

[H2PIA]

www.h2pia.com



Energy for own use

The World's oil reserves are running out. Within the next few decades, the growing severity of oil shortages will lead to sharp increases in the oil price and a growing dependence upon the oil-producing nations. Add to this the rising emissions of CO₂ that harm the environment, and it is clear that it is high time to find an environmentally sound replacement for oil.

Hydrogen is the answer!

H2PIA is a vision for the hydrogen society of the future, where citizens will produce the energy they need for themselves. H2PIA will show how we can develop from a society that produces energy by burning oil, coal and gas, to a hydrogen-based, independent, and pollution-free community.

H2PIA will represent freedom, clean energy, and creativity and innovation:

- Freedom because the citizens of H2PIA are independent of oil. They produce and store their own fuel in the form of hydrogen.
- Clean energy because hydrogen is produced from renewable energy sources: sun and wind. And the only exhaust product left over when it is used is pure water.
- Creativity and innovation because the creation of H2PIA demands a close cooperation between the private and the public sector and cooperation between people who work with technology, architecture, design and transportation.



Central solar energy production

Secrets Technology

H2PIA PUBLIC:

Solar cells

Hydrogen

VILLA UNPLUGGED

Storage and production of H₂ energy

High power production

INNER TOWN SQUARE

Light tower area

Energy storage

TOWN SQUARE

Energy production

Wind storage

VILLA HYBRID:



Energy
NEED

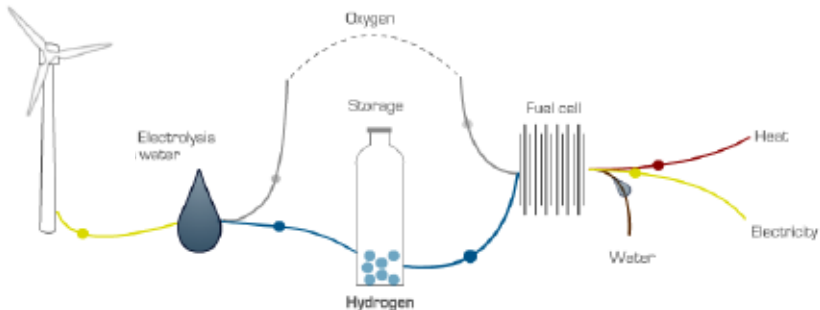


[H₂PIA]



Environmental &
Supply COST

Balancing energy needs and environmental concerns



Getting power and heat from hydrogen.

Impacts and demands and the need for relief

H2PIA is not a fanciful dream for the future – it is a realistic, achievable necessity. The World's energy demand is rising steadily. In the year 2023, the world population will have risen by 24 percent and the number of cars on the planet by 50 percent. These trends mean that the World's production of oil and gas must rise by as much as 66 percent to meet demand. The great losers will be the environment, our natural habitats, and our climate. And, ultimately, ourselves.

Our consumption of energy will always have to strike a balance between our need for it and the cost of providing it. Regardless of what happens to oil prices, a future based upon coal, oil and gas will lead to a rise in energy consumption. And the alternatives available to us today are not developed enough to cover our growing demand for energy. Increases in consumption and fossil fuel shortages will inevitably push oil prices higher.

In contrast, H2PIA is based upon self-sufficiency, clean energy, and a constructive partnership between the public and the private sector. H2PIA will work to secure and enhance our welfare in a way that balances our energy needs with the cost to the environment and our climate of producing this energy. The key attribute of the hydrogen society is that people produce their own energy. This is how it works:

The renewable energy comes from solar or wind power and is used to split H_2O – ordinary water – into H_2 and O_2 – hydrogen and oxygen. The oxygen is vented into the atmosphere, which already contains about 20 percent O_2 . The hydrogen is used in fuel cells that can produce energy, for instance in the form of electricity and heat. In the fuel cell, the energy is created by silent electrochemical processes with no pollution. The only product left over when the hydrogen is used up, is pure water. During periods with low energy demand, we can store the hydrogen. Then, when the wind is not blowing and the sun is not shining, we use the stored hydrogen.

Villa Unplugged is for the devoted energy enthusiasts, the believers who also crave space and freedom, who want a life of peace and quiet on the outskirts of H2PIA.



Villa Unplugged

Villa Unplugged is created for families that enjoy light, air and freedom of movement. The villas are not connected to the common energy grid. They manage their own storage of hydrogen and production of energy for the home and the cars.

The Unplugged township is placed in rural surroundings that let the occupants enjoy nature and the open spaces.

Villa Unplugged is completely self-sufficient with energy. The heat comes from solar panels that also produce electricity together with wind turbines. Part of the electricity is used for producing hydrogen for the fuel cells in automobiles. The rest of the hydrogen is stored and used later in in-house fuel cells for electricity and heating during periods with insufficient sun and wind.



Villa Plugged

The inhabitants of Villa Plugged do not need to be concerned about where the energy comes from, since they can get 100 % of their energy supply from a central energy producer. This is how most people in Denmark live today, and this should also be a possibility in H2PIA.

Villa Plugged contains a communal residence for the younger town residents. Plugged constitutes an open, creative and inspiring milieu, created by young people – for young people.

As the name of the area implies, this part of the city is 'plugged into the socket' and gets electricity and heat from the central energy supply. Villa Plugged gets electricity and heat from the central energy supply of H2PIA, which is placed in H2PIA Public.



Villa Plugged is for people of all ages, the laid-back and the active ones – in short anyone who does not want to be bothered with the energy systems, but just want the amount of energy available, that they need.



Villa Hybrid is designed for modern life, for those who want a short distance to the center of town as well as easy access to the nature. The inhabitants want it all, at the time and place of their choice. They may combine sustainable living with "power shopping". There are lots of options and lots of luxury.



Villa Hybrid

Villa Hybrid is a family residence where the concepts from Unplugged and Plugged are combined. Here, the families produce their own energy but are also connected to the common energy grid. They can supply the grid with any excess energy.

The hydrogen car is a central element of Villa Hybrid. When it is parked next to the house, its on-board fuel cell produces large amounts of power which is delivered to the common energy grid, thus contributing to the balancing of the family's energy consumption and production. The hydrogen for the car's fuel cell is supplied via pipelines from H2PIA's central hydrogen storage facility. During periods of insufficient power elsewhere in H2PIA, Villa Hybrid can supply electricity to the common grid. When the car is on the road, Villa Hybrid will tap electricity from the grid to supplement the energy produced by its own integrated solar cells and windmills.

The houses in 'Hybrid' are of luxury standard, with panoramic views and a sense of style and comfort. The most important mission of its inhabitants will be to create a setting where originality and innovation prospers, for the benefit of both the family and for the entire H2PIA community.



H2PIA Share

H2PIA Share is the town centre. It is the common gathering point, equivalent to the village pond of times gone by. 'H2PIA Share' provides an exciting mix of shops, public spaces, businesses and recreational areas.

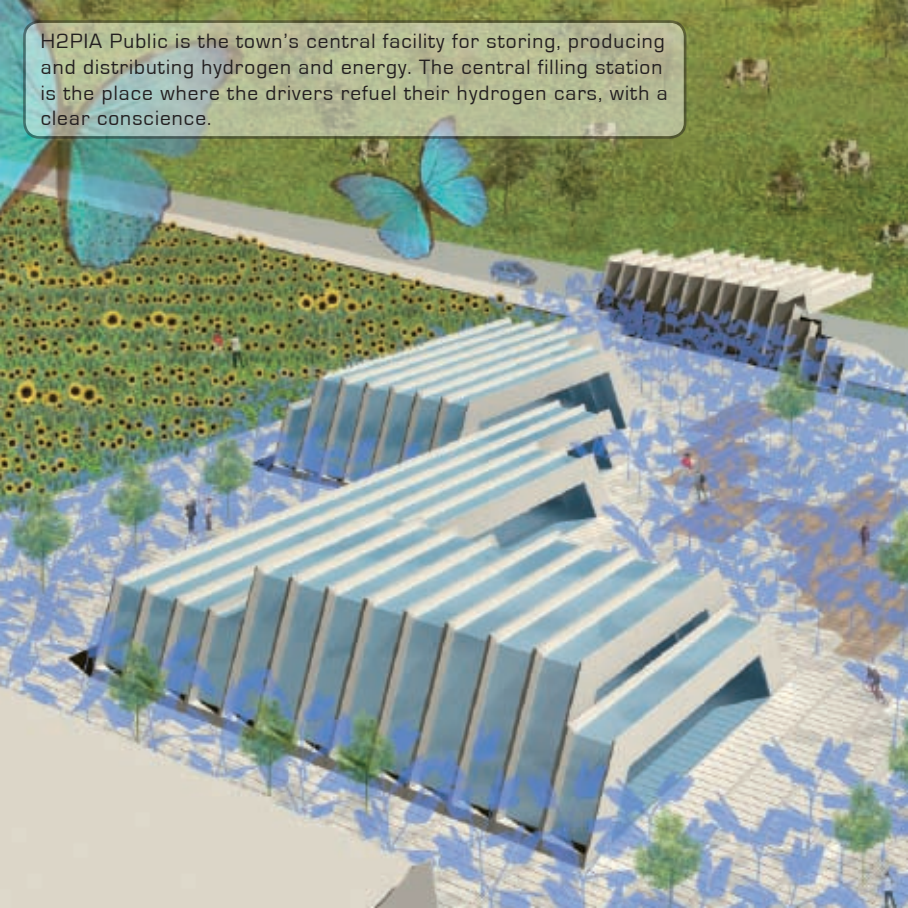
In H2PIA a large part of the inhabitants are self employed, a fact that creates possibilities for new lifestyles that combine work, leisure and fun. 'Share' allows for a context of optimism, creativity, joy of life and confidence in the future.



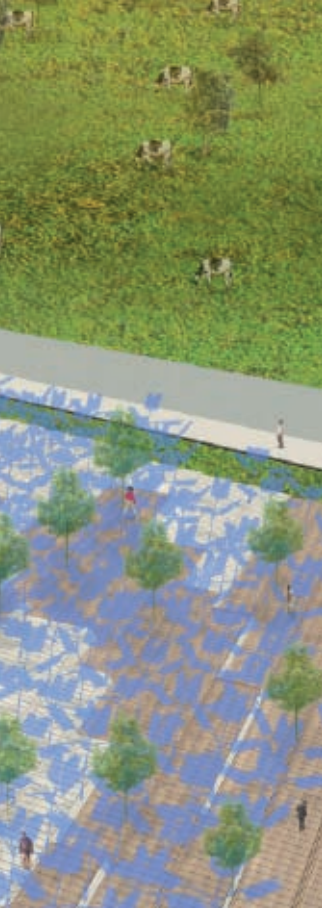
If you want company, H2PIA Share is the place to be. Here you feel city's pulse, here you go to work or have time off; you may join any of the numerous activities the city offers or just relax by watching the crowd.



H2PIA Public is the town's central facility for storing, producing and distributing hydrogen and energy. The central filling station is the place where the drivers refuel their hydrogen cars, with a clear conscience.



H2PIA Public

An aerial view of a futuristic town. The foreground is dominated by a large area covered in blue solar panels, interspersed with small green trees. A grey road or path runs horizontally across the middle of the image. Above the road is a green field with several wind turbines. Small human figures are scattered throughout the scene to provide scale.

The energy needed to fuel this whole new society has to come from somewhere. Outside the hydrogen city there are parks where solar power cells and wind turbines produce energy and hydrogen for the town. Electricity from the town's solar and wind parks is distributed directly to the inhabitants. Any excess electricity is used to produce hydrogen for the town's fuel storage. The stored hydrogen is used to produce electricity and heat in the H₂-cogeneration plant during periods with no wind and sun. H₂PIA Public contains a central combined heating and power plant based on hydrogen fuel cells.

H₂PIA Public is the town's central junction for storing, producing and distributing hydrogen and energy. Here, the renewable energy is used optimally and here the supply of energy is secured, regardless of weather conditions. This is also where you find the hydrogen filling station, where cars can refuel hydrogen for their fuel cells.

H2PIA will be placed somewhere in Denmark. The intention is to start construction in the year 2007. The location may be either close to a smaller or bigger town or all by itself in the countryside.

Where it will be is up to you – the choice is yours!

We look forward to hearing from you.



[H2PIA]
World's first hydrogen city

H₂OW LIVE



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