Joshua Kaufman
Director,
Research and Development
joshua@pika-energy.com
207-939-4839

The REbus™ DC Microgrid:
enabling low-cost distributed generation
The Pika Energy team

- Deep experience in wind and solar energy
- Committed to distributed electricity generation
- Believe in personal wind power
Small Wind has a Big Problem

- People still want personal wind turbines
- Complete overhaul of entire system needed:
  - Turbine, tower, installation and...
  - electrical infrastructure

REFERENCES:
1. Lawrence Berkley Nat’l Labs report
2. AWEA small wind report
AC infrastructure is a drag!

- Sources are DC
- More expensive systems
- Increased conversion loss
- Storage is DC
- No interoperability
How did we get here?

- War of Currents - 1880s
  - Transformers: enabled HV transmission
- A lot changes in 130 years!
  - Cu and steel expensive
  - Power silicon available (and cheap!)

20kW DC Converter\(^1\)
- 12 lb
- $400

20kW AC Transformer\(^2\)
- 285 lb
- $2000

Models:
1. Advanced Motion Controls DR100
2. Federal Pacific FH20AEMD
AC infrastructure is a drag!

Diagram showing various inverter configurations involving AC/DC and DC/DC conversions for renewable energy systems.
A smarter approach

- Reduced system cost
- Increased efficiency
- Reduced development time
- Interoperable communications

REbus DC Microgrid

Inverter
X3001 REbus microgrid inverter

- The **bidirectional** gateway - REbus to grid
- Built-in Wifi
- Field-swappable capacitors
Wind-solar hybrid systems

1.8 kW

Pika T701

2 kW

PV Link

X3001
A plug-and-play energy network
Join the REbus Alliance
www.REbusAlliance.org

- Compatibility with EMerge Alliance standard
- REbus standard adds communications
- Open community, open standard
Joshua Kaufman, Director of R&D

joshua@pika-energy.com

207-939-4839

www.pika-energy.com