$796503

Based on pricing and costing available at Q4 2022. Costs are an estimate only and do not include location specific installation and grid modifications.

### BRISBANE AREA NETWORK - ENERGY COMPARISON

Charge infrastructure installed at the airports offer electric aviators a reliable fast charge method that won't be cheaply accessible from private hangars or other sources. Below is an outline on the energy handover breakdown with recommended onsell prices with current grid energy prices at .40c per kW.

#### Daily energy consumption v Fossil fuel prices forecast

Power Requirements	Daily use in kW	Charges per day	Cost of grid energy	Sell price w/100% mark-up	\$5 Flagfall per charge	Daily revenue	Fuel inflation prediction \$ P/L	Equivalent Fossil Fuel value (based on flight time)
2022	108	6	\$43.20	\$86.40	\$30	\$106.40	\$2	\$225.00
2023	162	9	\$64.80	\$129.60	\$45	\$174.60	\$3	\$438.75
2024	408	12	\$163.20	\$326.40	\$60	\$386.40	\$4.5	\$1125.00
2025	508	14	\$203.20	\$406.40	\$70	\$476.40	\$6.5	\$1627.50
2026	508	14	\$203.20	\$406.40	\$70	\$476.40	\$8.5	\$2152.50
2027	908	22	\$363.20	\$726.40	\$110	\$836.40	\$12.5	\$5032.50
2028	908	22	\$363.20	\$726.40	\$110	\$836.40	\$16.5	\$6682.50

# PROPOSAL

We propose to work with local airfields in the area to develop the sites energy management and growth requirements to support the adoption of electric aviation by airport tenants, flight schools and recreational aviators. In addition to providing and future proofing the energy requirements for electric aviation in the region, we can assist with complete off grid power solutions to power additional services such as electric ground support equipment and electric car chargers on the non-air side of the airports.

As FlyOnE continues to grow the adoption of electric aviation in Australia there will be a growing demand for energy solutions and upgrades providing a whole new business opportunity for each airport to be an energy supplier to the tenants and visitors to the airports.

FlyOnE seeks to build a better brighter future of decentralised renewable energy consumption for a cleaner and greener future of aviation and surrounding services.

Korum E CEO and Founder of FlyOnE Sustainable Aviation.

