По результатам расчета себестоимости затрат на получение продукта в зависимости от объема продукции следует, что уменьшение времени экстрагирования растительного сырья в аппарате непрерывного действия приводит к увеличению производительности, однако при этом коэффициент извлечения биологически активных веществ уменьшается, что приводит к увеличению норм расхода и возрастания затрат на сырье.

Увеличение производительности аппарата приводит к снижению суммарных производственных затрат, что соответствует оптимальному процессу экстрагирования растительного сырья в аппаратах непрерывного действия.

Результаты проведенных исследований использованы при отработке режимных параметров и освоении опытных образцов установки, на которой установлены оптимальные технологические параметры процесса экстрагирования растительного сырья в аппарате непрерывного действия. Результаты испытаний подтвердили эффективность работы аппаратов непрерывного действия для экстрагирования растительного сырья и высокое качество получаемого продукта.

PROSPECTS FOR THE DEVELOPMENT OF ENERGY MANAGEMENT IN RUSSIA

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Problems of energy efficiency and resource conservation are the most relevant in the age of information technology and innovation. Modern Russia is a big industry with huge plants located throughout the country, from North to South, from East to West. Such industries as fuel, electric power, ferrous and nonferrous metallurgy have been well-developed in Russia. Russia currently pays great attention to the development of information technologies, developing technical innovations. It also conducts research in the field of nanotechnology. Therefore the question of environmental protection, environmental safety, natural resources scarcity, environmental management becomes very urgent.

This article focuses on the development of an energy management system in Russia as one of the most effective ways to solve the problems of energy efficiency and resource conservation in the country. The activities of foreign and Russian companies on implementation of energy management system and the general statistics on the implementation of standard GOST ISO 50001:2011 «Energy Management System. Requirements with guidance for use» have been analyzed in the article.

Using energy efficiently helps organizations save money as well as helps conserve resources and tackle climate change. ISO 50001 supports organizations in all sectors to use energy more efficiently, through the development of an energy management system.

Energy Management System (SEnM) is a set of interrelated and interacting elements that are based on energy policy, objectives, processes and procedures, and to meet the goals [1]. The main activity in the field of energy management is to optimize energy costs through continuous improvement of the efficiency of production technology and processes related to the development, support and management processes [2]. Like other ISO management system standards, certification to ISO 50001 is possible but not obligatory. Some organizations decide to implement the standard solely for the benefits it provides. Others decide to get certified to it, to show external parties they have implemented an energy management system.

Successful example of introducing SEnM is a Chinese company Delta Electronics, which manufactures advanced energy-saving equipment. Implementation of ISO 50001 on energy management system in the region Dongguan allowed to reduce the energy consumption by 10.51 million kWh at constant production capacity in the period from January to May 2011 compared with the same period in 2010[3]. This is equivalent to saving of 13 million dollars.

Russia's experience in the implementation of ISO 50001 is small, but now many companies in the electricity sector have an active policy aimed at the creation of an energy management system in accordance with ISO 50001. One of the most prominent representatives of having a successful experience of implementing the standard, is TNK-BP Holding (Tyumen oil company – British Petroleum) – one of the largest oil companies in Russia. In 2011, as a result of introduction of the system energy consumption per ton of oil decreased by 8.8%, while the volume of oil refining increased by 2% compared with 2010. Effect on the functioning of SEnM amounted to 161 million dollars. Energy savings amounted to 1.222 billion kWh. [2]. Thus, for example, foreign and Russian companies can benefit from creating an energy management system, compliance with the requirements of ISO 50001, which leads to raising of efficiency, reduction of expenses, resource saving and consequently, increase in profits.

It should be noted that ISO 50001 is gaining popularity both in Russia and around the world. The number of companies adopting this standard, increased abruptly in 2013, as can be seen from the review of the issued certificates ISO. This annual study shows the number of issued standards for quality management systems. Summary statistics is shown in Table 1 [3].

Table 1 - Statistics of issued certificates ISO

Standard	number of certificates in 2012	number of certificates in 2013	evolution	evolution, %
ISO 90001	1 096 987	1 129 446	32 459	3
ISO 14001	284 654	301 647	16 993	6

ISO 50001	2 236	4 826	2 590	116
ISO 27001	19 620	22 293	2 673	14
ISO 22000	23 278	26 847	3 569	15

The table above shows that in 2013, the number of issued certificates by the energy management system was to more than doubled, to 116%, compared to 2012. Thus, a relatively new standard ISO 50001, created in 2011, is gaining popularity and becoming increasingly important. Russia has a growing number of companies to implement this standard.

At the moment nearly 130-140 companies are implementing this standard in Russia. Basically it is the market leader. To solve the problem of energy efficiency and resource conservation it is necessary to create a meaningful system of energy management at every enterprise according to the requirements of ISO 50001: 2011. Therefore, now experts focus on the experience of foreign companies that have illustrated a strong example of implementation of ISO 50001

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СИСТЕМА ЭКОЛОГИЧЕСКОГО МЕНЕДЖМЕНТА

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Стремление к экологической безопасности производства рассматривается сегодня как неотъемлемый элемент стратегии развития предприятия. Наличие экологического сертификата характеризует организацию, как надежного партнера, повышает престиж и конкурентоспособность.

Внедрение системы экологического менеджмента дает предприятию следующие преимущества:

- поддержание хороших отношений с общественностью и местным населением;
- улучшение имиджа компании и увеличение ее доли на рынке;
- упрощение процедур получения разрешений и лицензий;
- содействие разработке и принятие участия в решении экологических проблем;
- уменьшение риска возникновения инцидентов в рамках экологической безопасности;