ARKHITEKTON
ENERGY
The Arkhitekts of Global Change

GAS TURBINE GENERATOR SETS · 2 TO 112 MW

Arkhitekton Energy UE Series Gas Turbines

Aero-derivative and industrial gas turbine generator sets for combined heat and power, Data Centre power, industrial generation, distributed energy and peak support. Supplied, built and maintained as one turnkey package.



5
models from 2 MW to 112 MW

~87%
total efficiency in CHP (UE-7)

Multi-fuel
natural gas, low-calorific gas, hydrogen blends

CITCC
EPC contractor for turnkey projects

Contact chrisb@arkhitekton-energy.com · 07342 299986 | michael@arkhitekton-energy.com · 07900 285837 | www.arkhitekton-energy.com

Five generators, one service partner

The UE Series covers small aero-derivative sets for low-calorific gas and hydrogen, a 6.85 MW workhorse for CHP and Data Centre power, and heavy-duty industrial units up to 112 MW. Every set is built on an engineered skid with its own enclosure, auxiliaries and control system.

Model	Output	Efficiency	Heat rate	Pressure ratio	Exhaust flow	Exhaust temp.	Recoverable heat*
UE-2	2 MW	21%	17,143 kJ/kWh	7.45	19.67 kg/s	400°C	~6 MWth
UE-3	3 MW	23%	–	–	≤21.5 kg/s	≤590°C	up to ~11 MWth
UE-7	**6.85 MW**	**30.1%**	**11,960 kJ/kWh**	**12.7**	**27.4 kg/s**	**550°C**	**~13 MWth**
UE-25	25 MW	35.5%	10,084 kJ/kWh	20	84.5 kg/s	473°C	~33 MWth
UE-110	112 MW	35.1%	10,256 kJ/kWh	14.82	362 kg/s	517°C	~158 MWth

Applications

- **Combined heat and power** for factories, hospitals, universities and heat networks
- **Data Centre prime and backup power** where grid connections are delayed
- **Industrial power generation** and distributed energy
- **Low-calorific gas and hydrogen** power (UE-2, UE-3)
- **Peak support, offshore platforms, pipeline compression** and mechanical drive

Common to every set

- Engineered skid with gas turbine and generator enclosures
- Air inlet, ventilation, lube oil, fuel, starting and water-wash systems
- Fire detection and extinguishing, MCC and DC system
- PLC/HMI turbine control, vibration, speed, temperature and pressure monitoring
- Generator control cabinet with excitation, synchronisation and protection



ISO conditions, natural gas fuel. *Recoverable heat is an estimate of exhaust heat recovered to a 120°C stack; actual output depends on the heat recovery design and any supplementary firing.

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UE-2 / UE-3

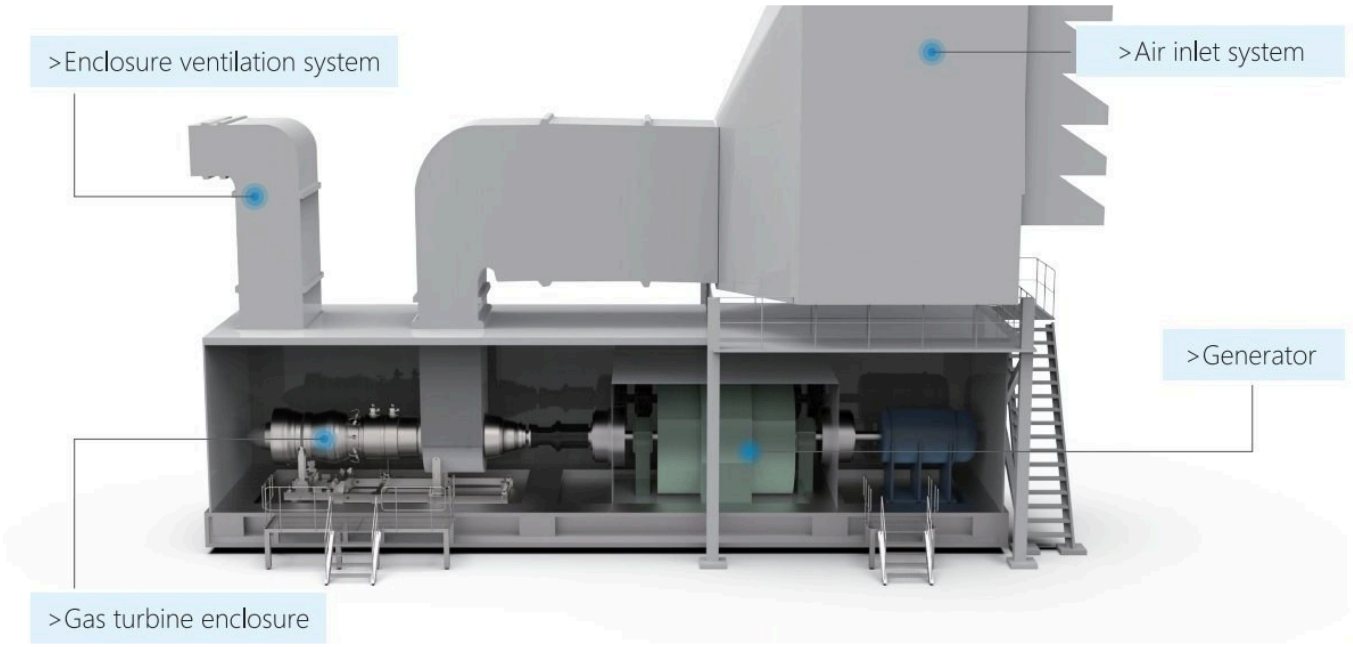
Compact multi-fuel sets for low-calorific gas, hydrogen and distributed energy, with a small footprint and low operating cost.

UE-2 · ISO, NATURAL GAS

2 MW output	**21%** efficiency	**17,143** kJ/kWh heat rate
7.45 pressure ratio	**19.67 kg/s** exhaust flow	**400°C** exhaust

UE-3 · ISO, NATURAL GAS

3 MW output	**23%** efficiency	**1,500 rpm** power turbine
≤21.5 kg/s exhaust flow	**≤590°C** exhaust	**Compact** small footprint



Generator set composition

GAS TURBINE

- Aero-derivative, output at the compressor end
- 10-stage axial compressor; bleed valves at the 5th and 8th stages
- 10-head mixed combustion chamber
- 3-stage axial turbine
- Gearbox

GENERATOR

- Six-pole, three-phase synchronous, Y-wound stator
- Brushless excitation
- Air cooled
- 6.3 kV or 10.5 kV, 50 Hz
- Starting electric motor and output shaft coupling

AUXILIARIES

- Integral base, enclosure and ventilation
- Air inlet and exhaust expansion joint
- Gas turbine and generator lube oil, oil cooling module
- Fuel, instrument air, drain and water wash
- Fire system, MCC, starting cabinet, DC system

CONTROL

- Industrial PLC and HMI
- Vibration monitoring
- Gas turbine and generator speed
- Temperature and pressure
- Combustible gas detection

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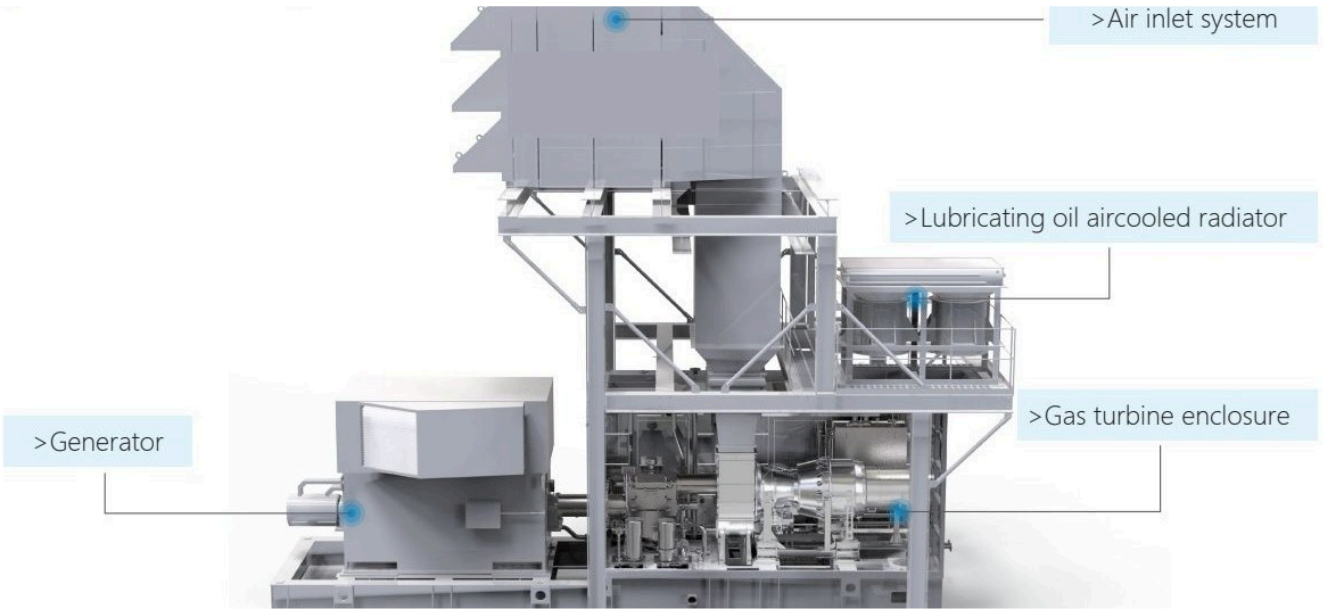
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UE-7

Developed from an aero-engine: small, fast-starting and easy to maintain. Built for industrial power, CHP, Data Centre power, backup supply, offshore platforms and mechanical drive.

Most popular

6.85 MW electrical output	**30.1%** efficiency at full load	**11,960** kJ/kWh heat rate	**8,300 rpm** power turbine speed
12.7 pressure ratio	**27.4 kg/s** exhaust mass flow	**550°C** exhaust temperature	**~13 MWth** recoverable heat



Generator set composition

GAS TURBINE

- Aero-derivative, double shaft, output flange at the compressor end
- 9-stage axial compressor, pressure ratio 12.7, 4-stage variable guide vanes
- Short annular combustor
- Single-stage turbine, 2-stage power turbine

GEARBOX AND GENERATOR

- Reduction gearbox, 1,500/3,000 rpm output, mechanical oil pump and turning gear
- Four-pole, three-phase, brushless excitation
- Air-air cooling, IP56, Class F
- 6.3 kV or 10.5 kV, 50/60 Hz

AUXILIARIES

- Air inlet and enclosure for land or marine use
- Natural gas, liquid or dual fuel
- Starting, lube oil, IGV oil, water wash
- Fire fighting, MCC, excitation
- Generator breakers, PT, outlet and neutral cabinets

CONTROL

- Turbine control and protection, AC220V 50 Hz and DC220V
- Industrial PLC and HMI
- Speed detection and temperature measurement
- Turbine, gearbox and generator vibration
- Excitation, synchronisation and protection modules

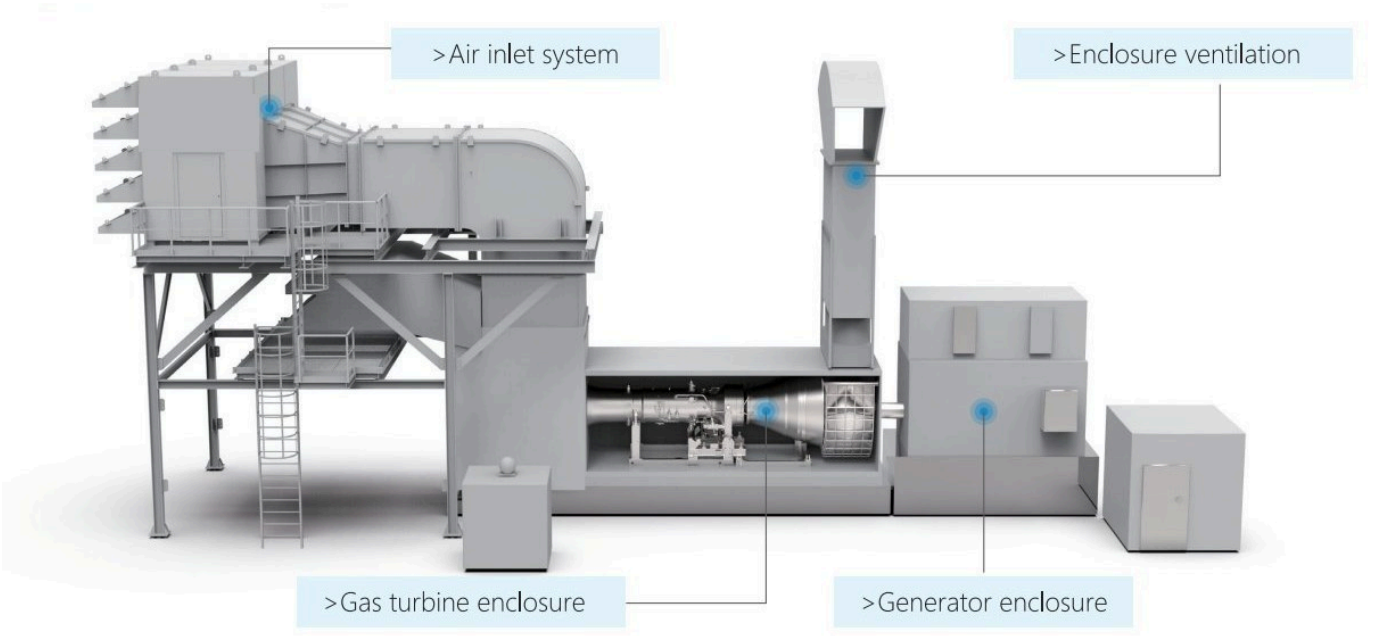
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UE-25

A 25 MW industrial set for distributed energy, industrial power, pipeline compression and large Data Centre campuses.

25 MW electrical output	**35.5%** efficiency	**10,084** kJ/kWh heat rate	**20** pressure ratio
84.5 kg/s exhaust mass flow	**473°C** exhaust temperature	**~33 MWth** recoverable heat	**6.3/10.5 kV** 50/60 Hz



Generator set composition

GAS TURBINE

- Industrial, three-shaft, output flange at the turbine end
- 9-stage LP and 9-stage HP axial compressors, 3-stage IGV
- 16 flame-tube annular combustion chamber
- Single-stage HP and LP gas generator turbines
- 4-stage power turbine

GENERATOR

- Four-pole, three-phase, Y-wound stator
- Brushless excitation
- Air-water cooling, IP55, Class F
- 6.3/10.5 kV, 50/60 Hz

AUXILIARIES

- Starting, air inlet, enclosure and ventilation
- Turbine and generator lube oil
- Instrument air, drain, water wash, fuel
- CO2 fire extinguishing and fire alarm
- MCC, DC system, breakers, PT, neutral cabinet

CONTROL

- Turbine control and protection
- Industrial PLC and HMI
- Turbine and generator vibration
- Temperature and pressure
- Excitation, synchronisation and protection modules

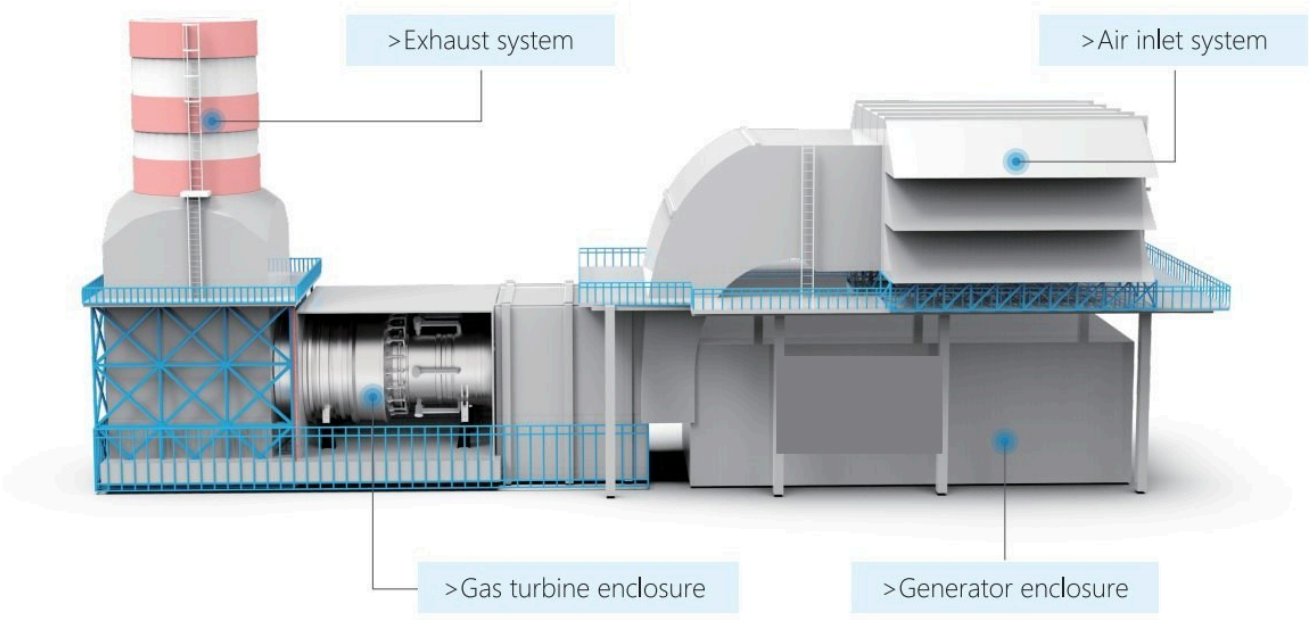
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UE-110

A 112 MW heavy-duty E-class set with dry low-NOx combustion, for cogeneration, peak support, ship power and utility-scale plants.

112 MW electrical output	**35.1%** efficiency	**10,256** kJ/kWh heat rate	**14.82** pressure ratio
362 kg/s exhaust mass flow	**517°C** exhaust temperature	**~158 MWth** recoverable heat	**Dry low-NOx** combustion



Generator set composition

GAS TURBINE

- Industrial, single shaft, output flange at the compressor end
- 15-stage axial compressor, pressure ratio 14.8, 1-stage IGV
- Counter-current annular tube combustion chamber, dry low-NOx
- 4-stage turbine; coupling

GENERATOR

- Two-pole, three-phase, Y-wound stator
- Brushless excitation
- Air-water cooling, IP55, Class F
- 10.5 kV, 50 Hz

AUXILIARIES (1)

- Installation platform, air cooling
- Lube and jacking oil
- Gas fuel regulating valve station, fuel nozzle purge
- Ignition, bleed and IGV servo systems
- Control oil; HV inverter for starting

AUXILIARIES (2)

- Gas fuel front module, air inlet, exhaust
- Enclosure, ventilation, compressed air
- MCC, DC, lighting, fire extinguishing
- Drain and water wash
- Optional three-way exhaust damper and bypass stack

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From turbine to heat, power and CO2

UE-7 in combined heat and power – one unit, typical year

54.8	104	87%	31 kt	8,000
GWh electricity	GWh recoverable heat	total efficiency	CO2 capturable a year	operating hours

Heat recovery options

- **Steam** – process steam via a heat recovery steam generator, with optional supplementary firing
- **Hot water** – district heating, greenhouses, food and drink
- **Thermal oil and hot air** – drying and high-temperature processes
- **Chilled water –** absorption chilling for Data Centres and cold stores
- **CO2 capture ready** – exhaust CO2 for greenhouse, food-grade or storage offtake

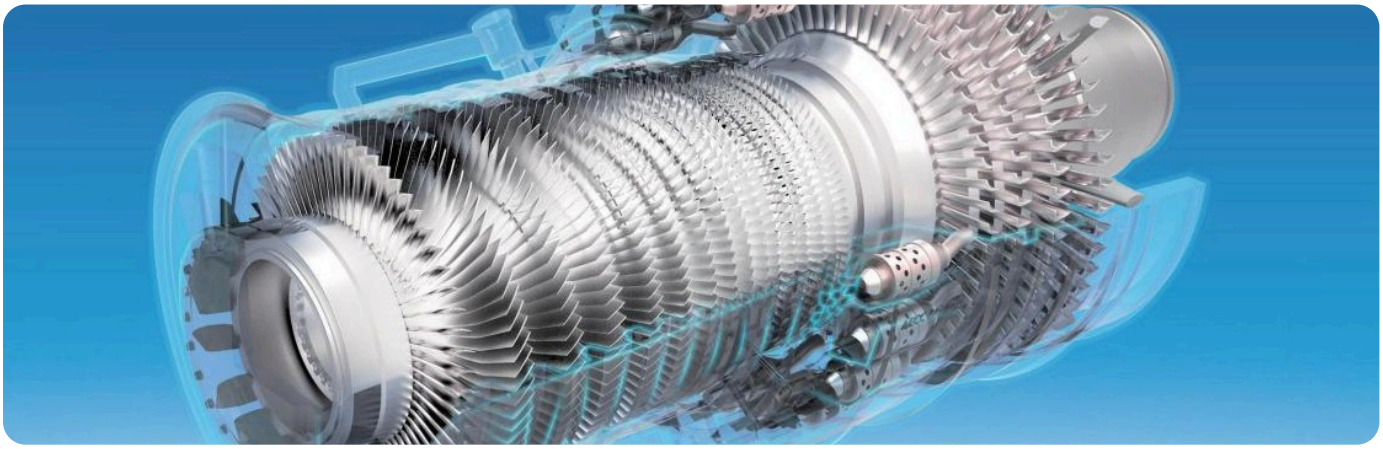
Power for Data Centres

New grid connections for Data Centres can take years in much of the UK. One UE-7 supplies about 6.85 MW on site: enough for roughly five 1 MW Arkhitekton Energy UD Series modules at a PUE of 1.25, with its exhaust heat driving absorption chillers or a heat network.

Pair the UE Series with the Arkhitekton Energy UD Series brochure for a complete power-and-compute site.

Typical host sites

Food & drink · Breweries & distilleries · Greenhouses · Hospitals · Universities · Paper & board · Chemicals · District heat networks · Data Centres · Leisure & pools



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Order over 1 GW, get your own brand

Developers, utilities and energy companies whose combined orders of UE Series gas turbines and UD Series Data Centres exceed one gigawatt receive their own white-label range: the same proven equipment, built by the same EPC and manufacturing partners, sold under their name.

STANDARD

Any size

- UE Series equipment under the Arkhitekton Energy name
- Equipment, turnkey or funded options
- Full sales and technical support

PARTNER

Resellers

- Distributor and referral terms by territory
- Brochures, models and contracts in your branding on request
- Commission agreed in writing

OWN WHITE LABEL

>1 GW combined

- Your own product names and range
- Your brand on the equipment, documents and site signage
- Dedicated proposal, engineering and service team

How the 1 GW is counted

- **Combined** across gas turbine electrical output and Data Centre IT load
- **Across all sites** in a framework order, not one project
- **Example:** 100 × UE-7 (685 MW) plus 300 × UD-1000 (300 MW) plus 10 × UE-2 (20 MW) = 1,005 MW
- Orders can be placed in phases under one framework agreement

What your white-label package includes

- Branded product range, brochures and specification forms
- Branded host-site deck, financial model and contract templates
- Turnkey delivery by CITCC with UK Tier 1 civils
- Maintenance by the original manufacturers, behind your brand
- Manufacturer disclosed to funders and regulators where required

Talk to us about a framework

Tell us your pipeline of sites and the mix of generation and Data Centre capacity. We will prepare a framework proposal with phased delivery, pricing and your white-label range.

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White-label terms are agreed in a written framework agreement. Thresholds and terms subject to contract.

Built by CITCC, maintained by the manufacturer

EPC contractor: CITCC

China International Telecommunication Construction Corporation designs, procures, builds and commissions turnkey projects, with a UK Tier 1 contractor for civils, groundworks and HV works.

Founded	1983
Headquarters	Beijing, China
Parent	China Telecom Group
Coverage	31 provinces · 30+ nations
Personnel	17,000+

1

Equipment supply

UE Series generator set delivered, installed and commissioned, with factory acceptance testing.

2

Turnkey plant

Complete CHP or power plant by CITCC: civils, gas, grid, heat recovery and controls, at a fixed price.

3

Funded energy service

£0 upfront. Power by private wire below your grid price and heat at a discount to your current cost.

Protected delivery

- Fixed-price EPC contract with CITCC
- URDG 758 advance payment, performance and warranty guarantees
- Contractors' all-risks and third-party liability insurance during the build
- Performance tested before acceptance

Service by the manufacturer

Operation and maintenance by the original equipment manufacturer under a long-term service agreement, with remote monitoring, planned overhauls and spares. Natural gas as standard; smaller units run on low-calorific gas and hydrogen blends, with gas compression and fuel treatment supplied where needed.

How to start

Send us the Arkhitekton Energy Project Specification Form with your site, fuel, electrical and heat requirements. We'll return a budget proposal and an indicative power, heat and CO2 offtake offer.

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