

Churapcha State Institute

Recreational Facility

The Challenge

Russia is well recognized for its strength and success in competitive sports, a tradition that has its roots in educational institutions like Churapcha State Institute of Physical Arts & Sports. The campus, established in 1999, is located in the eastern part of the country in the Sakha Republic and is the only higher education center that specializes in the development of Russian national sports.

Given its remote location in a harsh climate, where temperatures in January average -52 degrees Fahrenheit (-46 Celsius), energy use and its reliability are critical issues for the school. Working with DV Energy, Capstone's exclusive distributor in Russia, school administrators determined that an on-site Combined Heat and Power (CHP) energy center would be a highly effective solution, not only in providing reliable and continuous electrical power for the expansive campus, but also in significantly reducing energy costs and lowering emissions.

The Solution

The new on-site energy center features a Capstone C600S Microturbine package, fueled by high-pressure natural gas. At the time of installation, gas boilers were also installed to provide heating and allow for maximum benefit of the CHP configuration, including dramatically improved energy efficiency.



Having applied the Capstone system in our new CHP station, we became independent from the grid power, which often fails. Secondly, as we now produce our own heat power, we significantly reduced heating costs."

— Facilities Manager at Churapcha State Institute of Physical Arts and Sports

Power Profile

Customer

Ministry of Sports of Russia for Churapcha State Institute of Physical Arts and Sports

Location

Churapchinski District, Sakha Republic, Russia

Commissioned

December 2020

Fuel

High Pressure Natural Gas

Technologies

C600S Microturbine Package

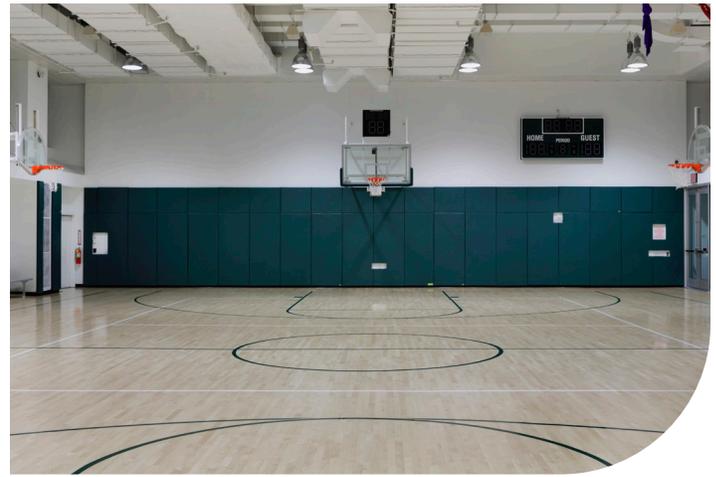
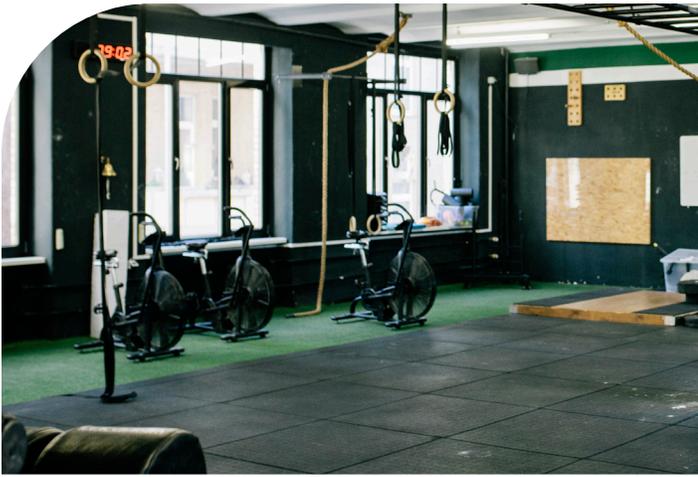
Capstone Green Energy

Distributor

DV Energy



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The C600S Microturbine package covers 100% of the electricity needs of the Institution. Therefore, the utility operates in island mode while still connected to the grid via the main switch. The Institution also disconnected from the central heating system, making them more reliable and independent in heating.

The scalable power station includes a five-bay microturbine enclosure, which allows for future expansion up to one megawatt (MW).

The Results

Most notably, the system has allowed for annual energy cost savings of roughly 24 million RUB (\$325,680 USD), allowing the institution to invest funds in other essential programs. The savings have been achieved through overall energy efficiency, which can reach up to 90%, and lower heating expenses—a tremendous benefit given the subarctic climate.

With low maintenance being a key feature of Capstone microturbines, the remote campus experiences less downtime and greater power availability, plus peace of mind that any repair needs will be minimal over the life of the system.

The Sakha Republic is a part of the world that is seeing first hand the impact of climate change. By investing in an energy system that lowers the emission of pollutants and greenhouse gases, Churapcha State Institute of Physical Arts & Sports is taking steps to reduce their impact on the community and environment around them.

“Having applied the Capstone in our new CHP station, we became independent from the grid power, which often fails. Secondly, as we now produce our own heat power, we significantly reduced heating costs. Thanks to DV Energy, we hope to see greater savings when we will finish tying all

our objects to the new power facility. During the microturbine operation, there were no complaints from our side and we hope that there will be no problems in the future. It is also gratifying that the Capstone microturbines can also be attributed as environmentally friendly, which is very important in the pristine nature of the Far North,” said the Institute’s Facilities Manager.

Capstone C600S Microturbine



The C600S provides up to 600kW of electric power and contains three air bearing microturbines.