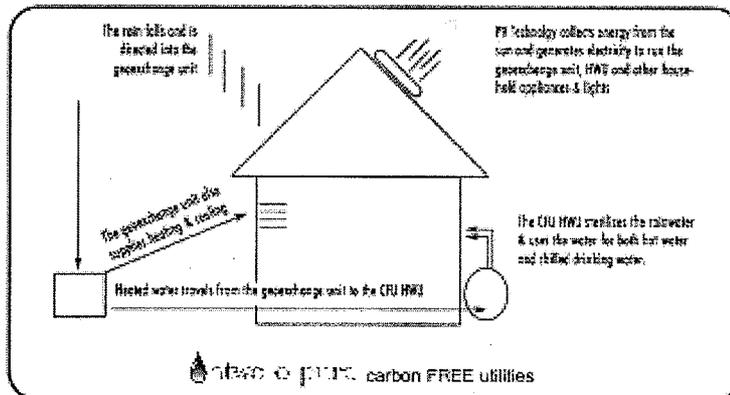




Htwo-o-pure

**Submission
ESC**

Access regime for water and sewerage infrastructure services inquiry



**Carbon Free Water & Utilities
(CFW&U)**



Carbon FREE Water & Utilities (CFW&U) is a potable water supply company providing a solution to remedy the water shortage problem created by global warming. CFW&U differentiates itself by using our Autoclave process (patent pending). This process collects rainwater run off from roofed areas and sterilizes that water for re-use as potable water. In a domestic scenario this process will eliminate the need for a domestic dwelling to be wholly dependent on the normal water main system. The basic working principle is a gas or electric operated autoclave element, working within a hot water unit (HWU) heating rainwater emanating from the roof of a domestic dwelling and returning that water as potable water to both hot & cold outlets throughout the dwelling.

The CFW&U HWU has the capability of collecting 60,000 litres of rainwater from the roof of an average 200sqmt house, sterilizing that water via a specifically designed autoclave process and delivering that water through a dual delivery system to both hot and cold water points throughout the house. The formula used for creating stated harvested quantities does not rely on 100% of average rainfall. This unit in its basic design will replace the HWU as we know it today, not only is it designed to overcome water problems related to global warming, it has the capacity to have the normal domestic dwelling self sufficient for its own water usage. With this HWU fitted to just 1,000 homes, the creation of 60,000,000 litres of potable water per year is achieved, with the installation of 178,000 units Australia wide, the saving is equivalent to the capacity of the Thompson River Dam.

The market opportunity for CFW&U technology is not only timely with the government spending billions of dollars in an effort to solve the water shortage, it also has the capacity to create a tremendous benefit in relation to carbon emissions when complimented with Geoexchange & PV technology. With the integration of Geothermal Exchange and PV technology we achieve a HWU which allows each and every domestic dwelling to deliver its own Water, Heating, Cooling and Electricity ongoing at zero cost and zero carbon footprint.

In itself it has the capacity to achieve Australia's carbon emissions target by 2020. The energy required is minimized by the use of direct Geoexchange Technology to preheat the water to 56 C. Direct Geoexchange provides one of the most efficient means of heating water through a refrigerant-to-water, brazed-plate heat exchanger.

To heat 60,000 litre of water (over a year) from 15 C to 56 C requires 10.3 MJ of energy; 10.3 GJ for 1,000 households. Electric resistant heating costs approximately \$458,000 per 1000 to achieve this, Natural gas costs \$193,000 per 1000, Geoexchange costs \$124,000 per 1000, a savings of 35% on natural gas and over 70% on electricity. This equation alters with the inclusion of PV technology where the dwelling is supplying its own electricity. 10.3 MJ over 1 year would work out to be around 1 - 2 kW from PV cells.

There may be a larger requirement for the further boost from 56 C to 134 C. Final results on KW's required are pending on R&D into the decompression of the sterilization vessel (3 BAR) allowing the boiling of water @ 60 degrees C as opposed to 100 degrees C. Courtesy Dr. Donald Payne School of Physics, University of Melbourne.

Submission for ESC (P3)

While the CFW&U HWU has the potential to produce a significant impact on its own, we are also looking to apply for R&D funding for the final development stage of a commercial unit and I am reassured in the knowledge that all results gained by that R&D will be applicable to the CFW&U HWU as described. Looking at things from a purely commercial perspective, a 100,000sqmt roof producing a harvest of 40,000,000lts per annum and our cost of a commercial installation being say \$1 million, we are effectively producing potable water for .025 cents per litre delivered.

However if a commercial installation were to be presented as a 5 year utility investment, with a possible taxable credit as depreciation on a capital asset the result would be .005cents per litre delivered. A possible client Linfox, have 1.8 million sqmts under roof, this could equate to 720,000,000 litres of water per annum. With our delivery method of reintroduction of this water into the mains water supply, we over come any storage, transport or plumbing retrofit costs.

For the good of the general population, it is envisaged that the reintroduced water metered into the mains system is minus a 20% reduction against water metered out of the mains system for use on a particular property. This surcharge can be sold as a "use of the infrastructure" charge. With the real possibility of gains in the field of Geoexchange and PV technology resulting from the R&D \$'s there exists the scenario where this water can be produced Carbon Neutral.

The autoclave technique (producing potable water) makes the reintroduction of water into the mains system a reality by overcoming the increasingly stringent quality guidelines. Looking to the year 2013 where we may have just 12 similar commercial installations around Australia, we would have reintroduced 8,640,000,000litres of water back into the mains with a gain for common good of 172,800,000litres. With these figures compounding annually we realize a significant gain in the availability of potable water.

These installations are not temporary solutions, but an ongoing solution to "precise water management" for the good of the Nation. The marketing plan for CFW&U is designed to capture 10% of the existing HWU market in its first 3 years of manufacture via the ability to offer all end uses FREE water, heating, cooling and electricity. Through strategic building and land developer contacts, we will be promoting the introduction of a complete carbon free housing development, gaining positive national press exposure.

Our management team has extensive experience in technology development, sales, marketing, finance and customer service. Mid level executives will have industry specific expertise. Our company is piloted by the relevant patent owner, himself an experienced senior manager emanating from the commercial construction arena. He is joined by a seasoned Post Doctoral Research veteran and experts from every discipline involved in the relevant technology.

At CFW&U our priority is 3 fold:

(a) to create a scenario where every dwelling is self-reliant for its own water, heating, cooling and electricity while being free of carbon producing emissions.

(b) to produce commercial amounts of potable water for reintroduction into the main water supply chain, free from a carbon footprint for the betterment of society.

(c) to create jobs in installations, servicing and the manufacturing of CFW&U HWU's in Australia and for export overseas.

Submission for ESC (P4)

Objective:

Patent applications completed for international protection.

Obtaining initial capital to fund start up, development and manufacture of prototype.

Receive R&D funding from Federal Government Stormwater Harvest & Re-Use initiative.

Attracting alliance partners for research into particular increments of design and capacity of manufacturing HWU's

Receive capital funding (equity) injection during the second year of operation. (2012)

*Generate 7,200 HWU sales by fourth year (2014) of operation (.5% of Market - ** NAHB))*

To make CFW&U HWU's the market leader by year eight. (2020)

Complete 12 "commercial units installations" by year 3 of operation. (2013)

CFW&U is in the business of developing and marketing carbon free potable water devices in an array of environments. The company has pioneered the design of autoclave technology for use when converting rainwater to potable water, a process that eradicates the need for domestic dwellings or commercial premises to be wholly reliant on existing infrastructure, thus lessening the burden on ever shrinking water supplies while supporting a carbon free environment.

Quotes from the National Competition Council's mission statement: "To improve the well being of all Australians through growth, innovation and rising productivity, by promoting competition that is in the public interest", and COAG National Reform Agenda/National Competition Policy. "Quote" The competition stream of the NRA focuses on reform initiatives in energy, transport and infrastructure regulation and planning; it tackles many, but not all, of these outstanding infrastructure policy issues. Fully implemented, the NRA and other reforms canvassed in this paper would make a significant contribution to ensuring Australian households and businesses receive the most efficient and cost effective infrastructure services possible. These quotes were the catalyst for bringing about the CFW&U (Carbon Free Water & Utilities) autoclave (patent pending) installing the belief that I would be able to compete with water supply agencies in the production and delivery of save "potable" water.

Working on the principle that every roof is in itself a catchment area, It was the belief that the crucial increment missing in the harvesting of rainwater water from roofed areas, was the feasibility of the delivery method to be implemented. The optimum method for delivery was to use the existing in ground infrastructure, for this unique method of delivery to succeed the collected water would need to surpass the published guidelines for save "potable" water.

The methods being utilized by water supply agencies does not lend itself to operation in confined areas, this is a problem that needs to be overcome. CFW&U has designed an autoclave that succeeds the requirements in both cases, the autoclave has the capability of the reintroduction of potable water to the existing in ground infrastructure while operating in a confined area. CFW&U has designed a domestic and commercial application for its autoclave.

Submission for ESC (P5)

CFW&U endorses the introduction of Geothermal Exchange & PV technology in a collaborated effort, that over a period of time, creates the opportunity for the majority of the population in Australia, responsible for their own water, electricity, heating & cooling while emitting zero carbon emissions. Discussions at length with Dr Donald Payne School of Physics, Melbourne University, have already identified the considerable impact resulting in the combination of the CFW&U autoclave and Geoexchange technology. The obvious inclusion of PV technology supplying the carbon free energy, is the final stage that will create Carbon Free Water & Utilities.

There are organizations making minimal energy reducing gains while operating solely within their own field, it is the aim of CFW&U to have a unison approach delivering a far greater benefit.

The CFW&U autoclave is the catalyst that gives everyone the opportunity to head in the same direction for the betterment of all. With the current economic situation, the Government will be faced with overcoming the burden of enormous debt in the coming years, the necessary debt reduction initiatives will cause a flow on, affecting all aspects of the Australian Community. CFW&U canvasses the scenario where by the year 2020, 75% of all domestic dwellings built after 2013 are self reliant for their own utilities and all commercial developments undertaken after 2015 are also self reliant for their own utilities. The above is a feasible possibility that could release the Government from funding a myriad of initiatives in relation to utilities, thus greatly assisting in the generation of funds to reduce the debt created by the current economic situation.

Specific Project information:

The Carbon Free Water & Utilities (CFW&U) Hot Water Unit (HWU)

Basic HWU Operating Principles

We have proposed a gas or electric and geothermal autoclave element that heats rainwater emanating from the roof of a domestic residence and returns potable water to both hot & cold outlets. The Carbon Free Water & Utilities (CFW&U) Hot Water Unit (HWU) has the capability of collecting 60,000 litres of rainwater from the roof of an average 200 sq m house, sterilizing that water via a specifically designed autoclave process (patent pending). The CFW&U HWU is designed with an autoclave to allow for the first time the distributed reuse of rainwater from domestic & commercial roofed areas.

The process produces medical grade water for re-use in a domestic dwelling and bypasses the extensive chemical treatment processes normally required. This unit in its basic design will replace the HWU as we know it today. With the installation of just 178,000 units a saving equivalent to the capacity of the Thompson River Dam is achieved. Furthermore, with the introduction of existing direct geoexchange & solar photovoltaic (PV) technologies, every home can become self sufficient for its own utilities, hot & cold water, heating & cooling and electricity. In ten years the CFW&U HWU comprising improved direct geoexchange & PV technologies could account for a reduction of 70% of Australia's total carbon emissions. The formula used for creating the stated harvested quantities relies on just 66% of average rainfall.

Submission for ESC (P6)

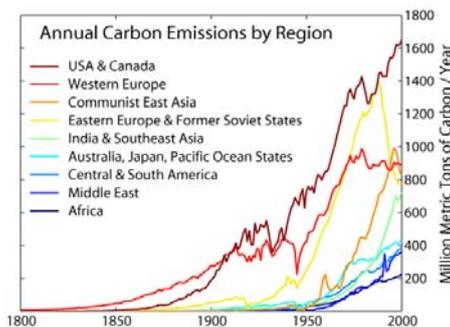
Proposed Sterilization Process

Because the HWU sterilizes the incoming rainfall (at 135 degrees C for 3 minutes) as opposed to purifying it, there is no need for chemicals or filters, just a litter trap to remove leaves and the like. A widely used method for heat sterilization is the autoclave, sometimes called a converter. Autoclaves commonly use steam heated to 121 °C or 134 °C. To achieve sterility, a holding time of at least 15 minutes at 121 °C or 3 minutes at 134 °C is required. A huge bonus of this process is that it can be completed in a confined area, a function not lost when considering commercial applications. Proper autoclave treatment will inactivate all fungi, bacteria, viruses, & bacterial spores.

Energy Savings



Energy use in homes generates just over 50 million tonnes of greenhouse gas each year out of Australia's total emissions from energy use of around 400 million tonnes.



These emissions can be completely offset with the CFW&U HWU, comprising Geoexchange & PV technology. The CFW&U HWU provides a catalyst for a unified approach to the maximum capitalization of existing technologies. Every home will install a HWU of some description. By installing a CFW&U HWU, 50 million tonnes of greenhouse gas would be eliminated, compounding over a 10 year period, more than 500 millions tones would be eliminated. (<http://www.abc.net.au/science/earth/climate/forward/forward.htm>).

A quick perusal at the presently available literature on climate change highlights and reaffirms the urgency of implementing the CFW&U. At present, Australians spend \$37 billion each year on energy and much of this is wasted. That means we can afford to invest a lot of money in greenhouse-emission reducing appliances and equipment. Imagine the impact to society of putting \$37 billion each year back into retail spending, general health and wellbeing. (<http://www.abc.net.au/science/earth/climate/forward/forward.htm>).