



LOB ENERGY

Distributed grid solutions that bring
people, technology and energy together



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LO3 Energy Background

Utility Scale Programs

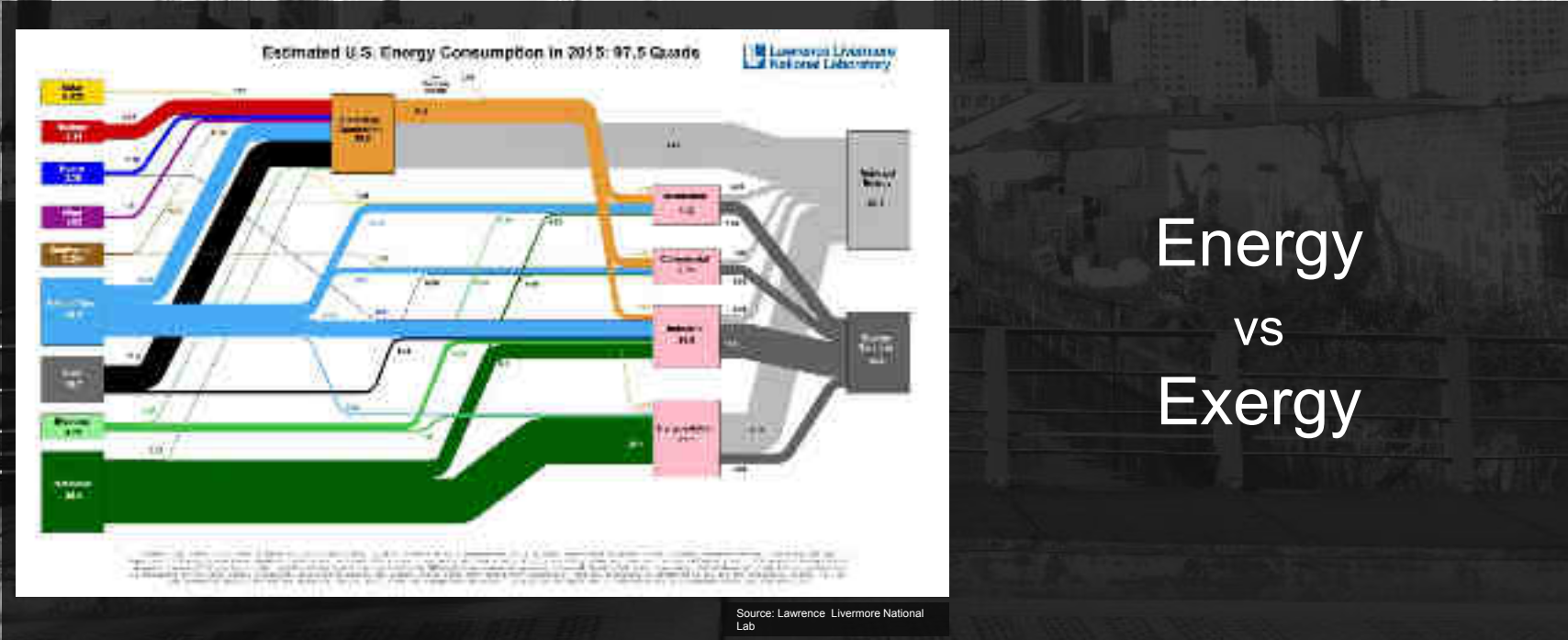
- Applying tested models for emerging tech adoption and market transformation
- Company background:
 - Energy Program Design
 - Community Engagement
 - Codes and Standards
 - REC Markets
 - Blockchain
 - Advanced Meters
 - System Architecture
 - Computation

Technology Adoption Curve

ERENETT ROGERS - DIFFUSION OF INNOVATIONS 1962

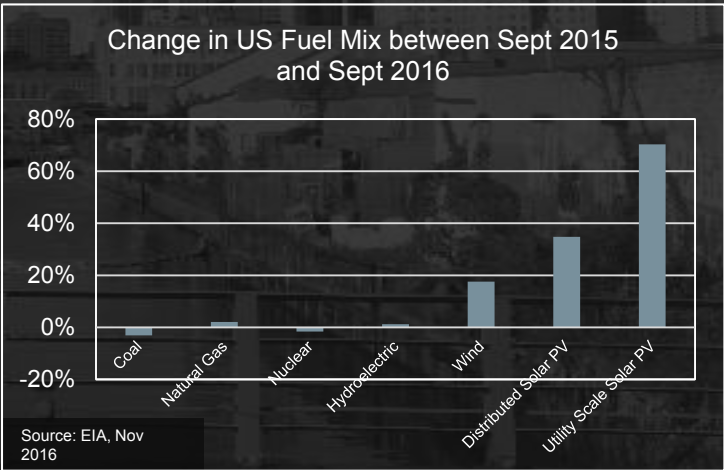
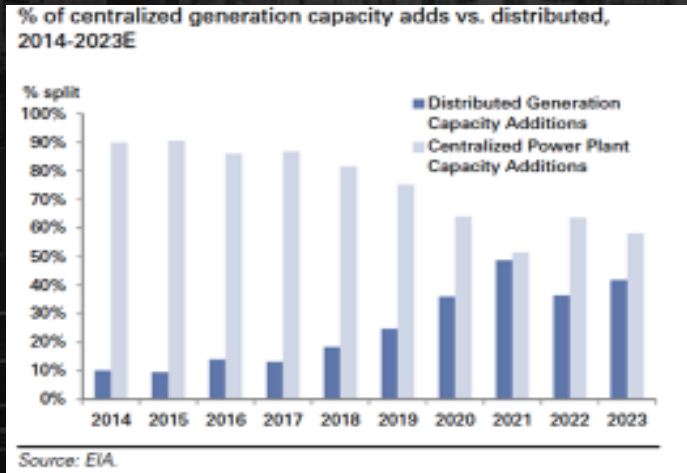


Current Energy Resources – Inefficient and Centralized



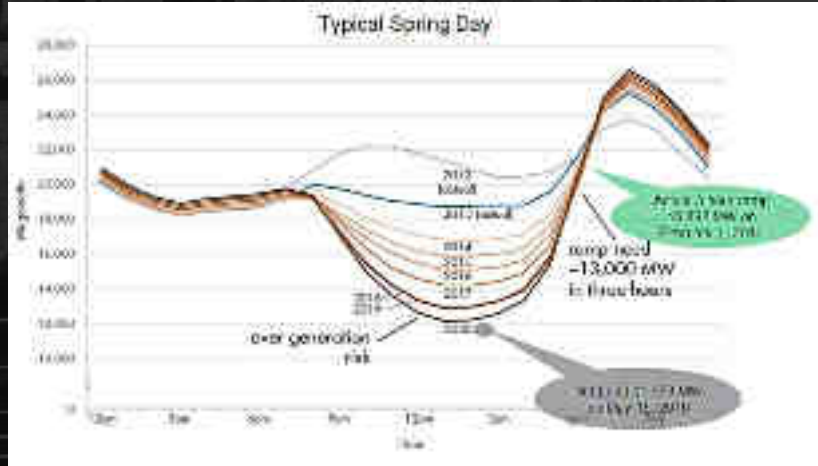
Energy
vs
Exergy

New Energy Resources - Renewable and Distributed



More than half of the estimated additional solar generation will be distributed, not utility scale

New Energy Resources - Predictably Intermittent



Source: CAISO



Source: WattClarity, Jan 2017

Consumers Demand New Choice and Services

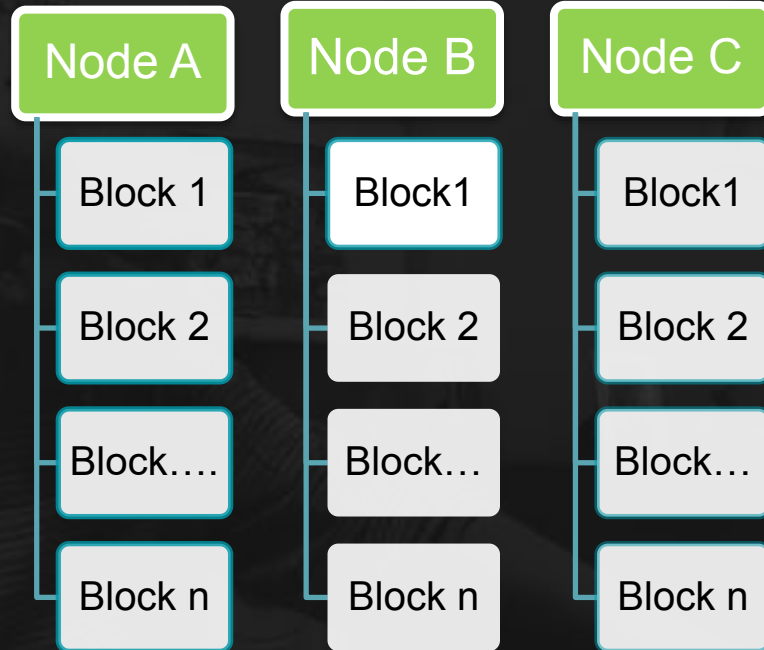


Utility Grid Faces Structural Issues

- Grid unidirectional and brittle - future calls for fast-acting, resilient, adaptive platform
- Current utility business models do not encourage Distributed Energy Resources
- Regulatory barriers limit consumer participation in energy
- Major market changes underway, unprecedented shifts by utilities and market actors
- “Prosumer” movement creating pressure on existing business models
- Broad, coordinated control of small scale DERs is uneconomic



Blockchains Enable Transactions



Block Contains:

- Time stamp
- Ownership status
- Reference previous block
- List of transactions

Blockchain Transactions:

- Secure
- Efficient
- Frictionless
- Flexible
- Transparent

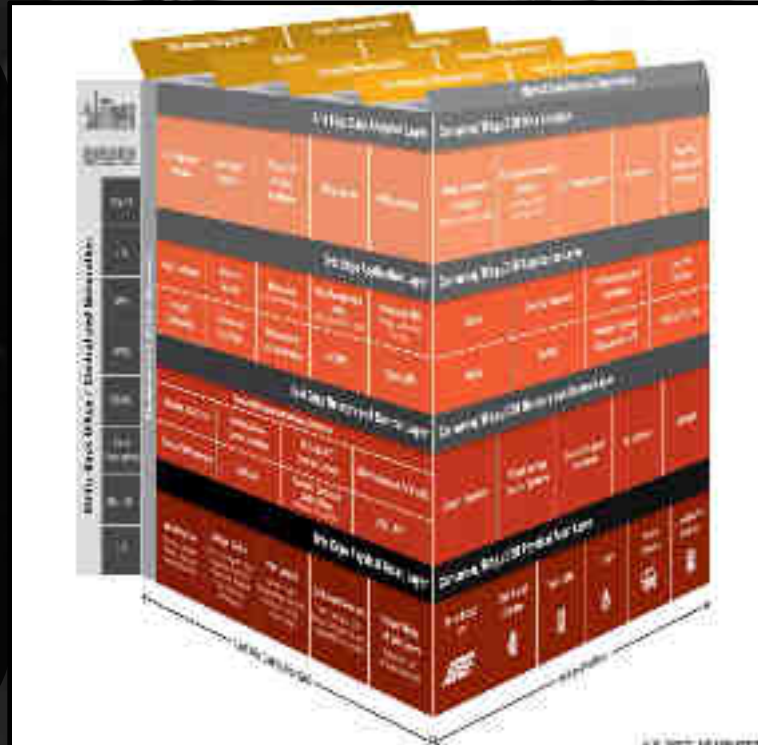




TransActive Grid

Blockchain-based Microgrid Intelligence System

- Transactive, distributed intelligence system to control microgrids
- Based on open-source, cryptographically-secure protocol layer delivering military-grade cybersecurity and real-time data
- Auditable, immutable, secure device control





Tokenization

Tokenization of energy production, storage and consumption creates efficient **local markets**



P2P Markets

Efficient Local Markets attract investment, increase impacts and create **local value** for energy, environment and community



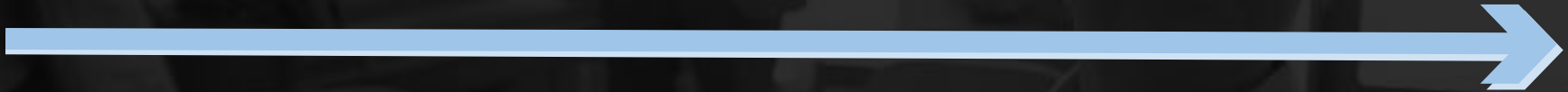
Prosumers

Rise of the **Prosumers** neighbor-to-neighbor, neighbor-to-business community transactions reward **local markets and return community value**



Community Microgrids

Reward efficiency and resiliency allowing participants to optimize **existing energy spend** according to individual **values, priorities and outcomes**







Consumer Choice





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Current Status & Next Steps

- First peer-to-peer energy transactions executed
- Demonstration projects underway
- Testing business models
- Brooklyn Microgrid in development
 - Over 50 sites metered and over 300 interested
- Partners
 - Strategic Partners - Siemens, KIT, AEMO



- **Deploy** – Technology
- **Develop** – Business Models
- **Demonstrate** – Market Adoption



New Technology – New
Choices – New Deal

**They are your electrons, right?
Don't forget that.**



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