

# Towards a Taxonomy of Transactive Energy

Session 2B Transactive Energy Management  
Architecture Requirements

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# Outline

- Three Dimensions of Transactive Energy
  - Management Relationship
  - Semantics of Price
  - Transactive Techniques
- An example
- Further reading

# Management Relationship

- Control relationship
- Through Blended, to
- Peer-to-peer relationship
  - Collaborative Energy

# Semantics of Price

- Both Price *and* product definition required (NIST PAP03)
- **Transactable** —Can I buy or sell?
- **Actual price** —What do I actually pay/get?
- **Fiat price** —Is there an economic reality to the price?
- **Actionable** —Is action appropriate using the price?
- **Forward** —Is the price for the future, past, or right now?
- **Indicative** —Is only direction or relative price conveyed?
- **Certain** —Certain or uncertain? Nature of uncertainty?
- **Abstracted or Real?**

From [\*The Semantics of Price and of Price-Responsive Nodes\*](#),  
Grid-Interop 2012

# Transactive Techniques

- Services using Price and product definition
- Logically complete set:
  - Quote
  - Tender / Offer
  - Transaction / Acceptance
  - Delivery verification
- Forward transaction
- Option transaction
  - Buy or sell right to cause performance—e.g. Voltage regulation

# An Overview

- Where is the transaction?
- What are the semantics?
- What is the relationship?
- What techniques are used?



# Further Reading

- [The Semantics of Price and of Price-Responsive Nodes](#), Sastry, Cox, Considine, Grid-Interop 2012
- [Benchmarks and Models— Price-Responsive Devices with Forward Prices \\*Looking Forward and Looking Back\\*](#), Sastry, Cox, Considine, Grid-Interop 2012
- [OASIS Energy Interoperation Transactive Services](#)  
(see also Section 3.1)
- Papers & presentations at [CoxSoftwareArchitects.com](http://CoxSoftwareArchitects.com)
- Additional References on session pages