Next Generation ICT: AI in Energy
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AI in Energy & Industry: A booming intersection

Corporate and Venture Capital Investment into “AI meets Energy” by year

- 2012: $63.5M, 9 deals
- 2013: $49.1M, 7 deals
- 2014: $114.7M, 14 deals
- 2015: $124.0M, 19 deals
- 2016: $551.9M, 39 deals
- 2017 YTD: $781.3M, 49 deals

Powered by data from i3
AI throughout the energy value chain

**Key use cases**

- Project development/ Customer acquisition
  - Marketing and sales of DER
  - Meteorological models for optimized asset location
  - Optimized design and engineering

- Generation
  - Predictive maintenance of generation assets
  - Performance improvement
  - Intermittency forecasts

- Transmission & Distribution
  - Grid optimization
  - Microgrids and VPP management
  - Storage-based flexibility
  - Predicting demand
  - Distribution Automation and Control (DMS)

- Consumption/ Retail Energy
  - Premise-level analytics
  - Consumption Disaggregation
  - Smart home
  - Customer engagement
  - Transactive Energy

**Example Innovator**

- PowerScout
- sparkcognition
- awesense
- Innowatts
Meet PowerScout: AI-driven Customer Acquisition Platform for the Smart Home

- Lead Generation for Services & Product Sales
- Machine Learning driven programmatic digital marketing
- Quality content & helpful instant quoting tools
- Curated local and regional service providers

- Home Security
- Energy-efficient Windows
- Home Automation
- Rooftop Solar
- Battery Storage
- EV Charging

- Water Quality
- Heating & Cooling
- Home Security

- Home Automation
- Rooftop Solar
- Battery Storage

- Energy-efficient Windows
- Home Automation
- Rooftop Solar

- Curated local and regional service providers
100 Billion Data Points on the platform

- Data-driven assessment of home improvement benefits
- Machine learning for effective targeting
- Propensity modeling
- Patent pending in US & EU
Computer Vision to Digitalize Large Amounts of Data on U.S Housing Stock

Visualization of LIDAR data acquired from a low flying aircraft for a neighborhood in San Francisco, CA
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Optimizing Humanity’s Largest Machine
TGI is a (very) scalable and affordable approach to grid monitoring, energy balance, and grid analytics.

For utilities with or without AMI, TGI was built to unlock the potential of existing data (SCADA, GIS, Billing, etc.) layered with IoT data to provide meaningful intelligence.
TGI leverages state of the art technologies and innovations in IoT, Big Data, and ML. Using lightning fast data ingestion methods on geospatial (GIS) and time-series data to perform analytics, error checking, estimation, connectivity/topology correction, and more. TGI performs grid segmentation on GIS data, and constantly applies advanced algorithms against these segments to identify issues and prescribe resolutions on a wide range of grid operations and optimization applications.
TGI was built to understand **temporal assets** within the grid. First, to enable mobility of IoT sensors in the grid, and allow the temporal energy balances in these segments – a key factor in TGI’s risk algorithm. In the future, these capabilities and algorithms will be used for other temporal grid elements (ex. EV’s) that require prediction on location, load, and source availability for the network.
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Responsive & Passive

- More/ Better Engagement
- Helpful Insights
- Better Segmentation
- Improved Communications
- Better Analytics

Predictive & Proactive

- Relevant Engagement (often less)
- Actionable Intelligence
- Automated Actions
- Personalized Products and Services
- Automated Learning
- Customer Footprint Specific Strategy

Tomorrow’s Self Serving and Self Learning

e-Utility™
Opportunities to Monetize

Regulated Utilities

Retail Energy Providers

Product/Technology Vendors

New Retail Market Entrants

Who Wins?
Global e-Utility™ Traction

14.2

Million meters worldwide

- 1.4 trillion load intervals,
- 3 Continents, 13 energy markets
- 10 Utilities, 14 Retail Energy Cos, Banks + end-consumers
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