

Modern technologies do not lag behind, but react promptly

Belarus ranked 34th for broadband penetration worldwide

By Andrey Afanasiev

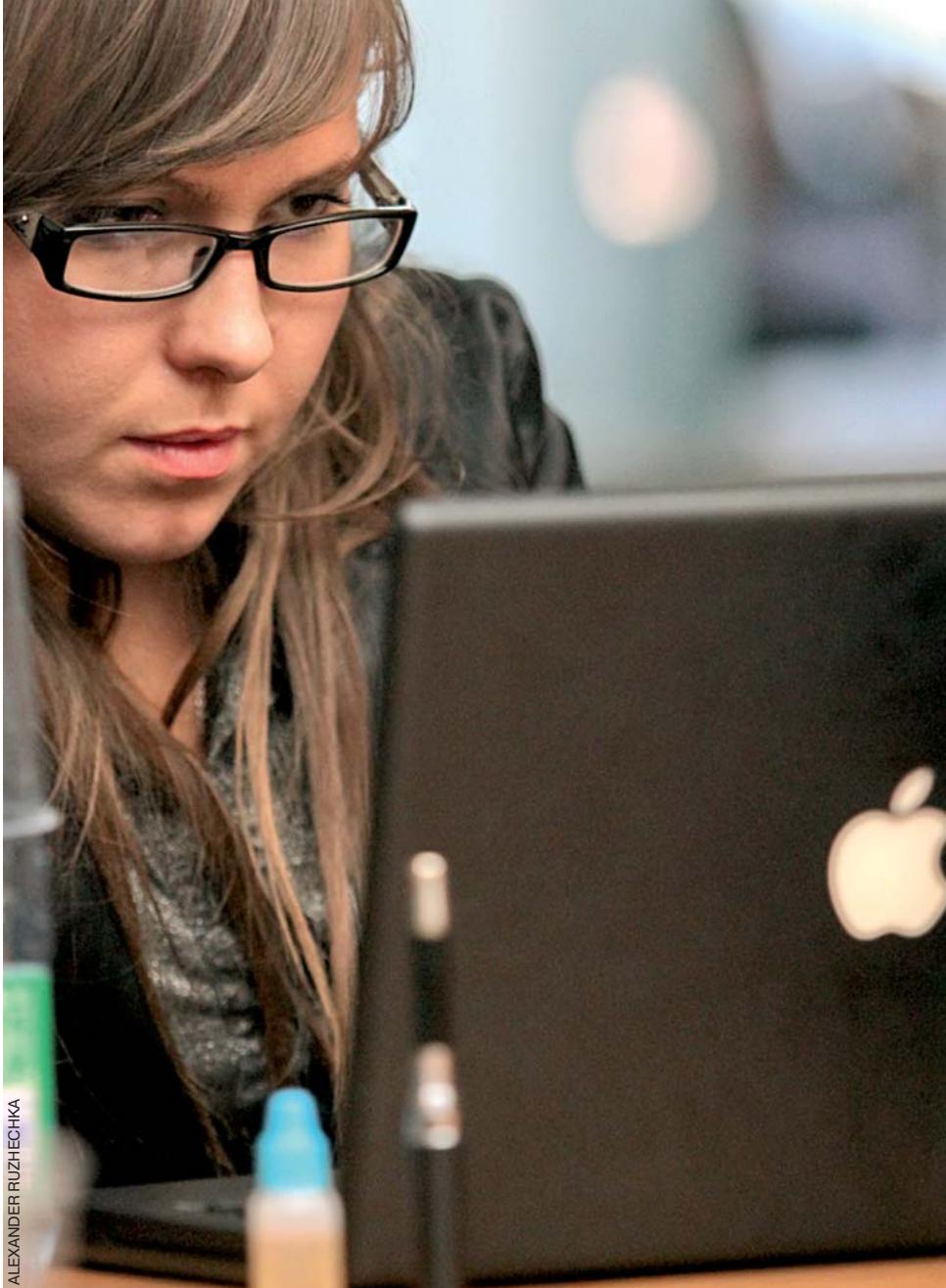
Belarus has been ranked 34th among over 170 global economies for its number of fixed broadband Internet users per 100 residents. It is 50th in its number of users of mobile access per 100 residents (18.9 — which is comparable to the average). Belarus is an impressive 21st for the number of households with Internet access; while the world's average is 20.5 percent, as many as 40.3 percent of Belarusian homes have access.

Belarus' Ministry for Communications believes that 'the report allows us to positively evaluate the intermediate results of the first year of the National Information and Communication Infrastructure sub-programme being launched'. The latter is part of a national programme to promote ICT services from 2011-2015, aiming to improve Belarus' ranking by 2015 (as rated by the International Telecommunication Union and the United Nations Organisation). The country plans to advance into the world's top 30 countries for ICT access.

The report points out the need to encourage the development of broadband Internet access at national level since it aids economic growth and social integration. Currently, xDSL technologies remain the most prevalent for wired broadband Internet access across the globe, used for about 60.8 percent of broadband connections. Data transmission via cable television networks — common in some European states — has a share of 19.4 percent.

Meanwhile, FTTx technologies are developing fast, with fibre optic cable being laid directly to a subscriber's private house (14.1 percent of connections) or a flat (2.6 percent). These replace conventional copper wire and enable speeds of up to 100Mbps.

As the Ministry comments, similar infrastructure development trends are registered in Belarus. The growing need for information among Belarusians and, as a result, demand for more Internet access, has encouraged telecom operators to introduce new technologies.



ALEXANDER RUZHECHKA

Everyone prefers to receive high-speed Internet

Project to harness wind energy soon to be carried out

By Anna Kotova

Belarus soon to launch two new UNDP projects in sphere of energy efficiency and renewable energy, costing about \$8m

The project to improve the energy efficiency of residential buildings is to cost \$4.9m, while the development of wind power in Belarus is to receive funding of over \$3m. For many years, Belarus has been active in promoting energy conservation and efficiency, working with the International Bank for Reconstruction and Development, the UNDP, the European Union and other organisations.

A number of projects have already been implemented, including improving efficiency in homes and reducing utility costs: modernising boiler stations and heating units, and installing energy efficient lighting, insulation and double glazing in buildings.

The project *Rehabilitation of Areas Affected as a Result of the Chernobyl Disaster* has seen 92 sites modernised, while 1,500 homes have been connected to the gas network where there is a lack of suitable local fuels.

We can tame even the sun's energy

By Roman Gromov

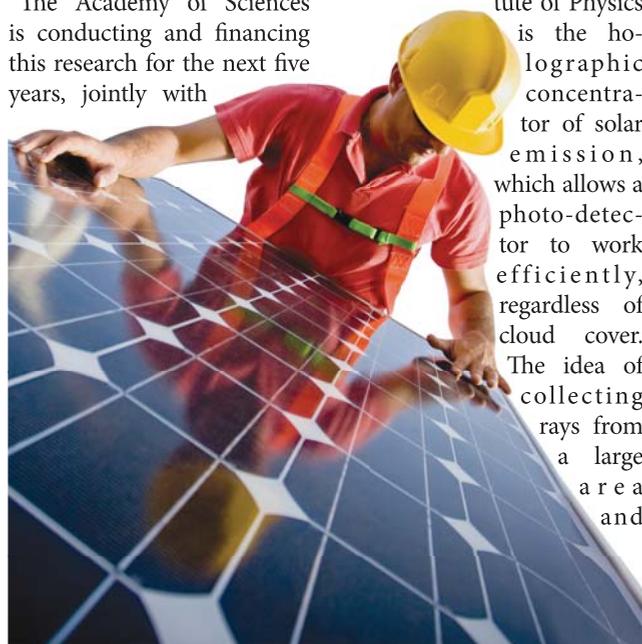
What is photovoltaics and is it worth fighting for?

In front of me is a European map of photovoltaics' potential — as is called the transformation of solar energy into electricity. I'm excited by what I see. Yes, sunniness in Belarus is incomparably lower than in Spain, Italy or Greece but, according to the map, almost all of Belarus up to the northern border has the same potential as the south of Germany!

Recently, thanks to the development of fundamental and applied research in the field of photovoltaics, Germany is focusing on solar energy becoming responsible for 18 percent of its electricity. This must surely be an example for Belarus, even though we have only 30 sunny days a year and 180 partially sunny. Currently, there is no legislation in Belarus regarding solar powered energy sources, so work lies ahead.

"Solar cell development is a priority of our scientific re-

search," notes the Head of the Photoelectronic Transformers Laboratory at the National Academy of Sciences' Physics Institute, Valery Zalessky. "The Academy of Sciences is conducting and financing this research for the next five years, jointly with



Solar panels producing electricity

colleagues from the Belarusian State University of Informatics and Radioelectronics and Gomel State University. We are planning a comprehensive programme in this sphere, leaving behind the

old-style costly silicon wafers and launching thin-film converters."

Among the pioneering solutions found by the Institute of Physics is the holographic concentrator of solar emission, which allows a photo-detector to work efficiently, regardless of cloud cover. The idea of collecting rays from a large area and

sending them to a solar battery is hardly new; there have been attempts by Western firms. However, the Belarusian holographic lens will allow collection from an area up to 1000 times greater than

a traditional photodetector, while being much cheaper — due to the simplicity of its technology. The necessary calculations have been made and the materials have been developed, but designs are yet to be tested. Researchers have drawn on their experience of making similar optical elements for other purposes so have no doubt of the potential of raising the concentration of solar emissions. It will become a breakthrough that will allow Belarus to embrace solar energy fully.

Of course, the development of an effective photoconverter — the main segment in the system — will be the major achievement. An entire industry is required to produce all the necessary components, as well as ensuring the installation and maintenance of solar energy systems and the training of staff. It seems most logical to create a scientific and practical centre for photovoltaics at the National Academy of Sciences of Belarus, where innovative applied technical solutions can be developed.

Underground museum

By Tatiana Vishnevets

Silicon mines in Volkovysk District to become tourist attraction

The tunnels of the silicon mine, dating from Neolithic times, could become an attractive tourist destination, housing an underground museum. Funding may come from the regional budget, as well as from trans-boundary co-operation grants. Plans are to be implemented from 2013-2014.

Five centuries of history leave none indifferent

Record number of visitors registered at Mir Castle

From January-August 2012, 190,000 people visited the museum — 55,000 more than in the previous year. The expanding thematic exhibitions have attracted more tourists, with 20 original displays opening this year, boasting unusual artefacts and curious collections.

Over the first seven months of this year, around 4,500 tours took place, while around 6,500 people used

The Governor of the Volkovysk District, Semen Shapiro, is keen to see his area use all its industrial and social resources. He explains, "We need to breathe new life into Volkovysk. Workers have already been employed and promising projects have been developed, with the district centre being improved at a cost of Br10.5bn this year alone. In 5-6 years, the Volkovysk District will become a leader in the Region."

an electronic audio guide in their native language. Director Olga Popko asserts that numbers of visitors have risen from the CIS and beyond, including those from Poland, Lithuania, Russia, France, Holland, Spain, China and Brazil. Foreign guests accounted for around 40 percent in the total, with many travelling hundreds of kilometres to see this masterpiece of Belarusian culture. Its five centuries of history leave none indifferent.