

Combined Heat and Power (CHP) or “cogeneration” is the simultaneous production of both heat and power (electricity) by specialist CHP equipment installed on a site.

It is typically powered by gas in most commercial environments, but alternative input sources include oil and biomass. CHP plants offer significantly reduced energy costs by producing electricity on site, with the heat being used in a range of ways including powering central heating systems in winter and for cooling in summer through the use of absorption chillers as well as providing hot water all year round. There are a number of Government schemes to further incentivise the use of CHP and these are touched on below.

## What are the Advantages of CHP?

The Department of Energy & Climate Change (DECC) estimates that the CHP process boasts **energy efficiencies of more than 80%**, can **reduce carbon emissions by up to 30%** (compared to producing heat and power separately) and typically **saves around 20% on energy costs**. Many companies suggest higher energy savings are achievable.

CHP provides a **one-stop-shop solution for heating, hot water, electricity and cooling** which is coupled with **long-term costs savings**. There are many different funding and procurement models that can be used to install CHP (see more below). Your chosen energy services provider (ESCO) will install and take on full responsibility for the supply, installation, operation and maintenance of the on-site CHP plant, typically for up to 15 years, offering you peace of mind that the scheme is being maintained correctly. Your ESCO may also assume the risk of providing you with Guaranteed Energy Savings when compared with the rates you would typically be paying to utility providers at the start of the contract. CHP therefore aims to provide you with fuel supply security, reductions in distribution costs (“embedded benefits”) and in some instances guaranteed savings without the need for increased monitoring, servicing or maintenance costs. Further, and as outlined below, in many instances this can be achieved through little or no capital expenditure by you and with, by way of example, the payments being made by way of long term service payments for the supply of the services.

CHP plants are now **widely used** in universities, hospitals, hotels, leisure centres and commercial buildings and, in some cases, can be a useful means of **supplementing your existing income** by selling on any surplus power you produce back to the Grid. Other innovate revenue earning schemes are also available through the use of CHP.

As specialists in this area we have the required skills not only to advise you on the project documentation that regulates your relationship with your ESCO but also on funding documentation and structures. We have experience with several different funding methods available on the market. We are able to cater for your own financial needs to ensure your business can benefit from the significant advantages brought about by CHP.

Our lawyers can, where relevant, work with your financial advisers so as to meet their requirements for the CHP scheme to be **off balance sheet**. This may prove to be significantly financially beneficial to your business. We have experience in putting together the most appropriate structures for our clients and would be happy to discuss what structure would work best for you.

## Additional Incentives

As demonstrated by the recent UN climate change summit in Paris, the UK is committed to setting long-term goals of net zero carbon emissions and a move towards the use of “clean” efficient energy. The Climate Change Act 2008 already commits the Government to an ambitious trajectory of carbon dioxide emissions reductions, with an ultimate target of an 80% reduction on a 1990 baseline level by 2050. As such, the Government has enacted various legislation, regulations and created financial incentives to meet these goals. Depending on the scheme and your organisation, switching to CHP certified as “Good Quality” under the CHPQA programme may in addition to reducing your energy spend, allow you to benefit from some of the following financial incentives when switching to CHP:

### Energy Saving Opportunity Scheme (ESOS)

The scheme requires organisations which employ more than 250 people and have a turnover in excess of €50 million to identify areas in which energy savings can be made. Although bodies covered by public procurement legislation are excluded from the scheme, some educational establishments, such as universities, can be caught if they are predominately funded from private sources. An ESOS energy audit may recommend CHP as a suitable method of bringing about these energy efficiencies. It is worth remembering that there are financial penalties for failure to carry out audits under the ESOS scheme.

### CRC Energy Efficiency Scheme (CRC)

The scheme is designed to increase energy efficiencies and significantly reduce carbon dioxide emissions in high energy users in both the public and private sectors. CHP may prove to be an effective method of reducing the number of allowances that have to be purchased for CRC compliance, and will be of particular relevance for many universities, leisure centres and hospitals that are routinely energy intensive.

### **Climate Change Levy (CCL)**

Educational establishments other than charities engaged in non-business activities are subject to CCL on gas and electricity supplies. Supplies of gas to Good Quality CHP are exempt from CCL as are on-site supplies of electricity from CHP. The Government has indicated that it will be replacing the CRC and the CCL with a single business energy consumption tax. It is expected to bring forward proposals at the next budget following an initial consultation last Autumn. The changes have the potential to increase the number of educational institutions subject to energy taxation.

### **Hydrocarbon Oil Duty Relief**

Relief from Hydrocarbon Oil Duty is available for oil used in Good Quality CHP schemes.

### **CHP Business Rate Exemption**

A business rates exemption is available for plant and machinery specified in the Valuation and Rating (Plant and Machinery) England Regulations which is comprised in a Good Quality CHP scheme.

### **Enhanced Capital Allowance (ECA)**

Enhanced Capital Allowances are available for equipment used in Good Quality CHP schemes provided the scheme does not also benefit from the Renewable Heat Incentive or Feed in Tariffs. Although ECAs are of no value to most public sector educational institutions, they can benefit indirectly since the ECAs may be claimed by a business which owns and operates a CHP scheme installed on client's premises and which supplies heat and electricity through an energy services contract.

### **Renewable Heat Incentive (RHI)**

Heat generated by CHP fuelled by biomass or, if the scheme has a capacity of 200 kWth or more, biogas is eligible for payments under the Renewable Heat Incentive Scheme. The tariffs, which vary depending on the type of technology involved and the date of commissioning, are payable for 20 years.

### **Renewables Obligation Certificates (ROCs)**

Electricity produced by good quality CHP may be eligible for ROCs where it is fuelled wholly or partly by biomass or biogas. Generally speaking, in order to qualify for ROCs, the CHP scheme must be commissioned by the end of March 2017, although in certain circumstances schemes may have up to 18 months longer in which to qualify. The number of ROCs awarded per MWh of electricity production varies between 0.5 and 1.9 depending on the fuel mix and date of commissioning, with a single ROC being worth around £40.

### **FiT Contracts for Differences (CFDs)**

The Renewables Obligation is being replaced by a new system of feed-in tariff contracts for differences (CFDs). A CFD establishes a fixed price for electricity production with the generator receiving the difference when the strike price is higher than the market reference price and paying the difference when it is lower. Strike prices for established and more expensive technologies are set through a tender process and apply subject to any price caps specific to the relevant technology type.

The next CFD tender round is due to be held by the end of this year and the eligible technologies and price caps and other tender parameters have yet to be established. In the first tender round CHP was eligible if fuelled by waste or dedicated biomass or used advanced conversion technology. Contracts were awarded to two energy-from-waste CHP projects with strike prices at the £80/MWh price cap and to three ACT projects with strike prices of around £114/MWh to £119/MWh depending on the target completion date (all prices given in 2012 values).

### **Feed-in Tariff Schemes (FITs)**

At present Feed-in Tariff payments (FITs) for CHP electricity production are available to anaerobic digestion CHP schemes with a capacity of up to 5MW.

### **Capacity Market**

The Capacity Market is a new potential source of income for gas-fired CHP (both existing and new). Successful bidders will receive monthly payments in return for a commitment to generate at times when there would otherwise be an insufficient margin between total generation and overall system demand. Long-term contracts of up to 15 years are available to prospective new CHP projects which are successful in the auction. The clearing price in the most recent tender round was £18/kW /year.



## At a Glance – Potential Incentives for Good Quality CHP

Fuel	ESOS Compliance	Reduced CRC Costs	Climate Change Levy Savings	Hydro-carbon Oil Duty Relief	CHP Business Rate Exemption	Capacity Market Revenues	Enhanced Capital Allowances	Renewable Heat Incentive	ROCs/ CFDs	FITs
Gas	✓	✓	✓		✓	✓	✓			
Biomass/ biogas-fired CHP	✓	✓			✓	✓*	✓†	✓	✓	✓‡
Oil-fired CHP	✓	✓		✓	✓	✓*	✓†			

\*Capacity market payments are not available to plant benefitting from renewable energy subsidies such as ROCs CFDs or RHI.

† ECAs are not available for new plant that benefits from Renewable Heat Incentive or Feed-in Tariff payments.

‡ FITs are only available to anaerobic digestion CHP schemes with a capacity of 5 MW or less, or, in the case of gas, micro-CHP schemes with a capacity of 2 kW or less (suitable for domestic use only).

We are happy to discuss any of the above legislation and incentives, particularly as there is a degree of interconnectivity between these items which would need to be discussed in the context of your own business needs. Further items not listed above may also be of interest to your business and speaking to one of our dedicated energy lawyers would ensure you are able to make an informed choice about switching to CHP.

## What are the Practical Considerations for CHP?

### Putting a CHP Scheme Together

CHP schemes can be complex depending on how the deal is structured. Our firm is well placed to **assist you every step of the way** from procurement to practical completion of the project and beyond. We spend time to understand your needs and offer a genuine “cradle to grave” service. We have worked on some of the most complex projects in the UK since these schemes started to roll out. Our collective team has more than 15 years’ worth of experience in putting together CHP schemes. We act both domestically and internationally for a significant number of end users, estate managers and employers as well as CHP specialists so we are uniquely placed to understand the **rationale** behind Energy Services Contracts and the key commercial and risk **drivers** which underpin them.

We are very well connected in the energy services sector and one of our key strengths is putting the right people together for a particular project. Although appropriate procurement rules may need to be followed, we are able to introduce you to the right contractors, experts, funders and investors to obtain the requisite advice and assistance and ultimately to deliver the project.

## Why Choose Us

We are **specialists** in this sector and our clients would agree that we offer a market-leading service aimed at achieving their best outcomes within budget and on time. We are proactive and responsive to our clients’ needs and aim to protect your position whatever eventuality may arise throughout the duration of the project. We have a number of skilled and dedicated lawyers across the UK and international practices offering a wealth of experience in this area and recent work includes:

Advising the Carbon & Energy Fund in relation to their £1.2 billion investment programme across the entire NHS hospital estate over the next four years in relation to Energy Services Contracts – CHP and related systems and construction works including long-term c.15 year operation and maintenance regimes. “The CEF is the public sector preferred mechanism for the delivery of ESPC’s. The CEF has worked with the team for some years for the reason that they offer a level of professionalism, realism and commercial nous that makes them an ideal and founder legal partner to the CEF.” **CEF Chief Executive Clive Natrass**

Advising a major university in relation to the successful installation of a CHP plant to serve their central London campus, and putting in place an operation and maintenance services agreement so that the scheme would be run correctly and the client would have peace of mind going forward.

Advising a West Midlands-based hospital in relation to the successful transfer from traditional coal-fired boilers to new gas-fired boilers and CHP scheme. This resulted in saving the end client almost £700,000 per year in energy costs and reducing its carbon emissions by 42%.

If you are interested in switching to CHP or you are in the process of reviewing your energy services provision more generally, please feel free to contact one of the individuals listed who would be happy to talk through your options.

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