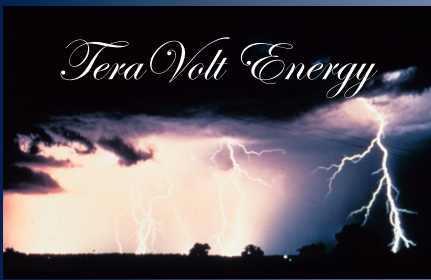


Off-The-Grid Energy Basics

Hoss Boyd, LtCol, USAF (Retired)
President & CEO, TeraVolt Energy



Overview

- Introduction
- Why do you want to be energy independent
- What is meant by “Off-The-Grid” in energy circles
- Off-Grid means lifestyle. What lifestyle do you want
- What’s your financial budget
- What is your energy budget
- Must haves, should haves, and might haves: what’s important for energy uses
- What goes into an off-grid energy system: the off-grid energy system design
- How to match your financial and energy budgets to your off-grid energy system
- How to live with your off-grid energy system
- Conclusion
- Questions and Answers

TeraVolt Energy

Introduction





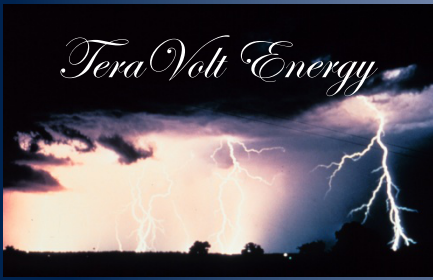
Why Do You Want to be Energy Independent

- Rising Costs of Energy?
- Less dependence on the power company?
- To be self-sufficient?
- SHOULD YOU BE ENERGY INDEPENDENT?



What is meant by “Off-The-Grid” in energy circles





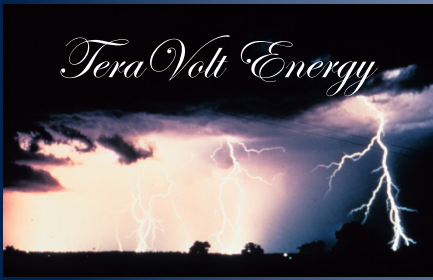
What is meant by “Off-The-Grid” in energy circles





Off-Grid means lifestyle.
What lifestyle do you want





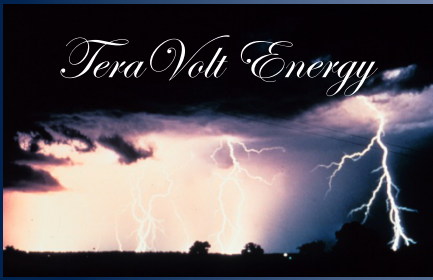
Off-Grid means lifestyle. What
lifestyle ~~do you want~~
Can you afford





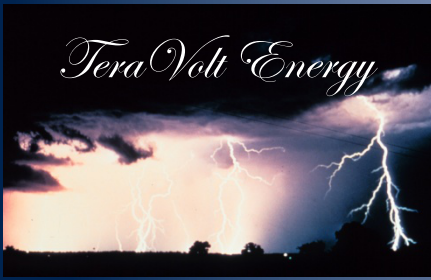
What's your financial budget





What is your energy budget





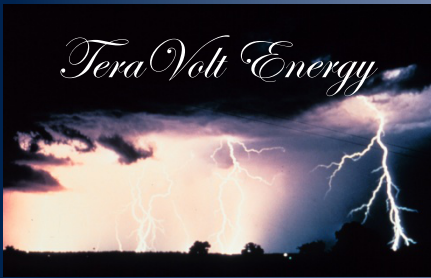
Must Haves, Should Haves, and Might Haves: Choosing What's Important for Energy Uses

- Must Haves
 - Water, Food, Heat, Clothing, Shelter
- Should Haves
 - Lighting, Washing, Working, Learning
- Might Haves
 - Entertainment, Socializing, Play



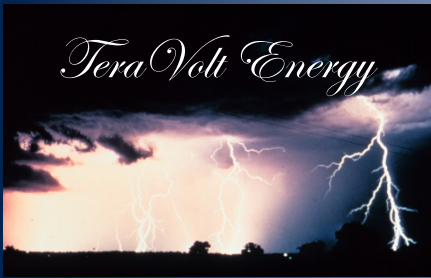
Must haves, Should Haves, and Might Haves: Choosing What's Important for Energy Uses

- In Short:
 - What energy uses are Non-discretionary (Essential)?
 - What energy uses are optional (Non-essential)?



What Goes into an Off-Grid Energy System: The Off-Grid Energy System Design

- The Solar Array
 - Rooftop
 - Ground-mounted
- Inverters
- Batteries
 - Off-Grid vs Battery Backup
- Generators
- Modular (Pre-fab) Systems



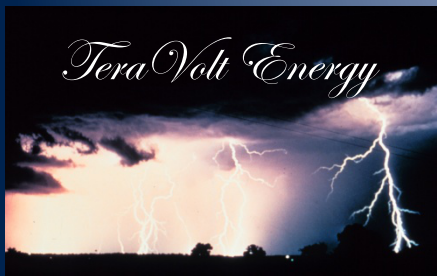
How Do You Match Your Financial and Energy Budgets to Your Off-Grid Energy System

- Rule No 1. Pick the Low-Hanging Fruit
 - IT IS CHEAPER TO AVOID USING ENERGY THAN BUYING EQUIPMENT
 - Over-insulate
 - Energy saving appliances and lighting
 - Make the most of natural lighting
 - Plant trees (and put your solar array on the ground in the sun)
 - When it comes to Off-grid, small is better than large
 - Use natural heat and cooling
 - Replace the home theater with a library
 - Design your lifestyle around the family (make the family room the “Family Room”!



How to Live With Your Off-Grid Energy System

- Plan your days around the sun
 - Wash day is a sunny day—hang your clothes to dry on a line
 - The forgotten side of American activities: OUTSIDE. Get out of the house---you'll use less energy
- Monitor and Manage your energy use



Conclusion

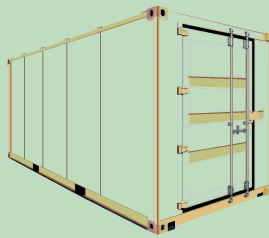
- Energy is not free
- Renewable Energy is expensive up-front but can be cheapest in the long-run
- Utility Power is least expensive up-front, but has traditionally never gone down in cost over time
- What is the value of energy security and independence?



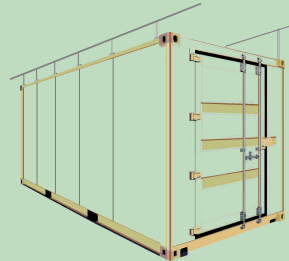
Questions and Answers

The Modular Expandable Transportable Energy System (METES)

A plug-and-play energy system for both Off-grid and grid-tied applications



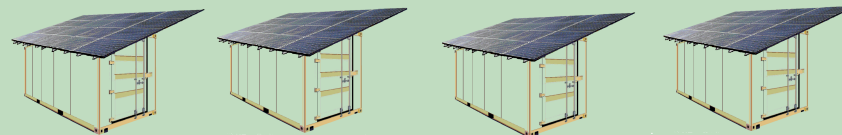
STEP 1. Order your system



STEP 2. Set up your METES

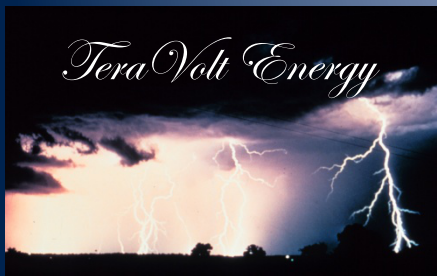


STEP 3. Connect your METES



Expand your METES

Options Include: Added Energy Storage, Larger Generators, Electric Vehicle Charging, Up to 32 kW/DC of solar capacity (8kW/DC per added Slave Unit), atmospheric water generation, and a number of custom features



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