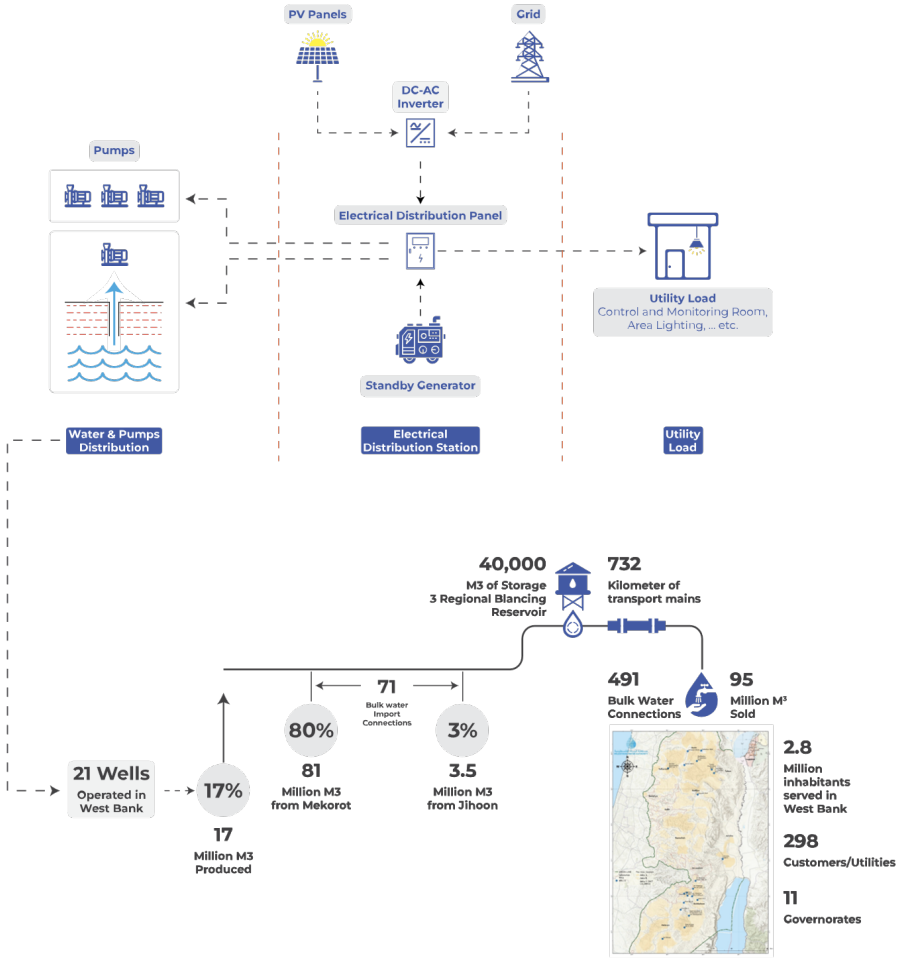
Project Proposal

Solar Powered Water Wells in the West Bank



29 November 2024

Agency	United Nations Development Programme/Programme of Assistance to the Palestinian People (UNDP/PAPP)
Project title and Number in Quantum	WEF Nexus in the West Bank 010003568
Sector	Energy, and Water
Link to PA National plans	• Renewable Energy National Action Plan 2021-2030 • National water strategy for Palestine 2023-2032
Link to the PA Build Palestine strategic framework	Contributes to Pillar #4: Palestine comprehensive economic development: energy security and transition to renewable energy, and water security are among the key strategic initiatives to enhance self-reliance and building sustainable and resilient economy.
Links to National Priorities	Contributes to achieving National Renewable energy target: 560 MW solar PV is installed and operational by 2030.
Objective	Integrating solar into WBWD[1]'s wells facilities to enhance operational sustainability
Outcome	***Outcome:*** *Improved sustainable and climate resilient management of and equitable access to quality of service and natural resources, including renewable energy.*
Expected Output	***Output 1.*** *Solar PV system is developed and operationalized including energy efficiency measures at the identified water facilities in the north and south of the West Bank.*
	Output 2: *Resilience fund for wells' sustainable operation established and operationalized*
Beneficiaries	National Water Company/ West Bank Water Department (NWC[2]/WBWD)
Implementing Partners	Palestinian Water Authority (PWA) and Palestinian Energy and Natural Resources (PENRA)
Duration	2.5 Years
Indicative Budget	NOK 35.0 million equivalent to US$ 3,150,000
Financial Benefits	US$ 10.0 million over 25 Yrs.
Planet Benefits	Avoidance of 35 $CO2_{eq}$ metric tons

[1] WBWD was established in 1945 as the bulk water supplier for local authorities in the west Bank. It is currently under reform to be transformed into a National Water Company (NWC) responsible for bulk water supply and sale to water undertaken, utilities, local authorities and associations.
[2] The mandate of the NWC was define by the Water Law 2014, Article 39. It was registered as a public entity in April 2022, and In February 2024, the Council of Ministers approved the Transitional Regulation (PA, 2024) outlining the roadmap for transferring the WBWD into the NWC.

I. Situation Analysis

Since 7th October 2023, the heightened political and security tensions continue constraining the livelihoods of hundreds of thousands of Palestinians in the West Bank, limiting their access to economic opportunities, the rising wave of violence, coupled with territorial fragmentation, access and movement restrictions, limited access to and control over natural and productive resources, has led to further deterioration of the already fragile socio-economic conditions of the Palestinian people in the West Bank.

Economic projections indicate that the gross domestic product (GDP) of the State of Palestine contracted by 35.1 per cent in 2024 compared with a no-war scenario, with unemployment potentially rising to 49.9 per cent. By the end of 2024, the Human Development Index (HDI) in the State of Palestine may fall to 0.643, a level not seen since HDI calculations began in 2004[3].

The PA is currently facing a severe fiscal crisis caused by a 50% drop in public revenues because of the overall downturn in economic activity and the significant increase in illegal Israeli deductions from Palestinian tax "Clearance" revenues, with accumulated withheld funds reaching more than US$2.2 billion.

Access to quality water service is essential for sustaining life and ensuring decent living conditions for all. In the West Bank, however, the bulk water supply and distribution system face significant challenges that hinder access to safe and reliable water. The Palestinian Water Authority (PWA) recently reported that the bulk water supply system often operates on an emergency basis, especially during the summer months. To address these issues, the PWA has identified five key priorities among which is enhancing operational sustainability of groundwater wells owned and operated by West Bank Water Department (WBWD).

With $9.2 million in funding from the Kingdom of the Netherlands, the United Nations Development Programme (UNDP) has launched a water wells rehabilitation program to increase the productivity from the West Bank Water Department (WBWD) wells. This program includes major replacements of electromechanical equipment and hydrological work to restore these wells to their design capacity.

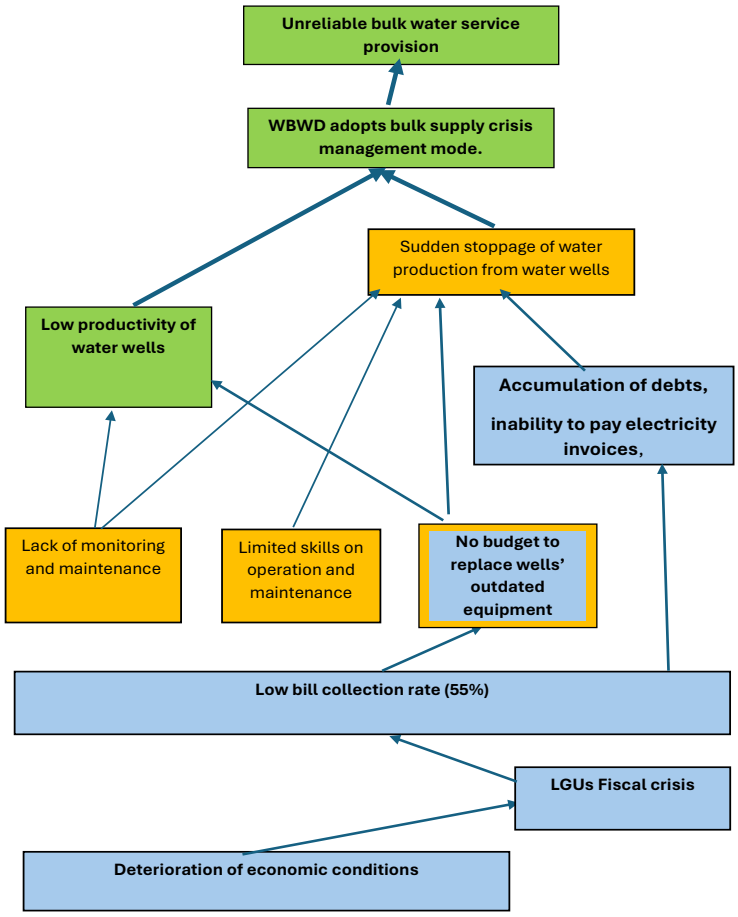
Additionally, the lack of access to clean, reliable, and affordable electricity further constrains the quality of water services in Palestine. With about 90% of energy imported from Israel, electricity prices are among the highest in the MENA region, leading to high costs and frequent power outages that adversely affect water service provision.

[3] Gaza war: Expected socioeconomic impacts on the State of Palestine, ESCWA, UNDP Policy brief October 2024

II Problem Statement

The recent deterioration of economic conditions has severely impacted on the ability of local government units to pay their water bills, leading to a decline in the WBWD's revenue collection rate to 55% in 2023. This decline hinders its ability to maintain quality water service for 2.8 million people. The WBWD needs to allocate an average of $5.0 million annually to cover electricity costs for producing 17.2 million cubic meters of water annually from 21 water wells. Notably, 62% of water production costs are attributed to electricity, costing $ 0.37 per cubic meter produced. Moreover, the WBWD is facing difficulties allocating sufficient budget for undertaking maintenance of its wells due to accumulation of debts on its customers.

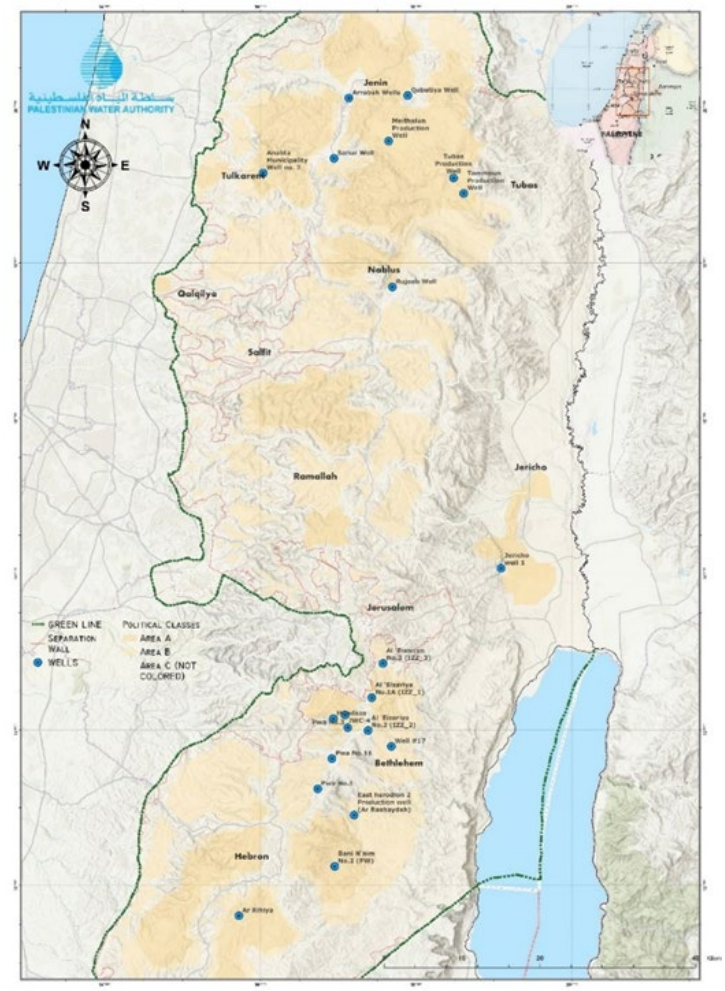
On this front, the integration of solar PV system and energy efficiency measures into these water facilities provides a great opportunity to reduce electricity consumption, enhance its operational sustainability while mitigating the impacts of climate change, the diagram below sheds light on the key challenges that WBWD is currently facing.



III Intervention Strategy

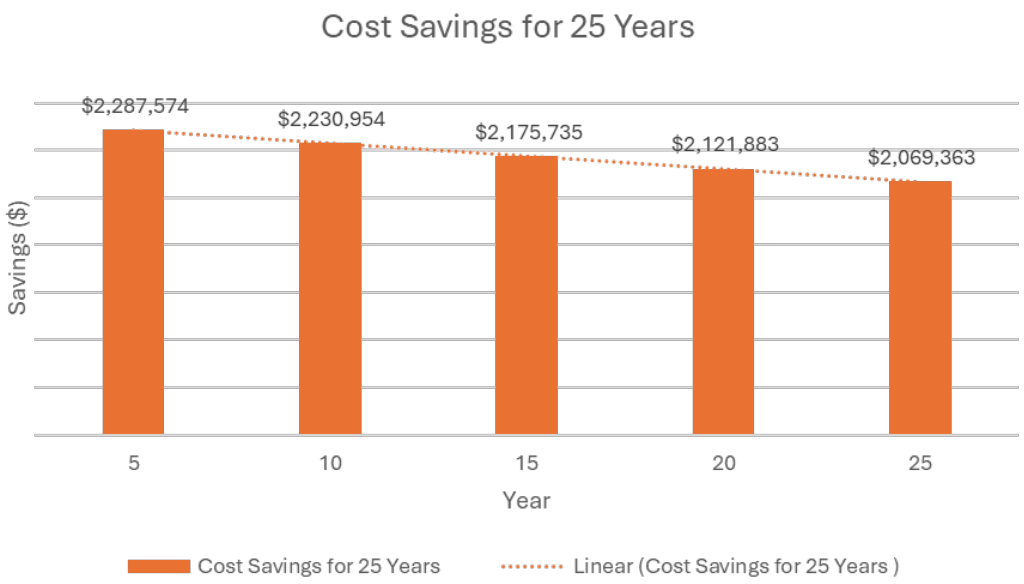
Over the years, UNDP/PAPP has contributed to the development of the energy and water sector in the State of Palestine while supporting and enhancing the capacities of relevant Palestinian institutions across national and local levels. In doing so, UNDP/PAPP's support has contributed to increased communities' access to water, and energy services in the West Bank and Gaza Strip.

Against the backdrop of the current fiscal crisis of WBWD and the constant water shortage affecting Palestinian communities in the West Bank, and in line with the strategic framework for establishing the National Water Company (NWC), UNDP – in partnership with the PWA - intends to support and contribute to national efforts towards improving the efficiency of the NWC/WBWD as bulk water supplier to the local government units in the West Bank through integration of solar PV systems and energy efficiency measures into its water production facilities, the below map shows the location of these facilities.

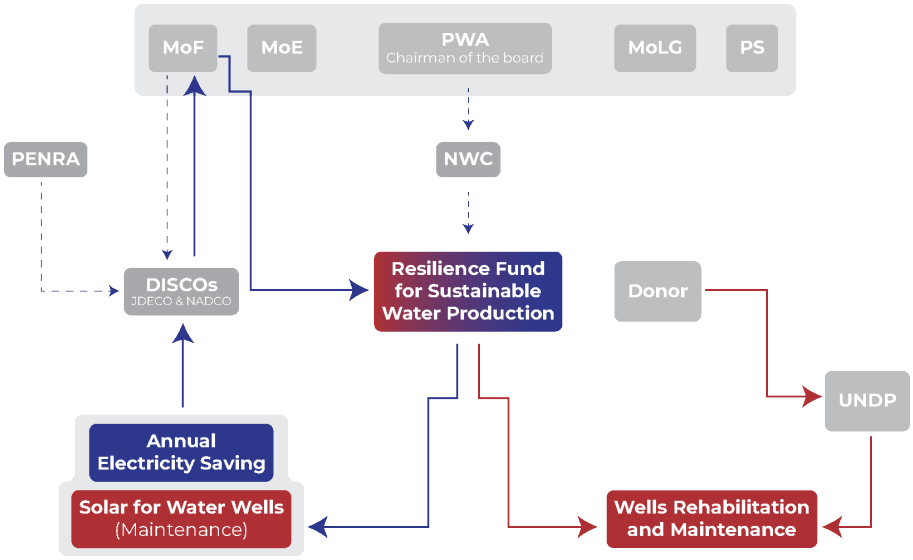


In addition, this proposal is in line with Government transformative vision that was articulated through the recent **Build Palestine Strategic Framework**, identifying four key pillars essential to **national resilience and growth**. These pillars guide the country's development and response to the unique and unprecedented crisis. Specifically, it contributes to achieving the following strategic development initiative: Energy security and transition to renewable energy sources which seek support transition to green economy by generation Palestine's electricity needs from renewable resources.

To contribute to achievement of this ambitious goal, this project aims to integrate a 1.8 MW solar PV system and energy efficiency measures across 15 well sites, with an estimated lifetime generation electricity saving value of approximately $10 million, Annex 1 presents detailed information on electricity saving.



Moreover, UNDP in close collaboration with the NWC's board of directors chaired by PWA, intends to explore the establishment of a resilience fund for rehabilitation and maintenance of the WBWD water wells where it is suggested that the generated savings from electricity consumption will be transferred by the Ministry of Finance to this fund, which currently pays the electricity invoices of the wells to the respective DISCOs. The following schematic diagram illustrates a proposed institutional arrangement among various actors to establish and operationalize such fund.



It is foreseen that the annual generated savings from the electricity consumption of these wells will cover 50% of the needed financial resources to undertake preventive maintenance of these critical assets, ensuring their continued production throughout the lifespan of critical equipment in these facilities.

It's noteworthy that the average cost per cubic meter of water purchased from Israel is currently NIS 3.83[4]. Consequently, each cubic meter of locally produced water that replaces imported water lowers the cost by NIS 1.56 per cubic meter. Thus, enhancing the production capacity of these wells is crucial for building Palestinian resilience. This requires adoption of preventive maintenance to ensure the efficiency of well's equipment over its lifetime. The savings from the electricity bill would play a key role in implementing this approach.

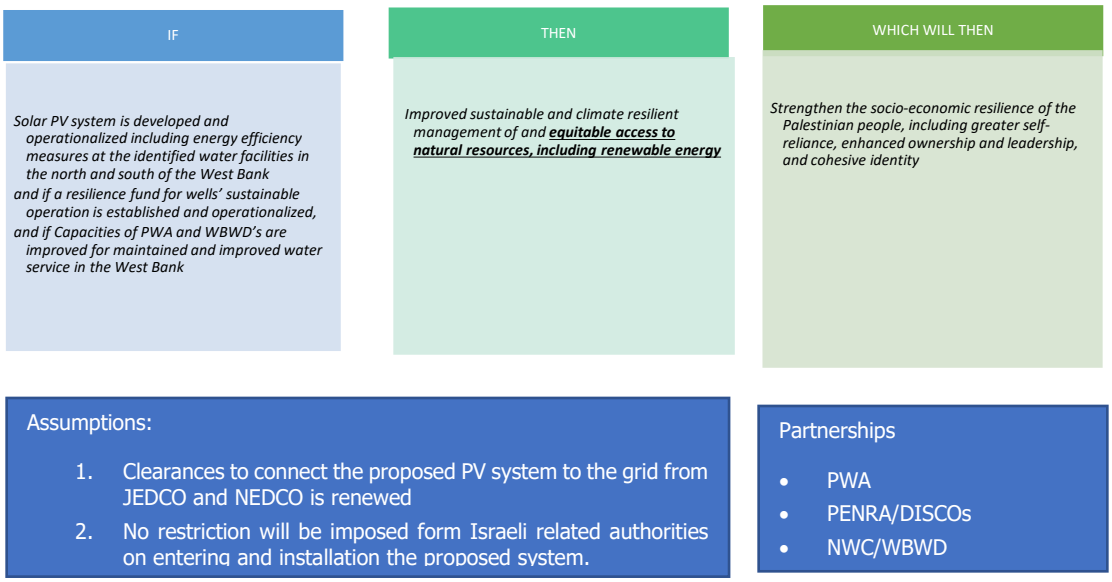
Additionally, the project will contribute to avoiding 35t CO2eq thus contributing to Palestine's emission reduction target. It will contribute to achieving the following State of Palestine's NDCs target for the energy sectors[5]: 20-33% of electricity to be generated from renewable energy by 2040, primarily from solar PV.

By mobilizing solar energy solutions for water wells, the project is also well aligned with and will contribute to advancing progress towards SDG 6 on Clean Water and Sanitation, as well as SDG 7 on Affordable and Clean Energy.

The intervention strategy of this project is built upon the following theory of change (ToC), including the results logic as presented in the following diagram. The project ToC assumes that:

[4] 83% of bulk water supply in the West Bank is imported from Israel.
[5] State of Palestine's First Nationally Determined Contributions (NDCs) "Updated Submission" October 2021

If Solar PV system is developed and operationalized including energy efficiency measures at the identified water facilities; and if a resilience fund for wells' sustainable operation is established and operationalized, and if capacities of PWA and WBWD's are improved for maintained and improved water service in the West Bank, ***then*** *climate resilient management of and equitable access to sustainable natural resources will be improved,* ***which will then*** *contribute to strengthening the socio-economic resilience of the Palestinian people, including greater self-reliance, enhanced ownership and leadership, and cohesive identity.*



In line with its commitment to advance gender equality and women's empowerment, UNDP/PAPP will promote engagement of qualified female personnel as part of project implementation activities and infrastructure-related works. This entails proactively encouraging relevant Implementing Partners and/or Contractors and advocating for the hiring of qualified female personnel, as well as for a safe and inclusive work environment.

IV Project results and activities

The primary objective of this project is to integrate solar into WBWDB's wells facilities to enhance its operational sustainability through utilizing generated saving from reduction of electricity consumption in undertaking preventive maintenance of these facilities. This project intends to achieve the following outputs, with a view to contribute to the longer-term and higher-level results of improved sustainable and climate resilient management of and equitable access to natural resources, including renewable energy.

Under this output the project team will work closely with PENRA, PWA, and NWC/WBWD in undertaking the following activities.

Output 1: *Solar PV system is developed and operationalized including energy efficiency measures at the identified water facilities in the north and south of the West Bank.*
Activity 1.1 Undertake energy audit, detailed design, overall supervision and preparation of full tender document including soliciting needed clearances from relevant entities for integrating solar PV system and energy efficiency measures in the identified 15 water facilities.
Activity 1.2. Supply, install, and implement 1. 8 MW solar system and EE measures and undertake commissioning
Activity 1.3 Prepare operation and maintenance plan including digital monitoring system for the 15 sites and agreement with PS for system maintenance

A rapid assessment conducted by UNDP in September 2023 evaluated the feasibility of integrating solar photovoltaic (PV) systems at WBWD's water well facilities. The assessment, including site visits and consultations with electricity service providers, concluded that 15 out of 23 wells have sufficient space to accommodate PV systems with a capacity of 100 to 120 kWp, Annex 1 provides detailed information on the proposed PV capacity and related cost estimates for each well.

This intervention will support undertaking design, developing a business model, installation, and commissioning of approximately 1800 kWp PV system and integration of energy efficiency measures at these 15 wells. The design phase will explore employing both on-grid and off-grid solutions, as illustrated in Annex 2, and carrying out energy audit to determine the scope of integrating energy efficiency measures to enhance saving from electricity consumption.

No objections letters to connect the proposed systems of ten wells to JDECO's networks and two to NEDCO's were secured and need to be renewed in the first three months of the project timeframe, copy of no objections letters are presented in Annex 3. However, the remaining three wells (Tammoun, Arrabeh, Sanour) are connected to the respective municipalities' electricity networks. For these wells, the project will explore the possibility of applying off-grid or hybrid systems after consultation with the respective municipalities.

An agreement between PWA and solar developers to ensure proper operation and maintenance of the system will be drafted in close coordination with PWA and NWC.

In addition, a digital platform for monitoring and tracking the generated electricity from the 15 sites will be developed and operationalized at the NWC/WBWD premises in Ramallah.

Output 2: *Resilience fund for wells' sustainable operation established and operationalized.*
Activity 2.1 Carry out consultation with PWA, NWC, and MoF on the establishment of a resilience fund for sustainable water production and prepare draft legal framework.
Activity 2.2 Prepare coordination mechanism and draft legal framework to operationalize the fund

Under this output, the project will undertake extensive consultation with the Ministry of Finance (MoF) Palestinian Energy and Natural resources (PENRA), Palestinian Water Authority (PWA) and JDECO and NEDCO on the establishment of this fund. UNDP will build on the mechanisms that are already in place at the MoF. Additionally, the project will draft a legal and institutional framework for establishing a resilience fund, replenished through electricity savings. The framework will be submitted to PWA as the chairperson of the NWC's board of directors for endorsement.

V Project implementation approach

The project implementation phase is expected to extend over 30 months, starting with a 3-month initiation phase, followed by 24 months of implementation and commissioning, and concluding with 3 months dedicated to handing over and preparing the completion report.

This initiative complements the water wells rehabilitation project funded by the Kingdom of the Netherlands. It significantly enhances the sustainability of the investments made through the Dutch contribution and promotes the water-energy nexus and cooperation between PWA and PENRA.

A joint project steering committee meeting will be held annually to monitor progress across various outputs, aiming to achieve long-term and high-level goals of improved sustainable and climate resilient management of and equitable access to natural resources, including renewable energy, Annex 4 provides the consolidated results framework for the two projects.

Lastly, the project will integrate gender mainstreaming in both the design and implementation phases by encouraging technical suppliers and contractors to employ qualified female renewable energy engineers and managers as part of their project teams.

VI Sustainability

Under this project, UNDP/PAPP will partner with PENRA and PWA to enhance ownership and sustainability of the project outcome. This will involve not only developing necessary institutional arrangements but also providing technical training for PWA and WBWD personnel to improve their expertise and operational capacities regarding the installed solar PV systems.

The successful implementation of this project aims to demonstrate that operational costs related to electricity can be reduced and savings from electricity bills can be allocated for preventative maintenance of water facility equipment, ensuring sustained water production throughout the equipment's lifespan.

VII Partnerships and Stakeholders Engagement

UNDP has been actively engaging and coordinating with relevant national partners (namely PWA and PENRA) throughout the project design and planning phase and will continue to do so throughout the whole project cycle. Close consultation and collaboration with JDECO and NEDCO, as well as with the Ministry of Finance, will also be ensured.

In addition to PWA as the project counterpart, PENRA has also key role in the project design and implementation. This include but not limited to participate in the project steering committee and undertake oversight functions, review and approve the detailed design including technical specifications, participate in the evaluation/selection of technical suppliers, support in the development of business model for the project including the arrangement with JDECO and NEDCO, participate in donor's monitoring site visits, and participate in monitoring of system installation and commissioning.

Moreover, UNDP intends to undertake regular consultations with the Ministry of Finance, JDECO and NEDCO during the design of the legal and institutional framework for establishing the resilience fund.

Finally, UNDP will strive to ensure consultations and engagement with relevant development partners, especially EU, and WB who are contributing to the water sector reform, with an end view to identify complementarities and promote synergies.

VIII Governance and Management Arrangements

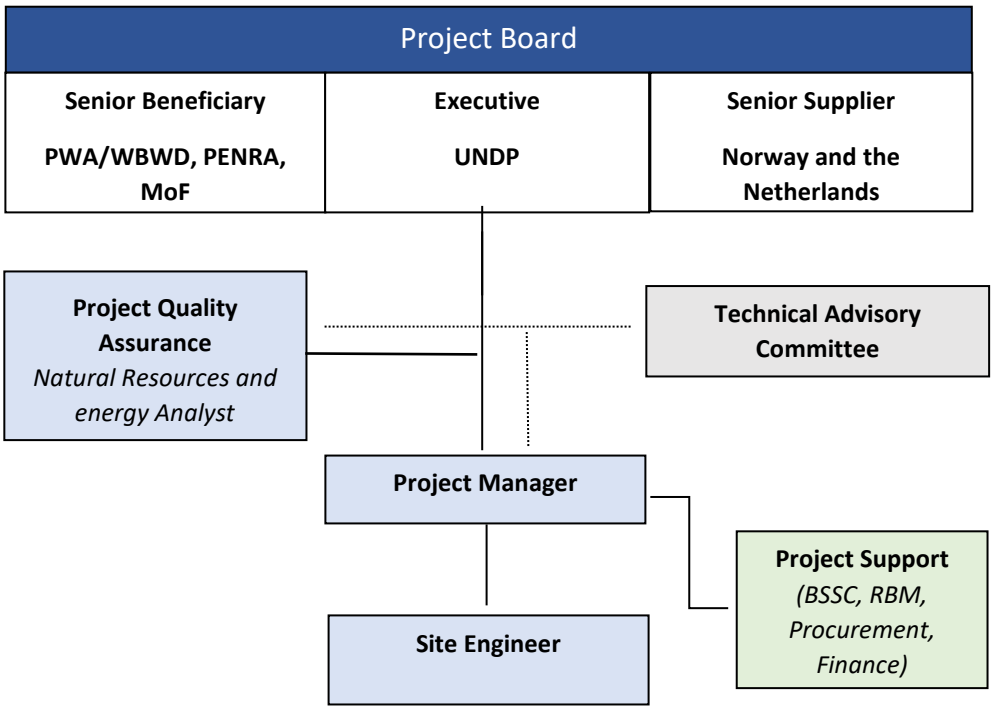
UNDP/PAPP works in partnership with relevant governmental agencies and delivers through the Direct Implementation (DIM) modality, which will be the mechanism for the implementation of this project. Under such modality, the final accountability of the project results and financial management rests with UNDP/PAPP. MoUs will be signed with PWA and PENRA highlighting areas of cooperation and clearly stating the role and responsibilities of each party.

The project will be overseen by a Project Board, comprising the donor/Government of the Norway and Government of the Netherlands (as senior supplier), the PWA, NWC, PENRA and MoF (as senior beneficiary), and UNDP/PAPP (as executive/implementing agency). The Project Board will first convene at the end of the initiation phase, to review and approve the terms of reference of the project steering committee. The Project Board will then meet annually – or more often if deemed necessary by the Project Manager and/or Programme Analyst – and will be the main platform for strategic decision-making relevant to the two projects. In addition, a Technical Advisory Committee (comprising representatives from PWA, NWC, PENRA, MoF, MoLG and PS) will be meeting annually – or more often if deemed relevant.

The direct oversight of the project within UNDP/PAPP will be ensured by the Programme Analyst responsible for the energy and natural resources portfolio, who will hold a programmatic quality assurance role during the implementation phase and will be responsible for ensuring all deliverables and intended results are timely achieved. The UNDP/PAPP project team will be supported by the Assistant Special Representative who will provide overall strategic guidance and direction, and by the Deputy Special Representative who will provide high-level oversight.

The project team, under the overall guidance and oversight of UNDP/PAPP Programme Analyst, will consist of a project manager who will be responsible for the day-to-day management, and one site engineers to supervise implementation of the solar system and energy efficiency measures.

In addition, UNDP/PAPP's Business Services Support Center (BSSC), finance and procurement teams will provide multi-dimensional support to the project team as needed. Moreover, a designated focal point from UNDP/PAPP's RBM team will work together with the project team to support timely and quality M&E functions. This includes technical support in reviewing and reporting progress against project milestones/targets in line with UNDP's corporate and donor reporting requirements, as well as capturing and disseminating relevant lessons learnt throughout the project cycle with partners and relevant stakeholders.



IX Results Framework

Intended Outcome as stated in the UNSDCF 22-25

UNSDCF Outcome 4: Palestinians have better access to and management of natural and cultural resources, higher resilience, and adaptation to climate change and more sustainable food systems

Outcome indicator as stated in the Country Programme
PPF outcome 3: Improved sustainable and climate-resilient management of and equitable access to natural resources, including renewable energy
SDG 7.b.1 Installed renewable energy-generating capacity in developing countries (in watts per capita)
Output 3.1: Improved **integration of renewable energy solutions** at sub-national and community level
Indicators: 3.1.1: total solar energy systems capacity (in KWh) installed at private and public institutions/organizations.
3.1.2: number of facilities with installed renewable energy sources.

Applicable Output(s) from the UNDP Strategic Plan 2022 - 2025:
SP Output 4.1: Natural resources protected and managed to enhance sustainable productivity and livelihoods.
SP IRRF Indicator: 4.1.1 Number of people directly benefitting from initiatives to protect nature and promote sustainable use of resources

EXPECTED RESULTS	INDICATORS	BASELINE 2023	TARGET				
		Value	Y1	Y2	Y3	FINAL	Data source of verification
OUTCOME: *Improved sustainable and climate resilient management of and equitable access to natural resources, including renewable energy.*	*1.1 Number of people directly benefitting from initiatives to protect nature and promote sustainable use of natural resources*	0	0	333,000	200,000	533,000	PWA Records
	1.2 Annual savings US$ from cost-reduction in electricity use	0	0	270,000	180,0000	450,000	MoF, Discos financial reports.
	1.3 Quantity of $CO_{2eq.}$ ton avoided annually	0	0	21,046	14,030,	35,077	Project completion report
Output 1: *Solar PV system is developed and operationalized including energy efficiency measures at the identified water facilities in the north and south of the West Bank.*	*1.1 Total capacity of installed solar PV systems in KWp*	0	0	1080	720	1800	Project progress report
	1.2 Number of facilities with installed renewable energy sources	0	0	9	6	15	Project completion report
	1.3 Quantity of energy annually generated by the installed solar energy system in MWh	0	0	1675	1117	2792	System commissioning report
	1.4 Number of energy-efficient systems implemented	0	TBD	TBD	TBD	TBD	Project progress reports.
Output 2: *Resilience fund for wells' sustainable operation established and operationalized*	*2.1 Availability of a functional resilience fund for operational sustainability of water wells.*	No	0	Yes	0	Yes	Note from the meeting of NWC Board of directors

X Project Budget

Project Name : Solar Powered Water Wells in the West Bank											
	Budget for Solar Powered Water Wells in the West Bank					Total cost (US$)	2025	2026	2027	Total cost $	Notes
No	Item	Description	Unit	# of units	Unit Rate (US$)	Total cost (US$)	(US$)	(US$)	(US$)		
1	**Output 1: Solar PV system is developed and operationalized for improved operational sustainability of identified water facilities**										
1.1	Undertake project energy audit, design & overall supervision for mainstreaming EE and RE at 15 wells sites*	Contractual services companie	Lump Sum	1	100,000	**100,000**	50,000	30,000	20,000	100,000	* $ 75,000 for energy design and audit. Based on UNDP experience it is estimated that the cost of energy audit and design is around $ 5,000 per site. $ 25,000 for overall supervision in the installation and commissioning phase.
1.2	*Solar Systems installation and implementation of associated civil and electricity works- 15 wells sites (Capacity 1.8 MW- 120 KWp per well)* **	Contractual services companie	No.	15	120,000	**1,800,000**	0	1,000,000	800,000	1,800,000	** $ 1.8 million for supply, install and commissioning of 1.8 MWP at 15 sites. The cost is Based on the market price of supply, installation and commissioning of KWP at $ 1,000.
1.3	*Energy efficiency systems and Lightening system for all wells (Energy efficiency systems for 15 wells sites)***	Contractual services companie	No.	15	35,000	**525,000**	0	325,000	200,000	525,000	*** $ 35,000 is the estimated cost for integration of EE at each facility. However the cost estimate will be revisited based on the outcome of the energy audit.
1.4	Prepare operation and maintenance plan including digital monitoring system for the 15 sites and agreement with PS for system maintenance****	Contractual services companie	Lump Sum	1	100,000	**100,000**	0	25,000	75,000	100,000	**** the cost includes preparing a digital platform for tracking and monitoring at PWA with an estimated cost around $50,000 , and $40K for operation and maintenance of the installed system for one year. In addition $ 10,000 was budgeted for transportation.
	(1) Sub-total output # 1***					**2,525,000**	50,000	1,380,000	1,095,000	2,525,000	*****Procurement of the PV and EE systems will be Launched in July 2025 as such there is a need to receive the second payment in the amount NoK 20 million in July in order to initiate the process.
2	**Output 2: a Resilience fund for wells' sustainable operation established and operationalized**										
2.1	Stakeholders consultation sessions	Contractual services companie	Lump Sum	1	7,366	**7,366**	2,500	0	4,866	7,366	
2.2	Develop institutional, legal framework & SOPs for resilience fund	Contractual services companie	Lump Sum	1	25,000	**25,000**	20,000	5,000	0	25,000	
	(2) Sub-total output # 2					**32,366**	22,500	5,000	4,866	32,366	
3	**Project Implementation Unit & Operation**										
3.1	Project Manager NPSA 8 (100%)	Salary	per month	24	7,158	**171,792**	42,948	85,896	42,948	171,792	
3.2	Project renewable energy site Engineer (100%)	Salary	per month	24	2,715	**65,160**	16,290	32,580	16,290	65,160	
3.3	DPC Quality Assurance and operational support (15%)	Salary	per month	24	3,200	**76,800**	19,200	38,400	19,200	76,800	
	(3) Sub-total PIU Cost					**313,752**	78,438	156,876	78,438	313,752	
4	**Audit, evaluation and project outreach**										
4.1	External Evaluation, Audit	Contractual services companies	Lump Sum	1	18,000	**18,000**	0	0	18,000	18,000	
	(4) subtotal audit, evaluation and outreach					**18,000**	0	0	18,000	18,000	
	Sub-total activities					**2,889,118**	150,938	1,541,876	1,196,304	2,889,118	
	General Management Services (GMS) 8%	GMS				**231,129**	12,075	123,350	95,704	231,129	
	Coordination levy to finance the United Nations Resident Coordinator System 1%					**31,202**	31,202	0	0	31,202	
	Total project budget					**3,151,450**	**194,216**	**1,665,226**	**1,292,008**	**3,151,450**	
	1 NOK = (USD =1/11.106)-= 0.09004- UN rate 15 Nov2024										
	Total Contribution NOK=	**35,000,000**									
	USD - UN Rate 15 Nov 2024	**3,151,450**									
	Norway NOK Norwegian Krone 11.106 15 Nov 2024 History										

XI Project Risk Log

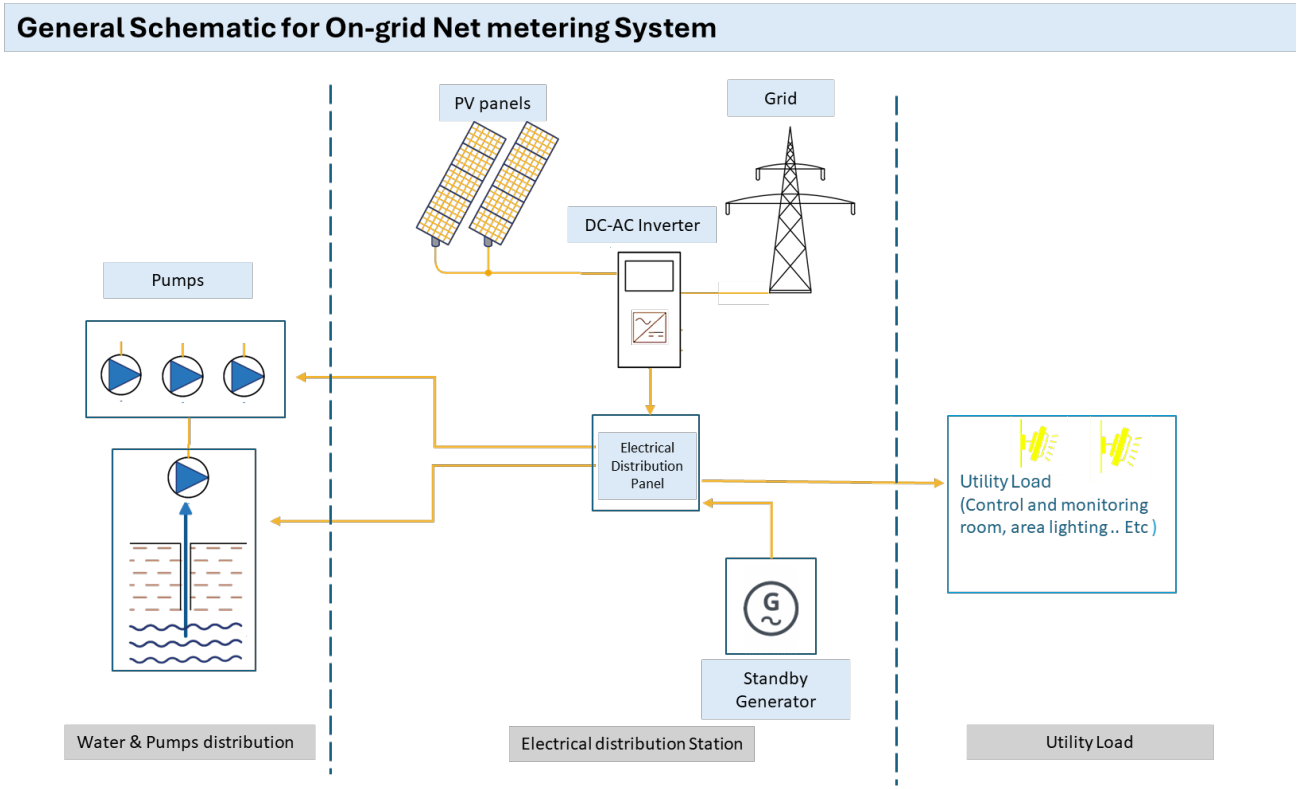
	Risk	Risk description and management measures
1	Increasing escalating in the West Bank including settlers' violence and high restrictions on movement	UNDP, in coordination with UNDSS, will continuously monitor the security situation across the West Bank, and assess the potential impact on the project implementation in the targeted project locations. This situation will most likely impact access to project sites and entry of equipment needed for the rehabilitations of targeted wells. UNDP has dealt with similar scenarios in the past and has the necessary experience to adapt to changes in project implementation. Access to project sites will be guided by UNDSS security clearance, meeting with stakeholder will be conducted via virtual platforms, and clearance for COGAT regarding entry of materials will be submitted in advance.
2	Lack of coordination with and engagement of NWC	The establishment of NWC is ongoing. Strategic development and business plans were developed and approved. In addition to PWA's representation in the project board, UNDP will include the CEO of the NWC as the senior beneficiary of the project to ensure integration with NWC strategic plans, ownership and effective coordination.
3	Delays of entry of equipment and increase of cost	Due to deterioration of security situation in Palestine and region shipment cost has dramatically increased. UNDP to consider the new shipment cost in the project budget and to coordinate in advance for entry of equipment.
4	People in targeted communities, particularly	UNDP/PAPP – through its project team and with support from PSEAH Focal Point - will ensure all Implementing Partners and Contractors / Suppliers are well aware of UNDP's Zero Tolerance

	women and girls, may be exposed to Sexual Exploitation and Abuse (SEA).	toward Sexual Misconduct, as well as their contractual requirements / obligations related to the Protection against Sexual Exploitation and Abuse (PSEA). UNDP/PAPP – through its project team and with support from PSEAH Focal Point - will ensure people in the targeted communities are informed of channels available for reporting incidents of Sexual Exploitation and Abuse (incl. UNDP's official corporate reporting mechanism – i.e., Office of Audit and Investigations; Community-Based Complaint Mechanism established by oPt PSEA Network, incl. SAWA helpline).
5.	Negative impact on climate/environment	Apply environment coping mechanisms throughout the lifecycle of the project in accordance with UNDP's social and Environmental overarching strategy. Promote the deployment of green and sustainable infrastructure. Follow and implement the local environment rules and regulations. mitigate negative social and environmental impact on local community throughout the lifecycle of the project in accordance with UNDP's social and Environmental overarching strategy. Advocacy and awareness plans are in place.
6.	Risks related to occupational health and safety due to physical hazards during Project implementation	Implementation of safety and security arrangements in line with UNDP safety policy for civil works.
7.	Disruption in wells' operation because of installation of PV systems and energy efficiency solutions	Preparation of implementation plans in full consultations with PWA and WBWD. Reflect on the need to minimize disruption of wells' operation during the implementation of the project under the procurement bidding documents.

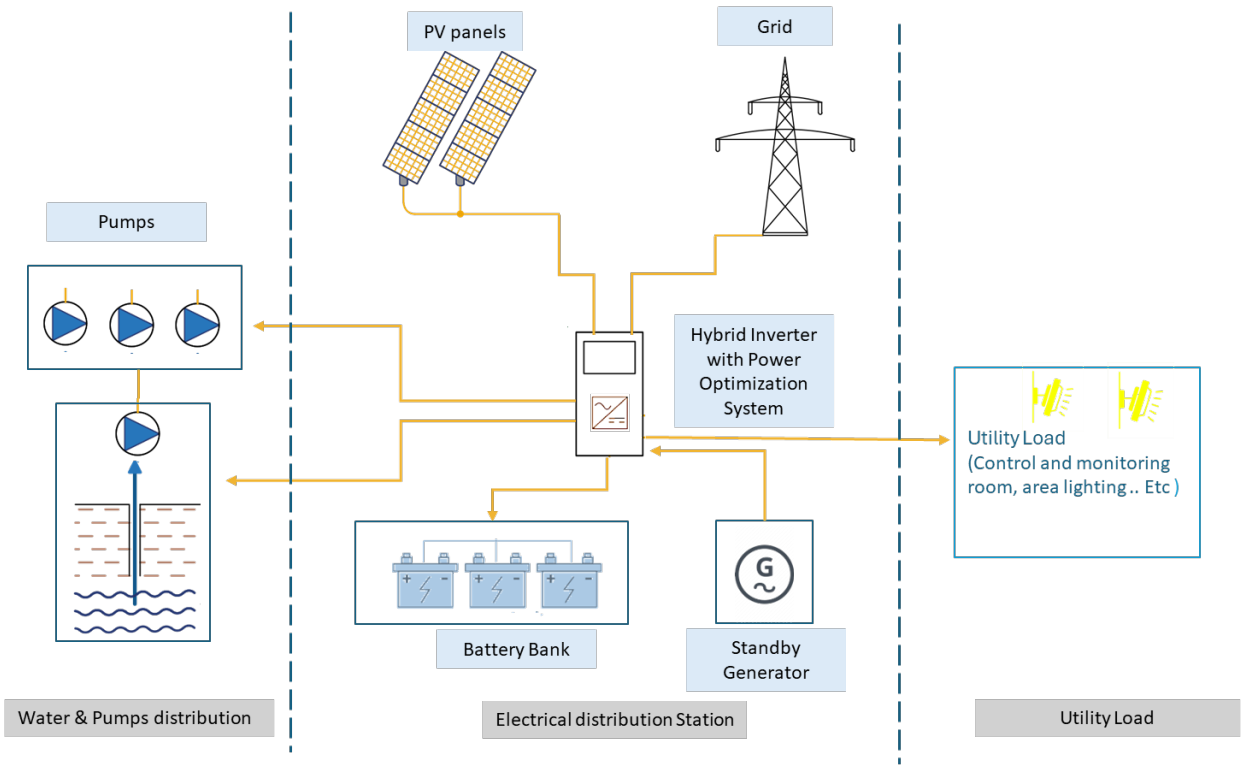
Annex 1: PV solar action plan for WBWDs water wells and expected saving

No.	Site	PV size KWp	Monthly Generated Power by PV system KWh	Generated Power Cost ILS/KWH Assuming 0.58ILS/KWh	Well Power Utility Bill ILS/Month	Estimated Utility Bill after PV installation ILS/Month
1	Tammoun Well	117	17,333.00	10,053.14	224,000.00	213,946.86
2	Meithalun Well	117	17,333.00	10,053.14	165,800.00	155,746.86
3	Sanur Well	117	17,333.00	10,053.14	66,222.00	56,168.86
4	Rujeeb Well	117	17,333.00	10,053.14	186,600.00	176,546.86
5	Arrabah Well	117	17,333.00	10,053.14	47,385.00	37,331.86
6	JWC-4	117	17,333.00	10,053.14	241,530.00	231,476.86
7	PWA No.11	117	17,333.00	10,053.14	194,588.00	184,534.86
8	Al 'Eizariya No.1A (IZZ_1)	117	17,333.00	10,053.14	123,022.00	112,968.86
9	Al 'Eizariya No.2 (IZZ_2)	121	17,917.00	10,391.86	294,440.00	284,048.14
10	Hundaza	117	17,333.00	10,053.14	247,207.00	237,153.86
11	PWA No.3	117	17,333.00	10,053.14	301,313.00	291,259.86
12	East herodion 2	117	17,333.00	10,053.14	158,472.00	148,418.86
13	Al 'Eizariya No.3 (IZZ_3)	117	17,333.00	10,053.14	248,000.00	237,946.86
14	Al-Uja well	117	17,333.00	10,053.14	1,460.00	-8,593.14
15	Jericho well	117	17,333.00	10,053.14	50,270.00	40,216.86
		1759	**260,579.00**	**151,135.82**	**2,550,309.00**	**2,399,173.18**

Annex 2 schematic diagram of the proposed PV Systems



General Schematic for Hybrid system with Optimization



Annex 3 No objections from DISCOs

STATE OF PALESTINE
WATER AUTHORITY
Minister's Office

دولـــة فلسطيـــن
سلطة المياه
مكتب الوزير

01 تشرين الأول، 2023

السيد هشام العمري المحترم
مدير عام شركة كهرباء القدس

الموضوع: ربط محطات الطاقة الشمسية لآبار سلطة المياه على شبكة شركة كهرباء القدس

تُهديكم سلطة المياه اطيب التحيات، وبالإشارة الى الموضوع أعلاه، فان سلطة المياه الفلسطينية وبالتعاون مع برنامج الأمم المتحدة الإنمائي UNDP تقوم بأعمال لدراسة فنية لأبار سلطة المياه، وفحص امكانية انشاء محطات طاقة شمسية من اجل خفض التكاليف التشغيلية للآبار، وحيث ان معظم الآبار تقع ضمن امتياز شركة كهرباء القدس، وهذا بتطلب ربط محطات الطاقة الشمسية بشبكة شركة كهرباء القدس. وعليه نأمل منكم تسهيل إجراءات الدراسة وفحص متطلبات الربط.

*مرفق قائمة بالمحطات المشمولة بالدراسة.

وتفضلوا بقبول فائق الاحترام،

م. مـــازن غنيـــم
رئيـــس سلطـــة الميـــاه

Palestine Water Authority
State of Palestine

Ramallah office Tel. +970 2 298 7665 Fax. +970 2 298 7336
Gaza office Tel: +970 8 282 7520 Fax: +970 8 282 2697
www.pwa.ps / pwa@pwa.ps

اسم البئر	الموقع- المحافظه	الاحداثيات	رقم الخدمه	قدره المحطه المقترحه
بئر JWC-4	العيبات – بيت لحم	E: 170873 N: 121893	3/003/08136	100kw-120kw
بئر Pwa .11	تقوع-بيت لحم	E:169186 N: 116304	3/003/08131	100kw-120kw
بئر العيزرية 1	دار صلاح –بيت لحم	E: 174313 N: 124109	3/003/08133	100kw-120kw
بئر العيزرية 2	زعتره –بيت لحم	E: 173863 N: 119882	3/003/08132	100kw-120kw
بئر العيزرية 3	ابو اديس – القدس	E: 174313 N: 124109	1/024/02216	100kw-120kw
بئر هندازة	هندازه –بيت لحم	E: 169378 N: 121401	3/003/08134	100kw-120kw
بئر Pwa No.3	Al-A'asakera - Bethlehem	E: 171224 N: 120250	3/003/08135	100kw-120kw
بئر عرب الرشايدة	East Herodion 2	E: 170380 N: 103557	3/003/09589	100kw-120kw
Well # 17	زعتره –بيت لحم	E: 176823 N: 117843	لا يوجد اشتراك	100kw-120kw
Al-Uja well	العوجا –اريحا	E: 192500 N: 150150	4/005/00750	100kw-120kw
Jericho well	بجانب الامن الوطني –اريحا	E: 190900 N: 14073	4/001/11662	100kw-120kw

خارجي - External

شركة كهرباء محافظة القدس المساهمة المحدودة
JERUSALEM DISTRICT ELECTRICITY CO. LTD.
17 شارع صلاح الدين – القدس ص.ب19118 — تلفون 6269333- فاكس 6282441
17 Salah – El-Din Street – Jerusalem – P.O.Box 19118 – Tel 6269333 – Fax. 6282441

الإشارة: 2013/12/٦٧٦٩.../
التاريخ: 2023/10/04

حضرة المهندس مازن غنيم المحترم
رئيس سلطة المياه الفلسطينية
تحية وبعد،

الموضوع : محطات طاقة شمسية لتغطية استهلاك آبار المياه التابعة لسلطة المياه الفلسطينية

بالإشارة إلى الموضوع أعلاه، بخصوص كتابكم المرسل لنا بتاريخ 2023/10/01، والذي يتعلق بإنشاء محطات طاقة شمسية لتغطية استهلاك آبار المياه التابعة لسلطة المياه الفلسطينية، من خلال تمويل من برنامج الأمم المتحدة الانمائي والذي يهدف إلى تقليل قيمة فواتير الكهرباء لتحقيق منفعة عامة من خلال تخفيض أسعار فواتير استهلاك المياه. فإنه لا مانع لدينا من تركيب أنظمة الطاقة الشمسية المقترحة من قبلكم لتغطية استهلاك الخدمات المذكورة في الجدول المرفق أدناه، وعليه يتطلب تزويدنا بمخططات أولية للأماكن المقترح التركيب عليها والقدرات النهائية للمشاريع، ومخططات مواقع وتوزيع الألواح الشمسية، وسيتم الكشف لاحقا على مواقع الخدمات لاستكمال باقي الاجراءات والمتطلبات الفنية اللازمة وتقدير تكاليف العدادات.
كما ننوه أنّ مدة هذه الموافقة ستة شهور من تاريخه، وذلك للبدء بالعمل في المشروع.

الرقم	اسم البئر	الموقع - المحافظة	رقم الخدمة	اسم المشترك	الاستهلاك السنوي (ك.و.س)	قدرة النظام المقترح (ك.و)
1	JWC4	العبيات / بيت لحم	300308136	دائرة مياه الضفة الغربية	5,130,078	120-100
2	Pwa11	تقوع/بيت لحم	300308131		3,265,991	120-100
3	العيزرية1	دار صلاح / بيت لحم	300308133		2,453,954	120-100
4	العيزرية2	زعتره/ بيت لحم	300308132		2,094,805	120-100
5	العيزرية3	ابوديس/ القدس	102402216		4,294,190	120-100
6	هندازة	هندازة/ بيت لحم	300308134		4,308,450	120-100
7	Pwa 3	العساكرة/ بيت لحم	300308135		3,867,492	120-100
8	عرب الرشايدة	*East Herodion2*	300309589		2,041,613	120-100
9	العوجا	العوجا/ اريحا	400500750		51,780	120- 100
10	اريحا	جانب الأمن الوطني	400111662		662,249	120-100

شركة توزيع كهرباء الشمال
Northern Electricity Distribution Co.

2023/09/06

حضرة السيد م. كايد بسيس ،،

السادة APT Engineers for Engineering Consultancies ،،

تحية طيبة وبعد ،،،

الموضوع : طلبكم بخصوص تركيب طاقة شمسية لبئر ميثلون وبئر روجيب

تهديكم شركة توزيع كهرباء الشمال أطيب التحيات، وبالإشارة الى الموضوع أعلاه، ولاحقا لكتابكم بخصوص منحة تركيب مشاريع طاقة شمسية لبئري ميثلون " خدمة رقم **201100025** " وروجيب " خدمة رقم **100143038** " ، وبعد دراسة وضع الشبكة فنياً فإننا نود أن نعلم حضرتكم أنه لا مانع مبدئيا من الموافقة على تركيب 120 kwp لكل بئر ضمن المنحة ، وذلك و حسب تعليمات مجلس تنظيم قطاع الكهرباء و وفقا للمعايير الفنية المتبعة في شركة توزيع كهرباء الشمال، شريطة ان لا تظهر نتائج الدراسة الفنية لأثر ربط المحطة تأثيرها سلبا على استقرارية وموثوقية شبكة الكهرباء في المنطقة ، وعليه يتوجب عليكم مراجعة الجهات المختصة لاستكمال الاجراءات حسب الأصول خلال ستة شهور من تاريخ الموافقة المبدئية.

مع فائق الإحترام والتقدير

المهندس أسعد سوالمه

المدير العام

الإدارة العامة
فلسطين. نابلس. الدوار. مجمع البلدية. ط١. هاتف: ٠٩ ٢٣٨٨٥٦٨ . فاكس ٠٩ ٢٣٨٨٥٦٩
ص.ب: ٢٦٠ البريد الإلكتروني: info@nedco.ps الموقع الإلكتروني: www.nedco.ps
رقم الطوارئ: ١٧٠٠٠٣٠٠٠٤٠٠

APT Engineers for Engineering Consultancies

تاريخ :-13/8/2023

الساده شركه كهرباء الشمال المحترمين

السيد رئيس قسم الدراسات المحترم

تحيه واحتراما وبعد:-

الموضوع :- بئر روجيب وميثلون الانتاجي

نحن شركة تالينتيد اي بي تي للهندسة والمتعاقدين مع سلطة المياه الفلسطينية بتمويل من برنامج الامم المتحده الانمائيUNDP لعمل الدراسة اللازمة لامكانية تصميم محطة طاقة شمسية لبئر روجيب وميثلون الانتاجي ، وذلك بقدرة لاتقل عن 120- 100 كيلو واط لكل بئر وذلك حسب المساحات المتوفره في كل محطه من المحطات على ان يتم شبكها مع شبكة الكهرباء الرئيسية

بئر روجيب

رقم الخدمه 100143038

الاحداثيات X=179117 , Y=174455

بئر ميثلون

رقم الخدمه 201100025

الاحداثيات X=175600 , Y=195750

يرجى من حضرتكم تزويدنا بالموافقة المبدئية لشبك محطة الطاقة الشمسية مع شبكة الكهرباء في حال تنفيذه

وتقبلوا قبول فائق الاحترام والتقدير

المدير التنفيذي

م. كايد بسيس

شركة تالينتيد اي بي تي
Talented APT Company
Ramallah-Palestine

Palestine – Ramallah- Al-Hilal Str.
Email:- aptengineers22@gmail.com
Tel:-+970-598310488

Annex 4 Consolidated Results Framework for the two projects "Water-Energy-Food Nexus"

Intended Outcome as stated in the UNSDCF 22-25
UNSDCF Outcome 4: Palestinians have better access to and management of natural and cultural resources, higher resilience, and adaptation to climate change and more sustainable food systems

Outcome indicator as stated in the Country Programme
PPF outcome 3: Improved sustainable and climate-resilient management of and equitable access to natural resources, including renewable energy
Output 3.1: Improved **integration of renewable energy solutions** at sub-national and community level
Indicators: 3.1.1: total solar energy systems capacity (in KWh) installed at private and public institutions/organizations.
3.1.2: number of facilities with installed renewable energy sources.

Applicable Output(s) from the UNDP Strategic Plan 2022 - 2025:
SP Output 4.1: Natural resources protected and managed to enhance sustainable productivity and livelihoods.
SP IRRF Indicator: 4.1.1 Number of people directly benefitting from initiatives to protect nature and promote sustainable use of resources

Solar Powered Water Wells funded by Norway

EXPECTED RESULTS	INDICATORS	BASELINE 2023	TARGET					
		Value		2025	2026	2027	FINAL	Data source of verification
IMPACT: *Strengthen the socio-economic resilience of the Palestinian people, including greater self-reliance, enhanced ownership and leadership, and cohesive identity*								
OUTCOME: *Improved sustainable and climate resilient management of and equitable access to natural resources, including renewable energy*	*1.1 Number of people directly benefit from initiatives to protect nature and promote sustainable use of natural resources*	0		0	333,000	200,000	533,000	PWA Records
	1.2 Quantity of $CO_{2eq.}$ ton avoided annually	0		0	21,046	14,030	35,077	Project completion report
	1.3 Percentage of identified communities has improved quality water services	0		-	-	75%	75%	
	1.4 Annual savings US$ from cost-reduction in electricity use	0		0	270,000	180,0000	450,000	MoF, Discos financial reports.
Output 1: *Solar PV system is developed and operationalized including energy efficiency measures at the identified water facilities in the north and south of the West Bank.*	*1.1 Total capacity of installed solar PV systems in KWp*	0		0	1080	720	1800	Project progress report
	1.2 Quantity of energy annually generated by the installed solar energy system in MWh	0		0	1675	1117	2792	System commissioning report
	1.3 Number of energy-efficient systems implemented	0		TBD	TBD	TBD	TBD	Project progress report.
	1.4 Number of facilities with installed renewable energy sources	0		0	9	6	15	Project completion report
Output 2: *Resilience fund for wells' sustainable operation established and operationalized*	*2.1 Availability of a functional resilience fund for operational sustainability of water wells.*	No		No	Yes		Yes	NWC records

Online monitoring and bulk water supply funded by the Netherlands								
EXPECTED OUTPUTS	**OUTPUT INDICATORS[6]**	**Baseline 2023**	**TARGETS (by frequency of data collection)**					**DATA COLLECTION METHODS & RISKS**
		Year	**2023**	**2024**	**2025**	**2026**	**FINAL**	
Output 1 *An affordable and sustainable solution for online monitoring of bulk water supply and distribution is developed, and operationalized in prioritized locations across the West Bank*	***1.1** Online water monitoring solution developed and operationalized at PWA (Binary: Yes / No)*	No	No	No	Yes	Yes	Yes	Project report
	***1.2** Number of locations where the online monitoring solution is installed and functional*	0	0	0	100	0	100	Maps of targeted locations.
	***1.3** Number of staff in WBWD received training to manage and maintain the online monitoring system (disaggregated by gender)*	0	0	0	10 M: 5F	0	10 M: 5 F	
Output 2 *Groundwater well constructed and ready to be equipped for water supply in As Samou south of Hebron*	***2.1** Drilling of well completed (Binary: Yes / No)*	No	No	Yes	Yes	Yes	Yes	Drilling Company's completion report
	***2.2.** pumping test at a rate of 120 m3/hr successfully performed*	0	0	0	TBD	0	TBD	water development completion report
Output 3: *Improved capacities of PWA/WBWD for maintained and improved water service in identified water wells in the West Bank*	***3.1**. Percentage of identified communities has improved quality water services*	0%	0%	0%	0%	75%	75%	Survey/Project progress report
	***3.2** Number of water wells rehabilitated and equipped to maintain and improve water service*	0	0	0	4	4	8	Progress Report
	***3.3** Quantity of water produced and supplied per year in million cubic meters*	2.4 2.0	2.4 2.0	2.4 2.0	4.6 2.0	4.6 4.3	4.6 4.3	WBWD water wells records
Output 4 *Strengthened ICT capacities for improved data-informed decision-making of NWC services*	***4.1** Digital operation and maintenance monitoring system is developed (Yes/No)*	No	No	No	Yes	Yes	Yes	Project progress report
	***4.2** Information Systems are integrated (Yes/No)*	No	No	No	Yes	Yes	Yes	Project progress report
	***4.3** Number of WBWD/NWC staff acquired new skills in information management, operation, and maintenance of water supply systems, disaggregated by gender*	0	0	0	10 (F:5 M:5)	0	10 (F:5 M:5)	Project progress report

[6] It is recommended that projects use output indicators from the Strategic Plan IRRF, as relevant, in addition to project-specific results indicators. Indicators should be disaggregated by sex or for other targeted groups where relevant.

Annex 5: Project Implementation Plan:

Project Implementation Plan for
Solar Powered Water Wells in the West Bank

Duration	2.5 Years (30 Calender Months)																													
Year	2025												2026												2027					
Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
Endorsement of Agreement between Norway and UNDP – December 2024																														
Initiation phase (Preparing project implementation plan and work plan, site visits and assessment , preparing Design Tender Document for design stage and Procurment Process and contract awarding)																														
Notice to proceed (NTP)																														
Site visits + data collection for 15 targeted wells																														
Drafting ToR for Design Company for Undertake project energy audit, design & overall supervision for mainstreaming EE and RE at 15 wells sites																														
Obtaining Project Stakeholders approval on TOR.																														
24 months of implementation and commissioning phase																														
Design Phase																														
Procurement of engineering consultancy services (Design and Supervision company)																														
Awarding contact for engineering consultancy services																														
Development of engineering designs and technical documentations for:																														
Solar Systems Installation and Implementation of associated civil and electricity works- 15 wells sites (Capacity 1.8 MW- 120 KWp per well)																														
Electrical networks rehabilitation and lightening system and Energy efficiency systems for all wells (Energy efficiency systems for 15 wells sites)																														
Develop institutional, legal framework & SOPs for resilience fund																														
Site Supervision for mainstreaming EE and RE at 15 wells sites																														
Construction Phase																														
Procurement of contracting companies (Two companies to implement PV's and EE for 15 wells)																														
Awarding contact for Two contracting companies																														
Notice to proceed (NTP) for two companies																														
Site Preparation Works (Site Visits, Site Surveys)																														
Engineering (Material Submission & Approval, Preparation & Submission of Design Package,Approval for Design Package)																														
Procurement (PV Modules,Inverters,Mounting Structure,AC/DC Cables,AC & DC Panels,Main Metering Panels,Monitoring Systems,																														
Delivery of material to well Sites																														
Construction																														
Site Preparation Works																														
Construction of Structure																														
Installation of PV, Inverters and AC & DC Panels																														
Testing and Commissioning																														
Cold Tests, Energizing Facilities (wells), Hot Test & Provisional Acceptance Test, Taking Over)																														
Project Closure																														
handing over and preparing the completion report																														