

Recent Advances HOMER™

Dr. Peter Lilienthal

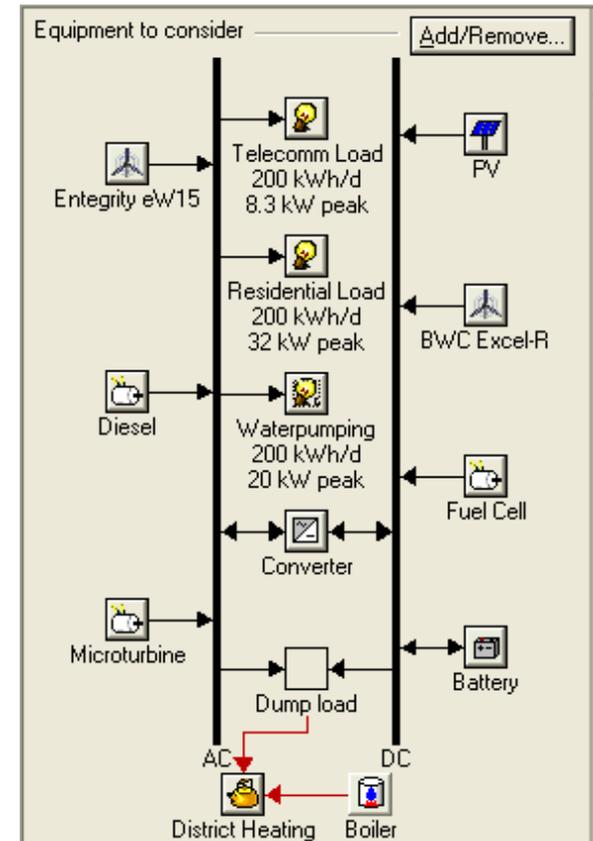
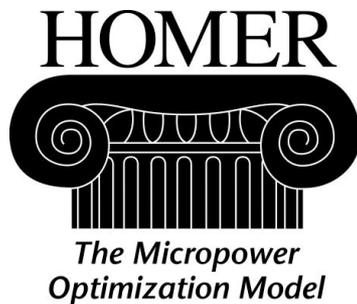
2008 International Wind/Diesel Workshop

April 24, 2008

Girdwood, AK

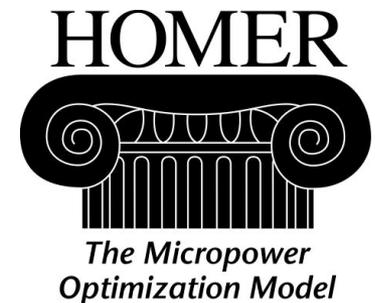
Outline

- What is HOMER™?
- Recent enhancements
- Organizational changes
- Future plans



What is HOMER™?

- 1992 - NREL's Village Power Program
- Help people understand hybrid systems?
 - See the forest, not just the trees.
- Modeling software for distributed, renewable, and hybrid systems
 - Simulates operation for every hour of the year
 - Optimizes design
 - Identifies impact of key factors



Recent Enhancements

- Batteries
 - Flow batteries (VRB)
 - Specify battery strings
 - Compete up to 10 battery types
- Wind
 - Two types of wind turbines in a single simulation
 - Wind Forecasting
- PV
 - temperature effect
 - TMY2 data
- Up to 10 generators per system
- Better thermal load modeling
- Any time step from one minute to several hours
- Economic Outputs
 - Operating cost, Cashflow, payback, IRR, ROI

Organizational Changes

- Version 2 is mature & commercial-grade
- Declining DOE support
 - NREL no longer has a Village Power Program or an International Program
- Increasing private support
 - Over 22,000 users
- Forming new company to enhance and distribute HOMER™ 3.0.

Future Plans

- Version 3
 - Free Alaskan version
 - Focus on ease-of-use
 - Improved diesel modeling
 - Major and minor overhauls
 - Improved dump load representation
 - Thermal storage
 - Wind turbine availability
 - Alaska-specific data and training materials
 - Load growth, fuel price inflation
- On-line community