

# WE4CC-II (Water and Energy for Climate Change)

## Water and indoor air, waste heat and solar heat, distillation and absorption

We use membrane distillation and desiccant recovery systems to turn low-grade waste heat or renewable solar PVT heat into high-quality water and indoor air.

### Overview

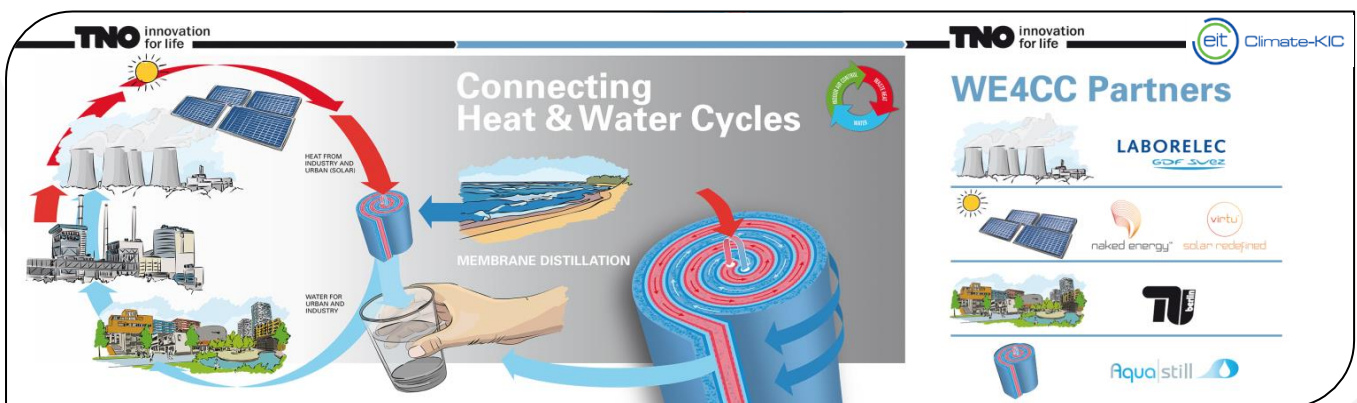
Waste heat is produced by a lot of industrial, domestic and energy production processes, and plays a significant part in rising global temperatures. With the WE4CC-II project, we saw a way to harness this waste heat to produce high-quality water and indoor air (humidity) control, which can substantially reduce energy consumption and CO<sub>2</sub> emissions.

WE4CC-II uses membrane distillation technology to produce the water, which is a thermally-driven separating process where water vapour passes through a hydrophobic membrane and high-quality liquid is retained. For air de-humidification, we use desiccant recovery systems.



**Key facts**

- Project started: 2013
- KIC: Climate-KIC
- Theme: Sustainable city systems
- No. of partners: 4



### Climate-KIC support

Climate-KIC helped us by bringing partners from different disciplines together, with funding, and with different dissemination and education activities such as introductions within the community.

### Market potential

The market potential for our innovation is huge, with our technology applicable anywhere from hotels to remote areas. Domestic hot water applications would appear to be the best initial focus, while drinking water production and solar cooling applications could prove to be a valuable market to move into once the technology has been established.

We plan to introduce the PVT and desiccant systems in 2016 and then potentially a combined system in 2017, depending on our final business case evaluations.

## Societal impact

WE4CC-II utilises waste heat to create societal impact in two key ways:

- By reducing the amount of greenhouse gases being released into the atmosphere
- By lowering costs associated with fossil fuel-powered energy sources

## Achievements so far...

We've carried out successful demonstrations at three locations:

- Power plant Amercoeur (Belgium)
- The Dolmen Hotel (Malta)
- The Botanical Garden of Berlin (Germany)



*Left to right: TU Berlin Absorberbox; demo container outside TNO; Naked Energy solar PVT panel*

## Teamwork

Our team includes TNO (the Netherlands Organisation for Applied Scientific Research), the Technical University of Berlin, Naked Energy Ltd. (EIT Venture Award Winner 2012) and Laborelec (GDF Suez), and all have brought unique technologies to the project.

Naked Energy's solar technology Virtu® provides solar power while helping to cut carbon emissions. The waste heat it produces as a consequence of this process is used by TNO's Memstill® to purify or desalinate water. In turn, the heat produced by this process is used for heating and cooling through the Absorberbox® technology developed by TU Berlin.

Working in a team with different and complementary backgrounds, while having a common goal, is very inspiring. All stakeholders are convinced that the added value, both for their technologies as well as for their markets, comes from the interface of their systems.

The team spirit is open and our day-to-day contact varies from consortium meetings to smaller meetings between partners involved in a specific area of the business. The consortium is also open to students and consultants for assistance in market entry and business development.



**WE4CC**

WATER & ENERGY FOR CLIMATE CHANGE

## More information

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