**Source in the Desert**

The project was developed on the basis of a competitive task for an attractive location in Masdar City, Abu Dhabi. Under the terms of the competition, it is proposed to create a cult work of art not only aesthetically attractive, but also using renewable energy technology as a means of creative expression and ensuring the production of energy on site in accordance with the general plan of the city.

Masdar is the Arabic word source. The idea of the project returns to one of the oldest sources of energy used by man - the energy of falling water. Fountain in the form of a small hydroelectric station. The project uses the invention of the ancient Greek mathematician and mechanic Heron of Alexandria. Heron's fountain pushes a lot of water under compressed air pressure.

The project consists of a ground part - the art symbol itself and a three-tiered underground part, where there are technical rooms with turbine generators and two levels of a hermetic tank.

Water is fed up by vertical metal risers ending with annular pipes. The highest level-annular pipes (d 1.30 m). Of the seven annular pipes, the jet of ejected water falls downward into the pool bowls (mark -0.30 - +1.50) with distributed hydro turbines.

Below (mark -4.50) are the machine rooms of turbine generators and other technical rooms. Under it are accumulative (mark -16.00), using groundwater. Accumulative pool (mark -24.50) communicates with the air chamber through the drain pipe. The fact that the fountain is a geometric shape, is noticeable only when they are disabled. Working fountains create the illusion of the silhouettes of seven Arab figures circling in a slow dance. The bowls of all fountains are united by a single pool. The fountain is a symbol of seven Arab Emirates united in a single state. The fountain is surrounded by a terrenkur glass ramp, passing through which you can virtually go through all seven of the Arab Emirates. The ramp connects two sections (G-21 and G-06) of the art object territory, which is separated by a pedestrian bridge and ends with a low park amphitheater - a place of meetings, meditations, thoughts and conversations. The fountain will be not only a symbolic construction in Masdar City, but also a small oasis affecting the microclimate of this space.

**Starting**

To start the fountain you need to load a certain amount of groundwater in the cumulative pool. Reaching the top of the drain pipe, the water flows into the air chamber, squeezing the air into the storage pool. In turn, the pool water is squeezed out into vertical risers and rushes upwards into the annular fountain pipes. In the annular tubes there are slots through which most of the water rushes down onto the turbine blades in the fountain bowls. Due to the kinetic energy of the falling water from a height of 23.7 to 34.3m, electricity is generated. A small part of the water with less pressure from the upper slots in the annular tubes completes the silhouettes of fountains with water domes. The waste water flows back into the accumulative pool through drain pipes with a check valve in the bowls of each fountain. Thus the water circulates and the fountain continues to operate.

**Building**

Building materials - polished reinforced concrete, steel pipes of different diameters, glass.

Equipment - electric turbines and generators.

The estimated cost of investment will be 12.6 million dollars, including 8.7 million dollars.

Total energy output: 685 kWh.