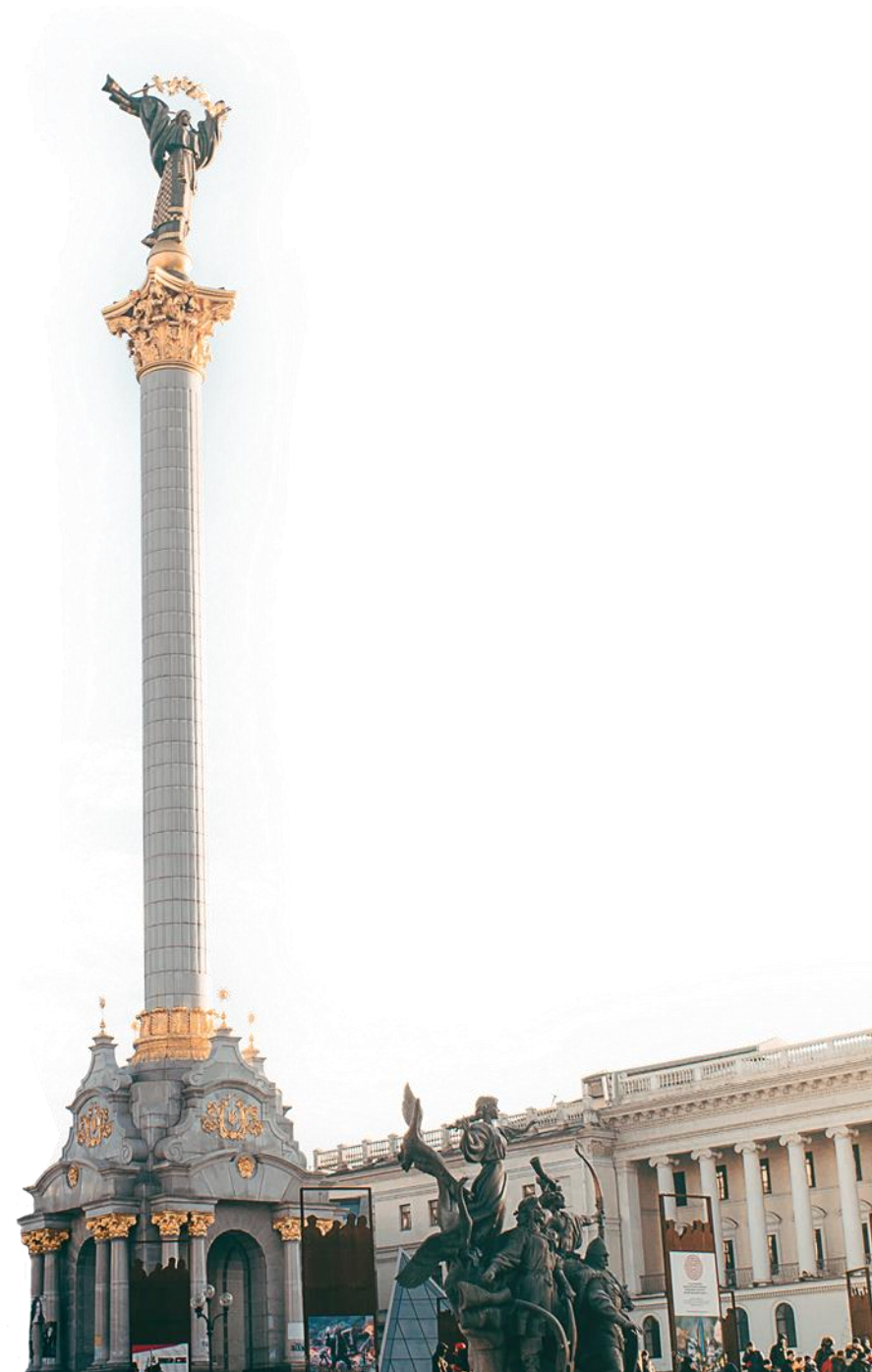


Ukraine's National Recovery Plan

National Recovery Council

July 2022



Context and objectives for Ukraine National Recovery Plan

Context

The Russian invasion of Ukraine has caused **massive disruption of economic activity** in Ukraine and **damage** to infrastructure, environment and livelihoods of Ukrainian people; current estimate of damages is ~\$100bn and growing

Historically, **Ukraine has been lagging Central European** peers in terms of economic performance; Ukrainian GDP over the last 20y has been growing <2% p.a. vs. ~3.5% for Poland

Target Economic Recovery Plan is a unique opportunity not just to **recover war-related damages**, but to **leap-frog economic growth and quality of living in Ukraine**

Objectives for National Recovery Plan



Resilience

Provide economic, social and environmental resilience in the marathon to victory



Recovery

Find efficient solutions for the soonest recovery of the crucial economic and social processes, and natural ecosystems



Modernization and growth

Develop a modernization plan to ensure expedited sustainable economic growth and wellbeing of the people

Key guiding principles and implementation approach

Guiding principles



Start now, ramp up gradually

Comments

Need to **start recovery initiatives asap to build resilience and agility for the economy** to function under continuous security threats and provide the foundation to win the war. **Plan for gradual ramp-up of activities, with gradual increase of risk appetite**, as unlikely to have “clean victory” and “clean peace”, or clear milestones to transition from “recovery” to “modernization”.



Grow prosperity in equitable way

Ukrainian people are the ultimate beneficiaries of the Recovery Plan. Objective of the plan is to **grow GDP, and ensure equitable distribution of wealth, and overall wellbeing**



Integrate into EU

Overarching strategic imperative defining the **institutional and regulatory framework**
Integration of Ukrainian economy into European **value chains**, incl. “green” ones, and **knowledge/information networks**



Build back better (for the future)

Build back for better quality and more advanced and sustainable technologies than the damaged/destroyed assets
Align Ukraine's recovery and modernization with **EU principles: Green Transition and Digital Transformation**



Enable private investment & entrepreneurship

Recovery should enable Ukraine's **private investment and boost nationwide entrepreneurship**
Support **SMEs as an important pillar** of the new economic model

Implementation approach

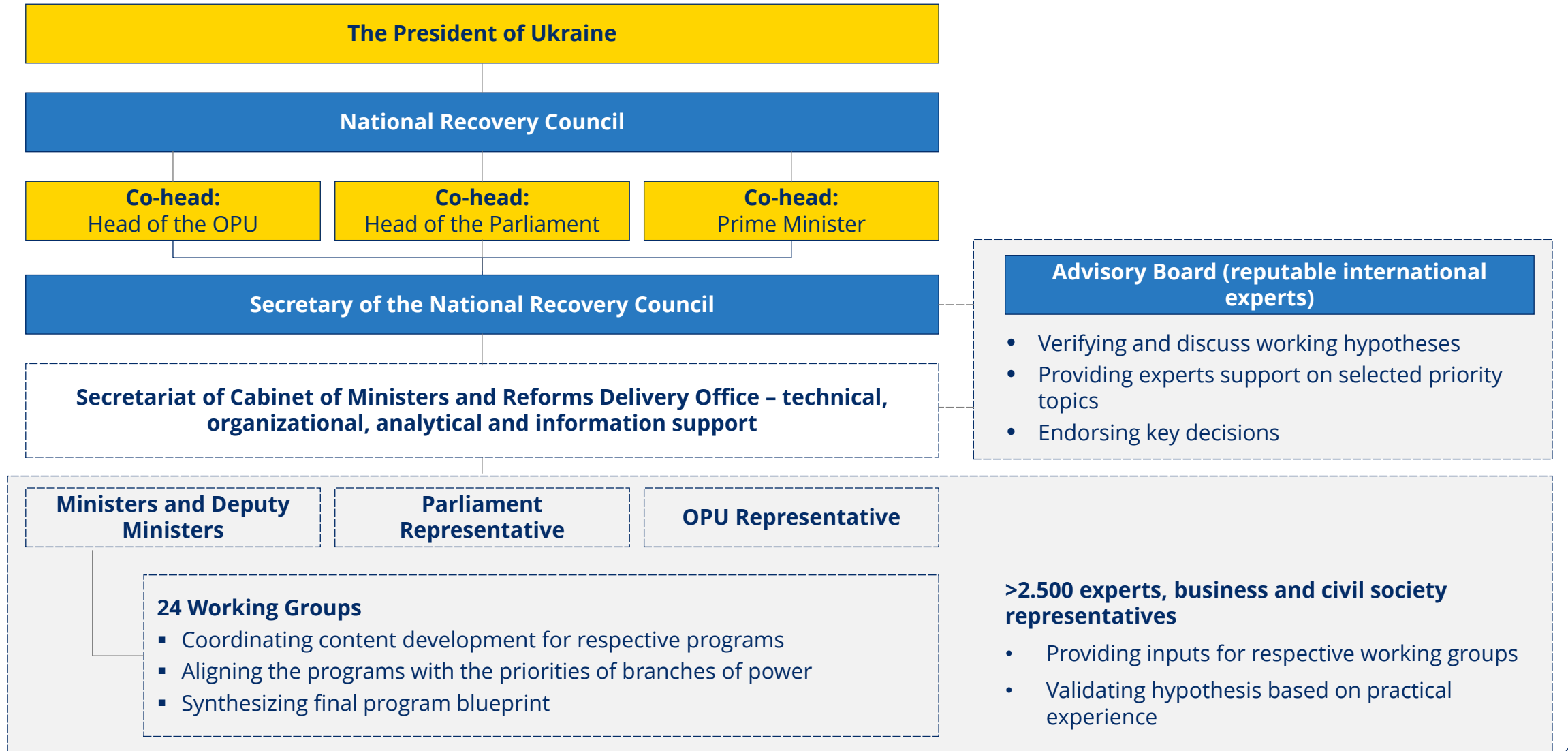
Region focused

Recovery projects to be localized in specific regions and supported by specific international partners

Parameter-based approach

The National Recovery Plan to provide overall guiding framework for the regional recovery plans and projects

The National Recovery Council was set-up by the President of Ukraine to coordinate Recovery Plan development

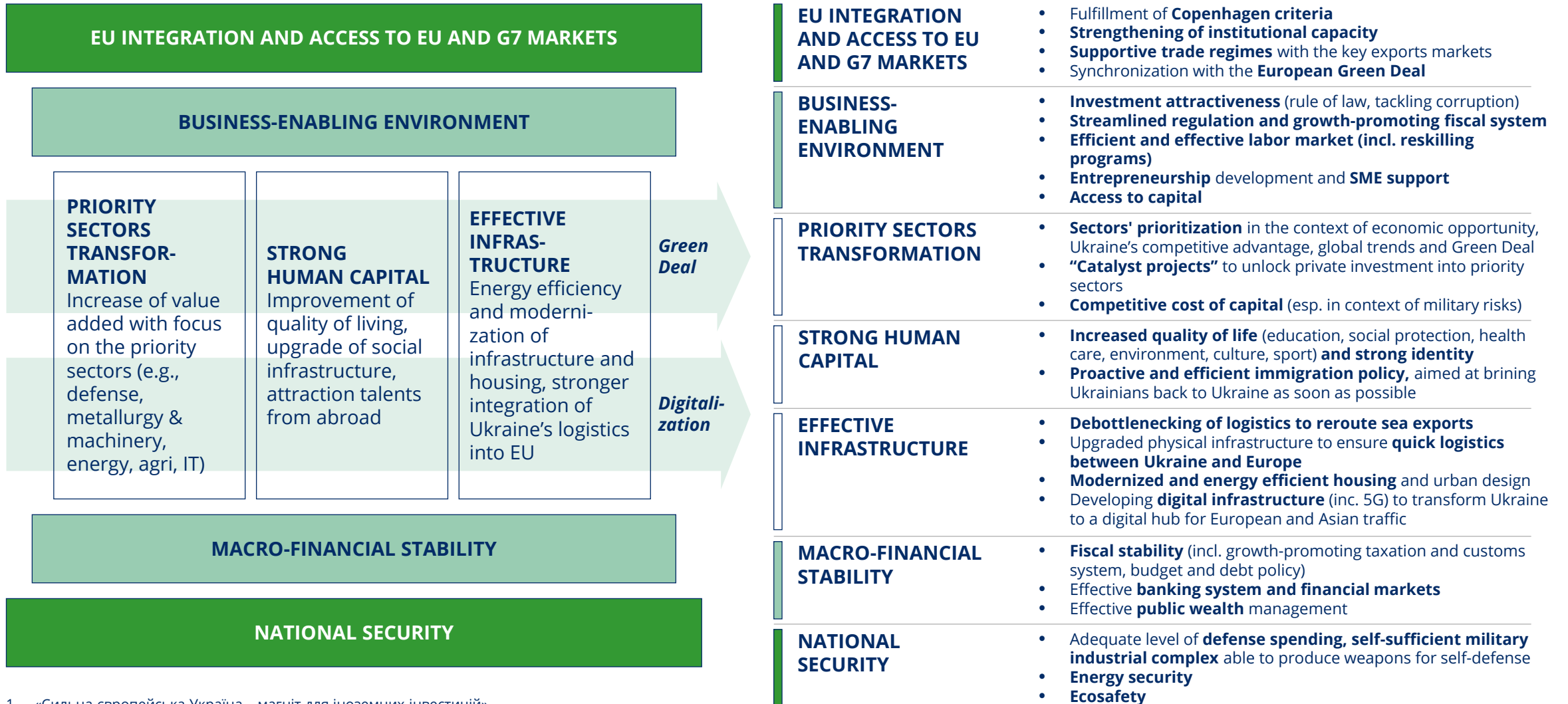


Agenda

- **Recovery priorities**
- National programs – priority projects
- National programs – overview

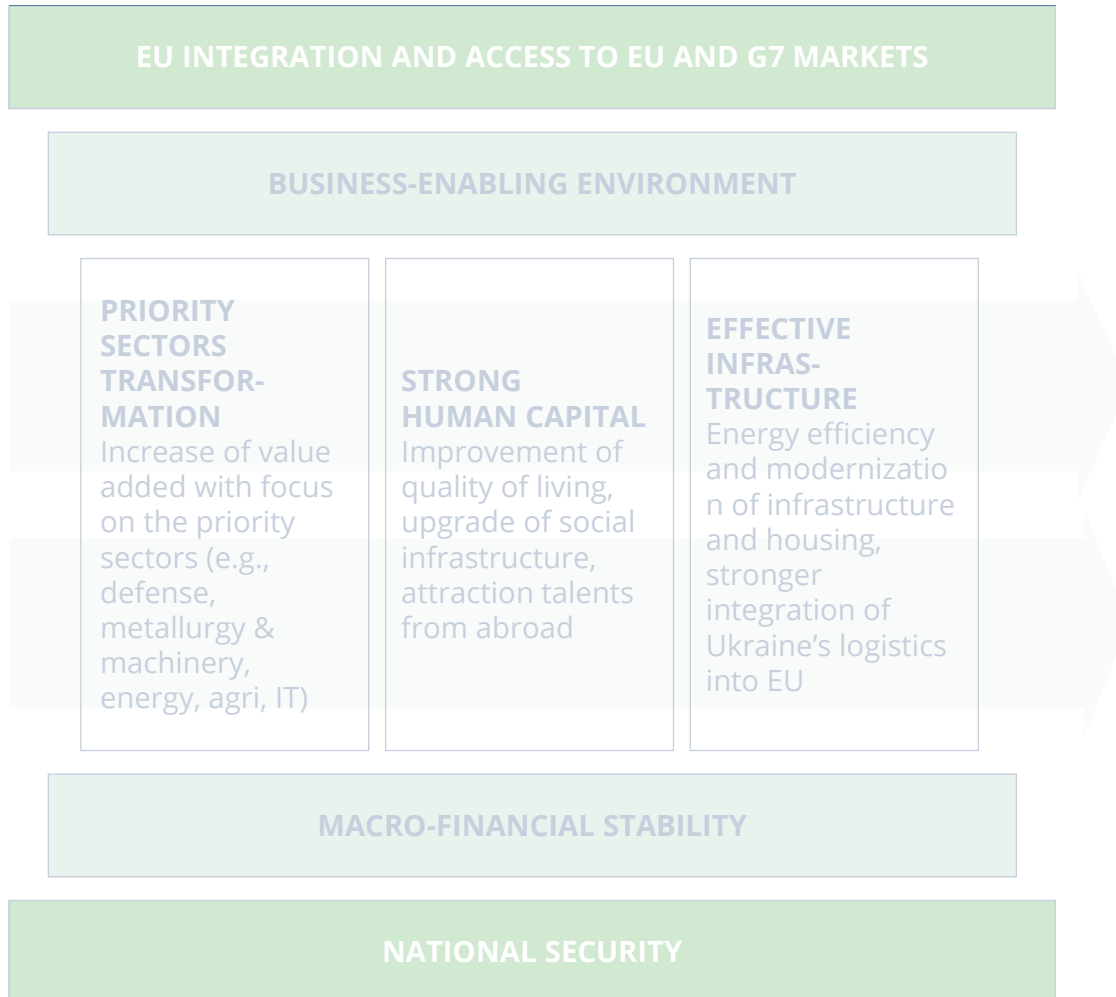
Ukraine Recovery Vision: «Strong European Ukraine is a “magnet” for international investment»¹

■ “Strategic imperative”
 ■ Enablers
 Transformation engines
 ➔ Strategic vectors of development



1. «Сильна європейська Україна – магніт для іноземних інвестицій»

Ukraine's Recovery Plan also offers potential synergies for EU integration



Potential European Union synergy areas

- ✓ **Supporting EU's economic growth and resilience** thanks to market expansion, more compact and resilient supply chains and nearshoring, and access to cost-competitive critical resources
- ✓ **Strengthening security, incl. cybersecurity, energy security** through Ukraine's defense sector and strong energy sources and infrastructure
- ✓ **Contributing to implementation of EU Green Deal** thanks to the vast Ukrainian low-carbon energy resources, incl. RES, and existing energy infrastructure
- ✓ **Contributing to innovation**, on the back of strong talent pool, entrepreneurial track record and already high innovativeness position (3rd in Global Innovation Index among lower-middle income group)

Ukraine's Recovery ambition is to accelerate sustainable economic growth

2032 targets

>7%

Annual GDP growth rate

>\$750 bn

Accumulated investment

TOP 25

Economic Complexity Index¹

TOP 25

World Bank Human Capital Index¹

-65%²

CO2 reduction from 1990

1. Current positions: WB HCI – 53 (2020), ECI – 47 (2019)

2. According to current NDC-2

Strengthening institutional capacity and "de-oligarchization" are fundamental pre-requisites of the Recovery Plan

Priority initiatives (non-exhaustive)

Public data transparency

- **Centralization and digitalization of public registers**, ensuring physical and cyber protection
- Providing restricted access to digital registers to **strengthen transparency and accountability**

Rule of law reform

- **Finalizing anti-corruption system** relaunch (SAP, NABU, ARMA)
- **Implementing legislature** re High Qualification Commission of Judges of Ukraine and Supreme Council of Justice
- **Implementing law-enforcement agencies reform** (e.g., reducing punitive function of Security Service of Ukraine, strengthening independence of Economic Security Bureau of Ukraine)

Corporate governance

- Implementing **new corporate governance legislation** (expanding authority of the Supervisory Board, incl. appointment of the CEO, approval of the financial plan)
- **Finalization of corporatization** of SOEs (e.g., EnergoAtom)
- Centralization of public wealth management function, setting-up **National Wealth Fund**
- **Privatization of non-critical enterprises**

Anti-trust

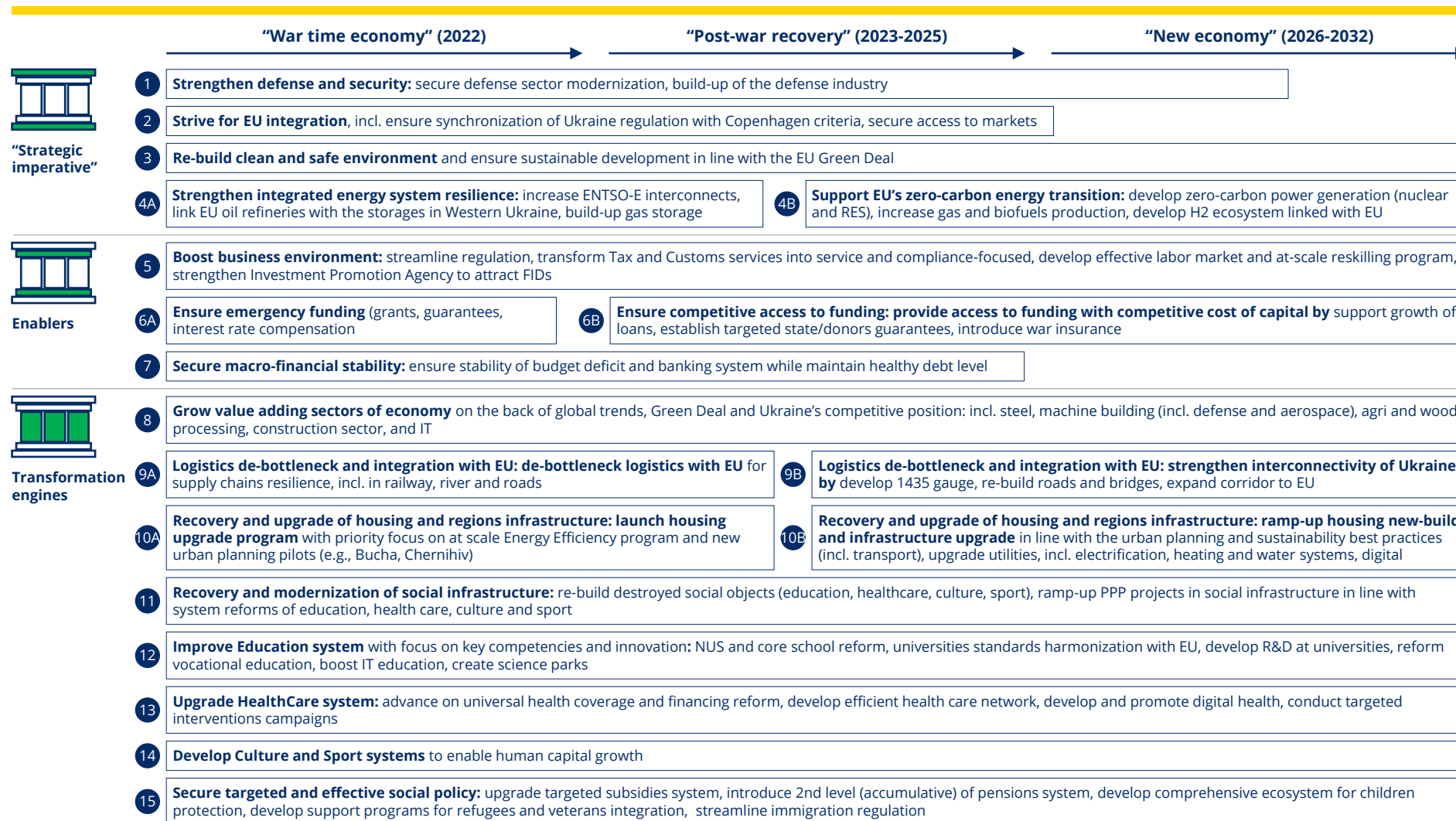
- **Synchronization with European best practices** (e.g., introduce mechanism to detect cartels, review merger threshold definition, review of concentration in key industries)
- **Professionalization** of the anti-trust organization

Public service reform

- Streamlining of the **public services organizational structure**
- **Digitization of all key public services**, with supportive infrastructure measures to provide equal access
- Development of **architecture for climate governance** (e.g. creation of coordinating agency ensuring sustainability strategy implementation across ministries, alignment of sustainability performance with budget, creation of accountability institutions)
- **Professionalization of the public service** (incl. market level compensation level)

National Recovery Council have identified 15 “National Programs” to boost Ukraine’s Recovery and achieve growth targets

Ukraine’s National programs (see program details and priority projects in the Annex)



Assistance, needed from Partners

- Support on the way towards EU integration and unlocking access to markets
- Assistance in strengthening mutual defense and security system
- Financial support, incl. facilitation of private investment

Funding analysis of the immediate priorities estimated at ~\$60-65bn (excl. Security and Defense)

Immediate priorities for Ukraine

- Ensure military security
- Ensure macro-financial stability
- Support business and employment (incl. state supported work opportunities)
- Strengthen energy sector and logistics resilience
- Provide social support to IDPs and war affected population
- Minimize negative impact on environment



National programs	Critical projects	Funding needs, \$bn
1. Defense and security	<ul style="list-style-type: none"> • Secure critical military supplies and needs 	15-20 ⁴
2. EU integration	<ul style="list-style-type: none"> • Continue systematic effort on synchronization of Ukraine's legislation with Copenhagen criteria 	<0.1
3. Re-build clean and safe environment	<ul style="list-style-type: none"> • Launch massive demining effort (up to 5% of UA territory in 2022) • Secure military waste utilization 	1-2
4. Energy independence and Green Deal	<ul style="list-style-type: none"> • Power: prepare blocks for max. availability during winter, incl. mothballed gas blocks • Switch to biomass and biogas for district heating, where possible • Launch Energy Efficiency program (see Program #10) • Push work on interconnect extension (power, oil products) • Build-up gas reserves in storages (working capital) 	~5-10
5. Boost business environment	<ul style="list-style-type: none"> • Improve ease of doing business via a deregulation crowd-sourcing initiative • Set-up PPP re-employment platform with short-term reskilling program (up to 700 thsd people coverage) 	<0.1 ~0.5
6. Ensure competitive access to funding	<ul style="list-style-type: none"> • Provide wartime emergency financing for SMEs affected by war • Introduce mechanism of guarantees / "war insurance" for targeted investments (e.g. infrastructure, construction, agri processing) 	~3-10 ¹ <0.5
7. Macro-financial stability	<ul style="list-style-type: none"> • Secure sources of financing for the state budget 	~30-35 ⁴
8. Grow value adding sectors of economy	<ul style="list-style-type: none"> • Agri: provide low-cost financing of liquidity, storage, destroyed equipment; unlock quick processing expansion • Construction: launch investment into supply chains for key rebuilding and energy efficiency materials (e.g., glass, windows, insulation)³ • Other low capex: unlock new investment into wood processing, textile, IT³ 	~1-2
9. Logistics	<ul style="list-style-type: none"> • De-bottleneck rail, road and Danube exports to/thru EU, secure 2x export volumes compared to April-May 	~2-3
10. Modernization of regions and housing	<ul style="list-style-type: none"> • Roll-out at-scale energy efficiency ("EE") and prepare housing (incl. IDPs) for winter; >20k housing units thermo modernized in 2022, >100k new housing units constructed (finishing construction started before war) 	~2-3
11. Modernize social infrastructure	<ul style="list-style-type: none"> • Launch program to re-build destroyed social infrastructure (educational, healthcare, culture, sport) 	~1
12. Improve Education system	<ul style="list-style-type: none"> • Introduce mobile education & science facilities, scale up tutoring programs to address learning losses 	0.1
13. Upgrade HealthCare system	<ul style="list-style-type: none"> • Launch psychological rehabilitation program, incl. through telemedicine • Start preparing for e-Health: expand healthcare data, create specialized modules, medicines register and strengthen IT infrastructure 	0.1
14. Develop Culture and Sport systems	<ul style="list-style-type: none"> • Support national and international UA media 	0.1
15. Secure targeted and effective social policy	<ul style="list-style-type: none"> • Launch transformation of complex social benefits system • Introduce communication and incentives² campaign to attract back Ukrainian refugees to target positive balance of migration of >1 million people in H2 2022 	~2

TOTAL:

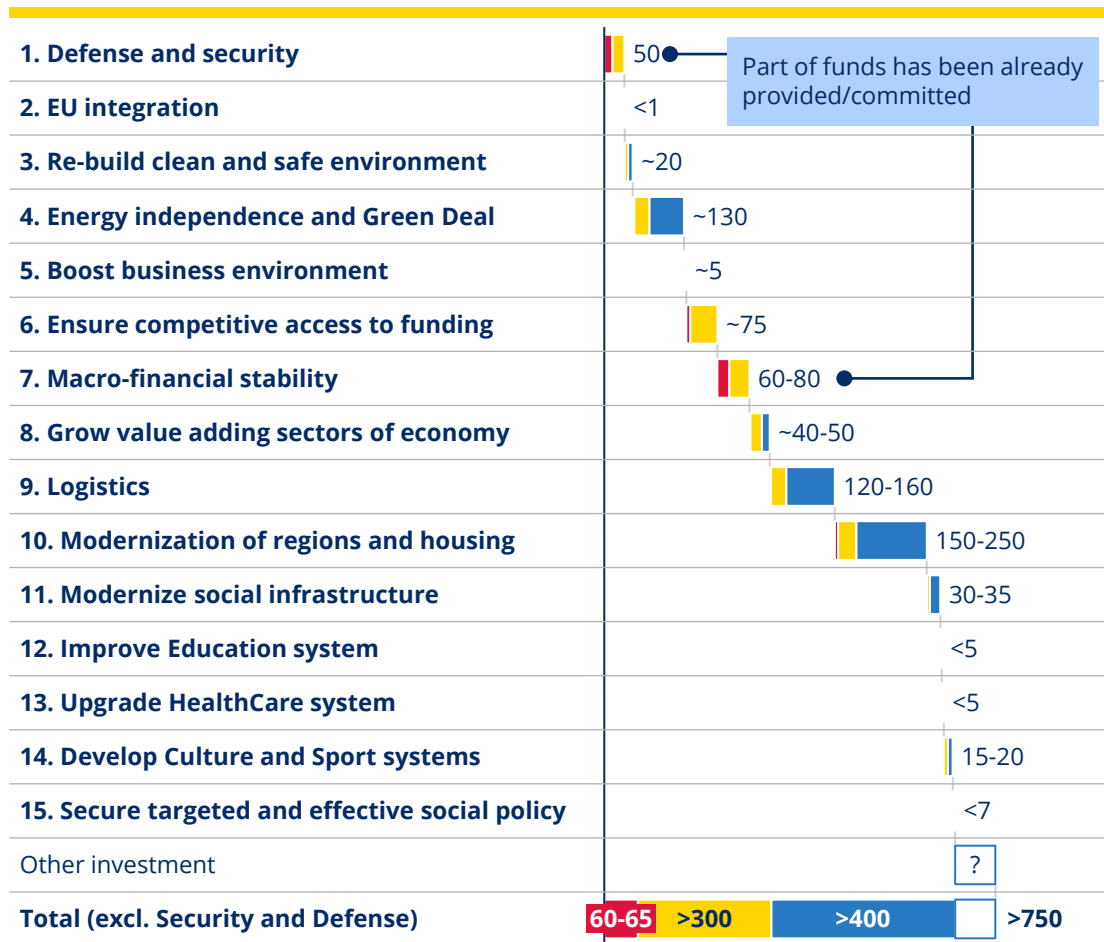
60-65 (excl. Security and Defense)

1. Broad range explained by different types of funding mechanism – interest rate compensation vs. grants
2. Incl. housing support, reskilling program subsidy, add. social support subsidy
3. Conditional to war insurance
4. Incl. provided commitments

Total funding needs are >\$750 bn; ~2/3 will require support from partners (grants, debt and equity)

■ Urgent/Resilience (2022) ■ Recovery (2023-2025) ■ Modernization (2026-2032)

National program Total funding needs estimate by 2032, \$ bn



Potential structure of funds (illustrative), bn USD

(numbers excl. Security and Defense)

	2022	2023-2025	2026-2032	TOTAL
Partner grants, e.g.:	~60-65	~100-150¹	~100-150²	~250-300
Defense				
Emergency budget financing				
Rebuilding of destroyed housing/infrastructure				
Enablement/de-risking of private investment (incl. "war insurance" subsidy)				
Infrastructure development as part of EU Structural Funds (when eligible)				
Partner debt/ equity, e.g.:	-	~100-150³	~100-150⁴	~200-300
Infrastructure/housing modernization				
Large-scale energy projects				
Financial system support				
Co-financing of private investment				
Private investment	-	>50	>200	>250
Co-financing into infrastructure projects (incl. PPP)				
Value-adding sectors				
Other commercially viable investments				
TOTAL:				>750

Cost of recovery of damaged assets currently estimated at ~\$165bn

1. Damaged infrastructure
 2. Potentially financed via EU Structural Funds, based on CE countries benchmarks
 3. Non-damaged infrastructure assumed, banking system support
 4. Infrastructure needs, not covered by EU Structural Funds

Recovery Plan next steps

Stage #1 (ongoing)

Recovery Plan blueprint

- Defining top-down development targets
- Collecting development projects and initiatives via inclusive process
- Prioritization of projects and initiatives, identifying “catalyst” projects
- Consolidation of the priority initiatives into a holistic Recovery Plan Blueprint

Stage #2

Recovery Plan drill down and road-map

- Specification and elaboration of the Recovery Plan with the local stakeholders and international partners
- Setting-up Recovery governance structure to support implementation
- Synchronization of the Recovery Plan with the Government Program
- Preparing a detailed implementation road-map, defining clear deadlines and responsible
- Launching immediate priorities projects

Stage #3

Implementation

- Launching Recovery Plan implementation
- Regular monitoring of results and adjusting the program as needed

Jul 4th-5th
Lugano Conference


Agenda

- Recovery priorities
- **National programs – priority projects**
- National programs – overview

Programs deep-dive (1/13)

Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors
 "Strategic imperative"	1A. Defense Modernization and Development 1A.1 Professional Armed Forces of Ukraine, other components of the defense forces 1A.2 Comprehensive rearmament of the defense forces 1A.2 Solving the housing problem and infrastructure development	~To be determined by the results of the Government's capabilities review	Savings in terms of training costs for staff and departments Percentage of new (modernized) armament	Restoration of military infrastructure New system of military education	2022-2025	Overall economy Investments Light industry Construction
	1B. Development of the Defense Industry 1B.1. State target program for the development of the aviation industry 1B.2. Establishment of the Defense Technology Agency and Defense accelerator (Diia Tech & Defense) 1B.3. State target defense program for the implementation of projects for the development of new technologies 1B.4 State target program of reform and development of the defense-industrial complex. 1B.5. State Targeted Defense Program for Missile Weapons Development.	~0.5 <0.5 ~0.1 0.5 5	Creation of jobs Increase of production Increase of export Investment into defense industry	Launch of public-private partnership projects Development of armored vehicles production Development of radar production Development of shipbuilding Development of exhibition activities to promote exports	2022-2030	Defense industry Steel Machinery


Programs deep-dive (2/13)

Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors	
 "Strategic imperative"	3. Re-build clean and safe environment Funding: ~20 \$ bn	3A. Ecological safety	~18.4	Reduction of greenhouse gas emissions compared to 1990	Restoration of scientific and research infrastructure within the "Chornobyl Scientific Hub"	Economy in general	
	3A. 1. Creation of an ecological web portal "EcoSystem"	<0.1					
	3A. 2. Assessment of damage and damage to the environment and the need to restore the environment as a result of Russian armed aggression	<0.1					
	3A. 3. Ecological restoration of the territory of the Radical plant	<0.1	Improving environmental safety				2023-2025
	3A. 4. Ecological restoration of salt mines Solotvino	<0.1		2026-2032			
	3A. 5. Taking fire safety measures in the exclusion zone	<0.1		2023-2025			
	3A. 6. Transformation of the Shelter object into an ecologically safe system	<0.1		2026-2032			
	3A. 7. Modernization of the radiological monitoring and dosimetry system in the exclusion zone	<0.1		Reduction of environmental pollution	2026-2032		
	3A. 8. Creating a network of enterprises for processing pneumatic tires	<0.1			2023-2025		
	3A. 9. Restoration and development of waste management infrastructure	~8			2023-2025		
	3A. 10. Ecomodernisation of industrial enterprises	~10			2026-2032		
	3A. 11. Restoration of radwaste management infrastructure and its development	<0.1			2026-2032		
	3B. Balanced use of natural resources		~0.2				
	3B. 1. Construction of 7.5 km of forest roads	<0.1			2023-2032		
	3B. 2. Increasing the mineral resource base of Ukraine	0.2			2026-2032		
	3C. Preservation of natural ecosystems		~1				
	3C. 1. WOW-nature: national parks for people	0.7			2023-2025		
	3C. 2. Creation of a network of regional centers for rehabilitation and rescue of wild animals in Ukraine	<0.1			2023-2026		
	3C. 3. Restoration of wildlife in Ukraine	0.3			2026-2032		
	3C. 4. Creating a network of 15 ecoducs in Ukraine	<0.1			2026-2032		
3D. Other		N/A					
TOTAL		~20					

Note: Some projects are included in other national programs


Source: based on extensive discussions with government and industry experts within NRC Working Groups

Programs deep-dive (3/13)


	Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors	
 <p>“Strategic imperative”</p>	4A. Strengthen integrated energy system resilience	4A.1 Expanding interconnect with ENTSO-E	~0.6	Decrease % of primary energy imports from Russia and Belarus Investments into infrastructure	Agreement with EU, development of network in Poland Anti-missile security of assets in Ukraine, war-proof design	2022-2025	Energy	
		4A.2 Oil, oil products emergency stock for 30+ days	1.2+				Construction	
		4A.3 Natural gas stock replenishment	5				Infrastructure	
		4A.4 Securing gas supplies/storage for EU and Ukraine (e.g., extension of Świnoujście/Gdansk LNG and/or interconnect or import from Turkey/Italy/Germany)	0.7 ¹					
		4A.5 Expanding oil refining capacity post-war (rebuild Kremenchuk refinery, building/modernizing +1 plant) + oil pipeline Brody-Adamova Zastava	~2.5					
		4A.6 Oil products infrastructure linked to EU and secure oil products storage hub in Western Ukraine	0.7					
		4A.7 Modernizing gas transmission and distribution networks	2.5					
		4A.8 Re-build damaged energy objects, including Kremenchuk, Chernihiv, Okhtyrka CHPs)	0.6					
	4B. Support EU’s zero-carbon energy transition	Funding: ~114 \$ bn	4B.1. Build out 5-10 GW RES and ~3.5 GW hydro and pumped hydro capacities (can be more if export opportunity secured)	15	Decrease % of primary energy imports from Russia and Belarus Decrease CO2 emissions Investments into infrastructure	Deoccupation / derisking of southern regions Green tariff regulation IAEA licensing of Ukraine’s new and existing nuclear blocks H2 regulations Collaboration with Western partners (incl. potential offtakers and TSOs)	2024-2032	Energy
			4B.2. Increasing nuclear capacity (prolongation, safety, higher utilization of existing capacities, and 2 GW new blocks at Khmelnytskyi NPP) ²	~14				Construction
			4B.3. Developing biofuels (bioethanol, biodiesel, biomethane) production from agri produce, residues and waste	~4.2				Infrastructure
4B.4. Localizing nuclear value chain (sustainable uranium mining, plant for fuel production, waste storage)			1.3					
4B.5 Increase gas production from existing fields, develop tight gas fields (not including Black Sea shelf ~\$11 bn)			~18					
4B.6. Build 1.5–2 GW peaker and 0.7–1 GW of storage			~2.8					
4B.7. Localize RES equipment production (towers, transformers, cables, electrolyzers, Li batteries...)			~2					
4B.8. Build out ~15 GW electrolyzer capacities			~7					
4B.9. Develop H2 transport infrastructure to connect H2 production sites with consumers in Ukraine and abroad			2					
4B.10. Build 30+ GW RES for H2 production			38					
4B.11. Build smart grids			5-10					

1. Not including cost of LNG terminal expansion (~\$0.6 bn/2.5 bcm of gasification capacity)
 2. Extra blocks (up to 7) require additional cost-benefit consideration due to significant CAPEX and limited baseload requirements (i.e. likely export-oriented). Memorandum with Westinghouse is non-binding


Programs deep-dive (4/13)

	Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors
 Enablers	5. Boost business environment Funding: <u>~5 \$ bn</u>	Deregulation 5.1. Assess scope for deregulation through (a) running Red Tape reduction program with crowdsourcing of ideas and optimized process of regulations review, (b) establishing systematic regulatory burden measurement and regulatory impact analysis of draft laws and regulations	<0.1	Rank in business environment rankings	Urban master planning alignment with energy needs	2023-2025	Overall economy
		5.2 Review concentration degree in the priority industries	<0.1	Time to get electricity	Land use regulations		
		Tax and Customs transformation 5.3. Transform Tax service to compliance and service-oriented organization; resolve immediate blockers in tax administration	<0.1		Tariffs adjustment to charge for unused capacities		
		5.4. Review potential for decreasing the share of tax revenue in GDP	<0.1				
		5.5. Transform Customs services to security and trade-facilitation focused organization	~0.1-0.5				
		Business support 5.6. Further develop Diia.Business as a one-stop-shop and key repository of information for SMEs	<0.1				
		5.7. Expand the functions and mandate of Investment Promotion Agency to proactively solicit FDIs for Reconstruction investment projects	<0.1				
		Infrastructure 5.8. Facilitate access to electricity for businesses	<0.1				
		Reconstruction procurement 5.9. Establish procurement practices for Reconstruction projects in line with EIB guidelines	<0.1				

Programs deep-dive (5/13)

	Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors
 Enablers	5. Boost business environment Funding: ~5 \$ bn	Labor market 5.10. Establish a program aimed at incentivizing new business creation (e.g., financing to start a business, etc.) 5.11. Increase labor mobility through (a) funding the transfer to other regions for job purposes, (b) simplifying regulations for foreigners' employment in Ukraine and Ukrainians' employment abroad 5.12. Launch PPP re-employment program with reskilling part (physical and financial infrastructure, employers funding matching), up to 1 mn people coverage 5.13. Transform Employment agency to re-employment focused organization, matching supply and demand (e.g., provide career advisory services, advanced demand planning model for skills)	2 ~0.1-0.5 ~1-2 <0.1	Unemployment reduction	Harmonization of labor market legislation with the EU Building collaborative links with labor agencies of EU countries for info and vacancies sharing	2023-2025	Overall economy
	6A. Provide access to emergency funding Funding: ~10 \$ bn	6A.1. Introduce wartime government grants, loan guarantees and interest rate reduction	~10	Share of businesses paying their workers and suppliers	Expansion of 5-7-9 program	2022	Overall economy

Programs deep-dive (6/13)

	Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors
 Enablers	6B. Provide access to funding with competitive cost of capital <u>Funding: ~65 \$ bn</u>	6B.1. Fine tune “5-7-9” program to target borrowers in priority sectors	~4	Loans / GDP	Legal framework for covered mortgage financing Law on deposit guarantees Legal framework on pension funds Legal framework on a systemic NPL solution Legal framework for compensation for destroyed or damaged property	2023-2032	Overall economy
		6B.2. Introduce war insurance for investment projects in priority sectors	<3	SME loans / GDP Mortgages / GDP			
		6B.3. Develop covered financing to encourage mortgage lending (supported by IFIs with funding from institutional investors)	~40	Deposits / GDP NPLs / total loans			
		6B.4. Strengthen banking capital (post war recapitalization and post-war capital increase to sustain lending growth)	~15-20	Capital adequacy ratio			
		6B.5. Consider a possibility to establish a development bank	n/a				
		6B.6. Adopt regulatory measures to attract deposits (e.g., raise deposit guarantee ceiling, Introduce pension accounts)	n/a				
		6B.7. Consider a systemic solution to clean up banks’ balance sheets and resolve non-performing loans (incl. “Bad Bank” option)	n/a				
	7. Secure macro-financial stability <u>Funding: ~60-80 \$ bn</u>	7.1. Secure sources of financing for the state budget until Ukraine regains market access (2022-2025 time horizon, preliminary)	~60-80	Government debt to GDP	-	2022-2025	Overall economy Government Banking

Programs deep-dive (7/13)




Transformation engines

Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors
8. Grow value adding sectors of economy <u>Funding: ~50 \$ bn</u>	8.1. Agri: Develop agri processing (starch, corn syrup, gluten, lecithin, protein) in alignment with EU Green Deal principles	~10.2	Investments into priority sectors	H2 regulations	2023-2032	Energy
	8.2. Agri: Build 1 mha irrigation system in compliance with EU directives	~4	Increase economic complexity	Collaboration with Western partners (incl. potential offtakers)		Steel
	8.3. Agri: Develop high-value-add agri produce (vegetables, fruits, berries, seeds)	~7.7	Growth of exports	Deoccupation and protecting of eastern regions		Machinery
	8.4. Agri: Recultivation of damaged land	1.6	New jobs created			Construction
	8.5. Agri: Increase meat and milk production and processing	~5.5		Reskilling program for employees with technical background		IT
	8.6. Agri: Promoting the transition of the agri-food sector to "green" growth (by enabling precision farming)	~1.1		Harmonize data management legislation with EU		
	8.7. Agri: Fast restoration after the war of 10.5k agricultural enterprises	~6.5		Develop attractive business environment for start-ups and R7D FDI (e.d. taxation)		
	8.8. Furniture: Development of production clusters	~0.8				
	8.9. Machine building: create automotive component hub, incl. production of automotive components (e.g., wiring sets, tires, glass, seats) for automotive clusters in CE and development of production of batteries for EVs	~3				
	8.10. Machine building: Grow agri machinery	~0.2				
	8.11. Metallurgy: Localize finished rolling production in the context of reconstruction: coated steel, plates, rails and beams (up to 5 Mt), imported steel articles	~2.6				
	8.12. Metallurgy: Build/modernize iron ore beneficiation (floatation) and build new pelletizing capacity to produce 7 Mt of DR-grade pellets	~0.7				
	8.13. Metallurgy: Build H2-compatible DRI/HBI modules to produce 5 Mt of DRI/HBI	~1.5				
	8.14. Metallurgy: Build 2,5-5 Mt EAF for green steel	~1				
	8.15. IT: Attract R&D companies	~0.5				
	8.16. IT: Develop start-up ecosystem (innovation hubs, accelerators, incubators, platform)	~0.5				
	8.17. IT: Support start-ups through grant funding, VC development, matching programs	~0.6				
	8.18. IT: Development of Open Data platform	<0.01				


Source: based on extensive discussions with government and industry experts within NRC Working Groups

Programs deep-dive (8/13)

Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors	
 9A. De-bottleneck logistics with EU Transformation engines Funding: >2,4 \$ bn	9A.1 Extending throughput capacity on the border with the EU 9A.1.1. Construction of ~200 km of 1435 rail and ~330 km of 1520 rail to the EU border and Danube 9A.1.2. Construction of EU cross-border agri. storages and terminals 9A.1.3. Reparation and modernisation of sorting stations on key routes (particularly export ones) 9A.1.4. Maintenance of 20+ freight car relocation equipment from 1520 to 1435 mm rail track 9A.1.5. Modernisation of 12 existing EU road border points and construction of 3 additional ones 9A.1.6. Expansion of throughput of Danube port infrastructure (incl. agri)	>2.4 ~1.4 ~0.2 ¹ ~0.2 ~0.0 ~0.1 ~0.5 ^{1,2}	Growth of exports to/through EU Investments into infrastructure Capacity of export routes to EU	Simplified/ streamlined process (single check on border, acceptance of veterinary certificates) EU railroad/rolling stock capacity	2022-2025 2026-2032	Infrastructure Construction Machinery Steel Agri	
	9B. Strengthen interconnectivity of Ukraine by upgrading logistics Funding: >114 \$ bn	9B.1 Short-term reconstruction and modernisation of infrastructure 9B.1.1. Construction, reconstruction and modernisation of rail tracks and bridges (incl. war damages) 9B.1.2. Reconstruction of 293 km of rail tracks, 95 turnouts, supporting stations 9B.1.3. Renewal of ~5,800 railcars and ~190 locomotives 9B.1.4. Construction, reconstruction and modernisation of 24,900 km of roads and 1,750 bridges (incl. War damages) 9B.1.5. Reconstruction of 5-7 damaged by war airports 9B.2 Long-term reconstruction and modernisation of infrastructure 9B.2.1. Construction, reconstruction and modernisation of rail tracks and bridges 9B.2.2. Electrification of rail tracks 9B.2.3. Renewal of railcars and locomotives 9B.2.4. Construction, reconstruction and modernisation of 27,200 km of roads and 3,000 bridges 9B.2.5. Construction of public green charging power stations (incl. grid update) 9B.3 Construction of high-speed rail Kyiv-Warsaw Other	>35.4 ~N/A ³ ~0.2 ~0.1 ⁴ ~33.9 ~1.2 >75.7 ~N/A ³ ~N/A ³ ~N/A ⁴ ~75.7 ~N/A ³ ~1.2 ~1.5	Growth of exports to/through EU Investments into infrastructure Growth of economic complexity Capacity of export routes to EU	Attraction of foreign locomotives technologies with possibility of high degree of localization Monetisation of the road infrastructure for trucks with a full weight of >12 t Implementation of road maintenance contracts	2022-2025 2026-2032 2022-2032	Infrastructure Construction Machinery Steel

1. Including agriculture working group suggestions for infrastructure estimated at ~\$0.5 bn in total 2. Construction of the Danube-Black Sea deep navigation to be estimated when Romanian authorisation is obtained 3. To be estimated when war outcomes are more clear 4. Before the war plan was to renew 46,000 freight railcars by 2024; >90% of ~3,600 locomotives are outdated 5. Converted to USD based on 1:29.25 exchange rate


Programs deep-dive (9/13)

	Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors	
 <p>Transformation engines</p>	10a. Modernize regions: launch housing upgrade program Funding: ~70-150 \$ bn	Rolling-out energy efficiency and securing supply chain 10a.1. At-scale residential energy efficiency program 10a.2. Develop communication program 10a.3. Launch reskilling program for 150-200K employees ¹ 10a.4. Localize insulation materials production (~13 mln m ³ p.a.) 10a.5. Localize glass production (300 k t p.a.) 10a.6. Localize windows production (5-6 mn units p.a.) Modernizing district and individual heating 10a.7. Modernize district heating (incl. installation of heat pumps, biomass) 10a.8. At-scale installation of heat pumps to replace gas boilers in individual heating Providing temporary and re-building damaged housing² 10a.9. Temporary housing (converting non-residential buildings, social rent), financing (mortgages, compensation) 10a.10. Build new housing infrastructure in line with the urban planning best practices (starting with high-visibility pilots, e.g. Bucha, Irpen, Chernihiv)	~59 <0.1 ~0.6 ~0.4 ~0.1	Decrease % of primary energy imports Reduce annual gas consumption Decrease unemployment	Regulation: Require higher energy efficiency in DBN Set-up Energy Efficiency fund (e.g. ESCO) to subsidize switching-cost Develop communication program Secure materials availability Simplify the administrative process for funding	2022-2025	Construction Energy Infrastructure	
		10b. Ramp-up housing new-build and infrastructure upgrade Funding: ~80-100 \$ bn	Modernizing infrastructure and housing 10b.1. Modernize water and wastewater management system 10b.2. Current and capital repairs of existing building stock 10b.3. Pilot projects for near-zero energy buildings (NZEB) 10a.4. Pilot district cooling systems 10b.5. Upgrade and electrify city transport based on local production of buses/trolleybuses, suburban rail e.g. in Kyiv Other priorities 10b.6. Diversification of economy and improvement of infrastructure of coal mining “monocities” 10b.7. Other development programs and enabling projects	up to ~42 ~45 ~1.4 ~1.5 ~1.5	Decrease % of primary energy imports Reduce annual gas consumption Decrease unemployment	Regulation: Require higher energy efficiency in DBN Regulation: Require adherence to best practices in urban planning norms (e.g. population density, # of stores, ...)	2023-2032	Construction Energy Infrastructure Steel Machine building


1. Funding included in other programs

2. There is partial overlap with mortgage program. Includes shorter-term (re-build damaged) and longer-term (build new) construction


Programs deep-dive (10/13)

	Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors
 Transformation engines	11. Modernize social infrastructure Funding: ~30-35 \$ bn	Rebuilding social infrastructure: 11.1. Restore destroyed or damaged infrastructure 11.2. Modernize social infrastructure in accordance with principles of energy efficiency and accessibility 11.3. Build spaces for youth development 11.4. Building of industrial parks 11.5. Develop special PPP program at government level with respective advantages for private investors	~3.7 ~28.7 ~0.6 ~0.6	Number of objects restored / built Implementation of effective PPP mechanism		2022-2023 2022-2023 2022-2023	Education HealthCare Culture
	12. Improve education with focus on key competences and innovation Funding: <5 \$ bn	A. Primary and secondary education 12.A1. Short-term response: introduce mobile education facilities and programs for learning gaps compensations 12.A2. Increase quality of education (including NUS reform roll-out and programs on performance improvement of the lagging schools) 12.A3. Together with partners build / modernize / finalize flagship schools in regions (in line with education reforms in terms of content and format) 12.A4. Project for new quality of teachers: teachers professional development , along with model of financial compensation, career path and growth programs B. Higher and vocational education 12.B1. Universities quality assurance - harmonization with Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) 12.B2. Investing in R&D through grants for researchers, private co-investment in researchers and think-tanks creation on a base of key universities 12.B3. Updating IT programs for TOP-5 universities together with private sector 12.B4. Reform of vocational education with private sector engagement, including integration to IT innovation hubs C. Science 12.C1. Performance based grants system for researchers 12.C2. Creation of Centers of Excellence (science parks) in cooperation with TOP international center	<0,5 <0,5 ~1-2 <0,5 <0,1 <0,5 <0,1 <0,5 <0,1 <0,1	Grow in Human Capital Index and Global Innovation Index to TOP-25 countries	Enable continuation of education in Ukraine Review schools footprint to address displacement and demographic change Overarching Digital Education Passport (covering all stages of education) Approve incentives for private sector for science investments (e.g. tax deductions)	2022-2025 2023-2025 2023-2032 2023-2025 2023-2025 2023-2025 2023-2025 2023-2025 2023-2025 2023-2032	Overall economy Education IT Overall economy

Programs deep-dive (11/13)

	Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors
 <p>Transformation engines</p>	13. Upgrade Health Care system to enable human capital growth Funding: <5 \$ bn	13.1. Launch war-time and post-war mental health and well-being program “National program of mental health and psychological support “	<0,5	Grow in Human Capital Index from 53 rank to TOP-25 countries	Finalize reform of financing system in HealthCare (focusing state funding on critical and primary services), subsidize voluntary insurance for specific groups (<i>*with prior VHI model design and appropriate accompanying regulation to be approved</i>)	2022-2023	Overall economy HealthCare
		13.2. Rehabilitation services improvement program	<0,1				
		13.3. Strengthening primary healthcare to addressing the rising burden of non-communicable diseases (including promoting and increasing quality of family doctors service)	<0,1	Increase Life expectancy from birth to EU avg level		2023-2032	
		13.4. Bring investments into and develop healthcare facility network (regional facilities with focus on primary care, heart diseases, cancer hospitals)	~3-3.5			2023-2032	
		13.5. Expand health care data, create specialized modules, medicines register and strengthen IT infrastructure	<0,1			2022-2025	
		13.6. Enhance digital health (e.g. patient cabinets, teleconsultations)	<0,5			2022-2025	
		13.7. Develop the mechanism for health workforce planning based on the needs, Improve leadership and management skills of hospital managers	<0,1			2023-2025	
		13.8. Develop and implement emergency and response plans: including launch national-wide campaign to address cardiovascular diseases	<0,5			2023-2025	

Programs deep-dive (12/13)

	Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors	
 <p>Transformation engines</p>	14. Modernize Culture and Sport systems Funding: ~15-20 \$ bn	A. Culture and Information Policy						
		14.A1. Support international, national, regional and local media to enforce freedom of information, provide media literacy education	~3.4	Increase of culture infrastructure coverage	Develop financial (grants) and institutional (governance, education) capabilities of culture system	2023-2032	Culture and Information Policy Media	
		14.A2. Develop physical culture infrastructure to promote national identity and cultural diversity (museums, memorials, centers of cultural services etc.)	~5.8			2023-2032		
		14.A3. Restore cultural heritage and infrastructure to promote national identity, access to culture	~0.7			2022-2032		
		14.A4. Develop digital culture (e.g. national e-library, e-services, e-archive, e-management)	1.1			2023-2032		
		14.A5. Develop Ecosystem for culture, history, memory, heritage and creative industries with focus on identity, arts, arts education	2.9			2023-2032		
		14.A6. Develop cinema and audio-visual production industry, creative industries infrastructure by granting financing, transformation of education system to make it more practical	~3.7			2023-2032		
		B. Youth and sport						
		14.B1. Massive communication campaign to promote physical activity, Active parks development in Ukraine	<0,1	Grow in National Exercise Level from current 105 rank	Targeted Ukraine learning programs for youth	2022-2025	Youth and Sport	
		14.B2. Launch of «club system» of mass sport financing	<0,1	TOP-20 at Olympic games		2022-2025		
		14.B3. Reconstruction of 18 sports boarding schools and 100 CYSS	<0,5		Develop institutional capability in sport and youth management	2023-2025		
		14.B4. Realize Presidential “25 sport magnets”	<0,5			2023-2025		
		14.B5. Open 5+ flagship top-class sport objects that will ensure Ukraine’s ability to conduct world and regional level competitions, prepare athletes to Paralympic, Deaflympic, World Games	~2-3			2023-2032		

Programs deep-dive (13/13)

	Program	Projects	Funding needs, \$ bn	KPI	Other initiatives	Time horizon	Addressed sectors
 <p>Transformation engines</p>	<p>15. Secure social support and attractive migration policy</p> <p>Funding: <7 \$ bn</p>	15.1. Special support program covering access to housing, financial compensation and social services;	~2	<p>Ensure positive balance of immigration (at first stage bring back refugees)</p> <p>Increase social safety level and pension replacement level</p>	<p>Develop institutional capability for refugees return and reintegration</p> <p>Approve social incentives for returnees</p> <p>Streamline immigration regulation</p>	2022-2025	<p>Social, Refugees, IDPs. Veterans</p>
		15.2. Targeted national wide “Return talents back” program for entrepreneurs in specific sectors, including for creative industry (grants, education, supporting export, opening creative hubs, “Diia City” for creative industry)	~0,5			2022-2025	
		15.3. Information campaigns aimed to create positive image of returnees	<0,1			2022-2025	
		15.4. Short-term job programs on temporary projects	<0,1			2022-2023	
		15.5. Developing regional network for local management of veterans’ programs	<0,1			2022-2023	
		15.6. Veterans integration programs including educational, employment, and recreation initiatives; creation of transparent system for transition from military to civil life	~0,5			2023-2025	
		15.7. Develop digital platform for return and reintegration	<0,1			2022-2023	
		15.8. Transformation of current complex social benefit system to targeted social help	n/a ¹			2022-2025	
		15.9. Introduction of 2nd level of the pension system	n/a ¹			2023-2025	
		15.10. Developing network of social service providers: secure transparent reporting and “money follows people” financing principle	<3 ¹			2023-2025	
		15.11. Implementing Unified Social Information System (EISS) a comprehensive digital tool for all components of the social protection system	<0,1			2023-2025	

¹Part of the budget costs within micro-financial stability block

Agenda

- Recovery priorities
- National programs – priority projects
- **National programs – overview**

National program #3: Re-build clean and safe environment

Position in the world



55

The Environmental Performance Index

46

Pollution Index for Country

Basic systemic challenges



Low adaptive capacity to climate change

Critical level of environmental safety

Depletion of natural resources

Critical loss of biodiversity

Effects of war

48 459

Movable assets seized, destroyed or damaged

20 %

Protected areas affected by the war

160

(2,9 mln ha)

Territories of the Emerald Network in danger of extinction

1 334

Real estate seized, destroyed or damaged

17

(627,3 k ha)

Ramsar sites in danger of extinction

4

Biosphere reserves in danger of extinction

Climate neutrality

- Adaptation to climate change

Ecological safety

- Creating an ecological web portal "Ecosystem"
- Fixation and calculation of losses of war consequences
- Ecological restoration of the territory of the Radical plant
- Ecological restoration of Solotvino salt mines
- Revitalization of the exclusion zone, reduction from 30 to 15 kilometers of zone
- Construction of about 130 modern waste processing complexes
- Ensuring the proper functioning of radioactive waste management facilities

Balanced use of natural resources

- Construction of 9 selection complexes for growing tree seedlings
- Increase of forest cover, renewal and improvement of forests (20% of the country's area)
- Creation of 170 recreational facilities
- Revitalization of 10 thousand km of rivers and reduction of losses from destruction of flood protection structures by 20%
- Increasing the mineral resource base of Ukraine

Effective public administration in the industry

- Reboot of the environmental control body

Preservation of natural ecosystems

- Construction of 10 European nature parks
- Construction of a network of ecoduks (15)
- Construction of 10 centers for rehabilitation and rescue of wild animals
- Increasing the area of protected areas up to 30%



National program #4: Ukraine will support Europe's energy security and zero-carbon transition

■ Production ■ Net Import ■ Net export

Energy supply, 2019¹, million toe⁵

Energy supply, 2032, million toe

Current challenges

Key developments included in National Program

Short-term

Long-term

Category	2019 Supply (million toe)	2032 Supply (million toe)	Current challenges	Short-term developments	Long-term developments
Nuclear ²	21.8 (27%)	30.2 (36%)	<ul style="list-style-type: none"> Lifetime extension required for 8 blocks by 2030 Decreasing capacity factor (KBBП) of blocks Dependence on Russian fuel and waste processing 		<ul style="list-style-type: none"> Extend lifetime, increase availability of existing blocks Build 2 new blocks³ at Khmelnytsky NPP (more – in case long-term export agreements/low-cost financing secured) Build fuel fabrication and expand waste storages to stop reliance on Russia
RES, incl. hydro	1.0 (1%) Growth to ~1.8 in 2021	4.7 (5%)	<ul style="list-style-type: none"> Fast growing sector with vast capital needs and not-fully-resolved feed-in tariff and debts Increasing balancing needs for the energy system 		<ul style="list-style-type: none"> Increasing RES capacity (5-10 GW) as power source with the lowest LCOE (no green tariff for new build)
RES for H2		8.6 (10%)	<ul style="list-style-type: none"> To avoid need for balancing, this part is not necessarily connected to energy system, but directly to electrolyzers; in case of grid connection, electrolyzers are providing balancing services 		<ul style="list-style-type: none"> Vast buildup of RES (up to 30 GW) and integration in EU's low-carbon H₂ value chain (pilot and then build-up up to 15 GW of electrolyzers) – volume may be higher depending on EU "appetite" for H₂
Energy coal	12.0 (18%) 2.9	1.9 (2%)	<ul style="list-style-type: none"> ~46% imported, both thermal and coking coal Ukraine made a commitment to stop coal power generation by 2035 		<ul style="list-style-type: none"> Thermal: phase out coal generation after the war ends and once extra capacity is secured from nuclear and/or gas/biomethane ramp up
Natural gas	16.3 (32%) 9.5	18.3 (26%) 3.4	<ul style="list-style-type: none"> Import accounts for ~30% of gas consumption Low energy efficiency in mostly gas-based house heating Depletion of largest gas fields exceeds 80% 	<ul style="list-style-type: none"> Roll-out energy efficiency at scale Replenish natural gas stock in storages 	<ul style="list-style-type: none"> Ramp up gas production from existing fields, develop unconventional gas fields (e.g. in Poltava region)⁴ Expand gas interconnector with EU LNG terminals Energy efficiency and district heating modernization
Oil	10.9 (17%)	5.9 (11%) 3.1	<ul style="list-style-type: none"> Significant imports from Russia and Belarus Refineries damaged during the war Most oil fields are 80+% depleted 	<ul style="list-style-type: none"> Expand oil product interconnector w/ EU Build strategic oil product reserve 	<ul style="list-style-type: none"> Expand refining capacities (rebuilding Kremenchuk refinery and building/modernizing additional refinery) Decrease reliance on oil due to push towards electrification, H₂ and biofuels (below)
Biofuels	4.2 (5%)	8.5 (10%)	<ul style="list-style-type: none"> Large resources, but lack of systemic push for various kinds of biofuel production (biomethane, biomass, bioethanol, biomethanol, biodiesel) 		<ul style="list-style-type: none"> Development of biofuels production and use: Biomethane/biogas/waste gas (2 bcm – but higher potential exists with up to 5 bcm) and biomass for district heating and industrial use; bioethanol and biodiesel from agri produce
Power export	0.3	1.7			<ul style="list-style-type: none"> Expanding interconnector with ENTSO-E (~7 GW) to potentially reach export of ~20 TWh
Power stability & security			<ul style="list-style-type: none"> Fast growing RES require balancing capacities to maintain security and stability of the system 	<ul style="list-style-type: none"> Installation of STATCOM 4 x 50 MVA Reconfiguration of power system stabilizers at TPPs and HPPs, excitation systems of NPP units 	<ul style="list-style-type: none"> Build up hydro accumulating power plants (3.2 GW) Development of peaker capacities / batteries to balance additional RES capacities Development of storage capacities (e.g., lithium batteries) with potential localization Modernizing and expanding power network

H2 export -

~1.5 Mt

1. Base year is 2019, in order to conduct analysis without consideration of COVID lock-down disruptions

2. Nuclear energy is produced domestically; however, nuclear fuel is imported. Power output is 33% of input fuel

3. Extra blocks (up to 7) require additional cost-benefit consideration due to significant CAPEX, limited baseload requirements, and potential new blocks in CE countries

4. Extra upside (not included in base scenario): Black Sea shelf development

5. Conversion: 1 million toe = 11.6 TWh = 1.1 bcm of natural gas

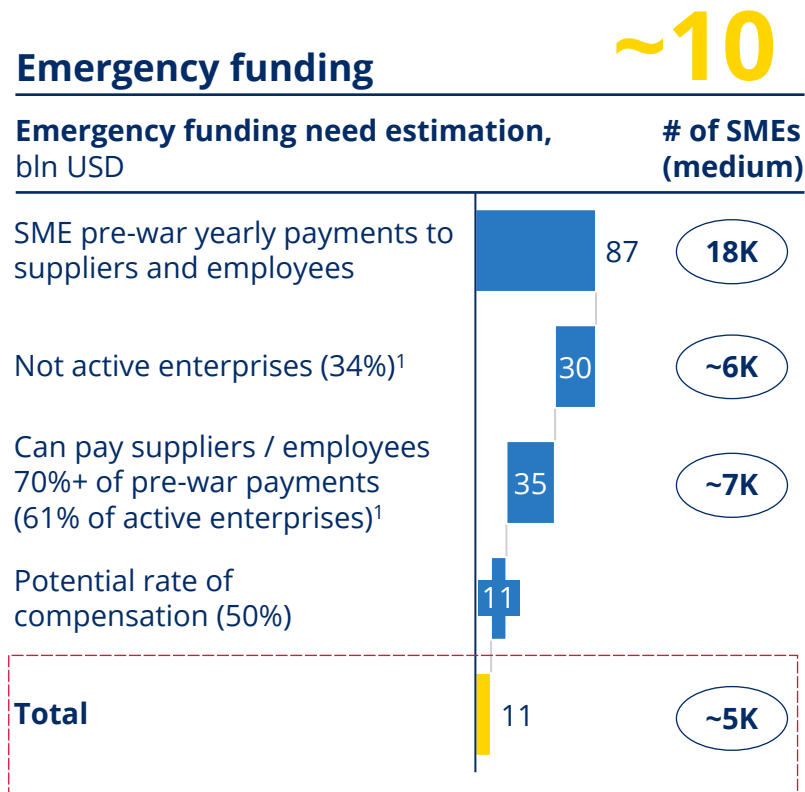
Source: based on extensive discussions with government and industry experts within NRC Working Groups; Ukrenerg, Ukrstat, Powering Past Coal, UkrGasvydobuvannya, A-95

National program #5: Boost business environment with aim to increase number of new businesses in Ukraine

Dimension	Blockers	Initiatives	
Deregulation	<p>Ease of doing business 2020, rank</p> <p>Ukraine: 64, Poland: 40, South Korea: 5</p>	<p>Monopolization of the markets and cumbersome and frequently changing legislation are considered respectively 3rd and 4th key obstacles to investment in Ukrainian assets¹</p>	<p>Assess scope for deregulation through (a) running Red Tape reduction program with crowdsourcing of ideas and optimized process of regulations review, (b) establishing systematic regulatory burden measurement</p> <p>Review concentration degree in priority industries and implement measures to enhance competition</p>
Tax and Customs transformation	<p>Paying taxes dimension, rank</p> <p>Ukraine: 65, Poland: 77, South Korea: 21</p>	<p>Tax service remains oriented towards primarily fiscal function, further service improvement is possible</p> <p>Up to 40% of tax revenue in GDP in Ukraine indicates rather high tax burden (against peers' ≤30%)</p> <p>Insufficient capacity, inconsistent requirements and procedures and lack of harmonization with the EU legislation remain pain points for Customs</p>	<p>Transform Tax service to compliance and service-oriented organization; resolve immediate blockers in tax administration</p> <p>Review potential for decreasing the share of tax revenue in GDP</p> <p>Transform Customs services to security and trade-facilitation focused organization</p>
Business support	<p>Foreign direct investment, net inflows, % of GDP</p> <p>Ukraine: 0.2, Poland: 2.9, South Korea: 0.6</p>	<p>For SMEs: central support platform (Diia.Business) exists, but requires further functionality development and promotion among businesses</p> <p>For investors: UkraineInvest serves as one-stop shop for investors; the agency might be transformed for Reconstruction purposes</p>	<p>Further develop Diia.Business as a one-stop-shop and key repository of information for SMEs (e.g., exports block, legislation updates)</p> <p>Expand the mandate of Investment Promotion Agency to proactively solicit FDIs for Reconstruction investment projects</p>
Infrastructure	<p>Time to get electricity, days</p> <p>Ukraine: 267, Poland: 113, South Korea: 13</p>	<p>Shortage of distribution capacities due to former inefficient regulations</p> <p>Allocation of unused capacities: e.g., capacity is blocked for an enterprise that is not active</p> <p>Regulations delaying the process: need to receive an approval for external wiring works from landowners, limited audit of land</p>	<p>Simplify the process of land allotment for connection to electricity network</p> <p>Consider including the charge for guaranteed capacity to the tariff, to incentivize disconnection from unused capacities</p> <p>Finalize the audit of land, develop plans of territories development from the standpoint of electrification</p>
Employing workers	<p>Notice period for redundancy dismissal for a worker with 1 year of tenure, weeks of salary</p> <p>Ukraine: 9, Poland: 4, South Korea: 4</p>	<p>Outdated labor legislation leading to complicated hiring and firing process, regulation of overtime, etc</p> <p>Ineffective control of legislation execution and weak infrastructure for employee rights protection</p> <p>Significant mismatch between labor supply and demand, professional education does not correspond to economy needs</p> <p>Focus on mostly reactive support of unemployed through financial help, rather than proactive investment into reskilling and integration of people into the workforce</p>	<p>Establish a program aimed at incentivizing new business creation (e.g., financing to start a business, etc.)</p> <p>Increase labor mobility through (a) funding the transfer to other regions for job purposes, (b) simplifying regulations for foreigners' employment in Ukraine and Ukrainians' employment abroad</p> <p>Launch PPP re-employment program with reskilling part (physical and financial infrastructure, employers funding matching), up to 1 mn people coverage</p> <p>Transform Employment agency to re-employment focused organization</p>
Reconstruction procurement	<p>Local businesses are likely to face barriers while participating at the Reconstruction projects: e.g., access to financing, infrastructure, labour, etc.</p>		<p>Establish procurement practices for Reconstruction projects in line with EIB guidelines (i.e., 15% margin of preference for goods manufactured or produced in the country)</p>

1. According to Foreign Investor Survey 2020, conducted by EBA, Dragon Capital and CES
 Source: based on extensive discussions with government and industry experts within NRC Working Groups

National program #6: Providing competitive access to funding is critical enabler for economic development



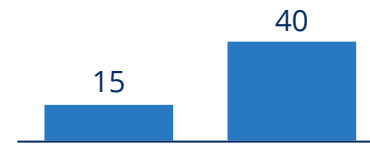
Potential mechanisms to cover the funding needs

- Direct grants
- Credit guarantees
- Interest rate reduction (including loans to start a new business)

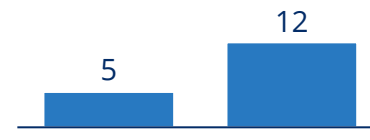
1. Assumption based on the Survey conducted by Gradus and Kyiv School of Economics
 2. Assumptions: 31% share of SME loans in total loans; 30% of SME loans are covered by credit guarantee; guarantees cover 80% of the loan volume

Post-war access to funding

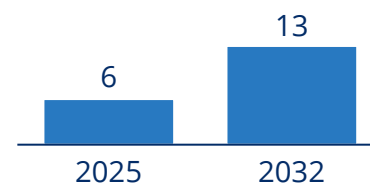
Loans / GDP, %



SME loans / GDP, %



Mortgages / GDP, %



Key initiatives

Consider a systemic solution to **resolve non-performing loans** (e.g. "Bad Bank" option)
Raise banking capital to support the growth of lending (incl. post-war recapitalization)
 Attract **private capital into banking system**, incl. privatization of SOBs

Funding needed, \$bn

~15-20

Provide **credit guarantees for SME loans within priority sectors**

~4

- up to 80% of SME loan amount to be guaranteed
- ~20-30% of SME loans to be supported in the priority sectors (e.g., agri and wood processing, construction)







Introduce long-term covered financing / bonds (similar to Pfandbriefe) supported IFIs and institutional investors to grow mortgages portfolio

~40

Additional measures to be considered:

- Introduce war partners' sovereign guarantees and/or insurance, backed by partners to facilitate private investment post-war
- Adopt regulatory measures to attract deposits (e.g., raise deposit guarantee ceiling, Introduce pension accounts)
- Establish development bank
- Develop capital market (incl. Pension system reform, Program #15)

National program #8: Grow value adding sectors of economy by accelerating Ukraine's competitiveness

Sector	Ukraine's competitiveness	Challenges and limitations	Key projects of the National Program	CAPEX, \$ Bn ¹
 Agriculture	<ul style="list-style-type: none"> Land resources Competitiveness, top export positions in crops and some other products 	<ul style="list-style-type: none"> Land degradation Low level of processing Low value added High reliance on bulky imports 	<ul style="list-style-type: none"> Push to develop higher share of processing, esp. in corn (starch, syrup), wheat, sunflower oil (specialty oils), etc. Development of high value-add sectors (e.g. berries, fruits, meat and milk) Irrigation system to boost productivity 	~37
 Metallurgy	<ul style="list-style-type: none"> Vast iron ore resource, suitable for DR-grade products Cost competitiveness, top export positions in semifinished products 	<ul style="list-style-type: none"> Low competitiveness in finished products, net imports in many positions High carbon intensity Assets lost during war 	<ul style="list-style-type: none"> Casting and mills construction/modernization to produce finished products with local demand, incl. from recovery/rebuilding (plate, rail and beam, coated) Push "green steel" value chain: DR-pellet production, DRI/HBI production with switch to H2, EAF/SAF green steel 	~6
 Machine building	<ul style="list-style-type: none"> Asset base in few sectors Educated and cost-competitive labor 	<ul style="list-style-type: none"> Limited technological advancement and export potential 	<ul style="list-style-type: none"> Focus on sectors to satisfy strong local demand, incl. from recovery/rebuilding (transportation, energy, agri) Build auto components hub to nearshore production for EU producers, incl. batteries for EVs 	~4
 Construction and materials	<ul style="list-style-type: none"> Available natural resources (wood, aggregates, ...) Cost-competitive labor 	<ul style="list-style-type: none"> Limited capacity to match post-war recovery demand 	<ul style="list-style-type: none"> Focus on sectors to satisfy strong local demand, incl. from recovery/rebuilding (cement, insulation, glass) 	~1
 Furniture and wood processing	<ul style="list-style-type: none"> Wood resources Cost-competitive labor 	<ul style="list-style-type: none"> Underdeveloped asset base Regulations 	<ul style="list-style-type: none"> Develop transparent EU-compliant wood/timber market Grow competitive furniture production, incl. for exports (clusters in the Western Ukraine) 	~1
 IT	<ul style="list-style-type: none"> Fast-growing exports Educated and cost-competitive talent pool 	<ul style="list-style-type: none"> Low diversification Underinvested start-up space 	<ul style="list-style-type: none"> Grow quantity and quality of talent pool Stimulate start-ups, incl. through funding Attract global R&D, incl. in automotive, telco, health 	~2

1. Include both private and public investment. Majority of investment is expected to be originated by private players once competitive interest rates, war zone insurance and business environment measures are implemented
 Source: based on extensive discussions with government and industry experts within NRC Working Groups

National program #9: Transport infrastructure upgrade serves two goals

– EU integration and interconnectedness within Ukraine boosts economy

Urgent need: De-bottleneck logistics with EU

Long-term goals: Upgrade infrastructure and strengthen interconnectivity

Issue	<ul style="list-style-type: none"> In 2021, Ukraine's main exports (80% by volume) and large share of critical imports (e.g., coal) were going through ports, which are now blocked Even if ceasefire/lift of blockade is achieved, diversification of logistics is of high priority 	<ul style="list-style-type: none"> Transport infrastructure has been heavily underinvested in the past (e.g., 94% of locomotives are 25+ years old, and active road reconstruction has started in 2018 only) On top of that, there are significant damages from war Additionally, Ukraine is a large country, and negative impacts of poor infrastructure are amplified
Solution	<p>Extending throughput capacity on the borders with EU:</p> <ul style="list-style-type: none"> Construction of additional rails to the EU border and Danube to expand multimodality with EU railways and Danube ports Construction of EU cross-border agri. storages and terminals Reparation and modernisation of railway sorting stations on key routes (particularly export ones) Maintenance of freight car relocation equipment from 1520 to 1435 mm rail track Modernisation of existing EU road border points and construction of additional ones Expansion of throughput of Danube port infrastructure 	<p>1/ Short-term reconstruction and modernisation of infrastructure</p> <ul style="list-style-type: none"> Construction, reconstruction and modernisation of rail tracks and bridges (incl. war damages), ensuring multimodality with Ukrainian ports and EU railways Renewal of railcars and locomotives Construction, reconstruction and modernisation of roads and bridges (incl. war damages), ensuring multimodality with Ukrainian ports and railway Reconstruction of damaged by war airports <p>2/ Long-term reconstruction and modernisation of infrastructure</p> <ul style="list-style-type: none"> Construction, reconstruction and modernisation of rail tracks and bridges (incl. electrification), ensuring multimodality with Ukrainian ports and EU railways Renewal of railcars and locomotives Construction, reconstruction and modernisation of roads and bridges, ensuring multimodality with Ukrainian ports and railway Construction of public green charging power stations (incl. grid update) <p>3/ Construction of high-speed rail Kyiv–Warsaw to expand multimodality with EU railways</p>
Enablers	<ul style="list-style-type: none"> Alignment of infrastructure sector regulation with the EU acquis by developing and adopting needed laws, regulations, frameworks, standards Adoption of regulations needed to create an attractive environment for private investors e.g., potential compensations, insurance Continuation of launched before the war infrastructure sector modernisations, including road safety, digitalisation, tolling Optimisation and making transparent tariffs used for infrastructure utilization Stimulation of multimodal transportation by developing control and regulatory measures 	

Cost >\$2 Bn USD¹

>\$114 Bn USD²

1. Construction of the Danube-Black Sea deep navigation to be estimated when Romanian authorisation is obtained

2. Railway long-term investments not included (\$30-40 high-level estimate), to be more accurately estimated

National program #10: Modernization of regions and housing, incl. large-scale energy efficiency program, is a strategic priority

Large-scale energy efficiency



Energy efficiency improvement of buildings

~\$60 Bn

incl. \$1 Bn for localization of materials production



Modernization and optimization of heating (district and individual)

~\$26 Bn

incl. \$18 Bn for individual heat pumps



Modernization and optimization of heat distribution network

~\$3 Bn

Better buildings and new urban planning



New housing in accordance with urban planning best practices

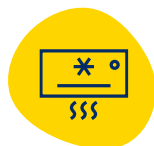
~\$41 Bn

incl. temporary housing and re-build of damaged housing



Capital repairs of housing stock

~\$45 Bn



Piloting near-zero energy buildings and centralized cooling

~\$3 Bn

Other infrastructure modernization



Drinking water and wastewater treatment modernization

~\$42 Bn

incl. \$11 Bn for building new networks to provide wider access



Modernization and electrification of urban transport

~\$2 Bn



Other priority programs










~\$8 Bn

incl. \$1.7 Bn for diversification of economy and improvement of infrastructure of coal mining “monocities”

1. Add-on effect after decrease in demand due to energy efficiency modernization of buildings is taken into account

Source: based on extensive discussions with government and industry experts within NRC Working Groups

National program #11: Modernization of social infrastructure

Project	Scope	Required investment
 Modernizing optimized social infrastructure to achieve high energy efficiency and accessibility standards	Depends on target network configuration	~\$29 Bn
 Building new social infrastructure in accordance with high energy efficiency and accessibility standards to develop the optimal network of social infrastructure	Depends on target network configuration	~\$2.4 Bn
 Repairing damaged infrastructure for provision of vital social services (healthcare, pre-school and school education, social protection and administrative services)	33% of damaged infrastructure	~\$0.6 Bn
 Preserving lightly-damaged non-critical infrastructure (higher education, sport, culture, part of administrative buildings)	12% of damaged infrastructure (463 objects)	<\$0.1 Bn
 Modeling optimal network of social infrastructure	Development of geodata system to define target network for social infrastructure	<\$0.1 Bn
 Post-war: repairing / rebuilding non-critical infrastructure , that was preserved and fits into optimal network of social infrastructure	Depends on target network configuration	~\$0.6 Bn
 Build out of development centers for children and youth	Private schools (25), creative economics centres (10), centres for patriotic education (25), science museums (35)	~\$0.6 Bn
 Build out of infrastructure for industrial parks	~60 parks	~\$0.6 Bn
 Develop special PPP program at government level with respective advantages for private investors	Covering healthcare, education, sports	TBD

National program #12: Improve Education system with focus on key competences and innovation

Primary and Secondary education



- **Short-term response:** introduce relevant solutions (i.e. distant/mobile education applications/facilities) and programs for assessment-based learning gaps compensations
- **Increase quality of education**
 - Improve content and curriculum by full-scale implementation of **NUS reform** to adapt learning program and approach to prepare children to modern challenges developing critical thinking, entrepreneurship
 - Improve performance of the lagging schools by teacher rotation and additional financing
 - Build / Modernize regional schools that can become flagship schools for the region and boost quality of education
- **Project for advancement quality of teachers:** teachers professional development, along with model of financial compensation, career path and growth programs
- Integration of science and innovation to the classroom

Higher and vocational education



- **Higher education system harmonization with European Higher Education Area**
- **Invest in R&D** (grants for researchers, private co-investment in researchers) **and think-tanks on a base of key universities**
- **Co-development of IT programs in TOP-5 universities** together with private sector
- **Reform of vocational education:** curriculum redesign, teachers studies, optimizing network, prioritizing areas, private sector engagement, including integration to IT innovation hubs

Science



- **Performance based grants system for researchers**
- **Creation of Centers of Excellence (science parks)** in cooperation with TOP international centers

Enablers



- **Overarching Digital Education Passport**

Indicator	Current state	2032 indicative target
PISA Math score (secondary education) for Ukraine comparing to 516 for Poland	453	520
Pupils per school	220	300
Ukraine's universities in TOP-1000 QS World University Rankings	6	20
Attractiveness of vocational education for school graduates	35%	55%
Average impact of articles as measured by citations/article	7.7	12.8

National program #13: Upgrade Health Care system, that will help unlock human capital growth

Healthcare network and capabilities



Develop efficient healthcare network

- Implement integrated service delivery model that ensures provision of safe and quality health care services
- Develop and invest in the efficient health care facility network with increasing quality of technologies (e.g. regional facilities with focus on primary care, heart diseases, cancer hospitals)

Strengthen health workforce

- HealthCare education reform, upgrade of health workforce planning
- Improve leadership and management skills of hospitals managers

Promote health data and digital health

- Create drug registers to improve pharmaceutical supply chains and monitoring
- Facilitate telemedicine solutions to enhance preventive & primary care services
- Modernize health care facilities IT infrastructure (computers and internet coverage) to efficiently support 31M+ of already existing clients with signed e-declaration (eID)

Financing



Advance Universal Health Coverage

- Expand Program of Medical Guarantees to ensure adequate access to services and essential medicines; Finalize “pay for performance”; Secure transparent, fair tariffs for services

Subsidize voluntary health insurance for special groups of people (*with prior VHI model design and appropriate accompanying regulation to be approved)

Targeted campaigns



Develop public health programs to address risk factors for diseases and conditions that are leading causes of DALYs

- Nationwide program to address high death rate associated with cardiovascular diseases (#1 cause of DALY in Ukraine) that will include communication campaign, upgraded incentives, proactive outreach, screening programs, etc.
- Develop comprehensive national emergency preparedness and response plan at all levels, including national (multi-sectoral), regional and facility level interventions

Wartime and post-war mental health program to support needs of people affected by the war (at least 60% of Ukrainians need psychological help)

- Rehabilitation services improvement program and integration across health care delivery continuum

Indicator	Current state	2032 indicative target
Increase outpatient expenditures share to the corresponding share in Poland	24%	31%
Optimize hospitals beds per 1000 people (currently 40% more than EU average) to the corresponding UK ratio	6,4	3
Increase satisfaction rate in inpatient care services to the level of satisfaction with family doctors	52%	73%
Increase teleconsultation market penetration in Ukraine to the level of Spain	0,9%	3%
Increase share of GDP allocated to domestic general government health expenditure	3,2%	5%
Decrease share of Out-of-pocket spending on healthcare to the level of Poland	70%	20%
Decrease probability of dying between age 30 and exact age 70 from NCD to the level of Poland	25,5%	17%
Decrease depression rate (the highest worldwide) to the level of UK	6,3%	4,5%

National program #14: Modernize Culture and Sport systems to enable human capital growth

Infrastructure



- **Culture: Develop physical culture infrastructure to promote national identity and cultural diversity** (museums, memorials, centers of cultural services etc.)
- **Culture:** Develop digital culture instruments (e.g. national e-library, issuing e-books, war-time map, e-services, e-archive, e-management)
- **Youth and Sport: Develop sport infrastructure for mass sport and high achievements sport** (e.g. reconstruction of sports boarding schools, realization Presidential “25 sport magnets”, creation of flagship top-class sport objects)
- **Youth and Sport: Develop Active parks across Ukraine with supportive communication campaign** to promote physical activity

Information policy



- Support national, regional and local media and broadcasting, via government emergency funding for resilience period, via state order during reconstruction and modernization
- Provide media literacy education and counter disinformation
- Develop Ukrainian international media

Capabilities



- **Culture: Improve education of specialists through global integration** (e.g. cinema directors and specialist)
- **Culture: Develop ecosystem for culture, memory, heritage and creative industries** with focus on decentralization, art development and education

Financing infrastructure



- **Culture: Increase financing of UCF and / or introduce similar competition based funds** to stimulate independent culture development and creative industries
- **Youth and Sport:** Launch of «club system» of mass sport financing

Indicator	Current state	2032 indicative target
World Happiness Index, rank	108	50
Culture financing as % of GDP	0.3	0.5
Household expenditure on culture, %	0.9	2.9
National Exercise Level, rank	105	35
State expenses per capita, \$	8	58

National program #15: Secure targeted and effective social policy, including returning refugees

Broader social protection measures for Ukrainians

~29%

Pension replacement rate in Ukraine vs **62% OECD average**

~29,5%

Social safety net targeting accuracy¹ for housing benefits, comparing to **52% EU average**

Accumulation System of Compulsory State Pension Insurance

Implement Accumulation System of Compulsory State Pension Insurance to ensure an increase in the level of social protection of people of retirement age

Targeted social help

Targeted universal social help as an alternative to the extensive system of social benefits

Develop capabilities in social sphere

Develop efficient network of social service providers to secure timely assistance in the areas where it is needed
 Carry out a comprehensive digital transformation of all components of the social protection system that will enable budget cost savings
 Secure transparent and efficient use of social funds by analyzing current state of things and addressing the most crucial problems
 Develop holistic policy to secure full inclusion of people with limited abilities into all aspects of social life

Returning refugee diaspora, achieve positive balance of migration

7m IDPs

since 24 February 2022

4.8m

individual refugees from Ukraine recorded across Europe with 15% plan to stay*

Returning and reintegration of refugees, IDPs and veterans

Maintain ties

Return

Re-integrate

Special social protection with financial compensation, access to temporary housing, healthcare, education
 System for transition from military to civil life, support programs for veterans
 “Return talents back” program for entrepreneurs in specific sectors, including for creative industry, up to 50 ths people coverage
 Jobs/internships opportunities
 Dedicated communication campaign aiming to create positive image of returnees
 Digital platform for return and reintegration

Achieve long-term positive balance of migration

Streamline immigration regulation in order to achieve long-term positive balance of migration by attracting talented people to Ukraine (supported by priority sector transformation and boosting business environment)

1. Percent of the total program spending that goes to the poorest 20 percent of the population