Ministry of Education and Science of Ukraine
Sumy State University
Oleg Balatskyi Academic and Research Institute
of Finance, Economics and Management

SOCIO-ECONOMIC CHALLENGES

Proceedings
of the International Scientific and Practical Conference

(Sumy, November 3–4, 2020)

Sumy
Sumy State University
2020

330.3:005(063)
S62

Approved by the Academic Council of Sumy State University
(protocol № 5, 12 November 2020)

S62 Socio-Economic Challenges : Proceedings of the International Scientific and Practical Conference, Sumy, November 3–4, 2020 / edited by Prof., Dr. Vasilyeva Tetyana. – Sumy : Sumy State University, 2020. – 511 p.

Proceedings of the International Scientific and Practical Conference "Socio-Economic Challenges" are devoted to finding a systemic solution to multidisciplinary problems in the field of modern development, management, administration of various systems, corporate social responsibility, innovation management in various fields of environmental management.

For scientists, scientists, students, graduate students, representatives of business and public organizations and higher education institutions and a wide range of readers.

330.3:005(063)

TABLE OF CONTENTS P.

INVESTMENT MANAGEMENT FOR SMART GRID PROJECTS: A CROSS-COUNTRY ASSESSMENT

Svitlana Kolosok, *PhD, As. Prof.*
Sumy State University, Ukraine
Iuliia Myroshnychenko, *PhD, As. Prof.*
Sumy State University, Ukraine
Yuliia Matvieieva, *PhD, Sen. Lect.*
Sumy State University, Ukraine
Denis Hryhorenko, *student gr. EM.m-91*
Sumy State University, Ukraine

Smart grid projects are of interest for investment because its increase efficiency of existing capacity of energy distributed system and affects system reliability and performance. Introducing the latest technology to optimize energy generation and distribution significantly reduce the negative link between economic growth and ensure SDG implementation. Withal, development and implementation of smart grid projects require significant investment with relatively long operating cycle and good management skills of the team. Furthermore, energy innovation tends to behavioural uncertainty of stakeholders and volatility of price on the market. The proliferation of the Covid-19 pandemic resulted in the limitation of company's investment resources and, therefore, many energy projects have been delayed. The interruption of supply chains, the decline in business revenues due to lower demand and energy prices, the uncertainty of the future contributes to the intensification of the investment crisis in the energy market. According to the report by the IEA, the most significant reduction in energy investments is expected in 2020, the corresponding decline in 20% in compare to 2019 (equivalent to 400 billion US dollars) [1]. According to report of Smart Grid Laboratories Inventory [2], almost 26,9% of the labs as initial investment have spent 100,000 - 500,000 EUR and only 11,5% manage large investments in amount between 4,000,000 - 5,000,000 EUR. Around 38,5% of labs perform the investments throughout 2 to 3 years. In the context of limited resources, the question arises of justifying the support of energy projects against alternative areas of investment.

The analysis of literature sources allows to state about a large number of scientific papers concerning the technological aspect of smart grids projects. At the same time, the issues of investment management were not reflected in detail in the context of smart grid innovation. Investment and financial issues for the development and implementation of smart grid technologies are considered in the literature in terms of incentives and regulation. The investment policy focuses on provided by government incentives for applying preferential tax rate or determine the accelerated rate of depreciation for companies that develop smart grids. Tariff

regulation, subsidies from national (or regional) taxes, state bank financing, are other regulatory incentives for investment. Besides, the introduction of an incentive tariff makes investment projects in energy technology not only socially directed but also financially self-sufficient.

Cambini et al. in [3] investigate the relationship between key market conditions, regulatory schemes and smart grid investments to enhance incentives for its deployment. In addition, the search for regulatory models for investment incentives is of great importance for realisation investment policy, while convincing tariff payers that are increasing costs does not imply an increase in rents for enterprises and operators in the supply chain. Keller et al. in [4] analyse different economic aspects with taking into account characteristics of market actors which operate in a smart grid environment. Some authors conclude that efficiency obligations and performance regulation are key tools to create a convenient regulatory policy for the deployment of smart grid investment and networks [5].

Recent studies show that investment in Smart grid projects is conducive to long-term economic growth and have a positive social and environmental impact. The smart grid technologies help customers to optimize consumption, promote ecology friendly infrastructure, which led to the reduction of environmental impact and increase the degree of security of energy supply. Impact of investment in smart grid projects on sustainable development is presented on Fig. 1.

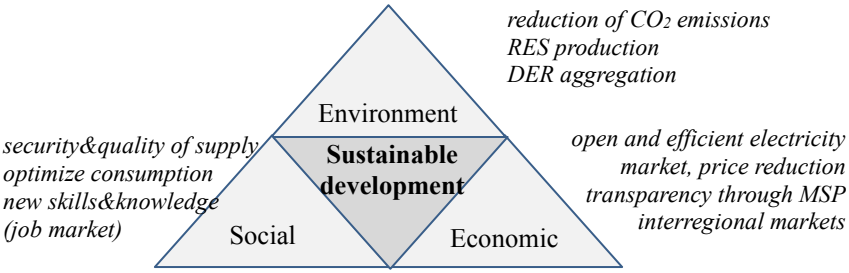

Fig. 1. Triangle of Sustainable Development and Smart Grid projects

Implementation of smart grids projects influence notably on socio-economic development: (1) enrich the value chain through integration of interregional markets; (2) shifts consumer behavior and culture with the contribution to climate change mitigation; (3) emerges is the need for new skills and knowledge, ultimately, the job market is expanded.

However, if we analyze the recent statistics on investing in smart grids, we can visually see a decline in financing their development (Fig. 2). Over the past three years, investment has decreased in all areas except for the smart meters' development. Although development budgets have declined in absolute terms over

the years, the intellectual component of development and artificial intelligence possibilities in managing smart grids have increased [6].

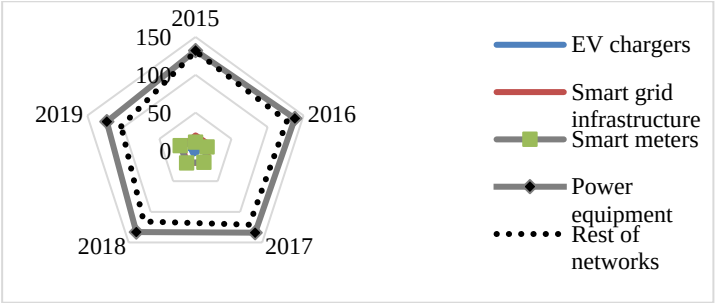

Fig. 2. Investment in smart grids, 2015-2019 (Based on IEA data from the IEA (2020), Smart Grids, https://www.iea.org/reports/smart-grids. All rights reserved; as modified by authors)

At the same time, the priority in financing the networks still falls on renewable capacity. Incentive packages in countries related to the transition to renewable energy sources support smart grids' development and their integration into the already existing energy system [7]. However, the spread of investment varies considerably across countries (Fig. 3).

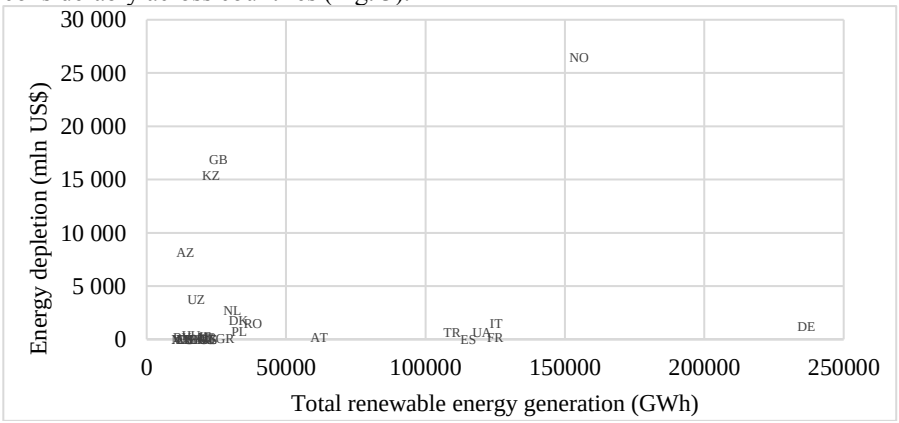

Fig. 3. Total renewable energy generation (GWh), 2019 (Based on IRENA data from the IRENA (2020), Data & Statistics, https://www.irena.org/Statistics. All rights reserved; as modified by authors)

This work was supported by the Ministry of Education and Science of Ukraine (the project No. 0119U100766 'The optimization model of smart and secure energy grids building: an innovative technologies of enterprises and regions ecologisation').

References

1. Chygryn, O. Y., & Krasniak, V. S. (2015). Theoretical and applied aspects of the development of environmental investment in Ukraine. Marketing and management of innovations, (3), 226-234.
2. Lyulyov, O. V., & Pimonenko, T. V. (2017). Lotka-Volterra model as an instrument of the investment and innovative processes stability analysis. Marketing and Management of Innovations, (1), 159-169. http://doi.org/10.21272/mmi.2017.1-14
3. Toyin, O.W., Oludayol Ad., E.(2020). Dynamic Effects of Foreign Portfolio Investment on Economic Growth in Nigeria . Financial Markets, Institutions and Risks, 4(3), 5-12. https://doi.org/10.21272/fmir.4(3).5-12.2020
4. Marcel, D. T. Am. (2019). Impact of the Foreign Direct Investment on Economic growth on the Re-public of Benin. Financial Markets, Institutions and Risks, 3(2), 69-78. http://doi.org/10.21272/fmir.3(2).69-78.2019
5. Rizwan, Ch A., Semenog, A. (2017). Non-bank financial institutions activity in the context of economic growth: cross-country comparisons. Financial Markets, Institutions and Risks, 1(2), 39-49. DOI: 10.21272/fmir.1(2).39-49.2017
6. IEA (2020), World Energy Investment 2020, IEA, Paris https://www.iea.org/reports/world-energy-investment-2020.
7. Andreadou, N., Jansen, L.L., Marinopoulos, A. and Papaioannou, I. (2018). Smart Grid Laboratories Inventory 2018, EUR 29649 EN, Publications Office of the European Union, Luxembourg. doi:10.2760/983805.
8. Cambini, C., Meletiou, A., Bompard, E., & Masera, M. (2016). Market and regulatory factors influencing smart-grid investment in Europe: Evidence from pilot projects and implications for reform. Utilities Policy, 40, 36-47.
9. Keller, C., Manser, D., Vogler, S., & Wache, H. (2015, May). Classification of economic approaches for stability in smart grids. In 2015 12th International Conference on the European Energy Market (EEM) (pp. 1-5). IEEE.
10. Marques, V., Bento, N., & Costa, P. M. (2014). The "Smart Paradox": Stimulate the deployment of smart grids with effective regulatory instruments. Energy, 69, 96-103. doi:10.1016/j.energy.2014.01.007.
11. Pavlyk, V. (2020). Institutional Determinants Of Assessing Energy Efficiency Gaps In The National Economy. SocioEconomic Challenges, 4(1), 122-128. http://doi.org/10.21272/sec.4(1).122-128.2020.
12. Вакуленко І.А., Колосок С.І., Прийменко С.А.,Матвєєва Ю.Т. Формування базису проведення енергетичних реформ із застосуванням «розумних» технологій. Вісник Сумського державного університету. Серія «Економіка», 2019. №3. С. 40-45.
13. Вакуленко І.А., Колосок С.І. Типологізація «розумних» екологобезпечних енергетичних рішень, адаптованих до особливостей

вітчизняних енергомереж. Вісник Сумського державного університету. Серія «Економіка», 2019. №2. С.21-25

14. Chygryn, O. Y., & Krasniak, V. S. (2015). Theoretical and applied aspects of the development of environmental investment in Ukraine. Marketing and management of innovations, (3), 226-234.

15. Жулавський, А. Ю., Кобушко, Я. В. (2011). Фактори відтворення інвестиційного потенціалу регіону. Економічний простір, (45), 64-74.

16. IEA (2020), Smart Grids, IEA, Paris https://www.iea.org/reports/smart-grids

17. IRENA (2020), Renewable capacity statistics 2020 International Renewable Energy Agency (IRENA), Abu Dhabi. https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Mar/IRENA_RE_Capacity_Statistics_2020.pdf

18. Salihaj, T., Pryimenko, S. (2017). Modification of the International Energy Agency Model (the IEA Model of Short-term Energy Security) for Assessing the Energy Security of Ukraine. SocioEconomic Challenges, 1(4), 95-103. DOI: 10.21272sec.1(4).95-103.2017

19. Bublyk, M., Koval, V., & Redkva, O. (2017). Analysis impact of the structural competition preconditions for ensuring economic security of the machine building complex. Marketing and Management of Innovations, (4), 229 - 240, http://doi.org/10.21272/mmi.2017.4-20

20. Bhowmik, D. (2019). Decoupling CO2 Emissions in Nordic countries: Panel Data Analysis. SocioEconomic Challenges, 3(2), 15-30. http://doi.org/10.21272/sec.3(2).15-30.2019.

21. Spremberg, E., Tykhenko, V., Lopa, L. (2017). Public-Private Partnership in the Implementation of National Environmental Projects. SocioEconomic Challenges, 1(4), 73-81. DOI: 10.21272sec.1(4).73-81.2017

22. Escaith, H., Khorana, S., Kerr, W.A. (2020). The Hidden Cost of Supply Chain Disruptions: Case Study of the UK's Automotive Sector. SocioEconomic Challenges, 4(3), 5-19. https://doi.org/10.21272/sec.4(3).5-19.2020

23. Dkhili, H. (2018). Environmental performance and institutions quality: evidence from developed and developing countries. Marketing and Management of Innovations, (3), 333-344. http://doi.org/10.21272/mmi.2018.3-30

24. Kendiukhov, I., & Tvaronaviciene, M. (2017). Managing innovations in sustainable economic growth. Marketing and Management of Innovations, 3, 33-42. http://doi.org/10.21272/mmi.2017.3-03

TRANSITION TO GREEN ECONOMY: BASIC PRINCIPLES AND PROBLEMS

***Opanasiuk Yuliia**, PhD, Senior Lecturer*
***Taraniuk Karina**, PhD, Senior Lecturer*
***Maryn Matvii,** PhD student*
Sumy State University, Sumy

Humanity has made significant progress in the development and spread of globalization. The price of progress is a reduction of exhaustible natural resources. Further economic development without radical changes in the existing economic model will lead to an increase in environmental threats and make sustainable development impossible.

The concept of sustainable development was enshrined at the 1992 UN Conference on Environment and Development. The main idea of it is to ensure the socio-economic development of humanity, without harming future generations. [10, 30] It was defined that the process of finding an effective mechanism for implementing the concept of sustainable development has accelerated significantly since the last economic crisis and returned the attention of scientists to the "green economy".

A large and growing body of literature has investigated the development of corporate social responsibility over the past ten years. It is an important area, which is associated with many factors: the effect of globalization processes; increasing the transparency of companies; improving the competitiveness of corporations, strengthening integration processes and adapting to the demands of the external environment and potential strategic investors.

Based on the exacerbation of these issues recently in the global socio-political and scientific circles, Shabranska N.I. [23] actively promoted the concept of green economy.

In 2011, the Commission on Global Sustainability of the UN Secretariat published a report entitled "Viable People, a Viable Planet: The Future is Worth Choosing". However, the publication does not include a clear set of principles of the green economy, but it gives the following characteristics:

- It is a potential driver of sustainable development and stimulates economic growth, necessary to solve the problem of poverty in the world; can provide an integrated approach to sustainable development, developed for a specific country, territory or region depending on the needs and conditions, providing social protection and stability for all segments of the population;
- It is developed for the long term and is a sustainable growth model that can withstand external influences.
- It measures progress beyond GDP.

- It promotes employment, green business and creates green jobs.
- The main emphasis is on the development of technology and innovation, cooperation, and institutionalism. [4, 8, 29]

Despite the variety of principles and characteristics of the green economy, researchers underline some general provisions inherent in all developments. Different interpretations of the green economy are generalizing – a social focus. Table 1 lists the most common of them.

Table 1 – General principles of the green economy [20]

Direction of sustainable development	Principle
Economical	1. Introduction of resource-efficient and cleaner production. 2. Stimulating innovation and more sustainable goods and services through public procurement on the principle of environmental sustainability. 3. Fostering the development of organic agriculture.
Social	4. Providing employment, creating "green jobs". 5. Improving public administration and providing legislative support. 6. Ensuring equality and justice in relations between countries, within countries and between generations.
Ecological	7. Protecting biodiversity and ecosystems. 8. Achieving resource conservation and energy efficiency.
Other	9. Finding means to achieve sustainable development. 10. Using an integrated approach to decision making.

Moreover, these principles are formed to solve problems to ensure sustainable development, as well as aimed at meeting and complying with institutional requirements, as well as the needs of integration and international cooperation.

We believe that in most countries of the world, the model of "brown economy" is mainly used with significant negative consequences: climate change, biodiversity loss, depletion of natural resources, environmental pollution, inequality of people and countries. In general terms, this model of economy poses a threat to both present and future generations. In this regard, UN experts emphasize the feasibility of transition to a new model of green economy, which through the use of levers of influence of the state and intergovernmental bodies in economic regulation, provided new opportunities for business development based on new green technologies and greening of industrial industries [16].

Table 2 – Definition of concepts of social development [15, 20]

Name	Essence
Brown economy	Economic growth without considering the requirements of environmental safety, the criteria of depletion of available natural resources and environmental pollution.
Sustainability	It is a development that meets the needs of today's society without compromising the ability of future generations to meet their own needs (UNEP Commission).
green economy	An economy that contributes to human well-being and social justice while significantly reducing environmental risks and environmental scarcity (UNEP definition).

According to Semenyuk I.D. [22], the transition to a green economy involves complex changes in all sectors of the economy. The primary sector, which covers agriculture, fisheries, forestry, and mining, requires the most radical changes, as it is here that products are created to meet the basic needs of humanity.

We consider that agriculture should refocus on the production of organic products (without the use of chemical additives).

The introduction of the green economy technologies will change the approach to doing business in agriculture through the introduction of "landscaping", namely: the cultivation of organic products, energy crops and the economical use of fertile soils.

As far as we know, the secondary sector of the economy, which includes industry and construction, is also in dire need of new technologies with economical use of natural resources. In this context, the transition to a green economy for the country's industry is a priority; furthermore, it should be due to deep technological modernization. Besides, the greening of the economy involves the revitalization of the waste processing industry. [13, 29]

Bhowmik, D. [3] stated that the introduction of processing technologies, on the one hand, can be used to increase the competitiveness of production by reducing the cost of raw materials and their reuse, and on the other hand, to reduce the risk of human-made disasters.

Data from several sources have identified that improving energy efficiency is of great importance for Ukraine. "State Targeted Economic Program for Energy Efficiency and Development of Energy Production from Renewable Energy Sources and Alternative Fuels for 2015-2020" provides for a 20% reduction in energy intensity compared to 2010 and the approximation of relevant indicators to EU standards. To accomplish this task, it is necessary, first, to increase the level of security of energy supply, reduce Ukrainian dependence on unstable imports of energy and combustible minerals, reduce production costs and energy costs. It is

Наукове видання

СОЦІАЛЬНО-ЕКОНОМІЧНІ ВИКЛИКИ

Матеріали
Міжнародної науково-практичної конференції

(Суми, 3–4 листопада 2020 року)

Стиль та орфографія авторів збережені.
Організаційний комітет і редакційна колегія можуть не поділяти точки зору авторів.
Автори відповідають за точність, достовірність і зміст матеріалів.
Посилання на матеріали конференції обов'язкові.

Відповідальний за випуск Т. А. Васильєва
Комп'ютерне верстання С. В. Миненко

Формат 60×84/16. Ум. друк. арк. 29,86. Обл.-вид. арк. 38,58.

Видавець і виготовлювач
Сумський державний університет,
вул. Римського-Корсакова, 2, м. Суми, 40007
Свідоцтво суб'єкта видавничої справи ДК № 3062 від 17.12.2007.