

Trends and possibilities of ICT for consumer information

Dr Philip E Lewis, CEO, VaasaETT

Concerted Action, EED2 Plenary Meeting, Sofia, 20 October 2017

Picture Source:

Our Demand-side Databases & Analyses

140 pilots worldwide
569 sample groups
930,000 residential customers



Used in projects for projects/clients globally

e.g. European commission (e.g. ADVANCED, NatConsumers), Regulators (e.g. Norwegian regulator, NVE), Associations (e.g. BEAMA, ESMIG), Retailers, Utilities, Investors.

Impact Evaluation Examples



Data from >5,000 smart meters for OWL, IBM, Landis and Gyr.



400 homes subjected to pricing signals and educational materials.



5 pilots (Enedis, ENEL, Verbund, Vattenfal, Endesa)



72 homes

Basic Information



UtilityCo

Home Energy Report
Account number: 1234567890
Report period: 11/09/09 - 12/09/09

We are pleased to provide this personalized report to help you save energy.

- The purpose of the report is to:
- Provide information
 - Help you track your progress
 - Share energy efficiency tips

This information and more is available at UtilityCo.com/reports

808 687H
414 NEXUS LET MALL G06
MINNEAPOLIS, MN 55401

Last Month Neighbor Comparison | You used **19% MORE** energy than your efficient neighbors.



How you're doing

Best

GOOD

More than average

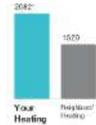
* The orange bar represents electricity (kWh) and blue bar represents gas (therms) for a single measurement.

Who are your Neighbors?

- All Neighbors:** Approximately 50 occupied, nearby homes that are similar in size to yours (e.g., 2,000 sq ft) and have both electricity and natural gas service.
- Efficient Neighbors:** The most efficient 20 percent from the All Neighbors group.

Last Winter Heating Comparison

1 Last winter, you used **37% more energy on heating** than your neighbors.

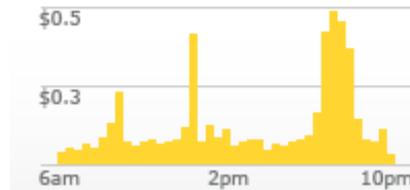


- Best ways to save this winter:**
- Lower your thermostat before leaving home.** Adjusting by 10° can save 10% on heating costs.
 - Seal air leaks around windows and doors.** Use caulk or weatherstripping to eliminate cold drafts.
 - Let sunshine in for warmth!** Open blinds during the day to capture free heat.

For more tips, visit UtilityCo.com/reports

Turn over for savings →

- Track usage and costs
- With GEM, customers can track energy usage by bill and by year. If customers have a smart meter, customers can even see how much they've spent by day and each half hour.



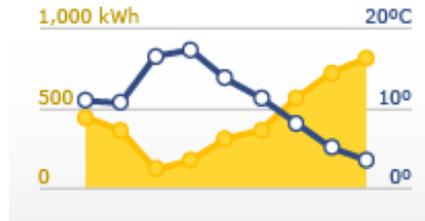
- Compare usage to similar homes
- For the first time customers can see if they're using more, less, or about the same amount of energy as homes that are like theirs.



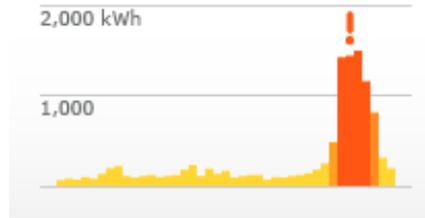
- Set a goal and develop a savings plan
- GEM allows customers to set an energy savings goal, track their progress over time, and gives them tips to help save.



- See how temperature affects bill
- With GEM, customers can see how temperature and seasons affect their energy usage.



- Unusual usage alerts
- If customers are heading towards a bill that's much higher than the same time last year, GEM will send a helpful email to let them know.



- Predict bill before it arrives
- Because GEM knows how much electricity customers are using, if customers have a smart meter, it can predict what their next bill could be long before it arrives.



Savings from Information

We surveyed 50 engagement programmes
and all key platform providers



Savings up to

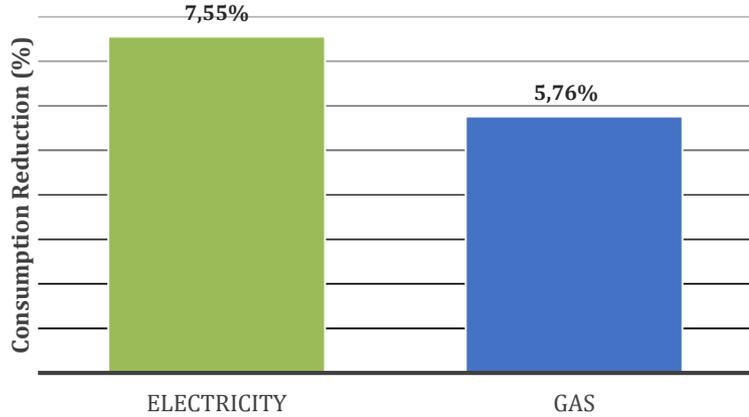
17%

Satisfaction average

89%

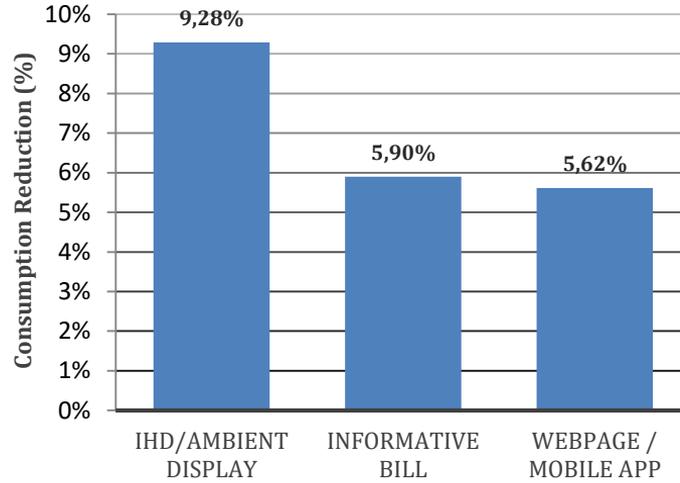
Impact of Feedback

On energy consumption



Number of Samples	
ELECTRICITY	140
GAS	30

By channel



Number of Samples	
IHD / AMBIENT DISPLAY	70
WEBPAGE / MOBILE APP	20
INFORMATIVE BILL	50

Savings from Information



Sweden

E.ON Sweden made feedback fun

Programme Name 100 Koll

E.ON Sweden: Sweden's largest energy saving experiment

Vendor



OPower

Smart Meters

Yes

Impact

12-16% Savings

Target customers



Electricity



Gas



Energy service



Benefits of Basic Feedback

KPI: Loyalty and churn reduction

51% increase in Mercury Energy website traffic year-over-year

5% increase in brand value

3% increase in overall customer satisfaction (key measure)

10% lower churn after launching

15% more customers become highly satisfied (key measure)

Current churn rate sits at 15.5%, 3% lower than the market average (18.5%)

KPI: Drive to digital

The Good Energy Monitor has also unlocked cost savings. By giving customers a clear window into their energy use before the billing period ends, Mercury has achieved a 19% drop in high bill-related calls into the call center.

KPI: Other

Saved \$2 million (NZD) annually on energy bills

3.4% increase in customer energy saving

High reputation, recognition from regulator



Information for Exploration & Gaming

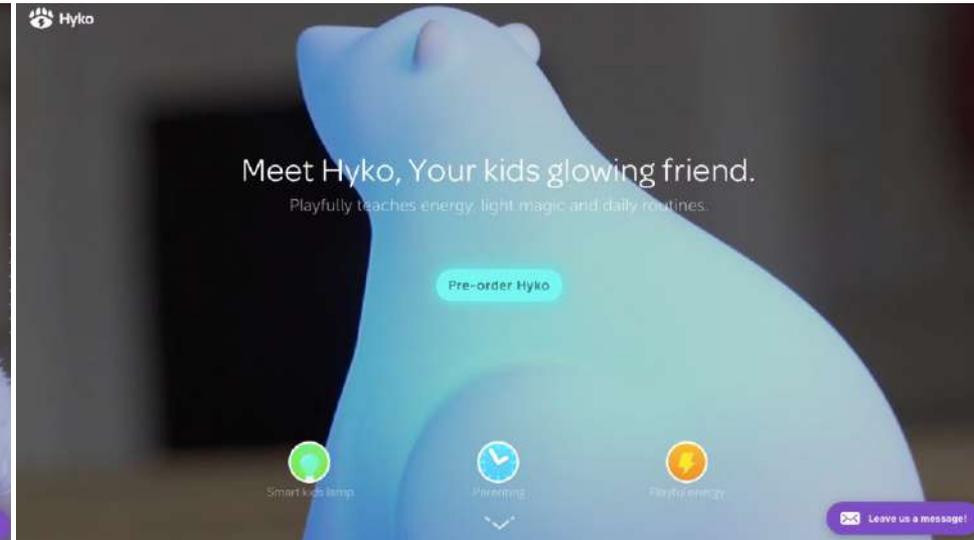


NatConsumers, FP7

But need broader exploration tools

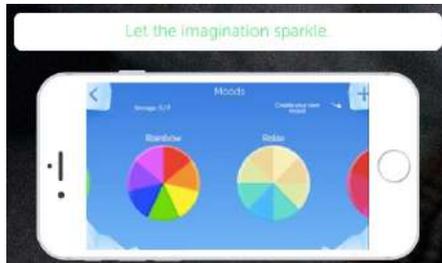
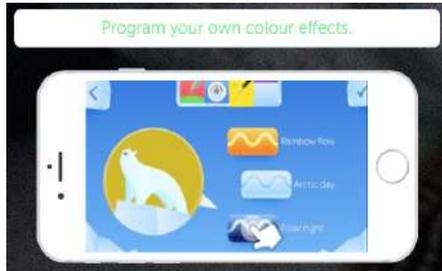


Information for Gaming

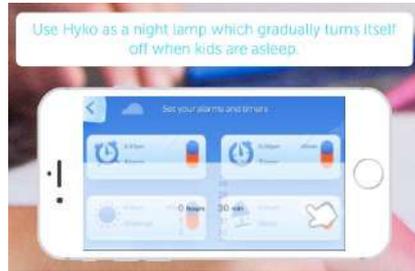
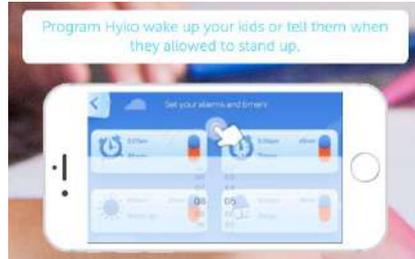


But more than Just Gaming

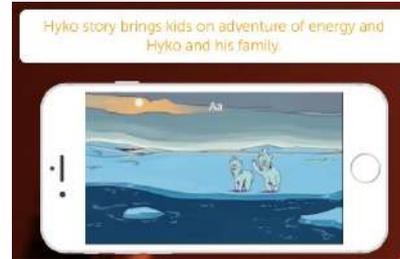
Smart Kids Lamp



Parenting



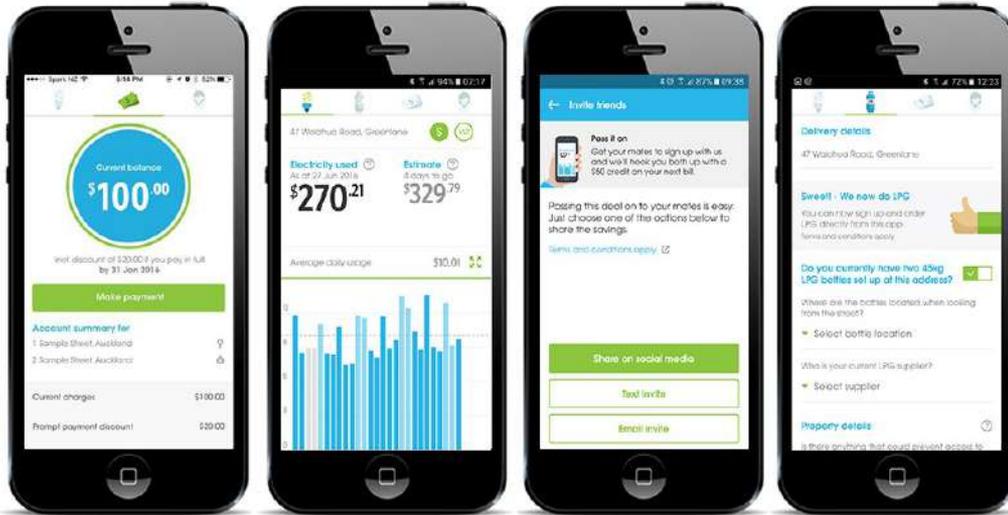
Playful Energy



Information as part of Fully Digital

ENERGYONLINE
Brilliantly Simple

genesis
ENERGY



Bill and Pay

**Feedback,
Forecasts
Advice**

Share

News

Everything
Online, all in one
place

The Simpler the
experience, the
simpler the
implementation



Home Comfort Bundle

Electric Ireland already offers customers the combination of Nest or Climote thermostat + Gas Boiler Service for €249:



Information for Automation

We engineered smart energy tools that connect you to the real-time price of electricity, 24/7.

Current Price:
2.3¢
/kWh

Smart Tools

You pay for electricity without knowing how much it costs until after the fact. We've changed that.

griddy

Smart Price
0.0¢
/kWh

Have you ever paid \$0 for electricity?

Our members have.

Smart meters

Helping you save money by showing you how much energy you're using

- > Log in to get smart meters
- > I'm not a British Gas customer



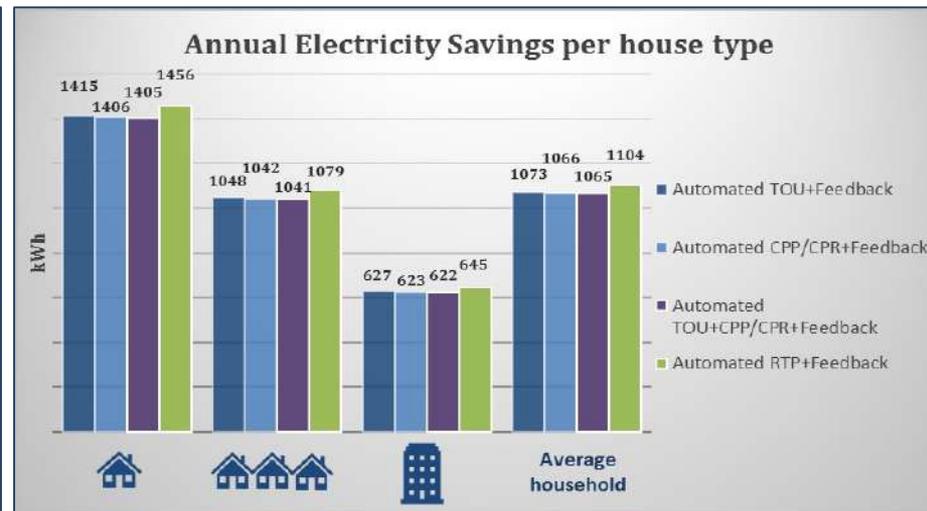
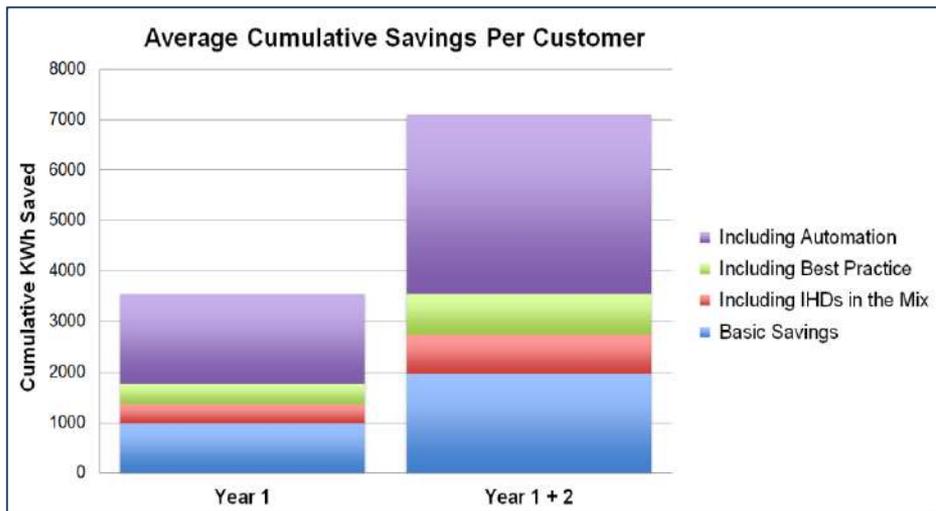
British Gas

Savings from Automation

Norwegian Research

Source: VaasaETT/NVE

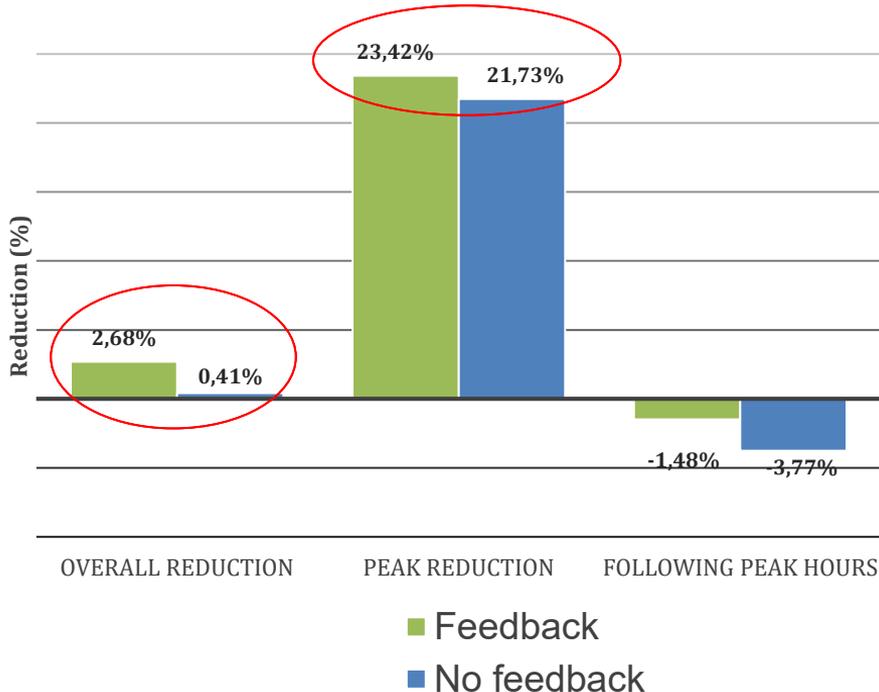
- Average Savings: 7%
- Reduction at Maximum Peak: 25%



Impact of Feedback on Automation

Pilots combining home automation and education/feedback manage are more effective both at reducing peak (23% vs 22%) and overall consumption (2.7% vs. 0.41%).

Impact of Feedback in Automation Pilots



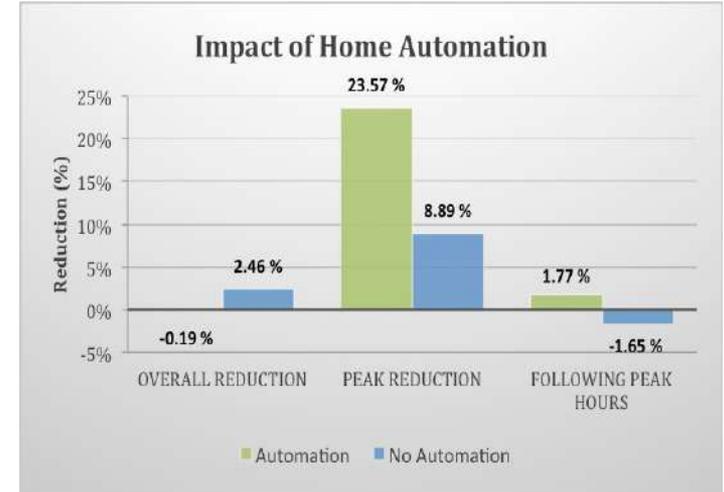
Nº of participants (Nº of samples)	Feedback	No feedback
Overall reduction	25 495 (30)	228 (3)
Peak reduction	22 906 (49)	7 278 (17)
Following peak hours	4 901 (11)	1 670 (6)

“Home automation is well suited to shift consumption away from peak hours and benefit network operators but not to create reductions in overall consumption which largely benefit customers”

Information for Demand Response

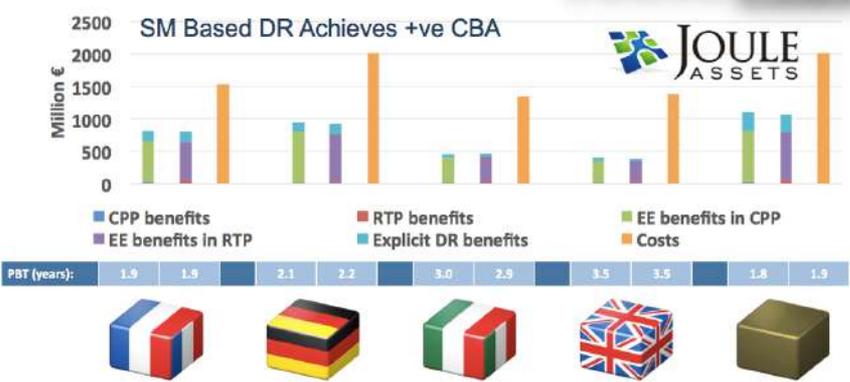


2017					
	Demand Response Access to Markets	Service Provider Access	Product Requirements	Measurement and Verification, Payments and Penalties	Overall
Austria	3	1	5	3	12
Belgium	3	3	5	3	14
Denmark	3	1	3	3	10
Estonia	1	0	1	0	2
Finland	5	1	3	5	14
France	5	5	5	3	19
Germany	3	1	3	3	10
Great Britain	5	3	3	3	14
Ireland	5	5	3	1	14
Italy	1	0	1	1	3
Netherlands	3	1	3	3	10
Norway	3	1	3	3	10
Poland	1	1	1	1	4
Portugal	0	0	1	0	1
Slovenia	1	1	0	3	5
Spain	0	0	1	0	1
Sweden	3	1	3	3	10
Switzerland	3	5	3	5	16
Overall	48	30	47	43	168
Max score	90	50	90	90	360



Source: SEDC 2017

Figure 1: Map of Explicit Demand Response development in Europe today



Potential customer CBA from Demand Response is huge

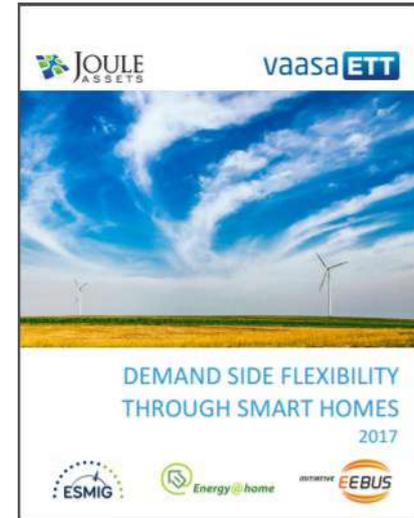
Feedback & the Flexibility Business Case

WHY IT MATTERS?

A positive business case and an appealing payback time are other fundamental reasons why education and feedback should be part of any home automation package.

VaasaETT and Joule Assets, in an upcoming public report, looked at the business case for residential demand side flexibility in 4 EU countries (France, UK, Italy and Germany) and found that **between 77% and 87% of end-consumers' financial benefits come from overall consumption reductions (the rest from peak clipping)**. This can be easily understood if one considers the fact that critical peaks take place for only about 30 hours a year whilst benefits from lowering overall electricity consumption take place daily.

Education and feedback should be part of any home automation package!



Information for Smart Pre-pay and affordability



- 30,000 customers
- Low cost prepayment solution designed to make a regulated requirement lower cost than historic solutions.
- Grew 56% in 2015 through targeted advertising
- Launched in 2008, it is now the dominant solution in NZ, with ~75% of the prepayment market
- 5,000 payment point options across New Zealand
- Automated rules-based remote disconnection and reconnection at zero cost to the customer
- Integrates data streams and remote disconnection capabilities from smart meters
- Targeted promotion and pricing alignment with the core retail brand
- Smart meter based – no specialist pre pay meters required

No confusing bills (that are ignored anyway)
– no bills at all



Information for Smart Pre-pay and affordability

The Impact



- 70% use IHD at least twice per week and many use once per day
- Up to 15% energy savings
- Higher customer satisfaction
- Uptake by new and existing customers (1,500 customers per month)
- Stickier customers / greater loyalty (lower losses than competitors)

We'll help you keep on track

-  Set-up alerts for when your credit's running low
-  We'll let you know when it's time to top up
-  We'll give £15 buffer credit per fuel for dual fuel customers if you forget to top up - or £20 buffer credit for single electricity





Save energy with your smart meter

To get Smart Pay As You Go, you'll need a free compatible smart meter installed, as this displays your energy use. It shows how much energy you're using, you can use it to predict what you will need to budget, and see where you can start to make savings.

[Learn about smart meters >](#)



Information to support new models



Subscription Based Electricity Retailers



Monitor your energy usage on your mobile in real time

Bill shocks be gone! Here at Mojo we believe you should be in control of your energy. That's why we install a smart meter in your home when you sign up to a Plus+ or Premium Energypass™. This means you can check your usage and bills on your phone, just as much as you check your Facebook.



Package Energy Retailers



All You Can Eat Retailers

Information to support new models

Vaasa **ETT**

New Smart Meter Based Services Partial Eat All You Can

Success:

- Over the first three months over 150,000 customers signed up to FreeTime.
- 86% of customers reported that they changed their electricity usage with FreeTime, saving £60 on average and 13% saving over £100 in customer trials.
- This change in behaviour has also translated into a different customer relationship with energy, with 64% of customers feeling “more aware” of energy usage.

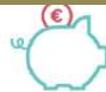
Information + Trusted Model



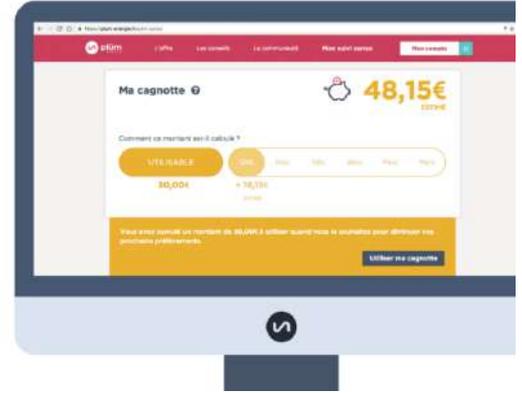
Information to support new models

plüm
ÉNERGIE

Le fournisseur d'électricité qui donne envie de changer



Regardez votre cagnotte grandir mois après mois



Plus Energie (France) rewards customers for lowering their consumption. Interestingly, they adjust the calculations when increases occur due to external factors (e.g. newborns, extreme weather conditions) <https://plum-energie.fr/>

1

ESTIMATION

Nous estimons votre consommation de référence grâce à notre diagnostic en ligne personnalisé et évolutif

Un nouveau-né rejoint votre foyer ? Nous nous adaptons !

2

MESURE

Notre algorithme exclusif permet d'affiner votre consommation réelle de manière plus juste

Il fait très froid ce mois-ci ? Nous le prenons en compte !

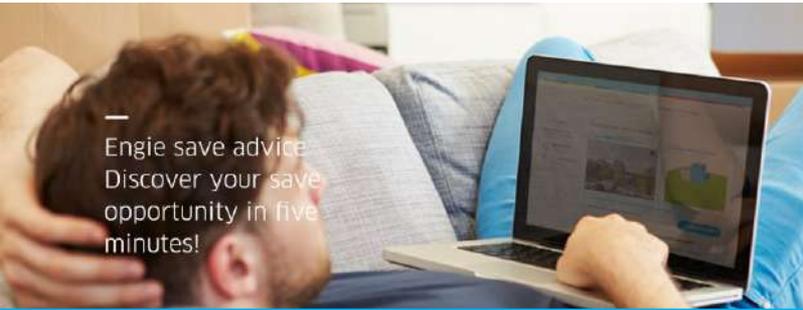
3

RÉCOMPENSE

Dès que votre consommation réelle est inférieure à la référence, nous créditions votre cagnotte

Vous regardez votre cagnotte grandir mois après mois !

Information to support Consulting



- ✓ Your address
- 2 Your house
- 3 Opinion
- 4 Opinion mail
- 5 Quotation (s) request

save energy? In two steps for a personal consultation

Saving energy can be in many ways. To isolate themselves generate energy and smart energy-saving equipment. In **two simple steps**, you know what measures are best suited to your living situation and what they bring you.

Enter your postcode and house number and start the **free Engie save advice**.

Your postal code	your number	(Addition)
3231LZ	6	vul hier in
<div style="background-color: #f4a460; color: white; padding: 10px 20px; border-radius: 15px; display: inline-block;"> MORE → </div>		
<small>You go to the Engie website operated by the sustainability by by clicking continue. you agree that your data will be made available to them for personal energy-saving advice for your home.</small>		

What is it ?

Web based application which allows consumers to get extensive customised E.E. advice and solutions by simply entering their postal code and house number



Information for Smart Charging



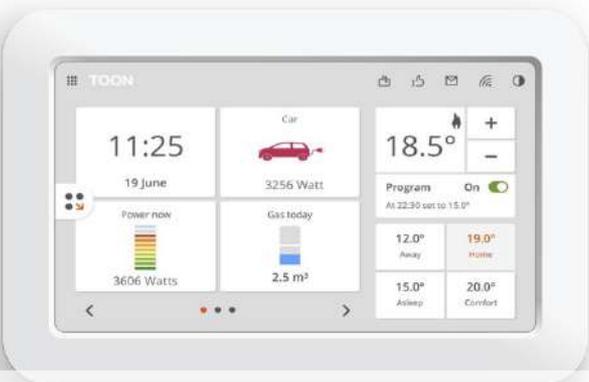
Part of Eneco Group
<https://jedlix.com>

Our story
 Since 2015 we make it possible for EV owners to save on their monthly electricity costs. Jedlix is named after Anyos Jedlik, the inventor of the electric motor.




Eneco e-Mobility Services

Car on Toon




Home charging soon doubles your electricity consumption.
 Car on Toon® offers insight by connecting your e-car to your home



Information for a Complete Home Energy Solution

The Four Pillars of a Complete Solar & Battery Home Solution



Solar Panels +

Installed on your roof to convert sunlight into electricity. Every solar panel comes with a minimum 10 year product warranty & 25 year power output warranty.

Solar Panels Options: JA | [Simax](#)



Battery +

The Panasonic lithium-ion battery stores unused electricity generated from your solar panels during the day. Panasonic lithium-ion batteries allow you to use its full charged capacity when you need it. The battery stores kWh of electricity, with a 2kW rate of discharge to help you decrease your reliance on the grid when energy prices may be high. Each Panasonic lithium-ion battery comes with a 7 year product warranty and up to 10 year performance warranty.

[Battery tech specs](#)



Solar Inverter +

All solar systems in Australia require an inverter. It converts the power that solar panels generate into electricity that can be stored in your battery or used by your home during the day.

Options: [Small](#) | [Medium](#) | [Large](#) | [Large \(Trio\)](#)



Energy Monitoring +

Talk to us today about how we can help you keep an eye on your battery and solar system usage.



Part of information for everything

WHAT IS
ECHO SHOW?

—

-  Play your favorite music
-  Call friends and family
-  Watch video clips
-  Control your smart home



amazon

Not only ICT



e-on

Engagement flow



Mercury Energy
Good energy

Thank you

● Monitor

● Analyse

● Develop