

# THERMOGRAPHY ASSESSMENT OF ENERGY EFFICIENCY OF BUILDINGS, INDUSTRIAL PLANTS AND HEATING PLANTS

Zoran STEVIC, Mirjana RAJCIC-VUJASINOVIC,  
Ilija RADOVANOVIC, Misa STEVIC



# INTRODUCTION

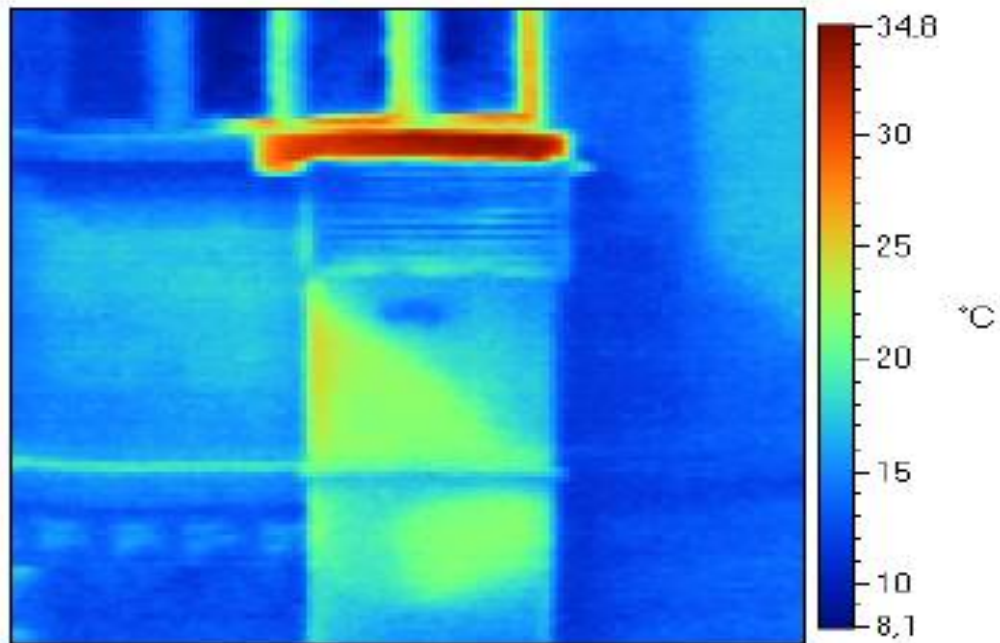
- › Today's technology allows obtaining high-resolution thermographical images with numerical and graphical display of the temperature of each point with an error of less than  $0,1^{\circ}\text{C}$  [1,2]. Temperature range, graphical resolution as well as the temperature resolution and high-performing supporting software enable the monitoring of a wide range of objects and processes, ranging from the finest electronic components to the large boiler plants.
- › As contactless temperature measurement method, the infrared thermography allows the user to discover potential faults without the need to terminate the production process, and without costs that are directly connected to this termination.



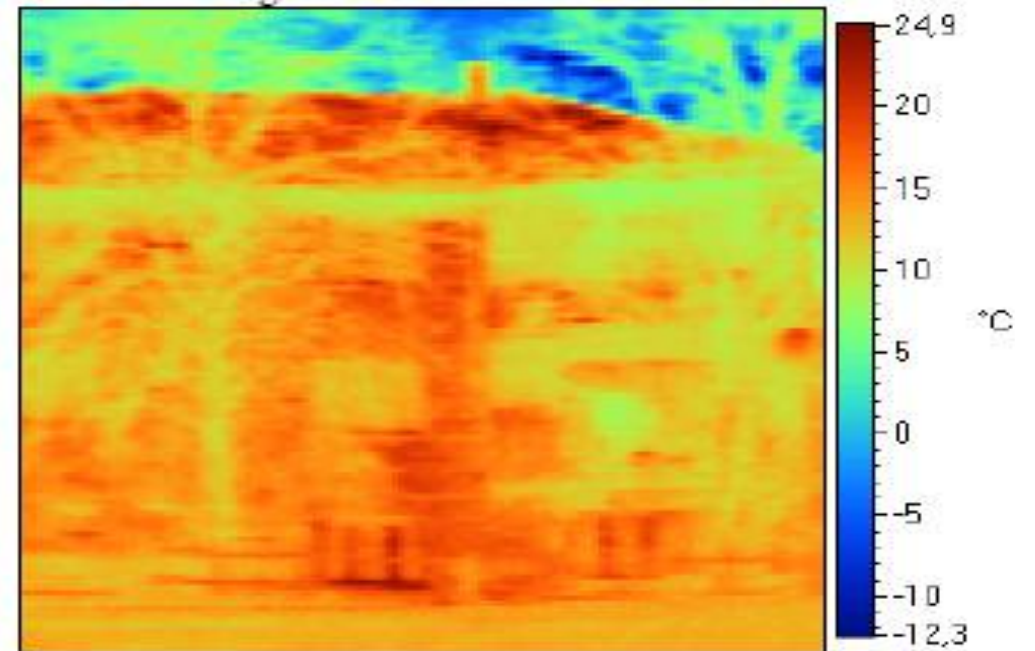
# INTRODUCTION

- › Experiences of manufacturers and users of the thermographical equipment shows that just by one recording per year, the number of plant failures is decreased by about 15%, by two recordings per year the number of failures decreased by 55% and by three IC thermograohical recordings per year, over 70% failures are eliminated.
- › All the accessible places, which are under the load, are recorded by the IR camera. Thermographical footage shows the temperature of the elements in the video, as well as the ambient temperature, pointing indirectly at the problem. The place with the highest temperature can be easily detected on the footage.
- › Immediately after the recording, the camera shows the warmest spot on the tape and its temperature, so that during recording on site, the most endangered places can be spotted.

# RESULTS

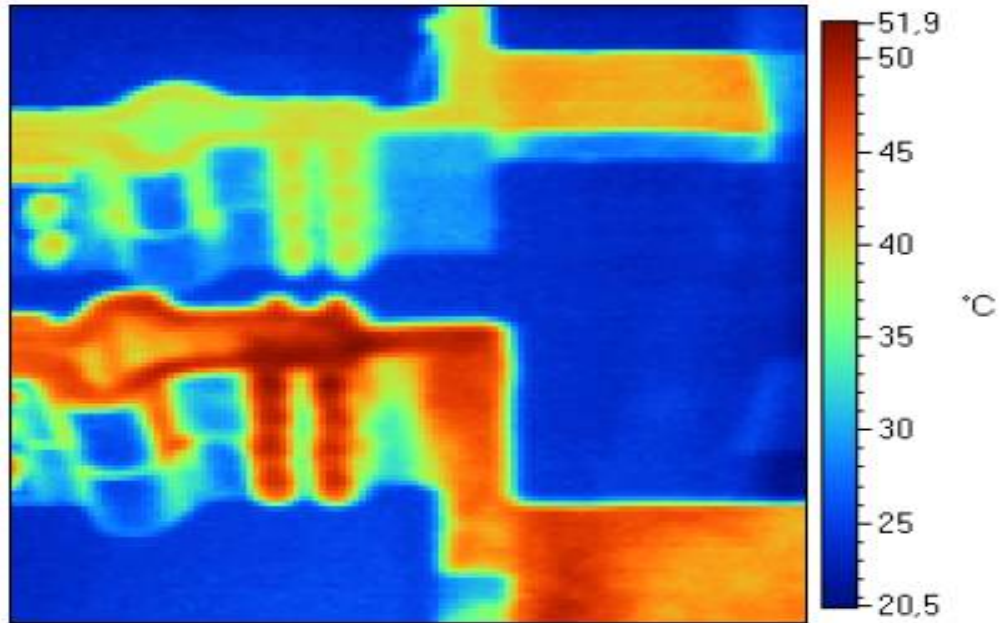


The window sill radiates heat

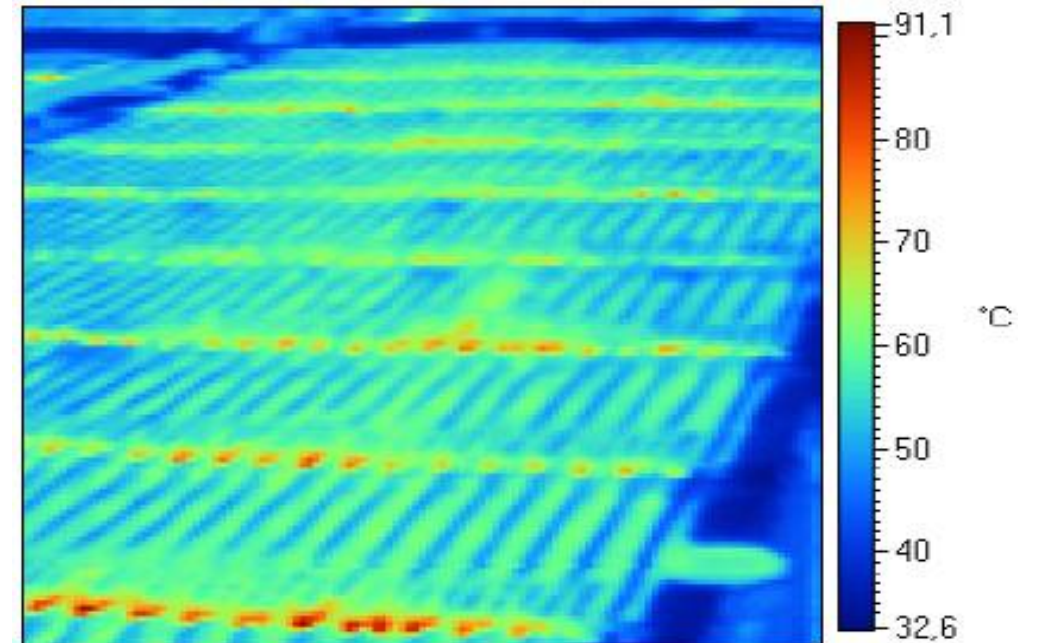


The building without roof isolation

# RESULTS

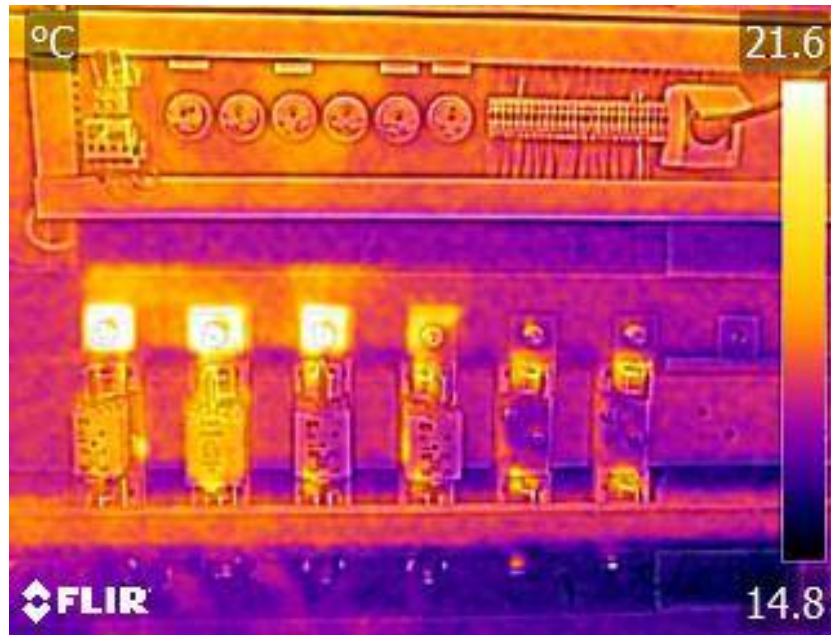


Output lines of rectifier for electrolysis of copper

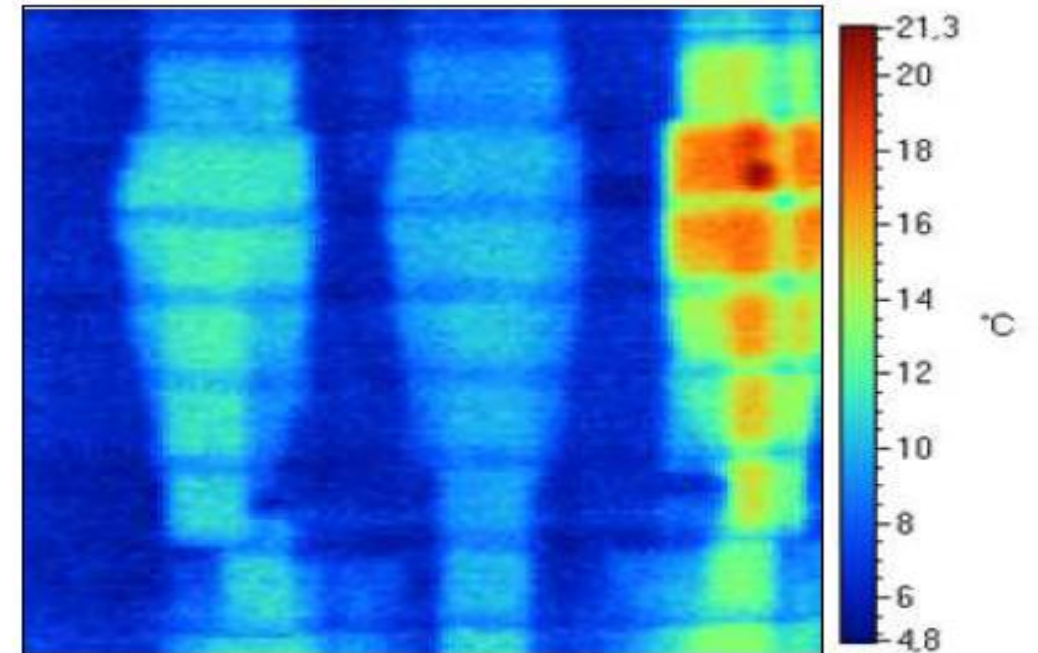


Cells for electrolytic refining of copper

# RESULTS



Fuses box NN

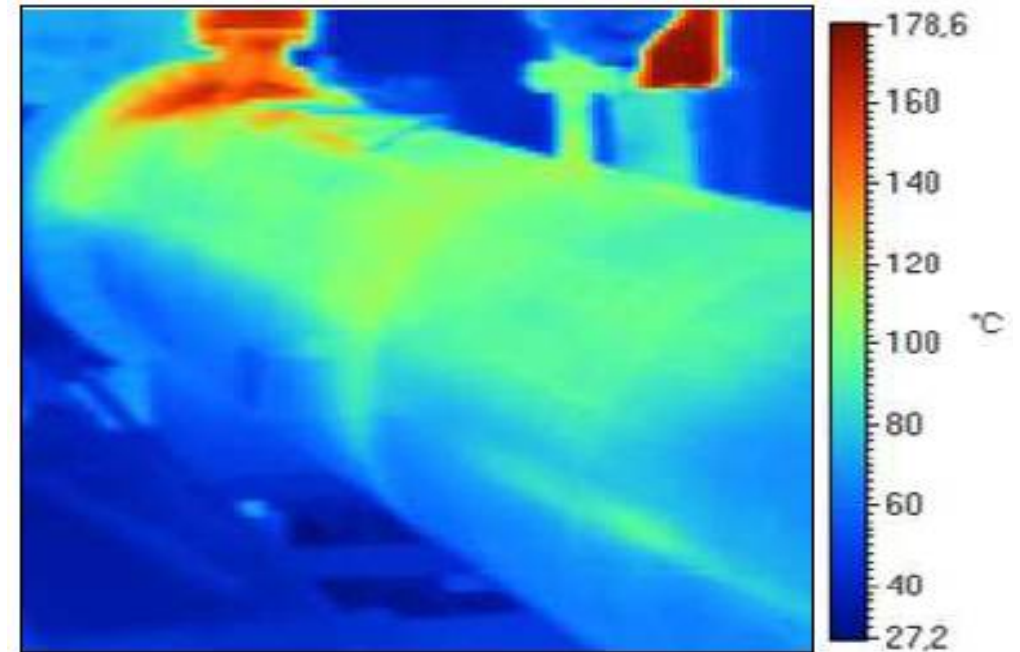


Power switch at Dovod 3 of high voltage plant 5,25 kV

# RESULTS



Heat losses following the poor isolation of the boiler door



Heat exchanger



# CONCLUSION

- › The presented thermographical images from different plants and facilities clearly show widespread use of modern thermographical equipment in both the preventive maintenance and in energy efficiency, and therefore, they reduce production costs and eliminate critical points.





# Thanks for watching!