urban energy
AUSTRALASIA

local **solutions to** *global* **problems**

About Urban Energy

Urban Energy is committed to sourcing new and innovative renewable energy technologies and solutions, and making them available to the Australian Market. Urban Energy offers an expanding range of exciting products from commercial solar thermal packages, that can include domestic hot water systems with hydronic heating (in floor heating) and systems with the ability to also heat the family pool.

We also offer our clients Cogeneration (or combined heat and power), Trigeneration, independent or decentralized power and thermal energy production products, services and plant financing.

Our clients come from a large cross section, from the private residential community to larger commercial project developments. With this in mind, Urban Energy prides itself on a high level of customer service. We are committed to designing and building solutions for everyday problems, not just selling the product.

Through our range of products, we continually look at ongoing power costs and rising tariffs of conventional energy suppliers, with two main objectives in mind. Firstly, to maximize energy savings along with reducing our carbon emissions, and secondly to bring to the market innovative products that are truly cutting edge technology, that will not just meet market expectations, but remind our clients of our corporate environmental responsibility.

Partners

IVT MEMBER OF THE WURTH GROUP

TEDOM

World Energy

heatmiser Effective Temperature Control

SOREL

BOSCH Invented for life

SUNDA

SOLARNEXT

Services

Sales and Engineering

In-house sales and application engineers assess each site to identify project viability. From feasibility studies to comprehensive site surveys, Urban Energy identifies what is required and recommends a system to meet the customer's specific needs.

Design

Careful preparation at the design stage reduces installation costs and increases savings over the lifetime of the scheme. Our building service engineers and thermal power specialists use the latest CAD technology to plan the logistics of implementing onsite Cogeneration.

Detailed design drawings identifying site interfacing and plant room access considerations are developed before the project is taken to site.

Project Management

Urban Energy's engineers work with clients, their architects and the installing mechanical and electrical contractors on specifications to ensure that the Cogeneration or Trigeneration system selected is fully integrated with the building's services and operational systems.

A senior engineer is appointed to each project, responsible for producing and implementing a detailed information package, typically including:

- Project-specific scope of works, design and specifications
- A program of works
- Supervision and reporting of works in progress
- Operation and maintenance manuals
- Commissioning

On completion of an installation, our project manager will organise pre-commissioning and final commissioning of the project in conjunction with the appropriate electrical distribution and gas network operators.

Energy Audits

Correct selection of equipment to integrate with a building's electrical and thermal profile is paramount to the efficiency and longevity of a Cogeneration or Trigeneration plant.

Urban Energy offers comprehensive site energy auditing, involving installation of electrical and thermal energy metering devices. Using a data-logging system, we determine a building's electrical and thermal demands to extremely high levels of accuracy. The resulting information is used to recommend the optimum Cogeneration or Trigeneration plant and equipment solution to that site.

Consultancy and Engineering

Urban Energy offers a complete design and engineering service for accurate documentation and professional engineering of all systems.

Disciplines covered include:

- Mechanical
- Electrical
- Hydraulic
- Acoustic
- Environmental

MEMBER OF THE WURTH GROUP

IVT stands for innovative solutions for plumbing and heating. Apart from the patented Prineto plastic pipe system, we also supply the highly efficient Latento solar layer storage system.

LATENTO

- Un-pressurised Storage
- Low heat losses due to insulation properties
- Multiple coil heat exchanger
- Minimal maintenance
- Domestic Hot water
- Pool and Spa heating
- Underfloor heating
- Radiator Panel heating
- No Greenhouse emissions

Specification Detail

Application:	Domestic Installation
Package Model:	UE, 44G HZ500
Tank Model:	LATENTO HZ500XXL
Booster Model:	Bosch 32
Optional Booster:	9kW Electric

Capacities

Input:	250Mj
Output:	59kW
First Hour Delivery:	2191 Litres @ 30ºC rise
Recovery:	1603 Litres per hour @ 30ºC rise
Flow Rate:	1.02L/sec
Hydronic Output:	36kW @ 10ºC ΔT

MEMBER OF THE WURTH GROUP

LATENTO

- Commercial applications
- Central plant room installations
- Large Domestic applications
- Age care facilities
- Hospitals
- Aquatic centres
- Multiple dwelling applications
- Large underfloor installations

Specification Detail

Application:	Commercial Hot Water Package
Tank Model:	2 x Latento HZ
Booster Model:	2 x Bosch 32
Optional Booster:	9kW Electric

Capacities

Input:	500Mj Natural gas/LPG
Output:	119kW
First Hour Delivery:	4382 Litres @ 30ºC rise
Recovery:	3207 Litres per hour @ 30ºC rise
Flow Rate:	up to 4L/sec

PRINETO

SURFACE HEATING SYSTEM

The Prineto surface heating system is suitable for application in residential and industrial buildings, open areas, sport facilities, public institutions

HYDRONICS UNDERFLOOR HEATING SYSTEM

Hydronics is the name for the use of water as the heat-transfer medium in heating and cooling systems. Hydronics are one of the most efficient ways to heat and cool buildings and houses.

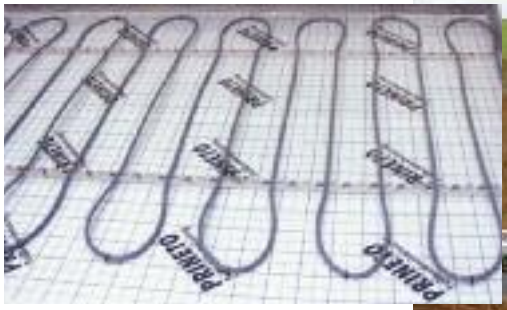
For Hydronics we use the best fittings and systems that have been accepted globally. PRINETO Surface heating system is one of the leading providers of fittings for Hydronics.

The PRINETO surface heating system is ideal for under-floor heating in both wet and dry laying methods (e.g. for renovating old buildings).

Underfloor Heating Systems are substantially more energy efficient than traditional methods of heating.

PIPES

Prineto pipes are made exclusively of cross-linked polyethylene, and are therefore highly resistant to ageing and thus provide long term leak-proof connections.



Beijing Sunda Solar Energy Technology Co., Ltd. is a worldwide leading manufacturer of evacuated tube solar collectors. Sunda was jointly founded by the DASA and SUNPU in 1995, based on two parties' research in the solar thermal field for over 10 years. Although it has very proud history, Sunda has been working hard on manufacturing and R&D excellence ever since.

SEIDO 1 SOLAR COLLECTORS

All of Sunda's collector tubes are evacuated and sealed with our patented thermocompression sealing technology to prevent heat losses and to provide protection from corrosion. The heart of all collector tubes is an absorber plate with its aluminum nitride selective coating. The selective coating ensures the exceptionally high solar absorption and low thermal emission of our tubes.

With a lifetime of approximately 37 years, our collectors offer longevity while maintaining a very high efficiency all the year round.

SEIDO1 solar collectors are available in four different models. The condensers of the collector tubes have a plug-in structure to make the tubes removable. The plug-in structure guarantees an easy installation since all parts are installed separately. Single tubes can conveniently be replaced without shutting the system down.

An important asset of SEIDO1 solar collectors is their versatility. One of application areas for SEIDO1 solar collectors is domestic water heating. Therefore installation requires remarkably little space making it practically applicable at any domestic place. Despite their little size, the collectors still cover over 70% of the hot water needs of an average household. Their excellent efficiency makes them also suitable for the operation of larger systems for commercial or public use. In addition, SEIDO1 solar collectors are also applicable for space heating and air-conditioning.

Scarcity of natural resources and increased environmental awareness lead to an unprecedented shift in society and politics worldwide. This development was the motivation for the foundation of SolarNext in 2006.

SOLARNEXT

WHY ABSORPTION TECHNOLOGY

* Adsorption chillers are practically maintenance – free (few mechanical parts)
* The life expectancy of Adsorption chillers is at least 20 years, but can also be significantly higher. For example, in the USA, an Adsorption chiller has been in operation for 70 years!
* Adsorption chillers consume almost no electrical energy
* Adsorption chillers use natural refrigerants which have no global warming potential (GWP)

chillii® ISC10 Adsorption Chiller

Optimal application fields are all cooling and air conditioning concepts with a minimal cold water temperature of 8°C and at high ambient temperatures.

chillii® WFC18 Absorption Chiller

The chillii® WFC18 can generate minimal cold water temperature of 6 °C. With the higher cooling capacity up to over 20 kW air conditioning in bigger application fields is possible.

chillii® PSC12 Absorption Chiller

Through the use of ammonia, temperatures down to -10°C are possible for the cooling cycle. Thus the machine is optimally suitable for the use in the industry and the food sector.

heatmiser
Effective Temperature Control

The Heatmiser Network System allows you to control your heating centrally, from our Colour Touchscreen, remotely by text message and over the internet from anywhere in the world.

DOMESTIC AND INDUSTRIAL HEATING CONTROL SYSTEMS

Wireless Thermostats

Wiring a conventional thermostat often includes lifting floor-boards or chasing out plaster work. Heatmiser Touchscreen wireless thermostats offer an effective alternative, and are the ideal choice for extensions or when you are looking to relocate your thermostat.

Our Wireless Touchscreen series incorporate a rechargeable battery, saving money on replacement batteries. A USB recharge cable is provided, and an optional plug-in charger is available.

Mains TouchScreen Thermostat

Designed to make life a little easier. The intuitive touchscreen display makes searching for the user manual a thing of the past. Models suitable for boiler and underfloor systems.

Touch Pad

Have central control of your home heating system with the use of the Colour TouchPad. Gives central control of up to 32 low voltage thermostats.

Central Wiring Switch Boxes

Designed to simplify the wiring process. Actuator, boiler and pump connections wired from a single point.

As a manufacturer of solar and heating controllers, we are affected by the environmental protection idea of viewing energy as being of precious value. Our goal is developing products which serve to save fossil resources by optimising heating systems. Combining the increasing complexity of electronic devices with understandable user guidance is our philosophy. We thus supply our customers with sophisticated, user-friendly controllers with the appropriate accessories.

TDC - Temperature Difference Controller

Designed for solar and heating applications

HCC - Weather Compensated Heating Controller

Easy to read lighted display with comprehensive full text and graphic mode.

TDC 3 - Temperature Difference Controller

Designed as a solar thermal energy controller, with crystal clear operator guidance in a variety of languages.

STDC - Small Temperature Difference Controller

Combines the functionality of TDC1 in a small housing, with comfortable display and menu.

BOSCH
Invented for life

Whether you have a small studio apartment, family home or commercial business, Bosch can tailor the right hot water system for optimal efficiency and supply of endless hot water.

BOSCH Highflow

The Bosch Highflow Series are the most advanced continuous flow gas water heaters to be sold in Australia and New Zealand and are the pinnacle of hot water technology.

The range is available in 17, 21 and now the even higher 26 litre per minute flow rates, to ensure that you never run out of hot water!

BOSCH 26 Eco+

The Bosch 26eco+ gas hot water system is a high-efficiency, fully-condensing appliance. Unlike traditional hot water systems, a condensing unit captures heat from the exhaust gas and uses it to preheat the incoming cold water, making the 26eco+ the most energy efficient gas hot water system on the market.

Features :

- Condensing Technology
- 26 litres per minute
- Neutraliser for non-acidic condensate
- Ideal for 2-3 bedroom homes
- 6.9 star energy efficiency rating
- Secondary heat exchanger for maximum efficiency
- Install up to 4 temperature controllers
- Available in Natural or LP Gas

BOSCH 32 Series

The Bosch 32 Series gives you flexibility and reliability when there is a demand for large volumes of hot water. The 32 Series has all of your applications covered and is perfect for large homes and commercial applications.

- Delivers up to 32 litres of hot water per minute
- 5 year warranty on heat exchanger (Part Only)
- Available in Natural or LP Gas
- Internal and external installations
- 2 year warranty on full parts and labour

BOSCH
Invented for life

BOSCH 32C

The new Bosch 32C gas hot water unit is the next generation in obtaining hot water by condensing technology. This product innovation utilises a dual heat exchanger created from a fusion of stainless steel and copper heat exchangers. The 100% stainless steel component captures the residual heat from the exhaust gas to preheat the incoming water prior to the water entering the main copper heat exchanger - making the appliance over 94% efficient!

BOSCH 32 Condensing

- 6 star energy efficiency rating
- 5 year warranty on heat exchanger (Part Only)
- Available in Natural or LP Gas
- 94% efficient
- 2 year warranty on full parts and labour

BOSCH Condens 5000W

Bosch Hydronic Heating Boilers work by utilising condensing technology in recovering the waste heat which is usually expelled through the flue system of non-condensing boiler. This condensing technology makes the Bosch Condens 5000W range more than 90% energy efficient.

- 18 kW and 30 kW system boiler for heating only
- 37kW combi boiler for heading and domestic hot water
- Wall mounted – space saving
- Easy installation and servicing
- Aluminium/silicon heat cell
- Fully electronic safety management and fault diagnostics
- Optional room thermostats available
- Quiet operation (42 – 45 dB)

CASE STUDY

Kempsey Aged Care Solar Hot Water System

Project Scope

The Kempsey age care facility is an existing 145 bed aged care facility with extensive hot water requirements for use in showering, meals preparation and sanitisation services. Urban energy have assisted by providing an efficient, low running cost and maintenance, high life expectancy solar hybrid hot water system as described below.

System Design

Standalone solar / heat pump /gas boosted hot and warm water system

The basic principle of the hot water system is as follows:

- Heat from the sun is collected from the 20 solar collectors.
- This heat is stored in 4 x 580L solar stratified preheat storage tanks.
- A 16kW Heat pump also services the preheat tanks when the sun is not shining.
- Water then moves to the finishing tanks which are serviced by 4 high efficiency gas boilers keeping the outlet water temperature above 60 degrees. The Finished water then either enters the hot water ring main.

Carbon Dioxide and Cost savings of system

The installed system has an estimated saving of 94 Tonnes CO2 per year compared with electric element heating.

Over a 15 year lifetime, each panel is equivalent to planting 353 trees. Total array equivalent to planting 7050 Trees

By installing this efficient alternative energy hybrid hot water system the Kempsey Aged Care Facility has saved significant quantities of carbon dioxide, the main contributor to global warming. The facility has also reduced the running costs of the hot water plant significantly.

Below is an estimation of the amount of hot water used by the hotel per day and the resultant Carbon Dioxide emissions from this system and alternative systems.

Expected Hot water consumption = 6,000L/day @ 65 degrees

Expected heat requirement = 352 kwh/day

The current system covers 68% of this demand by using solar thermal panels, please see the below graph to see the CO2 outputs and running costs of the various possible systems.

SPECIFICATIONS

SOLAR COLLECTION PACKAGE

20 x Seido 1/16 Sunda Evacuated tube collector's with pitching frames

Expected daily (yearly average)output	240 kWh
Expected daily summer output	340 kWh/day
Expected daily winter output	140 kWh/day

SOLAR STORAGE PLANT

4 x LATENTO BW 580 Litre storage tanks

Heat storage capacity (15 - 90 degrees)	202 kWh
Peak flow rate	4 L/sec

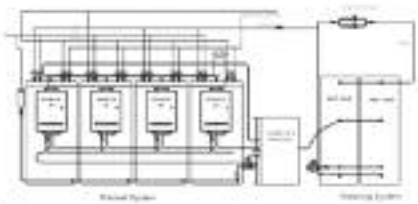
GAS BOOSTING PLANT

4 x Bosch 32 250Mj High efficiency Boilers

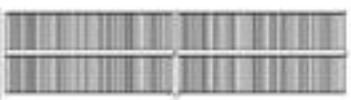
84% efficiency - 56kW each, 224kW combined power

0.8kg of CO2 saving per kWh delivered compared with direct electric element heating

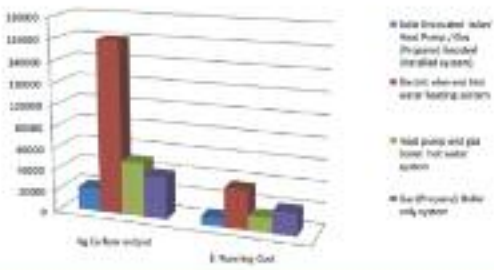
TANK LAYOUT - SOLAR FIELD 20 X COLLECTORS 2320 X 2000 EACH



SOLAR FIELD 20 X COLLECTORS - NOT TO SCALE WITH TANKS



ANNUAL CARBON OUTPUT AND RUNNING COSTS



urbanenergy AUSTRALASIA
local solutions to global problems

Urban Energy Australasia Pty Ltd
1/10 Anella Avenue Castle Hill NSW 2154
Ph: 1300 66 99 81 Fax: (02) 8850 6344
sales@urbanenergy.com.au www.urbanenergy.com.au

Urban Energy offers Cogeneration, Trigeneration, independent or decentralised power and thermal energy production products, services and financing.

Our products and services include:

- Reciprocating engine Cogeneration systems
- Turbine Cogeneration systems
- Waste heat recovery
- Absorption chillers for air conditioning or process chilling
- Full design and engineering service
- Maintenance agreements
- 24/365 site and system monitoring and reporting service
- Energy production and efficiency reporting
- Electrical and thermal energy supply to end consumers
- Design, installation and maintenance of biogas systems
- High-efficiency solar thermal absorbers
- Thermal storage systems
- Phase change materials

urbanenergy
AUSTRALASIA
local solutions to global problems

P: 1300 66 99 81
F: 02 8850 6344
E: sales@urbanenergy.com.au
1/10 Anella Avenue, Castle Hill NSW 2154
www.urbanenergy.com.au