Fuel Cell Backup Power

Green Power for Mobile, November 2011

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IdaTech's Strategic Partner

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About IdaTech

IdaTech designs and manufactures extended run backup power fuel cell systems for telecommunications applications.



Fuel cells are an alternative backup power solution to diesel generators and large battery banks.



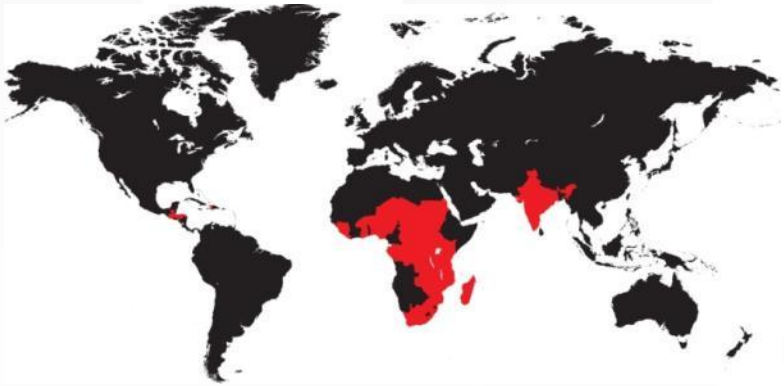


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About Inala



Inala Technologies was founded out of the Telecoms industry in 1996.

A business partner of choice to mobile operators, broadcasters and telecoms companies for the supply of energy, telecoms and broadcasting systems.

Based in the South Africa but operating throughout Africa, the Middle East and South East Asia.

Inala is ISO 9001 accredited.

SABS ISO 9001

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Telecom Backup Power Solutions

Generators can be:

- Unreliable
- Maintenance intensive
- Noisy
- Theft issues



Batteries can be:

- Expensive to maintain
- Unreliable after aging
- Temperature sensitive



Fuel cells are:

- Reliable
- Low Maintenance
- Clean



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ElectraGen™ ME

Reformer Based Extended Run Backup Power Fuel Cell System



Product configurations:

- 2.5 kW or 5 kW
- +24 Vdc or -48 Vdc
- Fuel: HydroPlus (methanol-water)

Features:

- Low cost of ownership:
  - Low first cost
  - High efficiency / low fuel consumption
  - Low maintenance
- Ease of use:
  - Installation & operation
  - Service & maintenance
  - Fueling
- Modular & scalable
- Integrated fuel storage for extended run time

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HydroPlus™ Liquid Fuel

- Composition
  - 62% methanol & 38% de-ionized water
- Methanol is used in common applications, such as:
  - Windshield washer fluid (up to 50% methanol)
  - Engine additives, race car fuel
- Methanol's energy benefits
  - Easily transported liquid fuel
  - Water miscible, biodegradable and is sulfur-free
  - Less flammable than gasoline
  - Extremely low freezing point < -60° C
  - May be stored for years



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Fuel Cell System Value Proposition

Value proposition

- Clean, efficient, reliable, quiet, easy to install and extended run backup power

Competition

- Incumbent backup power technology: generators and batteries



Advantages over incumbent technologies

- Lower lifecycle costs
  - Higher reliability = Lower repair costs = Improved availability
  - Fewer moving parts = Lower maintenance costs
  - No market for stolen parts = Less thefts
- Low emissions compared to diesel genset = Lower environmental impact
- Operates from -40C to +46C = No problems with fuel stability
- Lightweight, compact, quiet operation = Easy to site close to residences, on roof tops
- High efficiency and Load following = Reduced fuel consumption

Use cases with strong value proposition

- Geographies with poorer grid reliability (100 to 1,000 hours annual grid loss)
- Difficult sites such as rooftops and residential areas

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Green Advantages of Fuel Cells

Green Benefits of Fuel Cells

- Low emissions (methanol fuel cells vs. diesel genset):
  - 50% reduction in CO_2 emissions
  - More than 95% reduction in CO, NOx and SOx emissions
  - No particulate matter emissions
- More than 20% efficient than a diesel generator
- Very quiet (background noise level)
- No hazardous fuel spill
- Renewable liquid fuel (bio-methanol)

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Business Case: Vodacom South Africa





Challenge:
- Poor grid quality (several hours/week)
- High operating cost
- Theft issues - both diesel and batteries

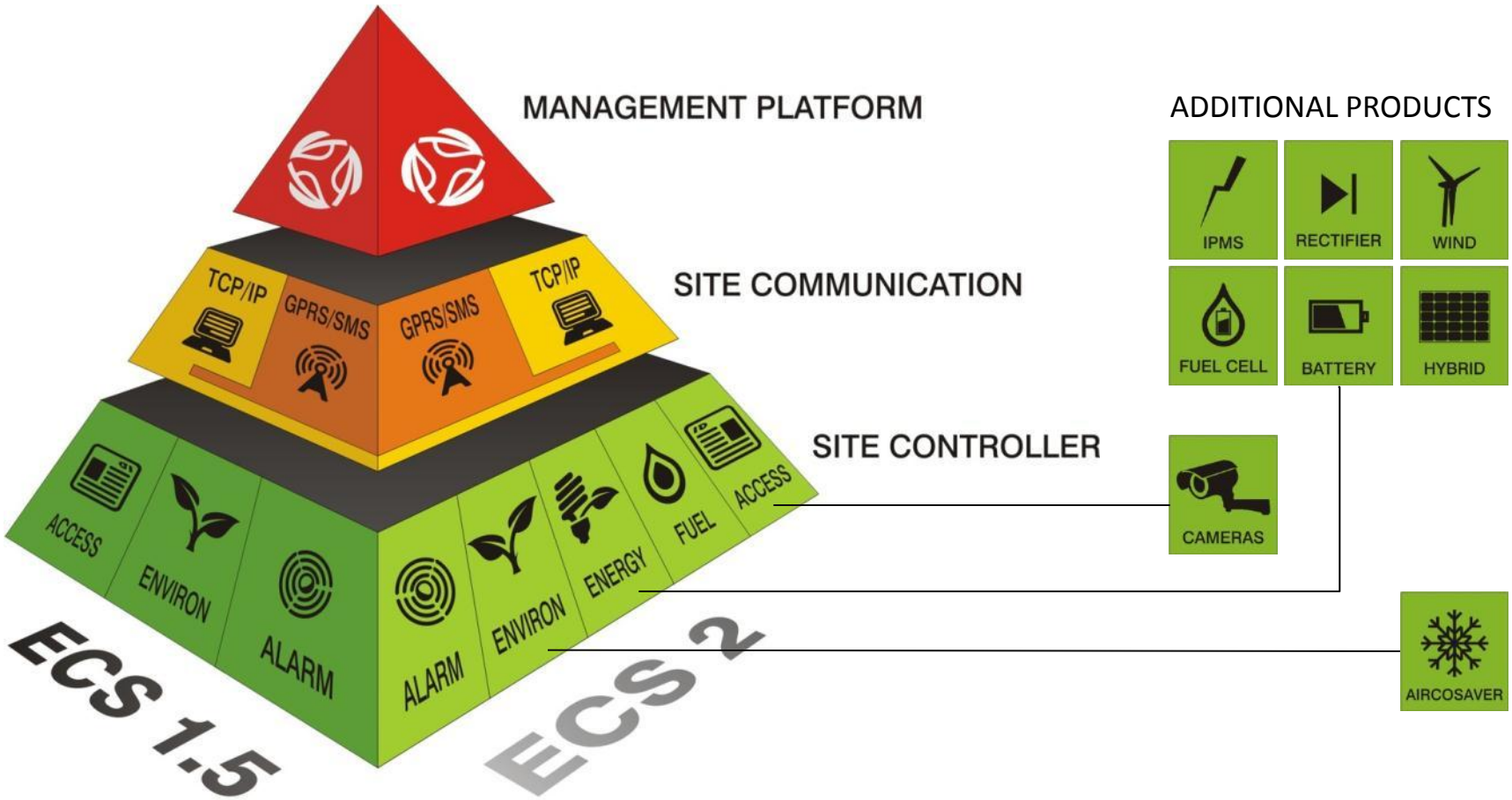
IdaTech's Partner: **Inala**

Over 15 years experience, providing telecom operators with highly reliable energy solutions that reduce operating costs and utilizing the latest green technologies.

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The Inala-Vodacom Hybrid Energy Solution



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Business Case: Vodacom South Africa

Solution:
- 54 fuel cell systems installed to date
- Location: South Africa
- Product: 2.5kW or 5kW ElectraGen™ ME
- Fuel: HydroPlus™ (Methanol-Water liquid fuel)
- Site autonomy: 100 hours @ 2kW (225 liter tank)
  40 hours @ 5kW (225 liter tank)



Site Data: 98-day duration
- 131 hours run time
- 28 cycles





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Over 1,000 ElectraGen™ Systems Shipped Worldwide







Telecom operators worldwide are deploying IdaTech's backup power fuel cell systems to support clean energy and gain the benefits of fuel cells in their network.







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Thanks!

