RE-THINKING ENERGY VALUE

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Joint Service Power Expo 2015

Energy costs get plenty of attention

- Power tariffs
- Gasoline prices
- Natural gas rates
- Energy system costs

Recent Military Operations Translate Energy Concerns into Different Terms

THE HILL

TRENDING: Donald Trump | Iran | Planned Parenthood
SPONSORED: America's Nuclear Energy Future

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$400 per gallon gas to drive debate over cost of war in Afghanistan

COMMENTS

By Roxana Tiron - 10/16/09 12:34 AM EDT

CommonDreams
Breaking News & Views for the Progressive Community

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Thursday, August 13, 2015

TRENDING: No More Nukes | Inequality Rules

Published on Tuesday, May 19, 2009 by Agence France Presse

US Energy Use a National Security Threat: Study

Most Programs and Metrics Treat Energy as a Simple Commodity

- Consumption
- Efficiency
- Demand

Today's public understanding of energy is defined in terms of gallons, kilowatts and cubic feet

Military Operations Offer an Alternative Perspective on Energy

Agility

Endurance

Energy-Informed Operations:

Using energy to achieve the greatest net benefit

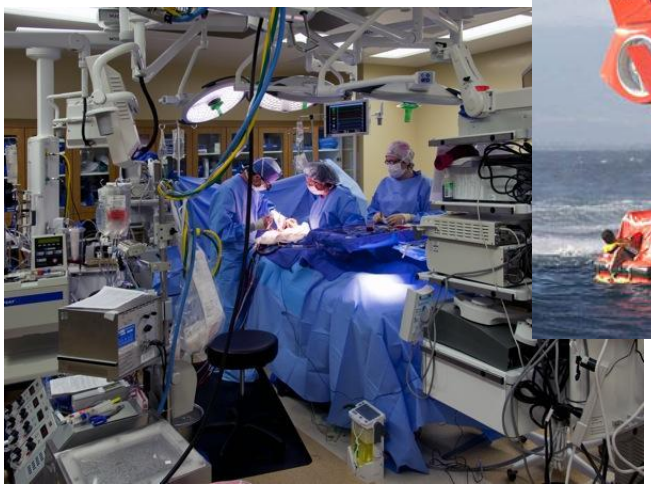
"Tooth-to-Tail"

Reach

Core ideas

- **Energy is good!**

  - Value delivered through multiple attributes
  - Calculus depends upon application, situation

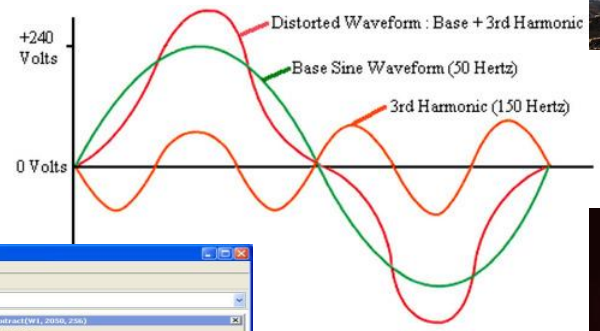


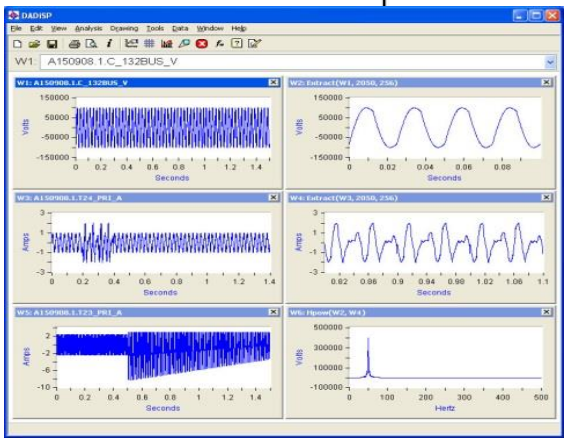
Some Attributes of Value

- **Quality**
- **Timing**
- **Reliability**
- **Availability**
- **Sustainability**

Value of Energy Quality

- Equipment performance/life
- System stability
- Current treatment: “Ancillary Services”
  - Power Factor
  - Harmonics
  - Frequency
  - Voltage





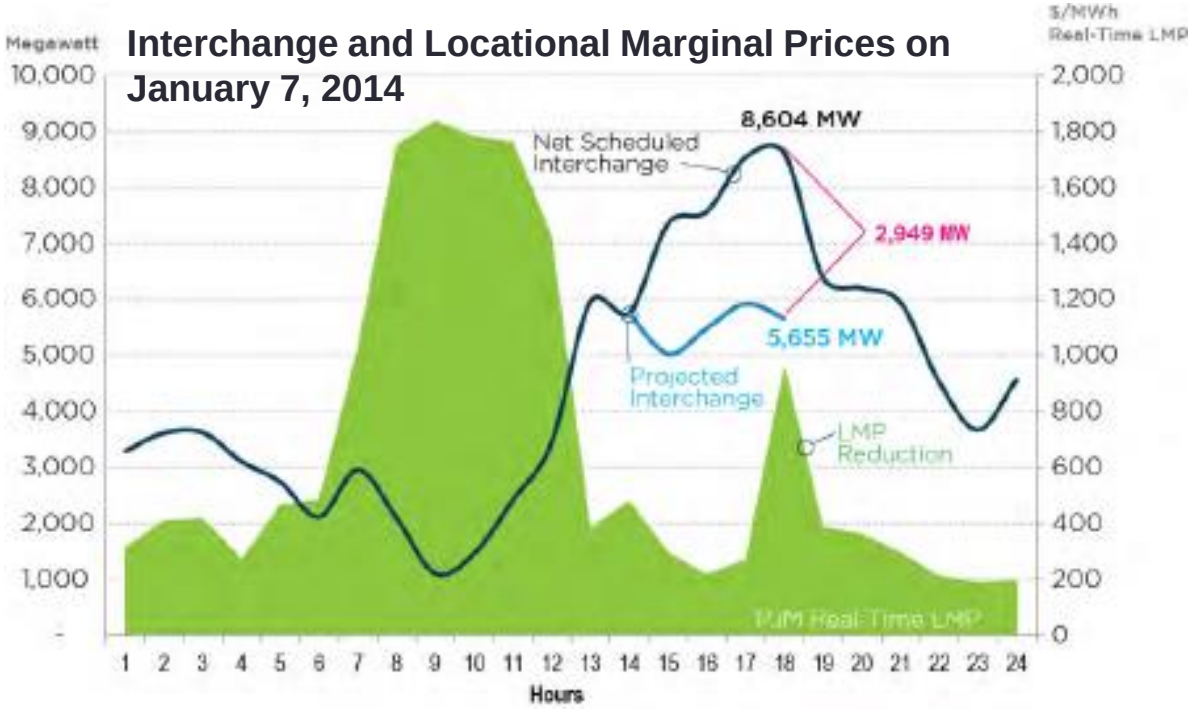
Value of Energy Timing

- Matching operational need
- Resource utilization
- Efficiency
- Convenience
- Current treatment
  - Storage
  - Demand Response

California Passes Huge Grid Energy Storage Mandate

CPUC passes controversial mandate for 1.3 gigawatts of batteries, grid storage by 2020

Jeff St. John
October 17, 2013

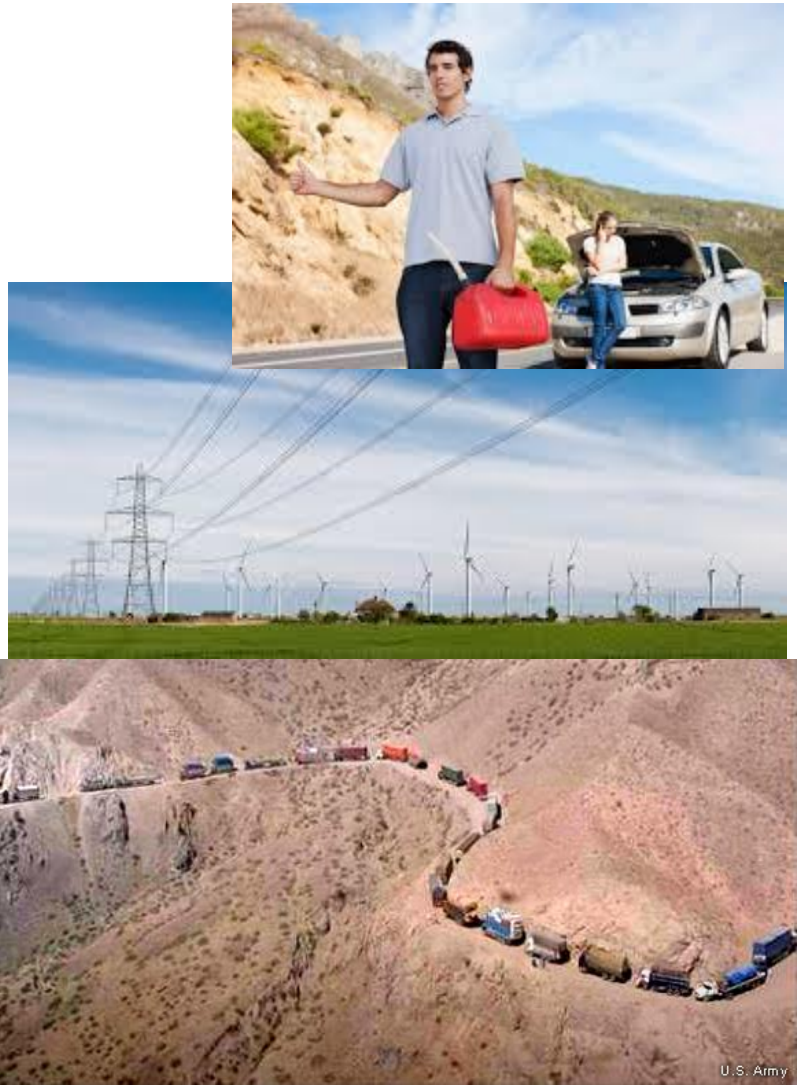


Value of Energy Reliability

- Operational disruptions
- Safety/health
- Equipment/data loss
- Current treatment
  - Backup systems (UPS, generators)
  - Reliability standards

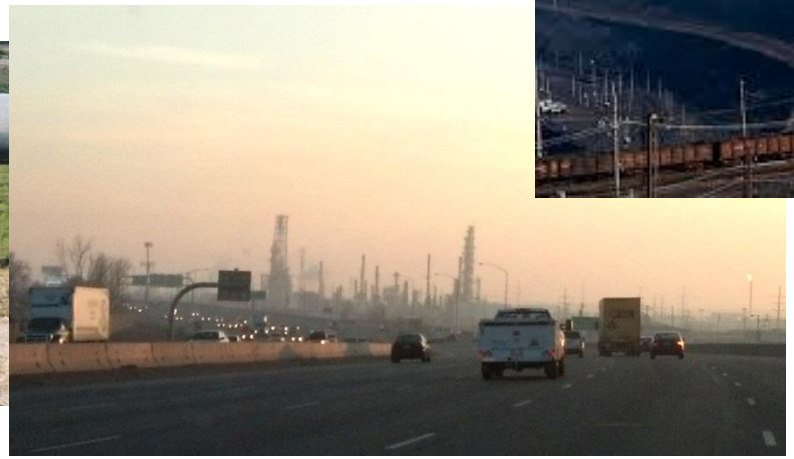
Availability Value

- Time, location, type, quantity
- Operational utility
- Current treatment:
  - Standardization
  - Stockpiling
  - Emergency delivery
  - Premium pricing



Value of Energy Sustainability

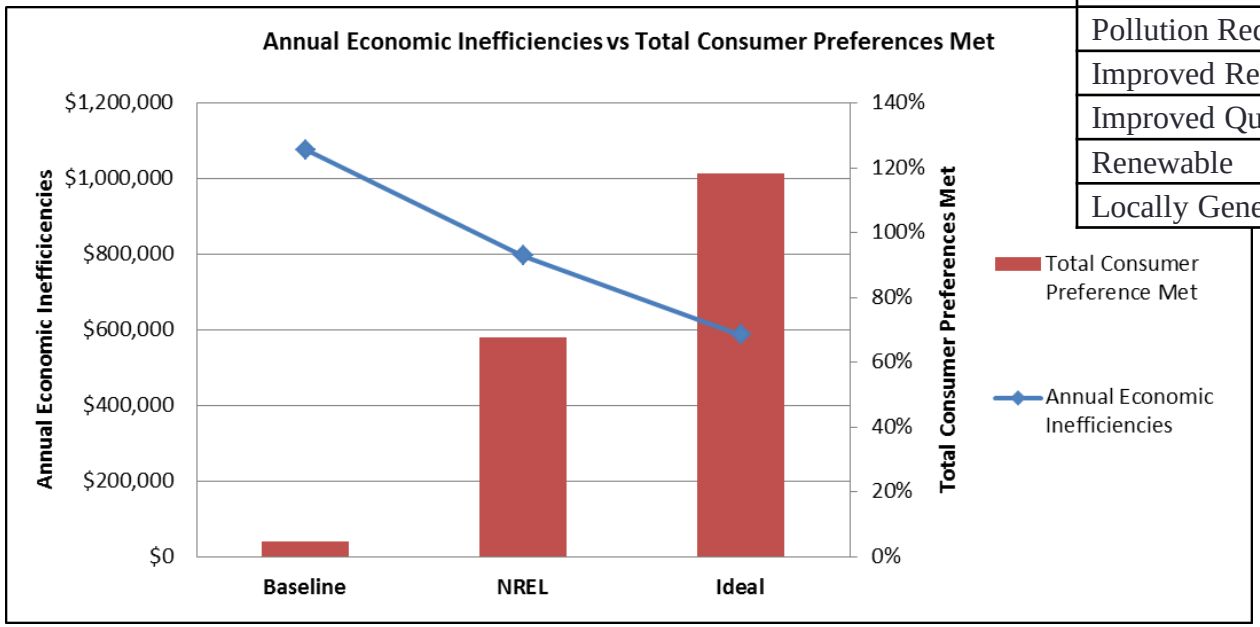
- Environmental impact
- Operational/Social impact
- Resource management
- Current treatment
  - Environmental laws/regulations
  - Permitting
  - Corporate management



West Point Energy Pricing Study

2013 Study: *Costing Consumer Preferences for a Micro Energy Market*

Energy Characteristics	Energy Sources
Carbon Reduction	Wind
Pollution Reduction	Coal
Improved Reliability	Natural Gas
Improved Quality	Hydro
Renewable	Nuclear
Locally Generated	Biomass



	Wind	Coal	Nuclear	Solar	Nat. Gas	Hydro	Biomass	Waste Treatment	Consumer Pref. Met
Base	N/A	N/A	70.00%	N/A	30.00%	N/A	N/A	N/A	4.7%
NREL	N/A	N/A	N/A	3.00%	1.08%	N/A	34.0%	32.49%	70.93%
Ideal	35.00%	5.00%	5.00%	35.00%	5.00%	10.00%	5.00%	N/A	118.36%

Conclusion:
Accommodating of consumer preferences in pricing can improve market performance

Energy policies and markets won't change overnight!

in the meantime . . .

- Adopt a positive energy attitude
- Recognize energy contributions to operational goals and risks
- Identify energy attributes of importance
- Factor multi-attribute energy value into decisions

Contact Information

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