



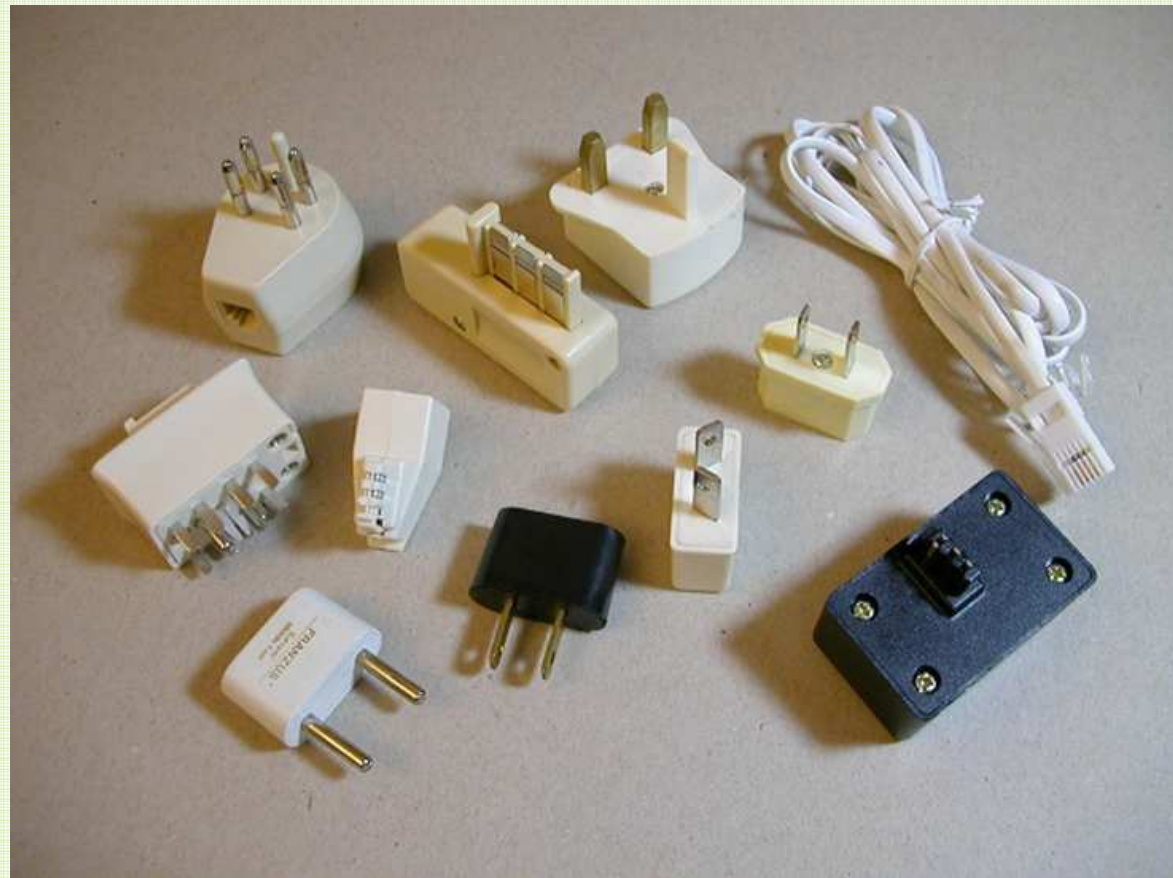
**Smart Energy:
Normalizing Markets to increase
Engagement and Innovation**


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Current electricity market rules and operating practices are a barrier to innovation.





We must adopt new business processes and new markets to support social and technical goals.

Smart Energy will enable new market models that engage participation in the end nodes.



My Perspectives


- Embedded Systems Infrastructure Analyst
- Chair, OASIS oBIX TC
- Signer, Gridwise Constitution
- FIATECH Technical Champion

- OASIS Technical Advisory Board
- NIST Smart Grid Business & Policy WG
- NIST Buildings Domain Expert Workgroup
- EPRI Smart Grid Roadmap team
- ENERNEX Smart Grid Technical Champion
- Editor, OASIS Energy Interaction TC
- Editor, OASIS EMIX TC
- Chair, WS-Calendar
- Strategic Technology Consulting in Emerging Markets & Venture Formation




**Today's Retail energy markets
are insensitive to supply**





The “Chicago Model” removes incentives for participation.

- Cost Recovery
- Flat Prices



Smart grids will reduce the quality of electrical delivery.

- Safety Margins reduced
- Inadequate growth of T&D to meet demands
- Replacement of predictable power sources with intermittent ones

Credits, offsets, & verification do not address real market needs






Clear market signals are more important than efficiency

"If something is not worth doing, it's not worth doing well"

- Peter Drucker



Process integration has many hidden costs

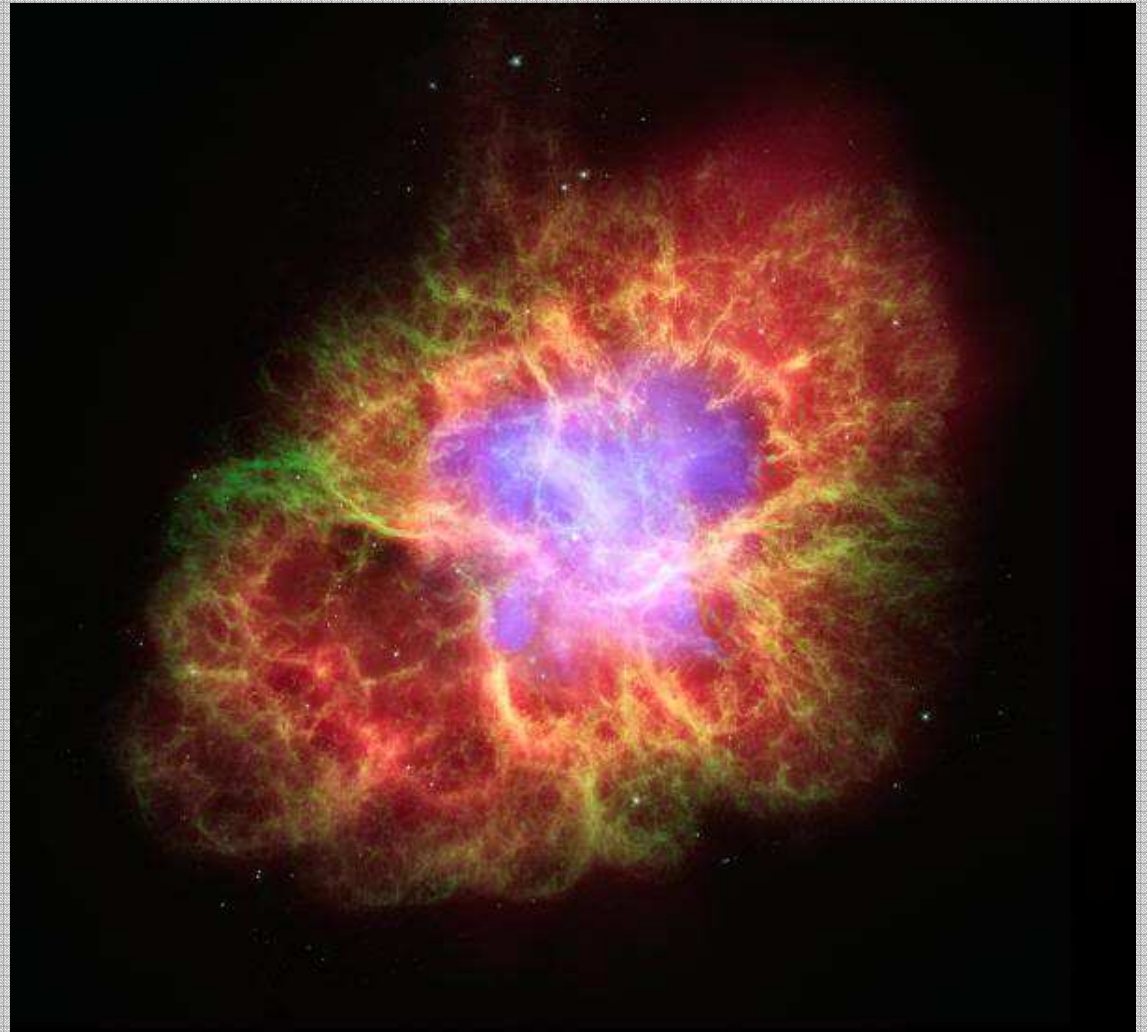
- Complexity of Interaction
- Liability of performance
- Liability of Damages
- Operational Privacy and erosion of rights

**Market-driven dynamic prices
will stimulate innovation**

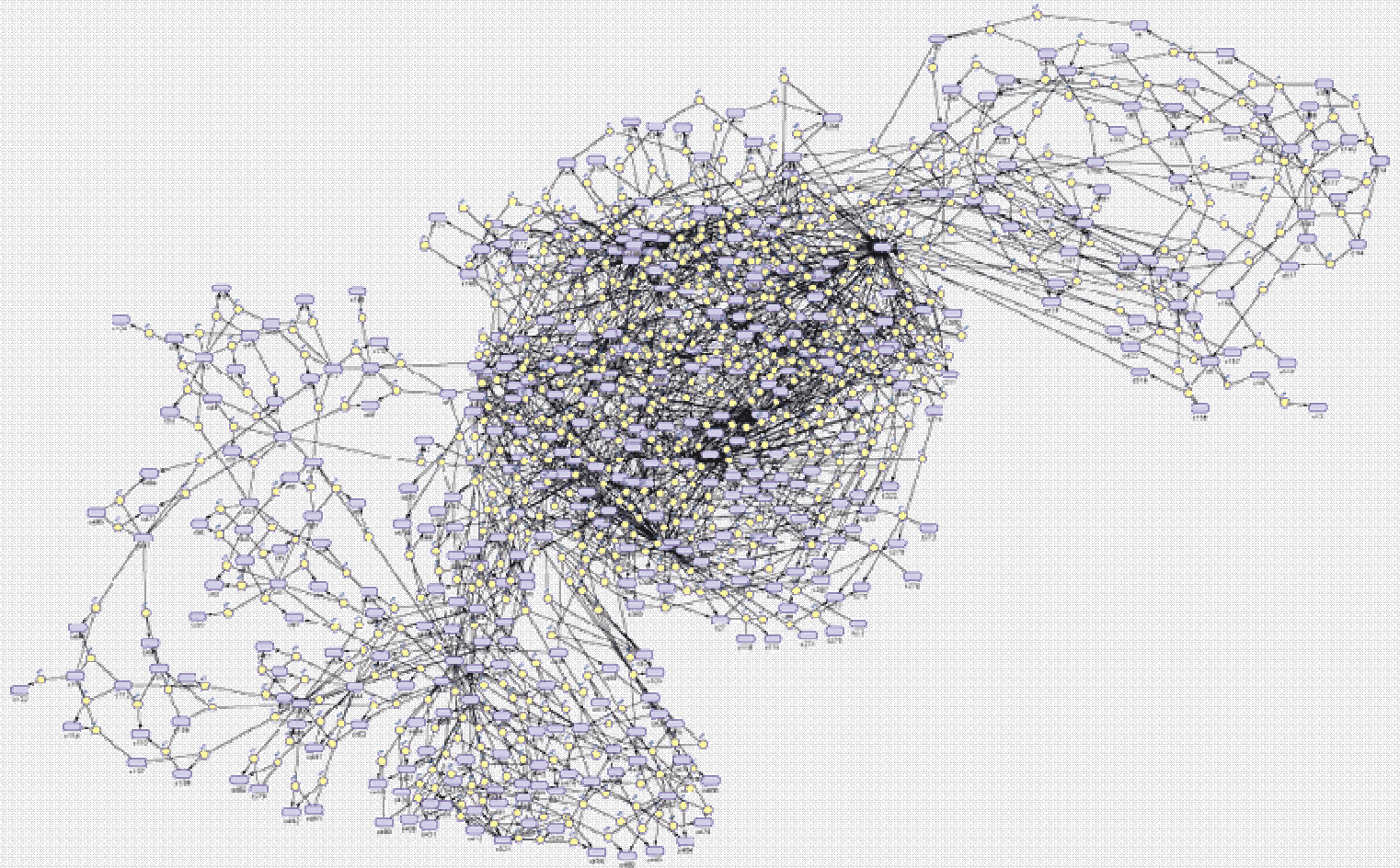


Economic signals use money to align energy fundamentals

- Time
- Space
- Energy



Smart energy will engage retail customers in supply and demand



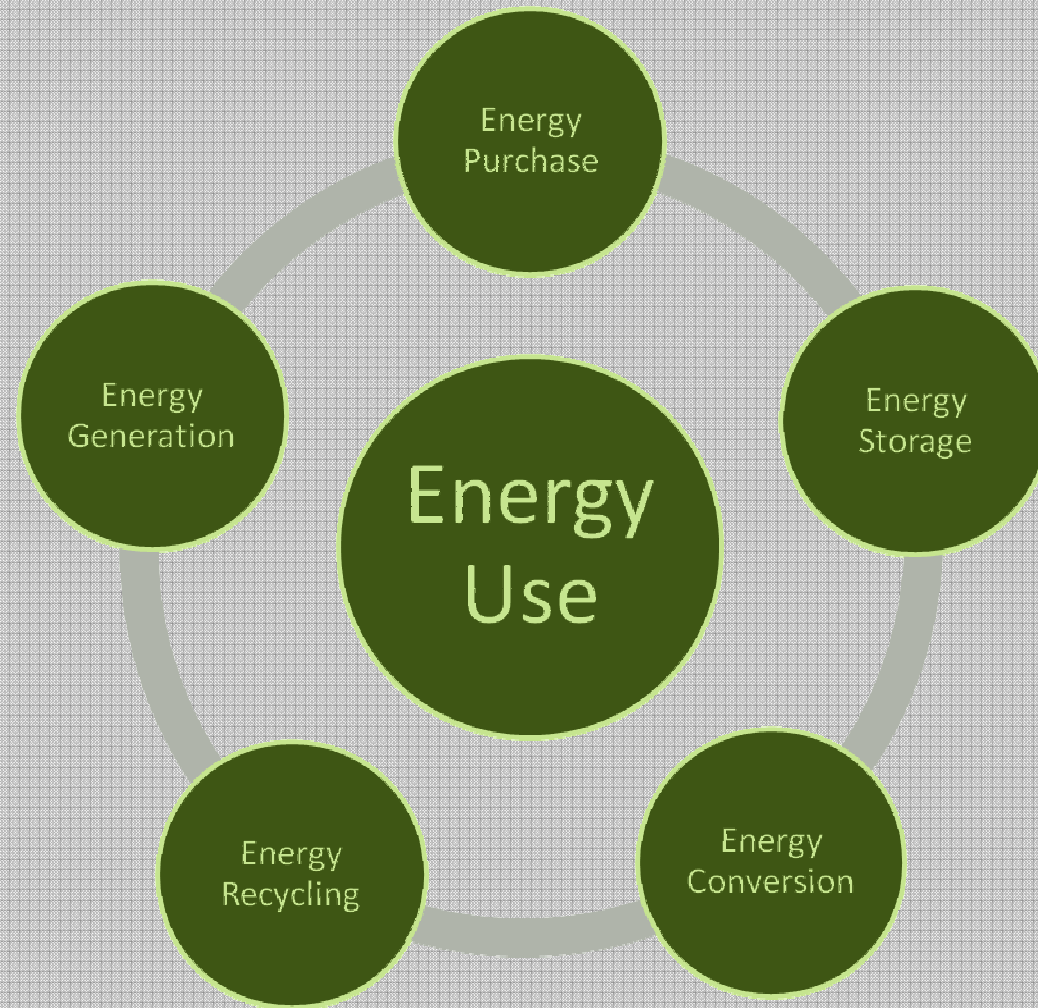
Service orientation makes energy sources fungible



End nodes have more ways to store energy than does the grid



Zero net energy buildings will require ever more integration





Light, loose integration for inter-domain communications


Schedule and Interval (WS-Calendar)

Price and Product Definition (EMIX)

Energy Interoperation (ADR and more...)

Energy Usage Information

MARKET-ORIENTED INTERFACES OF SMART GRIDS



The challenge of the smart grid is not process, but market design

- Transactional Energy and Committed Energy Purchases
 - Efficiency of operations
 - Social Justice



Discussion

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