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Summary: Erwin Boermans is unlocking the thermal energy distribution potential in districts and buildings to save lives, water, energy and money. Erwin is an Australian / Dutch trained Electronics & Heating Ventilation Air Conditioning engineer, entrepreneur and sessional academic educator based in Melbourne. About 30 years ago Erwin was part of a special Dutch engineering team and specified key HVAC&R elements for phase 1 of the American Hospital in Dubai. We specified hydronic-heating and -cooling in the floors and the walls, balanced fresh-air ventilation per room, and smart domestic hot water service. The two main requirements to specify the world's best hospital were: #1 no golden-staph- and #2 no legionella-bacteria! We've achieved this unusual design challenge on a unique 'blanco-cheque' basis. The two competing engineering companies formed an amazing team. Nobody overcharged. Phase 1 of the efficient, clean and comfortable hospital was built for 70% of the cost of Business As Usual with off-the-shelf components.
The waste thermal energy from UAE's desalination-plant is already locally distributed with closed loops and monetized. Unfortunately the implementation of District Energy EXCHANGES is still NOT common globally, resulting in very high primary energy consumption and water consumption in communities and buildings.
While Erwin was asking for a project example status (and not for money), in 1999, the prime minister of the Netherlands Ruud Lubbers labelled Erwin the renewable energy champion of the Netherlands. This was for the Stadswonen Rotterdam's transformation of Puntegale as the heritage listed former tax-office, the nation's most hated building to the nation's most loved example of sustainable building. Smart 'plug-and-play' homes, a highly interconnected affordable housing development for students/ startups/ elderly. In the role of product developer the product suite ComfortID was created at Stadswonen as a replicable future-proof smart integral designed while bringing comfort. As Erwin's (Australian) wife was homesick he emigrated in 2009 to Melbourne Australia with his wife and both their children. Erwin's consulting company COMFORTiD.com Pty. Ltd. was created, facilitating a range of communities' transformation from the linear to the blue economy, with the specialisation: circularity and thermal energy. In 2013 Erwin was labelled 'Melbourne's game-changer' for PEP Dandenong involvement, Australia's first district energy precinct, a globally published pilot for his Greater Melbourne thermal energy EXCHANGE project initiative. Another thermal energy example building is Swinburne University's Advanced Manufacturing and Design Centre that features some of these smart thermal energy distribution elements (water not air) in Melbourne. Despite Erwins work,Australia is still quite locked into the idea that large buildings need ductwork blowing warm or cool air around the building to maintain a specific temperature. Uncomfortable and unhealthy.

Title: Smart Thermal Energy Distribution in Districts and Buildings
Statement: Are we using thermal energy and CO_2 wisely in our local communities?

Heating and cooling can be made in many ways. Mother nature's sun is an obvious first one to think of and work with. Historically the industrial waste-heat from fossil-fuel burning power stations and other manufacturers has been ignored. Various temperature-levels of waste-heat are available in different locations and times around every community. Recognising this and enabling local usage can enable local communities to prosper.

How does this relate to the circular-economy? Well despite the ongoing embarrassment of the Australian Federal Government pretends to be still-in-denial, many communities are already facing very real effects of climate-change: mega-bushfires, extreme smoke, ecosystem collapse, regional infrastructure-collapse combined with bad droughts, extreme flooding, too extreme weather for humans and species, so severe that alternatives must be considered. Thriving communities that have gone circular, have already amazing solutions implemented. We can definitely help to lead Australia's transformation!

Refrigeration has the most impact on fixing climate change with smart urban designs and thermal energy distribution for heating and cooling to save our precious fresh water. For over a decade we've discussed various thermal options for Australia including energy distribution design in districts, buildings (water instead of air as carrier), and proving implementation is the real issue. Key elements from world's best practices are from the Netherlands, Switzerland, Sweden, Denmark and the UAE.

The key learnings for the world: Sick buildings can be fixed. Circular economy can unlock the hidden assets that we can EXCHANGE locally with closed loops: thermal energy. Seasonal thermal energy storage requires a different design/engineering mindset.

COMFORTiD's Greater Melbourne Thermal Energy EXCHANGE project insight

Regenerative community transformations can unlock locally hidden-assets with smart future-proof infrastructure like District Energy. Heating and cooling can be sold with water-based closed-loops with pre-insulated pipes in trenches and in buildings. This saves a lot of water and increases people's comfort-levels and even their health!
Industrial waste-heat is available on different temperature-levels. You can cool with waste heat of a high enough temperature level. Thermal energy can be stored to cater for the seasonal local needs. All with off-the-shelf components. Plate heat-exchangers, pipes, valves, heat metres, tanks just to name a few. Circularity. Melbourne crafted a pilot in the form a beautiful piece of art near Dandenong metro-station: PEP Dandenong [Precinct Energy Project / Nervegna Reed Architecture + PH Architects]




PEP Dandenong, Australia's first energy precinct

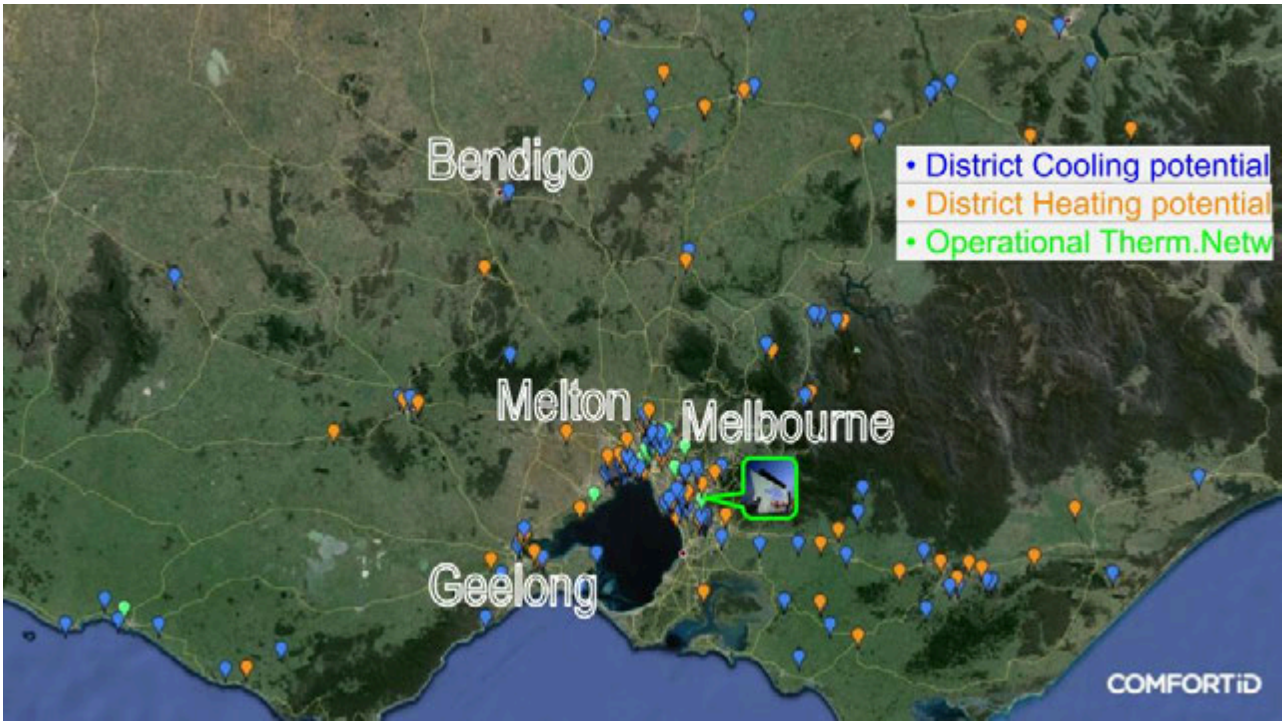

Meet-up with Energy minister Lily d'Ambrosio at the Swinburne University's Advanced Manufacturing and Design Centre, which I specified on request of Professor Geoffrey Brooks: https://tfespecialreports.com.au/author/erwin-boermans/


Dirty REcirculating ducted air conditioning, a biohazard, old Mildura Base Hospital, ↗ photo 1934


The American Hospital in Dubai, Puntegale in Rotterdam, Swinburne Uni's AMDC, ventilate air

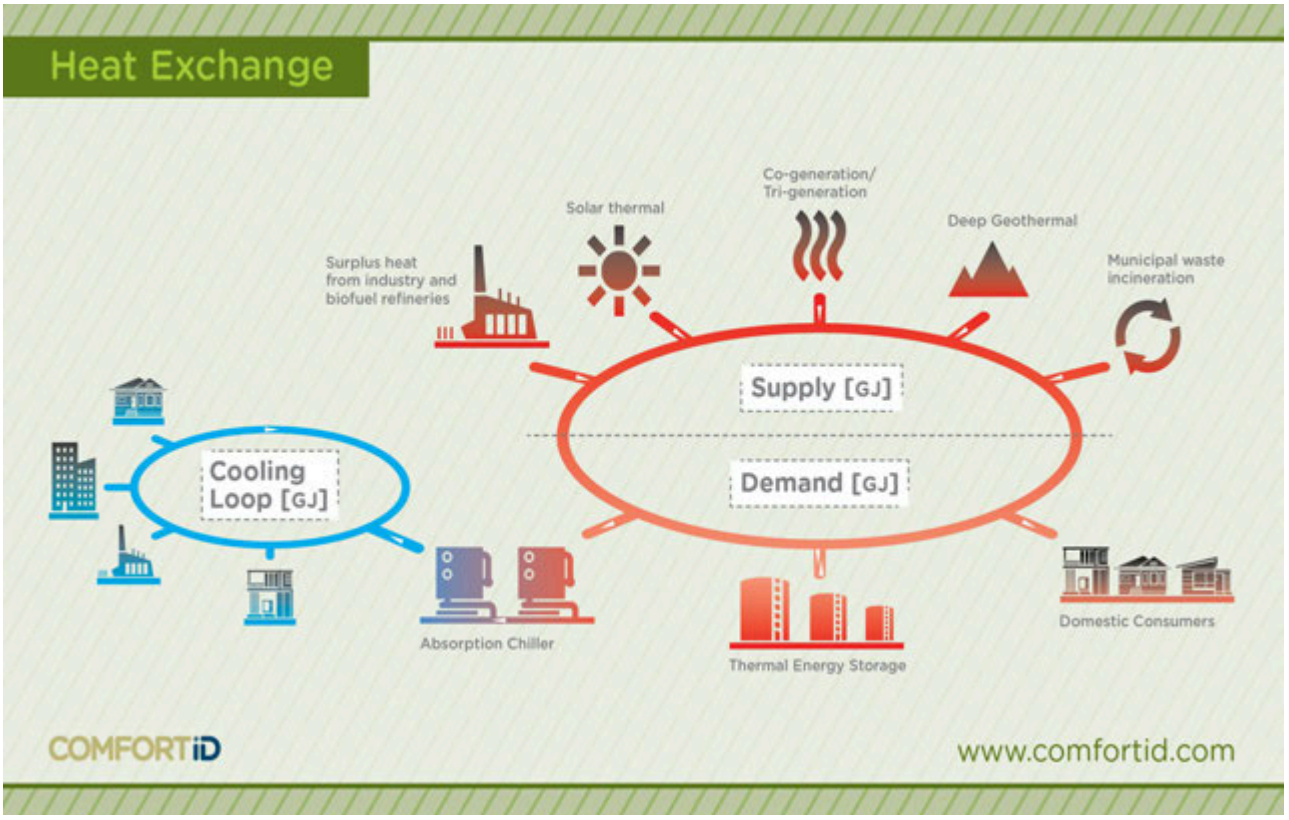

Thermal energy distribution with closed loops of water, in the floors and walls

Regenerative circular urban design, future proof ecodesign like nature, constantly evolving



COMFORTiD's Greater Melbourne thermal energy EXCHANGE project initiative

Our Emirates Airlines magazine advertisement in 2020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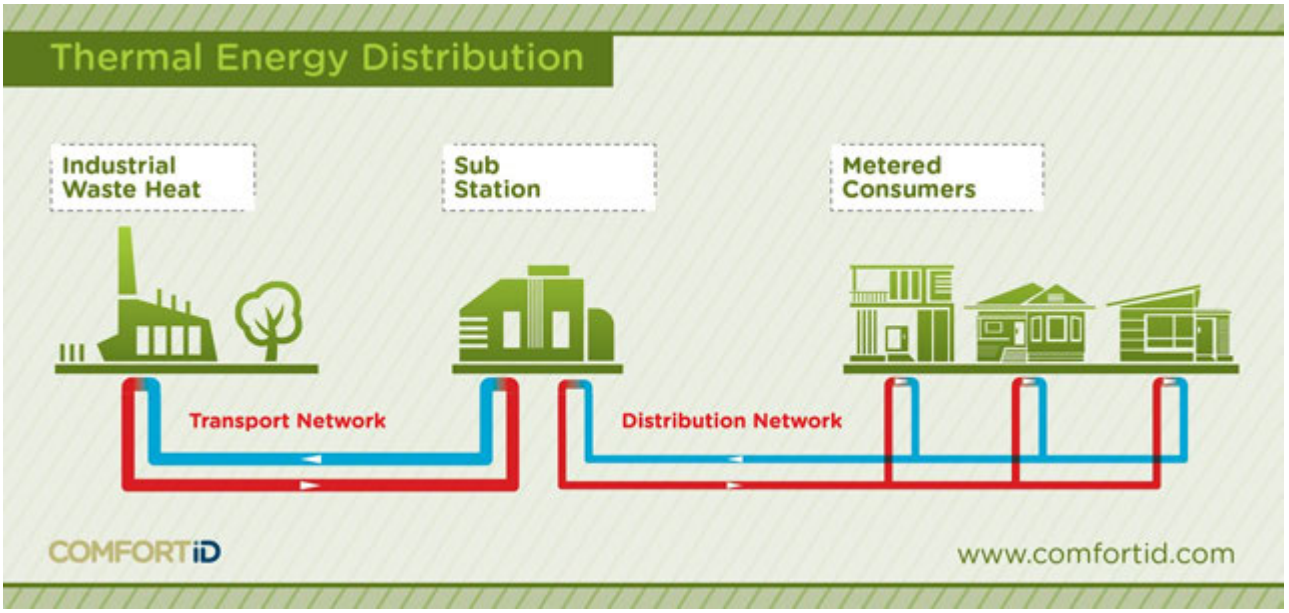
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