

Emissionen nach dem Aggregatzustand in der Menge emittierender Stoffe pro Zeiteinheit unterteilt.

Der Prozess des Aufbaus und der Entwicklung eines spezifischen Ökosystems ist durch gesetzmäßige Veränderungen der ursprünglichen Merkmale von natürlichen und technischen Geosystemen gekennzeichnet.

Bei der Untersuchung reversibler und irreversibler Abbauprozesse in regionalen Ökosystemen werden Methoden der mathematischen Modellierung von Zufallsprozessen eingesetzt.

Im probabilistischen Sinne stellt die Modellierung von Degradationsprozessen von Ökosystemen ein transformierter Informationsprozess im Zustandsraum des Ökosystems dar.

Übrigens im mathematischen Sinne besteht die Aufgabe der Systeme der technischen und stofflichen Versorgung und Verwaltung der natürlichen und technischen Geosysteme darin, dass anthropogene Veränderungen durch radikale Umweltschutzmaßnahmen innerhalb der Grenzen des standardisierten Bereichs liegen.

LED MARKET: MAIN TRENDS AND FORECASTS

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The palm in the light decisions of the future will belong to the LEDs

The success of business both in Ukraine and abroad in many respects now depends on the search and application of innovative technologies and solutions. And, of course, in this issue on the first place go those decisions that allow you to reduce the costs of companies. Managers and business owners increasingly pay attention to energy-efficient technologies. At the same time, LED lighting systems are increasingly popular every year, which have a number of undeniable advantages compared to lighting based on traditional light sources.

The key among them are:

- Energy efficiency. Modern high-quality LED solutions save up to 80% of electricity and last much longer (about 50 thousand hours - more than 12 years).
- Long service life of LED light sources - up to 15-25 years depending on the technology.
- Environmentally friendly lighting.
- The cost of ownership of LED lighting equipment is lower than for traditional light sources. So, the cost of acquiring the latter is about three times less than the LED fixtures.
- The compact size of LEDs .

It is noteworthy that LED technology allows not only to save money, but also to increase profits. Here are just a few examples.

Increase in sales in outlets

According to the research of the European Trade Institute (EHI) and one of the German supermarkets, the application of lighting scenarios allows to increase the sales of certain types of vegetables and fruits by 4.7%, and profit by 3.5%. In addition, due to the creation of a light accent at any particular place in the trading floor, it is possible to increase sales in the outlet by 20-60%.

Increase the investment attractiveness of the property

An audit of one of the shopping centers in the US with 120 parking spaces lit up and 50 wall lights showed that the owner can reduce operating costs by about 20% by replacing light sources with LED lights. At the same time, the introduction of energy-efficient lighting will lead to an increase in the initial value of commercial real estate by \$ 600 thousand, that is, investing \$ 150 thousand will result in almost 400% return on investment.

All this motivates the business to make its choice in favor of LED lighting.

Main trends of the LED market

Despite the absence of significant changes in the economies of many countries, the LED market continues to grow. So, annually in the market of LED lamps there is an increase of at least 40%. According to experts' forecasts, by the end of 2018 its volume will be € 37 billion, and by 2020 - € 64 billion.

If we talk about the use of LED lighting solutions in conjunction with control systems in the city, their use allows you to reduce the level of power consumption to 80%. For example, the Philips CityTouch solution, with which you can control all connected megalopolis lights remotely, is already in use in Buenos Aires (Argentina), Rotterdam (Netherlands), Salobre (Spain), Valencia (Spain), several districts of London and Prague. And since 2015 the decision has earned and in Los-Angeles.

References

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MODELLIERUNG VON ÖKOLOGISCHEN PROZESSEN

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Die Entwicklung der Produktivkräfte hat derzeit ein solches Ausmass angenommen, dass sowohl traditionelle als auch moderne Industrie bedeutende, komplexe Auswirkungen auf die Umwelt hat, die das globale ökologische Gleichgewicht auf der Erde erheblich verändern können.