Generating Knowledge to foster Energy Efficiency
CONSUMERS CAN SWITCH ENERGY PROVIDERS CREATING NEW COMPETITIVE DYNAMICS FOR ENERGY UTILITIES

Main reasons for churn:

- The evolution of wholesale energy prices
- Poor quality customer interactions
- Entry of new value propositions with better customer engagement

Source: Adapted from VaasaETT Utility Customer Switching Research Project, 2013
A NEW GENERATION OF SERVICES IS EXPECTED BY ENERGY CLIENTS

Households

- Recommendations on Decentralized Energy production solutions (solar, wind, etc.) to install
- Early notifications when energy bill rises above normal
- Personalized advice on actions that should be taken to reduce energy bill
- Personalized advice on available products and services to help reduce the energy bill

Small & Medium sized Enterprises (SME's)

- Enhanced self-service channels with business specific tools (e.g., forecast energy costs, detailed usage, etc)
- Notifications when consumption is rising higher than expected
- Recommendations on products & services to reduce energy costs.
- Benchmarking of consumers by economic sector or by multiple facilities.

Source: Adapted from “The energy consumer handbook”, Accenture, 2013
more likely to recommend their current energy provider
more likely to sign up for automated home energy management devices or services
more satisfied with their energy provider
more likely to sign up for home energy generation products
more likely to share their personal information and energy usage information
more likely to participate in an energy management program
more trust in their energy provider

Source: Adapted from, New Energy Consumer research program, 2015, Accenture,
Around 1 billion smart meters are expected to be installed by 2020
(Source: Pike Research)
ADVANCED DATA ANALYTICS ARE KEY TO EFFECTIVELY UNDERSTAND ENERGY USAGE AND FULL OPTIMIZATION POTENTIAL

Smart Meter
(15 min data or higher resolutions)

Non-Intrusive Load Monitoring (NILM) Algorithm

ENERGY DISAGGREGATION DOWN TO THE APPLIANCE LEVEL

- DISHWASHER
- LIGHTING
- SMALL APPLIANCES
- WATER HEATER
- WASHER
- HVAC
- STANDBY
- DRYER
- FRIDGE
- OVEN

NILM algorithm prepared to handle the most common smart metering (SM) resolution periods.

No need for additional equipment (smart plugs or higher resolution meters)
AT WATT-IS WE TRANSLATE ENERGY CONSUMPTION DATA INTO TAILOR MADE ENERGY EFFICIENCY MEASURES THAT MAKE YOU SAVE ON YOUR ENERGY BILL...

- Tailor made energy efficiency measures
- If you change to a triple hourly energy tariff you’ll save 15€/month
- Substitute your fridge and save up to €180 per year

Smart meter

Advanced data analytics engine (NILM) form smart metering data
WEB BASED USER ENGAGEMENT PLATFORM FOR HOUSEHOLDS

- Fully automated, scalable and re-brandable
- Meaningful and quantified tailor made energy efficiency measures
- Benchmarking / Competition & Gamification strategies
- Smart Notifications (abnormal consumptions, forecasts, etc.)
- Monthly reports to be sent jointly with billing information
Flexible, cloud-based IT architecture that implements a hardware abstraction layer.

Allows the incorporation of meters, sensors and actuators from multiple vendors and communication protocols.

Dedicated energy meters supported

Renewable production meters

More coming soon...
VIRTUAL ENERGY MANAGER FOR SMES

- **Real-time** energy monitoring for multiple facilities (multi-site) and metering points (sub-metering)

- **Benchmarking**

- **Energy tariff optimization** modules

- **Machine-learning** capabilities to provide self-learning alarms and tailored made energy efficiency measures

- **Automation** capability to connect or disconnect specific energy loads
CREATING VALUE THROUGH A STRONGER ENGAGEMENT BETWEEN ENERGY UTILITIES AND ENERGY CLIENTS BY DIFFERENTIATION AND INNOVATIVE SERVICES

Energy utilities support an average cost of \(100\text{€}\) to \(135\text{€}\) to aggregate a new client.

Industry benchmarks highlight that retaining existing clients is typically 6 times cheaper than aggregating a new client.

Watt-IS is the utilities partner to capture this value through a stronger engagement focused on energy efficiency.


Source: Turning on utility customer loyalty, Bain & Company, 2013
With Watt-IS you engage consumers in energy efficiency, reduce churn rates and generate new revenue streams along the process.
Applying our intelligent data analytics engine with other information such as weather, LIDAR data, property tax, energy certificates and others, we can help identify segmented marketing strategies.

To each group of identified market segments, new services that generate value added for the end user, may be targeted.
NEW SERVICES – REMOTE ENERGY AUDITS SERVICE TO PROVIDE MORE DETAILED ENERGY EFFICIENCY ADVICES

(Smart Meter)

(NILM)

(Automated Energy Audit Reports)

(Remote Energy Audit Platform)
Integration of solar PV production data to propose energy efficiency measures tailored towards prosumers.

With LIDAR data available it is possible to integrate automated solar PV dimensioning modules.
NEW SERVICES – APPLIANCES SUBSTITUTION PROGRAMS IN COLLABORATION WITH RETAIL PARTNERS

Win-Win situation where end energy clients capture directed discounts for the substitution of non efficient appliances, and retail partners have highly directed leads.
NEW SERVICES – ESTIMATE THE DEMAND SIDE FLEXIBILITY POTENTIAL OF ENERGY UTILITY CLIENTS

Load disaggregation for the average client and day from a 30k client dataset

Peak shiftable load (30k household clients – 15 min) $\approx 3,4$ MW
Total shiftable energy 1 avg. year (30k household clients) $\approx 13$ GWh
CLOUD BASED AND DATA ANALYTICS PLATFORM

HOUSEHOLDS

NILM

User Engagement Platform

Appliance Replacement Programs

Remote Energy Audits

Data analytics for Utilities

SME's

Virtual Energy Advisor

Real-time energy monitoring & automation

Benchmarking

Machine learning
CURRENTLY GAINING MARKET TRACTION

COMMERCIAL & PILOT PROJECTS

- Projects generating revenues
- Commercial projects to start in the next 3 months
- Pilot projects to start in the next 3 months

AWARDS

H2020 SME INSTRUMENTS (Phase 1)
WATT-IS TEAM

Watt-is is a startup that emerged from the MIT Portugal Program.

Watt-is team is composed by 12 highly qualified members:
- 3 PhD’s (Mechanics and Physics)
- 1 PhD candidate (Environment Engineering)
- 1 MSc & MBA
- 1 Mechanical Engineer
- 4 IT Engineers
- 1 Designer
- 1 Electrotechnic Engineer

Given its strong focus on data analytics and energy efficiency our team is able to create value added for EDP.
OUR CLIENTS & PARTNERS

ADENE
Agência para a Energia

Boa Energia

CEVE

DSTelecom

EIT Climate-KIC

EIT Digital

ESMIG

VPS Virtual Power Solutions

UTEN Portugal
University Technology Enterprise Network

2bpartner

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