CLIMATE SCREENS
CRUCIAL TO NEW GREENHOUSE

A new 22 ha greenhouse complex in the East of England features the UK's largest heat pump installation, showcasing how low carbon energy can facilitate sustainable high-tech food production. Climate screens are a crucial element in enabling the use of this renewable heat source, and also preventing light pollution from the supplementary lighting system.

The greenhouse at Chittering, between Ely and Cambridge, features four blocks of 5.5 ha each, connected by a central corridor area. The project which was financed and purchased by Greencoat Capital was managed by AGR Renewables and delivered in just 53-weeks by Bom Group and Clarke Energy. Since early March, all four blocks have been occupied by growers, growing cucumbers and tomatoes, with the first cucumber crops now being harvested.

"We were the Engineering, Procurement and Construction contractor for the project, and Bom Group built the greenhouse and infrastructure, including heating, irrigation, lighting, electrical work and screens, while Clarke Energy provided the Energy Centre," explains Mark Pollard, project director at AGR Renewables Group. "The facility is heated 33 MW of water-source heat pumps, which draw their heat from a series of local reservoirs, making it the largest heat pump installation in the UK." With the current focus on energy prices, access to onsite renewable energy is a key benefit for the project, but it does present some challenges.

"Because of the temperature of water produced by the heat pumps, we are working off a pipe temperature of 50-55°C, which is somewhat lower than normal," explains Martin van Zeijl of Bom Group. "Although almost all new greenhouses have some screening, in this case good screens were important to maintain the temperature in greenhouse as we need to keep the lower temperature constant and cannot just add more heat to compensate for heat loses."

Energy savings with maximized production thanks to the highest light transmission.

LUXOUS LIGHT FR: The maximum light transmission, even when not in use, thanks to the smallest bundle sizes.

Two of the 5.5 ha blocks also feature supplementary lighting, and it was a planning condition that light pollution would be controlled. It was therefore necessary to consider light pollution screens as well as thermal screening.

When it came to supplying the screens, Ludvig Svensson was the obvious choice says Martin. "Our co-operation with Svensson goes back 40-years," he explains. "We have been involved in screen development since the 1970s and together have introduced a number of innovations."

Ludvig Svensson Account Manager Leon Strik explained that single layer LUXOUS LIGHT FR screens were chosen due to their combination of good heat retention and high levels of light transmission. "LUXOUS LIGHT FR is designed for optimal moisture permeability its heat retention stabilizes temperatures – minimizing dew and risk of fungal diseases. It is a light and flexible screen with a smaller overall bundle size, allowing crops to receive more light when the climate screen is not deployed."

To prevent light pollution and comply with planning conditions, OBSCURA 9950 FR W screens were installed. "The white underside of the screen increases light intensity within the greenhouse, while the white upper side of the screen helps to prevent heat build-up," explains Leon. "When the vents are opened above the screen, its porous structure allows moisture and heat exchange."

"It has been an excellent project from start to finish," concluded Mark. "We are actively looking for new greenhouse projects in the UK and will be working closely with Bom and Svensson to bring them to completion." ■