



BACnet[®] In Russia

By **Andrey A. Golovin**

Experts estimate that Russia's economy will continue to grow about 6% to 7% annually, and that its inflation will be reduced to less than 5%. This is good news for Russia's burgeoning construction industry, with residential and commercial buildings being the dominant growth areas. Both provide great opportunities for building automation.

Residential Buildings

Residential construction is a high priority for the Russian government. Nearly 41 million m² (441 million ft²) of residential construction is expected to be completed in 2006 with the amount increasing to 80 million m² (861 million ft²) by 2010. Moscow alone accounts for nearly 5 million m² (54 million ft²) with a similar amount in the greater Moscow region.

At the same time, real estate prices are increasing 25% to 30% annually, and the cost to purchase a square meter (11 ft²) of apartment space is around \$3,500. Moscow is at the core of the Russian economy and prices in the capital dictate price policies in other regions of the country.

The use of building automation in residential buildings is increasing. Modern residential buildings are equipped with automation devices for their heating systems and domestic hot water supply along with digital metering of potable water, domestic hot water and heating systems. These buildings also are outfitted with rudimentary fire alarm systems. The increasing cost of utilities is expected to further increase the demand for



The Federation Tower in Russia is designed to be the tallest building in Europe when completed in 2008. BACnet was chosen to give the building owner future flexibility as the rest of the project is being built.

building automation capabilities. Along with a desire for energy efficiency, people are also concerned about safety, security and comfort—and are willing to pay for them. All of these factors are expected to provide a significant boost to the residential building automation market.

Commercial Buildings

The demand for offices in Moscow is much greater than existing supply. Supply and demand are not expected to equalize until 2008 at the earliest. Office rental prices in Moscow are growing at a quarterly rate of 2% to 5%. Rental prices for high-end office space (in the most desirable locations, with the best decor, security, and amenities) can amount to \$650 to \$880/m² (\$60 to \$82/ft²) (annually, without VAT and utilities) while more typical office space can command rentals in the

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\$500 to \$650/m² (\$47 to \$60/ft²) range. In 2005 nearly 1 million m² (11 million ft²) of commercial building space was constructed in Moscow. Most of this space was in office buildings, hotels and shopping malls, the types of commercial real estate under the most aggressive development in Russia today.

These types of facilities also are the most interesting market segment for building automation in general and for BACnet in particular. The implementation of modern building automation systems increases the building value and gives building owners many advantages, including the ability to command higher rental prices for office space, additional comfort for people to work and live in, greater energy efficiency and reliability, improved life safety and security, potential for reduced insurance premiums, etc.

WTO and Russia

Next year Russia will enter the World Trade Organization (WTO). This will have a significant impact on the entire Russian market, including the building automation segment. Foreign manufacturers will find it much easier to enter the Russian market, and there will be fewer barriers such as customs taxes. The situation for Russian companies may be less advantageous because many more foreign competitors suddenly will be offering high quality products and services. It is expected that WTO membership will bring many foreign vendors to the Russian market for the first time.

Building Automation Market Value

In an effort to estimate the value of the Russian building automation market, BIG-RU joined forces with a local marketing agency to conduct a survey entitled "Building Automation for HVAC." The results showed that the Russian building automation market (for HVAC alone) now amounts to about \$215 million. This estimate is based on retail prices for hardware only. An expanded survey that considers additional building automation segments such as lighting, security, fire alarm systems, power systems, and so

on, is expected to be completed this fall. Market growth is about 20% annually and is closely linked to the construction market and real estate prices.

BAS Protocols in Russia

Three data communication technologies for building automation systems are being marketed in Russia: European Installation Bus/Konnex (EIB/KNX[®]), Echelon's LonWorks[®] and BACnet. The first two have been on the market for years, while BACnet only made its appearance quite recently. Although a newcomer, BACnet's popularity is growing steadily. This is despite the fact that many BACnet vendors also offer product lines that use their legacy proprietary protocols, and may offer their older systems at a better price. However, customers are becoming more informed about open standards and systems and are asking for more interoperability.

Building Automation in Russia

Three common ways exist for non-Russian building automation companies to conduct business in Russia. The first is to establish an independent branch office. This office handles all aspects of representing the company from brand name promotion to system integration, sales, installation and service. The second approach is similar, but the branch partners with local Russian companies to carry out product distribution, sales and service. The third model is to have a local company represent the firm and its products, in effect becoming a dealer or distributor.

Before committing to a branch office, many companies have chosen a somewhat less risky path.

Step 1: Locate one or two local Russian companies to serve as its distributor/dealer in Moscow.

Step 2: Train the local companies' technical experts and provide them with technical sales support.

Step 3: Work with the local companies on marketing and promotional activities.

Step 4: After one or two years of experience in the Moscow market, seek partners in other regions of Russia.



ASHRAE & BIG-RU

In March 2006, ASHRAE and BIG-RU signed an agreement allowing BIG-RU to translate and publish the BACnet standard (ANSI/ASHRAE Standard 135-2004, *A Data Communication Protocol for Building Automation and Control Networks*) in Russian for printed and CD versions.

The translated standard will form the basis for a Russian national standard for building automation. BIG-RU's main goals are to promote BACnet within the Russian building automation market and to help its members secure viable business relationships in Russia.

Step 5: After two or three years of brand presence in the market, establish a branch office and improve coordination with local partners to set up a network of sales, technical support and brand name promotion.

BACnet's Prospects in Russia

The outlook for BACnet in the Russian market is promising because customers (building owners, consultants, developers and construction companies) already share common knowledge about open systems and interoperability. Owners want to have flexible and expandable buildings that can adapt to future change. This goal is attainable through the use of BACnet. In addition, the use of an open standard gives owners the chance to benefit from increased competition among vendors in the bidding of mechanical system controls. Another positive for BACnet is that it is now recognized as an international standard, ISO 16484-5. Many high-tech building projects in Russia are being designed by prominent European design bureaus, often a requirement of the Russian investors who have confidence in the Europeans' experience. The fact that BACnet is both an ISO and national standard throughout the Euro-

pean Union greatly increases the chances that it will be selected for Russian projects as well.

BIG-RU's Role in Promoting BACnet in Russia

BIG-RU (www.bacnet.ru/en) was created in September 2005 to better promote the BACnet protocol both in Russia and in the Commonwealth of Independent States (the former Soviet republics). The idea of BIG-RU is to bring together all of the participants of the modern building automation construction process, including manufacturing companies, large system integrators (more than 100 employees), small system integrators (less than 100 employees), building owners, investors, developers, consulting companies, facility managers, individual members and non-commercial organizations.

BIG-RU wants to provide a neutral and independent venue where the members can cooperate efficiently on issues related to deploying BACnet. At the present time, BIG-RU is working hard with investors and construction companies to provide them with the latest practical information on BACnet implementation.

Another BIG-RU objective is the creation of a Web-accessible, vendor-neutral database of BACnet projects from around the world, allowing building owners, developers, investors, etc., to find project details based on geographical location, building type (office buildings, hotels, hospitals, airports, etc.) and perhaps other criteria, tailored to their exact needs. The ability to learn about real-life BACnet projects should help to stimulate potential users to ask for BACnet on their own projects.

Finally, BIG-RU has begun publishing a Russian language newsletter, "Building Automation in Russia," describing what is happening in the Russian market. Its initial circulation is 20,000 copies, and it is being distributed free of charge to Russian specialists in BAS and HVAC. Beginning in 2007, BIG-RU plans to start publishing a special quarterly edition of the bulletin in English.

Russian BACnet Projects

Of the 50 or so BACnet projects (mostly single-vendor) underway in Russia, the most ambitious and prominent multivendor project is, by far, the Federation Tower. Intended to serve as the centerpiece of the renovation of central Moscow, the height

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of the Federation Tower complex will be 354 m (1,161 ft) (448 m [1,470 ft] including the spire) and, when complete in 2008, it will be the highest building in Europe. The complex will consist of two towers with a common foundation and podium.

The taller of the towers will house luxury office space while the smaller tower will provide 200 apartments. Mechanical rooms will occupy seven floors in Tower A and five floors in Tower B.

The building automation system (BAS) will be hierarchically divided into management, automation and field levels. The management level servers and workstations provide centralized monitoring and operation of all of the different systems that will be integrated into the BAS. Workstations will be deployed in the engineer's and facility manager's offices.

The automation level consists of distributed processing networks based on direct digital control units. All of the communication between the management and automation level systems will be over a gigabit Ethernet fiberoptic TCP/IP backbone and will use BACnet/IP. Specialized fieldbus systems will be deployed for smoke control, sunshade and individual room automation. The fieldbus protocols are not required to be BACnet. However, in such cases BACnet gateways will be required.

Since the project is being built in stages, with Tower B to be completed first, the system has been designed with future expansion in mind. The addition of the monitoring and control functions for the mechanical and electrical equipment in Tower A will not affect the initial system architecture. BACnet/IP will be used for all information transfer between the Tower A and B building automation systems. The bid process was specifically designed to allow for the possibility of different building automation systems in the two towers, but with a seamless BACnet bridge between them. This was done to encourage healthy competition throughout the project and BACnet was chosen to give the building owner future flexibility.

Conclusions

The thriving Russian economy is creating an excellent environment for building automation companies, particularly for companies offering BACnet products. Russian consumers are becoming more mindful of the benefits of open systems and the resulting interoperability that are the hallmarks of the BACnet standard.

BIG-RU, for its part, is attempting to build bridges between the BAS manufacturers, system integrators and building owners. The association's work with the Federation Tower's construction company was instrumental in its choice of BACnet as the unifying protocol throughout the project and shows that such efforts at promoting BACnet can be successful.

BIG-RU has many ambitious plans. In 2007, for example, it plans to host an "International BACnet Conference and Exposition" in Moscow. This could be a great opportunity for American companies and others to get a good look at the Russian BACnet market. ●

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