

SELECT A SITE

COUNTRY

Brazil

▼

LOCATION

Megacity - Rio de Janeiro

▼

PLANT SIZE

3 t/day — reference unit (\$4.5M)

▼

ENERGY SOURCE

Grid / contract (basis below)

▼

ELECTRICITY BASIS

▼

UNITS

US gallons

▼

SITE PROFILE

Country

Brazil

Site

Megacity - Rio de Janeiro

Mean wind at 50 m

5.2 m/s (11.6 mph)

Consumer retail

Business retail proxy

Negotiated PPA

Tariff used

Local pump price

\$4.73/gal

Plant size

3 t/day reference unit (1,000 gal/day · capex \$4,500,000)

Wind contractor price

Solar contractor price

PRODUCTION COST BY PLANT SIZE

Plant size	Capex	Diesel	Gasoline	Kerosene
1/10 t/day demonstrator	\$425,000	\$4.67/gal	\$4.51/gal	\$4.60/gal
1 t/day	\$2,000,000	\$2.57/gal	\$2.41/gal	\$2.50/gal
3 t/day reference unit	\$4,500,000	\$2.07/gal	\$1.91/gal	\$2.00/gal
5 t/day (pro-rata modules)	\$7,500,000	\$2.07/gal	\$1.91/gal	\$2.00/gal
10 t/day (pro-rata modules)	\$15,000,000	\$2.07/gal	\$1.91/gal	\$2.00/gal
100 t/day (pro-rata modules)	\$150,000,000	\$2.07/gal	\$1.91/gal	\$2.00/gal

Production cost per unit of fuel at the tariff above. The highlighted row is the plant size selected.

DIESEL

STRONG — second wave

Cost **\$2.07/gal**

Market **\$5.58/gal** · margin **63%**

EBITDA **\$704,901/yr** · payback **6.4 yr**

GASOLINE

STRONG — second wave

Cost **\$1.91/gal**

Market **\$4.73/gal** · margin **60%**

EBITDA **\$567,264/yr** · payback **7.9 yr**

KEROSENE

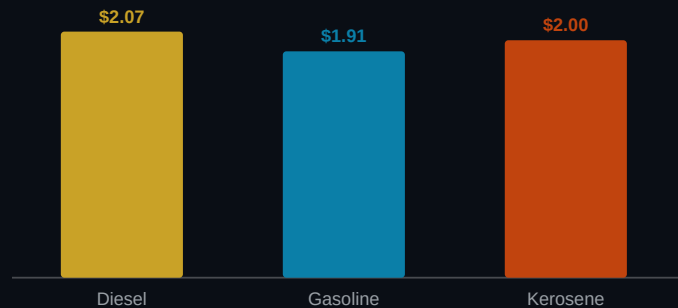
MARGINAL — needs a premium anchor

Cost **\$2.00/gal**

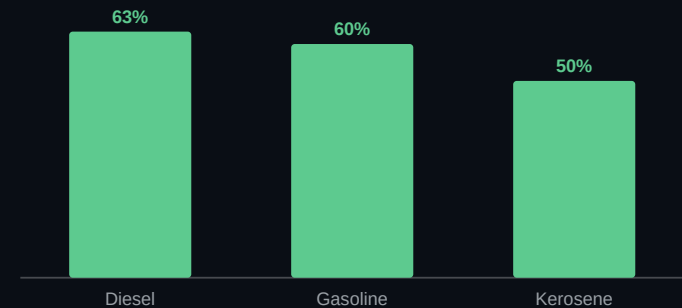
Market **\$4.02/gal** · margin **50%**

EBITDA **\$406,042/yr** · payback **11.1 yr**

PRODUCTION COST BY FUEL



MARGIN AGAINST THE LOCAL MARKET



FULL ANALYSIS — ALL THREE FUELS

Fuel	Cost	Market	Margin	EBITDA/yr	Payback
Diesel	\$2.07/gal	\$5.58/gal	63%	\$704,901	6.4 yr
Gasoline	\$1.91/gal	\$4.73/gal	60%	\$567,264	7.9 yr
Kerosene	\$2.00/gal	\$4.02/gal	50%	\$406,042	11.1 yr

TARIFF SENSITIVITY AT THIS SITE



CARBON BALANCE & PLANT REQUIRED

Diesel — CO ₂ removed	1,996 t/yr (2.626 kg/L · 9.94 kg/gal)
Gasoline — CO ₂ removed	1,745 t/yr (2.296 kg/L · 8.69 kg/gal)
Kerosene — CO ₂ removed	1,919 t/yr (2.525 kg/L · 9.56 kg/gal)
O ₂ returned (diesel basis)	2,146 t/yr
Output at 3 t/day reference unit	759,921 L (200,750 gal)
Capex at this size	\$4,500,000
Continuous power	1,800 kW

Carbon is circular: the CO₂ removed to make the fuel returns when it burns. The benefit is displacement of fossil carbon, not removal.

ABOUT THESE FIGURES

These figures are indicative planning estimates. They combine the fuel's energy content, the electricity price you choose, the scale of plant and a standard allowance for other operating costs. Technical background, assumptions and test reports are available on request from info@fuelfromair.com.

LOCAL FUEL PICTURE — USE, MARGIN AND CARBON

Every year **Brazil**, where **Megacity - Rio de Janeiro** sits, burns about **39.59 billion gallons** of diesel, gasoline and kerosene. Here is each fuel's share, the margin FFA would earn on it at this site, and the carbon dioxide taken from the air if FFA fuel replaced it.

DIESEL

Used per year
12.53 billion gal

Profit margin at this site
63%

GASOLINE

Used per year
22.55 billion gal

Profit margin at this site
60%

KEROSENE

Used per year
4.51 billion gal

Profit margin at this site
50%

CO₂ taken from the air per year

124.5 million tonnes



CO₂ taken from the air per year

196.0 million tonnes



CO₂ taken from the air per year

43.1 million tonnes



All three fuels, per year

149.85 billion L · 39.59 billion gal

CO₂ taken from the air if all replaced

363.6 million tonnes

WHAT THAT CARBON IS EQUAL TO, EVERY YEAR

The fossil carbon that would no longer be added to the air if FFA fuel replaced these fuels at Brazil levels of use.

VEHICLES AND FOREST



1.6 million

long-haul lorries

Carbon avoided by replacing the diesel, every year



42.6 million

passenger cars

Carbon avoided by replacing the gasoline, every year



1.6 thousand

jet aircraft, flying all year

Carbon avoided by replacing the jet fuel, every year



45.4 million

return flights London–New York

Kerosene — passengers, one return trip each



51.9 million ha

of forest to absorb it

Planted forest needed to take up the same CO₂

LOCAL EFFECTS



75%

of the country's fossil CO₂

Share of the national fossil CO₂ emissions



108.5 million gal

of fuel displaced every day

Fossil fuel no longer needed, every day of the year



11.4 thousand

road tankers a day

Fewer fuel deliveries by road and sea



\$194.79 billion

a year spent on these fuels

At the local pump price, money that could stay in the local economy



1.72 t

of fossil CO₂ avoided per person

Shared across the population

INDUSTRY SCALE



7.0×

a year of Toyota Group cars

Compared with one year of driving all the vehicles sold



11×

a year of Hyundai Motor Group cars

Compared with one year of driving all the vehicles sold



18×

a year of Ford cars

Compared with one year of driving all the vehicles sold



17×

a year of Airbus jets

Compared with one year of flying all the jets delivered



22×

a year of Boeing jets

Compared with one year of flying all the jets delivered

These are approximations to give a sense of scale. The figures, factors and assumptions behind them are available on request from info@fuelfromair.com. Carbon is circular: the CO₂ taken from the air returns when the fuel burns, so the benefit is displacement of fossil carbon, not removal.