

ABB AS A PART OF THE ENERGY EFFICIENCY MOVEMENT: LITERATURE REVIEW

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Анотація

У статті наведено огляд статей АБВ в галузі інновації та енергоефективності. Проаналізовано 12 джерел. Відзначається, що АБВ є лідером в галузі енергоефективності та автоматизації, а її дослідження та досягнення в галузі технологій дозволяють енергетичним, промисловим і транспортним компаніям підвищити свою продуктивність, зменшуючи вплив на навколишнє середовище.

Ключові слова: енергоефективність, корпорація АБВ, скорочення споживання електроенергії, інновації, енергоспоживання, огляд статей

Abstract

The paper provides an overview of ABB's articles on innovation and energy efficiency. 12 sources were analyzed. It is noted that ABB is a leader in energy efficiency and automation and that its research and advances in technology allow energy, industrial and transportation companies to increase their productivity while reducing environmental impact.

Keywords: energy efficiency, ABB Corporation, power inputs reduction, innovation, energy consumption, articles review

One of the most important tasks of energy management, a necessary condition for its successful sustainable development is the process of providing all areas of Ukraine's economy with different types of energy and fuel. The formation and implementation of Ukraine's energy policy is an important component of its activities on the way to fulfilling this task, as well as further European integration. [1]

Democratization of Ukrainian society, integration into the European and world economy, liberalization of the economy put forward the latest rules to the content, quality of government in Ukraine. Effective activity of the Ukrainian government becomes absolutely impossible without a clearly formed, acceptable for society as a whole strategy to achieve the priority goals of state, including economic and energy policy.

In EU countries, this strategy is the result of a public policy-making process, and the preparation of documents on this policy in the form of green and white papers has long been a traditional tool of government, which ensures a high level of efficiency, openness, consistency and predictability.

Providing all spheres of Ukraine's economy with various types of energy and fuel is one of the most important tasks of the management system, economic policy of the country, a necessary condition for its successful and harmonious development. The formation and implementation of Ukraine's energy policy is an extremely important component of economic policy in general and further European integration.

Only successful complementarity of economic and energy policies will achieve the harmonious development of the country in terms of European integration. With the limited energy resources, the problem of their efficient use, geographical and other types of diversification of energy products in Ukraine is acute.

Diversification of imports and exports of energy products will also contribute to increasing the level of energy and, consequently, economic security of Ukraine through separation from the main supplier of these resources – the Russian Federation. Improving energy supply will contribute to the creation of conditions for the harmonious development of Ukraine's economy; increase the efficiency of energy use and a higher level of economic and national security of Ukraine in terms of European integration.

ABB [2] is a leader in the field of power engineering and automation. ABB technologies enable energy, industrial and transportation companies to increase their productivity while reducing their negative impact on the environment. ABB operates in nearly 100 countries and employs approximately 135,000 people. ABB started operating in Ukraine in 1992. Today, more than 100 employees work in ABB offices in Kiev, Zaporizhzhia and Lviv.

The issue of energy efficiency is extremely important for each individual enterprise, both from the point of view of saving natural resources and increasing competitiveness by reducing the share of energy costs in the total cost, and a vector direction for the development of our country as a whole.

Let's take a look at the latest achievements of this corporation.

ABB launches the world's fastest electric car charger. [3]

A well-known Swiss corporation, ABB, has designed a working prototype of a fast charging station designed to recharge the batteries of electric vehicles. ABB is a specialist in the field of electrical engineering and power engineering, so it is not surprising that the concern is striving to take its place in the electromobility industry and, most likely, with successful integration into the ABB electric filling station network, the company will be able to count on a strong position in this area.

“ABB's new Terra 360 is a modular charger which can simultaneously charge up to four vehicles with dynamic power distribution. This means that drivers will not have to wait if somebody else is already charging ahead of them. They simply pull up to another plug. The new charger has a maximum output of 360 kW and is capable of fully charging any electric car in 15 minutes or less, meeting the needs of a variety of EV users, whether they need a fast charge or to top their battery up while grocery shopping,” – stated in article.

ABB offers innovative integrated energy and asset management as Software-as-a-Service. [4]

ABB announced an easy-to-use SaaS (Software-as-a-Service) solution for customers around the world, providing specialized asset and energy management that can reduce operating costs by up to 40%.

“The new SaaS ABB Ability™ Energy and Asset Manager provides application-specific asset and energy management. Users can view and analyse data on facility performance and manage assets to optimize energy consumption in real time and improve overall site efficiency,” – says Andrea Temporiti, Head of Digital at ABB Electrification.

ABB Expands Range of BIM Models for Modern Energy Efficient Building Design. [5]

“Building Information Modeling is a smart 3D model-based process that helps architects, engineering and construction professionals to design, build and manage buildings and infrastructures.

ABB provides BIM solutions for a wide range of electrical distribution products to support different project phases. BIM stakeholders are able to easily add ABB equipment to construction projects and benefit from verified and structured data,” – as it is presented on the website of the company.

ABB, the global technology leader in industrial automation and energy solutions, regularly updates its BIM library to ensure that the energy design process for any building is efficient and error-free. It's a wide range of electrical distribution products.

ABB introduces a new method of project execution in industry – ABB Adaptive Execution Concept. [6]

ABB is implementing a new, flexible industrial project delivery method to help customers in the energy sector adapt to challenging market conditions. Capital costs are expected to be reduced by up to 40% and delivery times by up to 30%.

Harry Forbes, ARC Advisory Group, commented, “Services are the most critical factor and differentiator in today's automation market. A chronic challenge of capital-intensive projects is that the differing skill sets and objectives of equipment suppliers, EPC firms, and owner operators reduces their level of collaboration. This can cause serial workflows, end-loaded work, schedule delays, and cost overruns. That's all too common. ABB Adaptive Execution has taken a comprehensive information and change management approach not only to ABB's internal engineering processes and tools, but with a view toward supporting other project stakeholders, especially owner-operators and EPC firms. Furthermore, ABB extends this approach from measurement and automation to electrification.”

ABB expands small robot family with fast and powerful IRB 1300 for confined spaces. [7]

ABB is expanding its family of small six-axis industrial robots with the fast and compact IRB 1300, capable of quickly lifting heavy objects or irregular and irregular objects.

“The IRB 1300 is an exciting addition to our portfolio of small industrial robots and means we can now offer an even greater breadth of capability and performance”, said Antti Matinlauri, Head of Product Management for ABB Robotics. “We've designed the IRB 1300 to help our customers achieve new standards of speed and accuracy as they develop solutions to lift heavy, complex or irregular shapes, even in small workspaces.”

ABB introduced the new CT-C time relay series. [8]

“The CT-C range combines lower cost with higher value and performance by offering essential functions in a 17.5 mm housing, freeing up room in any control cabinet. The range includes 11 devices, offering both single and multifunctional types, with a time range from 0.05 seconds to 100 hours. Equipped with wide voltage ranges, CT-C time relays allow for use across a huge variety of applications worldwide,” – is written in the article.

The new series includes devices with the most requested features such as turn-on delay, turn-off delay, turn-on pulse, pulse generator and star-delta switching.

ABB launches ABB Ability™ Augmented Field Procedures to drive worker safety and efficiency across the energy sector. [9]

ABB has developed augmented reality technology aimed at digitizing the actions of a technician on site and improving the exchange of information between him and the central control room. The solution fully meets the needs of technicians on site, integrates field and distributed control systems, which increases safety, reduces human risks, and improves operational efficiency.

ABB SafeRing / SafePlus switchgear. [10]

ABB, the global technology leader in industrial automation and energy solutions, announces the supply of 40.5 kV SafeRing / SafePlus compact switchgear. It is a compact medium voltage gas-insulated switchgear for secondary power distribution in networks up to 40.5 kV, 630 A.

ABB Introduces New Smart Sensors. [11]

ABB will showcase new Smart Sensors for explosion-proof equipment at Hannover Messe 2020. The new product will expand the application range of ABB's next generation smart sensors for powertrain applications in hazardous areas.

ABB joins new global cybersecurity alliance for operational technology. [12]

The Alliance for Operational Technology and Cybersecurity will develop comprehensive guidelines for the cybersecurity of Operational Technology (OT) infrastructure.

“With complete 360-degree cybersecurity data-protection capabilities, ABB understands the critical importance of cybersecurity in systems and solutions for infrastructure and industry,” said Satish Gannu, Chief Security Officer, ABB & Senior Vice President Architecture and Analytics, ABB Ability™. “We are confident the OTCSA will deliver a framework for much-needed solutions, at a time when industrial customers live in a world of increasingly sophisticated threats, putting organizations at risk of potentially catastrophic losses.”

ABB launches ACS480 / ACS480 – general purpose drive. [13]

ABB introduced the ACS480 general purpose drive, a family of universal drives, to provide energy efficiency and high process performance in a variety of light industrial applications such as food, water and wastewater, handling and others.

ABB wins first order of software solution for the electricity balancing market system from Hitachi. [14]

ABB announced that Hitachi, Ltd. ordered the ABB Ability™ Network Manager Market Management System (MMS), a software solution for the market power balancing system. MMS consists of a set of advanced applications that support a wide range of market-related functions and modern IT infrastructure. The system will be implemented in accordance with the needs of the electricity balancing market, which TEPCO Power Grid, Inc. and Chubu Electric Power Co. develop on behalf of the nationwide Transmission System Operators (TSO).

To sum it up we can say that harmonious development of the economy is impossible without energy supply, which involves the formation of a complementary economic policy in the field of energy. Energy efficiency for Ukraine is also an opportunity to ensure its own energy independence by reducing its dependence on energy exports. According to experts, the comprehensive implementation of energy saving and energy efficiency measures in Ukraine will help reduce energy consumption by 45%. Investing in energy efficiency is a strategic approach that will ensure Ukraine's long-term competitiveness.

The modern energy sector is increasingly moving beyond national borders, the EU experience should be fundamental to the development of legal regulation of energy relations in the world, including Ukrainian, which are significantly influenced by the diverse interests of international law in the field of energy.

Energy efficiency is a comprehensive, integrated approach aimed at influencing energy consumption (including electricity) in order to reduce its volume, increase energy efficiency, taking into account the impact on the environment, security of supply, the level of distribution costs as a result reduction of energy consumption. Ukraine, despite having sufficient energy efficiency potential, has only just begun its path of energy efficiency development.

The chosen direction will ensure a sufficient level of energy (and hence economic) independence, improve the technical equipment of industry (by reducing energy costs), reduce production costs, increase the competitiveness of domestic producers in foreign markets, improve the investment attractiveness of the country and more.

ABB is a leading global technology company that energizes the transformation of society and industry to achieve a more productive, sustainable future. By connecting software to its electrification, robotics, automation and motion portfolio, ABB pushes the boundaries of technology to drive performance to new levels. With a history of excellence stretching back more than 130 years, ABB's success is driven by about 105,000 talented employees in over 100 countries.

ABB scientists and technologists are continually innovating a comprehensive range of products, systems and services that increase energy efficiency, reliability and productivity for our industrial, utility and infrastructure customers. [15]

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