Renewables and Climate Change Advisory Group-Your Energy Sussex

Tom Coates- Senior Advisor/ Project Manager



APSE Renewables and Climate Change Conference

- 1. Background to the YES programme
- 2. Site identification
- 3. Major sites developed particularly battery storage to increase income from sites
- 4. Delivering a successful Schools Solar PV programme
- 5. Next steps





1. Background

- Established in 2014
- Growing concerns for three key issues of energy security; affordability; and environmental sustainability.
- Significant energy consumption on WSCC buildings (£11.5 Million per year~£250million over 25 years)
- Support for development of a WSCC Energy Strategy underpinning the programmes work
- Commitment to accessing borrowing to finance energy schemes
- Key support for development of the renewable energy sector by County Council Leader.





Key deliverables to date:

- 2 x operational solar farms
- First non-commercial subsidy-free solar farm in UK
- Commercial roof-top installations
- Schools Solar PV programme
- ECO- funded heating programme supporting over 500 vulnerable households
- Solar PV scheme delivered to 220 social housing tenants
- Development of the West Sussex Energy Tariff with over 4000 members since launch in 2018.
- Partner of the EU BISEPS programme to support grid capacity issues in business parks

Total Generation:

- 2018/ 19 generation: 8.7 MWh
- 2021/ 2022 projection: 17 MWh







Inception through to delivery...

Feasibility:

- WSCC possesses over 1000 properties
- Case made for using existing land
- Working with existing land- a double-edged sword
- Development of sites from early feasibility stage through to planning.
- Scrutiny of energy projects at senior officer and political officer level

Delivery:

- Carillion as initial delivery partner
- Alternative frameworks used for smaller installations Portsmouth CC
- Alternative dynamic procurement systems being considered.

Post-completion:

O&M contracts for all assets managed internally





Case Study- Westhampnett Solar Farm

- Previously mixed-use closed landfill site.
- Closed in 1995 and now designated lowgrade brownfield site
- Site is 35 acres/ 14 hectares
- Replacement gas extraction scheme planned for the site (25 years)
- Statutory obligations to retain the site (owing to gas migration over 25 years)
- Consent to developing a long-term solution to the site that matched other obligations
- Minimal income derived from the site





Options considered for the site:



Key high-level options for the site:

- Conventional solar farm with FITs
- Solar farm with private-wire connection
- Solar farm with battery storage

Benefits of PV- storage site to WSCC:

- Subsidy free installation for the life of the project
- Limitations to private-wire projects
- WSCC's core energy requirements for the 20+ years easily
 Modelled





System size:

- 27,665 panel module array
- 7.44MW ballasted solar farm with 4.40Mw Rated power SMA invertors and 4.06Mwh TestVolt battery storage capacity
- 7.5 Million KWh's of renewable energy
- Reducing the WSCC annual CO₂ emissions by approximately 20%
- Accounting for 25% of the annual WSCC corporate energy demand

Income will be generated from the site by the following means:

- Electricity generated on-site will be 'sleeved'/ repurchased by WSCCs energy purchaser, protecting it from energy price volatility.
- Income through price arbitrage/ peak shaving) and national grid response services such as EFR/ FFR.

Final design:





Key learnings from project Inception through to delivery:

- Winning hearts and minds with battery storage outlay
- Stakeholder engagement
- Double-edged sword of working with brown-field sites
- Extensive due diligence requirements/ project scrutiny
- Operating model for the scheme- budgeting for the risk
- Commissioning processes can be lengthy



Meeting the needs of schools:

- No financial risk fully funded, no liability
- Share benefits(profits) 50:50 with the schools, they save on energy and the Council makes a modest return
- Fixed price for energy paid by schools
- PWLB loans repaid from FITS, export and school payments low risk.
- £4.99M programme
- Partnership with Portsmouth City Council Solar PV Framework
- Achievements:
- 72 schools, 5,002kW, sizes ranging from 18 250 kWp
- Estimated savings for school in Y1 £159k, 25 yrs £6.29m
- Est net income for WSCC in yr 1 £109k, over 25 yrs £3.20m

West Sussex Schools PV Programme:





Next steps:

- 2 x Standalone battery storage systems planned for development totally up 46MW over coming 18 months
- Additional solar farm in pipeline for 2019/20.
- Schools solar programme forecast to total 80 installations by close of 2019
- Continuing growth of energy tariff
- Programme lead for Innovate UK's SMARTHUBS programmeinnovative projects looking at second-life batteries, marinesource heat pumps, hydrogen refuelling



Thankyou!

Tom Coates - <u>Tom.coates@westsussex.gov.uk</u>





An overview of policies and examples of taxi and private hire fleets becoming cleaner and greener

Insight from the Low Carbon Vehicle Partnership low-emission taxi workshop



Low Carbon Vehicle Partnership



- Low emission taxi guide with the Energy Saving Trust
- "Helping Local Authorities implement low emission taxi and private hire vehicle schemes"
- Project brief. CAZ pressure
- Air pollution
- Licensing
- Range of fuel and technology options
- Local authority workshop
- National policy perspective
- Local authority case studies



National Policy Perspective





The Road to Zero Strategy

"This is a strategy for the whole UK and all the measures outlined (except where indicated) are available across the UK. We will continue to collaborate closely with the devolved administrations in Scotland, Wales and Northern Ireland, and partners in **local government**"

"The devolved administrations and **local authorities have a crucial role to play** during the transition to zero emission vehicles and addressing local air quality issues. Many **local authorities are already taking action** to accelerate the transition to zero emission road transport, including the eight Go Ultra Low cities"

"Ambition to see at least half of new cars to be ultra low emission by 2030 as part of plans to make the UK the best place in the world to build and own an electric vehicle"

"all new cars and vans to be effectively zero emission by 2040"

Local Authority Case Studies





Birmingham City Council

- NOx reduction Champions project
- 2014 £500,000 from the Department of Transport to convert c.80 taxis to LPG
- LPG free entry to CAZ & meet Euro 6
- LPG conversion, final cost £7,700 per vehicle. VAT only cost to drivers
- NOx emissions testing results
- Early and continued engagement
- Found that drivers like the technology but not willing to pay

Nottingham City Council

- Aging fleet. 411 Diesel Hackney Cabs, average age 14yrs / Euro 3
- Policy changes 2020, 2025
- ULEV support package. 3 main areas
- Evidence/ Suitability. Cenex assessment. Data loggers. Fuel savings
- Electric taxi trial. 3 council owned taxis. 12 day loan £50. 7 supported so far
- Financial support (coming 2019). Home charger grants. Licencing cash back scheme
- Infrastructure, taxi charge point network

Brighton & Hove Council

- Air quality
- 2005 parking permits 50% discount for low emission vehicles. 2009 public EV fast charging points
- Recent OLEV bid for 200 on-street lamppost chargers
- By 2024 Ultra low emission zone for Euro 6 busses only
- Survey & analysis. Only 1/3 taxi drivers have a driveway. Range anxiety
- Engagement, personal health benefits

Common Themes



Engagement is Key!

- Need to have engaged champions
- Surveys. Barriers to EVs
- Forums
- Broaden knowledge. Taxi driver knowledge is key
- Air quality awareness

Local Authority Collaboration

- Ideas sharing and events
- Joint bids
- Go Ultra Low Cities group, OLEV funded
- Dundee 100 electric taxis
- APSE Energy

Infrastructure

- Knowledge
- Funding
- Pilot schemes
- On-street charging options
- Aesthetics. Accessibility
- EV only parking bays. Enforcement?



APSE Energy Publication

Go Ultra Low Oxford

This document explains the steps Oxford have taken so far, some of the problems they have come across and solutions they have identified, how they have engaged with private and public sector partners and what they plan to do next.

It will help other local authorities when they are considering their own approaches to this issue over the coming years and highlight the progress that can be made.

Series of Oxford publications, tracking progress

APSE Energy members free electronic and hard copy





Go Ultra Low Oxford

On-street residential charging for electric vehicles

A report on the design, procurement and installation of Oxford's flagship electric vehicle charging projects



Discussion



- 1. Have you progressed any EV taxi projects? What barriers to EV taxis do you experience in your area?
- 2. Rapidly developing area. News of Uber in London recently. What would help you to keep up to date?
- 3. Would you consider introducing an electric taxi trial in your council?







Contact Details

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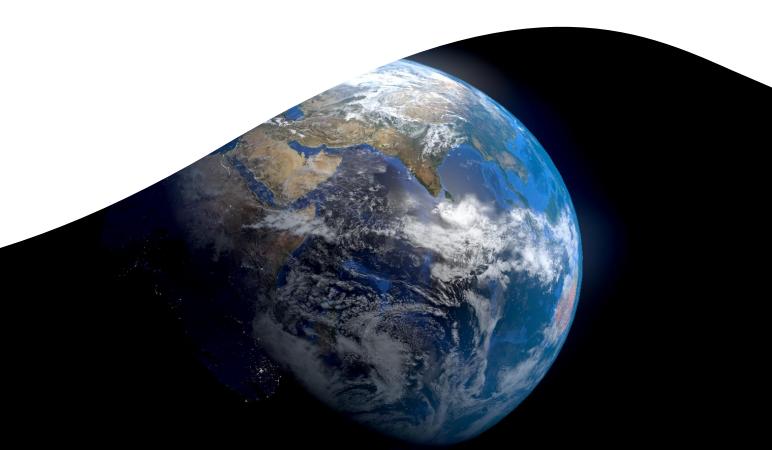




Local Authority Climate Emergency Declarations

The background, purpose, examples, benefits and challenges of declaring a Climate Emergency

Charlotte Banks
Energy Research and Project Officer
APSE Energy



Background









Global Warming of 1.5 °C

An IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.







Purpose





- A major motivator for declaring a Climate Emergency is to galvanise support for the climate change agenda and set a clear target by which the council and/or locality will be carbon neutral
- In emergency situations dealing with the problem becomes a top priority, people temporarily set aside business-asusual and focus intently on determining the safest course of action and doing whatever is required to deal effectively with a threat
- It will empower communities, encourage other councils to follow suit and generally help all of us treat the climate crisis as the emergency that it is

GREENPEACE - Two-thirds of people in the UK recognise there is a Climate Emergency

Local Authority Case Studies





Bristol City Council

- First UK council to declare a Climate Emergency
- Carbon neutral by 2030
- Councillor said, Bristol declaration could see a focus on renewable electricity, carbon neutral buildings, congestion charges and investment in clean transport infrastructure

Nottingham City Council

- 2028
- Most ambitious carbon neutrality target
- Already met energy strategy targets two years early
- This progress has been driven by a combination of the council's programme of renewable energy projects and a reduction in the city's energy demand, alongside substantial political backing

Manchester City Council

- One of the first authorities to declare a Climate Emergency
- Net zero carbon city by 2038
- Plan developed by the Council's Climate Change Board with input from the University of Manchester's Tyndall Centre
- Plan introduces a science-based 'carbon budget' for the city that caps total emissions at 15 million tonnes from 2018-2100

Benefits and Challenges

apse energy

Clear Action Plan

- Is the statement made on behalf of the local authority or the locality?
- Supported by and embedded in the local authority as a whole
- Point A to point B, milestones
- Project management skills, communication
- Political risk

Local Authority Activity

- Fleet
- Clean Air Zones, charging infrastructure
- Energy Use
- Procurement
- Behaviour change
- Industries

Renewable Energy

- Generation
- Local authority assets
- Economic and social opportunities
- Energy efficiency too!



APSE Energy

Support

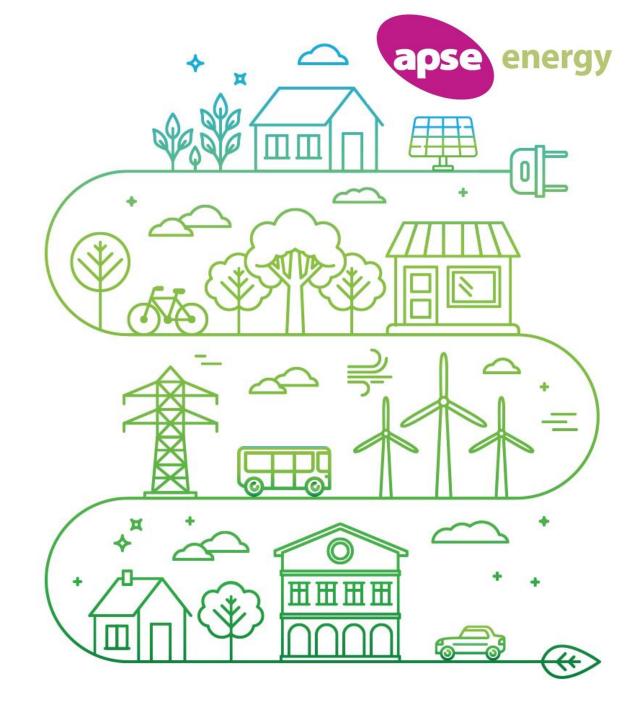
- Has your council declared a climate emergency?
- Do you have a plan to address it?
- Do you have the staff, capacity and expertise to put your plan into action?

APSE Energy was established to help inform and support local authorities in exactly this kind of situation

Climate Emergency Publication

This document explores Climate Emergency declarations in more detail

APSE Energy members free electronic and hard copy





APSE Energy Publications



Discussion



- 1. Has your council declared a Climate Emergency?
- 2. Has your authority set a carbon neutrality target?
- 3. Do you have a plan in place in meet this target?







Contact Details

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Durham County Council Cliff Duff – Housing Solutions





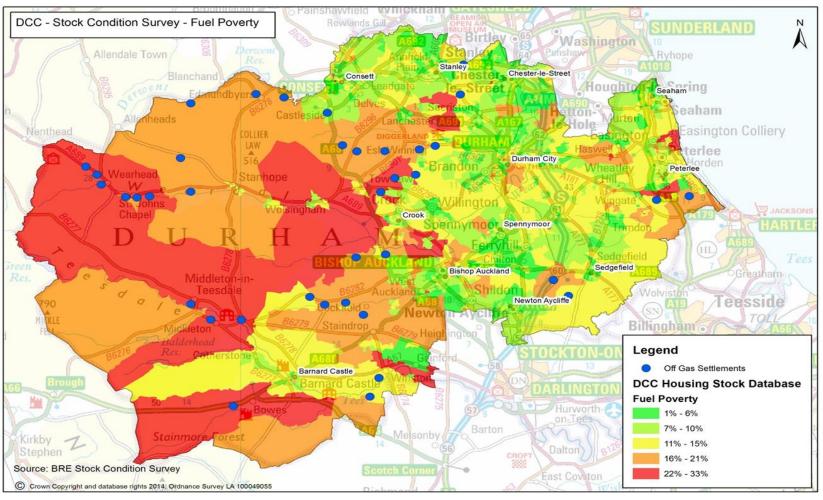


County Durham

- 6th largest Unitary Council
- 260,000 domestic dwellings
- Fuel Poverty @ 14%
- 65% Owner Occupiers
- 15,000 rural households



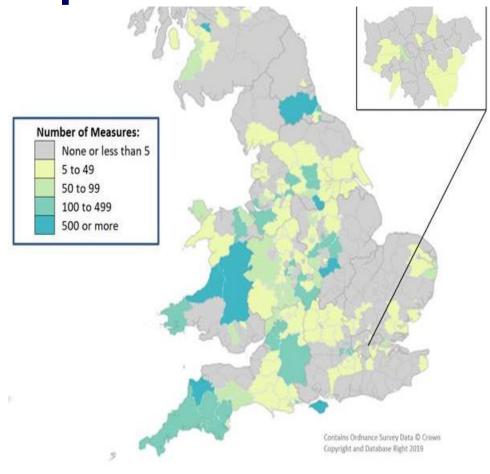
County Durham







BEIS Report – **ECO** Flex



Local Authorities are shown only if they have at least 5 flexible eligibility measures. In total, 223 Local Authorities had at least 1 flex measure up to December 2018.

Altog	ether	better

TOP 10 LOCAL AUTHORITIES			
LA area	Region/nation	ECO Flex measures	
Powys / Powys	Wales	2,570	
Ceredigion / Ceredigion	Wales	1,386	
East Renfrewshire	Scotland	1,341	
Torridge	South West	1,060	
Rotherham	Yorkshire & Humberside	767	
Isle of Wight	South East	533	
Harborough	East Midlands	517	
County Durham	North East	515	
Bracknell Forest	South East	413	
Teignbridge	South West	368	
Plymouth	South West	338	
		9,808	





Warm Homes Campaign

- Affordable Warmth Strategy
- Fuel Poverty Partnership
- 900 local community venues
- Area based promotions
- Countywide mail outs
- ECO Flex Verification Process



Warm and Healthy Homes

- Health and Wellbeing Strategy
- Health Impact Assessment
- JWA with Clinical Commissioning Group
- NICE Guidance (NG6) on Warm Homes
- Training for front line health navagators
- Warm Homes PRG Champions





Clinical Commissioning Group

- Develop links with local GP Surgeries
- WHC Single point of contact
- Promotion of Warm Homes Campaign inside GP Surgeries
- GP Surgery Mail Outs to patients
- Patients return questionnaire to WHC
- We make contact and provide assistance
- To date over 260 patient enquiries





Durham County Council



Cliff Duff – cliff.duff@durham.gov.uk







Delivered by Mike Chan - Beond Group

About Beond

Beond

Our Business:

Beond is a multi-award winning consultancy that offers bespoke procurement software for energy tendering

Awards:

Energy Broker of the Year (twice), Best Advisor, Best Green Business, Finance Business of the Year

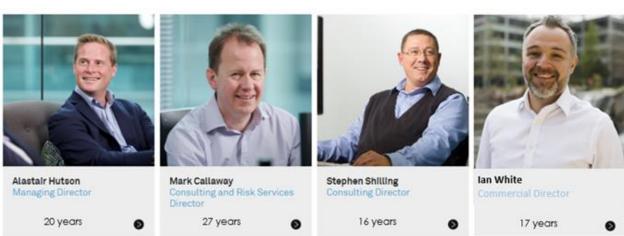
Our History:

Beond was founded in 1999 when it developed the first ever online commercial energy auction platform

Our People:

Beond's team is made up of experts with experience gained from:

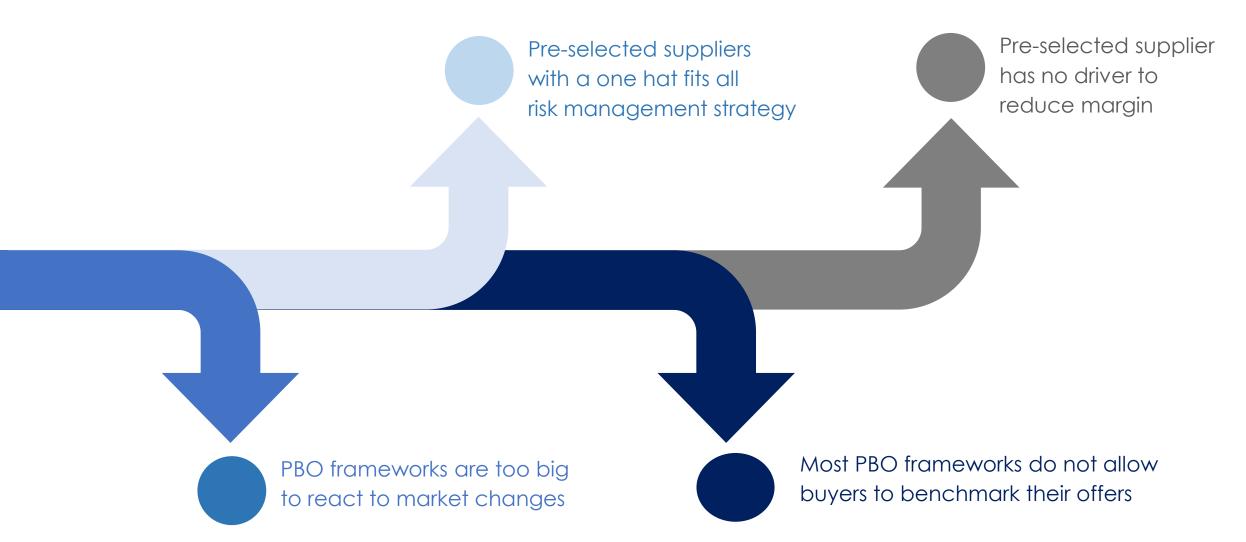
- Working for energy suppliers
- Financial services and risk management
- Oil and gas trading
- Training energy suppliers
- Software development
- Public sector procurement



Energy Procurement Options

Beond

Since deregulations most have used PBOs to procure energy contracts



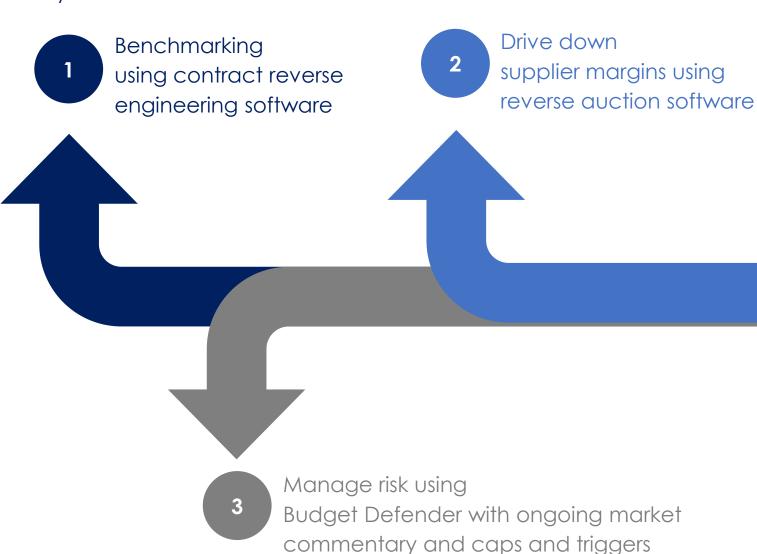
How To Ensure Best Value From Your Energy Provider

Beond

This method will aim to reduce your energy costs by more than 5%

This approach to procurement uses a structured and market-oriented processes to collect data, perform quantitative analyses and apply qualitative expert opinions.

The goal is to guarantee transparency and the best value for money in purchasing energy supply contracts



Contract Reverse Engineering

Beond

Using mark to market techniques to expose hidden supplier risk premiums and retail margins

Supplier Name	Exp Ann Spend	Avg Rate	% vs Best	£ vs Best	Bid/M2M Date	Wsale Index	Comments
Current Contract to Oct 13-Sep 14	£1,354,049	10.602			03-04-2014 12:00	4.5050	CCL Added for 2 Brown Meters - Commission Included
Reverse Engineering - Low*	£1,194,827	9.355	-11.8%	-£159,222	29-03-2014 13:40	4.6160	0% Suppiler Commission - Brown Prices (CCL included)
Reverse Engineering - Avg*	£1,268,405	9.931	-6.3%	-£85,644	21-01-2014 13:40	5.1328	0% Suppiler Commission - Brown Prices (CCL included)
Reverse Engineering - High*	£1,278,261	10.008	-5.6%	-£75,788	06-12-2013 13:40	5.3069	0% Suppiler Commission - Brown Prices (CCL included)

^{*}Low - Day with the lowest wholesale closing price in the 6-month period prior to the contract start

- By reverse engineering this £1.3m contract we can expose hidden premiums and margins
- The best and worst trade for this account showed **5.6%** -**11.8%** margin
- These supplier margins are 3-9 times higher than what we can achieve using the same hedging strategy within the private sector

^{*}Avg - The Average (arithmetic mean) wholesale level in the 6-month period prior to the contract start

^{*}High - Day with the highest wholesale closing price in the 6-month period prior to the contract start

Contract Reverse Engineering Results

Beond

Beond exposed hidden margins and premiums in existing PBO offers



A Midlands NHS Trust- £120k savings identified

A Midlands City Council- £1.3m savings identified

A Southern City Council- £1.2m savings identified

A London NHS Trust- £68k savings identified

A Midlands NHS Trust- £120K savings identified

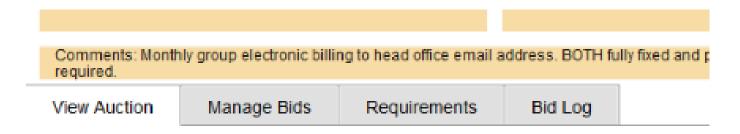
A London NHS Trust- £300k savings identified

Savings are based on reducing excessive margins

Reverse e-Auction - Fixed Gas

Beond

Utilise the e-auction to drive down supplier margins



Bid ID	Supplier Name	Total-exCCL	Avg Rate	P
82732	Corona Energy	£347,145	2.8293	29-Apr-
82627	nPower	£357,363	2.9125	29-Apr-
82641	Gazprom	£358,370	2.9207	29-Apr-
82686	Scottish & Southern	£360,963	2.9419	29-Apr-
82714	Crown Gas & Power	£383,957	3.1293	29-Apr-

- 9 suppliers competed for 224 gas meters
- Over 50 bids were compared like for like.
- Gas auction provided £78k savings against the incumbent supplier x.
- Electricity auction produced a further **£212k** savings against the incumbent x.
- Link to the case study can be found here
 https://beondgroup.com/case-studies/barnardos/

Reverse e-Auction - Fixed Electricity

Beond

Bid ID	Supplier Name	Total-exCCL	Avg Rate
78829	Scottish Power	£6,660,070	9.3760
78300	Scottish & Southern	£6,826,572	9.6104
78807	SmartestEnergy	£6,850,564	9.6442
78245	Hudson Energy	£6,854,768	9.6501
78253	Total Gas & Power	£6,886,150	9.6943
78315	nPower Corp	£6,905,432	9.7214
78243	Haven Power	£6,925,008	9.7490
78865	Gazprom	£7,018,604	9.8807
78135	E.ON Energy	£7,036,125	9.9054
78886	Engie	£7,110,837	10.0106
78809	EDF Energy	£7,114,388	10.0156

In this auction, the PBO's incumbent HH supplier was EDF.

11 suppliers competed aggressively to win the business.

On this day the EDF Energy benchmark was beaten by £454k (6.4%).

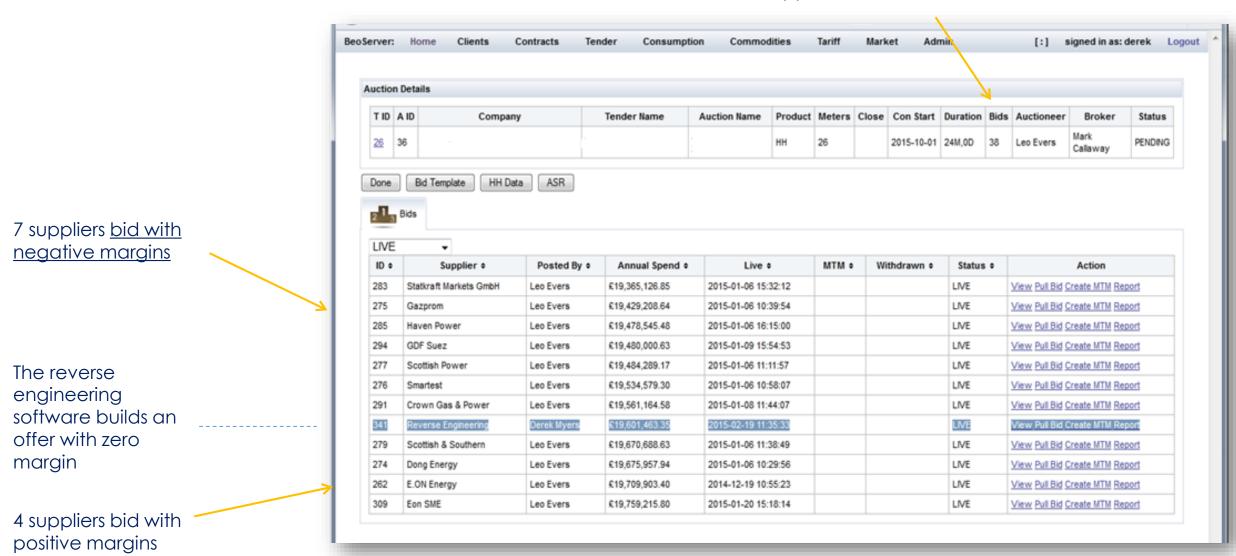
Proving pre-selected suppliers do not always provide best value.

Energy Procurement - Flex Contracts

Beond

Proving offers with negative margins are achievable

11 suppliers bid 38 times in this auction



Energy Budget Defender - Sample

Report Date: April 2019 Renewal Date: Oct-2019

Wholesale Market Tracker

As part of Beond's Fixed Plus Risk Management Report procurement service we will monitor Optivo's wholesale costs daily against Optivo's agreed cap and target price. This report is a summary of our service.

The below graph shows Optivo's 12 month forward wholesale price movement for your renewal date in Oct 2019. Included in this graph are the agreed targets and caps and your fixed wholesale price from your Oct 2018 tender.

ap Set (p/kWh)	2.54			
orget Set (p/kWh)	1.96			
Current Price (p/kWh)	1.60			
12m (Contract St	arting Oct	2019	
2.8				1
2.6				
2.4				1
22				— ,
N° h				
²⁰ f'	Mary Mr.			
1.8	m			
1.6		¥		
1.4				—
1.2				
1.0				
Apr-18 Jul-18 Oct-18	8 Jan-19 A	pr-19 Jul-19	Oct-19 Jan-20	

Wholesale Market (p/kWh)				Caps + Targets (p/kWh)				
Last Month average	Lowest	Highest	Range	Сар	Variance	Target	Variance	
1.66	1.57	1.80	0.23	2.54	0.87	1.96	0.30	

"Please refer to glossary for terminology

Beond

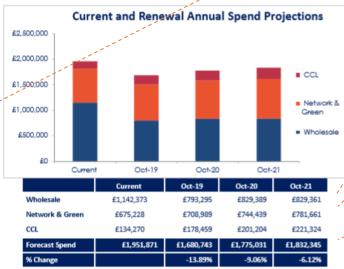
Building 11, Chiswick Business Park 566 Chiswick High Road T: +442088997385 E: info@beondgroup.com www.beondgroup.com Pushing the boundaries in energy design Report Date: April 2019

Renewal Date: Oct-2019

2. Annual Spend Projections

The below table and bar chart shows Optivo's estimated annual spend for their current contract agreed Oct 2018. It also shows Optivo's estimated spend over the next 3 years from your renewal date in Oct 2019.

These estimates are created from your usage of 49,546,085 kWh's per annum. The below table and bar chart is calculated using your projected wholesale gas costs (found on the wholesale tracker) and your contracted distribution, metering, CCL and other costs agreed Oct 2018, including future estimates.



"Please refer to glossary for terminology

Beond will continue to track the wholesale market for your future contract. Please find attached our monthly market report on our website (https://beondgroup.com/beinformed/) for further information on current market drivers and regulatory news.

If you have any questions about the report please contact your key contact Tomos Edwards.

Beond

Building 11, Chiswick Business Park 566 Chiswick High Road E: info@beandgroup.com

Pushing the boundaries in energy design

Beond

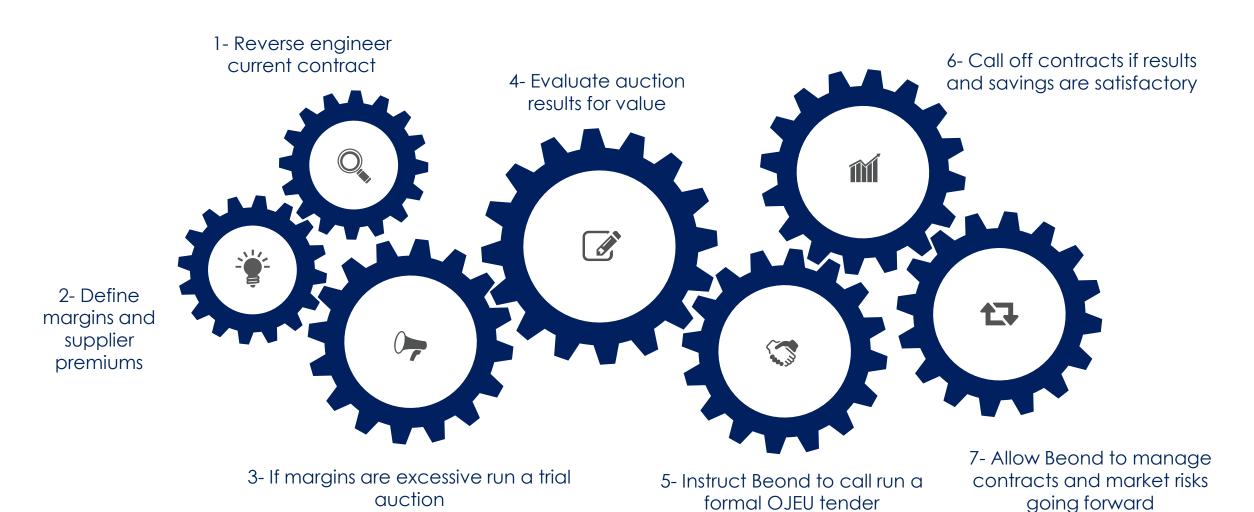
Sets caps and triggers to meet agreed risk strategy

- Tracks wholesale market against your current price
- Projects tax increases for next 3 years
- Projects annual costs for the next 3 years

 Provides rationale on market timing and settlement

Process Summary

Beond



Summary of Benefits

Beond

Offering risk free compliance without compromise



Transparency

Direct market prices on the day of tender

Auditable meter level bids

> Mark to market benchmarking

Wider choice of suppliers

Broader range of hedging strategies

Bespoke contracts

Efficiency

Instant assessments on all contracts

> **Automated** evaluation

Price and contract risk assessments

Savings

Exposes hidden premiums in up to 23 cost components

Targets 5% savings against other offers

Complimentary VAS

Proven Results- savings delivered



Examples of successful public sector and non-for-profit organisations achievements using the reverse auction



Procurement services

£270k savings



Procurement services

£140k savings



OJEU Procurement services

£53k savings



OJEU Procurement services

£731k savings



Procurement, bill validation and carbon compliance services

£2.7M savings



OJEU tender, bill validation, auditing and metering services

£241k savings



Procurement, bill validation and carbon compliance services

£220k savings



Procurement, bill validation and carbon compliance services

£290k savings

Our Services

Beond

- Energy tendering
- Energy compliance
- Risk services
- Energy bureau
- Infrastructure and metering
- Technology services



For information on our other services please contact us on: 0208 899 7385

Building 11 Chiswick Business Park London, W4 5SY