



Your Energy Services Partner

INNOVATION – EXPERTISE – INTEGRITY

“At Padd Energy we take great pride in being innovative, industrious and honest with our customers. Our customers trust us to deliver the highest quality services and energy solutions and to operate with fairness, integrity and enthusiasm. Our unparalleled experience in the power industry and straightforward advice helps businesses plan and use energy more effectively.” MD CHRIS PADDEY



[www.paddenergy.com](http://www.paddenergy.com)



## INTRODUCTION

Padd Energy is a niche energy consulting practice founded on almost three decades of global power industry expertise. We provide strategic independent advice to energy users, energy generators and corporates who are active in the energy sector. Our expert knowledge of the current energy market and the sector's evolving technologies allow us to help businesses make informed decisions on procurement, efficiency and investment for the future.

Our capability is recognised and trusted by large multinational, multi-disciplinary consulting firms who regularly partner with us for strategic business growth projects and energy related assignments. We have worked at boardroom level and as client advisor on a wide range of public and private sector schemes.

Our approach sets us apart in the marketplace. We provide uncompromised levels of advice, professional support, and solution delivery to create, design and manage energy for our customers. We look to work in partnership with organisations so that they can focus on their core activities, knowing that all energy efficiency, generation and procurement options are covered. Above all, we operate ethically, with honesty and transparency.

By truly understanding your requirements from the outset we can offer a bespoke service providing results that are aligned to your organisational needs with a focus on open, communicative and quality driven delivery.

# UNDERSTANDING ENERGY AND YOUR BUSINESS

At Padd Energy we understand that the way you run your business today – and the vision you have for its future – influence your priorities for energy management and solutions.

Having delivered successful projects across a multitude of sectors including commercial, manufacturing, oil and gas, energy, healthcare and the public sector, we can advise strategically on a range of service and technology based solutions for customers across these industries.

Our energy experts have a detailed understanding of energy solutions and know that the following key points must be addressed to deliver commercially successful projects, safely and efficiently:

Customer requirements discussed, analysed and documented thoroughly with all stakeholder and third party requirements addressed at the earliest stage, to ensure that the design is right from the outset.

Clear and concise financial modelling ensuring commercial viability at the earliest stage of the project

Clear communication channels established including Request for Information (RFI) and change request systems, ensuring that any messages, ideas or changes can be dealt with quickly and with limited impact on daily operations.

All elements of risk assessed and monitored on an on-going basis.

Strong and effective management of all project related services.

Zero Harm safety culture applied as an integral part of any solution provided.

Business centric solutions that are aligned to the goals and objectives of customers.



## CASE STUDY: 4.8 MW Waste Wood Power Project

### Padd Energy Advises on New Combined Heat & Power Plant

Padd Energy's unique combination of commercial acumen, technical expertise and personable approach attracts contracts from large scale organisations and consultancies operating nationally and globally.

One of our recent projects has seen us advise the global corporation behind a new 4.8MW waste wood combined heat and power plant in the Midlands. Our experience in the renewable energy and waste to energy sector ensured the owner met their obligations around thermal plant design and we have worked closely with all stakeholders to prepare the project for construction and commissioning.

**"Padd Energy's expertise in managing major energy projects has been invaluable in helping us foresee any potential issues and develop a strategic approach."**

Danny Kim, UK MD of Hyosung Corporation.

# WHAT WE DO

## Energy Generation Designing for efficiency

Padd Energy is a global expert in power strategy and design having extensive experience of supporting both the utilities and renewable energy sectors in the conceptualisation, development and implementation of solutions.

As specialist energy industry consultants for the power industry we have extensive experience of designing elements of new build gas, coal, biomass and EfW fired power stations. We complement this by also offering asset management support and strategic advice on operational plants.

In addition to thermal power plants, we have designed hundreds of MW of renewable energy schemes in the UK and overseas. Our team manages the entire process from feasibility, development and design through to installation and ongoing maintenance of commercial Biomass, Solar PV, Wind Power, District Heating, CHP and other renewable energy solutions.

Our expertise does not just lie in the design and delivery of projects but the connection into the wider commercial requirements including Power Purchase Agreements, Regulatory Compliance, demand side response, operation and maintenance. We can also advise on energy storage solutions such as battery technology either behind or in-front of the meter.



### CASE STUDY: Renewable Energy for Lightwater Valley Theme Park

Lightwater Valley is a significant tourist attraction in Yorkshire attracting over 500,000 visitors each year. The theme park is passionate about sustainability and we worked with them to design and install a 400kW biomass heating system to work alongside their intelligent lighting and 240kW Solar PV system. We created a commercially attractive financial model to suit the clients requirements.

Our experience in the energy and renewables sectors means we can design and manage OFGEM applications by carrying out biomass meter readings and ensuring RHI compliance.

Our expertise also allows us to advise clients on the most advantageous ways of selling their electricity via power purchase agreements and demand side response strategies.



## CORPORATE STRATEGY

### Taking the lead on energy and sustainability

Padd Energy's large scale public and private sector clients depend on us for industry leading corporate strategy advice and support. This includes designing energy and sustainability related strategies, undertaking gap-analysis on existing business systems, designing and running energy tenders and providing the very latest market intelligence. Our high-level service offering is structured around four leadership-led assets:

#### STRATEGY AND LEADERSHIP

- Padd Energy team's experience includes the strategic development, leadership and tactical delivery of power projects around the world.
- Our consultancy style is market facing and client focused.
- We have an in depth knowledge of the power sector and use this to benefit your business

#### TECHNICAL INSIGHT

- Our expertise spans both commercial need and technical understanding.
- The Padd Energy team's technical leadership is based on a deep understanding of the capabilities and benefits of all utilities and energy related technologies.
- Technical insight is provided from feasibility stage right through to project completion, evaluating technologies and advising on return on investment and timescales.

#### STRATEGY DEVELOPMENT

- We offer high level strategic advise to boardrooms looking to develop power/energy strategies to guarantee revenue and/or to reduce costs.
- Our team consists of highly skilled and experienced professionals from within the industry. They have been selected for their strategic strength and expert knowledge of the sector.

#### DELIVERY AND RESULTS

- We proactively share insight, market drivers and sector direction with our clients.
- Our senior management team is able to engage business unit managers to target particular markets and build collaborative cross-organisational teams.
- We deliver to your business requirements.

# ENERGY OPTIMISATION

## Helping you spend less on business energy

For our energy end-user customers such as manufacturers and commercial businesses we are here to help Save and Make Money.

Padd Energy acts independently to develop hard-working energy optimisation strategies for organisations, identifying and taking forward concepts to improve their bottom line. As an independent energy partner we work in partnership with our customers to develop the most appropriate short, medium and long term solutions.

Energy optimisation can be provided as a stand-alone service or collectively as part of an energy partnership approach, to generate increased profits for your business. Partnership options include retained contracts, call-off arrangements and part-time energy manager services, all of which are supported by our Energy Bureau facility.

“The value we bring is in our ability to look strategically at budgets, assess the market and make recommendations based on usage patterns and business need.”

**Chris Paddey**



### INSIGHT

Consultancy tailored to your organisation

- Energy audits
- Energy compliance (ESOS, CRC, EU ETS)
- ISO50001 energy management systems
- Employee engagement initiatives
- Energy expert representation
- Renewable energy feasibility and design
- Certified Measurement and Verification (CMVP)

### MARKET

Independent advisory brokerage finding the best products and suppliers

- Energy procurement (gas and electricity)
- Power Purchase Agreements (PPA's)
- Demand Side Response (ancillary markets)
- Triad avoidance
- Load shedding / Peak shaving
- Energy Bureau

### TECHNICAL

Energy projects designed to deliver business improvement and commercial return

- Lighting
- Heating / Steam
- Motors and Drives
- Power Factor Correction
- Refrigeration
- Renewable technologies
- Compressed air
- Metering / Sub-metering
- Energy Monitoring Systems
- Voltage management



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“Our understanding of energy systems and technologies, along with the time spent getting to know the business and understand its priorities for quality, efficiency and sustainability, meant we were able to find exactly the right strategy to match their growth plans.”

**Chris Paddey MD of Padd Energy**

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#### CASE STUDY: Alan Bartlett & Sons

##### **Padd Energy Identifies Energy Saving Strategy for Food Processing Plant**

Padd Energy’s energy consultancy services have identified major cost savings for a large UK commercial food producer.

The company produces vegetables for a leading supermarket, farming over 3,300 acres. The business consumes significant volumes of energy to maintain optimum storage conditions for its harvest and operate its busy packing factory, which at peak times employs over 500 people.

Padd Energy carried out a full processing plant energy appraisal, design and installed a live online energy monitoring system.

Site-wide energy mapping involved the installation of live online sub-metering of plant items to identify energy saving options.

The resulting strategy included a 1.2MW solar array, 9 hydro coolers, a compressed air system and mains electricity supply.

**“We consulted Padd Energy because we wanted to work with a company that has extensive experience in the energy sector and understands how to develop strategies that make commercial sense. Chris and the team carried out a very detailed energy appraisal and looked at this in the context of how our business works operationally. Their recommendations were soundly based and we now have a sustainable solution that will help us grow.”**

Toby Bartlett

# ENERGY BUREAU

## Intelligent Energy Management

Innovations in data accessibility and software have revolutionised energy management making it easier than ever for organisations to identify and correct energy inefficiency.

Padd Energy has a team dedicated to monitoring and managing energy use across various organisations, providing independent and transparent advice on energy procurement and contract renewals, metering, consumption, data collection analysis and bill validation.

In addition to this we are able to provide Virtual Risk Managers, who work on your behalf to manage your energy and/or environmental health and safety risks. This service allows you to proactively reduce your risk profile without the cost of employing someone in-house for the role.



### VIRTUAL ENERGY MANAGER

Our pay monthly Virtual Energy Manager service includes the following as standard:

- One site visit per year per site
- Energy reduction report
- Energy purchasing advice
- Online energy monitoring
- Advice on Demand Side Response
- Advice on Triad Avoidance
- Energy inefficiency / performance reports
- Advice on generating your own energy
- Direct telephone access to your own personal energy manager.

### VIRTUAL ENVIRONMENTAL, HEALTH AND SAFETY MANAGER

Stay up to date with regulatory risk, maintenance and certification for a fixed monthly fee.

- Tailored online compliance register
- Telephone risk and compliance audit
- Identification of all relevant legislation
- Bespoke service
- Helpdesk support and guidance
- Super user multi-site option

Your VEHSM can also advise on the benefits of non-statutory systems (i.e. ISO50001) where an integrated system may provide a more business centric and cost-effective route to multi-standard requirements.



# STRATEGIC BUSINESS CONSULTANCY

Padd Energy were appointed as Chief Executive Officer for the Ogdan Energy Group of companies. This was a forward-thinking energy organization struggling to generate profit.

The role included strategic leadership of three companies focused on design and build of solar PV and biomass systems, a free biomass boiler business and a wind power site finding and development company.

Reporting directly to the owner Padd Energy were able to generate profit for the first time in the Group's history whilst delivering innovative solutions for their clients.



# ENGINEERING CONSULTANCY & FEASIBILITY

Padd Energy have worked extensively with leading UK plc companies to advise on the feasibility and design of a wide range of energy related projects.

As technical lead with a deep understanding of the capabilities and benefits of all power generation technologies, Padd Energy provide valuable insight from feasibility through to delivery.

Padd Energy have advised on public sector district heating schemes, large scale renewable energy projects, waste to energy plants and anaerobic digestion solutions.

## CASE STUDY: HARROW COUNCIL BIOMASS BOILER AND DISTRICT HEATING SYSTEM

### Background

Headstone Manor & Museum was awarded £3.6 million by the Heritage Lottery Fund to restore the Great Tithe Barn and create a museum and visitor centre.

### Project

Acting on behalf of Harrow Council, Padd Energy designed a 200kW eco cabin with wood pellet burning biomass boiler to provide heat throughout the Manor and Museum.

The biomass boiler powers underfloor heating in the Great Barn which is a highly efficient way of heating both buildings. Solar panels and ground source heat pumps were deemed unsuitable for ancient monuments like this and as such a biomass solution was selected.

### Our expertise

Chris Paddey, Managing Director of Padd, said: "We were delighted to work with Harrow Council on this project to plan and project manage the installation of an efficient renewable energy solution for a heritage building."

## CASE STUDY: TECHNICAL LEAD FOR RESIDENTIAL DISTRICT HEATING PROJECT

Padd Energy was commissioned as technical lead for a ground-breaking energy centre and residential district heating project in the South West of England.

### Project

The scheme incorporated heat sales and a private wire network to sell electricity to a number of buildings, each comprising between 600-1200 residential apartments.

### Our expertise

Advising one of the largest electricity suppliers in Europe, we took the technical lead, directing on feasibility, strategy and design.

### Outcome

Now complete, each development brings reduced energy bills to its residents and all the apartments achieved a Code for Sustainable Homes (CSH) rating level three.

## CASE STUDY: ADVANCED ANAEROBIC DIGESTION (AAD) SOLUTION

Padd Energy advised on a major city council consultation into the feasibility of an advanced anaerobic digestion solution for 8,000 tonnes of putrefactive waste combined with 12,000 tonnes of dewatered sludge.

### Background

The project looked at the potential to transform thousands of tonnes of food waste, which would otherwise have gone to landfill, to generate biogas for export to the gas grid.

### Our expertise

Our role included preparation of the design concept and financial modelling to utilise UK incentive mechanisms.

# ENERGY INNOVATION AND REVENUE STREAMS

## Battery storage

The increase in renewable energy generation along with the advancements in energy storage system technology are quickly revolutionising the energy industry. We have particular expertise in this area and can advise on how energy storage, including battery technology, works for different types of organisation.

### What are Energy Storage Systems (ESS)

Energy Storage Systems are the set of methods and technologies used to store electricity at one time for use at a later time. The accumulation device used to accomplish this is called a battery, however there are many forms of energy storage.

### Why is battery storage important?

Battery storage enables energy to be used by organisations themselves or the electricity network to react to electricity issues regarding intermittency, system stress and times of high market prices. It can also have the added benefit of maximising the potential of renewable energy systems by retaining the energy generated by solar photovoltaic panels and other renewable technologies for later use.

### Revenue stacking

Revenue stacking is a way of combining incentives and benefits to monetise energy storage. At Padd Energy we have experience of developing strategies for global organisations enabling them to harness the full financial benefits of clean energy through battery storage.

## Demand Side Response

Demand Side Response is a National Grid scheme where commercial electricity users are incentivized financially to lower or shift their electricity use at peak times, helping manage load on the electricity network during times of stress. Demand Side Response is available to organisations with the potential to flex their electrical load; from 100kW upwards. The financial benefits can be significant.

If you are a significant energy user our team will identify plant and other equipment; items that could be flexed or activated at peak times without impacting on your operations. We will undertake a technical survey to confirm the revenue streams you can access and we will make the application on your behalf. You will then receive revenue whenever the National Grid calls on your energy.

We manage the whole process for you and make sure you are being paid for your contribution to the UK's grid demand management.

### CASE STUDY: BRADFORD UNIVERSITY TECHNICAL STUDY

Padd Energy hosted a battery storage technical tour for an international client to demonstrate how battery storage works in practice.

#### Our expertise

We were then commissioned for our knowledge and understanding of battery technology and the options for monetising it. We were able to offer insight into the UK market and explain how different revenue stacking scenarios could be analysed to make the finance model work.

#### Outcome

Battery storage tackles some of the biggest challenges of the energy sector - the mismatch between when the power is generated and when it is needed. By finding ways to harness the energy produced from natural resources we can improve the return on investment from commercial clean energy systems.



# THE LEADERSHIP TEAM

Our business was founded by Chris Paddey, a Chartered Civil Engineer with over 30 years' experience in the global power sector. He has created a team of professionals that have earned the confidence of major players in the public and private sector, both in the UK and internationally, who regard Padd Energy as a global leader in energy consultancy.



**CHRIS PADDEY**  
**MANAGING DIRECTOR**

Chris is an experienced Global Business Director in the power, renewable energy and environmental sectors. Chris has worked for companies in Singapore and Malaysia. He is a former Managing Partner of ERM and member of their EMEA Board of Directors. As Global Practice Leader for CH2MHILL Chris was responsible for over 200 staff with an annual revenue of more than £20m. Chris also served as CEO of the Ogden Energy group of companies. He is a skilled energy strategist with a deep understanding of current markets, technologies and financing models.

[chris@paddenergy.com](mailto:chris@paddenergy.com)



**MARK BURROWS**  
**ASSOCIATE DIRECTOR**

Mark is a specialist in energy management, particularly in the context of delivery for large scale organisations. Mark is a former UK Channel Development Manager for ENGIE and UK&I Energy Performance Contract Manager for Siemens. He has significant experience in the field of Demand Side Response, having led on project delivery including technical surveys, solution development and battery storage integration. Mark is skilled in energy partnership development and delivering major energy efficiency programmes.

[mark@paddenergy.com](mailto:mark@paddenergy.com)



**IAN RICHARDSON**  
**TECHNICAL DIRECTOR**

Ian is a Chartered Mechanical Engineer with over 36 years' experience in the power sector. He has a wealth of experience in the decentralised energy market offering economic and technical feasibility advice. He understands how to develop energy projects from concept to commissioning and specialises in CHP and district heating. Past roles include 16 years at Atkins, where his most recent responsibility was Technical Authority for the Decentralised Energy team, and positions with ESCO development companies include Emstar (later Dalkia), Viridian Power Resources, Symonds Power and Power Engineering.

[ian@paddenergy.com](mailto:ian@paddenergy.com)





5 CHELTENHAM PARADE  
HARROGATE  
HG1 1DD

TEL: 01423 900480 WEB: [www.paddenergy.com](http://www.paddenergy.com)

It's time to take energy seriously