



Underwriting Survey Report

May 2019

Chuncheon Energy



*Risk Management Research Center
Hyundai Hi-life Claims Service Co., Ltd.
Affiliate of Hyundai Marine & Fire Insurance Co., Ltd.*

UNDERWRITING SURVEY REPORT

Account	Chuncheon Energy	
Site	Chuncheon	
Class of Risk	Combined Heat & Power plant	
Address	82, Wonmudong-gil, Dongsan-myeon, Chuncheon-si, Gangwon-do, Republic of Korea	
Date of Survey	May 23, 2019	
Prepared by	Kim, Hoon	ARM,CFEI Energy Consultant Professional Engineer Ergonomics Professional Engineer Machine Safety Risk Management Service Hyundai Hi-life Claims Co., Ltd.
Contact	Ko, Jong Mok	Assistant Manager / Management support team
	Park, Do Sun	Assistant Manager / Mechanical Engineering team
	Hwang, Jae Sic	Assistant Manager / Operation team
	Chuncheon Energy Co., Ltd.	

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1. INTRODUCTION

Purpose of Report

This report is prepared for underwriting information in respect of Property All Risk insurance program for Chuncheon Energy (hereinafter referred as CCE) Korea.

The survey, conducted during half a day, was carried out developing the underwriting information through discussions with the insured company's staffs and observations made during the brief site tour.

Corporate Outline

CCE had established in December, 2014 in order to supply electric power and heat to customers. Now, CCE supplies district heating energy to about 1,500 households. Annual sales amount is approximately 320.9 billion Korean Won.

CCE's key facilities can be divided into electric power and heat supply facilities that produce, transport and deliver energy to customers. It is the service that supplies electric power and heat for heating.

EPC (Engineering, Procurement and Construction) contractor is POSCO E&C. Chuncheon is CHP (Combined Heat & Power plant) and total electric power output is about 470MW and heat is about 524Gcal/hr. The power block consists of one blocks and that configuration is 320MW - GTG x 1ea + 150MW - STG x 1ea + 511Gcal/hr - HRSG x 1ea.

GTG & STG are manufactured by MHPS and the model number is 501J that is adopted by MHPS technology and has a generating capacity of 320MW. Also, STG is manufactured by MHPS and the model number is SRT-50AX and has a generating capacity of 150MW.

2. EXECUTIVE SUMMARY

Recent Changes / Current Operation

Chuncheon energy started commercial operation in May, 2017 and it have been operating without big problem for last two years. Last stage blade of steam turbine have been replaced from 50 inches to 45 inches. The reason for the replacement is that cracks were found in other power plant. So Major inspection is conducted in October, 2018 and total accumulative AOH(Actual operating hour) is 12,500hr. Next turbine inspection is May, 2020.

Main Hazards

Property Damage

GTG and STG are mostly high temperature and high speed rotating machine and also lubricant and control oil are used. So, fire and explosion can be occurred when heat is generated from high rotation rate and temperature. And oil leakage is also dangerous situation, because oil can contact with a source of ignition such as welding and electrostatic spark and hot surface etc. In addition, fire and explosion can be broken out by LNG leakage and incomplete combustion, because LNG is major heat source of gas turbine generator and PLB.

All the technology employed in this CHP is proven and well-established in the industry. In view of a fire, explosion and disintegration exposure risk, the CHP layout is adequate. However, the STG, GTG and HRSG are installed in Power generating building. So, fire can spread to other facilities. GTG is enclosed with carbon dioxide gas suppression system. The main transformers (including all other oil filled transformers) are located outdoor with adequate spatial separation including blast walls and water spray system.

All operational controls, including start-up and shutdown, are executed and monitoring of the plant is checked through the Central Control Room in the Power generating bldg. The control system is designed with a high degree of automatic control that requires minimal inputs from the operators.

The process control is a coordinated distributed control system (DCS). The protection features incorporated is to ensure the plant operating within the design characteristics and automatic safe shutting down of the machine in an event such as malfunction or abnormal operating condition. In all major safety events, a protection trip based on 2003 (2 out of 3) active logic triggers

operate the shutdown system that immediately shuts off the fuel supply. A fast response main gas shut off valve is installed at the gas main supply line for fast action cut-off during emergency.

There is a good management system in accordance to MHPS protection features during operation and machine overhaul. The battery backup and the UPS system are provided for machines to enable safe shutting down during emergency.

An Emergency Diesel Generator is installed on the 460V load center to act as back up to the system and provides the necessary charging to the battery and the essential auxiliaries. The Emergency Diesel Generator's capacity is 1,000 kW. The plant protection features incorporated are standardized with international practice. Priority feature is to shut down the machine safely in an event such as malfunction or abnormal operating conditions both internally and externally. The plant systems are also installed with good redundancies including boiler feed water system for critical facilities.

Machinery Breakdown

The equipment is mostly high speed rotating machines such as gas turbine and steam turbine. The dangerous mechanical parts of equipment and main accident type are as follows;

- GTG and STG : Turbine blade broken(corrosion, creep, erosion, fatigue, etc.), Casing fracture, Mechanical lubricant oil leakage
- Boiler : Gas leakage, Over heating
- Transformer : Insulating oil leakage, Over heating
- Valve: Fracture by water hammering, Valve sticking.

Alarm and trip equipment are provided for protection of turbine. Control and monitoring for turbine are possible in CCR (Centralized Control Room / 24-hr attended).

Major protection systems of GTG are installed and monitor 24-hours real time operation and provide preventive action and emergency response. Safety devices such as over speed governor, rotor axial position, lubricant oil pressure, lubricant oil temperature, control oil pressure and vacuum emergency are installed for protection of GTG and STG.

Surrounding Exposure

Chuncheon has 25 ~ 70m road around the site boundary and the nearest buildings are located about 25m away from the site. So, the surrounding exposure is considered moderate.

Fire Protection System

The fire protection systems installed at the plant are in good condition and designed according to the Korean Fire Protection standards and National Fire Protection Agency (NFPA) standards.

The installed systems include hydrants and hose reels, sprinklers and water spray system for main transformer, CO₂ fire suppression system and extensive automatic fire detection systems with flame, smoke, gas and heat detectors.

There is a reliable water supply from the on-site fire pumps and tank. The fire protections are supplemented by fire brigade units within 20 minutes (19km) call out time using hydrants and reliable water supplies readily to hand.

On site personnel have been trained in basic industrial fire fighting. This represents an acceptable protection standard for the exposures being considered and generally in accordance with Korean and NFPA design.

Safety Management System

Chuncheon energy has an established Safety Management System based on the Chuncheon energy procedure. The emergency organization composed of CCE and regular maintenance company(Susan industry) staffs. There is not a formal emergency response plan document to cope with various contingencies yet for emergency evacuation, medical emergency, fire or explosion, hazardous LNG release, operational emergencies, natural disasters, utility failure, civil complaint, security emergency, etc. Inspections conducted on a monthly basis. A Monthly safety checklist is in use for the safety inspections. Reports are prepared for the above inspections and the relevant parties are expected to rectify the safety deficiencies within the stipulated time frames. Annual overhaul is conducted depending on the maintenance schedule.

Overall Rating

Consequently, considering all aspect of risk, we estimate Chuncheon energy is considered Average level in their risk category.

Remark

Above overall rating in mainly concerned with those perils is relevant to property damage (excluding machinery breakdown) and business interruption. In this report, we provide our opinions as to the quality of the risk on a worldwide industry basis. The following definitions apply:

- | | |
|------------------|--|
| Excellent | <i>The very best current day practice in the class of industry</i> |
| Good | <i>Embodies some of the best practices in the class of industry</i> |
| Average | <i>Acceptable standards exhibited but with room for improvement</i> |
| Fair | <i>Some areas below the standard of current day practice with considerable room for improvement</i> |
| Poor | <i>Embodies few or none of the standards expected of current day practice with major improvements required</i> |

3. LOSS ESTIMATION

T.S.I Value

(Unit : KRW)

Location	Item	Insured Value
Chuncheon	Engineering	19,733,030,000
	Equipment cost	284,044,031,000
	Construction cost	267,788,460,000
	Etc.	15,265,479,000
Total		586,831,000,000

< Remarks >

Above property value is insured value which is given from Chuncheon energy.

PML

[Definition]

We understand the probable maximum loss, i.e. the maximum loss that might be expected, at a cautious, to occur as a result of a single loss event, taking into consideration all the circumstances of the risk. Fire protection measures have to be left unconsidered for a PML assessment.

[PML Scenario]

Fire & explosion event is the most severe loss event in respect of Property Damage except the catastrophic disaster such as earthquake. This assumption does not include additional indirect losses like fire fighting expense and debris removal cost. Loss assumption herein is based on present value, and we do not take inflation factor into PML consideration.

Scenario The top risk of Chuncheon energy is power generation Bldg. The PML for property damage is likely to arise in the GTG caused by explosion of gas turbine generator due to the leakage of LNGas. So, if fire/ explosion occur at GTG, the fire/explosion could spread to HRSG & STG and BOP. Consequently, GTG could be severely damaged and HRSG & STG and BOP will be partially damaged.

Therefore, the PML is estimated to be about 80% of the Top risk.

PML PML is estimated about **470 Korean Billion Won**

Loss Record

There has been no loss record since recent five years.

4. RISK EXPOSURES

Followings are major exposures and details of risk that were recognized during the survey. We concentrated on the point of insurance coverage, especially for property damage.

Site Condition / Lay Out



[Chuncheon Energy]

Chuncheon energy is located at Chuncheon city, Kangwon-do in Korea. It is approximately 88 km away from East of the capital, Seoul. And global location of the site is latitude 37.4552 N & longitude 127.4628 E. The site area is about 77,700 square meters of predominantly flat ground, so there is no significant subsidence has been observed or reported.

This site is surrounded by mostly vehicle roads and factories. The nearest buildings are factories which are about 25 meters away from the site. The plant is well served by a network of roadways, which provide good access to all units for maintenance or emergency response.

Natural Hazards / Miscellaneous

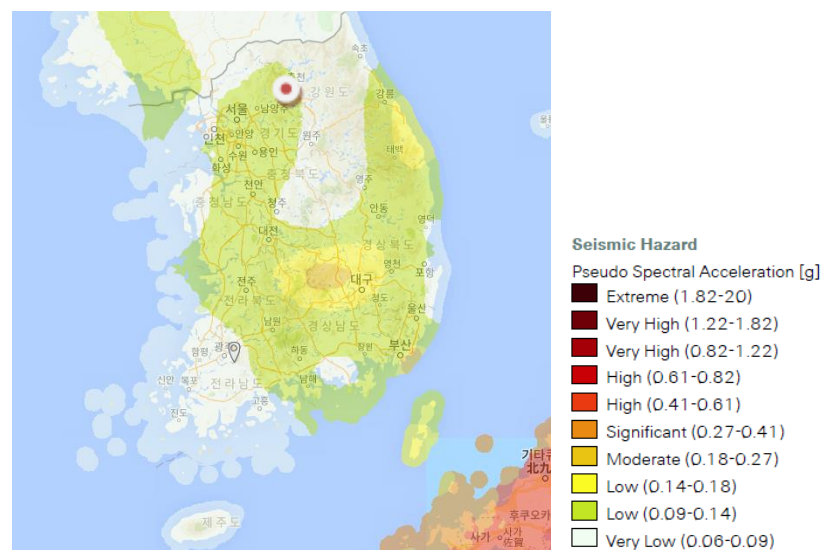
Meteorological Data

- Precipitation Max. (24 hours) : 308.5 mm
- Temperature Max. : 36.8 °C
- Temperature Min. : - 24.5 °C
- New Snow Fall Max. : 25.2 cm
- Great Gust : 22 m/s
- Annual Precipitation (total) : 1,347.3 mm

Above meteorological data is based on Statistical Data of Korea Meteorological Administration - Focused on Chuncheon city between 1988 ~ 2017. There can be geological differences between actual location of the site and metrology observation post.

Earthquake

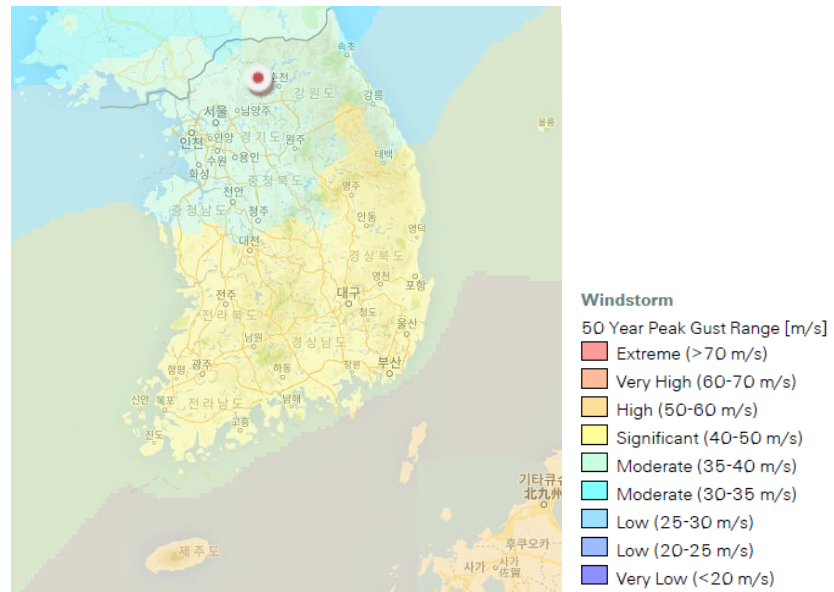
According to the Swiss Re "NatCat Risk Assessment Report", pseudo spectral acceleration (PSA) of this area is 0.099g for the return period 475 years and it is classified as low seismic risk zone and no serious seismic event has been reported in the site.



[Swiss Re World Map of Natural Hazard “Seismic”]

Typhoon

Korea is located in a typhoon zone. Typhoon usually comes with torrential rain and windstorm. According to the Swiss Re "NatCat Risk Assessment Report", the peak gust generated in the site for 50 years is 40~50 m/s and it is classified as significant windstorm risk zone. Unexpected torrential rain and strong wind followed by typhoon can cause some damages on building's wall and roof, and outside equipments.



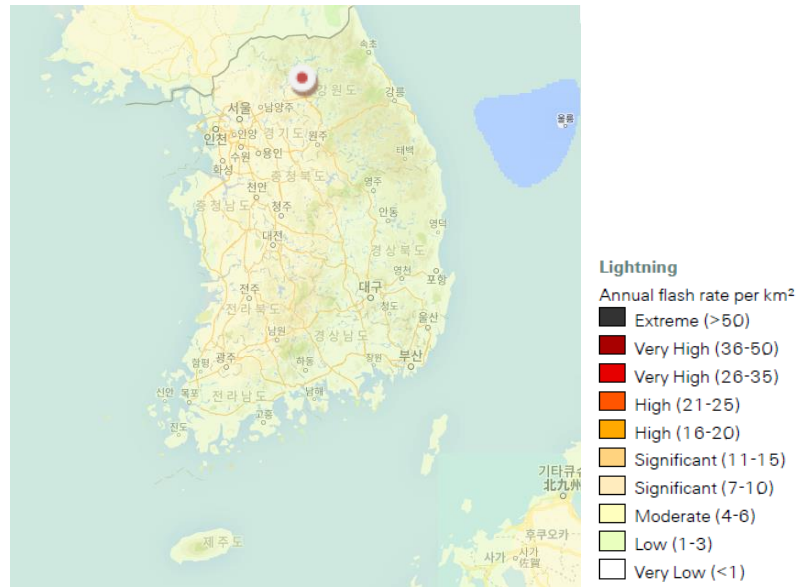
[Swiss Re World Map of Natural Hazard "Windstorm"]

River Flood

This area is not classified river flood hazard zone, and the site reinforces draining system such as drain pump and concrete curb. However, there is potential flooding damage by typhoon during summer heavy rain season.

Lightning

This region is subject to thunderstorms in the summer. According to the Swiss Re "NatCat Risk Assessment Report", annual flash rate/km² in this area is 3 flashes and it is classified as moderate lightning risk zone.



[Swiss Re World Map of Natural Hazard “Lightning”]

Subsidence and Collapse

The land is flat and soil condition of site area is considered stable. No symptoms of subsidence and collapse have been observed since the plant construction. We consider that this plant is exposed to low risk level of subsidence and collapse.

Buildings & Construction

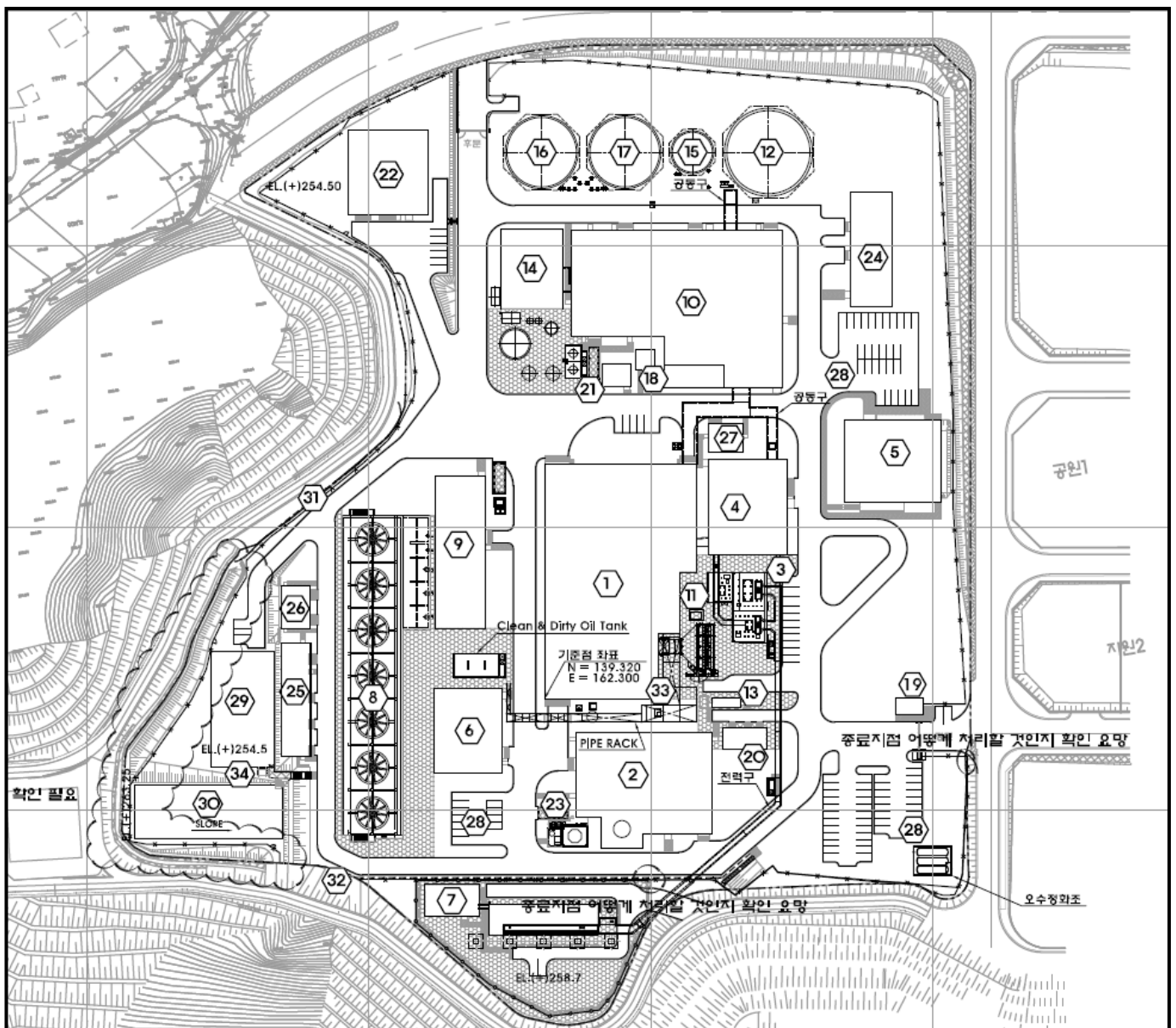
No	Name of Building	Floor	Area (m2)	Structure
1	Turbine	1F	4,266	Steel structure
2	HRSG	1F	1,859.95	Steel structure
3	TR		-	Steel structure
4	CCR	4F	3,355.03	Reinforced concrete
5	Admin	B1/2F	3,104.61	Steel structure
6	Aux boiler	1F	782.80	Steel structure
7	TR CCR	1F	240	Steel structure
8	Cooling tower		2246.58	Steel structure
9	Cooling water pump	1F	367.47	Steel structure
10	Water treatment	2F	4,579.22	Steel structure
11	Comp'	1F	13.5	Steel structure
12	Heat storage tank		706.86	Steel structure
13	Extinguishing agent	1F	46.33	Reinforced concrete
14	WWT		130.25	Steel structure
15	Demi water tank		165.13	Steel structure
16	Raw water tank1		490.87	Steel structure
17	Raw water tank2		490.87	Steel structure
18	Stack	1F	54.76	Steel structure
19	Guard room	1F	63.24	Reinforced concrete
20	Gas storage	1F	123.24	Reinforced concrete
21	Governor room	1F	80	Reinforced concrete
22	Fuel gas compressor	1F	889.17	Steel structure
23	Ammonia storage	1F	95.68	Steel structure
24	Warehouse	2F	1095.92	Steel structure
25	Waste room	1F	412.56	Reinforced concrete
26	High pre gas storage	1F	150	Reinforced concrete
27	EDG	1F	125	Reinforced concrete
28	Parking area		-	Steel structure
29	Tennis yard		-	Steel structure
30	Golf yard	1F	90.97	Steel structure
31	Cooling tower wall		-	Steel structure
32	GIS wall		-	Steel structure
33	Wall		-	Steel structure
34	Toilet	1F	5.88	Reinforced concrete
	Sum		26,007.61	

*** Abbreviation:**

RC(Reinforced Concrete), SRC(Steel Reinforced Concrete), STL(Steel), BL(Block), SPOST(Sandwich panel on Steel Truss), ALC(Autoclave Light-weight Concrete), SP(Sandwich Panel)

Generally, most buildings were constructed with steel structure or reinforce concrete structure. The roofs of them are made of reinforced concrete structure or sandwich panel(all glass wool) on steel truss structure and floors are made of almost reinforced concrete structure. Exterior walls of buildings in the site are made of concrete, aluminum composite panel or block.

Most penetrations where electrical cables and ductwork passes through adjacent walls are sealed, but fire segregation inside buildings isn't prepared in the site. The distance between each building and facilities is 10~20m. So, it is not sufficient to prevent a fire spread.



[Layout]

Process Description

Chuncheon is combined heat and power plant and total capacity is about 470MW and 524Gcal/hr. The gas turbine and the steam turbine are uniaxial system and the power block consists of one gas turbine, one HRSG and one steam turbine in a 1+1+1 configuration.

GTG is manufactured by MHPS and the model number is 501J that is adopted by MHPS technology and has a generating capacity of 320MW. Also, STG is manufactured by MHPS.

Main fuel, LNGas is used for fuel for this power plant and LNGas is supplied from KOGAS governor station throughout pipeline. Supplying pressure of LNGas is 23kg/cm² and LNGas is pressurized to 47kg/cm² through gas compressor and supplying pressure of GTG burner is 47kg/cm².

The combustion process begins by air being drawn in by the compressor, which is directly coupled with the gas turbine. The compressed air is drawn into the combustion chamber. The fuel flowing in a controlled way by the gas control valve is mixed with compressed air and ignited in the combustion chamber. Combustible hot gases at a temperature of about 1,500 °C enter the gas turbine. The hot exhaust gases generated by the gas turbines are then channelled into a HRSG. The exhaust gas leaves the gas turbine through exhaust ducts and is then transferred into a water and steam cycle by the HRSG.

The saturated steam is further heated and passed through the steam turbine where the steam expands converting the thermal energy to mechanical energy. The steam turbine is connected to a single shaft generator that produces additional electricity. Cooled gases used in the combined cycle process are released to the atmosphere through the stack. The HRSG consist of three stages such as HP, IP and LP stage. Super-heated vapor generated from each section is re-circulated in each section such as HP, IP and LP stage of STG and re-heated by HRSG.

The gas turbine unit is equipped with natural gas firing fuel nozzle only. The gas turbines were not provided with a bypass stack to divert hot exhaust gas to the atmosphere. The generators connected with gas turbine & steam turbine. The output voltage generated is then stepped up to 154kV via generator step-up transformers to the power grid. Steam which is generated from HRSG and PLB goes into the shell & tube type heat exchanger. For the energy efficiency, hot water; heat source of district heating, is reserved at tanks during low demand time.

Regular inspections and maintenance works are provided for preventing leakage problem. For heat distribution, DH (Distribute Heat) pumps that are electric motor driven centrifugal pumps are used. Regarding to mechanical safety, online vibration monitoring equipment is provided for pumps and regular lube oil tests are conducted.

All the technology adopted in this plant is proven and well-established in the industry. The cooling system of generator of power plant adopts hydrogen-cooling system because the capacity of generator is above 150MW. Because of the high thermal conductivity and other favorable properties of hydrogen gas, this is the most common type in its field today. Hydrogen gas and nitrogen gas is provided at gas storage house and nitrogen gas uses for purge. Hydrogen gas dryers are installed at the underbody of each generator for removing water from hydrogen gas. Hydrogen detectors provided at hydrogen vessel storage room.

Operation and control of the machines are implemented in the CCR. Start-up and shutdown are remotely control by using DCS. LNGas is used for the boiler fuel. In terms of safety, gas analyzers are installed in boiler for measuring combustion atmosphere. Almost equipment is operated by DCS.

Gas Turbine

GTG is manufactured by MHPS and the model number is 501J that is adopted by MHPS technology and has a generating capacity of 320MW. The prime mover consists of 15 stage axial flow compressor. At base load on natural gas and ISO conditions, the machine is designed with net plant efficiency about 61.5%, and turbine inlet temperature of 1,600°C. The gas turbine operates on natural gas fuel and the machine is equipped with Dry Low NOx combustors. Operation is from a central control room using DCS. Total rated power of turbine generator is 470MW and rated terminal output voltage is 21kV. It is step up to 154kV via 520MVA step-up transformer before transmitting to the grid.



[Gas turbine]

Steam Turbine

Steam turbine is manufactured by MHPS and the model number is SRT-50AX and has a generating capacity of 150MW. The steam turbine is double casing condensing turbine with combined HP-IP part and double flow LP part with condensing type with steam reheating.

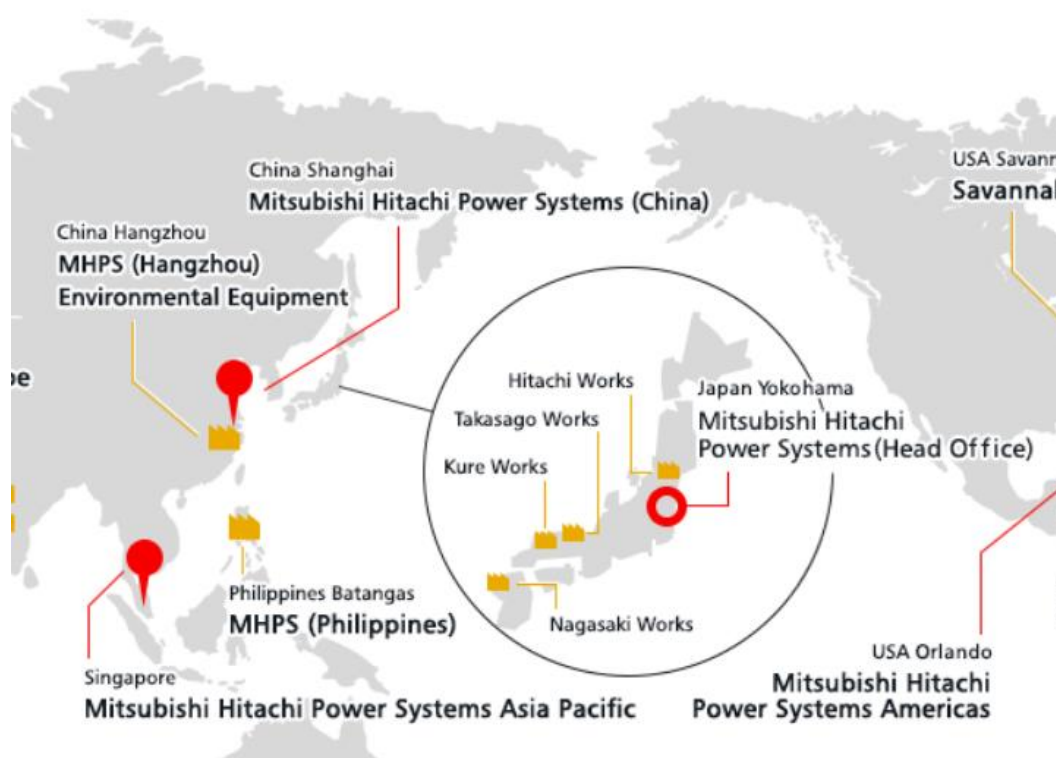


[Steam turbine]

Safety device of GTG & STG

The status of the turbines and generators are fully monitored and controlled by the DCS (Distributed Control System) with CMS (Condition Monitoring System). And, VMS (Vibration Monitoring System) is applied at STG, GTG, BFP, COP, CWP etc. and continuously monitored in real time in central control room.

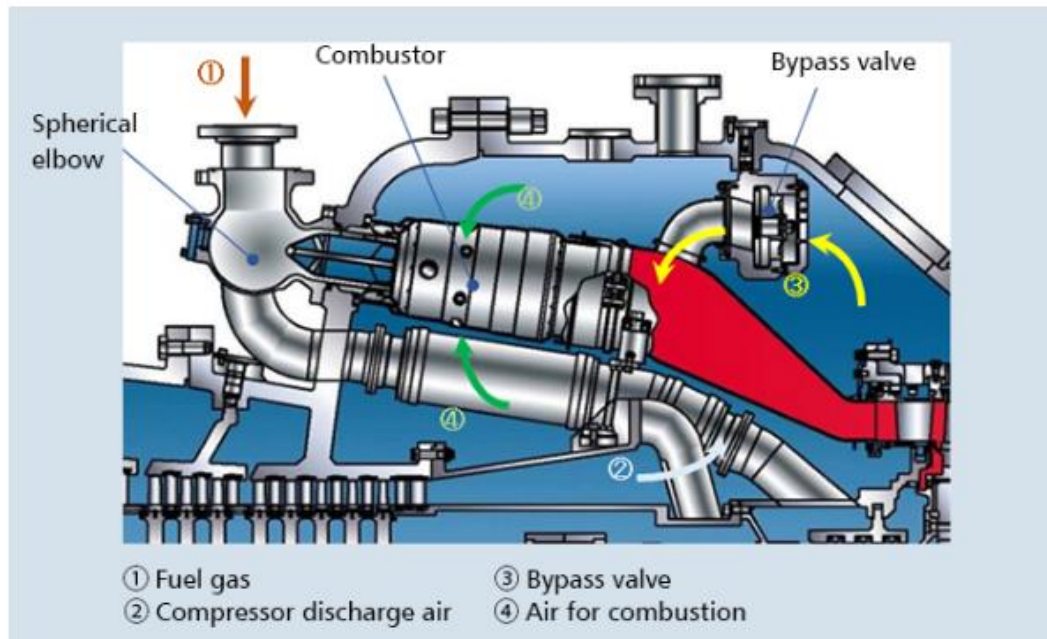
Moreover, gas turbine operation such as generator power out, turbine output, turbine speed, fuel gas temperature, fuel gas flow & pressure, compressor inlet air temperature, blade path temperature, exhaust gas temperature, bearing vibration, combustion pressure fluctuation can be monitored and supported with RMS (Remote Monitoring System) from remote monitoring center of MHPS where is located in Takasago, Japan.



[Takasago Center in Japan]

Critical equipment is continuously monitored on a 24 hour per day 7 days per week. MHPS provide necessary information relating to the combustion turbines, so that they can be maintained at stable condition.

CPFM (Combustion Pressure Fluctuation Monitor) & CPFA (Combustion Pressure Fluctuation Analyzer) is provided at the combustion part of GTG. And all of the operation data is transmitted to MHPS Monitoring & Diagnostic Operation Center in Japan. The power plant has alarm and trip stage for emergency situation such as over speed, vacuum broken, raising lubrication & control oil temperature etc.



[CPFM]

All processes are controlled and monitored in CCR including heat distribution pipelines. Mainly DCS is provided for overall controls. Water levels are monitored and pressure relief valves are inspected by the regulations. Also O₂ & CO gas analyzers are installed in boiler. Variety of safety devices such as over speed governor, Lubricant oil pressure emergency, bearing sliding and vacuum emergency are installed. Inspection & overhaul are contracted with Susan industry. The boiler and pressure vessels are inspected by government of agency which is specialized in such item. Most of the critical equipment is under the regular inspection of maintenance team. The safety educations are severely executed and observed. The supply and return pipe is installed in underground. The maintenance and inspection is accomplished by maintenance department.

Heat Recovery Steam Generator (HRSG)

The HRSG is designed to match the operating characteristics of the combustion and steam turbine to achieve the optimum performance for the total power plant cycle. The HRSG is designed to be fully integrated into the combined cycle system and includes the required inlet/outlet ductwork, structural supports, piping, and accessories. The HRSG incorporates a three-pressure level design that allows reheating and natural circulation. Exhaust gas flows through a horizontal gas turbine and then through vertical tube heat transfer sections that are configured in the direction of the exhaust gas flow to obtain optimum energy. HRSG unit is equipped with factory built pressure part modules, casing panels and large bore piping spools.



[Layout of key equipment]

Lub Oil System

Lub oil system consists of MOP (main oil pump) and emergency oil pump(EOP). In common, MOP is motor-driven type and one EOP is D.C motor driven type. EOP can be worked by temporary power from UPS on power failure. Each gas turbine and steam turbine has their own lube oil system. Lube oil tank protected by water spray system and flash point of oil is 238℃.



[Lub oil tank]



[Lub oil dirty tank]

Spare parts

Spare parts are maintained based on procedure of MHPS. Critical equipment parts are preserved by LTSA (Long Term Service Agreement) with main manufacturer. Consumable spares are stored in the premises but main equipment is maintained by MHPS. High temperature component such as turbine blade, hot gas path parts are storied in Japan and successful of mobilization for critical spare parts can be possible within three days. Warranty Considering GTG, Chuncheon energy contacted with their contractors, basically until 24 months from the date of Commercial Operation.

Maintenance

Chuncheon energy has computerized management and maintenance system and operation of plant is conducted by veteran operators who belong to EWP(Korea East West Power) with above 20 years career. Regular maintenances will be conducted by special contractor company (Susan industry). Panned maintenance is conducted by MHPS. Maintenance plan sequence is CI \Rightarrow TI \Rightarrow MI. Considering plan maintenance period, CI (combustion inspection) is 16.5 days, TI (turbine inspection) is 26.5days and MI is 37.5days. Maintenance is carried out at every 12,500AOH interval (or 450ES).

CPFM (Combustion Pressure Fluctuation Monitoring System) is provided at the combustion part of GTG. There is good operation management system such as Turbine control system. All of the operation data is transmitted to MHPS Monitoring & Diagnostic Operation Center in Japan. The routine servicing and preventive maintenance of equipment are primarily planned and arranged to meet recommendations by the OEM. The maintenance activities are monitored and managed. For the gas turbines, the inspection intervals and scope are based on the gas turbine AOH (Actural Operating Hours) or ES (Number of Equivalent Starts). Regeneration of turbine blade is conducted at every 12,500AOH.

Utilities

Electrical Equipment

Main step-up transformers are installed in front of turbine building. There are 520MVA (154kV/21kV) capacity main step-up transformers for turbine generator. Also, there are eight unit auxiliary transformers and the capacity and amount are 2.2MVA x 6ea and 2MVA x 2ea. Dissolved Gas Analyzers (DGA) are installed each main & aux transformers but there is no partial discharge monitoring system. Fire walls are provided in the main transformers and all of the transformers are protected by water spray system and soundproof walls enclose each transformer. All transformers are regularly checked and tested by external experts about insulation analysis such as insulation-resistance test.



[Step up TR]

Fire Protection System

Fire Protection system

Item	Type	Amount	Note
Detector	Flame, Heat and Smoke	-	Whole area
	Flame detector		Turbine room
Hydrant	Indoor hydrant	60ea	Whole area
	Outdoor hydrant	16ea	Whole area
Fire pump	Main (270m ³ /hr)	1 ea	
	Jockey (3.6m ³ /hr)	1 ea	
	Engine (270m ³ /hr)	1 ea	
HFC-23	HFC-23	110head	Electricity rooms etc.
Sprinkler System	Wet type	173head	Administration Building
Water Spray	Water spray	130head	Transformers

Fire alarm receiver (R type) is provided in CCR where 24hours manned. The critical facilities such as GTG are protected by CO₂ fire extinguishing system. The CO₂ fire extinguishing systems are installed at gas turbine room, starting motor room and electricity room.

Fire Detection System

Heat & smoke type fire detectors are installed in most of the buildings and flame detector is installed at turbine room.



[Fire Alarm panel]

Water based Firefighting facility

Most of the buildings are protected by indoor hydrants and adequate outdoor hydrants are placed around the site. Main step-up transformers are protected by water spray system and fire wall is installed among the transformers, too. Fire water is supplied by motor driven pumps and diesel engine pumps are secured for standby use.



[Fire engine pump]

Gaseous Fire Extinguishing System

Total flooding type carbon dioxide fire extinguishing system is installed at Electric room, computer room, switch gear room, MCC room and underground cable pit in central control bldg. Enclosure of GTG is protected by CO2 fire extinguishing system. Also, central control room of GTG is protected by HFC-23.



[HFC-23]

Safety Management System

Organization

There are 6 departments in this plant and these departments are operated in mutual relationship. Fire marshal's position is in operation department. Maintenance is in charge of machinery team and electricity team. But there is no safety & maintenance team having exclusive responsibility for safety & maintenance.

Actually, regular maintenance work like annual overhaul will be conducted by the specialized external contractor (Susan industry).

Plant tours for mutual checking of critical equipment conditions are conducted by Susan industry. Field checking and logging are conducted by the operators.

Hot Work permit

Chuncheon energy conducts work permit system for maintenance, technical, operation and safety management. And hot work permit form document is conducted in the site.

Smoking Prohibition

Smoking prohibition is enforced in the entire process buildings. It is only permitted outside of the building.

Security

Currently, 24 hour security guard service is operated and regular patrol is done by guards. Security fence and CCTV surveillance cameras are installed around the site boundary.

A : Layout

