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Date

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Project title: Removing Barriers to Wind Power Development in Belarus

Final Project Report

Deputy Minister of Natural Resources and Environmental Protection of the Republic of Belarus

Date

Project number: 00087557

Expected CP Outcome(s): 3.1 Country's capacity to mitigate and adapt to the climate change strengthened

Executing Entity: Ministry of Natural Resources and Environmental Protection of Belarus

Description of Activity		Fund	Donor	Account	Description of Account	Planned financial resources, USD	Utilized, USD	Progress in achieving the target, %	Difference, USD	General assessment of the activities implementation (brief)
Outcome 1: Secondary Legislation is in place to support wind energy with the support of the project										The fully updated State Cadaster of renewable energy sources became an important information sources and a tool for the wind energy developers and investors, regulatory bodies and wind public. The online Internet source provides up-to-date information on the existing installations as well as on the potential sites for wind power development. The Wind Energy Support Unit (WESU) oversees its regular update and functioning. This resources is well coordinated with the other informational source developed under the project – Wind Atlas of Belarus. The project prepared a comprehensive background for the introduction of “green” energy certification in Belarus. Including carbon market aspects that touch upon wind energy. The materials include not only international and national analytical reports but also draft legal acts and an implementation scheme. The importance of the certification system was also explained at project workshops and study tours. Due to the Project some amendments to the secondary legislation on renewable energy sources relating to the implementation of the RES project by the investors attracted as a result of the international technical assistance projects implementation were successfully introduced.
1.1:	Develop and agree provisions for institutional infrastructure based on the best European practice and policies, in particular for the State RES Cadastre, RES Inventory, and validation systems	62000	10003	71200	International Consultants	20 000,00	19 989,75	99,95%	10,25	<p>1. The project implementation started from the inception workshop, which was held on December 18, 2015. In the course of the discussions, some amendments to the project strategy were made. These amendments were incurred by legislative changes as well as the comments and expectations of the stakeholders.</p> <p>2. The State Cadastre of renewable energy sources was significantly upgraded due to the Project. When the relevant activity was initiated the access to the existing Cadaster was blocked by the initial developer of the software (RUERE Software Applied Systems Institute). The resource was not operational and could not be reached by the stakeholders. Upon completion of the activity on Improvement of the State Cadastre of RES, the following results were achieved:</p> <ul style="list-style-type: none"> <li>- The database structure of the RES Inventory was developed.</li> <li>- The sections of the State Cadastre of Renewable Energy Sources were modernized and updated.</li> <li>- The missing data were collected; the updated Cadastre was filled with these data.</li> </ul> <p>The Cadaster was tested and the final version of the Cadaster was published at the web-page of MNREP at the link <a href="http://minpriroda.by/Cadastre/Map">http://minpriroda.by/Cadastre/Map</a>.</p> <p>3. Certification and validation of the energy produced by renewable energy sources is an important component of the project. Its implementation started with a thorough analysis of the international experience and best practices to track renewable energy attributes specifically for wind farms and preparation of the proposals for the regulatory amendments relating to the introduction of the “green” energy certification system in Belarus.</p> <p>The following reports were prepared:</p> <ul style="list-style-type: none"> <li>• The report with the analysis of legal acts regulating energy, finance and environmental protection with the purpose of determining the readiness of the legal field of the Republic of Belarus for the development of the certification system for “green” energy.</li> <li>• Report with the analysis of legal acts governing energy, finance and environmental protection with the aim of determining the readiness of the legal framework of the Republic of Belarus to create a carbon market.</li> <li>• Report with proposals for the development of a certification system for green energy in Belarus.</li> <li>• Report with proposals for the creation of a carbon market in Belarus.</li> <li>• Report with an analysis of international experience of environmental taxation, practices of applying environmental and other payments related to the results of active human use of the natural environment in the course of economic activity.</li> <li>• A report with the proposals for the development of the legal acts (with the justification of the need for adoption and other related documents) on improving the management of the taxation of environmental activity in the Republic of Belarus.</li> <li>• A final comprehensive report containing:               <ol style="list-style-type: none"> <li>1) analysis of the perspectives of development of interstate markets of energy produced from renewable sources and the possibilities of participation of the Belarusian energy producers in these markets;</li> <li>2) the risks associated with the development of requirements towards the share of electrical energy produced by RES and used in the production of the goods exported to the markets of Europe and other countries;</li> <li>3) justification of the introduction of the renewable energy certification system in the Republic of Belarus;</li> <li>4) proposals with the draft legal acts, which endorse the renewable energy certification system;</li> <li>5) report on the development of the legal and institutional framework for the establishment of the renewable energy certification system in the Republic of Belarus.</li> </ol> </li> </ul> <p>4. The results of the study, which is seen as an important measure of development of “green” economy and attainment of SDGs in Belarus, were also presented by the Deputy Minister of Natural Resources and Environment Protection of the Republic of Belarus at the meeting of the Council of Sustainable Development <a href="https://minpriroda.gov.by/ru/news-ru/view/minprirody-prinjalo-uchastie-v-zasedanii-soveta-po-ustojchivomu-razvitiyu-3499/">https://minpriroda.gov.by/ru/news-ru/view/minprirody-prinjalo-uchastie-v-zasedanii-soveta-po-ustojchivomu-razvitiyu-3499/</a></p> <p>5. The Project provided for the training of various target groups in the aspects of “green” energy certification. Mainly, a study tour to Austria for 13 representatives of governmental bodies and NGOs was organized in 2017. The agenda included such issues as: state regulation of renewable energy in Austria; forming tariffs for “green” energy; system of certification of green energy in Austria; creation and functioning of the carbon market; functioning of the mechanism of carbon financing; integration of wind energy into the energy system. The study tour resulted in enhancement of cooperation with Austria and signing a Memorandum of Understanding in 2019 between Austrian Energy Agency and the Ministry of Natural Resources and Environment Protection of the Republic of Belarus.</p> <p>6. The project also provided for raising the awareness of the “green” energy certification system as well as other aspects of “green” energy of the representatives of local authorities, especially in those areas where the wind power development sites were selected. A particular attention was given to training of schoolchildren, too. All in all, more than 150 schoolchildren from Vitebsk, Brest and Minsk regions were trained in renewable energy issues and practiced technical modelling in wind energy.</p> <p>7. Different forms of education materials were prepared to explain the value of the “green” energy certification system – power point presentations, reports, quizzes. These materials were</p>
				71300	Local Consultants	16 800,00	19 886,86	118,37%	-3 086,86	
				71600	Travel - local	21 300,00	220,80	1,04%	21 079,20	
				71600	Travel- international	39 000,00	23 961,89	61,44%	15 038,11	
				72100	Contractual Services-Companies	42 000,00	76 115,34	181,23%	-34 115,34	
				76100	Gains/Losses		128,43	0,00%	-128,43	
Total 1.1.						139 100,00	140 303,07	100,86%	-1 203,07	
1.2:	Formulated and enforced Secondary Legislation	4000	00012	71200	International Consultants	20 000,00		0,00%	20 000,00	<p>1. The project worked hard on preparing proposals on secondary legislation for wind energy development in Belarus. Mainly, the following was done:</p> <ul style="list-style-type: none"> <li>• The detailed economic estimates for potential wind projects were made to provide proposals on regulation on stimulating coefficients for wind power projects development.</li> <li>• The draft of the cross sectoral strategy on wind power development as well as a draft of the Strategy on renewable energy development were prepared and circulated among the stakeholders.</li> <li>• The draft of the legal act (with the justification of the need for adoption and other related documents), approving a methodological document on the formation of prices (tariffs) for electricity produced using renewable energy sources and proposals for amending the Law of the Republic of Belarus “On Renewable Energy Sources” and other legislative acts as necessary were developed and submitted to the Ministry of Energy, Department of Energy Efficiency and Ministry of Antimonopoly Regulation and Trade.</li> </ul> <p>2. The following draft legal acts to fulfill the obligations under the UNFCCC, the Kyoto Protocol and the Paris Agreement were prepared:</p> <ul style="list-style-type: none"> <li>• Resolution of the Council of Ministers of the Republic of Belarus “On the implementation of the provisions of the Paris Agreement to the United Nations Framework Convention on Climate Change”;</li> <li>• Regulations on the procedure for maintaining the State Cadastre of anthropogenic emissions from sources and absorption by sinks of greenhouse gases;</li> <li>• Provision on the National Greenhouse Gas Inventory System.</li> </ul> <p>These legal acts were approved by the Council of Ministers.</p> <p>3. The analysis of the impact that the project activities, including those relating to the tariff schemes, made on the development of wind energy in Belarus was prepared and the relevant report was approved by MNREP.</p> <p>4. Two project concepts were prepared, which could be a continuation of the activities implemented within the framework of this project and aimed at preventing climate change, developing renewable energy.</p> <p>5. Project exist strategy was prepared and approved by MNREP.</p>
				71300	Local Consultants	9 600,00	38 708,51	403,21%	-29 108,51	
				71600	Travel - international	9 360,00	2 555,60	27,30%	6 804,40	
				71600	Travel - local	2 000,00	161,92	8,10%	1 838,08	
				72100	Contractual Services-Companies		3 100,78	0,00%	-3 100,78	
				74200	Audio Visual&Print Prod Costs		852,91	0,00%	-852,91	
				76100	Gains/Losses		56,64	0,00%	-56,64	
Total 1.2.						40 960,00	45 436,36	110,93%	-4 476,36	



Description of Activity		Fund	Donor	Account	Discription of Account	Planned financial resources, USD	Utilized, USD	Progress in achieving the target, %	Difference, USD	General assessment of the activities implementation (brief)	
1.3:	New/Improved Technical Norms and Standards	62000	10003	71200	International Consultants	10 000,00	12 003,32	120,03%	-2 003,32	1. The development of concrete technical legal acts was precede by a comprehensive analysis of the regulatory framework and technical standardization of wind energy made by international and national experts. Several reports with a detailed analysis, international best practices and proposals for Belarus were prepared and approved by the stakeholders during presentations at the project workshops and round table discussions.  2. Based on the preliminary analytical work the following regulatory documents were developed: • STB XXXX "Renewable energy. Wind power plants. Safety requirements. Basic provisions "(based on GOST R 54435-2011); • STB XXXX "Guidelines for equipping power plants. Part 5-3. Wind turbines "(based on GOST R 55618-2013); • STB XXXX "Renewable energy. Wind power plants. Protection measures. Requirements for design, operation and maintenance "(based on GOST R 55619-2013); • STB XXXX "Renewable energy. Wind power plants. Requirements for safety during operation "(based on GOST R 54433-2011). • TKP XXXX "Environmental Protection and Nature Management: Rules for the Location of Wind Power Plants". • TKP XXXX "Environmental Protection and Nature Management: The Procedure for Monitoring Wind Parameters and Estimating the Wind Energy Potential for the Location of Wind Power Plants in the Territory of the Republic of Belarus".  3. At three annual project conferences, which took place in 2016, 2017 and 2018 about 180 participants increased their level of knowledge about the development of renewable energy in Belarus and were exposed to the documents developed under the project.  4. On 28 March 2019, the investment project for the construction of the wind farm in Veleshkovichi was presented at the First SDG Impact Investment Forum.	
				71300	Local Consultants	4 800,00	10 644,43	221,76%	-5 844,43		
				72100	Contractual Services-Companies	40 000,00	30 744,90	76,86%	9 255,10		
				71600	Travel - local		155,20	0,00%	-155,20		
				74200	Audio Visual&Print Prod Costs	960,00	2 060,00	214,58%	-1 100,00		
				76100	Gains/Losses		74,96	0,00%	-74,96		
			Total 1.3. GEF				55 760,00	55 682,81	99,86%		77,19
			4000	00012	74200	Audio Visual&Print Prod Costs	3 040,00	2 045,18	67,28%		994,82
					72100	Contractual Services-Companies		14 256,39	0,00%		-14 256,39
					71600	Travel - local		351,29	0,00%		-351,29
					76100	Gains/Losses		2,36	0,00%		-2,36
		Total 1.3. UNDP				3 040,00	16 655,22	547,87%	-13 615,22		
		Total 1.3.				58 800,00	72 338,03	123,02%	-13 538,03		
1.4:	Wind Private Finance Initiative (WPFI) created and operational	62000	10003	71300	Local Consultants	7 200,00	0,00	0,00%	7 200,00	1. The Terms of Reference for the Wind Private Finance Initiative (WPFI) was completed and included in the tender documentation to select a consultant for the integrated management of the investment project on construction of wind power turbines with the development of pre-project (pre-investment) and project documentation.  2. According to the Project document and the contract with the consultant for the integrated management of the investment project on construction of wind power turbines with the development of pre-project (pre-investment) the WPFI was founded by the consultant – company ENECA – and the organization subordinate to MNREP – RUE "Belarusian Research Center "Ecology" in 2016. The juridical form of the company is the company with limited liability (LLC).  3. The Director and Assistant for the WPFI were hired in 2017. The activity of WPFI was defined based on the project document and the Statute of the company.	
Total 1.4.						7 200,00	0,00	0,00%	7 200,00		
TOTAL outcome 1 GEF:						202 060,00	195 985,88	96,99%	6 074,12		
TOTAL outcome 1 UNDP:						44 000,00	62 091,58	141,12%	-18 091,58		
TOTAL outcome 1:						246 060,00	258 077,46	104,88%	-12 017,46		
Outcome 2: Reduce regulatory risks for investments in wind power in Belarus to the point that at least 5 wind farms are developed, financed, and eventually constructed										Reduction of regulatory and other investment risks for wind energy in Belarus started with a de-risking study, the outcomes of which were based not only on economic analysis but also on practical evaluation of the investment situation in Belarus. As a result, a number of rated risks were identified and the measures to reduce or eliminate them were proposed. The project prepared five pre-investment assets for the development of five wind farms of the total installed capacity of 60.7 MW. The practical experience of the project as well as analytical studies were consolidated in a guidebook containing template guidelines for future wind energy development - "Main stages of the implementation of the wind energy project", which was at least once updated and revised during the project implementation. All the reports and guidelines were prepared in two languages – Russian and English. Numerous workshops and study tours for different target groups (decision makers, business, finance sector etc.) provided for a wider dissemination of the information about wind energy investment and outcomes of the project.	
2.1	Awareness raising program for decision makers	62000	10003	71200	International Consultants	20 000,00	12 925,19	64,63%	7 074,81	1. The Project Steering Committee (PSC) was formed at the beginning of the Project on December 17, 2015, when the provision on the PSC was approved. The first PSC meeting was held simultaneously with the inception workshop on December 18, 2015. Since then, the PSC met at least twice a year or more often if it was required by the project implementation. Every decision of the PSC was recorded in minutes, which were signed by the UNDP Programme Officer, Project manager and approved by the National Coordinator of the project. The Steering Committee members comprised the representatives of the key governmental bodies – MNREP, Ministry of Energy, Ministry of Economy, Department of Energy Efficiency and other as well as NGOs, private and state-owned companies, banks.  2. Awareness raising program for decision-makers (in state bodies and local administrations, government agencies, companies and the financial sector) in order to deepen understanding and positive perception of wind energy was implemented through the organization of study visits for these categories of people to countries with a developed wind energy sector ( 9 trips to European countries were organized, which were attended by more than 80 representatives of governmental bodies, companies and the financial sector at the level of decision-makers and specialists).  3. 11 seminars, conferences and public discussions were held, in which more than 600 participants took part. Every study tour resulted in preparing concrete recommendations to the Government concerning wind energy sector development in Belarus. Among other prominent achievements were a signed Memorandum of Understanding between MNREP and Austrian Energy Agency to enhance cooperation on renewable energy sources and climate change; a meeting of the Minister of Natural Resources and Environment Protection of the Republic of Belarus with the Minister of Environment and Climate of Sweden in 2019; invigoration of Belarusian-Swedish cooperation on environment protection.  4. All in all, more than 350 articles, fact sheets, reviews, news releases, awareness products etc. have been prepared and published at the website windpower.by.	
				71300	Local Consultants	12 000,00	22 108,63	184,24%	-10 108,63		
				71600	Travel - local	12 200,00	0,00	0,00%	12 200,00		
				71600	Travel - international	36 000,00	13 806,66	38,35%	22 193,34		
				72100	Contractual Services-Companies		29 513,82	0,00%	-29 513,82		
				76100	Gains/Losses		91,68	0,00%	-91,68		
		Total 2.1.				80 200,00	78 445,98	97,81%	1 754,02		
2.2	Specialized local engineering	62000	10003	71300	Local Consultants	4 800,00	1 037,10	21,61%	3 762,90	1. During the project implementation considerable attention was given to building capacity of the local engineers in wind power development. Mainly, the main contractor for the overall management of the work on the pre-investment assets creation was a domestic engineering company.  2. The pre-design documentation was also developed by a local company.  3. The project organized specialized training for wind project designers, which was attended by representatives of 13 Belarusian state-owned and private engineering and design companies.  4. After wind measurement campaign of the project, which was undertaken by a European DIN accredited company, WPFI having received knowledge, experience and wind measurement equipment continues rendering wind measurement services to Belarusian clients in the framework of the scope, which does not require an accreditation.	
				71600	Travel - local	2 600,00		0,00%	2 600,00		
				76100	Gains/Losses		-49,16	0,00%	49,16		
		Total 2.2.				7 400,00	987,94	13,35%	6 412,06		
2.3	Introduce RE related curricula at Universities	62000	10003	71200	International Consultants	20 000,00	0,00	0,00%	20 000,00	1. As the survey of the departments of leading technical universities has shown, there was no need for the introduction of educational programs on renewable energy in universities. There was rather a need for employment of the students, who had graduated from such universities. In this regard, with the approval of the Project Steering Committee, within the framework of this Outcome, the measures were taken to increase the level of trainings and courses for specialists in the field of renewable energy, in particular, wind energy, as well as the introduction of renewable energy programs in secondary specialized educational institutions.  2. Particularly, 13 people - representatives of 9 companies and organizations from Belarus - were trained in Wind PRO project design methods and software in 2017. State owned design organization Belenergosetproject are now using this software to render services on wind project design on a regular basis.  3. On November 22, 2018, with the support of the EcoTechnoPark-Volma - Branch of the Resource Center of the Republican Institute of Vocational Education - an educational seminar (methodological day) was held for 6 employees of the Novogrudok State Agrarian College on the topic "Technology for the formation of competencies in the field of energy conservation, energy efficiency and renewable energy sources" with a visit to RIVE laboratories. For the same college, the curriculum documentation was revised in order to introduce renewable energy components.	
				71300	Local Consultants	14 400,00	2 470,34	17,16%	11 929,66		
				71600	Travel - international		9 697,68	0,00%	-9 697,68		
				71600	Travel - local		147,20	0,00%	-147,20		
				72100	Contractual Services-Companies	12 000,00	28 509,62	237,58%	-16 509,62		
				76100	Gains/Losses		-38,50	0,00%	38,50		
		Total 2.3.				46 400,00	40 786,34	87,90%	5 613,66		
2.4	Completed support for ancillary services	62000	10003	71300	Local Consultants	7 200,00		0,00%	7 200,00	1. In order to consider the full scope of ancillary services that might be needed or rendered with the further development of wind energy or renewable energy in general, the models of the balance of the energy system of Belarus were prepared. These models took into consideration commissioning of the nuclear power station as well as further development of wind energy. In the framework of the workshop on November 28, 2018, a presentation of the models of the balance of the energy system of Belarus was held. A total of 50 representatives of the Parliament of the Republic of Belarus, MNREP, the Ministry of Energy, the Department for Energy Efficiency, the MART, the Ministry of Taxes and Tax Collection, the Ministry of Economy, the Ministry of Finance, public organizations, the project - took part in the discussion of topical issues of the power system balance development in Belarus; got familiar with the concept of the three models of the development of the balance of the energy system of Belarus.  2. On May 19-24, 2019, in Klaipeda, a group of 8 people, including representatives of the Republican Center for State Ecological Expertise and Advanced Training for Executives and Specialists of the Ministry of Environment, private companies and the branch "Lida Electric Networks" of the Republican Unitary Enterprise "Grodnoenergo" were trained in GWO safety procedures. For the first time in the Republic of Belarus, these specialists obtained GWO certificates for the safety of operating wind turbines.	
				71600	Travel- international	1 600,00	9 056,45	566,03%	-7 456,45		
				72100	Contractual Services-Companies	12 000,00	4 449,39	37,08%	7 550,61		
		Total 2.4.				20 800,00	13 505,84	64,93%	7 294,16		
2.5	Developed and published manuals			71200	International Consultants	20 000,00	34 507,84	172,54%	-14 507,84	1. During the project implementation, several manuals were prepared and published. One of the initial manuals was a report on De-risking study, which had been implemented by three international consultants with the support of the PIU. In the framework of the preparation of de-risking study report in August, 2016 interviews with the existing and potential investors in	

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		62000	10003	71300	Local Consultants	16 800,00	9 410,82	56,02%	7 389,18	wind energy sector in Belarus were held. The final report on De-risking study in Belarus was presented at a workshop on May 18, 2017. It was also published in English and Russian.
				71600	Travel - local	2 600,00		0,00%	2 600,00	2. Apart from this, a guidebook containing template guidelines for future wind energy development - "Main stages of the implementation of the wind energy project" - was prepared at the beginning of the project and then it was revised in 2019 and updated to cover new legislative amendments. The guidebook was also published in the Russian and English languages as well as posted on the project website.
				71600	Travel - international	36 000,00	26 261,79	72,95%	9 738,21	3. Project briefs were designed and published to better spread information on the investment opportunities that the project could offer among the stakeholders as well as to inform general public of the main goals and tasks of the project. The project brief was published in English and Russian with a circulation of about 200 copies.
				74200	Audio Visual&Print Prod Costs		18 053,44	0,00%	-18 053,44	4. The report "Models of the balance of the energy system of Belarus in connection with the development of renewable energy sources" was published in Russian with a circulation of 300 copies and the text of the report was also translated into English to be posted on the project website.
				72100	Contractual Services-Companies	18 000,00	24 731,88	137,40%	-6 731,88	5. The printed manuals and materials were distributed at project workshops and other thematic public events.
				76100	Gains/Losses		83,56	0,00%	-83,56	6. Apart from the printed materials the following 7 informational and educational video clips were produced and posted on the Internet-site of the project windpower.by
				Total 2.5. GEF		93 400,00	113 049,33	121,04%	-19 649,33	• Wind Atlas was developed in Belarus
		4000	00012	74200	Audio Visual&Print Prod Costs		43,54	0,00%	-43,54	• A bet on the wind. What are the benefits to producers, eco-farmers and green tourism from building wind farms?
				72100	Contractual Services-Companies		4 100,17	0,00%	-4 100,17	• What has been done by the Ministry of Environment to promote wind energy? In Belarus, over 10 years, the production of electrical energy using the sun, wind and water has increased more than 13 times. Belarus has undertaken to reduce greenhouse gas emissions by 28% by 2030 compared to 1990. In 2018, Belarus achieved a 30% decline. The video tells about wind measurements, Wind Atlas, Renewable energy sources Cadaster, wind energy and climate change.
				76100	Gains/Losses		-0,85	0,00%	0,85	• The first full-scale study of the impact of wind farms on birds and bats is being carried out in Belarus.
				Total 2.5. UNDP		0,00	4 142,86	0,00%	-4 142,86	• How is the wind farm arranged? Who runs the wind farm?
				Total 2.5.		93 400,00	117 192,19	125,47%	-23 792,19	• Goals and tasks of the Project. Investment activity launched by the Project.
				TOTAL outcome 2 GEF:		248 200,00	246 775,43	99,43%	1 424,57	• Major results of the project implementation.
				TOTAL outcome 2 UNDP:		0,00	4 142,86	0,00%	-4 142,86	7. A brochure with the consolidated information of the lectures and presentations as well as some analysis and situation description on the gender in renewable energy in Belarus was prepared in 2020. The brochure with the title "Promoting women initiative for renewable energy development in rural areas" is available at https://www.windpower.by/en/publications/
				TOTAL outcome 2:		248 200,00	250 918,29	101,10%	-2 718,29	8. Two editions of Guidelines on EIA for the wind power projects were developed and approved by the MNREP. The second edition comprised not only the description of the procedures and references to the relevant legislation but also several case studies and answers to the most popular questions on EIA of the wind energy projects. The second edition was also reviewed and recommended as a manual by two independent experts – PhDs. The second edition was translated into English, and published in two languages.
Outcome 3: Wind Energy Project Technical Assistance Facility is established to support the WPFI investment in and the development of documentation for at least 25 MW of wind power										9. Four trips to Kazakhstan, Switzerland, Ukraine and Armenia were organized in 2017 for 16 specialists from the Ministry of Natural Resources, Ministry of Energy, Department of Energy Efficiency, Training Center of the MNREP, National Academy, Vitebsk regional executive committee of Sciences to participate in activities related to wind energy, including the impact of renewable energy sources on the environment (project planning, waste management of wind farms, international cooperation on the impact of wind energy on the environment). The participants increased their knowledge in wind farms projects planning, wind farms waste management, expanded the international cooperation network in the RES sector. Cooperation with the Ukrainian wind energy association was strengthened
										Wind Private Finance Initiative (WPFI) was legally formed as LLC "Wind Private Finance Initiative" and played a key role in pre-investment development of five wind farms of 60.7 MW installed capacity. WPFI established five legal entities dedicated for five selected sites for the future wind energy development; coordinated wind measurement work and preparation of bankable reports; consolidated developed documentation for the investment tender. WPFI organized the first investment open auction with the support of the Belarusian Universal Commodities Exchange and continues similar activity with the remaining four sites (which, unfortunately, had not been granted quotas for wind energy installations construction during the time of the project implementation). WPFI also continues work on the selection of the sites and wind measurements taking (using the wind measurement equipment procured under the project). The success and efficiency of WPFI work depends a lot on the overall situation with renewable energy development in the country. The project made the maximum use of its capacity to improve the perception of wind energy in different target groups (the energy balance of the country presupposing enhancement of wind power installed capacity was developed; practical assessment of wind energy impact on fauna was undertaken, the possibilities of use of "smart" grids to enhance wind energy installed capacity were considered). The first pre-investment asset – LLC VES Veleskhovichy was sold to the Turkish company Guris, which is continuing development now and plan to complete the wind farm by December 2022.
3.1: Completed support provided for potential site developments										
3.1	Completed support provided for potential site developments			71200	International Consultants	160 000,00	59 814,07	37,38%	100 185,93	1. This output presupposed creation of conditions for the pre-investment work on the sites for wind power installations construction. To sustain the methodological and technical capacity the creation of Wind Energy Support Unit and Wind Private Finance Initiative were the key activities. The Wind Energy Support Unit (WESU) was formed by the Order of the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus of 17 August 2017 No. 220. The same order approved the Provision on WESU. The WESU comprised 2 representatives of the Ministry of Natural Resources and Environment Protection (the department responsible for climate change issues and some aspects of renewable energy development) and one representative of Belhydromet. The computer equipment for WESU (two computers and one printer) was procured by the Project.
				71300	Local Consultants	60 000,00	132 871,69	221,45%	-72 871,69	2. Wind Private Finance Initiative (WPFI) was legally formed on 11 October 2016 as LLC "Wind Private Finance Initiative". This legal entity was founded by company ENECA (selected as a consultant for the integrated management of the investment project on construction of wind power turbines with the development of pre-project (pre-investment) and project documentation) and Belarusian Research Center "Ecology". The company was formed in accordance with the legislation of the Republic of Belarus and has the endorsed statute, juridical address, director and assistant.
				71400	Contractual Services-Individual	85 800,00	0	0,00%	85 800,00	3. The international tender to select an engineering firm to form the WPFI and prepare the pre-investment assets was announced on www.icetrade.by №2016- 343940 of 20.05.2016. On the deadline for the submission of the proposals (23 of June, 2016) three qualified proposals were received. The contract with the selected consultant (Belarusian company ENECA) was signed on August 25th, 2016.
				71800	Contractual Services-Individual		58 843,82	0,00%	-58 843,82	4. To identify additional contributors to the funding of the WPFI in order to extend the range of WPFI capabilities during the project implementation the work on attraction of potential investors and wind energy developers had been carried out. Particularly, an investment company Nemera Capital Group (London) and Windmatik company (wind project developer, Poland) got interested in the project and visited Belarus to meet with the representatives of the MNREP, project and the Smorgon District executive committee to discuss the investment possibilities. Both companies expressed their interest in working with WPFI on development of a wind power project. WPFI and Windmatik negotiated the memorandum of understanding to include the project of this private investors in the pool of WPFI projects. The Memorandum between WPFI and Windmatik was signed. Unfortunately, later the companies withdrew from the project and did not continue their investment activity in Belarus.
				71600	Travel - local	23 400,00	1 279,18	5,47%	22 120,82	5. WPFI was also working on expanding their activity on pre-investment work for the development of wind energy projects. Mainly, the contract with Novogrudok district executive committee was signed in 2018 for the services of identification and selection of the sites suitable for wind energy development in the Novogrudok district as well as a contract with company Santa (Belarus) was signed in 2020 to perform the wind measurements at the site selected by the client.
				71600	Travel - international	45 000,00	75 028,77	166,73%	-30 028,77	6. Broader measures to raise the demand for the services relating to wind energy development were taken in the framework of the project. Particularly a market research had been undertaken to expand the use of "green" energy on the territory of Belarus. Ten proposals on development of relatively big new energy consuming enterprises (primarily green energy), which will provide for the growth of demand for "green" energy as well as ten proposals on SMEs were prepared. Rosters of potential investors and clients for Belarusian "green" energy were compiled. The results of the research as well as teasers for the energy consuming enterprises (businesses) were presented to a wide circle of potential investors at various investment online platforms as well as at an online investment forum in October 2020.
										7. In the framework of this output initial screening of the potential sites for the development of the wind energy projects was performed. A list of 43 sites with detailed description for further assessment and ranking was prepared. In the end, five sites were selected to pursue wind energy development there. Preliminary clearance from the Ministry of Defense, Ministry of Communication and Informatization, Department of Aviation of the Ministry of Transport, Vitebsk and Grodno regional committees of natural resources and environment protection of MNREP and other relevant agencies was received. These were the following sites: 1) Grodno region, Novogrudok district, village Yanovichy 2) Grodno region, Smorgon district, village Staraye Boruny 3) Vitebsk region, Liozno district, village Veleskhovichy 4) Vitebsk region, Smorgon district, village Veleskhovichy



Description of Activity		Fund	Donor	Account	Discription of Account	Planned financial resources, USD	Utilized, USD	Progress in achieving the target, %	Difference, USD	General assessment of the activities implementation (brief)
		62000	10003	72200	Equipment and Furniture	250 000,00	710 092,40	284,04%	-460 092,40	<p>4) Vitebsk region, Dzhemlensky district, village Vento</p> <p>5) Vitebsk region, Gorodok district, village Zagoryane.</p> <p>8. The project sites were attended by the PMU with the purpose of meetings with the local authorities, investors and local communities to discuss the implementation of the wind power projects on their territory as well as to monitor the wind measurement campaigns on those sites.</p> <p>9. The land allocation certificates were received for two sites – Veleshkovichi and Yanovich.</p> <p>10. The specification requirements for the connection to the grid were obtained only for the site in Veleshkovichi, which received the quota of 25 MW, whereas the rest 4 sites had not been awarded the quota in spite of considerable efforts of the project and MNREP to persuade the Interagency Committee for the distribution of quotas to allocate quotas for the 4 project sites. Apart from the draft specification requirements for the connection to the grid and final specification requirements for the connection to the grid of the planned wind farm in Veleshkovichi an independent transmission review for the selected sites was performed.</p> <p>11. Analysis of international experience in the development of "smart grids" was made by the international consultant. Based on international experience and study of the national conditions of renewable energy development the consultant prepared recommendations for the Republic of Belarus on the development of "smart grids" in order to increase the share of renewable energy sources, including wind energy, in the country's energy balance. The results of the study were presented by the consultant to 23 participants of the round table, which took place on February 25, 2020 in Minsk.</p> <p>12. 6 decision makers and experts from MNREP, Ministry of Energy, Belenergo, the Department for Energy Efficiency studied the Swedish experience in transferring energy produced by RES to the grid, as well as experience in other aspects of wind energy development.</p> <p>In particular, on May 22-23, 2019, a Belarusian delegation led by the Minister of Natural Resources and Environmental Protection of the Republic of Belarus visited the Kingdom of Sweden. The delegation of 6 people also included the Deputy Minister of Energy of the Republic of Belarus and the Director of the Department of Energy Efficiency of the Republic of Belarus as well as the specialists of the Ministry of Environment.</p> <p>The purpose of the trip was to establish contacts on the development of renewable energy, including wind energy, the use of waste for energy, climate, with the Ministry of the Environment of the Kingdom of Sweden and other state bodies and organizations of Sweden.</p> <p>On May 22, 2019, a meeting was held with the Deputy Prime Minister, Minister of Environment and Climate of the Kingdom of Sweden, Isabella Levin, as well as other important meetings and presentations were held at SIDA, the Swedish Environmental Protection Agency, and the Swedish Wind Energy Association. Following the trip, a report was prepared to the Government with proposals for the development of renewable energy in Belarus.</p> <p>13. To enhance support for potential site developments the project implemented the activity on estimating the wind power installed capacity, which potentially can be integrated into Belarusian energy system. Following this goal, three models of the balance of the energy system of Belarus for the period up to 2030 have been developed, taking into account the maximum involvement of renewable energy sources, including wind power; the ratio of the power of nuclear power plants and other power generating facilities, including renewable energy sources; the forecast of the development of electricity generating sources of the State Unitary Enterprise "Belenergo" and local sources by type of use of energy resources; forecast of generating capacity redundancy.</p> <p>15. The practical measures to support the wind power developers comprised the procurement of wind measurement equipment and its subsequent transfer to entities capable of wind measurement services provision. Particularly, five sets of wind measurement equipment with 5 meteorological masts were procured and installed for one year period (August 2017 – September 2018) at the sites near the village of Zalesovtsy (Novogrudok district), Starye Boruny (Popelevichi) village (Smorgonsky district), Zagoryane village (Gorodoksky district), and Patskovo (Senno district). By the end of December, 2018 the final version of the wind measurement reports with the calibration certificates for all 5 project sites were finalized. The ultimate beneficiary of this equipment was WPFi, which will continue wind measurements as presupposed by the WPFi Terms of reference in the Project document.</p> <p>16. In 2017 and 2018, 4 wind measurement complexes belonging to Belhydromet were dismantled and stored at the premises of Belhydromet. This equipment after proper check-up and quality certification was supposed to be used for expanded wind monitoring in the framework of the project.</p> <p>17. Two study trips for Belhydromet specialists to Poland (12 people for 3 working days during 11-15 December) and France (10 people for 2 working days – 5-8 December 2017) were organized to increase the level of knowledge and development of weather forecasting skills for further use in forecasting wind power generation and preventing emergency situations on windmills associated with hazardous weather events.</p> <p>18. To strengthen the national wind measurement capacity Belhydromet territorial units (Gorki agro-meteorological station, meteorological stations in Pruzhany and Oshmyany) were equipped with three meteorological temperature profilers to enhance measuring wind parameters.</p> <p>19. To wrap up the formation of the national wind measurement capacity two lidars were procured and installed at the meteorological stations in Gorki and Pruzhany. The staff of Belhydromet meteorological stations were trained in the usage of this equipment. The lidars were registered in the National register of measurement means. As soon as this procedure presupposes tests of the equipment at the manufacturing facilities (which are in France in case with the equipment procured), the specialists of Belarusian State Committee on Standardization were to visit the facilities and carry out all necessary tests. Nevertheless, due to the COVID-19 travel restrictions this could not be done during 2020 and first half of 2021. On an exceptional basis, Belarusian State Committee on Standardization registered two lidars as measurement means based on the documentation and online consultations with the equipment manufacturer.</p> <p>20. The project and WPFi received all permits that were necessary at the pre-investment stage for the five sites selected for wind energy development.</p> <p>21. The draft investment agreements for all five selected sites were prepared and made part of the pre-investment documentation package. The investment agreements can be signed only after investors for the sites are identified.</p> <p>22. The provisions of power purchase were defined only for the site Veleshkovichi (the one, which received the quota and was sold to the investor). The co-efficient to the basic tariff approved together with the quota in 2015 was initially 1.2. As soon as the process of the selection of the investor took longer than the period of the validity of the elevating coefficient to the quota (three years), the investor (Turkish company Guris) faced the situation when tariff conditions at the time of the commissioning of the wind power station were not clear. The project and the MNREP addressed the Government to make necessary amendments to the legislation to ensure the clarity of the co-efficient for the investor, which had been selected in the framework of the project. The Prime Minister initiated such amendments and, in the end, a relevant resolution of the Council of Ministers of the Republic of Belarus (No.214 of April 9, 2021) was endorsed.</p> <p>23. The grid connection technical specification was issued for the site in Veleshkovichi by the local Belenergo branch, the grid connection technical specifications for the other four sites selected under the project were not obtained because of the lack of quotas.</p> <p>24. The pre-design documentation for five selected sites was developed by a Belarusian company "Malaya Energetika", the latter was awarded the relevant contracts in August 2017. By December 2017, the pre-design documentation was developed and approved by Main state construction expertise, as well as by State Environmental expertise.</p> <p>25. The pre-design documentation, which became part of the pre-investment asset, provided for the flexibility of the choice of the wind turbine for the investor.</p> <p>26. The final decision of the turbine type for the site Veleshkovichi will be made by the investor – Turkish company Guris.</p> <p>27. In the course of the development of pre-design documentation the environmental impact assessment reports were prepared. The public hearings were held in the area of all five sites for the wind power projects.</p> <p>28. In addition to the pre-investment environmental impact assessment for the five sites for wind energy development under the project, some further studies of wind energy effect on the fauna was carried out. Mainly, an analytical review of existing practices of monitoring work and assessment of the impact of wind farms on birds and bats was performed; international experience in organizing field research near wind farms was studied and analyzed. Based on the international experience, a methodology for monitoring studies in Belarus was developed; and a field research plan prepared. During the field research - autumn migration, breeding period - an assessment of the impact of wind farms on birds and bats during different stages of the life cycle was carried out at the monitoring sites in the Mogilev region; a corresponding report with recommendations on the EIA for wind projects and wind power stations maintenance was prepared.</p> <p>29. Upon completion of the wind measurement campaign in 2018 for all the project sites the financeable reports were prepared by an accredited European company and verified by another accredited company in accordance with the MEASNET standards. All equipment that was used for wind measurements was calibrated at an accredited laboratory in Germany.</p> <p>30. As soon as the report on semi-annual wind measurements was received by WPFi, on May 29, 2018 the requests for quotations were sent to 10 producers of wind turbine generators (WTG) – Vestas, Goldwind, Leitwind, GE, Servion, Vensys, Siemens Gamesa, Nordex, Siemens, Enercon. The final report on the proposals of wind turbines producers contained the replies of only three out of ten producers - Vensys, Enercon and Siemens Gamesa. The final report with WTG producers' quotations was approved by MNREP and made part of the pre-investment documentation.</p> <p>31. Information (investment) memorandum was prepared for the investment tender on Veleshkovichi site. It was presented in two languages in the form of a Power point presentation as</p>
				72800	IT Equipment	4 000,00	2 481,00	62,03%	1 519,00	
				72400	Communic&Audio Visual Equip	1 200,00	65,32	5,44%	1 134,68	
				73400	Equipment Services	2 500,00	21 497,58	859,90%	-18 997,58	
				72500	Supplies	1 750,00	146,30	8,36%	1 603,70	
				72100	Contractual Services-Companies	995 000,00	956 299,21	96,11%	38 700,79	
				74500	Equipment Insurance		1 455,87	0,00%	-1 455,87	
				74500	Bank fees		0,08	0,00%	-0,08	
				76100	Gains/Losses		3 056,16	0,00%	-3 056,16	

Description of Activity		Fund	Donor	Account	Discription of Account	Planned financial resources, USD	Utilized, USD	Progress in achieving the target, %	Difference, USD	General assessment of the activities implementation (brief)
		Total 3.1.				1 628 650,00	2 022 931,45	124,21%	-394 281,45	well as in printed brochures at the First Impact Investment Forum in Minsk on March 28, 2019. It was also sent out to the potential investors at the time of the investment tender.  32. An independent assessment of the value of the pre-investment asset for the construction of a wind farm near the village of Veleshkovichi was carried out, a corresponding conclusion was received. The assessed value was taken for the initial price of the pre-investment asset Veleshkovichi at the auction.  33. The investment tender was organized in the form of the auction where the organizer of the auction was WPFi and the operator of the electronic auction platform – Belarusian Universal Commodities Exchange. A juridical company hired under the project was also supporting the process of the investment tender.  34. In the course of organizing a tender for the implementation of completed construction projects, the prequalification of investors was carried out. To qualify the potential investors special criteria were developed. These criteria were as follows: confirmation of the possibility of financing a project to create a wind power plant with a capacity of 25 MW, as well as having experience in the construction and operation of at least one successfully operating wind farm with a capacity of at least 7 MW and / or experience in investment activities in the field of wind energy in an amount exceeding 10 million euros. Investor prequalification allowed avoiding the participation of intermediaries who were not interested in investing and building a wind farm, but would like to resell the pre-investment asset.  35. A list of potential investors who were interested in acquiring the rights to the pre-investment asset was prepared. In the course of consultations with state authorities, as well as the Belarusian Universal Commodity Exchange (BUCE), it was determined that the tender for the sale of the pre-investment asset to the investor should be organized by the WPFi with the involvement of BUCE as the operator of the electronic trading platform. WPFi prepared and approved provision of the open tender.  36. A prequalification procedure for investors interested in participating in an open auction was carried out with the involvement of an international investment consultant. Two companies from more than 30 companies, which had been invited to participate in the prequalification and auction, took part in the prequalification procedure. The procedure was duly recorded in reports and protocols. The notifications on its outcomes were sent to the participants.
3.2	Identify and evaluate available public and private debt and equity financing for above site developments	62000	10003	71200	International Consultants	90 000,00	13 713,70	15,24%	76 286,30	1. In the course of the project implementation regular discussions and outreach with potential foreign and domestic investors and developers were undertaken. All meetings were recorded in minutes and reports, the contact details of the companies and organizations were used to compile long lists of potential investors to be invited to the open investment tender.  2. The working contacts and partnership were also established with financing organizations, such as IFC, EBRD, Agroprombank, Belinvestbank and Development Bank of Belarus on the issues of financing of the wind energy projects in Belarus.  3. An analysis of the forms and way of financing of wind energy projects in Belarus was made. A relevant report "Study of possibilities of financing of the wind energy projects in Belarus in the framework of implementation of the international technical assistance project "Removing barriers for wind power development in Belarus" was prepared and approved by MNREP.  4. Recommendations on financing of the wind energy projects in Belarus (including recommendations on the development of new forms of financing of such projects in Belarus) were prepared. A relevant report "Study of possibilities of financing of the wind energy projects in Belarus in the framework of implementation of the international technical assistance project "Removing barriers for wind power development in Belarus" was prepared and approved by MNREP. A presentation of the recommendations was also made at the project workshop on 22 November 2017.  5. Guidelines for the developers of wind energy projects financed by borrowed capital (national, foreign bank and international organizations) were developed. The guidelines make part of the report "Study of possibilities of financing of the wind energy projects in Belarus in the framework of implementation of the international technical assistance project "Removing barriers for wind power development in Belarus".
				71300	Local Consultants	34 750,00	11 343,25	32,64%	23 406,75	
				71400	Contractual Services-Individual	86 900,00		0,00%	86 900,00	
				71600	Travel - local	6 500,00		0,00%	6 500,00	
				71600	Travel - international	45 000,00		0,00%	45 000,00	
				76100	Gains/Losses		39,69	0,00%	-39,69	
		Total 3.2. GEF				263 150,00	25 096,64	9,54%	238 053,36	
		4000	00012	74200	Audio Visual&Print Prod Costs	4 000,00		0,00%	4 000,00	
				72100	Contractual Services-Companies	46 850,00		0,00%	46 850,00	
		Total 3.2. UNDP				50 850,00		0,00%	50 850,00	
Total 3.2.						314 000,00	25 096,64	7,99%	288 903,36	
3.3.	Completed support for the preparation of development work on the targeted sites	62000	10003	71300	Local Consultants	21 600,00	13 532,44	62,65%	8 067,56	1. The investment justification stage and preparation of pre-feasibility studies for construction and commissioning of wind energy plants in excess of 25 MW were successfully completed for five sites with the total installed capacity of 60.7 MW. The knowledge and experience of the pre-investment asset development was shared at 5 workshops, at which 230 participants – representatives of the MNREP, Ministry of Energy, the Department for Energy Efficiency, the Ministry of Antimonopoly Regulation and Trade, Ministry of Finance, local authorities, business, the financial sector, and education organizations raised their awareness of planning, financing and implementation of the project for the construction of a wind farm.  2. On 11-13 November 2019 the visit of the Minister of Natural Resources and Environment Protection of the Republic of Belarus to Austria was facilitated to support the signature of the MoU with the Austrian Energy Agency to enlist additional technical assistance on wind power development in Belarus with the support of Austrian partners.  3. The implementation of the first wind energy development project in Veleshkovichi by the investor Turkish company Guris selected in the open auction in July 2019 was monitored until the end of the project.  4. By that time, according to the letters of Guris, they had completed the development of the project design, updated the technical specification for the grid connection; had the VES Veleshkovichi LLC registered in Liozno district (previously the juridical address of the SPV was in Minsk). The investor had received quotations for the equipment (turbines) and all construction and grid connection works.
				71400	Contractual Services-Individual	91 300,00		0,00%	91 300,00	
				71800	Contractual Services-Individual		6 204,55	0,00%	-6 204,55	
				71600	Travel - local	23 400,00	567,00	2,42%	22 833,00	
				71600	Travel - international	45 000,00	21 025,74	46,72%	23 974,26	
				72100	Contractual Services-Companies	30 000,00	39 827,49	132,76%	-9 827,49	
				76100	Gains/Losses		-55,71	0,00%	55,71	
				Total 3.3. GEF				211 300,00	81 101,51	
		4000	00012	72100	Contractual Services-Companies		5 246,02	0,00%	-5 246,02	
				76100	Gains/Losses			0,00%	0,00	
		Total 3.3. UNDP				0	5 246,02	0,00%	-5 246	
Total 3.3.						211 300,00	86 347,53	40,86%	124 952,47	
TOTAL outcome 3 GEF:						2 103 100,00	2 129 129,60	101,24%	-26 029,60	
TOTAL outcome 3 UNDP:						50 850,00	5 246,02	10,32%	45 603,98	
TOTAL outcome 3:						2 153 950,00	2 134 375,62	99,09%	19 574,38	
Outcome 4: At least 5 wind farm projects are successfully developed and the Wind Energy Support Unit continues to operate past the lifetime of the project										The work on modernization of Wind Atlas of Belarus was completed. As a result, the Atlas was registered as an informational resource and now is available for the public at <a href="https://atlas.pogoda.by/#/">https://atlas.pogoda.by/#/</a> . WESU uses Atlas and State Cadaster of RES to identify the most promising areas for future wind energy developments, prepare informational materials for the potential investors and local authorities to facilitate wind energy construction. WESU also takes an active part in the formation of secondary legislation on renewables using analytical reports prepared under the project. Analysis of the reliability of daily prediction of the generation of electricity from wind based on the weather forecasts using modern numerical models and forecasting methods for meteorological phenomena was completed, a methodology for energy production forecast based on weather forecast was prepared. This work will be continued as the proper energy output forecast depends on accuracy and frequency of the weather forecast. The project's website was kept up to date in Russian and English and became a major source of information about the project and wind energy investment in Belarus. The development of five pre-investment assets for the construction of 5 wind farms of the installed capacity of 60.7 MW was supported by a number of PR events – at least 5 such events per year had been held.
4.1	Validation of data in existing Wind Atlas of Belarus	62000	10003	71200	International Consultants	20 000,00		0,00%	20 000,00	To validate the existing Wind Atlas of Belarus the following was done: 1. The analysis of the existing Wind Atlas of Belarus with the use of the obtained wind measurement data at 5 project sites in 2017-2018, other available data on wind parameters available, was made by Belgidromet and approved by the Ministry of Environment.  2. The Wind Atlas of Belarus was developed and registered as an information resource of the Republic of Belarus, an appropriate certificate was received. The upgraded Wind Atlas of Belarus reflecting the most recent wind measurement data with the use of GIS technologies is available at <a href="https://atlas.pogoda.by/#/">https://atlas.pogoda.by/#/</a>  3. The final report with the updated Atlas and its publication is approved by the Ministry of Environment. The Wind Atlas was presented to the wide public by a short explanatory video at the project website <a href="https://www.windpower.by/news/1119.html">https://www.windpower.by/news/1119.html</a> as well as a banner for the resource is placed at the main page of the Internet-site pogoda.by.  4. As far as one of the recommendations of the mid-term review was to add an Output under the Outcome 4 on daily projection of the windfarm generation, the following was done to fulfill this recommendation:
				71300	Local Consultants	36 000,00		0,00%	36 000,00	
				71600	Travel - local	23 400,00		0,00%	23 400,00	

Description of Activity		Fund	Donor	Account	Discription of Account	Planned financial resources, USD	Utilized, USD	Progress in achieving the target, %	Difference, USD	General assessment of the activities implementation (brief)
				72100	Contractual Services-Companies	45 000,00	160 833,33	357,41%	-115 833,33	<ul style="list-style-type: none"> <li>An optimal numerical model and methods for forecasting meteorological phenomena for the use in the formation of a meteorological forecast for forecasting electricity generation from wind were determined.</li> <li>Proposals have been prepared on measures to introduce the practice of presenting a daily forecast of electricity generation from renewable sources (wind).</li> <li>Daily forecasts of electricity generation from wind were carried out based on the weather forecast, the data were processed, and the permissible percentage of error in predicting electricity generation from wind was revealed.</li> <li>Guidelines for wind turbines owners on forecasting electricity generation from wind have been developed.</li> </ul>
Total 4.1.						124 400,00	160 833,33	129,29%	-36 433,33	
4.2	Completed Web portal for the project	62000	10003	71300	Local Consultants	36 000,00	50 347,42	139,85%	-14 347,42	
				72100	Contractual Services-Companies	25 000,00	21 445,81	85,78%	3 554,19	
				76100	Gains/Losses		124,05	0,00%	-124,05	<ol style="list-style-type: none"> <li>A project website www.windpower.by was created and maintained in the Russian and English languages throughout the project implementation. The website contains information on wind energy in general and on the project implementation. After project closure the web-site will be maintained by WPFPI as a website on Wind energy in Belarus.</li> <li>All project news, videos, most of the publications, reports and fact sheets were posted on this website.</li> <li>For the duration of the project, the tender notices were also posted on the project's website with the reference to the official sources of the tender documentation.</li> <li>Four brochures, three manuals and a number of leaflets on various aspects of wind energy development were prepared under the project, published and distributed among the stakeholders. All the publications were also posted on the project website.</li> <li>2 billboards dedicated to wind energy were designed, approved by the Interagency Committee under the Ministry of Antimonopoly Regulation and Trade, produced and installed on the busiest roads of Minsk, Mogilev, Vitebsk and Grodno regions.</li> </ol>
Total 4.2. GEF						61 000,00	71 917,28	117,90%	-10 917,28	
		4000	00012	74200	Audio Visual&Print Prod Costs		1 666,87	0,00%	-1 666,87	
				76100	Gains/Losses		4,72	0,00%	-4,72	
Total 4.2. UNDP						0,00	1 671,59	0,00%	-1 671,59	
Total 4.2.						61 000,00	73 588,87	120,64%	-12 588,87	
4.3	Completed site study visits as part of project due diligence process.	62000	10003	71300	Local Consultants	9 600,00	6 487,44	67,58%	3 112,56	The project sites as well as the wind measurement sites had been visited by the PMU to monitor the implementation of the relevant project activities as well as to meet with the local authorities to discuss the issues of land allocation and grid connection.
				71600	Travel - local	23 400,00		0,00%	23 400,00	
				76100	Gains/Losses		-19,66	0,00%	19,66	
Total 4.3.						33 000,00	6 467,78	19,60%	26 532,22	
4.4	Developed, reviewed, revised, finalized and published Lessons Learned study	62000	10003	71200	International Consultants	90 000,00	31 396,53	34,89%	58 603,47	<ol style="list-style-type: none"> <li>In the period from 1 to 12 February 2018, a mission of international and national consultants for the mid-term review of the project was held. The MTR findings were considered at the Project Steering Committee meeting on 27 July, 2018. The overall rating for Project Implementation and Adaptive Management was "Moderately Unsatisfactory" (MU).</li> <li>In the period April-June 2021 terminal evaluation of the project took place. The project implementation was assessed by two independent experts – international and national ones. An overall project Outcome Rating was Moderately Satisfactory (MS).</li> <li>The informational campaigns to promote the results of the project were implemented based on the communication strategy and information programme developed at the beginning of the project. The project had a part-time PR consultant. Every year of the project implementation 5-7 PR-events were held, 80-90 articles, reviews, press releases were prepared and posted on the Project website and in other media. 4 social videos were made and broadcasted on the national TV channels as well as posted on the project website. 7 educational and promotional videos on various aspects of wind energy and project activities were prepared and posted on the project website and in project social media.</li> </ol>
				71300	Local Consultants	36 000,00	30 105,67	83,63%	5 894,33	
				72100	Contractual Services-Companies		1 459,74	0,00%	-1 459,74	
				71600	Travel	2 240,00	3 345,84	149,37%	-1 105,84	
				74500	Bank fees		8,98	0,00%	-8,98	
				76100	Gains/Losses		-58,99	0,00%	58,99	
Total 4.4. GEF						128 240,00	66 257,77	51,67%	61 982,23	
		4000	00012	74200	Audio Visual&Print Prod Costs	1 600,00		0,00%	1 600,00	
				71200	International Consultants		5 910,98	0,00%	-5 910,98	
				75700	Training, Workshops and Confer	12 000,00		0,00%	12 000,00	
Total 4.4. UNDP						13 600,00	5 910,98	43,46%	7 689,02	
Total 4.4.						141 840,00	72 168,75	50,88%	69 671,25	
TOTAL outcome 4, GEF:						346 640,00	305 476,16	88,12%	41 163,84	
TOTAL outcome 4, UNDP:						13 600,00	7 582,57	55,75%	6 017,43	
TOTAL outcome 4:						360 240,00	313 058,73	86,90%	47 181,27	
Project management										
	Project management	62000	10003	71400	Contractual Services-Individual	94 550,00		0,00%	94 550,00	<ol style="list-style-type: none"> <li>The Project Steering Committee oversaw the project implementation and had 18 meetings (7 – in absentia as a survey by e-mail; and 11 meetings in person). All meetings were recorded in minutes, signed by the UNDP Programme Officer, the Project manager and approved by the National Project Coordinator.</li> <li>Target indicators defined in the project documentation are almost achieved.</li> <li>The reports required under the Letter of Agreement and national legislation on technical assistance were all prepared and approved by UNDP and MNREP.</li> <li>The data necessary to reflect the progress of the project in the ATLAS system were prepared and handed over to UNDP.</li> <li>All in all 4 spot checks and audits were undertaken in 2017, 2018, 2019, 2021. All the conclusions were positive.</li> <li>The integrated expertise of the project was held in 2019, the report of 23 September 2019 was sent to the Ministry of Economy. The project implementation was acknowledged satisfactory.</li> <li>The project had to be extended twice – first as per recommendation of the mid-term review to catch up with the time missed at the project start. Second project extension was incurred by COVID-19 - the procedures for entering the wind measurement lidars into the National Register of Measuring Instruments had to be extended.</li> </ol>
				71800	Contractual Services-Individual		114 709,32	0,00%	-114 709,32	
				72200	Equipment and Furniture	2 500,00	419,39	16,78%	2 080,61	
				72800	IT Equipment	4 000,00	5 398,99	134,97%	-1 398,99	
				72400	Communic&Audio Visual Equip	1 200,00	1 481,54	123,46%	-281,54	
				73300	Maint & Licencing of Software		6 971,67	0,00%	-6 971,67	
				73400	Equipment Services	1 250,00		0,00%	1 250,00	
				72500	Supplies	1 000,00	192,18	19,22%	807,82	
				73100	Utilities	7 500,00		0,00%	7 500,00	
				74500	UNDP Cost Recovery Charges-Bills	33 000,00	10 629,05	32,21%	22 370,95	
				76100	Gains/Losses		201,81	0,00%	-201,81	
Total Project Management GEF						145 000,00	140 003,95	96,55%	4 996,05	
		4000	00012	71400	Contractual Services-Individual	191 550,00		0,00%	191 550,00	
				71800	Contractual Services-Individual long term		187 230,17	0,00%	-187 230,17	
				72400	Communic&Audio Visual Equip		12,89	0,00%	-12,89	
				72500	Supplies		7 933,83	0,00%	-7 933,83	
				72200	Equipment and Furniture		3 814,78	0,00%	-3 814,78	
				74100	Professional Services		15 642,17	0,00%	-15 642,17	
				74510	Bank fees		0,28	0,00%	-0,28	
				76100	Gains/Losses		90,60	0,00%	-90,60	
Total Project Management UNDP						191 550,00	214 724,72	112,10%	-23 174,72	



Description of Activity	Fund	Donor	Account	Discription of Account	Planned financial resources, USD	Utilized, USD	Progress in achieving the target, %	Difference, USD	General assessment of the activities implementation (brief)
Total Project Management					336 550,00	354 728,67	105,40%	-18 178,67	
Gains/Losses, GEF						13 511,86	0,00%	-13 511,86	
Gains/Losses, UNDP						5 550,47	0,00%	-5 550,47	
TOTAL GEF					3 045 000,00	3 030 882,88	99,54%	14 117,12	
TOTAL UNDP					300 000,00	299 338,22	99,78%	661,78	
GRAND TOTAL					3 345 000,00	3 330 221,10	99,56%	14 778,90	

UNDP Programme Officer

Igor Tchoulba

Project Manager

Maryna Belavus