

IV. Guidelines for Preparing Medium- and Long-Term Plans by the Type 1 Designated Business Operator (the Water Supply Industry, Sewer Industry, and Waste Processing Industry)

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When the enterprises, that install factories or workplaces for operations belonging to the industry classified as water supply industry, sewer industry, and waste processing industry in the Type 1 Designated Business Operator, formulate their Medium- and Long-term plans, the following items shall be referred to for accuracy.

(1) Water Supply Industry

The facilities described on “Table 1” are valid for preparing Medium- and Long-term plans as the specified examples of the facilities for achieving the objectives and measures regulated in the objectives of rational use of energy and systematic measure to be carried out in the water supply industry (herein after referred to as “objectives and measures part”) determined in the items to be used as standards for judgment (hereinafter referred to as “standards for judgment”) by manufacturers for the rational use of energy in factories or workplaces with regard to the major processes of intake and headrace process, settlement and filtration process, advanced water-purification process, drainage treatment process and water supply and distribution process, integrated management, and the other major energy consumption facilities.

(2) Sewer Industry

The facilities described on “Table 2” are valid for preparing Medium- and Long-term plans as the specified examples of the facilities for achieving the objectives and measures part of standards for judgment by manufacturers for the rational use of energy in factories or workplaces with regard to the major processes of pretreatment process, sludge treatment process, and sludge incineration process, the other major energy consumption facilities, and unused energy in the sewer industry.

(3) Waste Processing Industry

The facilities described on “Table 3” are valid for preparing Medium- and Long-term plans as the specified examples of the facilities for achieving the objectives and measures part of the standards for judgment by manufacturers in the waste processing industry with regard to the major processes of pretreatment process, heat treatment process, post-treatment process, and power generation process and the other major energy consumption facilities.

However, the facilities described on “Table 4” are valid for preparing Medium- and Long-term plans as the specified examples of the human waste treatment facilities in the human waste disposition industry of the waste processing industry for achieving the objectives and measures part of the standards for judgment with regard to the major processes of water treatment process and sludge treatment process and the other major energy consumption in human waste treatment facilities and unused energy.

Table 1

Process	Category		Details of facility/system/technology
Water-intake and headrace process electric facility	Electrical facility	Pumping facility	1. Achievement of the efficiency of operation control (operating number control, revolution control by an inverter, and wrist control) 2. Achievement of impeller modification 3. Adoption of highly efficient motors and pumps
		Duster	1. Achievement of the efficiency of operation by adjusting operation time and operation intervals 2. On-off control in accordance with water level difference between the inlet level and discharge level
Settlement and filtration process	Electrical facility	Flocculation tank	1. Achievement of the efficiency of rapid agitation and slow agitation devices (revision of driving system (adoption of a low-speed motor and inverter control), improvement of drive shafts, quality of blade vehicles, and structure)
		Flocculation pond facility	1. Achievement of the efficiency of the operation of sludge-raking machines (selecting efficient-driving system and adjusting operation time and the intervals) 2. Achievement of the efficiency of the operation of sludge-ejectors (using a surface meter and a densitometer and adjusting operation time and the intervals)
		Filtration pond facility	1. Achievement of the efficiency of reverse cleaning (revision of the frequency of cleaning and the time)

		Membrane filtration facility	<ol style="list-style-type: none"> 1. Achievement of the efficiency of the operation control of pumps (number control, revolution control by using an inverter, and blade-angle control) 2. Achievement of the efficiency by modifying an impeller 3. Achievement of the efficiency of membrane-cleaning (revision of the frequency and the time)
Advanced water-purification process	Electrical facility	Ozone treatment facility	<ol style="list-style-type: none"> 1. Achievement of the efficiency of the operation of an ozone-generator (control of the injection of ozone)
		Granular activated-coal filtration tank facility	<ol style="list-style-type: none"> 1 Achievement of the efficiency of cleaning (revision of the frequency and the time)
Drainage process	Electrical facility	Sludge concentration facility	<ol style="list-style-type: none"> 1. Achievement of the efficiency of the operation control of pumps (number control, revolution control, and blade-angle control) 2. Achievement of the efficiency by modifying an impeller 3. Achievement of the efficiency of operation by adjusting operation time and operation intervals
		Sludge dehydration facility	<ol style="list-style-type: none"> 1.Achievement of the efficiency of dehydration (combined use of solar drying and dehydrator, efficient selection of driving system, heating of concentration sludge by utilizing exhaust heat, and adjustment of operation time and the intervals) 2. Control of the dehydrating facilities including carrier facilities

Water supply and distribution process	Electrical facility		Water-supply and distribution facility	<ol style="list-style-type: none"> 1. Achievement of the operation control of pumps (number control, revolution control, and blade-angle control) 2. Achievement of the efficiency by modifying impellers 3. Adoption of high-efficiency motors and pumps 4. Adoption of water-pressure management and block water-distribution system and optimization of water distribution based on leakage measures
Integrated management	Electrical facility		Water management system	Operation of the efficient rationalization of raw water managing the water volume and pressure accurately
			Monitoring management system	<ol style="list-style-type: none"> 1. Introduction of energy management system 2. Introduction of the monitoring-control facilities of energy-conserving type
Other major energy-consumption facilities	Electrical facility	Power substation and distribution facilities	Low-loss transformer	Transformer that uses low-loss magnetic materials and that has a low-loss structure (mold transformer, amorphous transformer, and high-efficiency transformer)

			Constant voltage constant frequency power supply (CVCF)	Device that supplies electricity with a further stable voltage by using a voltage regulator such as an on-load tap changing transformer, on-load voltage regulator, and induction regulator in case the voltage drop is large or exceeds the permissible regulation even if the power distribution to a load center by a high voltage and the reduction of impedance are performed.
			Number-controlling device of transformers	Device that monitors the load-factors of transformers and controls the number of transformers in order to reduce no-load loss due to parallel and paralleled-off systems and to enhance the load-factor
			Optimization of the capacity of transformers	Technique to change the capacity in accordance with electricity consumption and load ratio.
			High efficient uninterruptible power system	Uninterruptible power supply that directly uses a commercial power source with a stable condition of power supply frequency and voltage and performs an inverter operation of the battery power source momentarily during power failure and frequency variation
			Battery facility for power storage	Storage facility that is highly efficient with large capacity, and is used for controlling the daytime peak demand and enhancing load factor. (NaS battery and Redox Flow battery)

	Improvement of power-factor	Phase advance capacitor	Capacitor that improves the power factor of receiving terminals in workplaces or facilities with a large amount of delayed reactive power by using an oil-filled or dry type power capacitor (phase advance capacitor) installed near the terminals and facilities
		Automatic power factor improvement device	Device that automatically performs introduction and opening of a phase advance capacitor in order to measure the power factor of the system and then sets the factor to 1.0
		Motor figure phase advance capacitor	Device for improving the power factor of each facility by installing it to every single motor
	High-efficient motor	High-efficiency motor	Induction motor that improves loss compared to a generic type motor by adopting a high-grade iron core and improving wound-rotors and cooling fans
		Permanent management motor	Highly efficient synchronous motor with a permanent magnet (PM) on its rotor that does not require power for its secondary coil
	Revolution-control device	Inverter control device	Device that controls the frequency and voltage supplied to motors for maintaining the flow rate of pumps and fans variable
		Poles converting motor	Motor that can change the number of the revolutions in steps by changing the number of the poles of a starter winding. Effective if the demand of speed change is fixed.

		Measurement management device	Demand control device	Device that monitors maximum electric power continuously, alarms, and cuts load off before the power exceeds a set value
Air-conditioning facility, hot-water supply facility, ventilation facility, and elevator facility	Air-conditioning heat-source +-facility and system		High-efficiency turbo freezer	Machine with coefficient of performance (COP) of 6 or more during rating operation that enhances COP further if the machine carries out inverter force to the compressed system with low-temperature cooling water
			Gas engine heat pump system	System that performs heating-cooling combination appliance by a heat pump of gas engine drive and absorbs and utilizes the exhaust heat of an engine during heating by an evaporator
			Multi-air conditioner with high efficiency	Air conditioner that is used as a unit-air-conditioning system with a DC motor installed to compressors and fans, and with further-advanced compressors and enhanced heat exchangers of outside and inside facilities
			Ice -storage multi air conditioner	Air conditioner that is used as a unit air conditioning system by combining the systems of an ice storage tank and a multi-air conditioner and produces ices utilizing nighttime power and uses the ices for cooling during daytime

		Advanced double-effect absorptive chilled/hot water machine	Device that has the mechanism preheating air for combustion, absorbing solution or producing hot water by using exhaust gas generated during the regeneration or condensation processes of lean solution
		Outside-air utilization air-conditioning system	System that reduces the energy consumption of a heat source by using outside air for cooling during interkinesis and winter season. If a heat exchanger is available, bypass technique is applied.
		Far-infrared utilization heater	Device that directly heats human bodies rather than the surrounding air using far-infrared radiation; thus, the device is efficient
		Heat exchanger	Device that reduces outside air load recovering the sensible-heat and latent-heat of exhaust heat for supplying air (total enthalpy heat exchanger)
	Optimum control of air-conditioning and heat-source facilities	Outdoor-air intake control during precooling and preheating	System that stops outdoor air intake during precooling and preheating
		Optimum control of outdoor air induction	System that controls outdoor air induction in a room accurately by using a carbon dioxide sensor
		Optimum-setting control system of the temperatures of chilled/hot water supply	System that sets the temperatures of chilled/hot water supply from a freezer and a hot-water supplier optimally in accordance with the load and carrier power. Effective to enhance coefficient of performance (COP)

			Optimum-setting control system of the temperatures of cooling water	System that sets the temperatures of cooling water optimally balancing the protection circuit of a freezer and maintaining the temperature of cooling water lower for enhancing the efficiency of a heat source equipment
			Operating number control of heat sources	System that operates number control of heat sources in accordance with the load of a workplace if multiple freezers are installed
	Reduction of carrier power for air-conditioning		Reduction of the loss of water-air carrier	System that optimizes the pressure and automatic control
			Change of the inhalation interval of centrifugal impeller	System that optimizes the performance of a pump in accordance with the pressure of water requirement of a facility by controlling the inlet interval of the centrifugal impeller of a pump
			Flow-resistance reducing substance in pipes	System that reduces flow resistance in piping and carrier power blending a surface-active agent in a closed piping system
			Hydrate-slurry air-conditioning system (VCS)	System that reduces the carrier power using the mixed medium of hydrate slurry and aqueous solution as a heating carrier medium and carrying out high-density cold latent carrier
	Air-conditioning system and other related materials		Heat-insulation of interior walls, windows, and floors	System that performs heat insulation on the barrier between non-air conditioned area and residential area

			Heat insulation of exterior walls, windows, and floors	System that enhances the heat insulation of exterior walls, roof, windows, and floors and reduces once-through heat and dissipated heat
			Operating airtight treatment for buildings	System that carries out airtight treatment by using airtight sashes, perfect wind rooms, double doors, and revolving doors
			Greening of roofs and walls	Planting on roofs and walls for perspiration and cooling the buildings
			Shading	Shading with blinds, heat reflecting glasses, perm selective films, and heat insulated coating materials
			Optimization of air conditioning zones	Fragmentation of air conditioning zones in accordance with a time zone of consumption and loading configuration
		Hot-water supply facility	Natural refrigerant (carbon dioxide) heat-pump hot-water supplier	Equipment, composed of a heat pump unit and hot water supply unit, that has the capacity to heat up water to a maximum temperature of 90 based on the heat-pump operation by adopting natural refrigerant (carbon dioxide) instead of CFCs that enables the instrument to obtain adequate high temperature to supply hot water and to reduce environmental impacts.

			High-efficiency heat-pump hot-water supplier	Equipment, composed of a heat pump unit and hot water supply, that has the capacity to heat up water to a maximum temperature of 80 based on the heat-pump operation by adopting a new refrigerant (R410A) that enables the equipment to obtain high coefficient of performance (COP)
			Latent-heat recovery type hot water supplier	Supplier that reduces the temperature of exhaust air to approximately 80 by recovering the heat from condensing water vapor and heat from exhaust gas and utilizes the heat for preheating water supply although the traditional hot water supply that employs gas preheating emits exhaust gas with a temperature of approximately 200
			Hot-water supplier with a gas engine	Equipment, composed of generated by gas engine and hot water supply unit, that generates power by using a gas engine, stores the exhaust heat of engine to a hot water supply unit, and utilizes it
		Achievement of high-efficiency of ventilation facilities	Variable air-volume ventilation device	Ventilation device that controls supply-exhaust air volume by inverters
			Local-exhaust system	System that carries out local exhaust of air polluting sources such as smoking area, combustion equipment, and copying machines and reduces air conditioning load

	Optimization of ventilation volume	Ventilation control system depending on carbon dioxide or carbon mono-oxide concentration	System that is used for ventilation of the areas including parking area, measures carbon dioxide or its concentration, and controls the number of ventilation fans and revolutions for fixing the temperature of carbon dioxide or its concentration
		Ventilation -control system by using a temperature sensor	System that is used for ventilation of the areas including electric room and machine room and controls the operations of ventilation fans in accordance with the predetermined maximum and minimum temperatures
		Ventilation -control system depending on scheduling	System that schedules and controls operations in accordance with seasons and times to use warehouses and machine rooms. Recommended that intermittent operation be carried out with regular operations
	Elevators	Inverter-Control system	Method to control the revolution of roped elevators by an inverter
		Regenerative-power recovery system	System that recovers regenerative power by utilizing the function of the motor generating electric power (regenerative power) in accordance with the number of passengers in a car or its direction as it is loaded during operations
		PM gearless roller	Gearless winding machine that excels in energy efficiency and smoothly increases and decreases its velocities with less noises using a permanent magnet (PM) type synchronous motor

	Escalators	Automatic-operation device	Device that detects the presence of passengers and operates the escalators automatically by using a photoelectric post installed at the front of escalator steps
		Number control	System that carries out operating number control of escalators in accordance with each time zone
Lighting facility	High-efficiency lighting facility	LED lighting fixture	Lighting fixture that uses white-light-emitting diode (LED) for its light source and features less heating, miniature size, and long-life.
		Circuit separation of window-lighting	Technique to separate window-lighting circuit for turning off the lighting during daytime
		Light-duct system	System that transmits solar radiation to rooms demanding lighting, regularly with auxiliary lighting, using the inside of a duct as a mirror
		High-reflectivity panel	Panel used for lighting of a fluorescent lamp
		High-illuminance leading lamp	Leading lamp that uses a cold cathode fluorescent lamp
		Lighting control facility	Blind control
	Automatic lighting flashing device		Device that flashes lighting automatically based on schedules, daylight sensors, and human sensors
	Stage dimming system		System that sets lighting in stages in accordance with lighting requirement and avoids excessive illuminance

			Daylight utilization system	System that controls the light automatically for maintaining the room lighting adequately by using a daylight sensor that enables the system to utilize the exterior natural light and to reduce the lighting power
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Table 2

Process	Category		Details of facility/system/technology
Pretreatment process	Electrical facility	Detritus-pond facility and main-pump facility	1. Screen-facility intermittent operation (interlocking a timer, water-level difference, and main pump) 2. Lifting sand facility intermittent operation and basin-ordering alternate operation 3. Number-control of basins in accordance with influent value 4. Increase of the efficiency of main-pump operation Number control Revolution control High-water-stage operation (lowering water-head) 5. Equalization of a main-pump discharge (using all types of sewers and regulating poundage)
Water treatment process	Electrical facility	Initial-sedimentation pond facility	1. Number control of basins in accordance with influent value 2. Intermittent operation of collecting machines (timer and sludge interface) 3. Intermittent operation of sludge-drawing pump (timer, concentration and preset value) 4. Improvement of the capture efficiency of scum-removing facilities (reduction of returning running water)

	Reaction tank facility	<ol style="list-style-type: none"> 1. Optimization of air-blow Influent-value proportional-control MLSS control DO control 2. Improvement of the oxygen-transfer efficiency of air-diffusers 3. Prevention measures of clogs of air-diffusers (reduction of pressure-loss) 4. Reduction of power consumption Turbo-blower (number control and inlet-vane control) Roots blower (number control and revolution control) Submerged agitator and aerator (revolution control and intermittent operation) 5. Optimization of deforming-water volume and intermittent sprinkling water
	Final sedimentation-pond facility	<ol style="list-style-type: none"> 1. Intermittent operation of collecting machines (timer and sledge interface) 2. Returning-sludge pump (number control and revolution control) 3. Intermittent operation of excess sludge pump (timer, concentration, and preset value) 4. Improvement of the capture-efficiency of scum-removing facility (reduction of returning-running water)
	Advanced-treatment facility	<ol style="list-style-type: none"> 1. Submerged-agitator (revolution control and intermittent operation) 2. Nitrating circulation pump (flow-rate control, number control, and revolution control) 3. Returning-sludge pump (number control and revolution control) 4. Optimum-scheduling operation of sand-filtration device and bio-membrane filtration cleaning processes

Sludge-treatment process	Electrical facility	Sludge-concentration facility	<ol style="list-style-type: none"> 1. Improvement of concentration performance (reduction of concentrated sludge) 2. Improvement of solids-recovery rate 3. Reduction of machinery-concentration power
		Sludge-digestion tank facility	<ol style="list-style-type: none"> 1. Digestion-tank introduced-sludge concentration management 2. Digestion-tank temperature management 3. Reinforcement of the thermal-insulation of digestion-tanks 4. Decrease of the power of digestion-tank agitators 5. Reinforcement of the heat-insulation of steam-piping heating facilities 6. Automatic control of heating boilers and hot-water heaters 7. Utilization of steam and hot-water
		Sludge-dehydration facility	<ol style="list-style-type: none"> 1. Supplied-sludge concentration management 2. Reduction of water-ratio of dehydrated-sludge 3. Control of dehydrating system including carrier facilities 4. Reduction of power of dehydrating machine

Sludge-incineration process	Electrical facility	Sludge-incineration facility	<ol style="list-style-type: none"> 1. Conformity of sludge-incineration furnace operation plan to dehydrated-sludge value 2. Optimum-loading operation 3. Reduction of water ratio of dehydrated-sludge 4. Reduction of auxiliary fuel and increase of self-combustion 5. Heat-recovery facility (combustion-air preheater, air-preheating for prevention of white smoke, , and preliminary drying of sludge) 6. Reinforcement of heat-insulation 7. Reduction of exhaust-gas treating water 8. Prevention of leakage of heating medium 9. Automatic control system of incinerators <ul style="list-style-type: none"> Adjustment of combustion-air volume in accordance with sludge heat value Temperature control Revolution control of fluidized blowers and inducing fans
Other major energy-consumption facility	Electrical facility	Deodorant facility	<ol style="list-style-type: none"> 1. Reduction of deodorant air-volume <ul style="list-style-type: none"> Prevention of dispersion from odor-source Prevention of leakage of odor Separation from general ventilation 2. Intermittent operation of fans (depending on seasons and time zones)
		Power substation and distribution facility	Refer to the electrical facility of the other major energy consumption facilities of the Table 1
		Power factor	
		High-efficiency motor	
		Revolution control device	
Measurement management			

Air-conditioning facility, hot-water supply facility, ventilation facility, and elevator facility		Refer to the air-conditioning facility, hot-water supply facility, ventilation facility, and elevator facility of the other major energy consumption facilities of the Table 1
Lighting facility		Refer to the lighting facility of the Table 1
Non-use energy	Facility utilizing sewer-heat effectively	1. Heat-source of air-conditioning facilities 2. Supply of hot water
	Facility utilizing digestion-gas effectively-	1. Digestion-gas generation system 2. Auxiliary fuel of incinerating furnaces 3. Heat source of air conditioning facilities 4. Supply-gas to other operations
	Facility utilizing water-pressure effectively	Facility that recovers the potential energy of the water as a part of pump-power pumped by an open-regenerative system using a waterwheel while dropping and recovers the energy to power by using a generator. The available device and facility are power-recovery waterwheel pumping device and small-hydropower generation facility.
	Facility utilizing incinerator waste-heat effectively	1. Steam-turbine generation 2. Air-conditioning heat-source 3. Digestion tank heating 4. Hot-water supply

Table 3

Process	Category		Details of facility/system/technology
Pretreatment	Heat-utilization facility	Drying facility	Drier Heat-utilization of exhaust-gas re-circulation, exhaust-gas heating recovery, and low-pressure extracted steam High-efficiency burner High-efficiency automatic drying controller
	Electrical facility	Acceptance-supply facility	1. Gavares-disposal hatch Automatic control to cease transportation beforehand Vehicle-control system Adoption of variable-volume of hydraulic pumps Electric-motor drive 2. Gavares crane (automatic control, speed control, lifting weight control, winding-down power regenerator)
Heat-treatment process	Combustion facility	Combustion facility (incineration and melting for gasification)	1. Automatic-combustion device 2. Reduction of air-ratio 3. High-temperature of air for combustion and oxygen enrichment 4. Change of the furnace body to a boiler (water-cold wall) 5. High-efficiency heat-insulation furnace body
	Heat-utilization facility	Ash-melting facility	1. Fuel-system melting furnace High-efficiency burner, pure-oxygen burner, and waste-utilization burner Waste-heat recovery 2. Optimum-power control of an electrical-melting furnace 3. Non-drying treatment by extracting dried ash of incineration
	Waste-heat recovery facility	Gas-cooling facility	1. Boiler High-efficiency waste-heat boiler (high-temperature and high-pressure boiler, feed water heating, and mechanical-hammering device) Low-temperature economizer 2. Water-atomization control of temperature-reduction towers

	Electrical facility	Draft facility	<ol style="list-style-type: none"> 1. Air-blower <ul style="list-style-type: none"> Revolution control (VVVF and mechanical system) High-efficiency blower Steam-turbine drive 2. High-efficiency steam-system air preheater <ul style="list-style-type: none"> Utilization of low-pressure steam Temperature control 3. Reduction of flow-velocity of wind flue
Post-treatment process	Electrical facility	Exhaust-gas treatment facility	<ol style="list-style-type: none"> 1. Filtration precipitator <ul style="list-style-type: none"> Reduction of the capacity of heater Optimization of temperature control of heater Reduction of draft-resistance 2. Catalyst-reaction tower (reduction of heating-value by selecting a reheating low-temperature catalyst) 3. Air-heater for prevention of white smoke (automatic control of air volume by measuring outside-air condition)
		Ash-extraction facility (cement solidification and slag-metal)	<ol style="list-style-type: none"> 1. Conveyer (inverter-control of carrier speed) 2. Flying-ash solidification device (inverter-control of kneading machine drive) 3. Heating -de-chlorination device (optimum temperature control in a reaction device) 4. Ash-crane (automatic control, speed control, lifting weight control, and winding-down power regenerator)
		Discharge water treatment facility	Refer to the water-treatment process and sludge-treatment process of the Table 4

Power-generation process	Heat-utilization facility	Power-generation facility and residual-heat utilization facility	<p>1. Steam-turbine generator Increase of the output of power-generation facilities, reactive-power control at a receiving power point and improvement of power-factor High-efficiency generation (steam with high-temperature and high-pressure and super-gavages generation) Utilization of discharge vapor of turbine Control of discharge pressure (depending on the temperature of outside-air)</p> <p>2. Steam-condenser equipment Inverter-control of fans, number-control, and variable pitch-control of blades Utilization of discharge vapor</p>
Other major energy-consumption facilities	Electrical facility	Water-supply facility	<p>1. Adoption of inverters 2. Adoption of water-saving equipment</p>
		Ventilation facility for furnace rooms	<p>1. Reduction of ventilating-air volume by adopting a local ventilation 2. Optimum-ventilation control system based on automatic measures of inside atmosphere 3. Heat-radiation ventilation facility utilizing the double-casing structure of boilers</p>

		Power-substation and distribution facility	Refer to the electrical facility of the other major energy-consumption facilities of the Table 1
		Improvement of power-factor	
		High-efficiency motor	
		Revolution control device	
		Measurement management device	
	Air-conditioning facility, hot-water supply facility, ventilation facility, and elevator facility		Refer to the air-conditioning facility, hot-water supply facility, ventilation facility, and elevator facility of the other major energy-consumption facilities of the Table 1
	Lighting facility		Refer to the lighting facility of the other major energy-consumption facilities of the Table 1

Table 4

Process	Category		Details of facility/system/technology
Water-treatment process	Electrical facility	Accepting/storage facility	1. Automatic control of the measure of levels and flow-rates of shrives and specks/contaminant strippers (crusher, screen ,screw press, and carrier) 2. Storage-reservoir agitation facility (automatic measuring control of levels) 3. Deodorant facility (air-volume control during daytime and nighttime)
		Biological reaction facility	1. Aeration and agitation device (blower, mechanical aeration machine, and submerged-agitation pump) Optimum-supply control (DO, pH, and ORP controls) Automatic control device of number 2. Solid/liquid separation device (sludge-returning pump, centrifugal concentrator, and membrane-circulation pump) Optimum-supply control (MLSS control) Automatic control device of number 3. Optimum-temperature control (temperature and flow-rate) of cooling devices (cooling tower, refrigerator, and circulation pump)
		Advanced-treatment facility	1. Flocculating-separation device (flocculating-membrane pump) Optimum-supply control (flow rate and pressure controls) Automatic control device of number 2. Optimum-supply control of ozone generator (production-volume and concentration controls)

		Sludge-dehydration facility	<p>High-efficiency dehydration device (concentrator, sludge dehydration machine, and dehydrated-sludge transfer machine)</p> <p>Revolution-difference control by using a differential-rate electric motor</p> <p>Electric-power recovery based on differential-rate control</p>
Sludge-treatment process	Combustion facility	Sludge-drying and combustion facility	<p>1. Automatic-combustion control of the hot blast of dehydrated-sludge driers (temperature and treatment-volume controls)</p> <p>Combustion device</p> <p>Improvement of the combustion air-ratio (oxygen-concentration analysis, fuel/air flow-rate adjustment, and automatic-combustion control)</p> <p>Improvement of heat efficiency (high-efficiency burner)</p> <p>Optimum control of draft capacity (automatic draft-measuring control and revolution controls of induction fans and forced fans)</p>
	Heat-utilization facility	Heat-utilization facility	<p>1. Residue and sludge incinerator</p> <p>Dehydrated-sludge hot-blast drier (utilizing waste heat)</p> <p>Hot-water boiler for waste-heat (utilizing waste heat)</p> <p>Primary air heating for combustion (utilizing waste heat)</p> <p>Heat-exchanger for prevention of exhaust-gas/air white smoke (utilizing waste heat)</p> <p>2. Heat exchanger for the exhaust gas of deodorant-furnace devices (utilizing waste heat)</p>

Other major energy-consumption facility	Electrical facility	Power substation and distribution facility	Refer to the electrical facility of the other major energy consumption facilities of the Table 1
		Power-factor	
		High-efficiency motor	
		Revolution-control device	
		Measurement management	
	Others	Saturdays, Sunday, and weekend nonoperating system	
Air-conditioning facility, hot-water supply facility, ventilation facility, and elevator facility		Refer to the air-conditioning facility, hot-water supply facility, ventilation facility, and elevator facility of the other major energy consumption facilities of the Table 1	
Lighting facility		Refer to the lighting facility of the other major energy consumption facilities of the Table 1	
Nonuse energy	Effective-utilization facility of digestion-gas	1. Digestion-gas power generation system 2. Heat source of air-conditioning facilities 3. Hot-water supply 4. Heating of digestion-tanks	
	Biological-reaction heat	1. Heat source of heating 2. Heat source of vanishing snow	