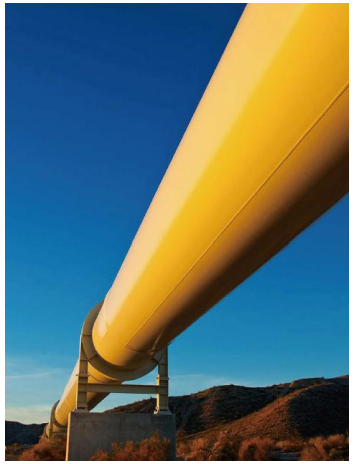
Mirco Power Station

10kW-50kW

Residentials | Hosptials | Supermarkets | Hotels | Clubs

Introduction

Powerlink MCHP, is a distributed energy solution developed specifically for micro-grid. The system is capable of generating electricity from natural gas and generating heat through a waste heat recovery system to achieve cogeneration while meeting the user's demand for heat and electricity. The unit is **Small in size, High in efficiency, Energy-saving and Durable**. Depending on the location and needs of each project, we provide professional advice to help the user choose the right unit for their different types of requirements.



Powerlink MCHP Unit:

√ Safety √ Stability √ Energy-Saving

√ High Efficiency √ High Cost Performance

MCHP Apparel

- Manufacturing Standard：ISO8528
- Electrotechnical Standard：IEC, CE
- Electricity Output Range 10-50kWe
- Heat Output Power Range: 19-90kWt

ACG20S

For Reference Only

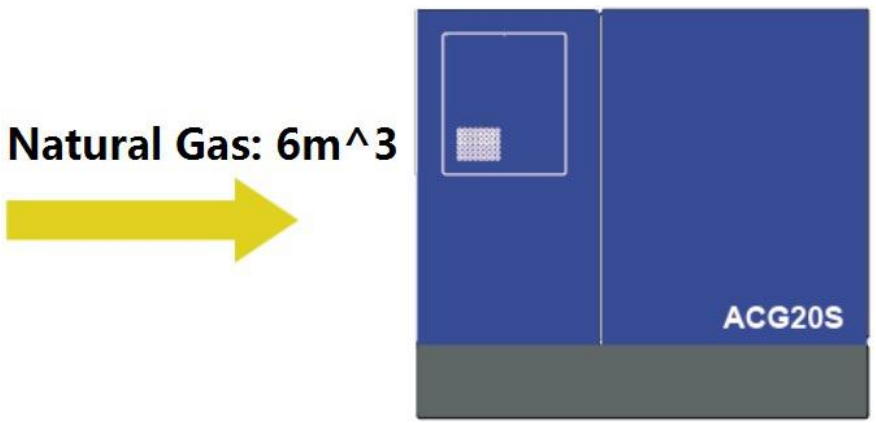
ACG30S

For Reference Only

MCHP Manual

To ACG20S unit as an example

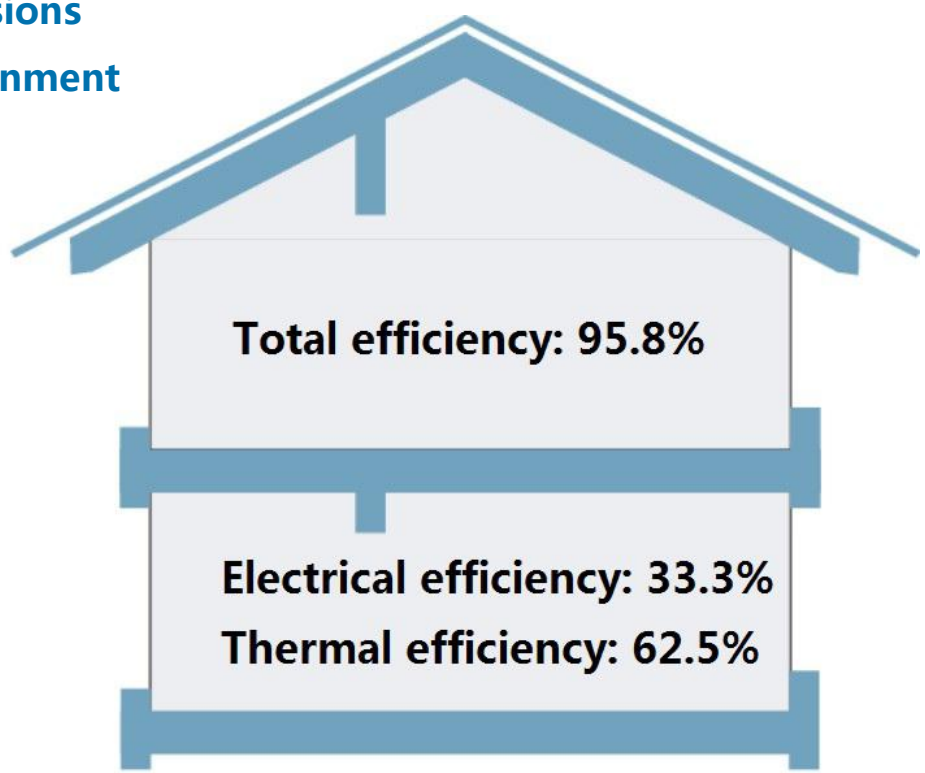
- Advanced distributed energy products that generate electricity and hot water at the same time
- Use natural gas as fuel to reduce pollutants and greenhouse gas emissions
- Continuous and stable operation without being affected by the environment



Hot Water: 1.5t
Δt=20℃
(37.5kWt)

+

Electricity: 20kWe

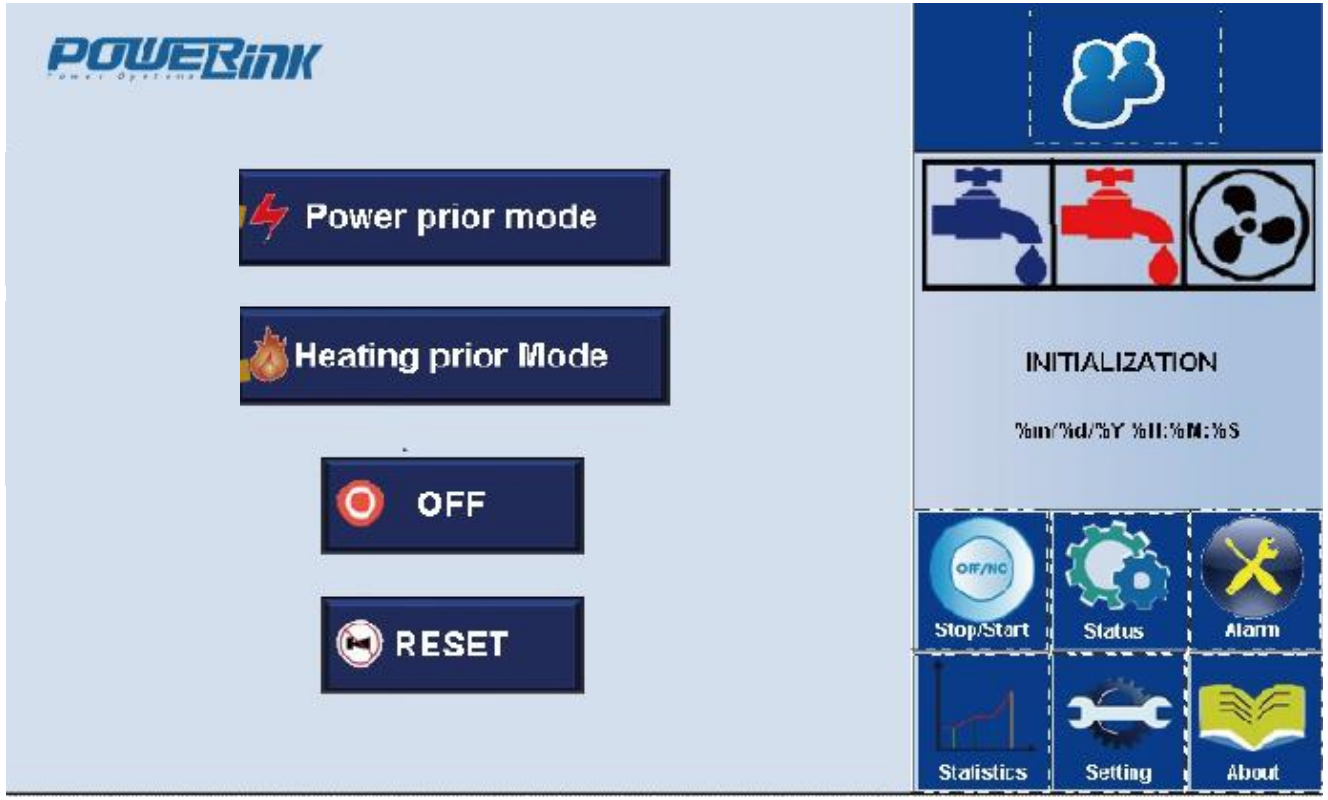


MCHP Features

Flexibility Control

- Choose the appropriate control mode based on the ratio of electricity and heat demand:
  - √ Power Prior Mode
  - √ Heating Prior Mode

- Intelligent grid-connected technology:
  - √ Grid-connected with no power injection
  - √ Grid-connected

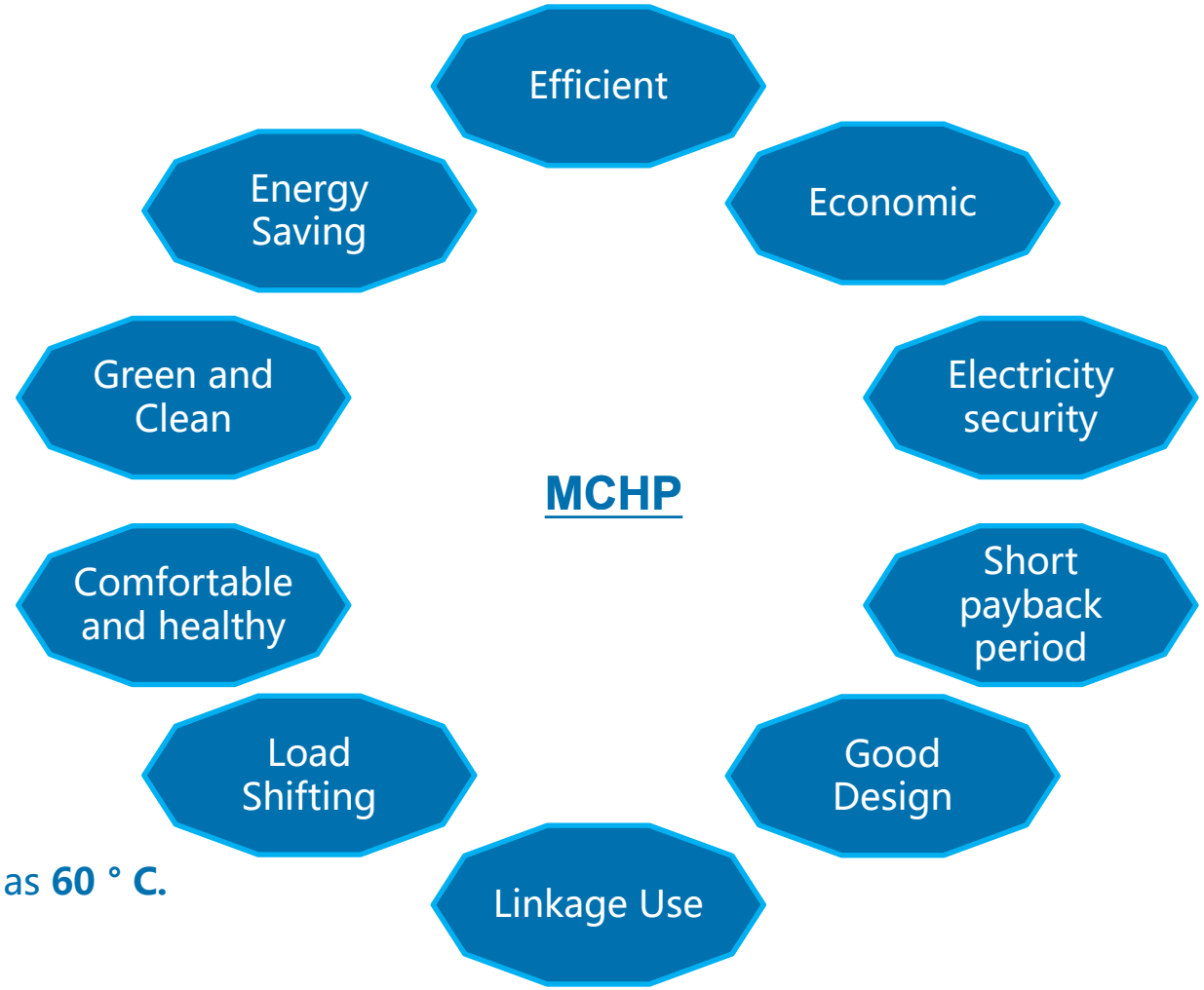


The ratio of electricity and heat output can be adjusted independently to achieve the best balance!

MCHP Advantage

Six Advantages

- ✓ Clean Energy: output high quality electricity and heating.
- ✓ High Efficiency: total energy efficiency **>95%.**
- ✓ Good Design: modular structure, **plug and play.**
- ✓ Flexible Control: “Power Prior" or “Heating Prior ”.
- ✓ Intelligent Grid-connected: **one-button operation**.
- ✓ Ultra-low Exhaust: Exhaust gas temperature can be as low as **60 ° C.**



MCHP Parameter

Description	Parameter			
Model	ACG10S	ACG20S	ACG30S	ACG50S
Rated Electric Power	10 kWe	20 kWe	30 kWe	50 kWe
Rated Heat Power	19 kWt	37.5 kWt	54 kWt	90 kWt
Electric Efficiency	32.5%	33.3%	34.1%	34.0%
Heat Efficiency	61.2%	62.5%	61.4%	61.3%
Total Efficiency	93.7%	95.8%	95.5%	95.3%
Hot Water Flow @Δt=20℃	0.8 t/h	1.5 t/h	2.2 t/h	3.7 t/h
Gas Consumption@100% Load	3.1 m^3	6 m^3	8.8 m^3	14.7 m^3
Noise@1m, 100% Load	52 dBA	52 dBA	53 dBA	53 dBA
Net Weight	580kg	770kg	1630kg	1900kg
Size(Length x Width x Height)	1050*655*920mm	1260*750*1130mm	1850*1060*1300mm	2180*1100*1420mm

Noted: The technical data are based on following standard conditions:

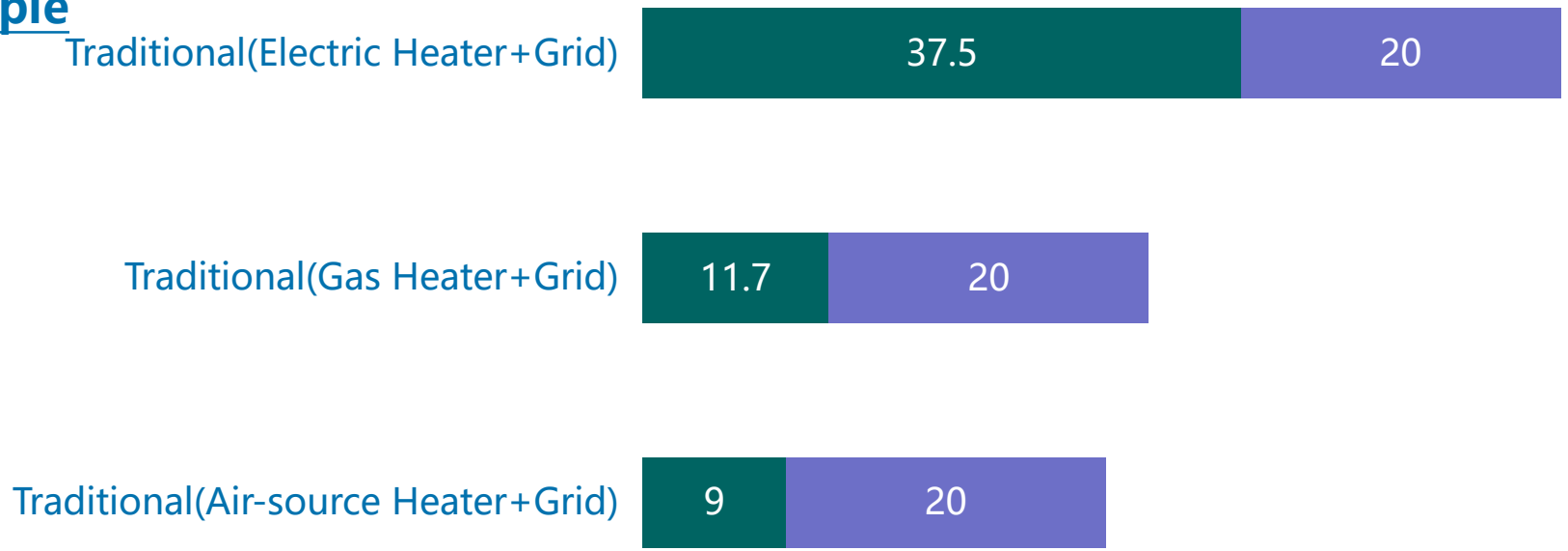
Absolute atmospheric pressure: 100kPa; Ambient temperature:25°C; Relative air humidity: 30%.

MCHP Economic Benefit

To ACG20S as an example

Traditional Mode:

- Require different equipment
- Low efficiency
- Large investment
- Large floor space
- High loss



MCHP:

- One equipment
- High efficiency
- Small investment
- Small floor space
- Low loss

■ Hot Water Cost per 1.5t@Δt=20℃ ■ Electricity Cost per 20kWh

Noted: The technical data are based on following standard conditions:
The price of the electricity is CNY 1.0/kWh, and the price of natural gas is CNY 3.0/m3.

MCHP Economic Benefits

To ACG20S as an example

- **Low investment**
- **High return**
- **Annual Saving:**

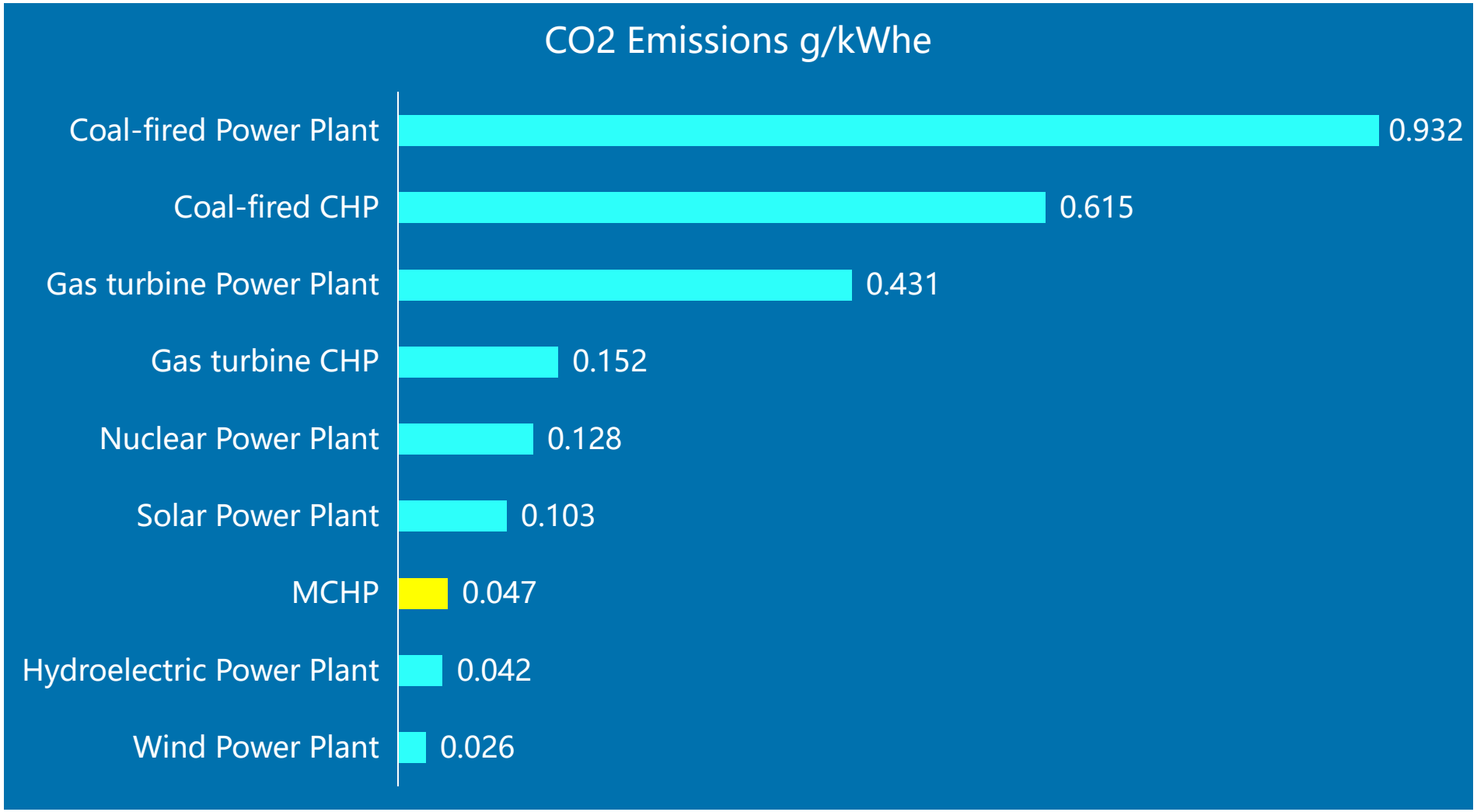
CNY 100800.00

*Noted: According to the calculation, if the Gas Heater is used to obtain hot water, it will consume about 2.6 m^3 of natural gas for 1t hot water @Δt=20℃.

Description		Unit	MCHP	Traditional Gas Heater + Grid
Parameter	Rated Electric Power	kWe	20	/
	Rated Heat Power	kWt	37.5	
	Hot Water Flow @Δt=20℃	t/h	1.5	
	Gas Consumption@100% Load	m^3/h	6	
	Annual Operating Time	h	8000	
	Annual Electricity Cost	kWh	160000	160000
	Annual Hot Water Cost	t	12000	12000
	Annual Gas Consumption	m^3	48000	31200*
Energy Price	Natural Gas	¥/m^3	3	3
	Electricity	¥/kW.h	1	1
Maintenance Costs		¥/h	1.1	/
Expenditure	Natural Gas	¥/Year	144000	93600
	Electricity	¥/Year	/	160000
	Maintenance Costs	¥/Year	8800	/
Total		¥/Year	152800	253600
Saving		¥/Year	100800	

MCHP Environmental Benefits

Reduce Greenhouse Gas CO_2 Emissions



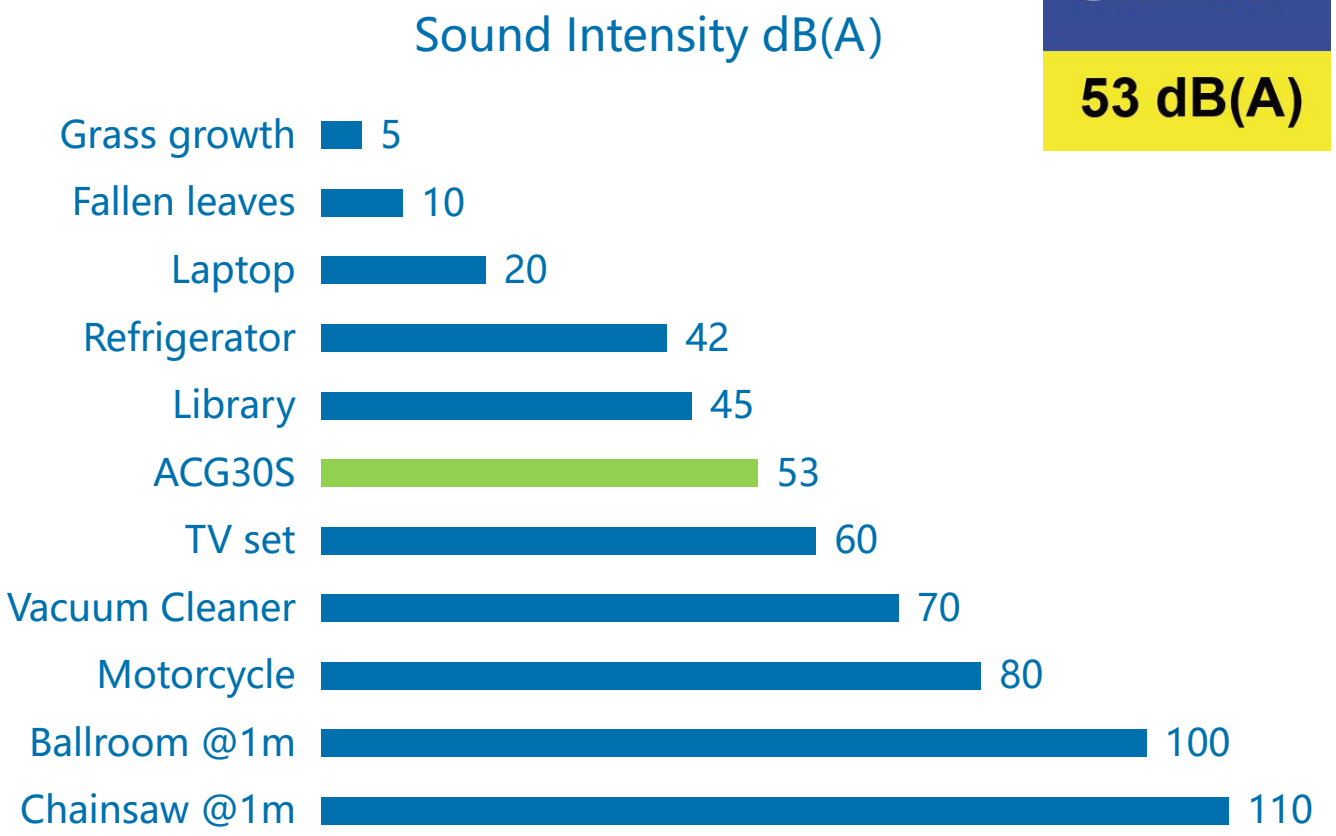
MCHP Environmental Benefits

Ultra-low Noise

- Fully enclosed structure
- Sound-absorbing cotton
- Two-stage silencer on exhaust pipe
- Quiet and comfortable environment

SUPER SILENT

53 dB(A)



MCHP Applications

Multiple application scenarios

- House
- Apartment
- Hotel
- GYM
- CBD
- Hospital
- Sanatorium
- Kindergarten
- School
- Supermarket
- ……

House

Hotel

GYM

Hospital

Kindergarten

Supermarket

MCHP Applications

Hotel Economic Benefit

- ◆Number of rooms: 100
- ◆Daily hot water consumption: 15t
- ◆MCHP unit: ACG20S
- ◆Daily running time: 10h
- ◆Savings per hour: CNY 12.6

Description		Unit	MCHP	Traditional Gas Heater + Grid
Parameter	Rated Electric Power	kWe	20	/
	Rated Heat Power	kWt	37.5	
	Hot Water Flow	t/h	1.5	
	Gas Consumption	m³/h	6	
	Operating Time	h	10	
	Electricity Cost	kWh	200	200
	Hot Water Cost	t	15	15
	Gas Consumption	m³	60	39
Energy Price	Natural Gas	¥/m³	3	3
	Electricity	¥/kW.h	1	1
Maintenance Costs		¥/h	1.1	/
Expenditure	Natural Gas	¥/Day	180	117
	Electricity	¥/Day	/	200
	Maintenance Costs	¥/Day	11	/
Total		¥/Day	191	317
Saving		¥/Day	126	

MCHP Applications

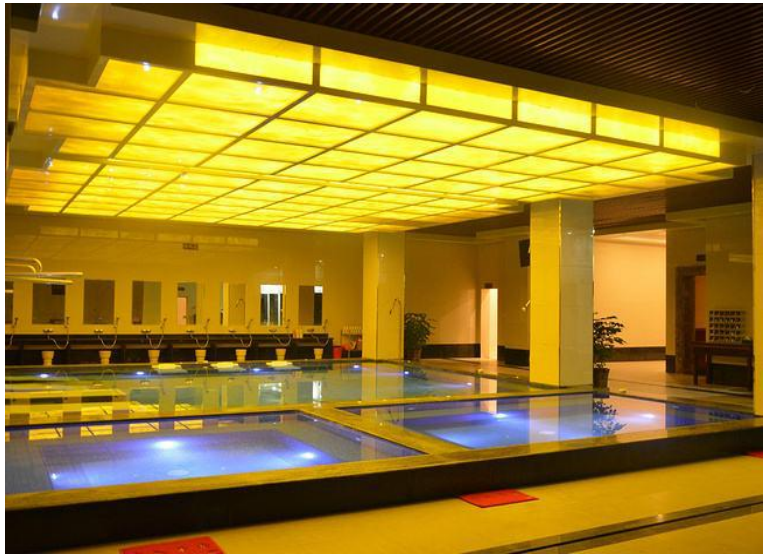
House Economic Benefit

- ◆Building area: 300m²
- ◆MCHP unit: ACG10S
- ◆Daily running time: 20h
- ◆Operation Mode: Power Prior

Description		Unit	MCHP	Traditional Gas Heater + Grid
Parameter	Rated Electric Power	kWe	10	/
	Rated Heat Power	kWt	19	
	Hot Water Flow	t/h	0.8	
	Gas Consumption	m³/h	3.1	
	Operating Time	h	20	
	Electricity Cost	kWh	200	200
	Hot Water Cost	t	16	16
	Gas Consumption	m³	62	41.6
Energy Price	Natural Gas	¥/m³	3	3
	Electricity	¥/kW.h	1	1
Maintenance Costs		¥/h	1.1	/
Expenditure	Natural Gas	¥/Day	186	124.8
	Electricity	¥/Day	/	200
	Maintenance Costs	¥/Day	22	/
Total		¥/Day	208	324.8
Saving		¥/Day	116.8	

MCHP Applications

GYM Economic Benefit



- ◆Daily hot water consumption: 70t
- ◆MCHP unit: ACG50S
- ◆Daily running time: 20h
- ◆Operation Mode: Heating Prior

Description		Unit	MCHP	Traditional Gas Heater + Grid
Parameter	Rated Electric Power	kWe	50	/
	Rated Heat Power	kWt	90	
	Hot Water Flow	t/h	3.7	
	Gas Consumption	m³/h	14.7	
	Operating Time	h	20	
	Electricity Cost	kWh	1000	1000
	Hot Water Cost	t	74	74
	Gas Consumption	m³	294	192.4
Energy Price	Natural Gas	¥/m³	3	3
	Electricity	¥/kW.h	1	1
Maintenance Costs		¥/h	1.1	/
Expenditure	Natural Gas	¥/Day	882	577.2
	Electricity	¥/Day	/	1000
	Maintenance Costs	¥/Day	22	/
Total		¥/Day	904	1577.2
Saving		¥/Day	673.2	

MCHP Services

PowerLink has manufacturing facilities in two countries, marketing and service organizations in six countries and regions; it has more than 200 dealers in nearly 100 countries around the world.

PowerLink (UK)

Manufacturer and Market

Sales(company)

Powerlink (SH)

PowerLink (AU)

Gas Cogeneration-MCHP

Product Sales and Services

Service Document: SBOM

Provide SBOM (service plan table) for each generator set and engine, include: project maintenance schedule, cost-saving budget analysis, spare parts service analysis, spare parts stock plan, operation cost analysis…...

Maintenance Schedule

Content
Check the engine control system program and repe malfunction happens
Change the oil filter and oil. After the first running filter should be changed.
Notice: Check and analyze the oil sample every rui hours and make a chart of the performance of the the changes.
Check the smoke exhaust, and adjust the system p necessary.
Check the valve clearance
Change the air/oil separator element
Change the sparking plug
Change the air filter element

ACG20S Cost-saving Budget Ana

Item		
Operating parameters by using cogeneration & generator	1	Rated
	2	Hot wa
	3	Hot wa
	4	Natur
	5	Engin
	6	Annua
	7	Annua
Price setting	8	Natura
	9	Electri
	10	Price
Maintenance cost	11	Equipi
Annual income by using cogeneration	12	Annual electric energy income £/y
	13	Annual heating income £/y
	14	Annual gross incom £/y

ACG20S Operation Cost Analysis

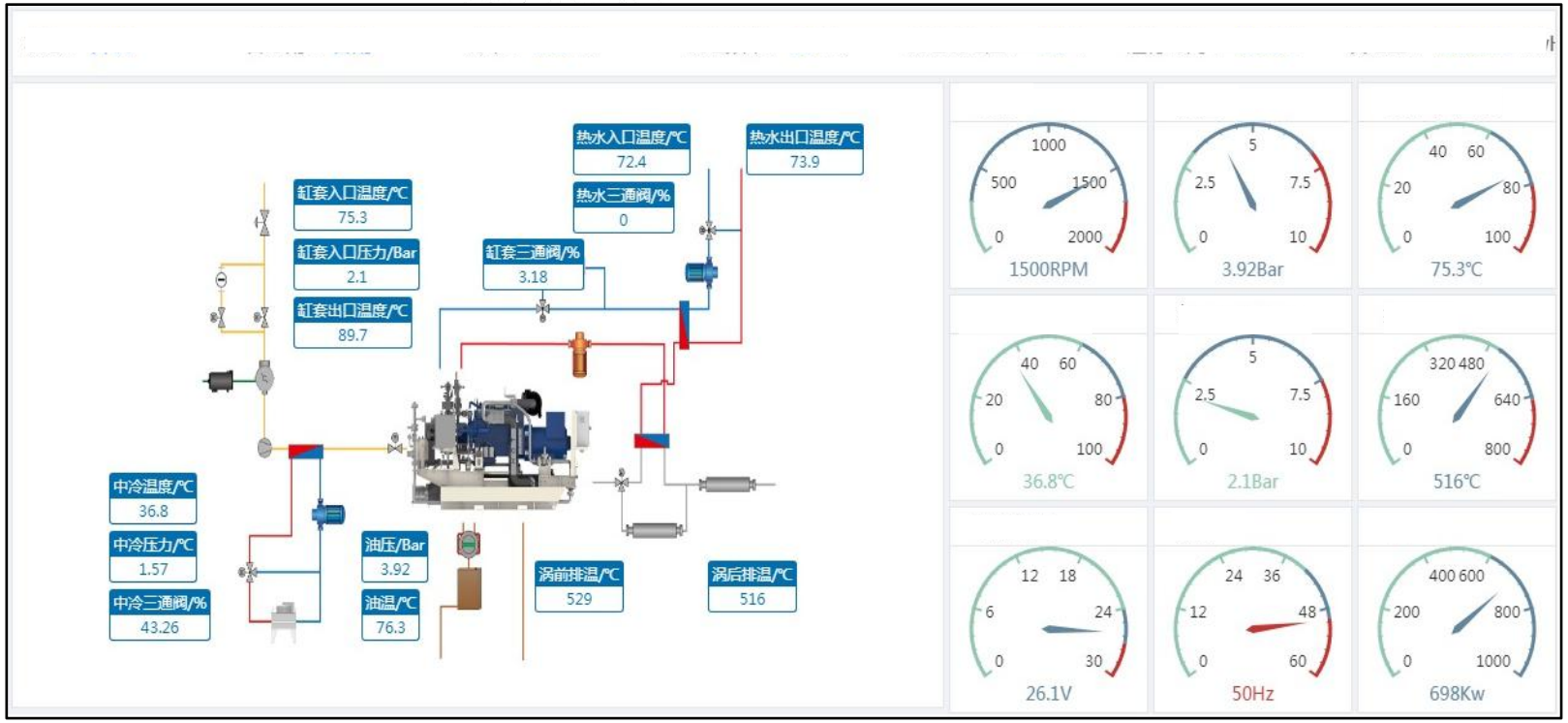
Operation hours	50	8000	16000	24000	32000
Maintenance working time（day）	0.5	0.5	0.5	0.5	0.5
Spare parts cost （£）	19.88	156.52	205.70	156.52	205.70
Oil consumption（£）	12.9	116.3	129.2	129.2	129.2
Lubricating oil （£）	150.9	150.9	150.9	150.9	150.9
Maintenance access cost（£）	500.0	500.0	500.0	500.0	500.0
Correction access cost（£）	0.0	250.0	250.0	250.0	250.0
Total material cost（£）	183.7	423.6	485.7	436.5	485.7
Total labor cost（£）	500.0	750.0	750.0	750.0	750.0
Total Operation cost（£）	683.7	1173.6	1235.7	1186.5	1235.7
Each £ per hour	13.67	2.61	2.47	2.37	2.47
Average £/hour					

Product Services

Project Life Cycle Management System：PLM

PLM system monitors and maintains the operation of client equipment, and accurately tracks and manages the whole life cycle of the unit from putting into use to terminating use.

1. Real-time Monitoring
2. Fault Diagnosis
3. Running Report
4. Periodic Maintenance
5. Distribution of Work Order



Product Services

Perfect Product Service Management

Provide 24 / 7 all-weather service for users to ensure stable operation of products

- Skilled service team
- Professional tools
- Dedicated service car
- Sufficient spare parts

Reference Number:NS20181102

PowerLink Standard for Service

Dear Customer:

Thank you for choosing PowerLink, we are honored to have the chance to provide the service for you!
In order to better serve users, our company's product and service process is described as follows. We will provide you with high-quality and perfect after-sales service of products in accordance with the following terms.

1.Scope of service

1.1. Mechanical and electrical installation design, construction and technical guidance services for equipment;
1.2. Genset Commissioning;
1.3. Genset Maintenance;
1.4. Genset Reparation;
1.5. Product training;
1.6. Remote technical support.

2.Type of service

2.1.Free service
According to the national "three guarantees" laws and regulations and Powerlink

Welcome to consult Powerlink for more mobile and distributed energy products and solutions.