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## LOCAL AUTONOMOUS SOURCES OF ENERGY SUPPLY FOR EMERGENCIES

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### Abstract

*Dynamic modes of operation of a local autonomous energy source with the connection of the main typical consumers of electricity are investigated. The overload capacity of a local autonomous power source, formed from electrical equipment of other functional purpose on the basis of an asynchronous machine with capacitive self-excitation, is determined. The conditions*

for the implementation of "favorable" switching during startup of motors of comparable power have been established and the expediency of using start-up systems and systems of pre-start boosting excitation of the electric generator in the autonomous power supply source has been substantiated. References 6, figures 3, tables 2.

**Key words:** autonomous power supply, starting system, generator with self-excitation.

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## References

1. Roos F. Electricity Supply Reliability: Evaluation of Improvement Solutions for Existing Electricity Networks. Lund: Lund Institute of Technology, 2005. 113 p.
2. Bevere L. Natural catastrophes and man-made disasters in 2018: secondary perils on the frontline. Zurich: Swiss Re Institute. Sigma. 2019. No 2. 36 p. URL: [https://www.swissre.com/dam/jcr:bc66752a-da35-4645-ad46-c9d1f96a8fd9/lucia\\_bevere\\_webinar\\_natural\\_catastrophes.pdf](https://www.swissre.com/dam/jcr:bc66752a-da35-4645-ad46-c9d1f96a8fd9/lucia_bevere_webinar_natural_catastrophes.pdf) (accessed 31.01.2020)
3. Farah P.D. Sustainable Energy Investments and National Security: Arbitration and Negotiation Issues, *Journal of world energy law and business*. 2015. Vol. 8. No 6. Pp. 34-49. DOI: <https://doi.org/10.1093/jwelb/jwv036>
4. Halkos G., Managi M., Tzeremes N. The Effect of Natural and Man-made Disasters on Countries Production Efficiency. *The Journal of Economic Structures*. 2015. No 4(1). Pp. 1-13. DOI: <https://doi.org/10.1186/s40008-015-0019-2>
5. Zagirnyak M., Zachepa Iu., Chornyi O., Chenchevoi V. The autonomous sources of energy supply for the liquidation of technogenic accidents. *Przeglad Elektrotechniczny*. 2019. No 95(5). Pp. 47-50. DOI: <https://doi.org/10.15199/48.2019.05.12>
6. Zagirnyak M., Zachepa Iu., Chenchevoy V. Estimation of induction generator overload capacity under connected direct current consumers. *Acta Technica*. 2014. Vol. 59. No 2. Pp. 149-169.

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