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Approaches aiming at providing sustainability in design of university campus electricity energy supply and distribution

Hasan Baylavli and Süleyman Altan
Hittite University, Turkey

Effect of energy failures may vary according to sectors; manufacturing, hospitals, polyclinic services, call centers, shopping markets. Point of view about energy failure is certainly different for all of the above. In university education, public services, scientific researches and applications, national and international educational, social, cultural and sportive activities, etc., are being performed. In Hittite University campus, energy infrastructure planning, apart from above services was considered that labs in which high priority scientific studies which require continuity and especially after establishment of medical faculty, health services and many others should also be taken into consideration. In campus electricity energy planning, common point for each unit is continuity. We handled electricity energy planning under three main headlines: Physical design, production supply and, distribution and support systems. For continuity, from this point of view, we defined the risks and our approaches for each of them. In energy supply trigeneration system was planned so that it will primarily operate in case of urban network failure risk. There are some different cases and smart rules for each case. There is also categorization of the loads priority and load disposal system is designed. In case the energy consumption of campus is more than what is produced by gas generator when gas generator is online, additional energy will be supplied from urban network. In case of urban network failure again diesel generators and load disposal automation will be online. To overcome failures that may be occurred, system project was designed with approaches aiming at maintaining continuity. The aim was to prevent failures with a percentage of 95% and to reduce the area of effect in the campus below a percentage of 5% and accordingly priority was given to continuity and quality of education and scientific activities.

Biography

Hasan Baylavli is currently working as a Research Assistant in Construction Technology and Building Audit Programs at Hittite University in Çorum, Turkey. He has completed his Associate degree program from Gazi University, Çorum Vocational School Construction Program, graduated from Pamukkale University, Faculty of Engineering, Department of Civil Engineering and completed his Master's degree in Eskişehir Osmangazi University, Faculty of Engineering, Department of Civil Engineering Building Materials. His research interest includes self-compacting concretes, fiber-reinforced concretes and recycling and also in the fields of university campus planning, green campus and energy-efficiency in buildings.

baylavli@gmail.com

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