United Nations Development Programme

Government of Belarus

PIMS 4462: Removing Barriers to Wind Power Development in Belarus

Final Terminal Evaluation (TE) Report

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BASIC REPORT INFORMATION

Title of UNDP supported GEF financed project: PIMS 4462 Removing Barriers to Wind Power Development in Belarus

UNDP PIMS#: 4462

GEF project ID#: 4374

Terminal Evaluation Review time frame: January 2015 – May 2021

Date of Terminal Evaluation Review report: 16 June 2021

Region and countries included in the project: Europe and Central Asia, Belarus

GEF Operational Focal Area/Strategic Program: Climate Change

Executing Agency/Implementing Partner and other project partners: Ministry of Natural Resources and Environmental Protection of the Republic of Belarus

TE members (international consultant): Mr. Manfred Stockmayer (international consultant), Mr. Viktoryia Kalosha (national consultant)

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ABBREVIATIONS

AWP	Annual Work Plan
EPBD	Energy Performance of Buildings Directive
CO2	Carbon Dioxide
CTA	Chief Technical Advisor
EBRD	European Bank for Reconstruction and Development
EUR	Euro
GEF	Global Environment Facility
GHG	Greenhouse Gas
GWh	Gigawatt Hours
I	Interview
KfW	Kreditanstalt für Wiederaufbau
kW	Kilowatt
LR	Literature Review
M&E	Monitoring and Evaluation
MNERP	Ministry of Natural resources and Environmental Protection
MTR	Mid-Term Review
MVP	Monitoring and verification plan
MW	Megawatt
MWh	Megawatt hour
NIM	National Implementation Modality
NGO	Non-governmental organization
NPD	National Project Director
NPP	Nuclear Power Plant
PIF	Project Identification Form
PIR	Project Implementation Review
PIMS	Project Information Management System
PMU	Project Management Unit
Prodoc	UNDP Project Document for “Removing Barriers to Wind Power Development in Belarus”
Project	The project under review: “Removing Barriers to Wind Power Development in Belarus”
PPG	Project Preparation Grant
RTA	Regional Technical Advisor
SMART	Specific, Measurable, Achievable, Relevant, Time-bound
tCO2eq	Tons of CO2 equivalent
TE	Terminal Evaluation
TJ	Terra Joule
ToR	Terms of Reference
UNDP	United Nations Development Programme
US$	US Dollar
WESU	Wind Energy Support Unit

1. EXECUTIVE SUMMARY

1.1 Project Information Table

Project Title	Removing Barriers to Wind Power Development in Belarus		
UNDP Project ID (PIMS #):	4462	PIF Approval Date:	12.09.2011
GEF Project ID (PMIS #):	4374	CEO Endorsement Date:	01.11.2013
ATLAS Business Unit, Award # Proj. ID:	00075891, 00087557	Project Document (ProDoc) Signature Date (date project began):	24.12.2014
Country(ies):	Belarus	Date project manager hired:	15.09.2015
Region:	Europe and Central Asia	Inception Workshop date:	18.12.2015
Focal Area:	Climate Change	Midterm Review completion date:	July 2018
GEF Focal Area Strategic Objective:	CCM-3: Promote Investment in Renewable Energy (RE) Technologies	Planned closing date:	December 2019
Trust Fund [indicate GEF TF, LDCF, SCCF, NPIF]:	GEF	If revised, proposed op. closing date:	30.06.2021
Executing Agency/ Implementing Partner:	Ministry of Natural Resources and Environmental Protection (MNERP) of the Republic of Belarus		
Other execution partners:			
Project Financing	at CEO endorsement (US$)	at Terminal Evaluation (US$)*	
[1] GEF financing:	US$ 3,045,000	US$ 3,045,000	
[2] UNDP contribution:	US$ 600,000	US$ 300,000	
[3] Government:	US$ 3,080,000 cash US$ 220,000 in-kind contributions	US$ 18,734,226 cash US$ 120,000 in-kind contributions	
[4] Other partners:	US$ 37,000,000 cash	US$ 11,959,105 cash	
[5] Total co-financing [2 + 3+ 4]:	US$ 40,900,000	US$ 31,113,331	
PROJECT TOTAL COSTS [1 + 5]	US$ 43,945,000	US$ 34,158,331	

1.2 Project Description

The project “Removing Barriers to Wind Power Development in Belarus” aims at assistance in the reduction of barriers to the widespread implementation of wind energy projects in Belarus that among others will lead to the construction of at least 25 MW of wind farms and the direct reduction of the greenhouse gases (GHG) emissions by more than 500,000 tonnes of CO2 equivalent.

A project strategy was defined by a number of outputs that are clustered by outcomes, which together will achieve the project objective and overcome the barriers identified. These outcomes are:

- Outcome 1: Secondary Legislation is in place to support wind energy with the support of the project
- 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
- Outcome 3: Wind Energy Project Technical Assistance Facility is established to support the Wind Energy Support Unit investment in and the development of documentation for at least 25 MW of wind power

- Outcome 4: At least 5 wind farm projects are successfully developed and the WPFI continues to operate past the lifetime of the project

The Project has been implemented under the UNDP National Implementation Modality (NIM). Hence, the main responsibility on project management was with the Implementing Partner, the Ministry of Natural resources and Environmental Protection (MNERP), while the day-to-day management and decision-making for the Project is the responsibility of the Project Implementation Unit (PIU). A Steering Committee has been established, which is led by the Project Director from the MNERP and consisting of all relevant stakeholders in the wind energy sector.

1.3 Evaluation Rating Table

Specific ratings as per the terms of reference for the evaluation are summarized below:

Table 1: Evaluation Ratings Summary

Evaluation Ratings:			
1. Monitoring and Evaluation	***rating***	**2. IA& EA Execution**	***rating***
M&E design at entry	MS	Quality of UNDP Implementation	S
M&E Plan Implementation	MS	Quality of Execution - Executing Agency	S
Overall quality of M&E	MS	Overall quality of Implementation / Execution	S
3. Assessment of Outcomes	**rating**	**4. Sustainability**	**rating**
Relevance	R	Financial resources:	MU
Effectiveness	MS	Socio-political:	MU
Efficiency	MS	Institutional framework and governance:	ML
Overall Project Outcome Rating	MS	Environmental:	L
		Overall likelihood of sustainability:	MU

Based on the rating for the Project Objective and the 4 outcomes (for details see section 4.3) an Overall Project Outcome Rating of **Marginally Satisfactory (MS)** is justified.

1.4 Summary of conclusions, recommendations and lessons learnt

The Removing Barriers to Wind Power Development in Belarus Project successfully managed to develop pre-investment assets as a tool to de-risk investment into wind power projects. This is the major achievement of the Project and this approach should be replicated in other countries as well as with other renewable energy technologies. The first tender for the sale of pre-investment assets (for the 25 MW Veleshkovichi wind park) was successful and generated revenue of US$ 75,000. However, the tender only managed to raise limited interest with one international and one national investor bidding for the assets. Potential reasons for this limited interest stated by stakeholders were limited project size, limited growth potential due to limited number of quotas, perception of low interest of the government in wind power due to implementation of the Ostrovets Nuclear Power Plant (NPP), etc. 4 further pre-investment assets for a total of 35.7 MW will be tendered in June 2021 and WPFI estimates to generate income between USD 30,000-40,000 per project. The revenue generated will be important to further support the operation of the "Wind Private Finance Initiative" (WPFI), which has been established for the development of the pre-investment assets and support of investments into wind power.

Implementation of the 25 MW project hasn’t started yet due to legal issues with the quota and coefficient assigned to the project. The project received the quota in 2015 and should have started

operation until end of 2018 in order to benefit from the full 10 years of tariff with a high coefficient. Due to delays in project implementation, the tender of the pre-investment asset was only launched in 2019. Following the awarding of the project to the winning bidder (Guris), the bidder tried to extend the commissioning deadline to benefit from the high coefficient in the first 10 years. In May 2021, the quota committee decided to agree to a commissioning deadline in 2022 and a coefficient of 1.05 for the first 10 years. However, the committee also required Guris to sign an investment agreement with the Vitebsk Regional Committee with the concurrence of the Head of the State. This is further delaying the implementation of the project. The objective of the project was to facilitate the installation of 25 MW of wind power capacity leading to a generation of more than 1 million MWh of renewable energy and achieving direct greenhouse gas emission reductions totaling to more than 500,000 tons of CO2 equivalent. With the 25 MW Veleshkovichi wind park still under development and 4 further pre-investment assets developed, but not yet sold, these impacts are clearly missed. The investment of Guris is likely to continue, but confirmation will only be available once the project has reached commissioning (planned for beginning 2022).

The main focus of the project was to remove barriers for the implementation of wind power projects in Belarus. There were positive contributions towards barrier removal on financial/investment barriers by the launch of the WPFI and the development of pre-investment assets as a de-risking tool. Informational barriers were removed by the development of manuals, carrying out of wind measurements, etc. There were some contributions towards removal of legislative/regulatory barriers by the development of standards and guidelines, but no feed-in tariff or auctioning system was introduced to fully overcome this barrier. Institutional barriers were not removed and there is still a complicated, bureaucratic system to get approvals for wind power projects, which is not attractive for investors. Overall, implementation of the Project was overshadowed by the installation of the NPP.

A detailed analysis of all findings of the Terminal Evaluation is included in Chapter 4, with a more extensive summary in section 5.2.

There are a number of corrective actions to be suggested based on the experience and lessons learnt of the Removing Barriers to Wind Power Development in Belarus for future projects. These are as follows:

- When preparing the Prodoc, good care needs to be taken on reviewing assumptions and risks in a project, especially if development of a project idea took several years. In the case of the Belarus Wind project, around 5 years passed between the endorsement of the PIF and actual start of work on the Project. It seems that there was no critical review on assumptions and risks during Prodoc development, otherwise, the role of the NPP should have been seen much more critical.
- As a follow-up to the previous comment, there should be a strong focus on the inception phase especially if time has passed between PIF/Prodoc development and project start. The purpose of the inception phase is to set-up the project management system and to critically review the Prodoc with key stakeholders involved in the implementation of the project. Changes since project definition, new challenges or wrong assumptions should be critically investigated and – where necessary – considered in the activities under the project.
- As in many other projects, the ProDoc included the adoption of policies and regulations as an output. Whereas projects can commit to work on policies and regulations, the adoption of these legal documents is in many cases not dependent on the quality of work provided by the project, but on political decisions. Projects should therefore be careful with the level of commitment when it comes to the legal framework.

- Co-financing statements of private sector should be critically reviewed at all times. As shown in this project, none of the private sector co-financing committed at CEO endorsement actually realized.
- The Project Results Framework should have been reviewed more critically during development of the Prodoc and the inception phase. The project size (25 MW) is mentioned in several indicators and an indicator based on the availability of GEF funding is not logical (if there is no GEF funding, there is no project).
- Project design, especially the Project Results Framework and the M&E system should include interim targets and milestones, as these are helping project management in checking progress and taking steps of adaptive management, if necessary.

There are a number of actions, which should be followed up to achieve sustainable benefits from the Project. All recommendations are listed in the table below, the main recommendations are then described after the table (for full version of recommendations, please see section 5.4):

Recommendation	Recommendation Explained	Who, When?
1	Promotion of de-risking approach applied and replication in other countries: further application of the approach in other countries in the region.	UNDP Istanbul Regional Hub/UNDP HQ
2	Support Ministry of Energy in implementation of auctioning: drawing on the experience gained and documentation developed during the course of the Project, support Ministry of Energy in the implementation of auctioning	MNREP, UNDP
3	Further development of methodology for the daily projection of wind energy generation: further development, especially on inputs from weather forecasting	MNREP, Belhydromet, Ministry of Energy
4	Further support of work of WPFI: nurture the demand for new wind power projects, support in tendering of pre-investment assets	MNREP
5	Improve work on environmental impacts of wind power: carrying out a Strategic Environmental Review for wind power for the entire country	MNREP
6	Finalize guidelines and publish them on project website: finalize the work on guidelines and publish them together with all standards on the Project website	PIU
7	Investigate procurement support by UNDP in NIM implemented projects: investigate how support can be given to projects implemented under NIM	UNDP
8	Agree on future of project website: discuss future of the website with a clear aim of maintaining the site as an information platform for wind energy	MNREP, UNDP

- The de-risking approach applied in this Project – development of pre-investment assets – has been the main success story. Developing a pre-investment asset helps to reduce the risk for investors, thereby increasing the likelihood of successful project implementation and at the same time reducing the cost of electricity generation. Due to the challenging circumstances in

this project, the de-risking approach could not enfold its full benefit, still it is worthwhile to promote this approach and replicate it in other countries. The further application of the approach in other countries in the region should be pursued by UNDP and a strategy should be developed for disseminating the de-risking approach on a more strategic basis with support from UNDP Istanbul Regional Hub/UNDP HQ. It is also worthwhile to look at disseminating this approach outside of the region and expanding to other renewable energies, such as solar PV. A follow-up on the De-risking case study would be helpful in showing the actual application of a de-risking tool.

- The Project has tried hard to suggest the implementation of an auctioning system for wind power in Belarus, with little success up to now. The benefits of an auctioning system are manifold, but the main benefits are a competitive approach among bidders leading to competitive costs of generation and on the investor's side an increase of investment security through a fixed tariff. The Ministry of Energy has indicated that an auctioning system could be implemented until the end of 2021. It is up to MNREP in cooperation with UNDP to provide support to the Ministry of Energy in these efforts, mainly by drawing on the experience gained and documentation developed during the course of the Project.
- Under Outcome 4 a methodology for the daily projection of wind energy generation was developed. While testing the methodology, it became clear that further development of the methodology is necessary to decrease the errors (up to 40% at the moment) to less than 10%. MNREP shall take a lead on the further development of the methodology. Involvement of Belhydromet will be necessary to improve the inputs from weather forecasting. Further, the involvement of the Ministry of Energy and Belenergo will help in getting acceptance for the methodology and its results.
- The WPFI has been established as an entity with the required capacity and know-how to develop pre-investment assets for wind power projects and there is a positive view on the sustainability of the entity. The main risk is the lack of demand in wind power, which could be compensated by WPFI with work on other renewable energy sources or in other countries, however, there is a risk that there is too little demand. As the WPFI is under the MNREP, the ministry has the opportunity to nurture the demand for new wind power projects, thereby supporting the operation of the WPFI. As WPFI also indicated that they will work on their own initiative on the development of pre-investment assets, support in tendering these assets will increase the likelihood of survival of the WPFI.
- The Prodoc has been relatively lean on the potential negative environmental impacts of wind power on flora and fauna. During the implementation of the Project, the PIU has taken several steps in correcting this, for example by carrying out a study on birds and bats in the Mogilev region. A more strategic approach should be followed by the MNREP by carrying out a Strategic Environmental Review for wind power for the entire country. This work should be built on the work of the Project, such as the wind atlas, the cadaster on RES and the work on birds and bats carried out under the Project.
- While the first pre-investment asset has been sold to an investor, the outcome of the tendering process has been disappointing, as only one international and one national company applied. The PIU has tried to establish contacts with potential investors (this included support from international consultants), but it has proven challenging to contact a large enough group of potentially interested investors to have at least a hand full of investors participating in a tender. In cases of investments, it is advisable to use the possibility of UNDP to reach out to a wide group of companies. UNDP has recently tendered for an IPP to implement a 10.5 MW solar PV project in Gambia and the tender was able to collect more than 40 expressions of interest. This shows that UNDP's is extremely effective in attracting potential investors and operators. UNDP is to investigate how this support can be given to projects implemented under NIM.

2. INTRODUCTION

2.1 Purpose of the evaluation

The “Removing Barriers to Wind Power Development in Belarus” project (PIMS #4462) was signed in July 2014 and started its operation on 1 January 2015. The project had an original closing date of 31 December 2019. As a result of the MTR, the project was extended in 2 steps by a total of 18 months to 30 June 2021. The project aims at reducing barriers to the widespread implementation of wind energy projects in Belarus, leading to the construction of at least 25 MW of wind farms and the direct reduction of Greenhouse Gas (GHG) emissions by more than 500,000 tonnes of CO2 equivalent over the lifetime of the wind farms. This objective is in line with the main strategic objective of the energy policy of the Republic of Belarus - to achieve sufficient level of energy security by increasing non-traditional energy sources including Renewable Energy Sources (RES). Development of RES and improvement of Energy Efficiency (EE) contributes also to the fulfilment of the international commitments of Belarus including under the United Nations Framework Convention on Climate Change (UNFCCC) to mitigate the impact of climate change.

The project is built around four outcomes:

- Outcome 1: Secondary Legislation is in place to support wind energy with the support of the project
- 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
- Outcome 3: Wind Energy Project Technical Assistance Facility is established to support the Wind Energy Support Unit investment in and the development of documentation for at least 25 MW of wind power
- Outcome 4: At least 5 wind farm projects are successfully developed and the WPFI continues to operate past the lifetime of the project

In accordance with UNDP and GEF requirements, the project is required to undertake a Terminal Evaluation (TE) now at the end of its project lifetime. The objectives of the TE are to assess the achievement of project results, to assess the extent to which the project has successfully carried out adaptive management following the mid-term review, to promote accountability and transparency, to provide feedback on issues that are recurrent across the UNDP portfolio and need attention, to contribute to the overall assessment of results in achieving GEF strategic objectives aimed at global environmental benefits and to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of future UNDP programming.

2.2 Scope and Methodology

The TE was undertaken in line and accordance with the updated 2020 guidance provided in “UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects”. In terms of scope, the TE covered all aspects of the development and implementation of the Project, from the preparation of the PIF up till and including the Terminal Evaluation Mission (with most interviews being held virtually) and included inputs to activities, to outputs, outcomes and impacts.

The rating scale applied in this project is consistent with the UNDP Guidance for Conducting Terminal Evaluations of UNDP supported, GEF-financed projects, and is summarized in the table below.

Table 2: Rating Scales

Ratings for Outcomes, Effectiveness, Efficiency, M&E, I&E Execution	***Sustainability ratings:***	***Relevance ratings***
6: Highly Satisfactory (HS): no shortcomings 5: Satisfactory (S): minor shortcomings 4: Moderately Satisfactory (MS) 3. Moderately Unsatisfactory (MU): significant shortcomings 2. Unsatisfactory (U): major problems 1. Highly Unsatisfactory (HU): severe problems	4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML):moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks	2. Relevant (R) 1. Not relevant (NR) ***Impact Ratings:*** 3. Significant (S) 2. Minimal (M) 1. Negligible (N)
Additional ratings where relevant: Not Applicable (N/A), Unable to Assess (U/A		

2.3 Structure of the Terminal Evaluation Report

The structure of the evaluation report follows the “Evaluation Report Outline” presented in Annex F of the ToR of the assignment with some minor modifications. The Executive Summary is providing a quick overview on the main project results, ratings, other observations and recommendations for further work.

3. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

3.1 Project start and duration

The Project Document was signed 24 December 2014 and the Project had an original closing date of December 2019. The LPAC meeting was held on 16 April 2014. The Project was extended for 12 months plus a further 6 months due to the COVID-19 pandemic, the project closing date was changed to 30 June 2021.

3.2 Problems that the project sought to address

The objective of this GEF-financed project was to remove barriers to wind power development in Belarus and achieve installation of over 25 MW of nameplate generating capacity with a minimum of 5 MW per project. These projects would generate more than 1 million MWh of renewable energy and achieve direct greenhouse gas emission reductions of more than 500,000 tonnes of CO2 equivalent over the 20 years lifetime of the project technology.

The ProDoc identified a number of barriers which the Project sought to overcome:

- Institutional barriers – related to the absence of the effective institutional infrastructure for the development of RES
- Legislative/regulatory barriers – related to secondary legislation, standards and guidelines
- Financial/investment barriers – Lack of finances for pre-construction activities (potential sites identification, wind measurements, environmental impact assessments, pre-feasibility and feasibility studies), as well as high interest rates in case of loan financing
- Informational – lack of confidence in the profitability of wind power projects among the decision-makers (in government agencies and local authorities, public institutions, companies, project developers, financial sector)

A project strategy was defined by a number of outputs that are clustered by outcomes, which together will achieve the project objective and overcome the barriers identified. These outcomes are:

- Outcome 1: Secondary Legislation is in place to support wind energy with the support of the project
- 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
- Outcome 3: Wind Energy Project Technical Assistance Facility is established to support the Wind Energy Support Unit investment in and the development of documentation for at least 25 MW of wind power
- Outcome 4: At least 5 wind farm projects are successfully developed and the WPFI continues to operate past the lifetime of the project

3.3 Immediate and development objectives of the project

The development objective of the Project was to provides assistance in the reduction of barriers to the widespread implementation of wind energy projects in Belarus. The immediate objective is measured by the extent to which the Project succeeds in developing at least 5 projects that directly or indirectly leads to the permitting, financing, constructing of as many as 25 MW of wind farms in Belarus which are commissioned during the five year project period. The Project's goal is to develop these wind

farms in a way that provides a template and opens the door for future development of wind farms by private developers.

3.4 Main stakeholders

Due to the complex nature of the Project a considerable number of stakeholders were identified in the Prodoc. These include government institutions, private sector, NGOs, international and local financial institutions. The main Project stakeholders include:

- Ministry of Natural Resources and Environmental Protection (MNREP) – According to the RE Law, MNREP performs identification and inventory of sites for the possible placement of installations for the use of RES; maintains the state cadastre of RES; determines the procedure for wind monitoring and data binding of meteorological stations to selected sites for the possible placement of wind farms; issues a certificate of confirmation of the origin of energy
- Ministry of Economy – was responsible (until 2017) for establishing tariffs for energy produced from RES and purchased by state energy supplying organizations (as of mid-2017 this function has been transferred to MART)
- Ministry of Energy - ensures a guaranteed connection to the state grids of installations for the use of RES; ensures the purchase by state energy supplying organizations of all the energy produced from RES and supplied by energy producers from RES
- Ministry of Antimonopoly Regulation and Trade (MART) – responsible for setting tariffs for RES. MART wasn't identified in the ProDoc because at that time the Ministry of Economy was authorised for tariffs as well as for tariff-setting methodology
- National Agency on Investment and Privatisation - a division of the Ministry of Economy, authorized to represent interests of the Republic of Belarus on the issues of attracting investment and acts as a "one-stop shop" for a foreign investor. Renewable energy is one of the priority areas for the Agency
- Department for Energy Efficiency - a division of the State Standardization Committee, develops national concepts and plans for energy efficiency and renewable energy and monitors their implementation
- State Electricity Production Association ("Belenergo") - provides wind farms with access to its electric transmission system; Belenergo will pay for all necessary transmission upgrades; will pay appropriately documented wind farms the feed-in-premium rate
- Non-governmental organizations: "Green Network" Civil Association; "Ecoproject Partnership", Renewable Energy Association, APB-BirdLife Belarus, etc.
- Research & Development institutes: Belarusian Research Centre "Ecology" (an entity subordinate to the MNREP) – together with ENECA has founded WPFI
- EBRD - USD 50 million to foster sustainable energy investments; credit lines to local banks for on-lending to industrial companies and SMEs undertaking EE and RE projects
- KfW - It has a possibility to support renewable energy projects in Belarus via European Fund for Southeast Europe
- IFC – was not identified in the ProDoc but presented in the Inception report. During the Project implementation the PIU established communication (and potentially, cooperation) with IFC
- Belinvestbank - supports EE and RE projects under the USD 50 million credit line created by the EBRD in the framework of Belarus Sustainable Energy Finance Facility (BelSEFF)

3.5 Expected Results

At project inception, the expected results were as follows:

- Outcome 1: Secondary Legislation is in place to support wind energy with the support of the project
    - Output 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.
    - Output 1.2: Formulated and enforced Secondary Legislation
    - Output 1.3: New/Improved Technical Norms and Standards
    - Output 1.4: Creation of WPFI
- 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.
    - Output 2.1: Awareness raising program for decision makers
    - Output 2.2: Specialized local engineering
    - Output 2.3: Introduce RE related curricula at Universities
    - Output 2.4: Completed support for ancillary services
    - Output 2.5: Developed and published manuals
- 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
    - Output 3.1: Completed support provided for potential site developments
- 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
    - Output 4.1: Validation of data in existing Wind Atlas of Belarus
    - Outcome 4.2: Completed Web portal for the project
    - Outcome 4.3: Completed site study visits as part of project due diligence process.
    - Outcome 4.4: Developed, reviewed, revised, finalized and published Lessons Learned study

4. FINDINGS

4.1 Project Design/Formulation

Analysis of LFA/Results Framework (Project logic /strategy; Indicators)

Project logic/strategy and indicators are discussed below in chapter “Feedback from M&E activities used for adaptive management”.

Assumptions and risks

The project was based on a number of key assumptions, the most important ones were:

- Political will to accelerate energy production from RES
- Interest of the government in replacing the feed-in premium (as a percentage of a base price) existing at that time with a feed-in tariff (a fixed tariff, independent of a base price)
- Sufficient electricity demand to take up electricity production from RES
- The project manages to acquire permits or to negotiate Investment Agreements that are acceptable to developers/investors and there is continuous interest of investors in wind power development
- Feasibility studies prove cost-effectiveness of wind energy technologies in Belarus context

During the implementation of the project – and that was already well pointed out in the MTR – it showed that the definition of assumptions and analysis of related risks were flawed. A key assumption was that there is a political will to accelerate energy production from RES. It is correct that the importance of RES in general and wind energy in particular was mentioned in various strategic documents developed in the country. These documents either mentioned specific shares of RES (e.g. a target of 5%, for 2015 and 6% for 2020 in the Energy Security Strategy/Concept) or specific numbers of wind power plants to be installed within a certain time frame (e.g. State Power Industry Development Programme (2012) up to 2016: 150-280 MW, National Programme for Development of Local and Renewable Energy Sources in 2011–2015 (2011): 224 wind turbines of 440-460 MW total capacity).

While renewable energy related policies were correctly analyzed in the ProDoc, the plans to implement a 2,400 MW Nuclear Power Plant (NPP) were almost totally neglected, with only minor references in the document. Concrete steps towards the construction of the NPP were already taken as early as August 2008, when the Ministry of Energy announced that proposals for the construction of the NPP had been received from Atomstroyexport, Westinghouse-Toshiba and Areva.[1] In June 2009 the government announced that Atomstroyexport would be the general contractor. A general construction contract was signed in July 2012 and construction actually started in May 2014.

With an expected generation of around 18 TWh, the NPP will provide around 50% of the currently electricity supply of 38 TWh (information from Ministry of Energy). The NPP will be operated as a base-load plant and has very limited possibility of adapting its output to the electricity supply (the Ministry of Energy mentioned a maximum of 8% variation in output). It is expected that there will be an excess of electricity during night times and in summer, hence, the government has announced plans to increase electricity demand, e.g. through electric boilers, electric heating of houses or electric mobility.

[1] https://www.world-nuclear.org/information-library/country-profiles/countries-a-f/belarus.aspx

One of the main disadvantages of wind energy is the instability of generation, which is fully depending on the wind. In electricity grids, where there is sufficient medium- and peak-load capacity (usually gas fired power plants), the integration of a certain level of wind power is easily manageable. However, if the entire demand over a considerable period of time is supplied by a base-load plant (like in the case of Belarus the NPP), the integration of wind is extremely challenging – and in the end will lead to a situation, where there is little interest by the government to accelerate energy production from wind power. This is exactly what has happened in Belarus and having this background in mind, it is difficult to understand why the planned NPP has received so little interest in the preparation of the ProDoc. The potential impact of the NPP is mentioned in the Inception Report, however, the magnitude of challenges faced has been considerably underestimated.

As a consequence it can be concluded – and this conclusion was already mentioned in the MTR Report – that the interest of the government to introduce a feed-in tariff with a fixed tariff has been overestimated. This had negative direct effects both on the work of the Project and on the ability to achieve project outcomes, such as Outcome 1, which has as the indicator “A financeable feed-in-tariff including transmission charges”.

Closely related to the positive policy framework and the interest of the government to provide stable economic conditions was the interest of investors in wind power development, but this has neither been evidenced in the Project design nor confirmed during the Project implementation with only 2 companies (one national, one international) bidding for the first pre-investment asset. The reasons for this lack of interest are not fully clear, but stakeholders mentioned a number of potential reasons during the TE interviews:

- Limited project size
- No growth potential due to limited number of quotas
- Perception of low interest of the government in wind power due to implementation on NPP
- Complicated, bureaucratic process to develop and implement projects
- Risk of high-level decisions, which have a negative impact on existing contracts and projects
- Much better terms and framework conditions for investments into wind power in other countries
- Political risk incl. possibility of nationalization of assets

Lessons from other relevant projects incorporated into project design

In the Prodoc, the focus was on identifying relevant stakeholders rather than analyzing which lessons from other projects can be integrated into project design. The only relevant reference was to the World Bank’s programme ESMAP-REMTI “Belarus: Renewable Energy Legislation Harmonization with the E.U.”. This project provided various recommendations concerning the improvement and harmonization of the Belarus and EU RES legal and regulatory framework, as well as technical standards and requirements related to RE and an assessment of policy, institutional and other barriers to scaling-up RE in Belarus.

Planned stakeholder participation

The stakeholder participation planned under the Prodoc foresaw the setup of a Steering Committee to be chaired by the Project Director (MNREP) and inclusion of representatives from the main stakeholders, including the Ministry of Environment, the Ministry of Economy, the Energy Efficiency Department under the State Committee on Standardization, UNDP and other organizations (there was no further detail in the Prodoc on the setup of the Steering Committee). The plan was also to keep the

Steering Committee sufficiently lean to be operationally effective. The Wind Energy Support Unit (WESU) was setup as with the responsibility for providing information support to WPFI and for coordinating the interaction of the latter with the government. The Wind Private Finance Initiative (WPFI) was founded by the engineering company ENECA (selected through a tender) and the Belarusian Research Center "Ecology" (an organization subordinate to MNREP) with the focus on developing the pre-investment assets under the project.

The actual setup of the Steering Committee was slightly broader than envisaged and included additional stakeholders such as Ministry of Finance, RUE PA “Belorusneft”, HydroMet, NGO “Green Economy”, SPA “Belenergo”, JSC “Belinvestbank”the testing laboratory RUE “BelGIE” and representatives of the armed forces. This proved to be a good decision, as the minutes of the committee meetings show both a very active participation of all stakeholders throughout the lifetime of the Project and a very intensive discussion on key topics related to the development of wind power. As such, the Steering Committee not only took the role of coordinating the activities of the Project, but served as a coordination entity for the entire wind power development in Belarus, which was helpful. The WESU was not setup as planned in the Prodoc and a recommendation was made in the MTR to include further stakeholders and strengthen the role of the WESU. The suggested nomination of additional members was not supported by the Project Board members. The WESU is a technical committee and the work provided is seen as helpful. By including other stakeholders the WESU would get a political direction, which is not intended and would not been helpful.

Replication approach

The replication approach of the Project was based on removing barriers towards investment into wind power projects through the development of pre-investment assets. These pre-investment assets would give international and national investors easier access to feasible wind power projects. By setting up companies, carrying out wind measurements, developing pre-feasibility/feasibility studies and getting required approval, the risk for investors would be diminished.

The selection of this de-risking tool was excellent, as it didn’t focus on developing a financial support mechanism (which always raises the question of sustainability after project end), but on a tool to reduce the initial hurdle for investors. Once the tool is applied for initial projects and capacity has been build up to develop the pre-investment asset, this can be repeated for further projects. If applied successfully, this tool can also be replicated in other countries and for other technologies.

Linkages between project and other interventions within the sector

The main linkages with the Project were with an initiative of IFC on preparing a standard Power Purchase Agreement (PPA) and the activities of EBRD in Belarus. IFC welcomed the results of the de-risking case study carried out by UNDP for Belarus. The IFC also has been active in their own project in Belarus, aiming at developing a standard Power Purchase Agreement in cooperation with the government. This work was put on hold due to lack of interest from the side of the Ministry of Energy.

EBRD had been active in the BelSEFF (Belarus Sustainable Energy Finance Facility) and provided funding to Belinvestbank. One of the wind power projects implemented by VetroVatt LLC (a 6 MW wind park) received debt funding from Belinvestbank. EBRD stopped their program in autumn 2020 and the BelSEFF website is offline.

Management arrangements

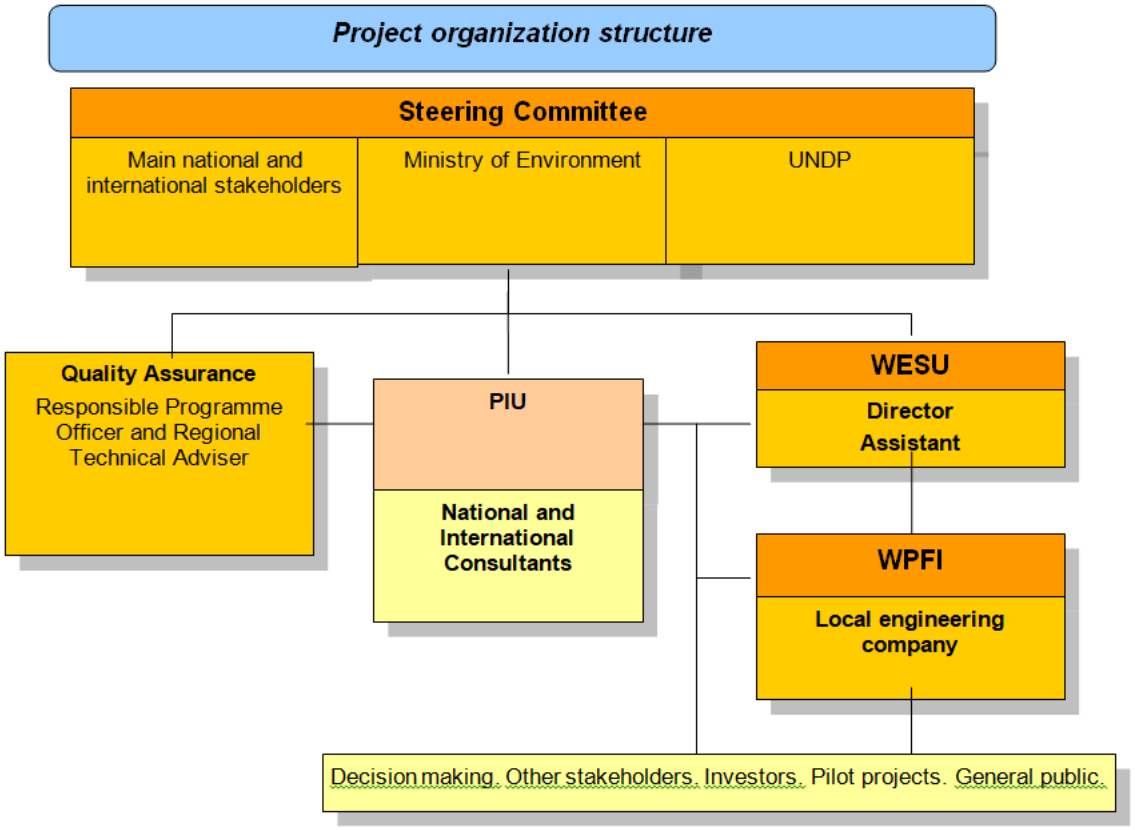
The Project has been implemented under the UNDP National Implementation Modality (NIM). Hence, the main responsibility on project management was with the Implementing Partner, the Ministry of Natural resources and Environmental Protection (MNERP), while the day-to-day management and decision-making for the Project is the responsibility of the Project Implementation Unit (PIU) hired by the MNERP. UNDP was responsible for oversight including organizing the annual Project Implementation Reviews (PIRs) and the mid-term review and the final evaluation.

The PIU consists of a Project Manager (Maryna Belavus), a wind energy engineer (Yuri Grigorenko) and an Administrative and Financial Assistant (AFA). All of them were working full-time until end of 2020, since January 2021 part-time. The PIU has received part-time support from a PR consultant (Olga Lelyukova), a legal consultant (Alexander Gnedov) and a procurement consultant (Vladimir Shtaida). The project also employed several international consultants over the lifetime of the project on a part-time basis.

A Steering Committee has been established, which is led by the Project Director from the MNERP and consisting of all relevant stakeholders in the wind energy sector. The Steering Committee held 16 meetings during the course of the Project (1 meeting in 2015, 2 in 2016, 4 in 2017, 2 in 2018, 3 in 2019, 2 in 2020 and 1 in 2021). The meetings were chaired by Deputy Minister of Natural Resources and Environmental Protection.

The figure below shows the original project organisation structure.

Figure 1: Project Organisation Structure



Social and Environmental Safeguards

No SESP has been included in the ProDoc, therefore no assessment of the SESP and related management measures was carried out.

4.2 Project implementation

Adaptive management, incl. changes to the project design and project outputs during implementation

Throughout the implementation of the Project, adaptive management interventions were required to correct shortages in project design and to react on new developments during project implementation. Cases of successful adaptive management were:

- To support the start phase of the WPFI (setup as a private-public cooperation), consulting company ENECA signed a contract with MNREP. As the contract expired, ENECA didn't show further interest in working with WPFI and terminated work. WPFI was able to cope well with this new situation and the capacity to provide support to wind projects hasn't been decreased.
- The quota for the 25 MW wind park was assigned in 2015 with an implementation timeframe until 2018. Due to delays in project preparation (ramp-up of project activities, wind measurements, approval process, selecting an investor etc, …), an implementation within the required timeframe (end of 2018) was not possible. This would have meant less than 10 years of production under the high coefficient for the first 10 years. Support by the PMU was required to extend the timeline for implementation of the project to the end of 2022.
- During the course of the project and facing the difficulties with quotas, the implementation of wind power projects for captive use has been actively developed by the PMU in cooperation with WPFI, this is a good example of adaptive management. Under this arrangement, a company with high electricity demand implements and operates its own wind power plant. The wind park is either - in a limited number of cases – directly connected to the production facility of the investor or electricity generated is transmitted via Belenergo's transmission lines against a fee.
- A methodology of forecasting generation from wind power projects has been developed under the Project as adaptive management. It turned out that this is a major limitation for wind power projects especially in a situation, where high baseload levels are provided by the NPP. A first version of the methodology has been prepared and tested, further work is required to improve the accuracy of forecasting.
- Following the recommendation of the RTA to hire an international CTA to sign off on the methodology and approach for the pre-investment assets tender after UNDP indicated to the MNREP that it could not fulfill this role which led to significant delays in launching the tender to select the investor.
- Implementation of recommendations from MTR: the majority of recommendations from the MTR Report were implemented as planned.

These measures of adaptive management were helpful in improving the performance of the Project.

Partnership arrangements (with relevant stakeholders involved in the country/region)

The main vehicle for cooperation among stakeholders was the Steering Committee (SC) setup under the Project. The SC was managed by MNREP and included all main stakeholders in the wind sectors, such as UNDP, Ministry of Energy, Ministry of Economy, Ministry of Finance, Belorusneft, Belhydromet, Belenergo, Belinvestbank, testing laboratory RUE “BelGIE”, as well as representatives of NGOs and the private sector.

It is important to note that the Steering Committee played a stronger role than only coordinating the work of the Project. The SC meetings provided a platform for all relevant stakeholders in the wind power sector to meet, discuss relevant topics on regulatory, technical, organizational or financial issues and look for joint solutions. As such, the SC became a steering committee for the entire wind power sector in Belarus. Unfortunately, the limitations in commitment towards a further increase of the role of wind energy in Belarus prohibited a more successful outcome of these meetings and the Project.

During the course of the Project, 9 study tours (to Germany, Denmark, Ukraine, Austria, France, Sweden, Poland) were organized. The aim of these study tours was to get acquainted with the latest achievements in the field of wind power, learn more about construction of wind power plants, establish partnerships with international organizations in the wind energy sector or getting information on Green Certificates. These study tours helped to establish bilateral co-operations, such as with the Ukrainian Wind Association or with the Austrian Energy Agency.

Feedback from M&E activities used for adaptive management

The key recommendations of the Project’s mid-term review conducted in July 2018 were as follows:

Recommendation 1: Hire and engage the international consultant for investment component on Wind Energy Financing

An international CTA has been hired in August 2018 to support the work of the Project Team with a focus on preparing the pre-investment assets for sale and marketing the projects to international investors. Whereas the CTA was hired to support the preparation and marketing of the pre-investment assets for 5 projects, only the 25 MW project was promoted due to the availability of quotas. The contract with the CTA was terminated early based on that reason. The input of the CTA was seen as very helpful in preparing the pre-investment assets. Although the CTA has been active as an investor in wind power, the tender for the 25 MW only resulted in one bid from an international company, which is rather disappointing.

Recommendation 2: Strengthening the capacity of WESU through nominating of additional WESU members and regular meetings and follow-up

The recommendation to include further stakeholders as WESU members was promoted by the PMU and discussed with stakeholders (including Ministry of Environment, Ministry of Energy and Ministry of Economy). The suggested nomination of additional members was not supported by the Project Board members. The WESU is a technical committee and the work provided is seen as helpful. By including other stakeholders the WESU would get a political direction, which is not intended and would not been helpful.

WESU is meeting regularly, however, no meeting dates or minutes were available.

Recommendation 3: To shift the focus for the improvement of the legal & Regulatory framework from the Feed-in-Tariff scheme to the Auction mechanism

The Project has focused its work on promoting the implementation of an auctioning mechanism and has developed documentation clearly identifying the benefits of such a mechanism. At the moment, there is no legal document implementing the auctioning system. During the de-briefing meeting as well as during the final project workshop the Ministry of Energy announced that the auctioning mechanism will be implemented by the end of 2021. This modification will be accompanied by an extension of the investment cycle from 3 years to 5 years, as 3 years proved too short especially for wind power projects.

Recommendation 4: Provide TA for development of future electricity demand-supply patterns

Based on this recommendation, an analysis modelling three different models of the balance of the energy system of Belarus for the period up to 2030 have been developed. Moreover, a market research on enhancing energy consumption and export of green energy in Belarus was carried out.

Recommendation 5: Support Project Developers with establishing closer cooperation with IFIs, local Banks involved in financing of wind energy projects

The PMU worked both with national and international financing institutions, such as Belinvestbank, Bank of Development of Belarus, IFC and EBRD. All entities confirmed their interest in financing wind power projects. IFC had their own project in Belarus, aiming at developing a standard Power Purchase Agreement in cooperation with the government. This work was put on hold due to lack of interest from the side of the Ministry of Energy. EBRD has been active in the BelSEFF (Belarus Sustainable Energy Finance Facility) and provided funding to Belinvestbank (which provided funding for a 6 MW project of VetroVatt LLC). EBRD stopped their program in autumn 2020 and the BelSEFF website is offline.

Information from Guris confirms that there is still sufficient interest from debt providers, with BPS/Sberbank, Belinvestbank, Development Bank of the Republic of Belarus having provided offers for the debt financing of the 25 MW Veleshkovichi project.

Recommendation 6: Add an Output under the Outcome 4 on daily projection of the windfarm generation

A methodology has been developed to project daily production and now being tested with the Training center of the Ministry of Environment, which owns a wind turbine of 2.5 MW. The testing of the methodology showed that forecasting is challenging. Whereas other models (e.g. in Austria) can keep forecasting errors below 10%, errors of up to 40% were reported. This is not only about the model, but also about data available for forecasting (e.g. weather forecasting is only available for 3 hour slots, whereas 1/2 hour slots would be optimal).

Recommendation 7: Extend the Project duration until December 31, 2020 as a no cost extension

The end date of the Project was extended to 30 June 2021. This was based on the recommendation of the MTR Report to extend to 31 December 2020 and a further 6 months extension to cope with delays in relation to COVID-19.

Recommendation 8: Revision of the Project Results Framework by the international CTA and the Project Manager

The MTR proposed a revision of the Results Framework taking into account that targets should be consistent and the overall level of ambition of the project should not be reduced. It was suggested to reduce the number of selected projects but the overall target can and should stay unchanged (at least

25 MW). The target for Outcome 1 shouldn't include FiT scheme and an additional output should be added (see the Recommendation 6) to the Outcome 4. The only modification implemented is the addition of the output "A methodology for the daily projection of wind energy generation is developed". Other revisions were not approved by the Steering Committee. This is surprising, as the modifications would have helped the project in getting closer to the targets.

As a result, the majority of recommendations suggested during the MTR were implemented.

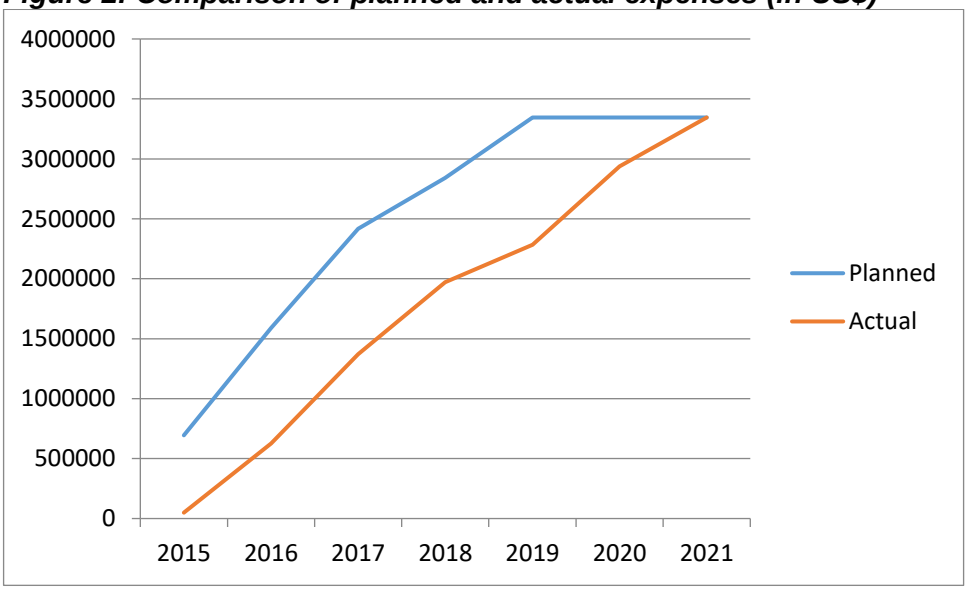
Project Finance

The following table gives an overview on the project budget and expenditures from project start in 2015 including planned expenses until June 2021. It is to be noted that the expenses planned for 2021 haven' been approved up to now.

Table 3: Total Project Budget and Expenditures (in US$)

Outcome	2015	2016	2017	2018	2019	2020	2021	Total
Outcome 1	13,482	27,315	76,537	80,120	6,510	57,916	0	261,879
Outcome 2	2,659	90,240	94,685	9,647	28,151	26,900	1,200	253,483
Outcome 3	5,969	381,466	493,626	393,803	192,939	312,855	370,732	2,151,391
Outcome 4	2,336	16,926	14,954	26,144	16,366	183,267	7,700	267,694
Monitoring and Evaluation	0	1,467	3,500	28,180	4,616	2,417	25,162	65,341
Project Management	24,638	60,607	61,503	62,692	61,415	70,936	3,420	345,211
Total	**49,085**	**578,022**	**744,806**	**600,585**	**309,997**	**654,291**	**408,214**	**3,345,000**

Figure 2: Comparison of planned and actual expenses (in US$)



The following table shows the project expenditures by budget lines and compares plan and actual.

Table 4: Project expenditures by budget lines (in US$)

	Plan	Actual	Deviation
International Consultants	470,000	191,061	278,939
Local consultants	327,550	345,176	-17,626
Contractual services – individuals	550,100	367,790	182,310
Contractual services – companies	1,095,000	1,214,906	-119,906
Direct Project Cost-Staff	30,000	10,978	19,022
Communication	1,200	1,594	-394
Office supplies	2,750	8,272	-5,522
Travel	400,000	187,468	212,532
Miscellaneous	15,450	58,086	-42,636
Equipment and Furniture	260,500	730,074	-469,574
Professional services	0	18,904	-18,904
Printing and publication costs	9,600	26,926	-17,326
Workshops and meetings	182,850	183,764	-914
Total	**3,345,000**	**3,345,000**	**0**

After having the official start in December 2014, it took until September 2015 to hire the project manager and until December 2015 to carry out the Inception Workshop. As a result, expenses were delayed in the first 2 years. While this slow start – which is also attributed to the lengthy national registration procedure – limited progress in the first 2 years, it was helpful in having sufficient budget to extend the project for an initial 12 months followed by a 6-months no-cost extension due to COVID-19.

Annual expenses for each year were in line with the Annual Work Plan (AWP) for each year. The AWPs were signed off by the Steering Committee. When looking at individual budget lines (e.g. international consultants, national consultants, equipment, …) there are certain deviations between ProDoc and actual expenditures. There was less involvement of international consultants than planned, mainly due to the delay in preparing and selling the pre-investment assets of the 5 projects. Overall, expenses for consultants were about 15% lower than expected, which confirms tight cost management. Travel costs were only around half of the budgeted amount, mainly due to COVID-19 restrictions. Expenses for equipment were threefold compared to the Prodoc, mainly due to purchases of measuring equipment.

During the preparation phase, the Project has received co-financing commitments from UNDP, the Belarusian government and the private sector. Co-financing commitments were a total of US$ 40.9 million, out of which US$ 40.4 (98.7%) million were committed in cash, with the vast majority of contributions from the private sector. US$ 0.5 million (1.3%) were committed in-kind. The following table gives an overview on co-financing commitments at CEO Endorsement and project end.

Table 5: Co-financing at CEO Endorsement and project end

Sources & type of co-financing	Name of co-financer	Amount confirmed at CEO Endorsement	Actual amount Contributed at project end	Actual % of expected amount
		US$	US$	
CASH				
IA	UNDP	300,000.00	300,000.00	100%
Government	Ministry of Energy**	3,000,000.00	18,654,226.30	622%
Government	Ministry of Natural Resources and Environmental Protection	80,000.00	80,000.00	100%
	TDF-Ecotech	20,000,000.00	4,341,800.00	22%
	Triple LLC	17,000,000.00	0.00	0%
	Vetrovatt Ltd	0.00	7,617,305.00	N/A
	TOTAL CASH	40,380,000.00	30,993,331.30	77%
IN- KIND				
IA	UNDP	300,000.00	0.00	0%
Government	Department for Energy Efficiency of the State Standardization Committee	70,000.00	70,000.00	100%
Government	Ministry of Education (Sakharov International State Environmental University)	20,000.00	0.00	0%
Government	Ministry of Energy (Grodnoenergo)	100,000.00	0.00	0%
Government	Ministry of Natural Resources and Environmental Protection (original obligations of Department for Hydrometeorology)	30,000.00	50,000.00	167%
	TOTAL IN-KIND	520,000.00	120,000.00	23%
	TOTAL	**40,900,000**	**31,113,331.30**	**76%**

Actual cash co-financing received was around 23% lower than committed, in-kind contributions were 77% lower than committed. In total, co-financing reached 76% of the level at CEO endorsement. The reasons for deviations are as follows:

- The cash contribution from the Ministry of Energy is from an investment into a 9 MW wind park, which was developed and commissioned between 2014 and 2016. The initial plan (described in the ProDoc) was to spend about US$ 3 million for one turbine, but based on the successful installation of the first turbine the ministry decided to install a further 5 turbines. This increased the cash co-financing to US$ 18.6 million. The wind farm is situated near the village of Grabniki of Novogrudok district, Grodno region.
- The ProDoc foresaw the investment from 2 private sector companies (TDF-Ecotech and Triple LLC) with a total of US$ 34 million. The originally planned investments of TDF-Ecotech were not carried out, but a company in the Ecotech group successfully applied for quotas and has built a 3.4 MW windpark. Triple LLC suspended its wind energy projects and will not be investing.
- An additional private sector cash co-financing comes from Vetrovatt Ltd. After the implementation of a first project in 2015 (before start of the GEF Project) with a capacity of 1.5 MW, Vetrovatt received quotas and invested in a 5.965 MW windpark, which was commissioned in 2019.

- Both companies, Ecotech and Vetrovatt, provided a co-financing letter confirming the investment into these wind parks, but did not indicate the level of investment. The PMU applied average investment from an IRENA study on renewable power generation costs[2] and applied a factor of US$ 1,473 per kW installed capacity. As the investment costs haven't been confirmed by the investors, a more conservative approach needs to be taken. To calculate the cash co-financing, a factor of US$ 1,277 has been applied, which is the value of the 5th percentile for Eurasia. Based on this factor, total private sector co-financing is US$ 12.0 million, compared to expected US$ 37 million.
- The purchaser of the first pre-investment asset, Guris, didn't provide a co-financing letter. As investment hasn't been started yet, there would only be a minor co-financing contribution.
- No information has been provided by UNDP on the in-kind contribution to the project.

Monitoring and evaluation: design at the entry(*), implementation(*) and overall assessment (*)[3]

The Project's Monitoring and Evaluation (M&E) system consists of the Inception Workshop, quarterly progress reports and updates of risk log, Annual Project Review/Project Implementation Reports (APR/PIR), including progress made towards project objective and project outcomes (each with indicators, baseline data and end-of-project targets), Mid-Term Review and Terminal Evaluation.

There are a number of limitations of the monitoring and evaluation design at entry. First of all, the Project Results Framework didn't include any targets for the mid-term, which makes management of the project challenging. Secondly, a number of indicators (including the project objective) where back-loaded, therefore it was only clear towards end of the Project whether the targets will be met. The Project Objective with 25 MW installed capacity was such an indicator, which in the end was missed. Thirdly, there are some overlaps in the indicators, which reduce the ability of getting feedback from progress towards targets. Taking this into account, the Monitoring and Evaluation design at entry can be considered as **Marginally Satisfactory (MS)**.

On the positive side of the implementation of the Monitoring and Evaluation system are the annual Project Implementation Reports (PIRs). These give a very clear understanding on the progress of project implementation and development towards the various targets. There is extensive information on the development, which helps understanding which progress was made. On the negative side to be mentioned is the inception phase, which did not reflect on a potential need of revising the project strategy. As well as in the Prodoc, the NPP plays only a minor role in the Inception Report. It is not clear whether changes in the risk log were made to reflect new challenges. The MTR Report included a number of recommendations on revising the Project Results Framework, however only one modification was implemented, the other revisions were not approved by the Steering Committee

By taking into account all of the above, the rating for the implementation of the project's monitoring and evaluation is considered as **Marginally Satisfactory (MS)**. Overall, the M&E system is rated as **Marginally Satisfactory (MS)**.

[2] https://www.irena.org/publications/2020/Jun/Renewable-Power-Costs-in-2019

[3] In addition to a descriptive assessment, all criteria marked with (*) must be rated using a six-point rating scale: 6: Highly Satisfactory (HS), 5: Satisfactory (S), 4: Marginally Satisfactory (MS), 3: Marginally Unsatisfactory (MU), 2: Unsatisfactory (U) and 1: Highly Unsatisfactory (HU)

UNDP and Implementing Partner implementation/execution(*), co-ordination and operational issues

The Project has been implemented under the UNDP National Implementation Modality (NIM). Hence, the main responsibility on project management was with the Implementing Partner, the Ministry of Natural resources and Environmental Protection (MNERP), while the day-to-day management and decision-making for the Project is the responsibility of the Project Implementation Unit (PIU). The PIU consists of the Project Manager (PM), an expert on wind energy, and an administrative and financial assistant, all of them working full-time. The Project Director provided general coordination and support to the Project on behalf of the MNERP and was heading the Steering Committee.

The PIU has been in daily contact with the Project Director (or national coordinator), who had the role of a deputy minister within the MNREP. The cooperation between the PIU and the Project Director has been close and positive and the intensive contact allowed good steering of the project. During the course of the Project, 3 different ministers were active in MNREP. Neither this nor the change of the Project Director in 2017 had a negative influence on the Project.

In the MTR report it was questioned whether the MNREP is the best entity to implement the project or whether the project would have been better hosted by the Ministry of Energy. Now at the end of the project it can be confirmed that this was a good decision. The MNREP is responsible for climate change issues in Belarus and as such has been a good advocate for renewable energy and especially wind power over the last years. Placing the project with the Ministry of Energy would most likely have meant that renewables would have been suppressed by the attention nuclear power has gotten over the last years.

Another positive effect of the MNREP managing the project was the coordinative role the Steering Committee not only took for the project, but the entire wind power development in Belarus. The SC provided a platform for discussion and discourse and with high ranking representatives being present at the meeting, the decisions taken by the SC had a guiding effect for the development of wind power in Belarus.

This project was the first full NIM project implemented with the Ministry of Natural Resources and Environmental Protection (MNREP) in Belarus. The support given by UNDP has been very helpful for the PIU and helped in overcoming management issues arising from the daily work (e.g. support in international tenders, definition of pre-investment asset,…). What would have been helpful is an operational manual providing guidance to the PIU. A Letter of Agreement has been signed between MNREP and UNDP, but this didn't include operational details.

The rating of the **Implementing Partner** for implementation/execution is **Satisfactory (S)**, the rating for **UNDP** is **Satisfactory (S)**. Overall quality of Implementation/Execution is rated as **Satisfactory (S)**.

4.3 Results

Overall results (attainment of project objectives) (*)

The following table gives a detailed analysis of Project Goal, Project Objective and Project Outcomes. It describes the status reached at the end of the Project, gives a rating as well as a justification of the rating. The result of this detailed analysis is the Overall Project Outcome Rating.

Table 6: Progress towards Results Matrix

Project Strategy	Indicator	Baseline Level	End-of-project Target	End-of-project Status	Rating	Justification for Rating
Objective: Removing Barriers to Wind Power Development in Belarus and the installation of over 25 MW of nameplate generating capacity with a minimum of 5 MW per project and the generation of >1 million MWh of renewable energy and achieving direct greenhouse gas emission reductions totalling >500,000 tonnes of CO_2 equivalent	Installation of at least 25 MW of wind power utilizing market based investments with average net capacity factors over 30% which will produce the objective of generating >1 million MWh of renewable energy and reducing greenhouse gas emissions by > 500,000 tonnes of CO_2 equivalent	Zero; <5 MW	10 active debt and equity investors; 25 MW with a minimum of 5 MW per project	1 active debt investor: Guris (Turkey) 3 debt investors: BPS/Sberbank, Belinvestbank, Development Bank of the Republic of Belarus. 1 project with 25 MW under development, but neither commercial closure nor start of construction up to now.	MS	The 25 MW wind farm near the village of Veleshkovichi, Vitebsk region, has been successfully developed and the pre-investment asset was sold in 2019 to the winner of the bidding process (Turkish company Guris). Implementation has been held up since then due to legal issues with the quota and coefficient assigned to the project, as implementation should have taken place until end of 2018. In May 2021, quota committee decided to agree to a commissioning deadline in 2022 and a coefficient of 1.05 for the first 10 years. However, the committee also required Guris to sign an investment agreement with the Vitebsk Regional Committee with the concurrence of the Head of the State. Guris now submitted a clarification request as per their opinion the concurrence of the Head of State is not necessary. The credit agreement with the debt provider is expected to be signed in June 2021, preliminary construction work is expected to start in June 2021. Although project implementation is not fully confirmed, it is likely that the project will be implemented. At an expected capacity factor of 32.8%, the project is expected to

						generate a total of 1,436 MWh and 703,444 tons of GHG emission reductions over a 20 years lifetime. Pre-investment assets have been prepared for 4 further sites with a total capacity of 35.7 MW, however, no quotas will be available for these sites. The assets will be tendered in June 2021. It is expected that investors only implement a part of the capacity indicated due to the regulatory framework. The Turkish company Guris has received offers for debt financing from 3 different financing entities (BPS/Sberbank, Belinvestbank, Development Bank of the Republic of Belarus).
Outcome 1: Secondary Legislation is in place to support wind energy with the support of the project	A financeable feed-in-tariff including transmission charges	RE Law	Enabling legislation in place with the assistance of GEF project	Enabling legislation with a financeable feed-in tariff is not in place.	MU	The Law on Renewable Sources of Energy has not been changed since the start of the project. In 2015 the new regulation on RE came into force – the Decree of the President of the Republic of Belarus "On the Use of Renewable Sources of Energy", which established quotas. The tariff paid is calculated as the product of base price multiplied with a coefficient. The basic tariff is fluctuating, influenced for example by the price of gas and exchange rate to USD. The level of coefficients has decreased from >1 to levels below 1 at the moment. In 2016 and 2017 the Project has

						prepared a number of reports, which contain detailed and argumentative information and suggestions on the FiT tariff to introduce in the regulatory practice in Belarus. However, the key ministries responsible for energy development do not support the introduction of the FiT. Plans of introducing an auctioning system have been mentioned by stakeholders in the TE interviews. Under the auctioning, bidders would receive a fixed tariff over a certain number of years. The Project has provided various inputs on how the auctioning system can be designed, e.g. based on pre-selected sites defined in the wind atlas. It is not clear, whether and when such an auctioning system will be introduced.
	Rules and procedures for grid connection	RE Law	Secondary legislation and regulations and procedures for grid connection and financing grid connection with the assistance of the GEF project.	The following technical standards and guidelines were developed by the Project and approved: STB XXXX "Renewable energy. Wind power plants. Safety requirements. Basic provisions "(based on GOST R 54435-2011);	S	Gaps in technical standards relating to wind energy development in the country were identified, proposals for the secondary technical regulations were elaborated and the standards approved. One technical guideline was elaborated and approved, a second guideline is pending approval.

				- 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: 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".		
<u>Outcome 2</u>: Increased confidence in the profitability of wind power projects in Belarus	Clear guidelines and viable examples of Wind Farm investments in place	Zero	Completion of 5 wind farms providing a clear FIT, guidelines and confidence for future development	1 project with 25 MW under development, but neither commercial closure nor start of construction up to now. 4 further projects (capacity of 35.7 MW) planned to be tendered in June 2021	MS	While more than 100 MW of wind power were installed in Belarus since the start of the Project, no wind farm has been implemented under the Project, which is disappointing. However, despite the challenging framework conditions, the Project positively contributed towards a positive outlook for wind power in the medium- and long-term once major hurdles (e.g. oversupply due to NPP, no deregulated market, no possibility for exports) are overcome.
	Developed and published manuals	Zero	Comprehensive manual	3 manuals prepared and published	HS	3 different manuals were prepared and published: 1. Derisking Renewable Energy Investment. Selecting Public Instruments to Promote Wind Energy Investment in Belarus. 2. The guidelines for wind power developers on prefeasibility procedures of sites screening and mitigation of risks related to approval of the sites by the relevant governmental bodies was developed and published 3. The manual on EIA and state ecological expertise of wind projects was updated and will be published before end of the project.
<u>Outcome 3</u>: An Investment Grant is	Availability of adequate	Zero	$XX mm	Funding of US$ 2.2 million has	S	WPFI was legally formed as LLC "Wind Private Finance Initiative".

made by the GEF project which funds the WPFI	funding for the WPFI and the PMU			been provided to finance the operation of WPFI and the PMU.		WPFI was founded by the engineering company ENECA (selected through a tender) and the Belarusian Research Center "Ecology" (an organization subordinate to MNREP). Necessary funds for the operation of WPFI were allocated in the Project budget. In addition to funding from the Project, WPFI generated income from the sale of the 25 MW pre-investment asset (USD 75,000) and wind measurements carried out for private companies and a municipality (around USD 30,000). Through the envisaged sale of 4 further pre-investment assets in June 2021, WPFI estimates to generate income between USD 30,000-40,000 per project. The revenue generated will be used to develop further assets. There is a good likelihood for sustainability of the WPFI.
	Selection of an outside consultant capable of performing the development work	Zero	At least 1	3 consulting companies were selected and involved in the development work	S	The selection of the sites for the wind farms construction was performed by the Belarusian engineering company ENECA under their involvement in WPFI. Wind measurements reports were prepared by International Wind Engineering (Greece), the pre-design documentation was elaborated by Malaya Energetika (Belarus).
	Installation of at least five meteorological towers are installed and	1	6	8	HS	In addition to the already existing meteorological tower, 5 wind measurement campaigns over one year were duly completed. WPFI carried out 2 further

	data is collected for at least one year.					measurements for a private and a public client.
	The WPFI, a private entity, obtains permits and Investment Agreements for at least 5 projects	0	5 or >	Permits for 5 sites were obtained	S	First permits for the 5 selected sites are obtained (permit from the Ministry of Defense of the Republic of Belarus, the Ministry of communications and information of the Republic of Belarus, the Department of Aviation of the Ministry of Transport and communications of the Republic of Belarus). The approval of the selected five sites from the Regional Committees of Natural Resources and Environment Protection is received. Investment agreements can be signed with local authorities, but there is no obligation to sign. Draft investment agreements were prepared by the Project.
	The WPFI, a private entity, successfully tenders at least 5 projects and finds acceptable level of investor interest	0	5 or >	1 tender for the first project of 25 MW was successfully held.	MS	The first tender was successfully held in 2019. For the further 4 projects, the tender is expected to take place in June 2021.
<u>Outcome 4</u>: At least (5) wind farm projects are successfully developed and the WPFI continues to operate past the lifetime of the project	WPFI, a private entity, develops 5 wind farms which developers purchase and proceed to construction	<5 MW	25 MW with a minimum of 5 MW per project	1 wind farm with 25 MW developed and purchased by investor	MS	1 wind farm with 25 MW developed and purchased by investor, construction hasn't started yet. 4 further wind farms with total capacity of 35.7 MW developed, but not yet purchased by investors.
	A methodology	Zero	A methodology is in	The	MS	The testing of the methodology

	for the daily projection of wind energy generation is developed		place and available for the owners of wind farms in Belarus	methodology has been developed with international support and has being tested with the training center of the Ministry of Environment, which owns a wind turbine of 2.5 MW. Results will be presented in the final workshop in June 2020.		showed that forecasting is challenging. Whereas other models (e.g. in Austria) can keep forecasting errors below 10%, errors of up to 40% were reported. This is not only about the model, but also about data available for forecasting (e.g. weather forecasting is only available for 3 hour slots, whereas 1/2 hour slots would be optimal).

For the individual indicators, the Project achieved ratings between HS and MU, which is a wide spread. The overall project objectives have been clearly missed, but taking into account the challenging development around the NPP a rating of MS is justified. For the 4 outcomes, average ratings were between S and MU, giving an average MS rating. Based on this, an Overall Project Outcome Rating of **Marginally Satisfactory (MS)** is justified.

Relevance (*)

The target of the project was to remove barriers for the development of wind power in Belarus. Thus the relevance of the project can be judged by analyzing the success in removing or contributing to the removal of barriers identified during project preparation. For the 4 barriers identified in the Prodoc removal can be evaluated as follows:

- Institutional barriers – related to the absence of the effective institutional infrastructure for the development of RES: there are no significant changes in the process of preparing and implementing a wind power project in Belarus and it is still a challenge for investors to go through that process. Therefore the barrier is **not removed**.
- Legislative/regulatory barriers – related to secondary legislation, standards and guidelines: the required changes in secondary legislation were not implemented and there is no feed-in tariff (FiT) or auctioning system established. There has been good progress on standards and guidelines, hence the barrier is **partly removed**.
- Financial/investment barriers – Lack of finances for pre-construction activities (potential sites identification, wind measurements, environmental impact assessments, pre-feasibility and feasibility studies), as well as high interest rates in case of loan financing: the development of pre-investment assets for investors has been a successful approach to overcome this barrier and reduce the risk of investors. From discussions with the winning bidder (Guris) it became clear that financing is not an issue and three different institutions would be interested in providing debt funding for the implementation of the wind park. It can be concluded that this barrier has been **removed successfully**. Unfortunately, due to the availability of quotas only one pre-investment asset has been sold so far, with 4 further assets to be sold in June 2021. As there are no quotas for the 4 additional assets, it is not sure that the expected financial compensation (around US$ 30,000-40,000 per asset) can be achieved.
- Informational – lack of confidence in the profitability of wind power projects among the decision-makers (in government agencies and local authorities, public institutions, companies, project developers, financial sector): the work of the Project has shown that there is strong interest in wind power and the work of the PMU has contributed in providing confidence in wind power. This was done, among others, through the development of manuals, wind power measurement in various sites, development of pre-investment assets, etc. Also this barrier has been **successfully removed**.

The Project is also in line with the Country Programme Document for the Republic of Belarus (2016-2020) and is contributing to UNDAF (United Nations Development Assistance Framework) Outcome Indicators. The Project is contributing towards the country programme indicator 3.3.2 and UNDAF Outcome Indicator 3.1.2: percentage of primary energy produced from renewable energy resources in the total amount of energy consumed.

It can be concluded that the Project was relevant for the Republic of Belarus, which was strongly confirmed by all stakeholders in interviews held during the review process. By taking into account all of the above, the rating for relevance is **Relevant (R).**

Effectiveness and Efficiency (*)

Project effectiveness evaluates to which extent an objective has been achieved or how likely it is to be achieved. The evaluation of project results in chapter “Overall results” gives detailed ratings for the Project Goal, the Project Objective and each of the Outcomes. **As such, the Marginally Satisfactory rating (MS) is restated for project effectiveness.**

Project efficiency evaluates the extent to which results have been delivered with the least costly resources possible. As described in chapter “Project Finance”, all project funds have been used as described in the ProDoc and there are only small deviations between ProDoc and actual expenditures. This indicates that there was appropriate and good financial management.

The Project has shown adaptive management on several occasions. Due to the limited number of quotas, the captive use of wind power has been identified as an additional opportunity to implement projects – although with smaller scale and in most cases with second hand equipment. It was identified that a model to forecast the output of wind parks would make the integration of wind power into the grid easier, therefore a methodology for forecasting has been developed. Testing of the methodology showed that further work is required to improve the results. WPFI was set up as private-state partnership between the Belarusian Research Centre “Ecology” (an entity subordinate to the MNREP) and the consulting company ENECA (selecting in a tender process). It was intended that ENECA is continuing to be a partner in WPFI, however, the company stopped its engagement when the consulting contract ended. WPFI managed to continue its work in the sector and there is a high likelihood for sustainability. The majority of recommendations from the MTR were implemented.

The target of the Project was to install at least 25 MW of wind power leading to a generation of more than 1 million MWh of electricity and GHG emission reductions of more than 500,000 tons of CO2e over the lifetime of the technology. Due to various delays in project implementation, the 25 MW project has neither reached commercial closure nor start of construction until the Terminal Evaluation and although project implementation is not fully confirmed, it is likely that the project will be implemented.

Based on this, the rating for efficiency of the Project is **Marginally Satisfactory (MS)**.

Country Ownership

When analyzing the level Country Ownership, different perspectives need to be considered. It is important to note that the country has been actively involved in project identification and preparation and the Project is implemented by the MNREP under NIM. There is notably co-financing by the Ministry of Energy through the implementation of a 9 MW wind park. The Project is based on a regulatory framework intended to increase the share of renewables in Belarus. The Steering Committee brought together all relevant government representatives as well as representatives of the civil society. When taking all this into account country ownership can be evaluated as high.

While there was a strong involvement of the government and its representatives, it seems there was a lack of interest in creating a more positive framework for wind power in Belarus, which would have helped the Project in achieving the set targets and indicators. The discussion on the co-efficient for the 25 MW, which took more than one year and still hasn’t been finally solved, is one example of this limited interest. Instead of providing support, the government is slowing down the decision making process, which leads to further delays in project implementation. In this case, this limited support had a direct impact on ratings for the project, as the project objective (installation of 25 MW through the

Project) could not be reached. The latest decision of the quota commission requiring the signature of an investment agreement with the Vitebsk Regional Committee with the concurrence of the Head of the State is leading to further delays in project implementation. Other examples of the lack of interest are the restrictive quota numbers or the limitations for captive use of wind power. If the government would have a real interest in promoting wind power, the support by the relevant authorities, especially the Ministry of Energy, should have been different.

Mainstreaming

The UN Development Assistance Framework 2016-2020 for the Republic of Belarus defined four areas of cooperation to set the direction of UN system development assistance for the years 2016 – 2020:

- Area of Cooperation 1: Inclusive, Responsive and Accountable Governance
- Area of Cooperation 2: Sustainable Economic Development
- Area of Cooperation 3: Environmental Protection and Sustainable Environmental Management Based on the Principles of Green Economy
- Area of Cooperation 4: Environmental sustainability; Sustainable Development of Human Capital: Health, Education, Social Inclusion and Protection, Comprehensive Post-Chernobyl Development

Renewable energy plays an important role under Area of Cooperation 3 with Outcome 3.1: “By 2020, policies will have been improved and measures will have been effectively implemented to increase energy efficiency and the production of renewable energy, to protect landscape and biological diversity, and to reduce the anthropogenic burden on the environment.” The target is to increase the primary energy produced from renewable sources of energy in the total amount of energy consumed from 5% in 2010 to 10% in 2020. Wind energy is not specifically mentioned in the Framework.

Sustainability (*)

For sustainability, the GEF guidelines establish four areas for considering risks to sustainability, each of which should be separately evaluated and then rated as to the likelihood and extent that they will impede sustainability of the project outcomes. These risks include:

- Financial sustainability
- Socio-political sustainability
- Institutional framework and governance sustainability
- Environmental sustainability

When analyzing **financial risks** to the sustainability of the outcomes of the Project it is important to understand that no financial support mechanism was developed in the Project. The main approach was to develop pre-investment assets, thereby reducing the risk for investors. WPFI was responsible for developing the pre-investment assets and managed to sell the asset for the 25 MW Veleskovichi project for US$ 75,000. WPFI has been working on developing 4 further assets, which will be tendered in June 2021. As no quotas will be included in these assets, WPFI expects a fee of US$ 30,000 to 40,000 per project, which seems to be on the high side. The revenues from the sale of assets will contribute towards financing the further operation of the WPFI. However, based on the limited demand for new wind power projects by the government of Belarus, which is reflected by the small number of quotas and the limited opportunities in the market for captive use, it is **Moderately Unlikely (MU)** that the financial sustainability is secured.

As already reflected in the section on Country Ownership, there has been high country ownership and especially the work in the Steering Committee was seen as beneficial by a large number of shareholders. Still, there seems to be a lack of interest in creating a more positive framework for wind power in Belarus. There has been no movement on the feed-in tariff and while the Ministry of Energy mentioned intentions to apply auctioning from 2024 onwards, this cannot be confirmed at the moment. The strong limitations in the number of quotas are another indication for a lack of pushing wind power. Without this interest, there is a high risk that the outcomes and benefits of the Project will be sustained. From a socio-political point of view there is a risk that the outcomes of the Project are sustained, the s**ocio-political** sustainability is considered as **Moderately Unlikely (MU)**.

It was understood that the institutional and regulatory framework for the development of wind power projects is challenging in Belarus. As a risk mitigation measure, the development of pre-investment assets has been a key – and successful – feature of this project. As such, the institutional framework is workable. It should be noted however that the existing framework is far from a simple and attractive framework, which attracts international project developers to invest in wind power in Belarus.

On the positive side is the establishment of WPFI as a key player with sufficient capacity to support the development of wind power in Belarus. It is positive that WPFI is owned by the Belarusian Research Centre “Ecology”, an entity subordinate to the MNREP. This should be helpful to maintain the interest of MNREP to promote wind power in Belarus. Overall, the sustainability of the institutional framework and governance is considered as **Moderately Likely (ML)**.

Regarding **environmental risk**, these are limited due to the fact the wind power is a renewable energy and will lead to GHG emission reductions. Local impacts on flora and fauna are taken into account during the environmental impact assessment, so there is limited risk. Therefore, the rating **Likely (L)** is given for environmental sustainability at the outcome level.

For the overall rating for sustainability it needs to be considered that the overall rating is equal to the lowest rated dimension. Based on the four ratings, the overall rating on the likelihood of sustainability is considered as **Moderately Unlikely (MU)**.

Gender equality and women’s empowerment

As the Project Document was approved before 1 July 2014, no gender analysis was included in the Prodoc. In regards to gender equality, project design as well as project implementation were focused on investments rather than individuals. As such, there were no significant gender concerns considered in the design of this Project. There were equal opportunities for women and men to participate in trainings and study tours.

As a specific activity to increase women’s empowerment, a separate workshop was organized in October 2020 to empower socially active women in rural areas. The focus of the workshop was increase the general capacity on renewables, provide examples for projects and provide information on access to financing. A special brochure on this workshop was published.

Impact

The objective of the project was to facilitate the installation of 25 MW of wind power capacity leading to a generation of more than 1 million MWh of renewable energy and achieving direct greenhouse gas emission reductions totaling to more than 500,000 tons of CO2 equivalent. With the 25 MW Veleshkovichi wind park still under development and 4 further pre-investment assets developed, but

not yet sold, these impacts are clearly missed. The investment of Guris is likely to continue, but confirmation will only be available once the project has reached commissioning (planned for beginning 2022).

While the main quantitative impacts will be missed, the Project contributed towards preparing the grounds for implementation of wind power in coming years. The Project successfully showed that the development of pre-investment assets is an excellent tool to reduce investor risk. It has successfully supported the development of wind energy projects for captive use, which are attractive for large energy consumers, but also allow gaining experience with the development and implementation of wind power projects at a smaller scale. The upcoming Carbon Boarder Adjustment Mechanism to be implemented by the EU can be an additional push for wind power, where experience gained can be implemented.

Whereas the impact of the project in terms of MW installed, MWh generated or GHG emission reductions achieved is minimal, the overall impact of the Project on the development of wind power in Belarus is rated as **Significant (S)**.

5. CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNT

5.1 Summary of Ratings

The ratings given are summarized in Table 7 below.

Table 7: Evaluation Ratings

Evaluation Ratings:			
1. Monitoring and Evaluation	***rating***	**2. IA& EA Execution**	***rating***
M&E design at entry	MS	Quality of UNDP Implementation	S
M&E Plan Implementation	MS	Quality of Execution - Executing Agency	S
Overall quality of M&E	MS	Overall quality of Implementation / Execution	S
3. Assessment of Outcomes	**rating**	**4. Sustainability**	**rating**
Relevance	R	Financial resources:	MU
Effectiveness	MS	Socio-political:	MU
Efficiency	MS	Institutional framework and governance:	ML
Overall Project Outcome Rating	MS	Environmental:	L
		Overall likelihood of sustainability:	MU

5.2 Main findings

The findings of the Terminal Evaluation are covered in detail in section 4 of the report. This chapter gives a short overview on the key findings:

- The Project has been implemented under the UNDP National Implementation Modality (NIM), with the Ministry of Natural resources and Environmental Protection (MNERP) being the Implementing Partner. There was strong ownership by the MNERP and very active coordination between the ministry and the PIU. During the course of the Project, 3 different ministers were active in MNREP. Neither this nor the change of the Project Director in 2017 had a negative influence on the Project. Despite the challenges through the regulatory framework, the work of the PIU has been very good and adaptive management was applied successfully.
- Work under the Project was guided by a Steering Committee including all major stakeholders in the wind energy sector. The actual setup of the Steering Committee was slightly broader than envisaged. This proved to be a good decision, as the minutes of the committee meetings show both a very active participation of all stakeholders throughout the lifetime of the Project and a very intensive discussion on key topics related to the development of wind power. As such, the Steering Committee not only took the role of coordinating the activities of the Project, but served as a coordination entity for the entire wind power development in Belarus, which was helpful.
- The work in the Project was overshadowed by the development and implementation of the 2,400 MW Nuclear Power Plant at Ostrovets. While concrete steps towards the construction of the NPP were already taken as early as August 2008, neither the Prodoc nor the Inception Report fully reflected the potential impacts of the NPP on the interest of the Government of Belarus to promote the implementation of wind power projects.

- The Project was implemented under the assumption that it is in the interest of the government to introduce a feed-in tariff with a fixed tariff. After working for more than 5 years on introducing such a fixed tariff, it can be concluded that this interest has been overestimated. This had negative direct effects both on the work of the Project and on the ability to achieve project outcomes, such as Outcome 1, which has as the indicator “A financeable feed-in-tariff including transmission charges”.
- The Project successfully managed to develop pre-investment assets as a tool to de-risk investment into wind power projects. This is the major achievement of the Project and should be replicated in other countries as well as with other renewable energy technologies. The selection of this de-risking tool was excellent, as it didn’t focus on developing a financial support mechanism (which always raises the question of sustainability after project end), but on a tool to reduce the initial hurdle for investors.
- The first tender for the sale of pre-investment assets (for the 25 MW Veleshkovichi wind park) was successful and generated revenue of US$ 75,000. However, the tender only managed to raise limited interest with one international and one national investor bidding for the assets. Potential reasons for this limited interest stated by stakeholders were limited project size, limited growth potential due to limited number of quotas, perception of low interest of the government in wind power due to implementation on NPP, etc.
- Implementation of the 25 MW projects hasn’t started yet due to legal issues with the quota and coefficient assigned to the project. In May 2021, the quota committee decided to agree to a commissioning deadline in 2022 and a coefficient of 1.05 for the first 10 years. However, the committee also required Guris to sign an investment agreement with the Vitebsk Regional Committee with the concurrence of the Head of the State. This is further delaying the implementation of the project.
- 4 further pre-investment assets for a total of 35.7 MW will be tendered in June 2021 and WPFI estimates to generate income between USD 30,000-40,000 per project.
- A "Wind Private Finance Initiative" (WPFI) has been established for the development of the pre-investment assets and support of investments into wind power. WPFI was founded by the engineering company ENECA (selected through a tender) and the Belarusian Research Center "Ecology" (an organization subordinate to MNREP) as a private-public partnership.
- While there has been notably co-financing by the Ministry of Energy through the implementation of a 9 MW wind park, which indicates strong country ownership, there has also been experienced a lack of interest in creating a more positive framework for wind power in Belarus. This has been evidenced by the restrictive quota numbers, limitations for captive use of wind power or lengthy discussions on the coefficient for the 25 MW wind park. Overall, this lack of interest was a major hurdle for the project in achieving project objectives and indicators.
- This limited interest in creating a positive framework for wind energy also leads to a rather negative outlook on the sustainability of the project results. Hence, both financial and socio-political sustainability have been rated only as moderately unlikely.
- In the INDC of Belarus, renewable energy sources haven’t been mentioned. The NDC is currently under revision and due to be submitted before the end of 2021, however, it was not clear how RES will be considered in NDC.
- The objective of the project was to facilitate the installation of 25 MW of wind power capacity leading to a generation of more than 1 million MWh of renewable energy and achieving direct greenhouse gas emission reductions totaling to more than 500,000 tons of CO2 equivalent. With the 25 MW Veleshkovichi wind park still under development and 4 further pre-investment assets developed, but not yet sold, these impacts are clearly missed. The investment of Guris

is likely to continue, but confirmation will only be available once the project has reached commissioning (planned for beginning 2022).

- While the Project aimed at promoting the implementation of larger projects, during the course of the project, a trend towards the implementation of smaller projects – in many cases with second hand turbines – has been experienced. This is based on the current regulatory system with very limited quotas and a trend towards implementing projects for captive use.
- The main focus of the project was to remove barriers for the implementation of wind power projects in Belarus. There were positive contributions towards barrier removal on financial/investment barriers by the development of pre-investment assets as a de-risking tool. Informational barriers were removed by the development of manuals, carrying out of wind measurements, etc. There were some contributions towards removal of legislative/regulatory barriers by the development of standards and guidelines, but no feed-in tariff or auctioning system was introduced to fully overcome this barrier. Institutional barriers were not removed and there is still a complicated, bureaucratic system to get approvals for wind power projects, which is not attractive for investors. Overall, implementation of the Project was overshadowed by the installation of the NPP.
- The upcoming Carbon Border Adjustment Mechanism to be implemented by the EU could bring a push for wind power projects. As rules are not clear at the moment, developments need to be watched.

5.3 Corrective actions for the design, implementation and M&E of similar future projects

There are a number of corrective actions to be suggested based on the experience and lessons learnt of the Removing Barriers to Wind Power Development in Belarus for future projects. These are as follows:

- When preparing the Prodoc, good care needs to be taken on reviewing assumptions and risks in a project, especially if development of a project idea took several years. In the case of the Belarus Wind project, around 5 years passed between the endorsement of the PIF and actual start of work on the Project. It seems that there was no critical review on assumptions and risks during Prodoc development, otherwise, the role of the NPP should have been seen much more critical.
- As a follow-up to the previous comment, there should be a strong focus on the inception phase especially if time has passed between PIF/Prodoc development and project start. The purpose of the inception phase is to set-up the project management system and to critically review the Prodoc with key stakeholders involved in the implementation of the project. Changes since project definition, new challenges or wrong assumptions should be critically investigated and – where necessary – considered in the activities under the project.
- As in many other projects, the ProDoc included the adoption of policies and regulations as an output. Whereas projects can commit to work on policies and regulations, the adoption of these legal documents is in many cases not dependent on the quality of work provided by the project, but on political decisions. Projects should therefore be careful with the level of commitment when it comes to the legal framework.
- Co-financing statements of private sector should be critically reviewed at all times. As shown in this project, none of the private sector co-financing committed at CEO endorsement actually realized.
- The Project Results Framework should have been reviewed more critically during development of the Prodoc and the inception phase. The project size (25 MW) is mentioned in

several indicators and an indicator based on the availability of GEF funding is not logical (if there is no GEF funding, there is no project).
- Project design, especially the Project Results Framework and the M&E system should include interim targets and milestones, as these are helping project management in checking progress and taking steps of adaptive management, if necessary.

5.4 Actions to follow up or reinforce initial benefits from the project

There are a number of actions, which should be followed up to achieve sustainable benefits from the Project. Partly, these should still be carried out by the PIU before the end of the Project, mainly these are directed mainly towards the MNREP and – to a lesser extent – to UNDP for follow up after the termination of the Project:

Recommendation #1 – Promotion of de-risking approach applied and replication in other countries
The de-risking approach applied in this Project – development of pre-investment assets – has been the main success story. Developing a pre-investment asset helps to reduce the risk for investors, thereby increasing the likelihood of successful project implementation and at the same time reducing the cost of electricity generation. Due to the challenging circumstances in this project, the de-risking approach could not enfold its full benefit, still it is worthwhile to promote this approach and replicate it in other countries. The further application of the approach in other countries in the region should be pursued by UNDP and a strategy should be developed for disseminating the de-risking approach on a more strategic basis with support from UNDP Istanbul Regional Hub/UNDP HQ. It is also worthwhile to look at disseminating this approach outside of the region and expanding to other renewable energies, such as solar PV. A follow-up on the De-risking case study would be helpful in showing the actual application of a de-risking tool.

Recommendation #2 – Support Ministry of Energy in implementation of auctioning
The Project has tried hard to suggest the implementation of an auctioning system for wind power in Belarus, with little success up to now. The benefits of an auctioning system are manifold, but the main benefits are a competitive approach among bidders leading to competitive costs of generation and on the investor's side an increase of investment security through a fixed tariff. The Ministry of Energy has indicated that an auctioning system could be implemented until the end of 2021. It is up to MNREP in cooperation with UNDP to provide support to the Ministry of Energy in these efforts, mainly by drawing on the experience gained and documentation developed during the course of the Project.

Recommendation #3 – Further development of methodology for the daily projection of wind energy generation
Under Outcome 4 a methodology for the daily projection of wind energy generation was developed. While testing the methodology, it became clear that further development of the methodology is necessary to decrease the errors (up to 40% at the moment) to less than 10%. MNREP shall take a lead on the further development of the methodology. Involvement of Belhydromet will be necessary to improve the inputs from weather forecasting. Further, the involvement of the Ministry of Energy and Belenergo will help in getting acceptance for the methodology and its results.

Recommendation #4 – Further support of work of WPFI
The WPFI has been established as an entity with the required capacity and know-how to develop pre-investment assets for wind power projects and there is a positive view on the sustainability of the entity. The main risk is the lack of demand in wind power, which could be compensated by WPFI with

work on other renewable energy sources or in other countries, however, there is a risk that there is too little demand. As the WPFI is under the MNREP, the ministry has the opportunity to nurture the demand for new wind power projects, thereby supporting the operation of the WPFI. As WPFI also indicated that they will work on their own initiative on the development of pre-investment assets, support in tendering these assets will increase the likelihood of survival of the WPFI.

Recommendation #5 – Improve work on environmental impacts of wind power
The Prodoc has been relatively lean on the potential negative environmental impacts of wind power on flora and fauna. During the implementation of the Project, the PIU has taken several steps in correcting this, for example by carrying out a study on birds and bats in the Mogilev region. A more strategic approach should be followed by the MNREP by carrying out a Strategic Environmental Review for wind power for the entire country. This work should be built on the work of the Project, such as the wind atlas, the cadaster on RES and the work on birds and bats carried out under the Project.

Recommendation #6 – Finalize guidelines and publish them on project website
Under Outcome 1, the Project worked on preparing standards and guidelines on topics related to wind power. Within the remaining time until project closure, the PIU shall finalize the work on guidelines and publish them together with all standards on the Project website (www.windpower.by).

Recommendation #7 – Investigate procurement support by UNDP in NIM implemented projects
While the first pre-investment asset has been sold to an investor, the outcome of the tendering process has been disappointing, as only one international and one national company applied. The PIU has tried to establish contacts with potential investors (this included support from international consultants), but it has proven challenging to contact a large enough group of potentially interested investors to have at least a hand full of investors participating in a tender. In cases of investments, it is advisable to use the possibility of UNDP to reach out to a wide group of companies. UNDP has recently tendered for an IPP to implement a 10.5 MW solar PV project in Gambia and the tender was able to collect more than 40 expressions of interest. This shows that UNDP's is extremely effective in attracting potential investors and operators. UNDP is to investigate how this support can be given to projects implemented under NIM.

Recommendation #8 – Agree on future of project website
The project website (www.windpower.by) was useful in providing information to interested stakeholders and experts. The website gives a good overview on the legal framework and provides links to relevant legal documents as well as reports developed under the Project. In the future, the website could be used in providing updates on development of wind power and the publication of relevant regulatory documents and reports. UNDP is to discuss with MNREP on the future of the website with a clear aim of maintaining the site as an information platform for wind energy.

5.5 TE ToR (excluding ToR annexes)

Submitted as separate document

5.6 TE evaluative matrix (evaluation criteria with key questions, indicators, sources of data, and methodology)

Evaluative Criteria Questions	Indicators	Sources	Method
Relevance: How does the project relate to the main objectives of the GEF focal area, and to the environment and development priorities at the local, regional and national levels?			
Are project outcomes contributing to national development priorities and plans in accordance with the national legal and regulatory frameworks? Did the project succeed in removing barriers for wind power in Belarus? Can you mention specific barriers and link it with project intervention? Any evidences? Do you know any interventions of other development actors, government or CSO contributing to the barriers removal? If yes can you reflect about coherence of such activities with the UNDP/GEF project?	Alignment to national/stakeholder priorities, clear and coherent descriptions	Project reports, stakeholders	Literature Review (LR), Interviews (I)
How does the project relate to the GEF Focal Area Objective Strategic Priority #3 to “Promote investment in renewable energy technologies”?	Alignment to GEF programme, clear and coherent descriptions	Project reports, stakeholders	Literature Review (LR), Interviews (I)
How did the project contribute to GHG emissions reduction within the project implementation cycle and beyond?	GHG emission reductions in tons of CO2	Project reports, calculations of GHG emission reductions from pilot projects	Literature Review (LR), Interviews (I)
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
Are the achieved project outcomes in line with the original or modified project objectives?	GHG emission reductions in tons of CO2, energy savings in TJ	Calculations of GHG emission reductions from pilot projects	Literature Review (LR), Interviews (I)
Where recommendations given during the mid-term review incorporated and was adaptive management applied?	Clear and coherent descriptions of action taken	Project reports, stakeholders	Literature Review (LR), Interviews (I)
What is effectiveness of project awareness raising and outreach activities/products on promoting the use energy management systems with project stakeholders?	Number of demo projects, Number of municipalities signing the Energy Efficiency Charter, Number of trained energy managers	Project reports	Literature Review (LR), Interviews (I)
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?			
How efficient was the financial management of the	Evidence of clear,	Project budget,	Literature Review (LR),

project, including specific reference to cost-effectiveness of its interventions as well as co-financing provided? Do you think you have chosen the most economic approach? Could you think or imagine other alternatives? What procedures did you use to ensure highest value for lowest cost? Are these procedures described? If so, please, share this description?	transparent reporting, evidence of cost effective processes and purchases, spending of funds, co-funding provided	information on co-funding	Interviews (I)
What was the role of UNDP and Executing Agency in meeting the requirements set out in UNDP Programme and Operations Policies and Procedures?	Contribution of UNDP and Executing Agency toward project progress	Project reports, stakeholders	Literature Review (LR), Interviews (I)
Are the systems for accountability and transparency of project management approach/results and meeting the relevant national norms and standards in place?	Evidence of clear, transparent reporting, evidence of cost effective processes and purchases	Project budget	Literature Review (LR), Interviews (I)
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
Whether the risks identified in project document and PIRs were appropriate and corresponding risk management strategies/systems were adopted and implemented?	Usefulness of risk analysis and associated tools	PIRs, project reports, stakeholders	Literature Review (LR), Interviews (I)
Whether or not national stakeholders participated in project management and decision-making have ownership for project outcomes and their further replication and scaling-up?	Involvement of national stakeholders	Project reports, minutes of meetings	Literature Review (LR), Interviews (I)
Was the project sustainability strategy relevant and efficient?	Analysis of relevance of sustainability strategy	Project reports, stakeholders	Literature Review (LR), Interviews (I)
Are there any risks that may pose a threat to the sustainability of the project outcomes?	Evidence that any risks to sustainability have been assessed and any mitigation measures taken.	Project reports, stakeholders	Literature Review (LR), Interviews (I)
Gender equality and women's empowerment: How did the project contribute to gender equality and women's empowerment?			
Did the project contribute towards gender equality and women's empowerment?	Increased role of women in energy management systems	Project reports, stakeholders	Literature Review (LR), Interviews (I)
Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status?			

What contribution did the demonstration projects have on improving the environment situation in their locations?	Environmental indicators	Reports on pilot projects	Literature Review (LR), Interviews (I)

5.7 Ratings Scales

Ratings for Outcomes, Effectiveness, Efficiency, M&E, I&E Execution	***Sustainability ratings:***	***Relevance ratings***
6: Highly Satisfactory (HS): no shortcomings 5: Satisfactory (S): minor shortcomings 4: Moderately Satisfactory (MS) 3. Moderately Unsatisfactory (MU): significant shortcomings 2. Unsatisfactory (U): major problems 1. Highly Unsatisfactory (HU): severe problems	4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML):moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks	2. Relevant (R) 1.. Not relevant (NR) ***Impact Ratings:*** 3. Significant (S) 2. Minimal (M) 1. Negligible (N)
Additional ratings where relevant: Not Applicable (N/A) Unable to Assess (U/A		

5.8 TE mission itinerary

#	Date	Time	Name	Organization	Contacts
1	26/04/2021, Monday	10:00-14:00	Maryna Belavus	Project manager, PIU member	maryna.belavus@gmail.com; Office phone +375 17 306 53 67, mobile +375 29 649 71 37
2		15:00-16:00	Yuri Grigorenko	Wind energy engineer, PIU member	yuryhry@gmail.com
3		16:30-17:30	Alexander Gnedov	Legal consultant, PIU member	6594264@tut.by
4	27/04/2021, Tuesday	10:00-11:00	Andrei Pinigin	Green Economy NGO	apinigin@tut.by, 8 029 632 45 05
5		11:30-12:30	Evgeniy Khorevko	Wind Private Finance Initiative, LLC (created in the framework of the project)	6241098@mail.ru, +375 29 3999950
6		13:00-14:00	Irina Samusenko	Scientific and Practical Center for Bioresources of the National Academy of Sciences of Belarus	isamusenko@gmail.com, +375 29 192 29 58
7		15:00-16:00	Natalia Inchina and Natalia Klimenko	The head and the consultant of the department of regulation of impact on air, climate change	

				and expertise of Ministry of Environment	
8		16:30-17:30	Denis Bibikov	Head of the Main Directorate for the Regulation of Natural Monopolies, the Fuel and Energy Complex and the Transport of Ministry of Antimonopoly Regulation and Trade of the Republic of Belarus	
9	28/04/2021, Wednesday	10:00-11:00	Peter Dickson	International consultant	peter.dickson12@yahoo.com
10		11:30-12:30	Sindel Dmitry	Santa holding	sindel.dmitriy@santa.by
11		13:00-14:00	Irina Sukhy	Green Network council member	suhisha@gmail.com
12		15:00-16:00	Poleschuk Leonid,	Deputy director of Energy Efficiency Department of Gosstandart	fer.dee@gosstandart.gov.by
13	29/04/2021, Thursday	10:00-11:00	Alexander Vintchevsky	APB-BirdLife “Akhova ptushak Batskaushchany” NGO	info@ptushki.org, a.vintchevski@gmail.com
14		11:30-12:30	Valeriy Aleksandrov	VetroVatt, LLC	0404km7@gmail.com
15	30/04/2021, Friday	10:00-11:00	Alena Sinilo	Head of the Green Economy Department of Ministry of Economy	econles@economy.gov.by
16		13:00-14:00	Alina Shakutina	Belarusian official representative of Guris , POWER GREEN LIMITED Founder & CEO	+375296749548, as@powergreen.pro alina.shakutina@gmail.com

17	04/05/2021, Tuesday	10:00-11:00	Raman Karneu (CTA)		raman.korneu@nemeracapital.eu
18		12:30-13:30	Valeriy Aleksandrov	VetroVatt, LLC	0404km7@gmail.com
19		15:00-16:00	Alina Shakutina	Belarusian official representative of Guris , POWER GREEN LIMITED Founder & CEO	+375296749548, as@powergreen.pro alina.shakutina@gmail.com
20		16:30-17:30	Andrey Kotik	Belneftehim	a.kotik@beloil.by, A.Nikitenko2@beloil.by
21	05/05/2021, Wednesday	09:15-10:15	Olga Prudnikova	Deputy Minister of Ministry of Energy of the Republic of Belarus	Hreben.SN@min.energo.by
22	11/05/2021, Tuesday	16:00-18:00	Maryna Belavus	Project manager	maryna.belavus@gmail.com; Office phone +375 17 306 53 67, mobile +375 29 649 71 37
23	14/05/2021, Friday	9:00-10:00	Maryna Belavus	Project manager	maryna.belavus@gmail.com; Office phone +375 17 306 53 67, mobile +375 29 649 71 37
24		10:00-11:00	Alexander Korbut	Deputy Minister of Ministry of Environment, national coordinator of the project	
25			Maryna Belavus	Project manager	maryna.belavus@gmail.com; Office phone +375 17 306 53 67, mobile +375 29 649 71 37
26	28/05/2021, Friday	10:00-11:00	Debriefing: Ms. Marina Belavus, Mr. Alexander Korbut, Ms. Olga Prudnikova, Mr. Valery Aleksandrov, Mr. Andrey Kotik, Mr. Ihar Tchoulba, Mr. John O'Brien		

27	31/05/2021, Monday	15:00-17:00	Maryna Belavus	Project manager	maryna.belavus@gmail.com; Office phone +375 17 306 53 67, mobile +375 29 649 71 37
28	16/06/2021, Wednesday	14:00-14:30	David Freund	Consultants, author of Prodoc	david@jupiterrenewables.com

5.9 List of persons interviewed

#	Name	Organization	Contacts
1	Belavus Maryna	Project manager, PIU member	maryna.belavus@gmail.com; Office phone +375 17 306 53 67, mobile +375 29 649 71 37
2	Grigorenko Yuri	Wind energy engineer, PIU member	yuryhry@gmail.com
3	Gnedov Alexander	Legal consultant, PIU member	6594264@tut.by
4	Pinigin Andrei	Green Economy NGO	apinigin@tut.by, 8 029 632 45 05
5	Khorevko Evgeniy	Wind Private Finance Initiative, LLC (created in the framework of the project)	6241098@mail.ru, +375 29 3999950
6	Samusenko Irina	Scientific and Practical Center for Bioresources of the National Academy of Sciences of Belarus	isamusenko@gmail.com, +375 29 192 29 58
7	Inchina Natalia	The head of the department of regulation of impact on air, climate change and expertise of Ministry of Environment	
8	Klimenko Natalia	The consultant of the department of regulation of impact on air, climate change and expertise of Ministry of Environment	
9	Bibikov Denis	Head of the Main Directorate for the Regulation of Natural Monopolies, the Fuel and Energy Complex and the Transport of Ministry of Antimonopoly Regulation and Trade of the Republic of Belarus	
10	Dickson Peter	International consultant	peter.dickson12@yahoo.com
11	Sindel Dmitry	Santa holding	sindel.dmitriy@santa.by
12	Sukhy Irina	Green Network council member	suhisha@gmail.com
13	Poleschuk Leonid	Deputy director of Energy Efficiency Department of Gosstandart	fer.dee@gosstandart.gov.by

14	Vintchevsky Alexander	APB-BirdLife "Akhova ptushak Batskaushchany" NGO	info@ptushki.org, a.vintchevski@gmail.com
15	Aleksandrov Valeriy	VetroVatt, LLC	0404km7@gmail.com
16	Sinilo Alena	Head of the Green Economy Department of Ministry of Economy	econles@economy.gov.by
17	Shakutina Alina	Belarusian official representative of Guris, POWER GREEN LIMITED Founder & CEO	+375296749548, as@powergreen.pro alina.shakutina@gmail.com
18	Karneu Raman	CTA, UK	raman.korneu@nemeracapital.eu
19	Prudnikova Olga	Deputy Minister of Ministry of Energy of the Republic of Belarus	Hreben.SN@min.energo.by
20	Kotik Andrey	Belneftehim	a.kotik@beloil.by , A.Nikitenko2@beloil.by
21	Korbut Alexander	National coordinator of the project, Deputy Minister of Ministry of Environment	
22	O'Brien John	Regional Technical Advisor, UNDP	
23	David Freund	International Consultant	david@jupiterrenewables.com

5.10 List of documents reviewed

The list of documents only includes the main documents provided. There was extensive additional documentation provided by the Project Team

In alphabetical order

Document
Annual Work Plans 2015-2020
Inception Report
Minutes Inception Workshop
Minutes of Meeting of Local Appraisal Committee Meeting
Minutes of Board Meetings
MTR Report and Management Response
PIF and related documents
PIRs for 2016-2020
Project Co-financing Letters
Promotion materials
Various manuals
UNDP Prodoc and endorsement documents

5.11 Signed UNEG Code of Conduct form

Evaluators/Consultants:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form

Agreement to abide by the Code of Conduct for Evaluation in the UN System:

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Name of Consultant: Manfred Stockmayer

Signed at *Wiener Neustadt* on 7 *April 2021*

Signature: _____

Name of Consultant: Viktoryia Kalosha

Signed in *Minsk* on *7 April 2021*

Signature: ____

5.12 Signed TE final report clearance form

Terminal Evaluation Report for *(PIMS 4462: Removing Barriers to Wind Power Development in Belarus*) **Reviewed and Cleared By:**

Commissioning Unit (UNDP Programme Officer)

Name: Igar Tchoulba

Signature: Igar Tchoulba Date: 21-Jun-2021

Regional Technical Advisor

Name: John O'Brien

Signature: John O'Brien Date: 21-Jun-2021

5.13 Audit trail from received comments on draft TE report

Institution/ Organization	#	Para No./ comment location	Comment/Feedback on the draft TE report	TE team response and actions taken
MNREP	1	p. 41, table 7 "Overall likelihood of sustainability"	We consider the overall likelihood of sustainability as moderately likely. The Republic of Belarus has always been devoted to its international commitments under the climate agreements. Renewable energy is considered to be as a part of practical measures of these climate commitments implementation. All project outcomes will be used in developing new policies and legal acts in renewable energy regulation.	In section "Sustainability" it is explained that for the overall rating for sustainability it needs to be considered that the overall rating is equal to the lowest rated dimension. As both financial sustainability and socio-political sustainability were rated MU, the overall rating needs to be Moderately Unlikely (MU).
MNREP	2	p. 42, para 4	The Government of the Republic of Belarus are dedicated to solving the issue with Guris in accordance with investment interest of the company and the national legislation. The work is going on and an appropriate solution will be made very soon.	This is noted. However, for the evaluation the current situation needs to be taken into account. Therefore, the opinion is maintained that there is still a risk in further delaying the implementation of the project.
PMU, Project manager	3		The Draft report reflects all aspects of the project implementation with proper assessment. The interviewees represented all stakeholder groups, which were involved in the project implementation or impacted by the project activities. The findings are presented in impartial and unbiased manner. The figures presented in the report are based on the up-to-date official information sources and can be verified.	This is noted.
RTA	4	p.1	Add exact date to report	Exact date was added.
RTA	5	p.7	Where is the overall rating? Is it MS? Can we make this clearer?	Overall Project Outcome Rating has been added in section 1.3
RTA	6	p.7	Can we mention that the subsidy approach doesn't work.	The purpose of the report is to evaluate the approaches chosen in this project, but not to present an opinion about other approaches.
RTA	7	p. 7	Can you please elaborate and explain a bit more?	Wording added
RTA	8	p. 8	Surely the launch of the WPFI is also one of the achievements.	Agreed, wording accepted
RTA	9	p. 8	I think it is a good idea to number recommendations, explain them, and then explain who will implement them and perhaps to put them in a table. Please number recommendations. Also in some of your recommenations you do not mention who will pay for the recommendations to be implemented.	The table on recommendations was added on page 9 just before the recommendations. The table includes all recommendations from section 5.4, the text on page 9 and 10 only the main recommendations.
RTA	10	p. 9	Why do you say this. If Guris committed $50 million + then it	The comment made says that none of the private

			indeed did materialize.	sector commitments made at CEO endorsement actually realized. The comment therefore is valid.
RTA	11	p. 9	What is the recommendation coming out of this.	This is a corrective action for the design of future projects, not a recommendation.
RTA	12	p. 9	This requires new legislation or regulations so why did the project not work on this auctioning system allocating resources for this activities. Is it your recommendation that this auctioning mechanism gets worked on regardless after the end of the project. Please be clear with the recommendation.	Extensive resources were used to convince the government to apply an auctioning system, this also included the preparation of technical reports. Therefore it is recommended that MNREP and UNDP support the Ministry of Energy in the implementation of the auctioning system, based on the experience gained and documentation developed during the course of the Project.
RTA	13	p. 9	Who will pay for the development of this new methodology now that the project is over?	The new methodology has been developed, but needs to be refined. It is up to MNREP to take the lead.
RTA	14	p. 9	I thought it is now privately owned. Please check this.	The private sector participant (ENECA) has ended its engagement, therefore the statement is correct.
RTA	15	p. 10	Good idea but who will pay for it.	This is for MNREP to take the lead.
RTA	16	p. 10	I recommend to put this right up front as recommendation number 1 so that they are more easily understood.	The recommendation was moved up both in section 1.4 and 5.4.
RTA	17	p.10	I am not sure comparing Gambia to Belarus is a good comparison. The issues are completely different.	It is correct that different de-risking tools were applied. However, the conclusion still stands that using the UNDP procurement system can increase the awareness about opportunities and can reach potential investors, where a national project doesn't have direct contact with.
RTA	18	p. 16	I am not sure comparing Gambia to Belarus is a good comparison. The issues are completely different.	
RTA	19	p. 16	This assumption was correct at the start of the project design as the nuclear power plant came only later. Back in 2009, the Republic of Belarus was making efforts to participate in the flexibility mechanisms of the Paris Agreement.	This statement is true for the time when the project was designed, but not when the Project was started. Also, there was no review or revision of this risk in the inception phase of the Project.
RTA	20	p. 16	Dates?	Examples for documents and dates are mentioned in the following sentences.
RTA	21	p. 17	Because the plans were not well known at the time. The project design took place in 2008, 2009, 2010 and it is a long time ago. I note you have not interviewed David Freund the consultant who wrote the Prodoc nor have you asked him this question – why were nuclear plans ignored in project design? I think you need to interview him.	An additional interview was carried out with David Freund. He stated that the likelihood of the NPP being commissioned in time was given a low probability. For that reason, the analysis of the NPP was limited in the Prodoc. While the Prodoc was signed in December 2014, the construction contract for the NPP was signed in 2012 and construction started in May 2014. Therefore the evaluation still stands that a more detailed analysis of the situation of the NPP in

				the Prodoc should have been carried out.
RTA	22	p. 17	Because the plans were tentative at the time that the project was designed. You should interview David Freund. See previous comments.	See previous response. Even if the plans were tentative at project design, there were firm when the Project was started and this was not considered in the inception phase.
RTA	23	p. 17	But there was a pre-selection list of many more companies interested as told by one of the international consultants.	The PIU and the international consultants reached out to a number of international companies, however, only Guris applied. Potential reasons are listed in the following para.
RTA	24	p. 17	This is the main risk in my view. There is a law that says government can nationalize assets if it is in the national interest and pay compensation. This is a risk for the international private sector in my view and I think it could be mentioned. I am happy to discuss further.	This is correct and has been added to the reasons.
RTA	25	p. 17	Why did the project not incorporate lessons learned from other UNDP GEF projects? Did you look at this?	No information on the incorporation of lessons learned was included in the ProDoc. The information in the TE Report is based on stakeholder interviews.
RTA	26	p. 17	You don't mention that WESU or Wind Energy Support Unit under the Ministry of Environment which was also about stakeholder participation. Can you consider to mention WPFI. The WPSFI – wind private sector finance initiative is also about stakeholder participation. I think you should discuss this also.	Information about WESU and WPFI were added.
RTA	27	p. 17	Please be more specific. What other organization.	The wording "other organizations" is from the Prodoc, there was not more specification on the planned participation. Actual participants were added in the para below.
RTA	28	p. 18	This was envisaged to be role of WESU – wind energy support unit. Some of members were the same. But WESU didn't do so much. PMU or project management unit much more active in promoting wind. Please discuss.	Information added to clarify.
RTA	29	p. 19	The approach was also about de-risking. Important to mention I think.	The report is based on a standardized table of contents, which talks about "Replication approach", therefore "de-risking" is deleted.
RTA	30	p. 18	In doing what? In financing renewable energy projects? If this is correct , please mention. Does EBRD finance wind projects in Belarus. You do not mention.	The activities of EBRD are mentioned in the next para.
RTA	31	p. 19	Can we state how much?	The PIU received a co-financing letter from VetroVatt, but this letter neither indicated the investment nor the debt financing. Therefore no figure can be stated.
RTA	32	p. 19	Where is the evaluation of the work of the international	Please check chapter "Feedback from M&E

			consultants? It needs to be there in my view.	activities used for adaptive management", which includes evaluation of the work of international consultants
RTA	33	p. 19	Can you please list the dates and the frequency. Who was the Chair of the Steering Committee?	Information on when meetings were held and the chair were added.
RTA	34	p. 20	Project was stuck for 9 months because of this. Was my idea to break the deadlock!	Additional wording accepted.
CO, Programme Analyst	35	p. 18, para no. 6	To add to the last sentence of the paragraph: ….. while the day-to-day management and decision-making for the Project is the responsibility of the Project Implementation Unit (PIU) *hired by the MNERP.* – as it is crucial to be underlined.	Wording revised
CO, Programme Analyst	36	p. 24, para no. 1	On the paragraph: *After having the official start in December 2014, it took until September 2015 to hire the project manager and until December 2015 to carry out the Inception Workshop. As a result, expenses were delayed in the first 2 years. While this slow start limited progress in the first 2 years, it was helpful in having sufficient budget to extend the project for an initial 12 months followed by a 6-months no-cost extension due to COVID-19.* – It is also worth mentioning that the slow start is attributed to the lengthy national registration procedure.	Wording revised
CO, Programme Analyst	37	p. 42, 8th bullet point	It ends with "only as moderately likely" – to double check as it is moderately unlikely in the table above.	Wording revised
CO, Integration, M&E Assistant	38	p. 5	Shall Nuclear Power Plant be added to the list of abbreviations? As it is quite often referred to in the documents while NPP is used on pp.7-8 and only on p. 16 full name is provided. RES to be added to Abbreviations as well.	Abbreviation added in list of abbreviations and wording revised in page 7.
CO, Integration, M&E Assistant	39	p.16 para no. 1	First mentioning of Guris without specifying who are they, might be unclear (specified later on only on page 26).	Wording revised
CO, Integration, M&E Assistant	40	p. 27, para no. 5	"This project was the first full NIM project implemented in Belarus" – to specify and add: implemented with the Ministry of Natural resources and Environmental Protection in Belarus.	Wording revised
CO, Integration, M&E Assistant	41	p. 27, para no. 5	A typo: between MNREP and UNPD. Correct to UNDP.	Typo corrected