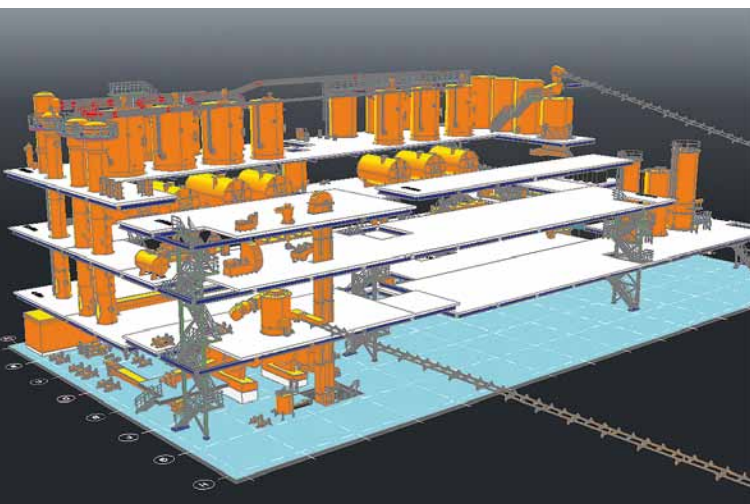
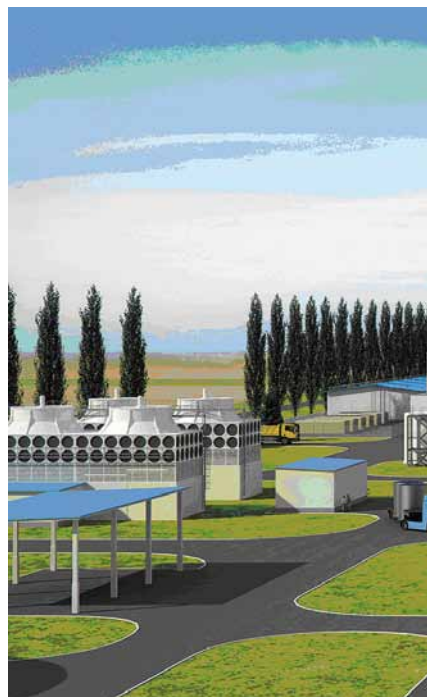


New refinery for Uzbekistan



*3-D plan of the
production building*



Because of its landlocked geographic location, the Republic of Uzbekistan is a country that has to go to great lengths to meet the sugar demand of its population. First plans to develop a national sugar industry date back to the time when Uzbekistan became an autonomous republic. In 1998, JSC Khorazm Shakar started to operate its own sugar factory in the Khorezm Province, which was originally planned for a capacity of 3,000 t of sugar beet per day. Since the factory could not be supplied with sufficient raw material, it was converted to sugar production from imported raw sugar after one campaign. At a capacity of 1,000 t/d of raw sugar, this refinery meets approx. 50 % of the country's sugar demand. The remaining 50 % still have to come from imported white sugar at the moment, which has led Khorazm Shakar to submit a proposal to the Uzbek government for the construction of a second refinery.

In the years 2013 to 2015, the government is going to invest substantial capital in developing the infrastructure of a special economic zone in the Angren region near Tashkent, which has also

been earmarked as the location for the new refinery. The role of investor and future plant operator has been assigned to the newly founded company FE LLC Angren Shakar.

In view of earlier long-standing business relationships, Khorazm Shakar and Angren Shakar asked BMA to explore the possibilities of a collaboration in this refinery project. A basic concept for a refinery with a capacity of 1,000 t of raw cane sugar per day that BMA AG prepared in close collaboration with its new subsidiary BMA Russia, and which takes into account the latest technical standards and cost efficiency, formed the basis for all further steps that had to be taken for preparation of the project.

In summer 2012, the investor and BMA signed an agreement for providing the essential engineering services for the refinery. The engineering for the project will be a real joint venture between Uzbek, Russian and German companies. The technological plant elements of the refinery, including machines and apparatus, pipelines, and electrical and automation systems, will be

Artist's impression –

overall view



planned by BMA, together with BMA Russia and BMA Automation. Since BMA can rely on vast experience with projects of this kind, the company will also be in charge of construction planning and the structural steelwork for the most important sections of the Angren Shakar refinery. An agreement has been signed with OOO "SU - 255" Voronezh, Russia, who will act as subcontractors for construction planning.

In view of the approvals and permits that have to be obtained for planning operations in Uzbekistan, an Uzbek company has been assigned the function of general planner for the refinery and planner for the non-technological elements. In October 2012, the first construction site preparations could be made already. As part of its construction planning services, BMA will also be in charge of supervision and of commissioning the architects to carry out the performance evaluation.

In parallel with these preparations, the investor awarded the first contracts for the supply of plant components. Purchase orders are generally sent

out according to the time schedule and to ensure that the equipment will be available on site when needed.

By January 2013, BMA had already received an order for the supply of the most important pieces of equipment in the main production building, comprising:

- Raw sugar melting equipment
- Apparatus and filters for liquor filtration (supplied by Putsch)
- 3 BMA falling-film evaporators
- 7 BMA vacuum pans (50 t, 75 t)
- 7 massecuite receivers (55 m³, 73 m³)
- 6 B1750 batch centrifugals
- 4 K2300 centrifugals, with the necessary distribution mixers
- 1 sugar drying and cooling plant, with a combined drying/cooling drum
- Heat exchangers and pumps for the main process

Harald Veleta