



Overview of AceOn's Virtual Power Plant:

Tackling Climate Change and Addressing Poverty

***“Offering solutions today
for tomorrow’s world”***

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ACEON - WORKING IN PARTNERSHIP NATIONALLY & INTERNATIONALLY



AceOn have a unique combination of a wealth of public and private experience as well as in-depth knowledge of the battery storage and energy sectors. AceOn have been chosen as the national partner of both the Association of Public Service Excellence and the National Housing Federation. We work in co-operation with leading national and international manufacturers of Electric Vehicle Chargers, Domestic and Commercial Battery Storage Systems, Solar PV Panels, and Air Source Heat Pumps.



Association for Public Service Excellence -
Exclusive Approved Energy Storage Partner to **114 member councils**



National Housing Federation -
Exclusive Energy Storage Sector Supplier to **800 Housing Associations**



Microgeneration Certification Scheme (MCS) -
Helped **create and develop** the Battery Storage Standard (MIS 3012)



Member

Solar Energy UK (formerly Solar Trade Association) -
Influential **member and partner** shaping government policy

“The Telford Company Taking on Tesla”

Working Together With:



ACEON WORKING IN PARTNERSHIP – ONE STOP SOLUTION PROVIDER



DOMESTIC BATTERY ENERGY STORAGE SYSTEMS – For New-Build & Retrofit

VIRTUAL POWER PLANT – RENEWERGY Smart Energy Management Platform: Optimisation, Aggregation and Trading

SOLAR PV PANELS - Marley SolarTile® & Viridian Solar For Re-roofing & New-Build, Futurasun PV Panels

ELECTRIC TRANSPORT – EO Smart EV Chargers: Home & Work, Electric Bike Shelters



CUSTOM BATTERY PACK DESIGN, MANUFACTURE & BATTERY DISTRIBUTION – Top brands – including our own!

COMMERCIAL & INDUSTRIAL BATTERY STORAGE – Larger Scale Container Batteries from 9kWh to 5MWh

AIR SOURCE HEAT PUMPS – Samsung Heat Pump, Controls & ClimateHub Integrated systems

ELECTRIC PANEL HEATERS – Slimline Electric Panel Heaters, Towel Rails and Radiators with Smart controls

RENEWABLE ENERGY INFRASTRUCTURE – Working with Gridserve on Solar farms, Electric Vehicle Forecourts/Hubs

INTRODUCING OUR VIRTUAL POWER PLANT (VPP)



TACKLING CLIMATE CHANGE AND ADDRESSING POVERTY



ENERGY – GENERATE & SAVE

MONEY – SAVE & GENERATE

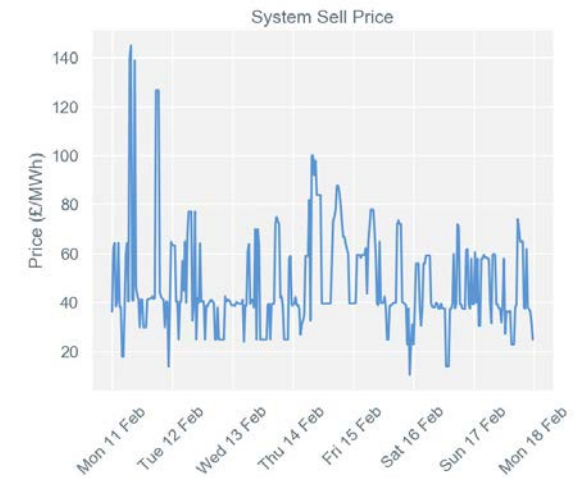
PLANET – SAVE & REGENERATE!

OUR RENEWERGY VPP PLATFORM: 4 SMALL STEPS, 1 GIANT LEAP FORWARD!



Our Virtual Power Plant (VPP) called RENEWERGY® is a network of houses and flats, each operating as a micro-energy generation centre through the installation of Solar Panels and Energy Storage batteries that are virtually connected together through our pioneering Smart Energy Management Platform.

As a VPP, we manage that energy smartly and proactively to predict demand and supply, meeting the needs of the householder and enabling spare energy capacity to be aggregated together and traded with the Grid. Our Platform can take advantage of variations in the Balancing System Price to determine whether there is a financially advantageous opportunity to charge or discharge the batteries. This can save or generate extra money, whilst also reducing CO2 emissions through optimising the use of solar generation to minimise the amount of energy imported to site.



Effortlessly connect a home energy storage system to our RENEWERGY Platform and we can do the rest...

1. CONNECT

The Platform connects easily via API to battery storage, PV panels, electric heating and EV chargers. Once connected **the consumer and owner is able to monitor the performance of their assets tracking generation, consumption and savings.**

2. LEARN

Once connected, **we learn the consumption and generation pattern for the site.** This includes the usage patterns of the electric heating and EV charger.

3. OPTIMISE

Our advanced algorithm forecasts consumption and generation using weather data. Each asset connected to the platform is then scheduled to operate **to minimise energy import into the site maximising savings and carbon reduction.**

4. MONETISE

The RENEWERGY Platform learns when there is spare capacity in each system. **The spare capacity across the RENEWERGY Platform is then traded with the National Grid, and Local Distribution Operators. We share this revenue with our partners.**

VIRTUALLY CONNECTING HOMES TOGETHER TO MAXIMISE THE SUSTAINABLE BENEFITS

- The price of electricity has increased by 7% pa since 2005.
- For a home today using 3,500 kWh pa, this equates to c.£694/yr.
- Following a 7% pa increase, bills would rise to £1,192 in 2030.
- Government Energy White Paper predicts **electricity demand could as much as double** by 2050 = high demand & growing!
- Our VPP helps to insulate tenants from the full extent of these increases AND creates a Revenue stream from the capital investment for the Landlord



- **ECONOMICALLY:** Grid Services could **deliver gross income Year 1 of c.£250**. We anticipate increasing this as prices increase.
- 100 homes in the VPP could fund over **14,000 hours of home care** or **create 28 apprenticeships** over 10 years.



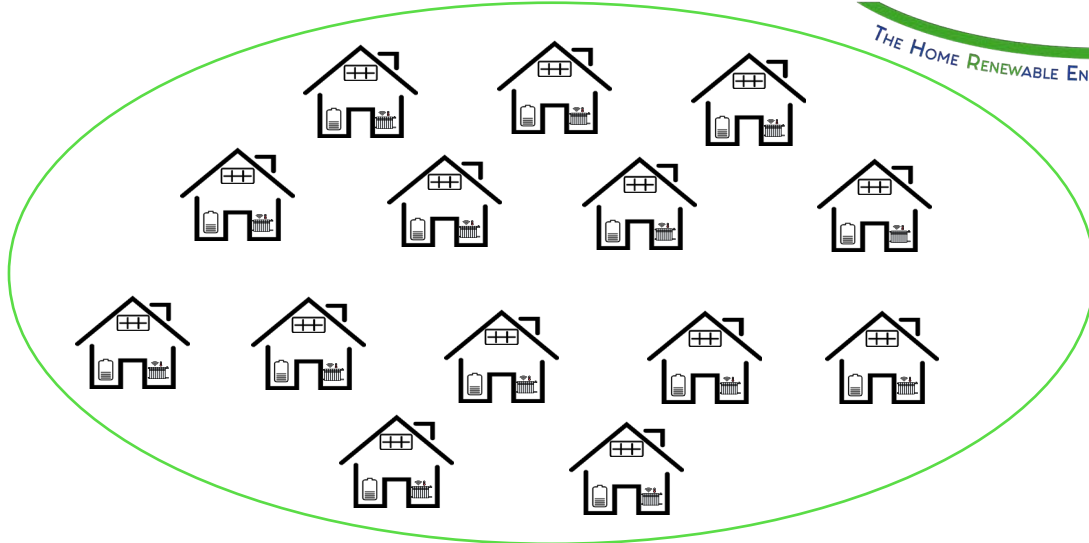
- **SOCIALLY:** RENEWERGY aims to reduce a tenant's electricity bill by up to 70% - reducing the cost of living, **tackling fuel poverty** and **enabling affordable warmth, better mental health** and helping to **lift households out of poverty** in the long-term by creating a more resilient household budget.



- **FINANCIALLY:** Our RENEWERGY VPP enables tenants to use more of the electricity generated by the solar PV so they can **save more money**.
- A specific Service Charge or Rental Top up provides a **secondary revenue stream option** for the landlord to consider.



- **ENVIRONMENTALLY:** By **maximising renewable energy usage** the carbon footprint of each individual household is reduced by on average 70%.



NB. Requires Internet or 3G Connectivity. Lead-in time approx 8 weeks

OUR ENERGY STORAGE SYSTEMS – NOT ALL BATTERIES & INVERTERS ARE THE SAME!



Best in class Energy Storage products:

- Our BMZ ESS 9.0 is a modular lithium-ion based energy storage system - **5000 cycles** with 80% Depth of Discharge to extend battery life.
- **VFM** - one of the **lowest cost** ESS based on Cost per warranted kWh throughput – 9p per kWh
- Up to **10 year warranty** for battery and inverter, **20 year** service life on the battery
- Battery **manufactured in Germany** with top battery engineers
- **Flexibility** - our smaller 4.2kWh battery is available when there are possible size constraints. This battery can sit alongside an Inverter on the wall.
- **All in one Hybrid** solar PV & battery charger inverter, reducing installation time. **Smart connectivity and two-way communication** for VPP delivery coming soon.



UK-Based Service Centre:

- Dedicated **UK-based** service, technical support, training and distribution centre providing a **one stop shop** for your energy storage needs.
- **Free recycling** of battery at end of life & disposed in correct manner

High Level of Safety – We Know that SAFETY in the Home MATTERS:

- **Double steel box** to contain catastrophic failure in the unlikely event
- **Only ESS system to have a pyrofuse for secondary safety** if relays fail

KEY BENEFITS OF THE RENEWERY VIRTUAL POWER PLANT



- **Increasing Energy Independence** – adding Battery Storage enables a Tenant to utilise directly much more of the energy generated from the roof, reducing the amount of energy exported to the Grid. Solar PV alone usually enables around 30% of energy to be used directly. Adding a Battery can increase this to c.50%. Connecting the Battery with our VPP Platform’s Smart optimisation algorithms, could increase this to 70% + - which saves them more money every month and every year.
- **Tackling Fuel Poverty** – a typical annual saving on a Tenant’s electricity could be over £350, rising to £581 in 2030.
- **Helping to Lift Households out of Long-Term Poverty** - Solar PV Plus Battery maximises the Tenant’s savings on their Electricity Bill. Electricity prices are projected to rise by 5 – 7% every year and the battery storage therefore provides the greatest certainty and minimisation of Bill increases in a volatile future electricity market.
- **The VPP Can Create a ‘Green Dividend’ for a Council/Housing Association** – working the battery smarter and harder through the Grid Services we will deliver through our VPP can create a revenue stream from the capital monies invested. We can’t guarantee the level of this income stream but we aim for c.£250 pa in Year 1. A Council/Housing Association also has a choice to introduce an additional rental service charge for tenants, reflecting the significant savings that the investment has enabled the tenant to make. Without the Battery, these income streams cannot be realised.
- Delivering on **local and national Net Zero Carbon**, Climate Emergency and Future Home Standards targets.

...Even More **BENEFITS OF RENEWERGY VPP**



- **Reassurance & Security** – our VPP enables the lights to stay on for your Tenants if there is a Grid power cut and in the background our system can remotely monitor usage in the home for more vulnerable Tenants (subject to GDPR) and raise an alert with a Council/Housing Association if energy usage noticeably drops over 2-3 days.
- A **future-proofed model** – can be upgraded to integrate with EV Charging and Heat pumps within our VPP.
- **Highest Level of Safety** – We know that your residents, your homes and your reputation matters! We believe that the BMZ Battery that we supply is the safest in the market. Not all batteries are the same.
- **Jobs & Training** – creates an opportunity to upskill your workforce and/or create and support local jobs.
- **One stop UK shop** for customer support and servicing.
- End of life battery **recycling** by AceOn.
- Supporting the demands of the **Energy network** and the need/demand for more ‘green’ electricity.
- The more homes that we can include within the RENEWERGY Partnership, **the more EVERYONE CAN SAVE AND EARN.**

RENEWERGY WORKING IN PARTNERSHIP – FOR ALL HOUSING TYPES



RENEWERGY can be delivered in partnership with a Council, Arms-length Council company, Housing Association, Private Home Owner or Private Landlord.

RENEWERGY can be delivered as an integrated package in new-build homes for rent or purchase – AND retro-fitted into existing homes.

If you're also planning a major re-roofing programme on your social housing, it's the perfect time to consider RENEWERGY.

RENEWERGY can work for you and...

- **Your Social Housing Tenants**
- **Your Private Rent Tenants**
- **Your Employees as a Salary Sacrifice Scheme**



“Consumers can be rewarded for playing a bigger role in our energy system. There are plenty of ways to save money, from...making the most of new technologies, such as batteries...Consumers can also generate their own electricity through roof-top solar panels, store it in batteries and even sell any excess power back to the grid to generate a profit...”

– Government Energy White Paper: December 2020

There are different operating and funding models for different types and forms of housing – **we are happy to talk to you about these.**



— ACEONGROUP.COM —

RENEWABLE ENERGY + BATTERY SPECIALISTS



THE HOME RENEWABLE ENERGY GENERATION PARTNERSHIP

"Offering solutions today for tomorrow's world"

THANK YOU FOR YOUR TIME

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