

PVM (Parallel Virtual Machine) - a software package, that brings together a diverse set of computers in a single computing resource, called a virtual parallel machine. This integration enables you to control the processes by message passing mechanism. PVM can be used on multi-processor computers and on the computer systems built on cluster technology. Directly PVM system is composed of two parts. The first part is a demon, which is installed on all computers and makes it possible to get to the virtual machine. Multiple users can simultaneously configure overlapping virtual machines, and each user can execute several PVM applications simultaneously. The second part of the system is a library of PVM interface routines. It contains a complete list of functional primitives that are necessary for the interaction between tasks applications.

Both systems have been changed many times and subjected to rigorous testing and comparisons on the subject of performance. Tests have shown that the superiority of MPI system, which is actively developing in our days. It can solve more tasks that PVM system at the same time. Nowadays PVM system does now have new updates, but old versions can be successfully used for obtaining higher performance. Systems MPI and PVM become a breakthrough in the field of computer technology, allowing to obtain high-quality results in a short time.

## **EXTRACTION OF THE MINERALS ON THE MOON FOR PROVISION MANKIND WITH ENERGY FOR 10 000 YEARS**

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It's no secret that humanity is on the brink of energy crisis. How much more Mother Earth will provide us with fuel? 50 years? 70? Well 100 maximum. Advanced and forward-thinking companies benefit from wind power, solar and flows of rivers.

Due to the high rates of consumption of minerals and the high human population growth, mineral resources on planet Earth are in the process of exhaustion, this shortage creates the need to find new alternatives to supply the growing needs. An additional alternative to the traditional search for new deposits on Earth, is the search for deposits beyond our planet, these new resources can be found in the vicinity of our planet. The mining of bodies of our solar system like the Moon, Mars and the asteroid belt can provide abundant energy resources such as helium 3 and minerals such as potassium, rare earth elements, iron and platinum group minerals.

The Moon provides the greatest potential for mining in our solar system; due to its proximity to our planet. Mining the moon to meet our energy needs may sound like the plot from a sci-fi movie, but China is considering doing exactly that. Helium 3 is an extremely valuable isotope that could be used in clean fusion plants to generate energy – and it's available in vast quantities on the moon.

Some scientists say that the moon is so rich in Helium 3 that it could solve the world's energy problems for at least 10,000 years. Fabrizio Bozzato, a doctoral can-

didate at the University of Tamkan in Taiwan, recently wrote in World Security Network that helium 3 could be extracted by heating the lunar dust to around 600°C, before bringing it back to the Earth. The gas, he estimates, has a potential economic value of \$3 billion (£1.78 billion) a tonne, making it economically viable to consider mining from the moon. According to experts in the U.S., the total estimated cost for fusion development, rocket development and starting lunar operations would be about \$20 billion (£11.8 billion) over two decades.

China has expressed an interest in mining of the moon for this substance, but the nation hasn't set forth any concrete plans yet. If China does get Helium 3 from the moon, it insists it will be for the benefit of humanity. But given the absence of competitors in the endeavor, there is speculation that China would have a monopoly over the resource.

Celestial bodies closest to the planet Earth have plenty of opportunities for mineral exploration, utilization of new materials and alternative clean energy, they also possess a reserve of materials that are depleted, near depletion or very scarce in planet Earth. The exploration and exploitation of these resources today present great technical difficulties but due to current technological advances and the high prices of minerals and energy, this exploitation is getting closer to being economically and technically feasible.

The engineers of the current generation must be alert to new possibilities that do not limit us to think only of Earth's resources and to open our minds to new possibilities and alternatives.

## **THE PROBLEM OF ENERGY SAVING MODERN CRIMEA**

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At the moment the increasingly popular concept of sustainable development of modern society. The essence of this concept is to create a balance between society and the biosphere, by optimizing the use of natural resources and respect for nature. To date, there are several factors that affect the establishment of equilibrium. One of these factors, according to scientists, is energy saving.

Feature location of the region, as well as a special sphere of activity obviously requires the use of clean energy sources. Of course, in this situation, the most advantageous is the use of alternative energy sources that will make the region's energy independence and contribute to solving some of the problems associated with limited natural resources and the fight against pollution. All this requires the introduction of new technologies, facilities and equipment, with the daily accumulation of heat, which would allow for a profitable economic activity and extend the boundaries of the service area of the resort. In turn, a set of alternative energy sources and energy efficiency will get rid of wasteful energy use and improve the environmental situation in the region.