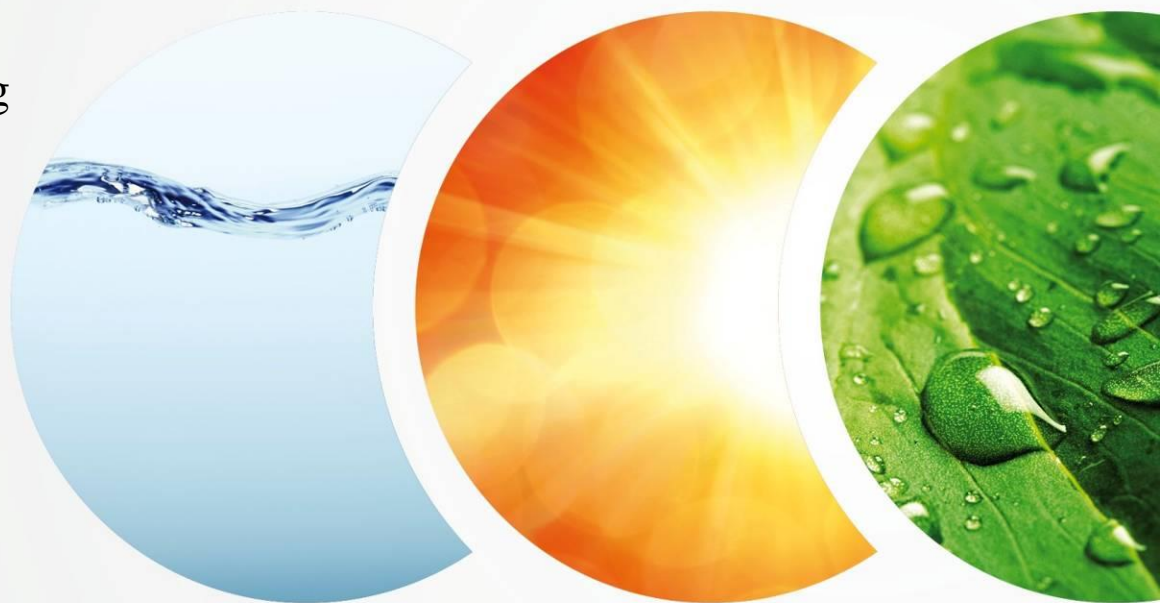


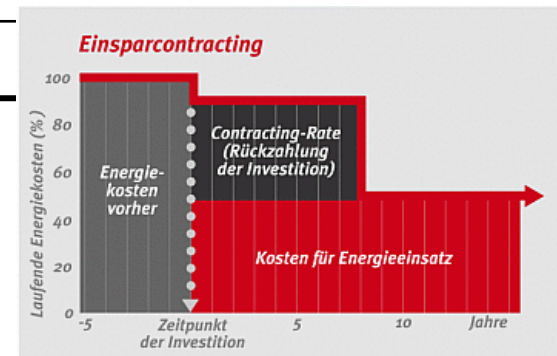
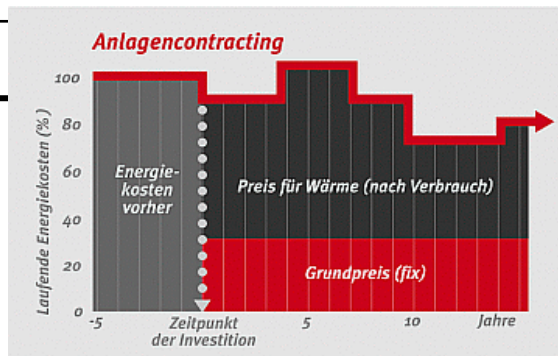
Fundings, economics and financing
Web-meeting
18.06.2020



The financing and operation model **renewable heat contracting**

concept & project examples

<h2 style="text-align: center;">Energy supply contracting</h2>	<h2 style="text-align: center;">Energy performance contracting</h2>
<p style="text-align: center;">for new or existing buildings / facilities / processes</p>	<p style="text-align: center;">for existing buildings / facilities / processes</p>
<p style="text-align: center;">investments to provide energy</p>	<p style="text-align: center;">measures to save energy (insulation, control system, ...)</p>
<p style="text-align: center;">refinancing by billing for the consumed energy and the provision of the plant</p>	<p style="text-align: center;">refinancing by saved energy costs</p>



Bilder: Grazer Energieagentur

Energy-supply-contracting

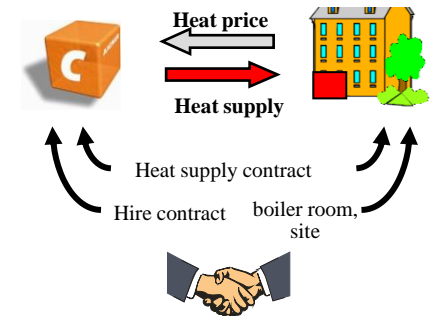
→ energy service, aims to improve the efficiency in energy production (and consumption)

Contractor

→ **planning, financing, construction** and **operation** of the plant to supply energy to buildings & processes (z.B. wood chip plant, pellets plant, ...)

→ energy supply can include: heat, cold, steam, electricity, compressed air

- the **contractor hires** the room or lot of land he needs to build the plant from the customer
- the **customer** does not buy the plant (technical equipment), but he **draws** the **energy he needs** from the contractor.
- the **contractor is owner of the plant** (technical equipment)
- **jointly** the details of the agreement are **defined** in the **energy supply contract**
- the total price for the energy supply consists of a **basic rate** [€/month], an **energy rate** [€/kWh], and an **meter charge** [€/yr]

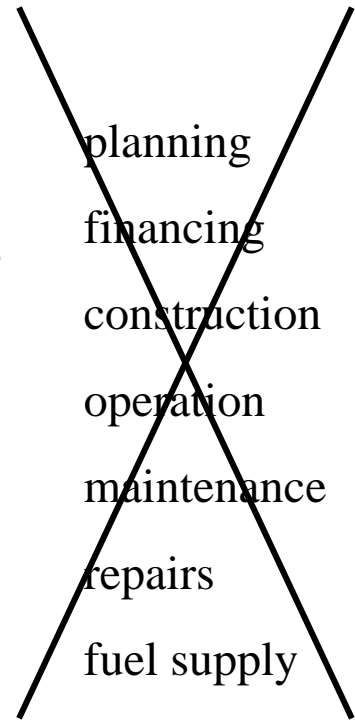
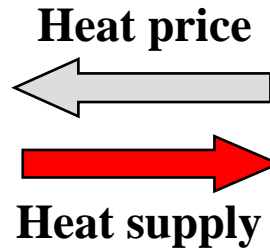


Heat supply contracting

Contractor = Investor

Customer

- ✓ planning
- ✓ financing
- ✓ construction
- ✓ operation
- ✓ maintenance
- ✓ repairs
- ✓ fuel supply



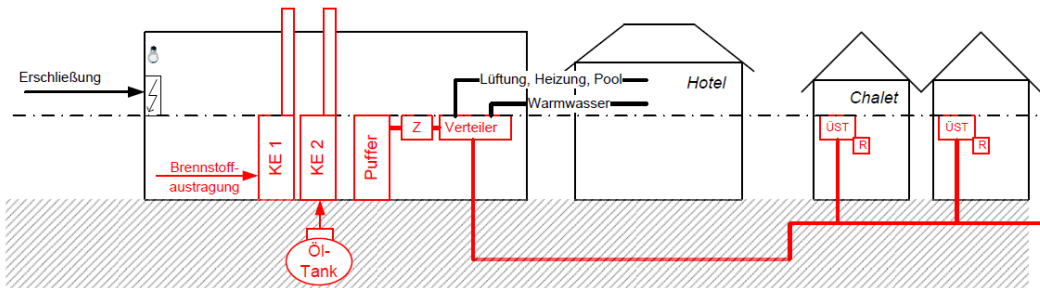
Heat supply contract

Hire contract boiler room, site



Investment by the client

- + Außenanlagen, Zufahrt zum Heizhaus
- + Erschließung (Strom, Wasser, Kanal, Telefon, Internet)
- + Heizhaus-Gebäude mit Brennstofflager
- + Grabung/Wiederherstellung für Wärmeverteilungen
- + sekundärseitige Verrohrung ab Verteiler Heizhaus
- + sekundärseitige Verrohrung ab Übergabestationen

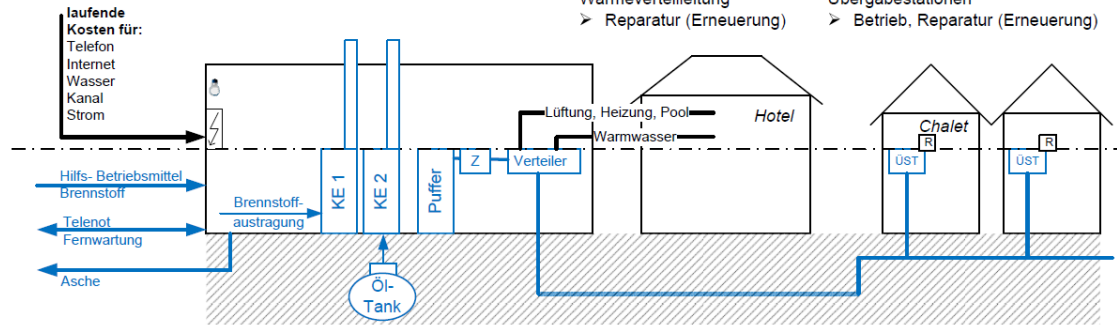


Investment by the contractor

- + Technische Ausrüstung Heizungsanlage
(Kesselanlagen samt Zubehör, Kaminanlagen, Puffer und hydr. Verrohrung, Fördereinrichtungen)
- + Wärmeverteilungen erdverlegt
- + Übergabestationen, primärseitige Verrohrung bis zu den Übergabestationen

Operations by the client

- Wärmeverteilung
 - > Reparatur (Erneuerung)
- Übergabestationen
 - > Betrieb, Reparatur (Erneuerung)

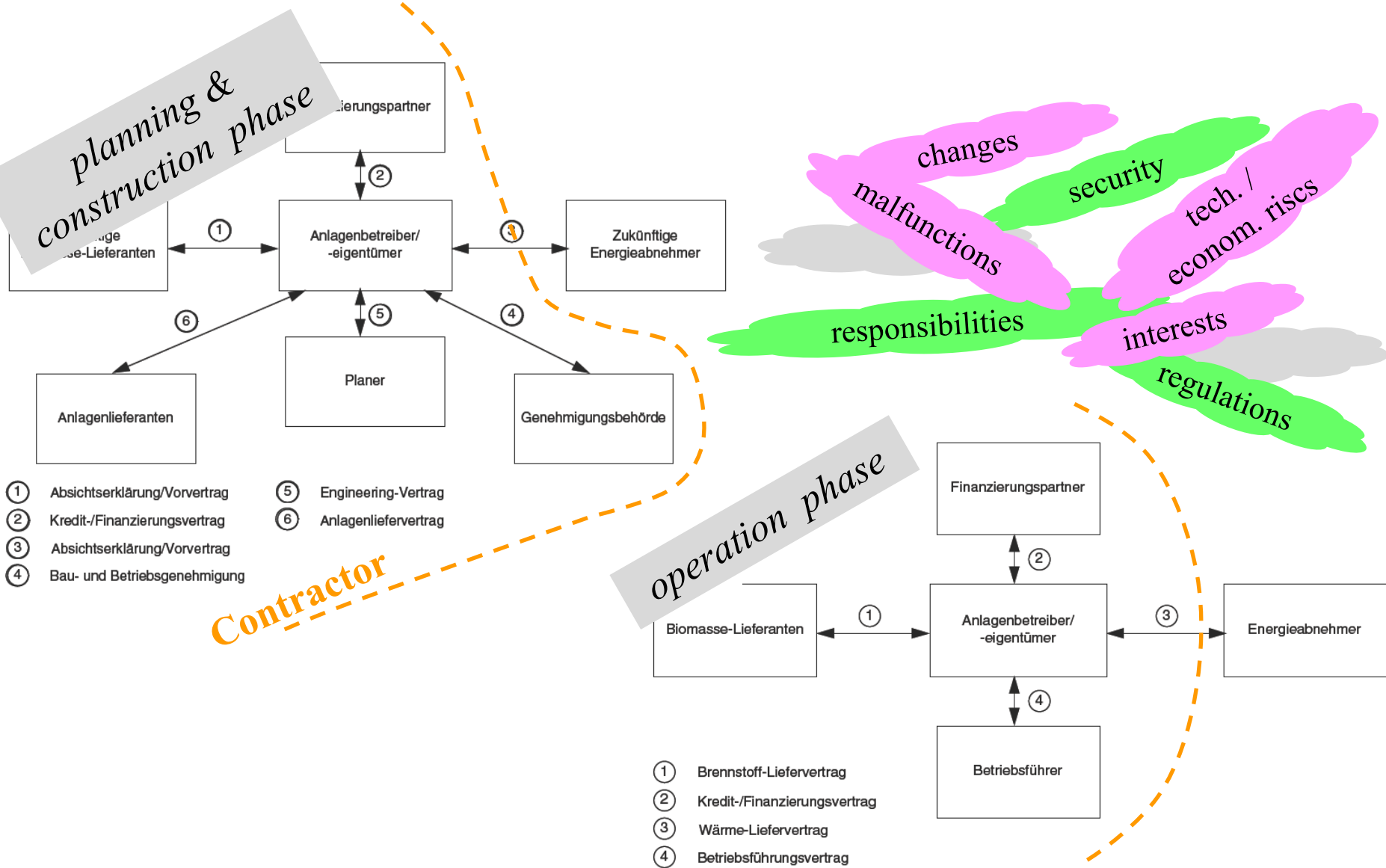


- Technische Ausrüstung Heizungsanlage
 - > Betrieb und Instandhaltung

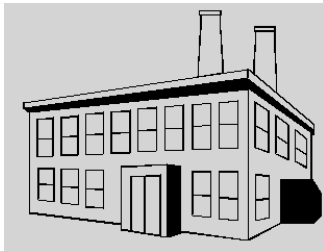
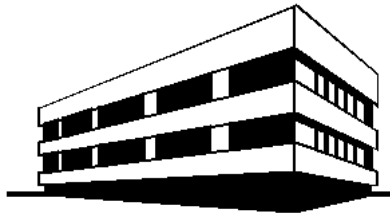
- Wärmeverteilung
 - > Betrieb und Wartung

- Übergabestationen
 - > Jahreswartung

Operations by the contractor



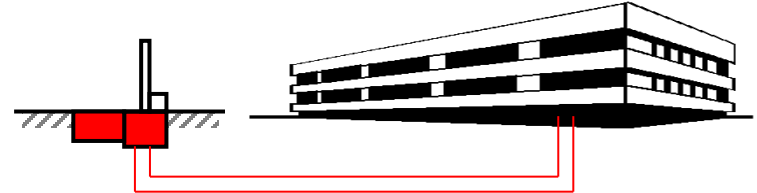
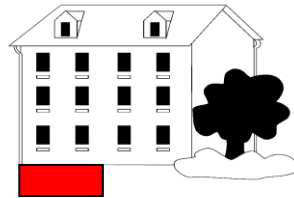
Possible applications



- public buildings
- hospitals
- hotels
- office buildings
- shopping center
- dormitory, nursing homes
- medical centers
- sports facilities, stadium, baths
- apartment buildings
- production plants
-

Contracting ist eine intelligente Lösung für die Energieversorgung Ihrer Gebäude.

Sie spart Ihnen Zeit, Energie und Kosten.



heat-production

heat-distribution

customer

fuel

wood chips,
pellets, bark
straw, ...

new /
reconstruction /
substitution

power requirement

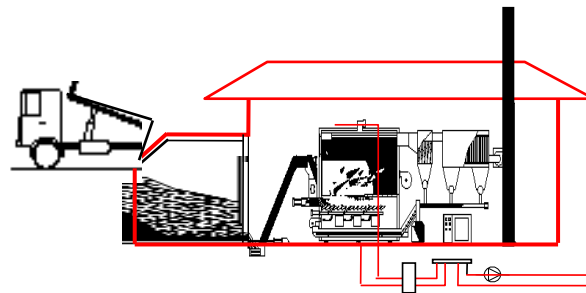
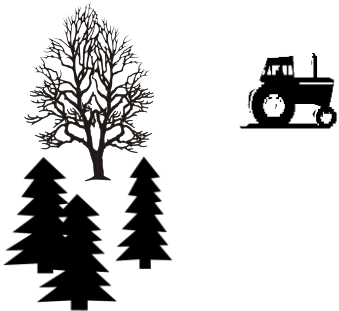
winter- / summer-
operation

new

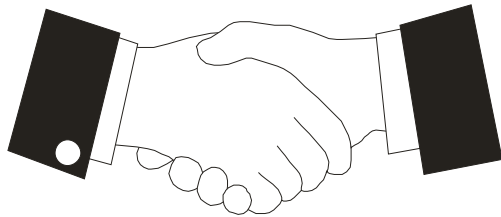
existing

single objects,
local heating

district heating



Energy supply contract



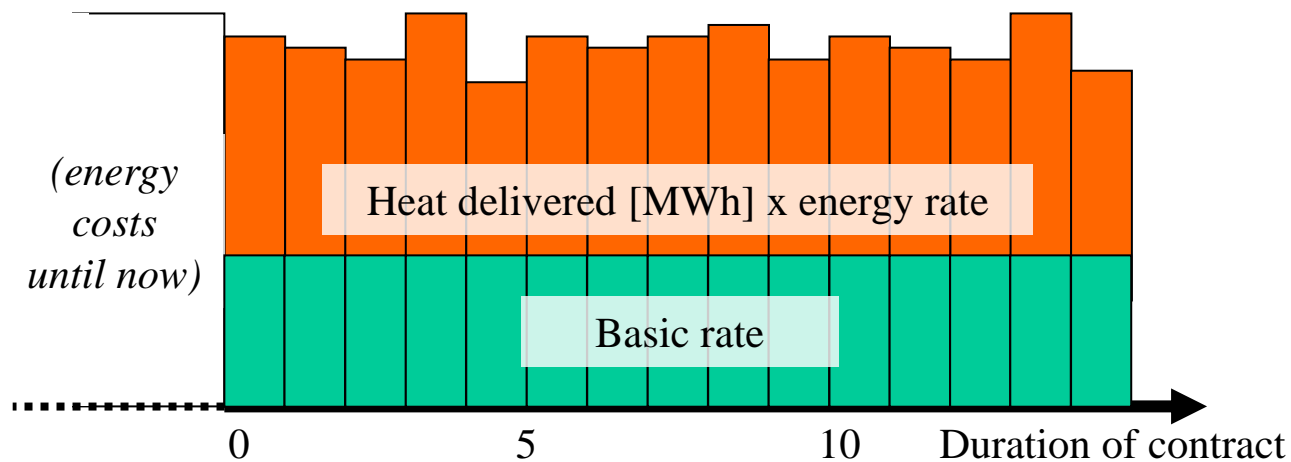
- scale of benefits and services
 - power, temperatur, pressure, ...
 - technical specifications
 - limits of supply and delivery
 - duty to supply, duty to consume
 - ...
- pricing, price adjustment
- billing and accounting
- legal position concerning property
- responsibility, liability
- coverage in case of insolvency
- term of contract
- ...

Price components

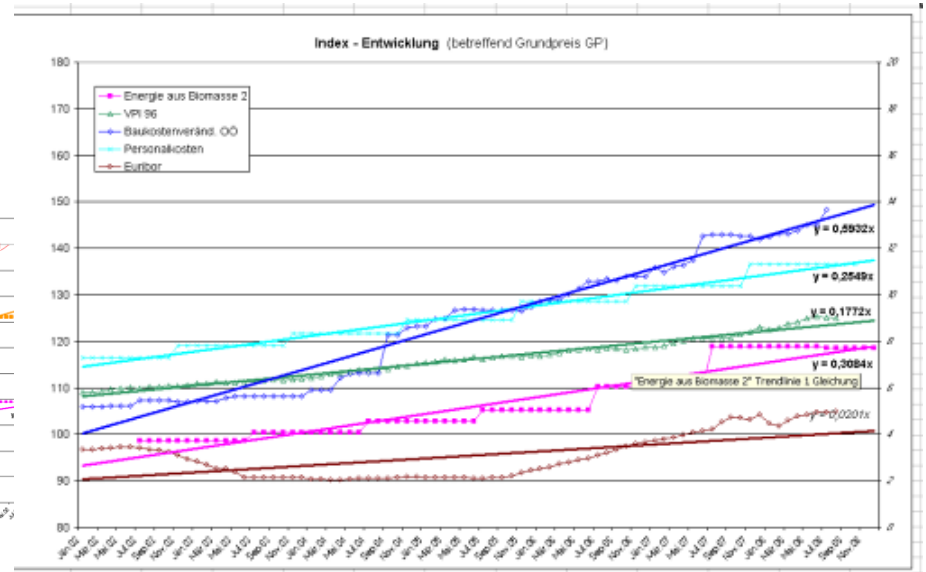
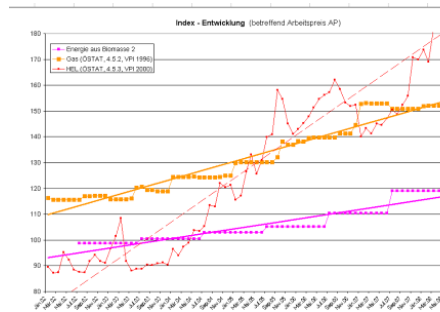
- **Basic rate [€/month]**
 - fixed costs (investment, plant management, maintenance, ...)
 - independent form energy consumption

- **Energy rate [€/kWh]**
 - fuel costs, ash disposal costs, other variable costs, ...

- **Meter charge [€/yr]**
 - independent form energy consumption



Price adjustment



Formula:
$$P = P_0 \cdot (i \cdot I / I_0 + a \cdot A / A_0 + b \cdot B / B_0 + \dots)$$

P ... basic rate, energy rate, meter charge

o ... Basis value

I, A, B,... Indices: wage index, building cost index,
consumer price index, material cost index, Euribor, fuel cost index

i, a, b, ... weighting

Requirements in energy-supply

- supply guarantee (production processes, hotel, ...)
- technology (efficiency, reliability, ...)
- economy (invest-, operating costs)
- environmental aspects (fossil, renewable, ...)
- independency (local, regional, ...)
- comfort (reliability, ...)
-

heat, electricity, cold, steam

- ➔ process heat
- ➔ room heating
- ➔ hot water

renewable
energy
supply
contracting
u
e

Benefits of renewable-energy-supply-contracting

- + **no own investments** necessary for the customer
(financial resources can be used for other purposes)
- + **special know-how of the contractor**
- + **use of renewable and clean energy**
- + **use of modern and efficient technology**
- + **saving in fuel consumption**
due to efficient operation of the plant
- + **assignment of duties to the contractor** (organization, operation of the plant)
- + **assignment of risks to the contractor** (financial, technical)
- + **guaranteed operating reliability**; maintenance, repairs, operation, optimization is done by the contractor
- + **security of supply and comfort**
- + **one contact person** for the whole project
- + **modern image** of the real estate
- + **quick realisation** possible

Decarbonisation

Efficiency

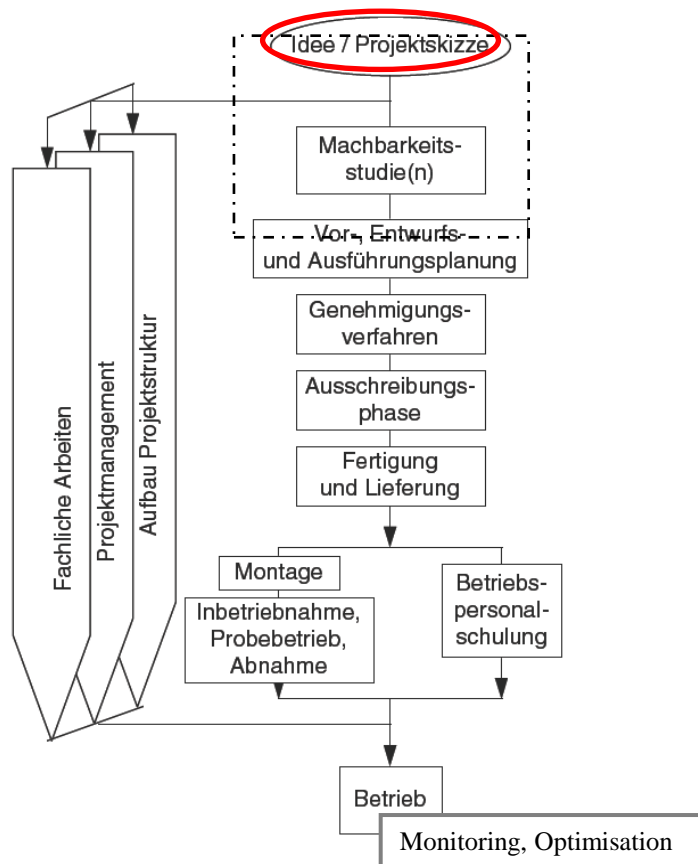
Tips & success factors

1. Transparency & fair balance of interests
 - i. Contractor CANNOT work miracles (technical, economical)
 - ii. Contracting is ONE OPTION to realise a project
- + Contracting-customer must concern himself with the concept Contractor has to ensure, that both partners have a shared understanding of the project.
Mutual rights and obligations are clearly defined.
- + Early involvement of the contractor in the planning process.
- +



... similar to any other technical projects

Pre-feasibility-check is highly recommended !



klima:aktiv
qm heizwerke

Meilenstein 1
VORSTUDIE
Ergebnis: Variante, die den Anforderungen am besten entspricht

Vorstudie

Förderantrag per Post an die zuständigen Förderstellen

Meilenstein 2
ENTWURFSPLANUNG
Ergebnis: Festlegung der technischen Lösung

Entwurfsplanung

Einreichung des Förderansuchens via qm Projektdatenbank

Technisches Datenblatt, Abnehmerliste (inkl. 75% Wärmelieferverträge)

Trassenplan, Bescheide, Bericht des Kreditinstitutes, Gewerbeschein, Firmenbuchauszug

Ausschreibungsergebnisse

Dynamische Wirtschaftlichkeitsberechnung

Meilenstein 3
AUSSCHREIBUNGSPLANUNG
Ergebnis: Ausschreibungsprojekte, Werkverträge

Ausschreibungsplanung
Ausschreibung u. Vergabe

ggf. Nachforderung

Meilenstein 4
AUSFÜHRUNG & ABNAHME
Ergebnis: Abnahmeprotokolle

Ausführung u. Abnahme

Begutachtung

Fördervorschlag

UFI-Kommission/UFI-Vertrag

Meilenstein 5
BETREBSOPTIMIERUNG
Monitoring und Optimierung

Betrieboptimierung

Endabrechnung

Technisches Datenblatt zur Endabrechnung, aktualisierte Abnehmerliste

Auszahlung (Pauschale wird einbehalten)

Auszahlung Pauschale

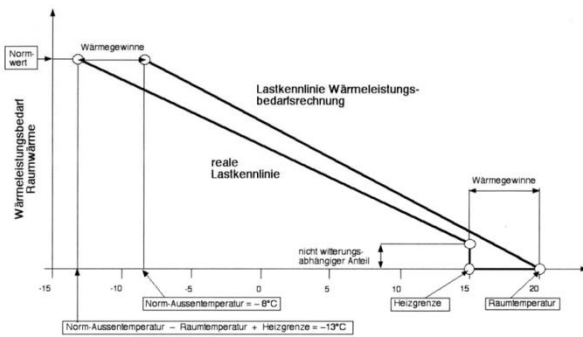
Detailed heat demand inquiry !!!

➔ Heat load kW

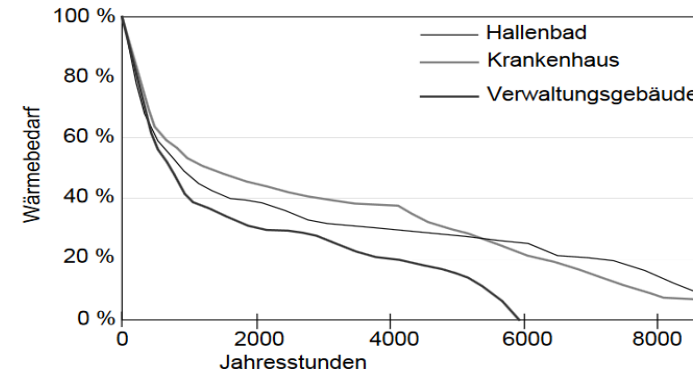
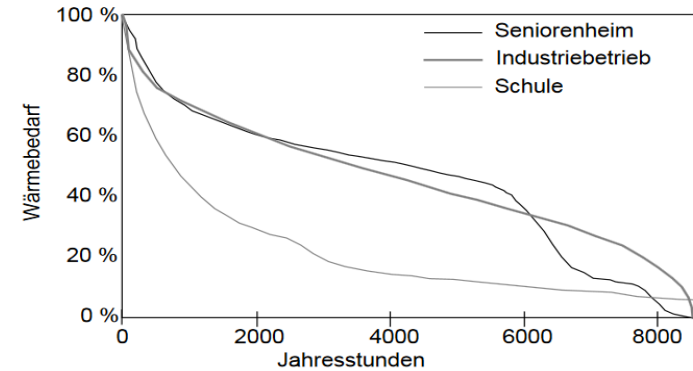
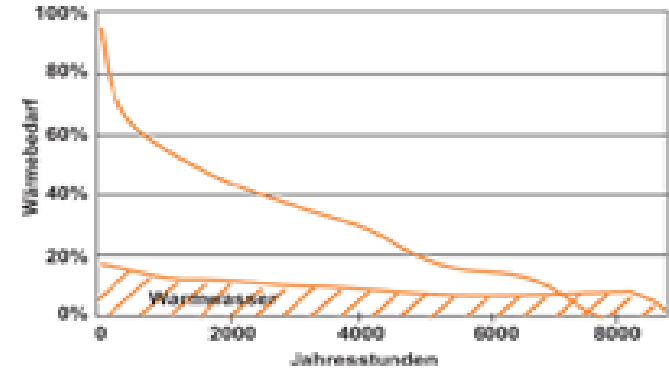
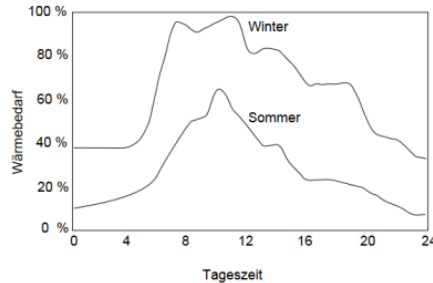
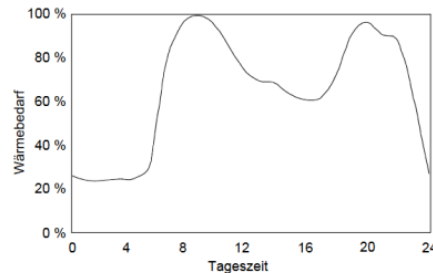
➔ Heat energy MWh

space heating, hot water, process heat

➔ Load characteristics, sorted annual load curve



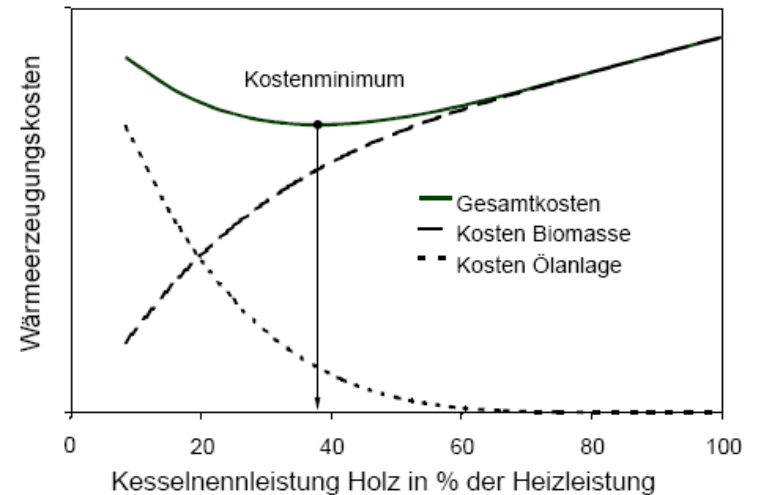
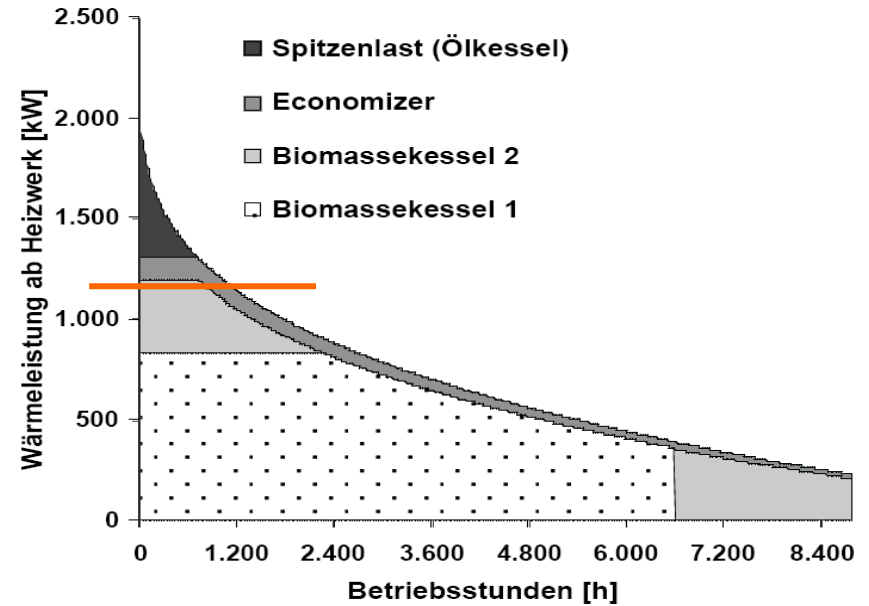
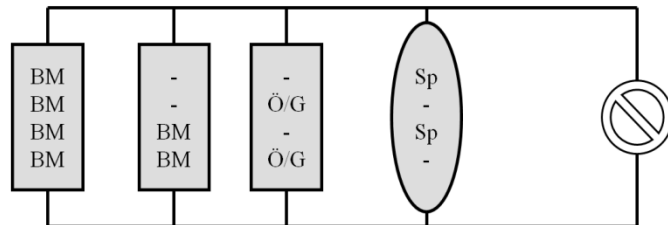
Quelle: Schriftenreihe QM Holzheizwerke



defining:

- ➔ max. load of heat source
- ➔ system
 - monovalent / bivalent
 - one / multiple boiler
 - with / without storage tank
- ➔ base load / peak load
- ➔

Var. 1
Var. 2
Var. 3
Var. 4
Var. x



Dachsteinkönig Familux Resort 2016

Objects	Hotel-building with 105 suits (21.500 m ²) & 8 chalets (2.000 m ²)
Heat demand	3.200 MWh/a for heating, domestic hot water, air-conditioning, pool, spa
Main/Base load	1.000 kW wood pellet boiler with moving grate
Peak load	1.300 kW oil boiler
Puffer storage	25.000 l

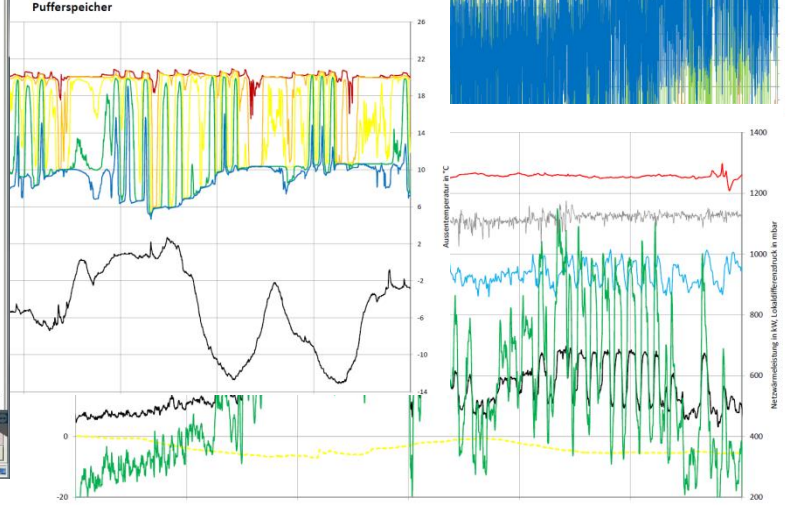
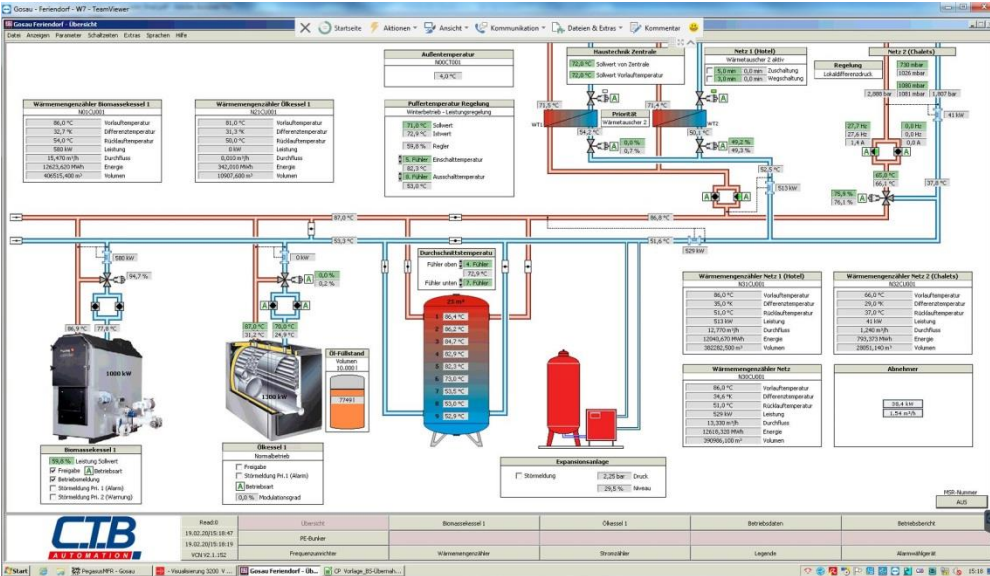
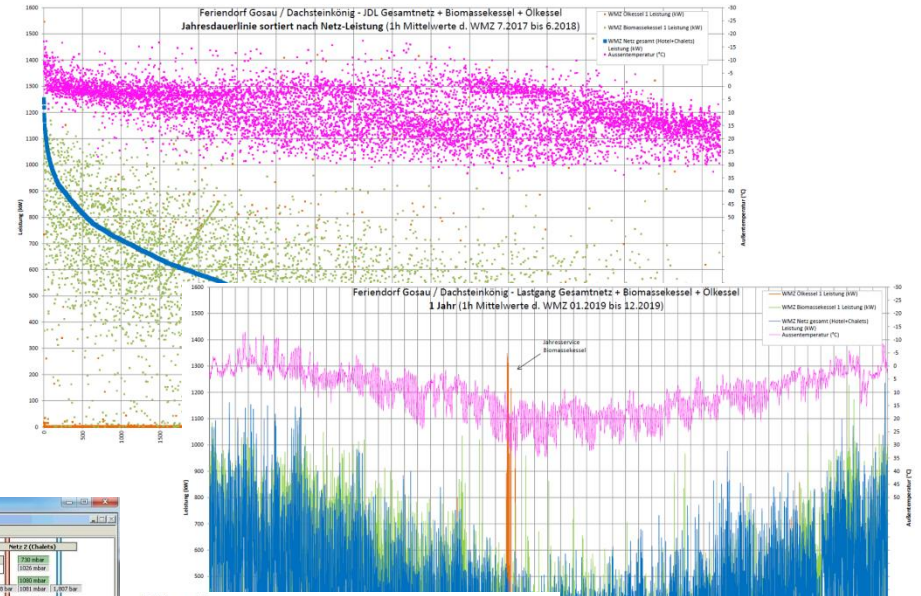


Fuel	> 97 % wood pellets < 3 % heating oil
Pellet storage	230 m ³ underground 2 spring blade agitators and 2 discharge screws nozzles and bunker lid for filling
Heating network	400 trm
System separation	Hotel: heat exchanger 2 x 500 kW Chalets: heat transfer stations for heating and domestic hot water separately
Contract period	15 years
Working period	all-season operation



Remote monitoring and control system
Visualisation
Data logging & data analysis

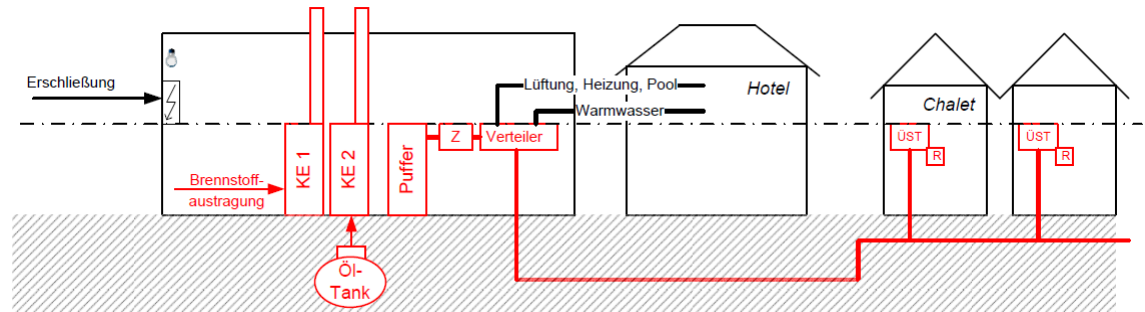
=> Optimisation on production and consumption side



Scope of the contracting partnership according to the customer's needs and demands and the specifics of the project.

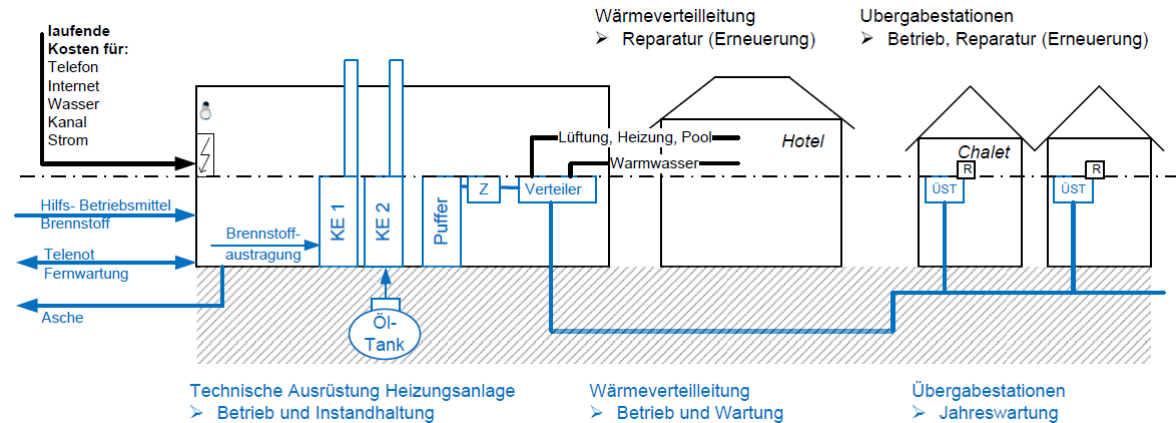
e.g.
+ Investment contribution
+ ...

Investment by the client



Investment by the contractor

Operations by the client



Operations by the contractor

COOEE Alpin Hotel Dachstein 2017

Objects	Hotel-building with 104 rooms & 10 apartments
Heat demand	650 MWh/a for heating, dom. hot water, air-conditioning
Nominal load	2 x 105 kW wood pellet boiler
Puffer storage	2 x 3.000 l
DHW storage	2 x 1.000 l
Pellet storage	70 m ³ ground floor nozzles for filling suction discharge system
System separation	1 heat exchanger 2 DHW storage
Contract period	15 years
Working period	all-season operation



Residential building 2017

4 buildings with 32 apartments

Heat demand 180 MWh/a heat, DHW
 Nominal load 100 kW pellet boiler
 Puffer storage 2 x 2.500 l
 DHW apartment transfer stat.
 Pellet storage 50 m³ underground
 Contract period 15 years
 Working period all-season operation



Apartment building 2016

42 apartments

Heat demand 175 MWh/a heat, DHW
 Nominal load 60 kW pellet boiler
 Puffer storage 2 x 1.000 l
 DHW storage 1 x 1.000 l
 Pellet storage 23 m³ ground floor
 Contract period 15 years
 Working period all-season operation



Pellet heat contracting works !

- + ensuring security of supply
- + a transparent pricing model according to the actual cost structure allows for secondary energy saving measures
- + competitive / cost-effective (investment costs, operating costs) due to proper conceptual design and planning
- +
- ... and it may even look beautiful 😊



- Client** **Fronius International GmbH**
- Objects** New production site: Office building,
assembly halls, storage buildings.
- Need for** space heating & hot water,
process heat 96°C
- Situation** Biomass in competition with gas.



Fuel wood chips,
saw mill residues

Fuel storage 600 m³ (one week),
push floor

Fuel logistic local supplier

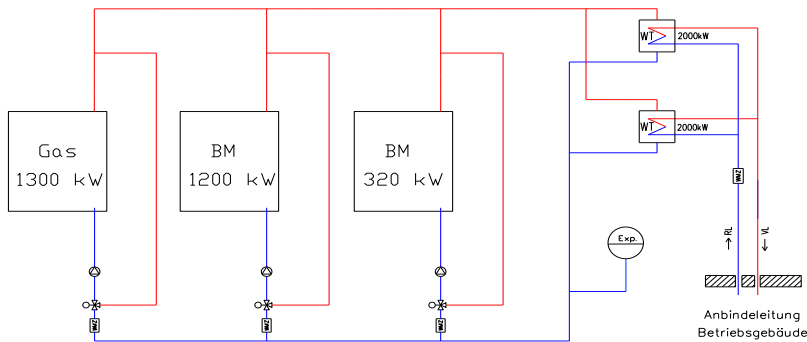
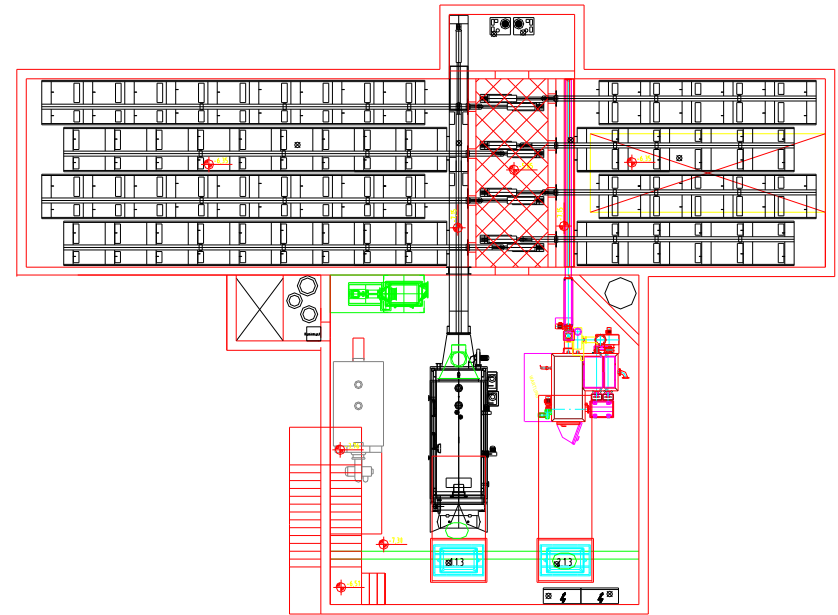
Fuel demand ~ 10.000 m³/yr

CO₂ savings ~1.500 to/yr

Contract period 15 years

Working period all-season operation

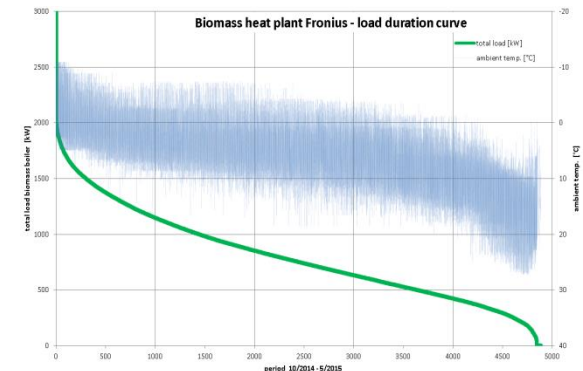
Penalty when failure in supply



	<u>2006</u>	<u>Extension 2010</u>
Demand	3.200 kW 5.500 MWh/a	+ 650 kW + 800 MWh/a
Heat plant		
base load	320 kW wood chip 1.200 kW wood chip	covered by control optimisation & storage tank
peak load	1.300 kW gas	
total installed	2.800 kW	
Heat production	> 98% biomass < 2% gas	

Renewable heat contracting works !

- + competitive / cost-effective (investment costs, operating costs) due to proper conceptual design and planning
- + flexible / adaptable
- + no supply disruption for 13 years !
- +



- Client** **ProPet Austria GmbH**
- Objects** Existing and new office buildings, production halls, storage buildings.
- Need for** space heating & hot water, process heat up to 103°C (drying chambers)
- Situation** Dynamic development of the client. Several extensions of production facilities

2007



2007



2007

Heat demand 4.000 MWh/a
Heat plant
base load 1.500 kW wood chip
peak load 1.000 kW oil (existing)

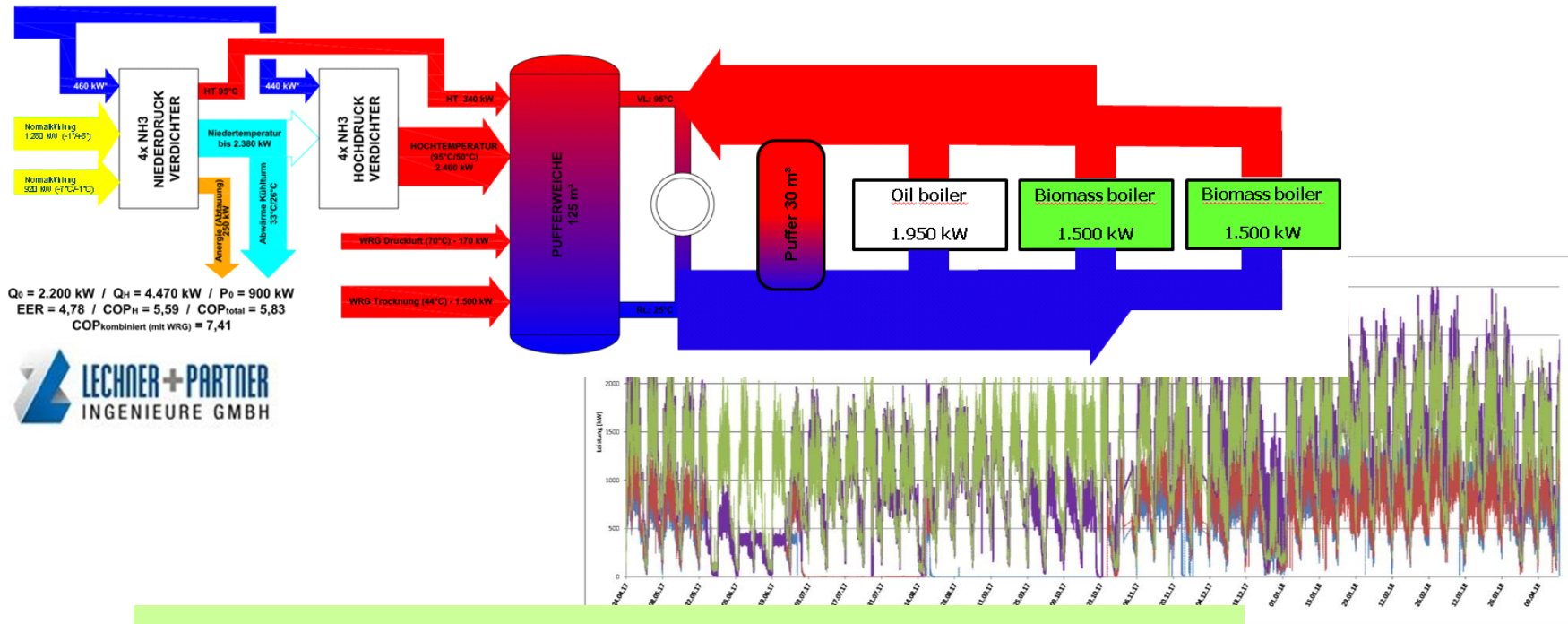
2012

Heat demand 6.500 MWh/a
Heat plant
base load 1.500 kW wood chip
1.500 kW new wood chip
Puffer tank 30 m³
Flue gas cleaning Multizyclon &
Electrostatic filter
peak load 1.950 kW new oil-boiler

2018

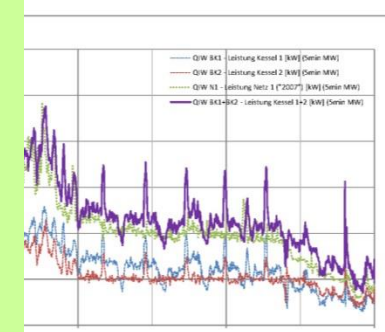
Heat demand 10.500 MWh/a
New central cooling plant with heat recovery
and central 125 m³ puffer storage tank
(realised by the client).





Renewable heat contracting works !

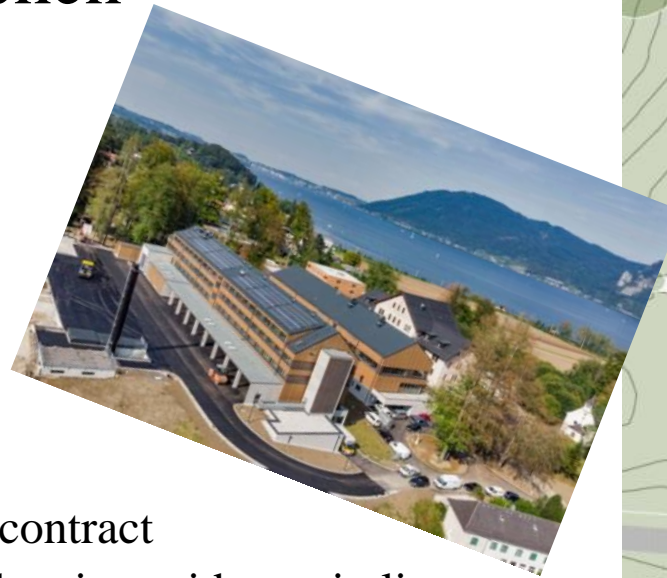
- + ensuring security of supply of process heat
- + especially in steady load conditions biomass systems can draw on its strengths and advantages
- + a transparent pricing model according to the actual costs allows for easy adaptation to changing client requirements
- +



Waldcampus Österreich

FBZ Traunkirchen

2018



- 2014 Public tender
- 2015 Assignment, contract
- 2016 Install. local heating grid – main line
- 2016 *Change of property developer / customer*
- 2017 Construction heat plant,
initial operation
- 2018 Install. local heating grid – connecting lines,
regular operation



Client educational facilities
& housing estate

Term of contract 20 years

Heat demand ~ 2.200 MWh/a
for space heating,
air-conditioning,
hot water

Nominal load 300 + 1.000 kW
wood chip boiler



Puffer storage	12.000 l
Net length	1.150 trm
Fuel storage	350 m ³
Fuel	100 % wood chips
Fuel supply	local farmers



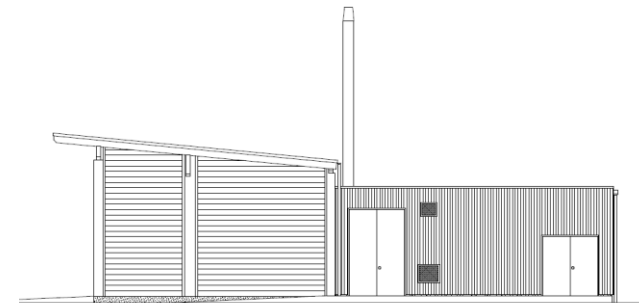
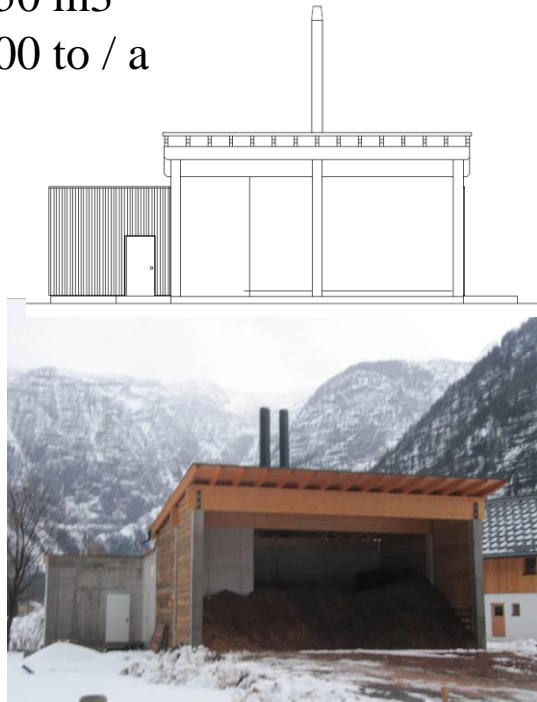
Holiday resort

Client Feriendorf Obertraun GmbH
Objects 75 flats in 46 buildings and
one central building
(hotel, pool, restaurant)

Heat demand 1.500 MWh/a
Net length 1.350 trm
Commissioning 2011



Base load	Biomass boiler 390 kW
Peak load	Oil boiler 700 kW
Puffer storage	12.000 l
Back up	mobile heating station
Fuel	95 % wood chips (~ 2.600 srm), 5 % oil (~ 9.000 l)
Fuel storage	250 m ³
CO2 savings	500 to / a

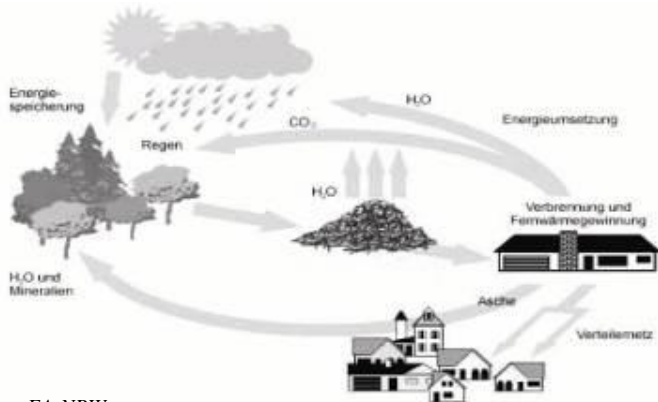


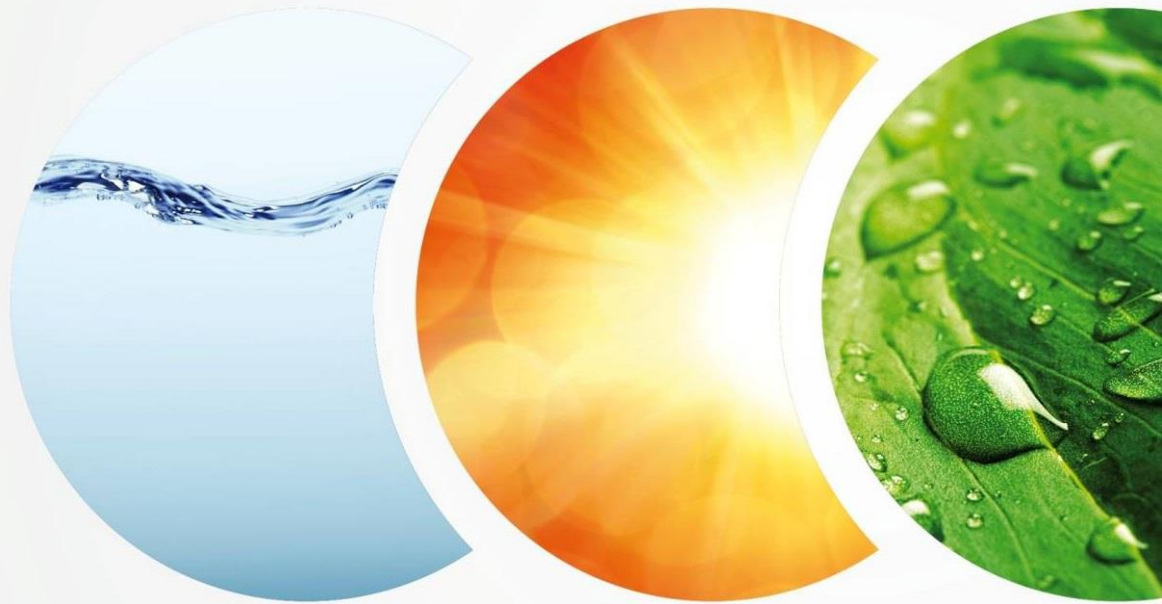
ing.aigner energie contracting gmbh
energy saving partnership
energy service
no investment costs
renewable energies
modernisation
energy efficient systems
economically viable, future-proof, innovative solutions

Renewable heat contracting works !

Thank you for your kind attention !

Contact: **DI Siegfried Aigner**
siegfried.aigner@ing-aigner.at
aigner energie contracting gmbh
ing. aigner wasser-wärme-umwelt-gmbh
A-4501 Neuhofen, Kremstalstraße 18
Tel: +43 (0)7227 6081-0 Fax: -13
www.ing-aigner.at office@ing-aigner.at





Company presentation

Plant construction – building engineering

heat, cold, climate, ventilation, sanitary, steam, compressed air.

Planning and construction ranging from one-family-houses up to industrial plants

- biomass plants (wood chips, pellets, straw, miscanthus)
- solar energy plants (thermal, photovoltaic)
- biogas plants
- CHP combined heat and power
- heat pumps (air, sole, water)
- heating plants (for local heating, district heating, single objects)
- steam boiler
- chiller (compression, absorption)
- heat recovery systems



Energy efficiency

- concept development and implementation for municipalities and industry



Sewage treatment plants

- Entire technical equipment
- Sludge dewatering
- External sludge transfer stations
- Fermentation gas plants
- Aeration plants
- Bio filter
- Waste water disinfection plants

Water engineering

- Process-, bath-, drinking water purification
- Municipal swimming pools
- Tower tank equipment
- Stainless steel piping
- Batch plants for chemicals
- Pumping station equipment

Biomass heat plants

for local heating, district heating, single objects

- concept development
- feasibility study
- design, planning
- authorization procedure
- founding
- construction, commissioning, operation

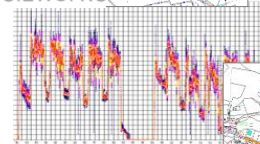
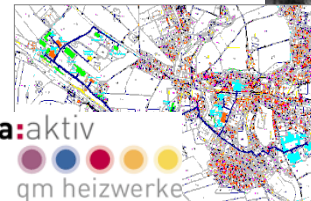
 **klima:aktiv**
kompetenzpartner
Designer of biomass plants
Award 2014



QM Holzheizwerke

- Quality management
biomass heat plants

 **klima:aktiv**
qm heizwerke



Innovation and know how

- Participation in R&D projects
- International consulting



Energy contracting

Planning, finance, construction and operation of energy systems and facilities.

- Energy-supply-contracting:
heat, cold, steam, electricity.
Focus on biomass heat plants
- Energy-performance-contracting:
Focus on heat recovery systems



www.deca.at



> 40 % Wärmerrückgewinnung
Realisierung mittels Einspar-Contracting

Wozabal
EnergieChemie

Contracting-Laufzeit	4 Jahre
Einspargarantie	38%
Einsparung im Jahresverbrauch	40 bis 48%
Einsparung tatsächlich	344 t/a
CO ₂ Reduktion	€ 1.471,- ab 1. Monat
Kohleneinsparung	€ 5.295,- je Monat
Einsparung im Energiepreis	€ 3.417,- je Monat
Contractinggebühr (incl. F&O)	€ 64.000,- jährlich

nach Contractingaufbau ist

REPUBLIK ÖSTERREICH
BUNDEMINISTERIUM FÜR LANDBAU, FORSTWIRTSCHAFT,
UMWELT UND KLIMASCHUTZ

Auszeichnung für Kompetenz im Klimaschutz

DI (FH) Siegfried Aigner
ing. Aigner Wasser - Wärme - Umwelt GmbH

weiter durch seine Beratertätigkeit im Rahmen des klima:aktiv Programms „Energieeffiziente Industrie“ einen wesentlichen Beitrag zur Reduktion der CO₂-Emissionen

klima:aktiv

REPUBLIK ÖSTERREICH
BUNDEMINISTERIUM FÜR LANDBAU, FORSTWIRTSCHAFT,
UMWELT UND KLIMASCHUTZ

AUSZEICHNUNG FÜR KOMPETENZ IM KLIMASCHUTZ

klima:aktiv

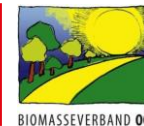
Aigner Energie Contracting GmbH

klima:aktiv-award 2013 & 2014 & 2015

- family owned and run company (Ltd.), founded in 1947
- 105 employees 30 engineers in the fields of mechanical engineering, heating- & air-conditioning technology, tool making- and fixture construction, automation engineering, process engineering, welding technology, 50 well trained assembly operators and approved welders
- Member of
 - CTC Cleantech cluster (formerly OEC Sustainable Energy Cluster)
 - Austrian Biomass Association
 - Association of the business partners of the competence center
 - BEST Bioenergy and Sustainable Technologies (bioenergy 2020+)
 - DECA Association Energy Contracting Austria
 - VfW Association for Heat delivery e.V. (Germany)
 - Quality control association water engineering
- ISO 9001 Quality-Mgmt. ISO 14001 Environmental-Mgmt. SCC Safety-Mgmt.



ENERGIEDIENSTLEISTUNG
CONTRACTING



- Projects range from installation works to research & development projects
- Activities also in Germany, Slovakia, Hungary, Czech Republic, Slovenia, Romania, Ukraine, North-Africa, Canada, Japan,

Chile:  **Austrian Energy Contracting**
Una empresa Grupo Aigner

F&E-Aktivitäten

TherChem
Entwicklung einer thermo-chemischen Vorbehandlung zur Erhöhung der Gasausbeute bei der anaeroben Vergärung.
Gefördert im 7. EU Rahmenprogramm für Forschung, technologische Entwicklung und Demonstration.
Partner: Bioenergy 2020+ GmbH, Universität für Bodenkultur, & weitere Partner aus A, D und CH.



Mobile Pilotanlage zur In-situ Sanierung eines Chromatschadens
Im Auftrag der Montanuniversität Leoben, Institut für nachhaltige Abfallwirtschaft und Entsorgungstechnik.



biogene Haushaltsabfälle & Grünschnitt und optimierte energetische & stoffliche Verwertung in einer Biogasanlage
Studie im Auftrag des BMFUW - Abteilung IV/3 Abfallwirtschaftsplanung, Abfallbehandlung und Altlastensanierung.
Erstellt von der ARGE ECO.in, in Zusammenarbeit mit IFA Tulln, Güssing Energy Technologies, AV Mödling.



Sida: Intelligent Densified Energy Carriers for Austria
Klima- und Energiefonds; Programm: Energy Mission Austria



ing.aigner
wasser wärme umwelt gmbh

NEFI
NEW ENERGY FOR INDUSTRY

COMET

BSAI



Canadian Council of Ministers of the Environment

CCME

International

British Columbia Institute of Technology
wood chip boiler plant at Burnaby Campus



Orochi Ltd. / Japan Wood Energy Co. Ltd.
Biomass district heating in Nichinan



Sekcov (SK)
8000 kW wood chip boiler for district heating plant (19 MW gas)



Nove Zamky (SK)
6000 kW wood chip boiler for district heating plant (78 MW gas, 4.7 MW gas-chp)



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wasser wärme umwelt gmbh

SOLARE PROzesswärme

Dampfkessel-Zusatzwasservorwärmung

Bauherr:
Fixkraft Futtermittel GmbH & Co KG, Enns
Konzept, Planung und Errichtung der Gesamtanlage durch Ing. Aigner GmbH

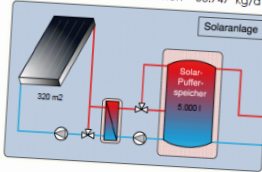
Neuerichtung einer Dampfkesselanlage zur Erzeugung des für die Produktion benötigten Prozessdampfes.

Das erforderliche Kesselsatzspeisewasser wird aus dem hauseigenen Brunnen entnommen und mit einer Solaranlage vorgewärmt.



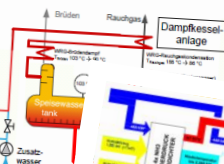
Solaranlage

Installierte Kollektorleistung	227 kW
Installierte Kollektorfläche	324 m ² (brutto)
Pufferspeicher	6.000 l
Delivered Wärmeenergie	145.000 kWh/a
Vermeidene CO ₂ -Emissionen	53.747 kg/a



Dampfkesselanlage

Sattdampfleistung	2.500 kg/h
Nennwärmeleistung	1.625 kW
max. zul.	
Betriebsüberdruck	10 bar



KÄLTE-Versorgung = WÄRME-Versorgung

3 Technologien optimal kombiniert

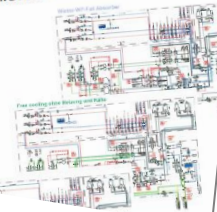


MGC Mode- und Textilgroßhandelscenter:
57.500 m² Gesamtfläche, nach Umbau als
erstes Bestandsgebäude Österreichs
DGNB Gold (ÖGN) ausgezeichnet.
Konzept, Planung und Errichtung der
Kälte- und Wärmeversorgung sowie
gesamte haustechnische Ausrüstung
von Ing. Aigner GmbH.



- Betrieb der Brunnenanlage als Jahreszeitspeicher;
- Einsatz der Absorptions- und Kompressionskältemaschine auch im Wärmepumpenbetrieb zu Heizwecken;
- 100 % Abwärmenutzung der internen Kühllasten;
- 2 Kälte-Temperaturschienen,
1 Wärme-Niedertemperaturschiene;

Energiebedarf	Kälte	Wärme
Brunnenanlage	3.060	4.150
	max. 780	kW
Absorptions-KM	1.450	MWh/a
Kompressions-KM	1.670	2.200
	1.200	1.380
		kW
		(5.600) kW
		1.400
		MWh/a



klima:aktiv
Award 2013
Award 2014
Award 2015

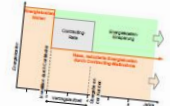
> 40 % Wärmerückgewinnung

Realisierung mittels Einspar-Contracting

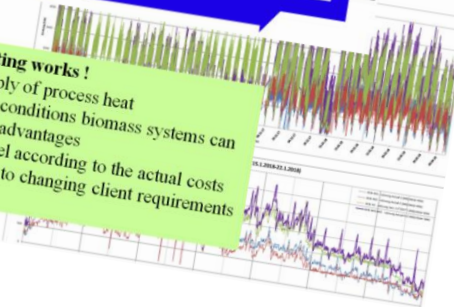
Projekt: Wozabal Sterilgut-Systeme GmbH & Co KG, Lenzing
Contractor: Aigner Energie Contracting GmbH
In Kooperation mit dem Hersteller Fa. EnergieChamp GmbH wurde eine für diese Anwendung und den Anforderungen der Fa. Wozabal maßgeschneiderte Contractinglösung erstellt.
Wärmerückgewinnung aus bislang ungenutzter Abluft (100° - 120°) von 9 Industrie-Wäschetrocknern. Die durch den Kreuzstromwiederwärmtauscher zurückgewonnene Energie wird in den Trocknern wieder verwendet und damit der Energieeinsatz (Brennstoff Gas) reduziert.



Contracting-Laufzeit	4 Jahre
Einspargarantie bezogen auf Referenzverbrauch	38%
Einsparung tatsächlich	40 bis 48%
CO ₂ Reduktion	344 t/a
Kosteneinsparung	€ 1.671,- ab 1. Monat
Einsparung an Energiekosten	€ 5.290,- je Monat
Contractingrate (incl. FÖ)	€ 3.619,- je Monat
nach Contractinglaufzeit rd.	€ 64.000,- jährlich!



Renewable heat contracting works!
+ ensuring security of supply of process heat
+ especially in steady load conditions biomass systems can draw on its strengths and advantages
+ a transparent pricing model according to the actual costs allows for easy adaptation to changing client requirements
+



Thank you for your kind attention !

Contact:

DI Siegfried Aigner

siegfried.aigner@ing-aigner.at

aigner energie contracting gmbh

ing. aigner wasser wärme umwelt gmbh

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