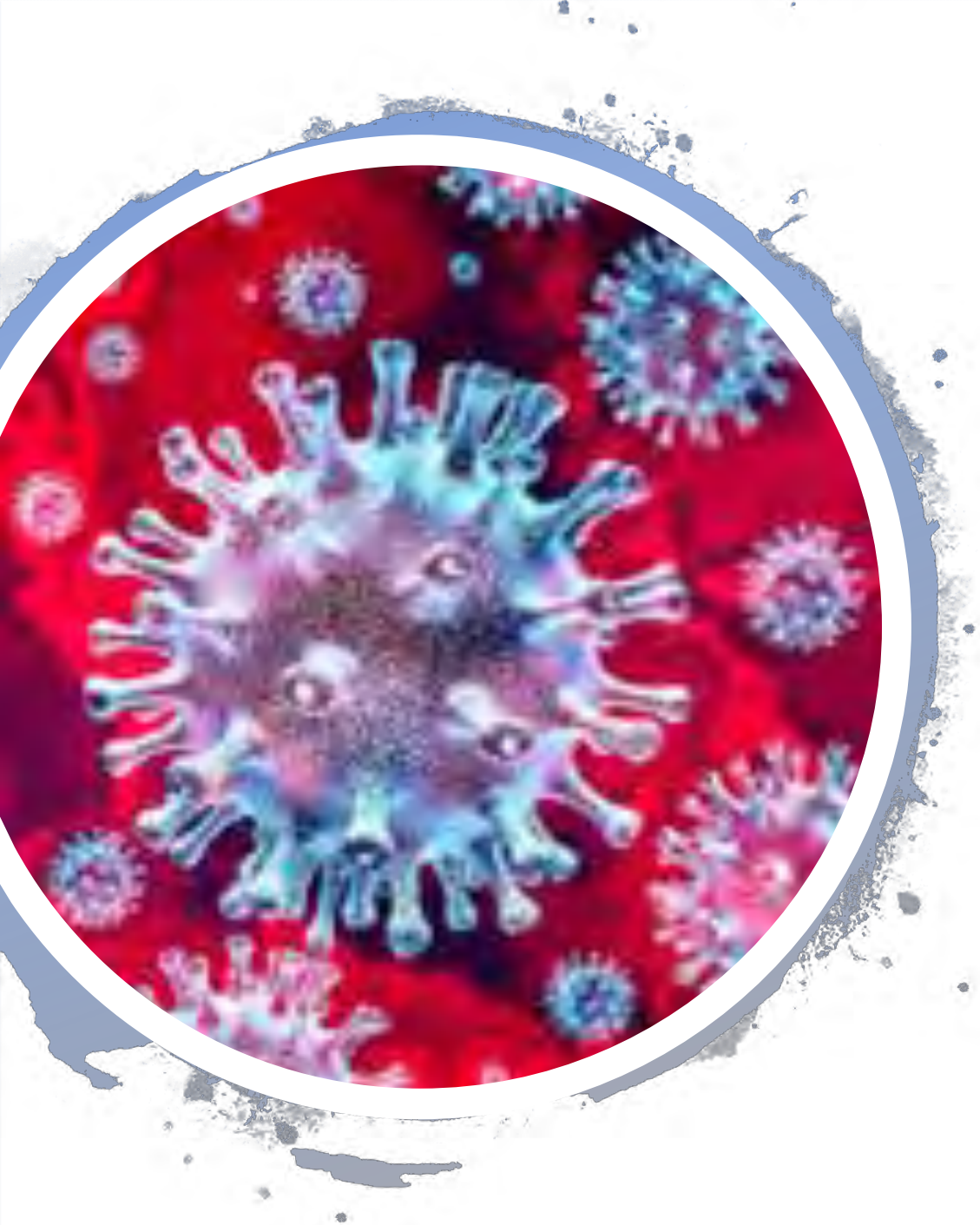
UN Measures to Green the Post-pandemic Recovery in Energy

Tuesday 19 January 2021

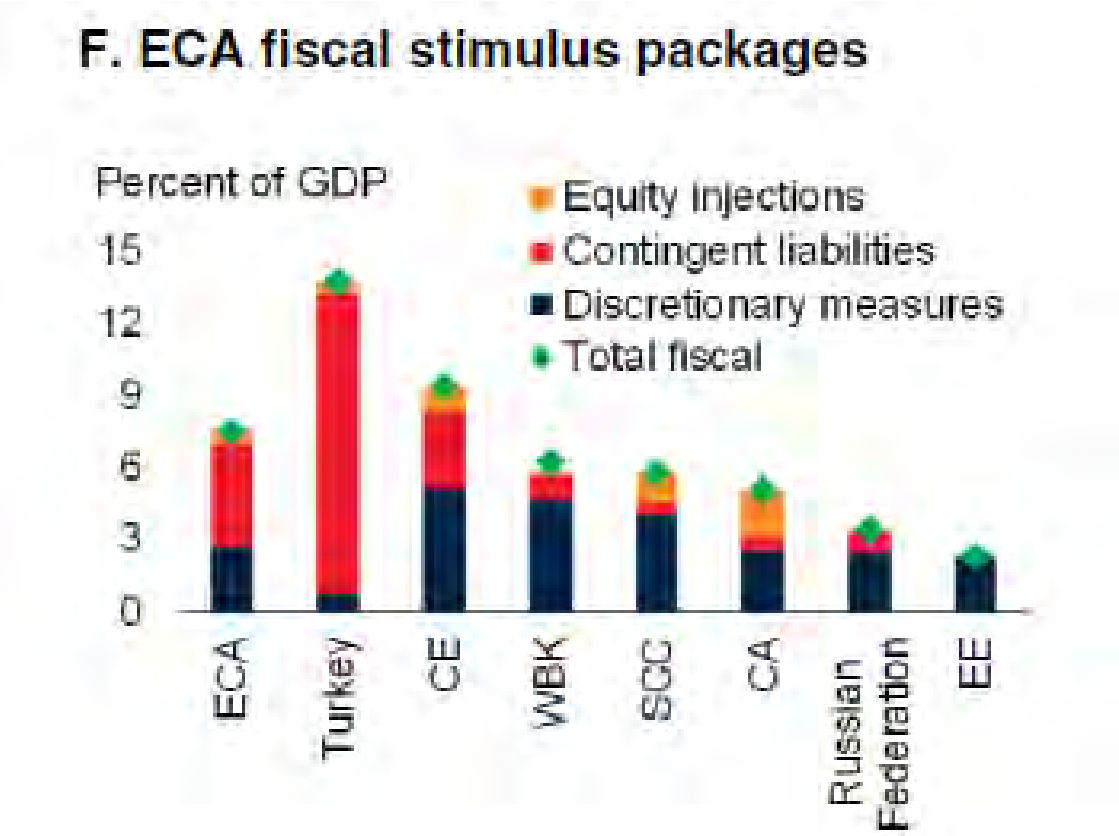
Presentation to IBC Environment & Climate Change, Europe/CIS region



Pandemic has damaged economy of the region

- Economic activity in Europe and Central Asia (ECA) contracted 2.9 percent in 2020
- Pandemic will erase 5 years p.c. income gains in 20% of region's economies; poverty headcount up
- Economies with strong trade/financial linkages to euro area and services/tourism hardest hit
- Pace of recovery in 2021 will depend on scale of resurgence of COVID-19, projected at 3.3 percent

All countries have launched stimulus packages



- Borrowing in debt markets up raising av. Debt levels to over 50% GDP by 2022 (up 8 points)
- Spending on health care, safety nets, support to private sector, countering financial market disruption
- Job retention schemes to mitigate 106m jobs losses in 2020, Q1-3 (in working hours)

Yet…the G20 share of stimulus to fossil fuels is high

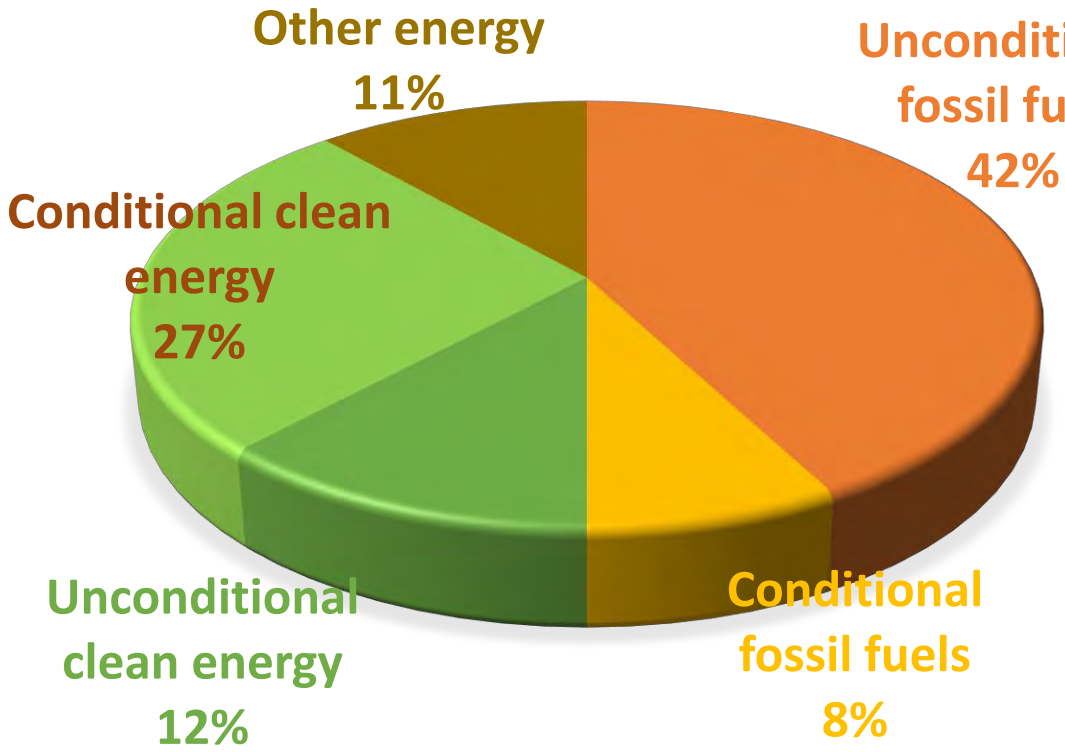
At least

$184 billion

Supporting clean energy

$40

Per capita



At least

$240 billion

Supporting fossil fuel energy

$52

Per capita

Germany and France lead public money commitments to clean energy recovery packages in ECA, as of 13 January 2021

G20 has committed at least **USD 424 billion** to COVID-19 recovery to date

Source: energypolicytracker.org/region/G20 13 Jan 2021

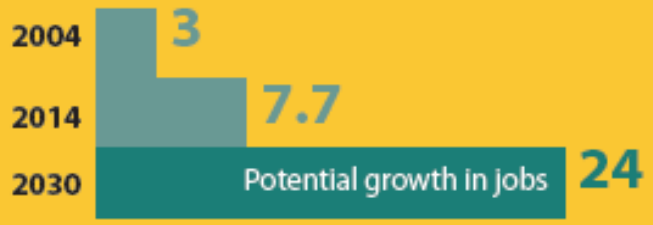
18% higher
energy-related emissions are projected, despite signs that a low carbon transition is underway.

+ 70%
is the projected growth of the world's electricity demand by 2040.

6 hours per day
can be spent by women and children on energy-related activities (gathering fuel wood and water, cooking and agroprocessing).

Direct and indirect jobs from renewables, worldwide

In millions



Energy efficiency can potentially contribute **almost 40%** of the energy sector GHG emissions reductions required by 2050 to limit global temperature increase to 2ºC

$ 1 trillion
is needed annually to achieve universal access to energy as per the SE4ALL objectives.

Source: SE4ALL Finance Committee Report, 2015. SE4ALL Global Facilitation Team, Vienna.

The energy sector counts for **two thirds of the world's** greenhouse gas emissions.

Energy transition offers huge economic opportunity

- Energy efficiency can contribute around 40% GHG reductions
- RE reduces dependence on imported fuels, fossil fuel price fluctuations
- Contributes to local air quality
- Reduces dependence on water for energy extraction/production, reducing pressure on other end-uses
- 7.7m jobs (2014), 24m jobs (2030)

ENERGY TRANSITION TIMELINE

Highlights of our forecast energy transition to 2050. The green slope represents the share of non-fossil energy sources in the energy mix.

- Energy peaks
- Demand peaks
- Non-fossil share
- Energy transitions
- Energy milestones

2017 2020 2025 2030 2035 2040 2045 2050

Percentage of energy mix non-fossil: 100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

2014 Coal peaked

19% of the energy mix is non-fossil

2022 Oil peaks

2026 Transport energy demand peaks

2030 Peak primary energy supply

2030 Nuclear peaks

2032 Half of all passenger vehicle sales are electric

2033 Peak final energy demand

2033 Natural gas peaks

2034 Manufacturing energy demand peaks

44% of the energy mix is non-fossil

2035 Half of the world's fleet of road vehicles - passenger, commercial, 2&3-wheeler - is electric

2038 Non-fossil expenditures overtake fossil expenditures

2048 Commercial electric vehicles start to outnumber ICE commercial vehicles on the road

2023 PV installations 1TW

2026 Gas overtakes oil

2032 Wind overtakes hydro

2034 Non-fossil capex overtakes fossil capex

2036 95% of world population has electricity access

2046 PV installations 10TW

2047 Energy intensity is halved since 2017

2027 Maritime energy demand peaks

2030 Seaborne container trade exceeds crude oil trade

2036 Seaborne gas trade exceeds coal trade

2038 Half of maritime energy use is non-oil

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UN Regional Compendium identifies specific measures to support energy transition

Increase energy efficiency of buildings, through retrofit, insulation and energy-efficient lighting/household appliances

- Benefits: Labour-intensive, can foster local MSMEs, GHG reduction. Both implementation and effectiveness of standards measurable. Better living conditions
- Measures include (i) Legislative and regulatory framework; (ii) Effective building operation including energy audits, Buildings Certificate Programmes and access to finance for energy efficiency upgrades; (iii) Awareness raising, capacity building for construction professionals, etc.; (iv) Smart affordable technologies (insulation, smart metering, sensors, Internet of Things, innovative construction materials, etc.); (v) Dedicated loans or green credit lines by local or international banks, subsidies
- Ideally couple with RE

Support to MSMEs in delivering EE products and RE technologies

- Benefits include growth and employment, human well-being and overall welfare, reduces pollution and GHG emissions
- Business opportunities for MSMEs, as well placed in distribution, installation, O&M of technologies and equipment
- Large credit gap for MSMEs providing climate technologies identified of US$4-5 billion across developing countries due to limited financial products for greening activities
- Measures: legislation and policies for clean and green energy; apply financial incentives by reducing energy taxes or setting tax rates on sustainable investments; encourage (local) banks to expand green credit through derisking or credit enhancement; demand and supply side measures

Promote low-carbon urban transport through improved planning, improved vehicle fuel efficiency and electrification

- Measures must be tailored to specific urban contexts:
- (1) compact urban and mobility planning and reducing passenger travel demand, develop low-carbon transport strategy and integrate into city development plan
- (2) shift passenger travel mode from private vehicles towards avoidance of motorized means, including walking, cycling and expanding clean public transit
- (3) improving passenger car fuel efficiency and electrification by applying sustainable transport technologies (e.g., fuel cell buses and use of biofuels) and incentivising the electrification of passenger cars and building the necessary infrastructure
- (4) improving freight logistics (e.g., from freight to rail shift, more efficient delivery patterns, city exclusion of freight during weekend), and freight vehicle efficiency and electrification
- (5) national fiscal and regulatory measures, such as fuel tax, vehicle tax based on fuel efficiency and/or CO2 emissions, vehicle fuel efficiency regulation, road user charging, parking pricing, access restrictions and registration restrictions

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UN Energy raises ambition and advocacy

Proposed UN-Energy Initiatives

- UN-Energy is the only interagency mechanism within the UN system related to energy
- Link to the SDG Decade of Action, following up the Climate Action Summit, and working towards NDC enhancement
- UN-Energy will launch big and bold partnerships and initiatives that will involve several elements:
  - **High-level Dialogue (HLD) on Energy** – UN-Energy guide HLD planning and outcomes
  - **SDG7 Leadership Group** – a group of energy champions to support delivery of SDG7
  - **Energy Compacts** – commitments aligned with SDG7 signed by companies and countries
  - **Monitoring of Metrics** – set of indicators that would be tracked and publicized by UN-Energy
  - **Aggregation of Initiatives** – central clearinghouse for commitments
  - **SDG7 Leadership Meeting** – an Annual Meeting for reporting of results, re-establishing commitments, and public dialogue

What is the Ask?

- **Dedicated commitment – up to the level of the Secretary General – to champion and drive the initiatives along with UN Energy principals**
- **Resourcing support to build out the UN-Energy secretariat to drive each of these initiatives**
- **Support from UN organizations to collectively align the UN system on the new direction**
- **New bold and ambition targets in the form of Energy Compacts**

Outcome

- UN-Energy implements the global pledge
- Significantly raise the profile of SDG7, in particular through establishment of the SDG7 Leadership Group
- Improve the transparency of the pathway to achieving both universal access and <1.5°C temperature
- Public commitments from critical countries and companies, and public tracking of whether or not these entities are delivering against their commitments
- Unlock in-country action

Proposed UN-Energy Focus Areas

Focus Areas	Description
Coal phase out as electricity generation source	▪ Advocacy and thought leadership to eliminate new coal build, and systematically phase it out with cleaner sources of generation
Universal integrated energy & COVID Vaccine distribution plans	▪ Develop standardized approach to energy planning at national level, to allow for simpler decision making by countries and private sector
Elimination of fossil fuel subsidization	▪ Advocacy efforts in target countries to eliminate any direct or indirect form of fossil fuel subsidy
In-country support by the UN system	▪ Use Energy Compacts to enable action in critical high impact countries on Energy Access and Energy Transition
Climate Investment Platform	▪ Launched at Climate Action Summit, 2019 ▪ Develop a clearing house to link available financing for SDG7 and climate change, with key financing needs

SDG7 Leadership Group

WHAT

- 20-30 public, private, and social sector global leaders all committed to SDG7
- **Public leaders** – from countries who need to achieve AND have achieved significant impact in SDG7
- **Private leaders** – energy companies, banks, equipment providers, etc.

WHY

- Elevate the profile of SDG7
- Ensures key energy organizations (private and social) are seen to visibly play a leading role
- Allows opportunities for the real champions to shine

HOW

- Group constituted by invitation of UNSG
- UN-Energy to act as secretariat to the SDG7 Leadership Group
- Group to meet quarterly to:
  - Track SDG7 progress
  - Drive key SDG7 initiatives

Energy Compacts

WHAT

- Countries and companies sign up to compacts committing to specific targets and initiatives for SDG7
- Compacts seen as NDC Enhancement for countries
- Targets and initiatives aligned with critical input parameters for delivering SDG7

WHY

- Elevate the profile of SDG7
- Apply peer pressure at both the country and the company level to take action on critical initiatives
- Allow UN-Energy to develop a perspective on pathway to achieving SDG7

HOW

- Build compacts around the 3 elements of SDG7, focused in particular on input metrics
- Aim to obtain 10-20 country and 10-20 company compacts by summer 2021
- Work with these vanguard countries and companies to shape what should be in compacts
- Regularly track and publish progress against compacts

Monitoring of metrics

WHAT

- Central and public monitoring of input and output metrics associated with SDG7
- Aggregating the various different initiatives in this space
- Ensure a minimum of annual updates, and ensure country buy-in

WHY

- Although high level metrics are tracked, there is limited focus on broad range of leading indicators
- There is a need to align on and establish a single source of truth
- Tracking input metrics will allow stakeholders to avoid unnecessary surprises in delivering SDG7

HOW

- Work in conjunction with UN DESA to ensure coordinated approach
- With broader UN-Energy agencies, define core list of input and output metrics to track
- Embed these metrics where possible in country compacts

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UNDP Signature Initiatives

UNDP Energy offer: RECOVER

Sustainable Infrastructure Investment / Reform fossil fuel subsidies

Energy Offer Objective

"Recover Better" by accelerating the energy transition

- Reallocate fossil fuel subsidies (FSS) expenditures to critical government priorities
- Promote sustainable infrastructure investment to improve energy security/resilience: High job creation, energy and food security, sustainable fiscal revenue, contribution to NDCs, improve air quality Electric mobility, smart grids & off-grid (mini-grids and SHS), Irrigation

Energy Offer Activities (Policy, technical and strategic support to governments)

- To identify and seize opportunities to reform FSS (e.g. analysis, policy design, communications)
- To mainstream clean energy and sustainable transport solutions in economic stimulus packages
- To develop policy and regulation to enable smart grids and off-grid energy solutions
- To integrate energy in policies related to the health sector

UNDP Expertise

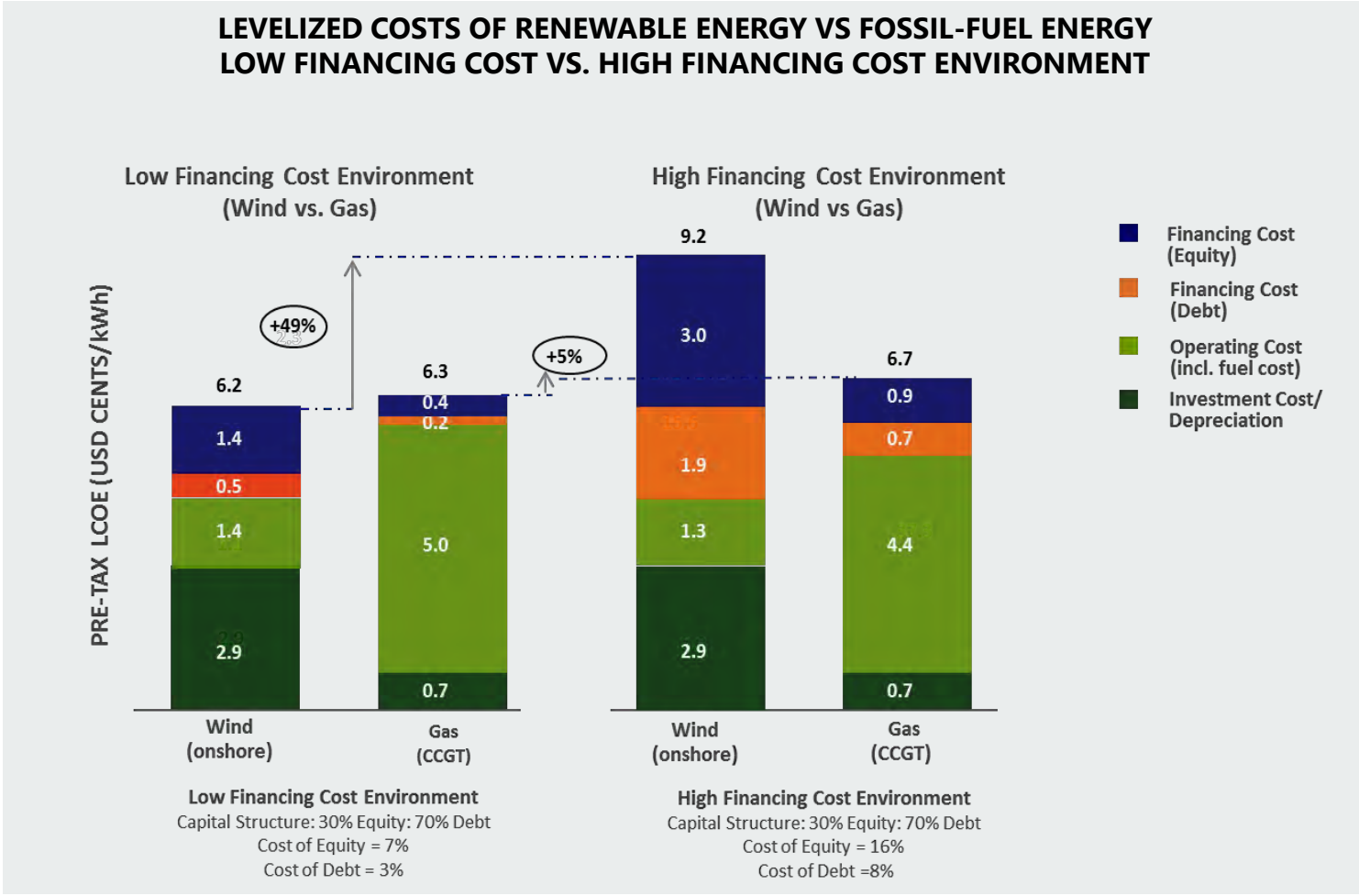
- Vertical Funds and Resource Mobilization
- Climate Investment Platform (CIP)
- UNDP Center for Policy De-Risking (CPD) for the Energy Transition
- Health and Energy Platform of Action (HEPA)

Financial De-risking

Our approach is to create investment conditions in which countries can access low-cost financing at scale with attractive risk-return

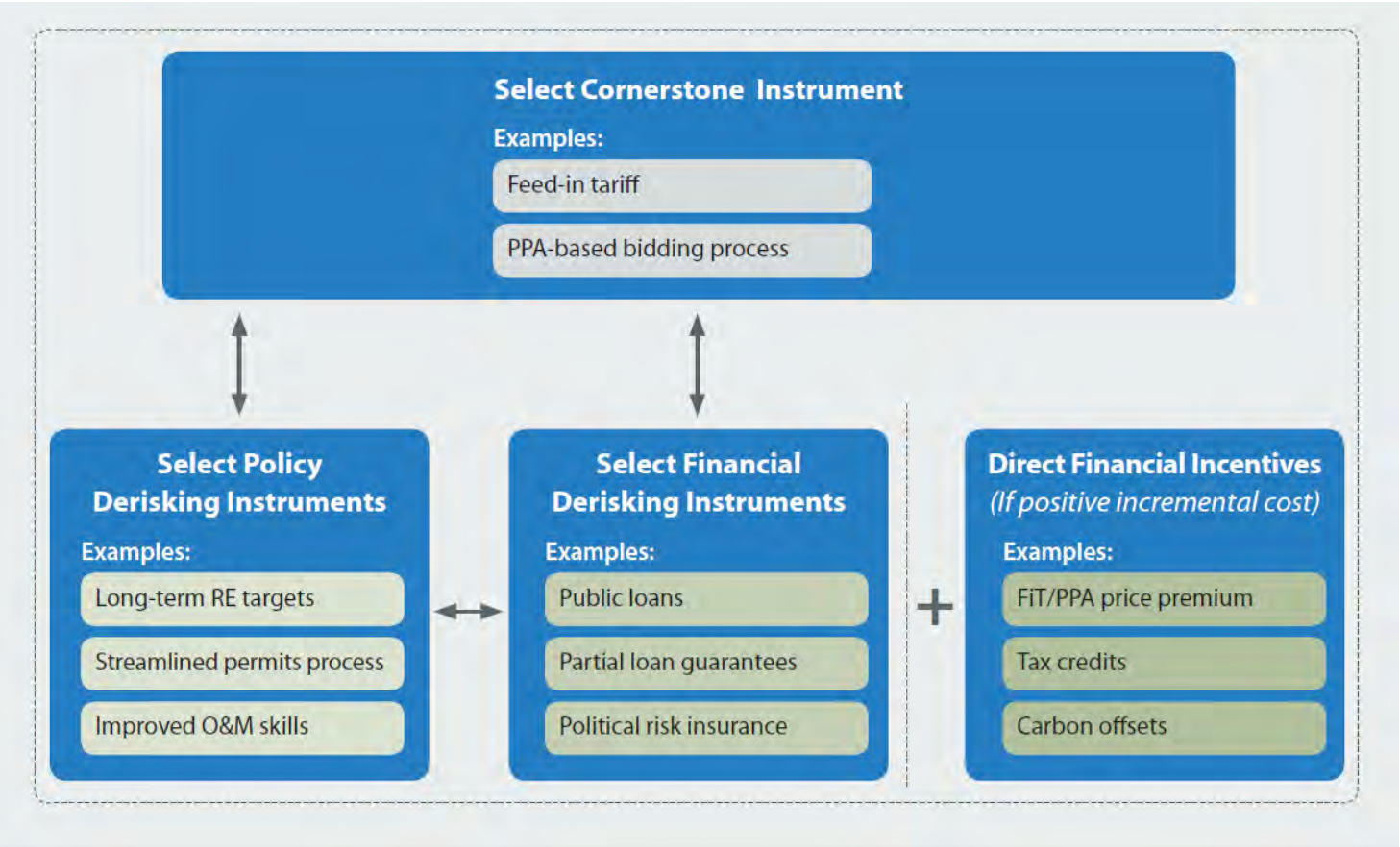
- Demand side (demand for capital): Improve risk-return to lower financing cost through
  - Reducing risk
  - Transferring risk
  - Compensating for risk
- Supply side (supply of capital): addressing availability of capital for low carbon transition
  - Financial system reform
  - New low-cost asset classes
- Cross-cutting
  - Digital finance

De-risking Renewable Energy Investment



Source: UNDP, Kazakhstan: *Derisking Renewable Energy Investment (2017).* See Annex A of the report for full assumptions.
All assumptions (technology costs, capital structure etc.) except for financing costs are kept constant between the developed and developing country.
Operating costs appear as a lower contribution to LCOE in developing countries due to discounting effects from higher financing costs.

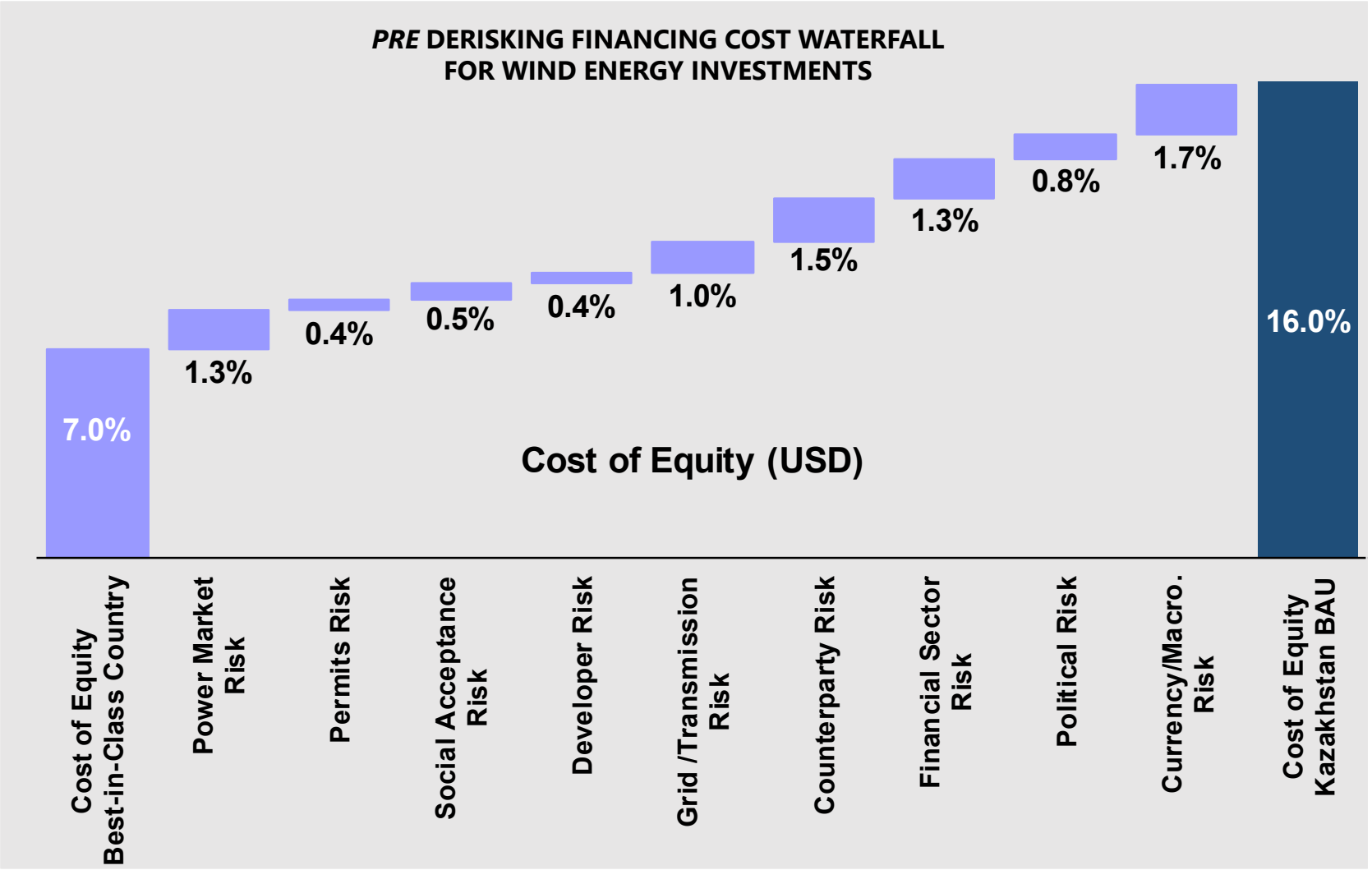
De-risking Renewable Energy Investment
Public instrument packages



Source: UNDP, *Derisking Renewable Energy Investment (2013).*

De-risking Renewable Energy Investment Kazakhstan (1): Financing cost waterfall, wind 1GW

PRELIMINARY FINDINGS



Source: UNDP, Kazakhstan: Derisking Renewable Energy Investment (2017)

De-risking Renewable Energy Investment
Kazakhstan (2): Selecting public instruments, wind 1GW

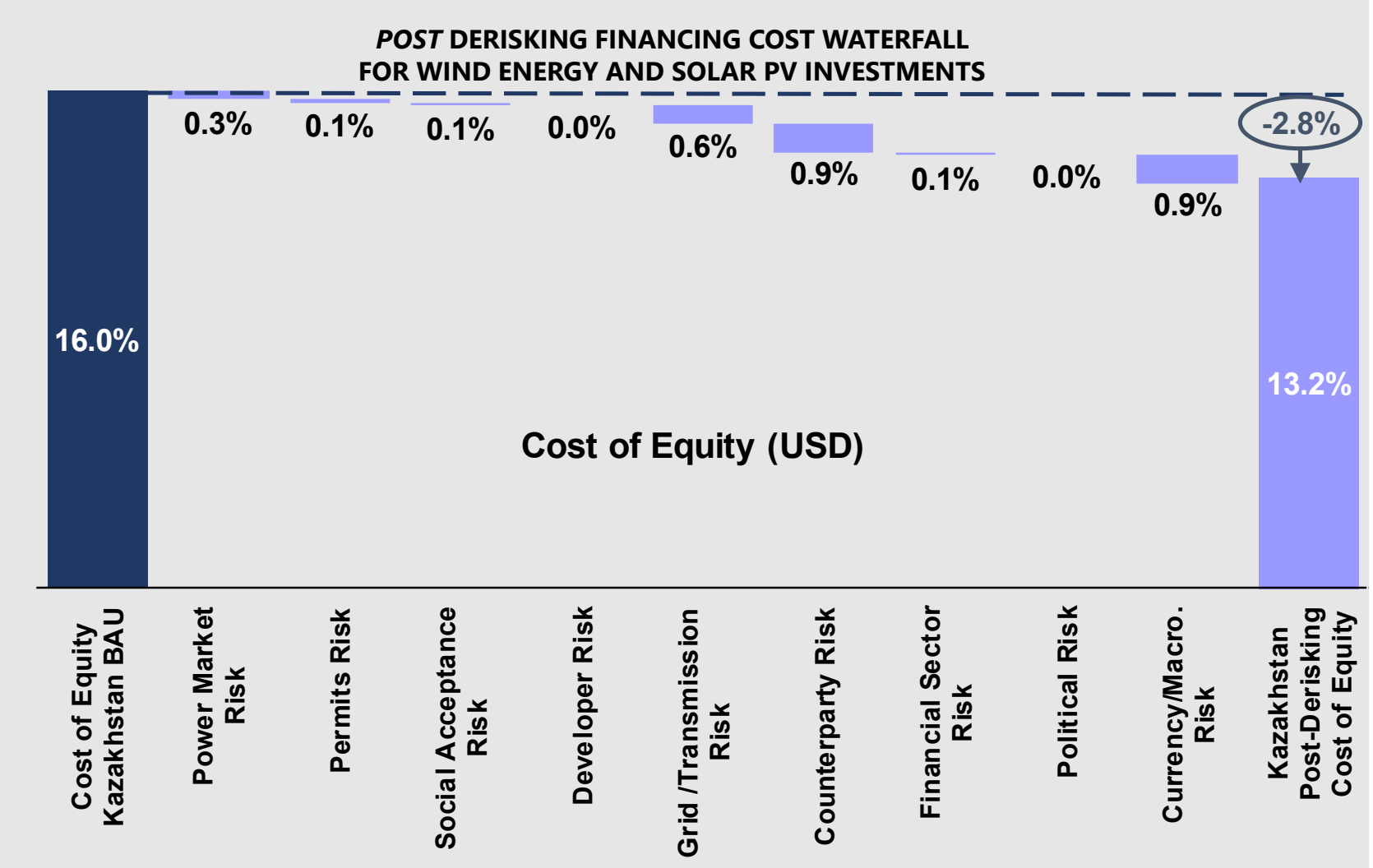
PRELIMINARY FINDINGS

Risk Category	Policy Derisking Instruments	Financial Derisking Instruments
Power Market Risk	• Update transparent, long-term national renewable energy strategy • Establish and run IPP bidding process, with bankable PPA • Establish a renewable energy office in the regulator	NA
Permits Risk	• Streamlined process for RE permits (dedicated one-stop shop) • Contract enforcement and recourse mechanisms	NA
Social Acceptance Risk	• Awareness-raising campaigns	NA
Developer Risk	• Technology R&D • Support for industry associations	NA
Grid/Transmission Risk	• Strengthen KEGOC's grid management capacity • Transparent, up-to-date grid code • Policy support for long-term national transmission/grid road-map	• Take-or-pay clause in PPA
Counterparty Risk	• Reform and maintain creditworthy Financial Settlement Centre structure	• Government guarantee for PPA payments • Public loans to IPPs
Financial Sector Risk	• Fostering financial sector reform towards green infrastructure investment • Strengthening financial sector's familiarity with renewable energy and project finance	• Public loans to IPPs
Political Risk	NA	NA
Currency/ Macroeconomic Risk	NA	• Partial indexing of PPA tariff to hard currencies

Source: UNDP, Kazakhstan: Derisking Renewable Energy Investment (2017)

De-risking Renewable Energy Investment
Kazakhstan (3): Impact of public instruments, wind 1GW

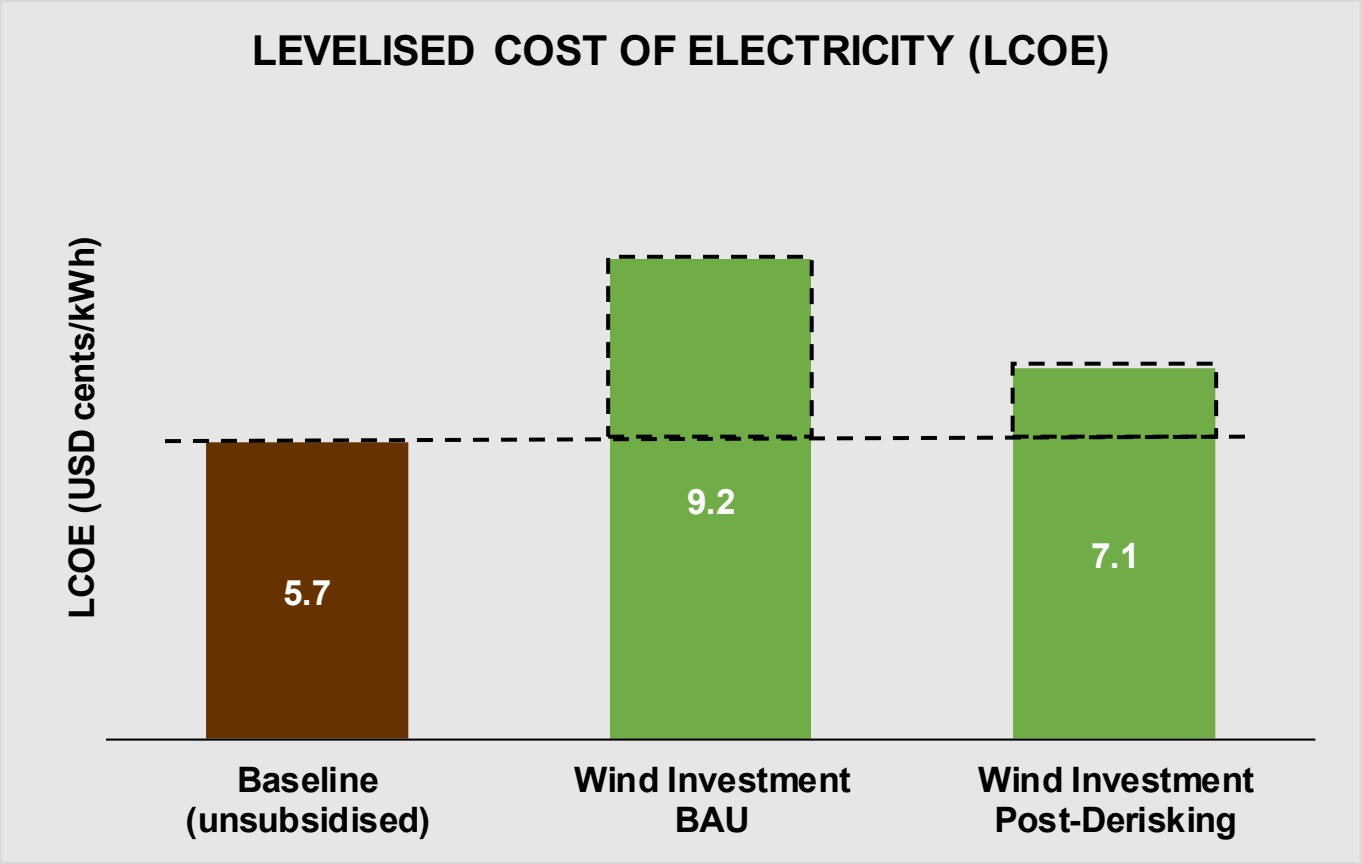
PRELIMINARY FINDINGS



Source: UNDP, Kazakhstan: Derisking Renewable Energy Investment (2017)

De-risking Renewable Energy Investment Kazakhstan (4): Levelised costs, wind 1GW

PRELIMINARY FINDINGS



Source: UNDP, Kazakhstan: Derisking Renewable Energy Investment (2017)

De-risking Renewable Energy Investment Kazakhstan (5): Measuring impact, wind

PRELIMINARY FINDINGS

Report's 2021 (5 year) wind investment targets: 1 GW

If **USD 275.6 million** is invested in public derisking measures to promote wind energy in Kazakhstan, this can have the following impacts:

Catalysing private sector funding

- USD 1.6 billion in private sector investment in wind

Generating economy-wide savings (over 20 year wind asset lifetime)

- USD 804.7 million savings due to derisking (lower wind costs)
- USD 310.6 million savings due to avoided fossil fuel subsidies

Better affordability for end-users

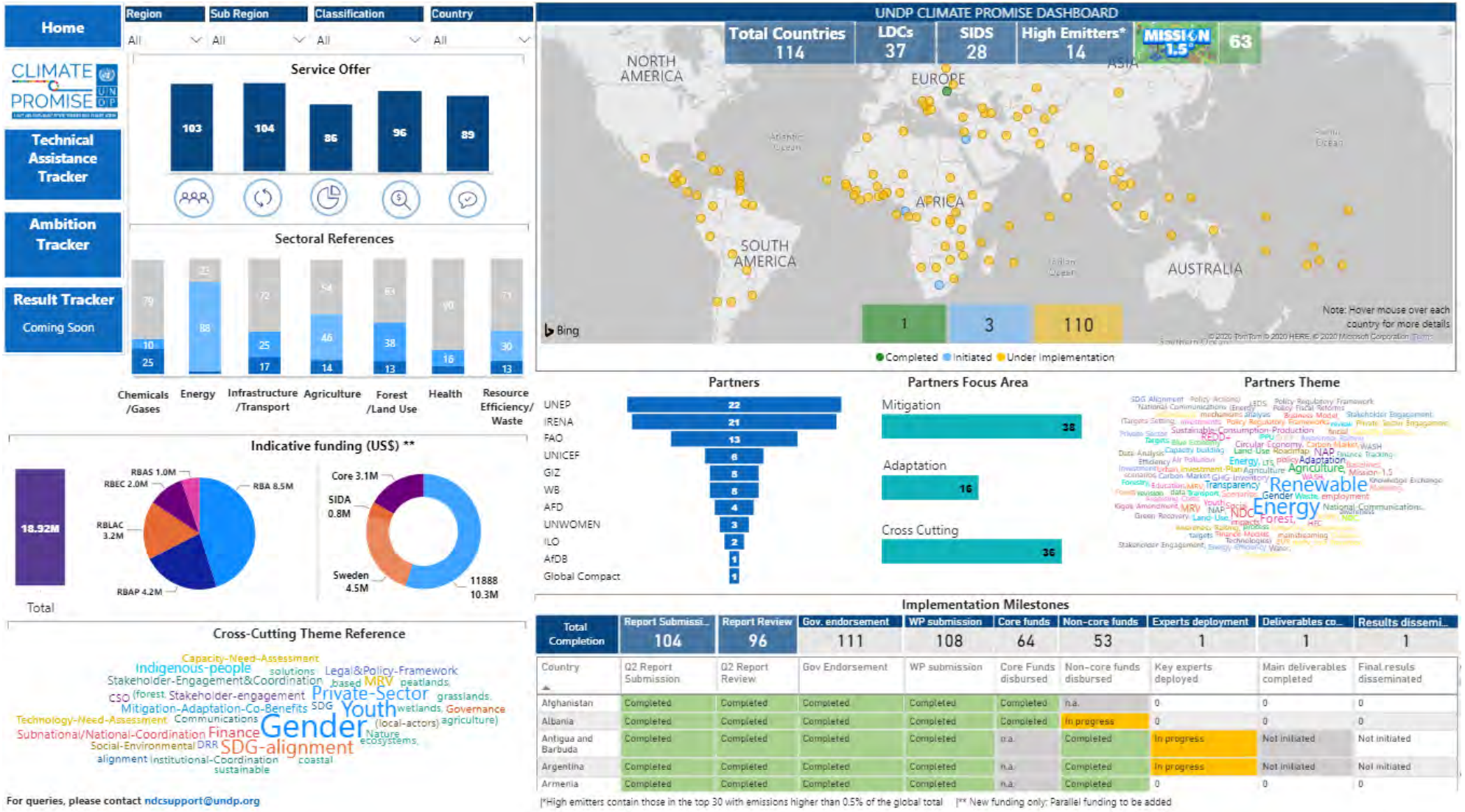
- Wind energy generation costs decrease from USD 9.2 cents/kWh to USD 7.1 cents/kWh

Benefit the environment

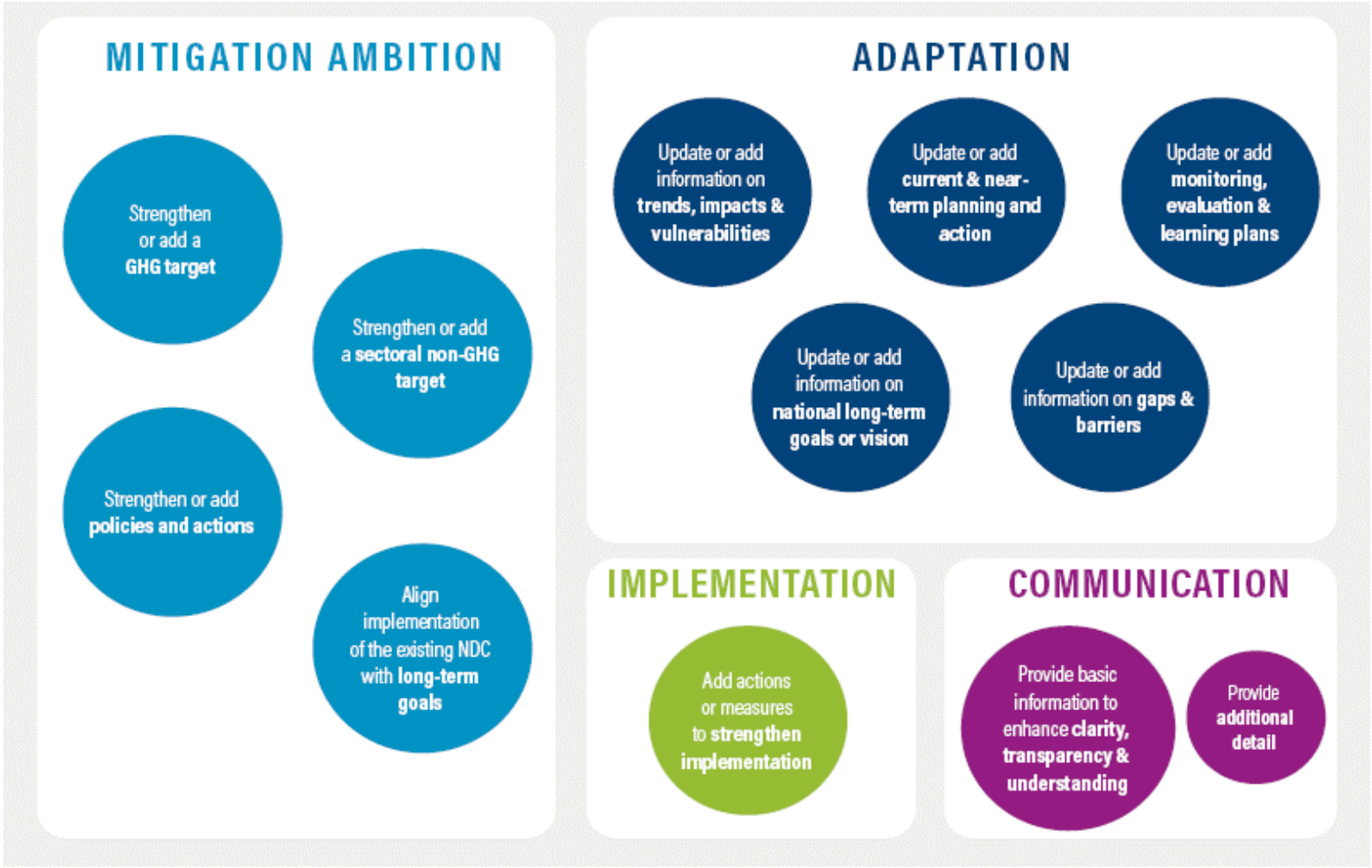
- Emission reductions of 56.3 million tCO_2e over 20 years

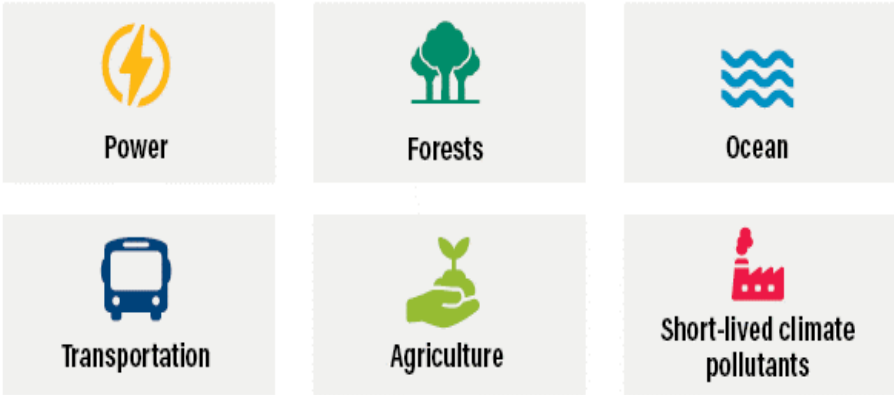
Source: UNDP, Kazakhstan: Derisking Renewable Energy Investment (2017)

Climate Promise: Raising NDC Ambition

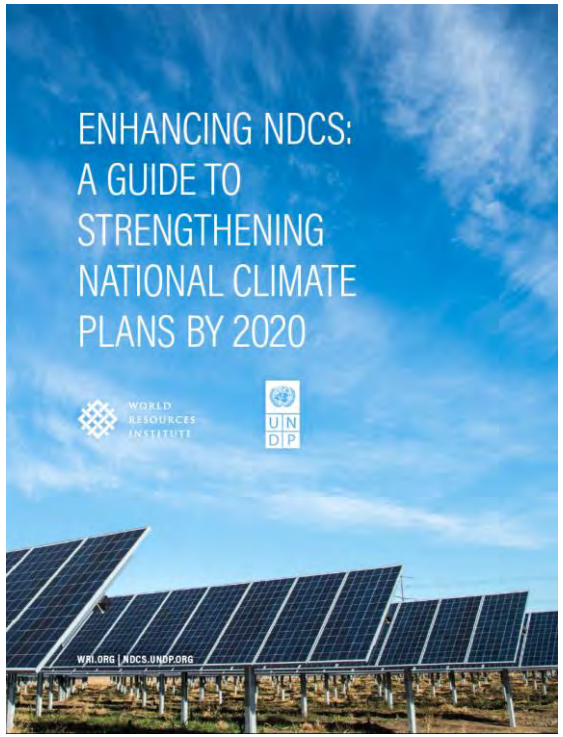


A Guide to Enhancing NDCs





Source: Enhancing NDCs: A Guide to Strengthening National Climate Plans, 2019, WRI and UNDP.



INTRODUCTION TO THE CIP
Background

CLIMATE INVESTMENT PLATFORM

- Announced at the Climate Action Summit, Sept. 2019
- Operationally launched at the beginning of 2020
- Announcing partners: SEforALL, IRENA, UNDP, GCF
- Learning-by-doing approach: collaborative working space

INTRODUCTION TO THE CIP
Objective

The climate finance landscape is cluttered, and many developing countries struggle to access to climate finance solutions they need.

The CIP aims to de-clutter climate finance. It plans to act as an inclusive partnership and a global public good that will provide integrated and streamlined support to developing countries and the private sector to accelerate climate investments.

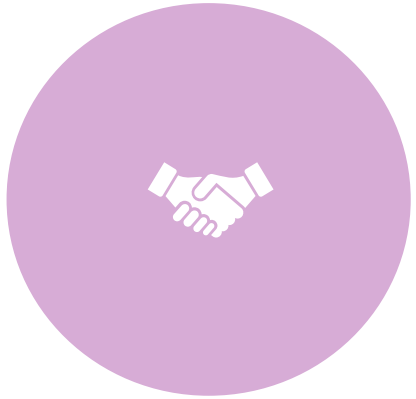
The CIP's ultimate goal is to contribute to the realization of ambitious NDCs.

INTRODUCTION TO THE CIP
3 key functions of the CIP

CLIMATE INVESTMENT PLATFORM

Strengthening demand-side capacity and project pipeline

Aligning the supply of climate finance



Match-making seekers and providers of finance

Decluttered climate finance space

Scaled-up energy transition investments

INTRODUCTION TO THE CIP
4 tracks to deliver the energy transition

CLIMATE INVESTMENT PLATFORM

TRACK 1 TARGETS

OBJECTIVE
Helping countries develop ambitious clean energy goals in NDCs

KEY ACTORS
UNDP, IRENA, NDC Partnership, MDBs

TRACK 2 POLICIES & REGULATIONS

OBJECTIVE
Transparent, clear and long-term policies & regulations for clean energy investments, to attract commercial capital at scale

KEY ACTORS
UNDP, IRENA, MDBs, donors

TRACK 3 FINANCIAL DE-RISKING

OBJECTIVE
Increased access to risk transfer instruments to ensure bankability of clean energy investments and crowd in private sector capital

KEY ACTORS
MDBs, IRENA, private sector, capital markets

TRACK 4 MARKET PLACE

OBJECTIVE
Clean energy investments, deal-making, matching project sponsors with investors

KEY ACTORS
All partners, MDBs, Private sector

INTRODUCTION TO THE CIP
4 tracks to deliver the energy transition

CLIMATE INVESTMENT PLATFORM

TRACK 1
TARGETS

TRACK 2
POLICIES & REGULATIONS

TRACK 3
FINANCIAL DE-RISKING

TRACK 4
MARKET PLACE

Public projects

Private projects

Public & private projects

Strengthening demand-side capacity and project pipeline:
readiness and project preparation

Aligning the supply of climate finance:
'one-stop-shop' features, supply alignment and harmonization

Match-making seekers and providers of finance:
clearinghouse, convening, and customized brokering

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UNDP Energy Portfolio in Europe and CIS Region

Portfolio Overview

- 9 UNDP Global Environment Facility (GEF) projects (8 ongoing, 1 in pipeline)
- 3 projects in Kazakhstan, 2 in Uzbekistan, 2 in Turkmenistan, and 1 in Tajikistan
- 1 idea for a possible Green Climate Fund (GCF) project (on sustainable transport with electric buses) in Kyrgyzstan
- Total Value of Portfolio: Approx. $38.2 million USD
- Total Value of Estimated Co-Financing: Approx. $451.3 million USD
- Leveraging Ratio: 11-1

Kazakhstan

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Source: http://sustainable.eep.kz/en/

Project Name	**Energy efficient standards, certification, and labeling for appliances and equipment in Kazakhstan - EE S&L project in Kazakhstan under Global UNEP Platform**	**De-risking Renewable Energy Investment**	**Nationally Appropriate Mitigation Actions for Low-carbon Urban Development**
Short Name	**EESL**	**DREI**	**Urban NAMA**
PIMS ID	5703	5490	4670
Project Objective	To transform Kazakhstan's markets to energy efficient appliances and equipment, thereby reducing electricity consumption and avoided GHG emissions	To promote private-sector investment in large and small-scale renewable energy in order to achieve Kazakhstan's 2030 renewable energy target	To support the Government of Kazakhstan in the development and implementation of National Appropriate Mitigation Actions (NAMAs) in the urban sector to achieve voluntary national GHG emission reduction targets
Duration (in years)	5	5	5
GEF Replenishment Period	GEF-6	GEF-6	GEF-5
Start Date	Aug-17	Feb-18	Apr-15
End Date	Aug-22	Feb-23	Apr-21
Project Grant Amount (USD)	3,500,000.00	4,510,000.00	5,930,000.00
Co-Financing Amount (USD)	12,242,643.00	51,010,000.00	65,389,094.00

Three ongoing projects for approx. $14 million of GEF funding for de-risking investments in renewable energy and energy-efficiency. In Kazakhstan, UNDP has worked closely with Damu Foundation to develop and launch an interest rate subsidy mechanism. UNDP is also exploring launching a green bond. Leveraging Ratio: 10-1

Uzbekistan

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Housing, mortgage and construction: business forum kicks off in Tashkent

Housing, mortgage and construction: business forum kicks off in Tashkent

Project Name	**Sustainable Rural Housing in Uzbekistan**	**Promoting green urban development in Tashkent through accelerating investments in low emission vehicles**
Short Name	**Rural Housing in Uzbekistan**	**TAILEV**
PIMS ID	5392	6417
Project Objective	To provide Uzbekistan's rural population with improved, affordable and environmentally-friendly living-conditions	Accelerating the adoption of electric vehicles in the City of Tashkent that can be replicated in other cities in the Republic of Uzbekistan, significantly reduce greenhouse gas emissions in the transport sector, and improve urban environmental quality
Duration (in years)	6	6
GEF Replenishment Period	GEF-6	GEF-7
Start Date	Apr-17	Jul-21
End Date	Apr-23	Jul-27
Project Grant Amount (USD)	6,000,000.00	3,569,725.00
Co-Financing Amount (USD)	130,665,099.00	40,870,000.00

The size of the portfolio is almost $10 million. UNDP has one ongoing project on supporting the development of a market for green low cost rural housing in Uzbekistan including
support for enhanced green mortgages. One new project on
Supporting the development of the market for electric vehicles
with a focus on electric buses in the city of Tashkent. Leveraging ratio: 17-1

Turkmenistan

Empowe Resilient

UNDP Actively Supports Eco-Policy of Turkmenistan

BUSINESS TURKMENISTAN
17:55 05.06.2020

The UNDP provides significant support to the development of a modern environmental monitoring system.

Project Name	**Sustainable Cities in Turkmenistan: Integrated Green Urban Development in Ashgabat and Awaza**	**Sustainable Energy and Water Management Project**
Short Name	**Green Cities**	**EE and RE in Water Sector**
PIMS ID	5452	4947
Project Objective	To promote and implement integrated low-carbon urban systems in Ashgabat and Awaza, thereby reducing GHG emissions and creating other environmental, social, and economic development benefits	To provide for sufficient and environmentally sustainable water supply to support and enhance social conditions and economic livelihood of the population of Turkmenistan
Duration (in years)	6	6
GEF Replenishment Period	GEF-6	GEF-5
Start Date	Jun-18	Jul-15
End Date	Jun-24	Jul-21
Project Grant Amount (USD)	6,060,046.00	6,185,000.00
Co-Financing Amount (USD)	57,100,000.00	72,100,000.00

The size of the portfolio is over $12 million with one project on promoting sustainable green cities focusing mainly on sustainable transport and energy efficient street lighting and a second project on energy efficiency and water management in the rural agricultural sector of Turkmenistan. Leveraging Ratio: 10-1

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Tajikistan

In recent years, the development of renewable energy sources (RES), especially solar energy, has received a new impetus in Tajikistan. Suppliers and service providers are actively operating on the market, offering for the population a variety of equipment using solar energy - photovoltaic power plants, solar water heaters, solar water pumps. This equipment is in special demand among farmers, land users, pasture workers, beekeepers - everyone who needs energy for domestic purposes and business. Renewable energy sources are especially relevant in remote settlements that have difficulties with access to electricity, because about 700 more villages in Tajikistan remain not electrified.

Project Name	**Green Energy Small and Medium Enterprises (SMEs) Development Project**
Short Name	**Green SMEs**
PIMS ID	5476
Project Objective	To identify, support and promote scalable, private sector-led business models for provision of affordable and sustainable energy products and services for Tajikistan's rural population
Duration (in years)	5
GEF Replenishment Period	GEF-6
Start Date	Aug-18
End Date	Aug-23
Project Grant Amount (USD)	2,519,963.00
Co-Financing Amount (USD)	21,950,000.00

The size of the portfolio is approx. $2.5 million USD and there is one ongoing project to support SMEs (small and medium sized enterprises) and MFIs (microfinance institutions) with investment in small scale renewable energy technologies in remote rural areas of Tajikistan. Leveraging Ratio: 9-1

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