Exploratory Strategic Foresight for Circular Economy in Ukraine

EXECUTIVE REPORT

#2: Future Scenarios for Circular Economy Development in Ukraine
REPORT #2: Scenarios – OUTLINE

Future Scenarios for Circular Economy Development in Ukraine

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1. Background for future scenarios on the development of Circular Economy in Ukraine

The Strategic Foresight project for Circular Economy in Ukraine aims at providing technical support to the Government of Ukraine in conceptualizing and operationalizing a strategic approach towards green recovery and circular economy development through the coherent, evidence-based, and result-oriented green recovery program for inclusive and sustainable industrial development, which is to be led and owned by the Government of Ukraine.

The Foresight project supports the establishment of an enabling environment for the green recovery of the country’s industry, job creation, resilience building, sustained economic growth, and the strengthening of the productivity and competitiveness of priority industrial sectors with high growth potential and investment attractiveness. The efforts to promote a circular economy and strengthen of recycling capacities of the country will focus on capacity building among civil servants and municipalities’ employees as well as contributing to the strategy on CE implementation in Ukraine as a whole and specific supply chains/regions in particular.

A scenario planning approach is proposed to portray alternative futures for transition to a Circular Economy in Ukraine. The scenario methodology draws on a two-by-two matrix approach. The scenario framework draws on two main axes:

**X axis: Circular Economy scope & application:**
- Whole society whole value chain & demand side focus vs.
- Production focus & industrial change

**Y axis: National Circular Economy development path:**
- Ukraine CE is integrated: Full resources for CE with global accession. Focus on full reconstruction vs.
- Ukraine CE is isolated: Limited CE resources for some regions: focus on partial reconstruction

The first axis, X, of the scenario, focuses on the scope of the Circular Economy and its application. On the one extreme of the X-axis, the Circular Economy strategy will have a whole society focus. The second extreme of the X-axis suggests a narrower focus on production and industrial change.

The second axis, Y, of the scenario framework, considers the national Circular Economy development path. One extreme of the Y-axis is where Ukraine restores its economy fully, develops strategies for the adoption of the EU framework and integration into global value chains. General economic prosperity allows the country to dedicate a substantial of resources to the transition to a Circular Economy. The second extreme of the Y-axis considers a partial recovery of the economy where the country concentrates a substantial amount of its resources to maintain basic infrastructures and services. This leaves limited resources available for a Circular Economy with partial recovery of the industrial base and infrastructure.
Given the background above, the cross-fertilization of the X and Y axes with their extremes yields four scenarios focusing on the broad alternatives for the development of the Circular Economy in Ukraine, which include:

- **Scenario 1**: Full scale circular society and globally integrated circular economy (Global Circular Society - GSC)
- **Scenario 2**: Circular society in a local and isolated circular economy (Local Circular Society - LCS)
- **Scenario 3**: Basic circular industry in a local and isolated circular economy (Local Circular Industry - LCI)
- **Scenario 4**: Advanced circular industry in globally integrated value chains (Global Circular Industry - GCI)

The scenarios presented above offer alternative perspectives on Ukraine's path toward green industrial recovery and its transition to a Circular Economy development over a 10-year timeframe. These scenarios outline a range of favourable and unfavourable conditions that may emerge based on the pace of change within the broader context. As a result, they necessitate the identification of a specific set of priorities and strategies. It's important to note that these scenarios are not mutually exclusive. Achieving a full-fledged green industrial recovery and transitioning to a Circular Economy in Ukraine may occur in stages, with an evolution from one scenario to another over time. These scenarios reflect potential paths for Ukraine's Circular Economy development in the context of the availability of resources, aligned with the principles of the Circular Economy. The actual outcome will depend on various factors, including government policies, international cooperation, and the level of resource allocation to circular economy initiatives. See Figure 1 for the scenario framework.

**Figure 1: Scenario framework**

The scenario descriptions involve an overall background to each scenario, a description of the scenario based on the key Circular Economy principles and implications for business and finance, policy and governance, social and eco-cultural actors, as well as urban infrastructure with a discussion on changes and uncertainties involved.
2. Description of the proposed Scenarios for development of CE in the Ukraine

2.1 SCENARIO 1: GLOBAL CIRCULAR SOCIETY - GCS

*Full scale circular society & globally integrated circular economy*

In this scenario, Ukraine fully embraces the Circular Economy (CE) approach, encompassing the entire society and value chain. The country successfully transitions to a prosperous state with a restored economy. The government allocates significant resources to support circular economy initiatives, taking steps towards the adoption of the EU framework and global value chain integration. This scenario represents a vision for Ukraine's green industrial recovery and transition to a CE development. The full Circular Economy approach helps the country to align with the principles of using fewer materials, extending the lifespan of products, regenerating resources, and maximizing material reuse.

2.1.1 Key CE indicators

- **Green recovery**: The CE becomes an integral part of Ukraine's recovery strategy, with a strong focus on reducing material use and regenerating the Earth
- **Investment**: The government allocates a significant portion of its recovery budget to support CE initiatives, including designing infrastructure and products for longevity
- **International Cooperation**: Ukraine actively seeks international partnerships to access expertise, technology, and funding to transition to a Circular Economy and foster regenerative practices
- **Resource regeneration**: There is a strong emphasis on regenerating the damaged land and natural resources, applying regenerative farming practices, and minimizing hazardous materials
- **High-skill workforce**: Education and training programs prioritize CE principles and practices, aiming to create a high-skill workforce capable of implementing these principles effectively

2.1.2 Transformations in CE actors and systems

*Business-Finance change:*

- Businesses across various sectors embrace circular economy principles, leading to increased investment in circular business models as well as sustainable and resource-efficient practices
- Access to green finance and circular economy-related funding options becomes readily available, supporting the transformation of businesses toward circular models
Policy-Governance change:

- The government introduces comprehensive policies and regulations that encourage circular practices, including tax incentives and sustainability standards
- Collaboration with the EU and international organizations on Circular Economy initiatives and knowledge exchange becomes a priority

Tech Innovation change:

- Ukraine experiences a surge in research and development activities related to circular practices, technologies, resulting in the emergence of innovative solutions for circular product design, product durability, repairability, sharing and reuse, product remanufacturing and refurbishing, waste reduction and recycling
- Circular Economy-related start-ups and businesses thrive, supported by a favourable policy and funding environment

Social-Eco-Cultural change:

- A cultural shift occurs, with the public actively participating in sustainable consumption practices and recycling
- Environmental awareness and sustainability become integral parts of the national identity, shaping societal values and norms

Urban-Infrastructure change:

- Cities invest in smart waste management systems, leading to efficient recycling and reduced waste generation
- Urban planning integrates circular principles, leading to sustainable architecture and transportation solutions

2.1.3 Key Product Value Chains

In this scenario, all the product chains will align with Circular Economy principles, emphasizing resource efficiency, waste reduction, and the regenerative use of materials. The government's commitment to circular policies and international cooperation will be instrumental in driving these transformations, fostering sustainability and resilience in the Ukrainian economy. Below is how each of these product chains may evolve within this scenario:

Construction and Buildings:

- The construction waste of estimated 10 million tonnes presents an opportunity for resource recovery. Circular principles, including the reuse and recycling of construction materials, will be prioritized in the rebuilding program.
- Public procurement programs will favour suppliers and contractors who adhere to circular construction practices.
• Socio-eco-innovation in construction components, such as modular and sustainable building materials, will become more prevalent.
• "Lifetime design for disassembly" will be a key concept in construction, ensuring that buildings can be deconstructed, and their components reused or recycled at the end of their life cycles.

Food, Water, and Nutrients:

• With one-third of land contaminated and grain export disrupted, a "food systems" approach will be crucial. This approach aims to reduce waste, regenerate land and ecosystems, and promote healthy diets.
• Circular agriculture practices will prioritize reducing waste and pollution while regenerating the land.
• Emphasis on sustainable and local food production and distribution will reduce reliance on global supply chains.

Textiles:

• Lifetime design principles and Extended Producer Responsibility (EPR) will be essential in the textiles industry to reduce waste and pollution.
• Sustainable fashion and the promotion of "pre-loved" clothing platforms will help shift away from the extractive single-use model.
• Circular fashion will consider the social and cultural role of clothing and emphasize international trade and supply chain sustainability.

Plastic and Packaging:

• Synergy between manufacturers, distributors, retailers, consumers, waste managers, and government will be crucial in tackling the plastic and packaging issue.
• The reduction of single-use plastics will extend into various supply chains, including food, where packaging is integral to material management.
• Promoting "materials literacy" among households will enhance waste sorting and recycling efforts.

Electronics and ICT:

• The rapid innovation and obsolescence in the electronics and ICT sector will necessitate a Circular Economy approach.
• EU sector regulation, including "take-back" requirements, harmonization of specifications, and coordination among stakeholders, will be further developed.
• Products like the "Fair-phone" represent a move towards more sustainable electronics and consumer responsibility.

White Goods/Household Appliances:

• The service economy and resource sharing will play a significant role in this sector. Partnerships between government, industry, distribution, designers, and managers will drive the transformation.
• Sustainable design and extended product lifecycles will be prioritized.
Batteries and Vehicles:

- Extended Producer Responsibility (EPR) and leasing models for vehicle batteries will promote responsible disposal and recycling.
- The expansion of electric vehicles in post-conflict reconstruction will require environmental regulation and planning for disassembly and recovery.
- Circular strategies will be employed in the automotive industry to minimize environmental impact and ensure responsible handling of hazardous substances.

2.1.4 Pros and Cons of the scenario

Pros

- Strong focus on reducing material use and regenerating resources
- Significant government investment in CE initiatives
- Actively seeking international partnerships for expertise, technology, and funding
- Emphasis on creating a high-skill workforce in CE principles
- Resource regeneration and regenerative farming practices
- Reduced hazardous materials use
- Enhanced global value chain integration
- Strong emphasis on sustainability and environmental awareness
- Circular principles integrated into all aspects of society and value chain

Cons

- May require substantial financial resources.
- The transition may face resistance from some sectors
- International partnerships might require compromises and negotiations
- Educational and training programs can be resource-intensive
- Possible resistance to change within national and local industries and among the public
- The adoption of circular principles may require a change in societal values and norms, which could take time.
In this scenario, Ukraine is committed to the Circular Economy with a holistic approach, covering the entire society and value chain. However, the country continues to divert significant resources toward stability and maintaining its basic infrastructure and services. The Circular Economy development efforts are limited to certain regions and localities of the country. Despite resource constraints, good practices of circular economy will be demonstrated in those regions with the support of international organizations and cooperation with the EU. While the full application of circular principles is challenging, there is a commitment to using fewer materials, extending product lifespans, and maximizing material reuse where possible. The Circular Economy will remain as an overall aspirational goal for Ukraine.

### 2.2.1 Key CE indicators

- **CE resources:** Given budget constraints caused by the war, the government is compelled to divert most resources toward stability, reconstruction, and basic services.
- **Demonstration regions:** To illustrate the benefits of circular economy principles, the government selects specific regions or localities to serve as examples of sustainable practices, focusing on material efficiency.
- **International support:** International organizations and partners provide assistance in these demonstration regions, helping showcase the value of using fewer materials and regenerating resources.
- **CE goals:** While circular economy principles are embraced in these regions, they remain aspirational goals for the rest of the country due to resource limitations, particularly in terms of materials.

### 2.2.2 Transformations in CE actors and systems

**Business-Finance change:**

- Resources for circular economy transformations are limited with a focus on certain regions of the country leading to disparity with successful demonstrations in some sectors and limited transformation in others.
- Some international organizations and NGOs provide funding for isolated circular economy projects.

**Policy-Governance change:**

- Despite resource constraints, the government introduces policies that support circular society and economy practices, but the enforcement may be weak in some areas.
- International collaboration on circular economy exists, but is challenging and on a limited basis.
**Tech Innovation change:**

- Innovation and research activities related to circular technologies and practices continue in the regions with relative economic and social stability
- Circular Economy-related technology developers, start-ups and businesses struggle to secure funding in the parts of the country which are less stable

**Social-Eco-Cultural change:**

- Public awareness of circular economy principles remains high in the stable regions
- Sustainable practices are adopted in isolated pockets, driven by civil society and environmentally conscious individuals

**Urban-Infrastructure change:**

- Limited resources and international cooperation are directed to the circular practices in cities in the stable regions, which bring constant urban infrastructure development
- The other regions primarily focus on maintaining essential services and infrastructures

### 2.2.3 Key Product Value Chains

In Scenario 2, where Ukraine is committed to a Circular Economy with a focus on specific regions due to resource constraints, the development of various product chains will be impacted differently. While the circular principles are embraced in selected regions, the challenges arising from resource constraints result in disparities in the development of circular practices. Some product chains may make significant progress, especially in regions with stable economies, while others face limitations due to budgetary constraints. The circular economy in Ukraine remains an overall aspirational goal, and the extent of its implementation varies based on regional circumstances. Below is the possible future state of the product chains:

**Construction and Buildings:**

- The construction waste can still contribute to the rebuilding program for initial Circular Economy demonstrations
- The combined public procurement program will likely focus on sustainable and efficient construction practices in these areas
- Socio-eco-innovation in construction components, such as modular and sustainable building materials, will be more concentrated in the demonstration regions
- "Lifetime design for disassembly" may gain prominence in these areas, but may not be fully implemented across the country
Food, Water, and Nutrients:

- The agricultural sector, heavily disrupted with contamination of land, may find it challenging to transition to circular agriculture practices due to resource constraints.
- A "food systems" approach, emphasizing reduced waste, ecosystem regeneration, and healthy diets, will be challenging to implement comprehensively.
- Efforts to regenerate land and ecosystems might be prioritized in the selected demonstration regions.

Textiles:

- The textile industry's transformation toward lifetime design and Extended Producer Responsibility (EPR) may face obstacles, given resource constraints.
- The social and cultural role of fashion may still be emphasized in regions with stable economies, while international trade and supply chains may remain largely conventional.
- Initiatives like "pre-loved" clothing platforms may find success in stable areas.

Plastic and Packaging:

- Synergy between stakeholders to address plastic and packaging issues, including policies against single-use plastics, may gain traction in the more stable regions.
- The spread of "materials literacy" among households may be more effective in regions with resources available for educational campaigns.
- Challenges persist in adopting circular packaging practices in areas where resource constraints limit the capacity to invest in recycling infrastructure.

Electronics and ICT:

- The rapid growth and obsolescence of electronic devices remain problematic, with challenges in implementing take-back requirements and harmonizing specifications across the country.
- Initiatives like "Fair-phone" may be adopted in more economically stable regions, but they may not be widely accessible due to funding limitations.

White Goods/Household Appliances:

- The service economy and resource-sharing models can thrive in stable regions, similar to the UK's "market transformation" example.
- In regions with more resources, partnerships between government, industry, and other stakeholders may promote sustainability in this sector.
Batteries and Vehicles:

- EPR and leasing models for vehicle batteries may find acceptance in areas with better economic stability, especially for larger electric vehicles.
- The expansion of automotive disassembly and recovery is more likely in regions that can allocate resources to environmental regulation and logistics planning.

2.2.4 Pros and Cons of the scenario

Pros

- Demonstration of good practices in CE
- International support for circular economy projects
- Maintaining a focus on overall CE transformation as an aspirational goal
- Resource allocation for stability and basic services
- Gradual adoption of circular principles

Cons

- Limited resources for full-scale CE implementation
- Limited scope of circular practices due to resource constraints
- Challenges in balancing CE with maintaining stability
- Slow progress in transitioning to a full-scale circular economy
- Potential disparities in CE development
- Limited societal and economic benefits of CE in the short term
2.3 SCENARIO 3: LOCAL CIRCULAR INDUSTRY - LCI

Basic circular industry in a local and isolated circular economy

In this scenario, Ukraine's focus is primarily on a narrow scope of circular economy initiatives related to production and industrial change. Limited access to the global value chains and the economic system leads to a substantial allocation of resources to provide stability to the economy and society. Hence, Ukraine's focus narrows to specific industries and production-related circular initiatives due to resource limitations. Circular Economy transition is observed in a few industries of the economy without a widespread adoption of the circular society principles. While full application of circular principles is challenging, there is a commitment to extending product lifespans and maximizing material reuse within the constraints of the economy.

2.3.1 Key CE indicators

- **Resource allocation**: A significant portion of the budget is allocated to provide stability and maintain essential services, with a focus on repairing infrastructure and industries to promote longevity
- **Circular adoption**: Only a few key industries adopt basic circular practices, with an emphasis on extending product lifespans and reusing materials
- **Industrial seclusion**: Despite of seclusion from global value chains and markets, there is a focus on getting more value out of materials used in domestic production
- **Limited resource efficiency**: Resource use reduction is modest due to resource constraints, with a primary focus on maintaining stability and basic industrial functionality

2.3.2 Transformations in CE actors and systems

*Business-Finance change:*

- Most of the industrial policy and support mechanisms are directed to the sectors which provide basic infrastructure such as energy, transport, and construction to provide social and economic stability
- Partial industrial circular practices are observed in the stable regions of the country with limited international cooperation and national funding. Resources for circular industrial transformation and innovation are limited

*Policy-Governance change:*

- Circular Economy policies are mostly sector-specific, with limited support for circular practices outside key industries
- The government prioritizes stability over sustainability with limited resources left for circular economy applications in a small number of regions and localities
Tech Innovation change:
- Research, technology advancements and innovation are concentrated on maintaining social and economic security and stability
- Circular innovation lags in many areas

Social-Eco-Cultural change:
- Public awareness of Circular Economy principles is low. These are not the immediate priorities of the society
- Sustainability and circularity practices are limited to niche industries and groups

Urban-Infrastructure change:
- Urban areas receive inadequate infrastructure development, primarily related to maintaining basic infrastructure and services in cities
- Circular practices in cities remain underdeveloped, with limited resources allocated to these initiatives

2.3.3 Key Product Value Chains

In this scenario, Ukraine's capacity to implement Circular Economy principles across various product chains is limited due to resource constraints. The immediate focus is on stability and the repair of essential infrastructure, which may hinder the broader adoption of circular practices. While certain sectors may continue to operate conventionally, the scope for circular innovation and sustainability is curtailed in favour of short-term economic and social security. The future states of various product chains may be impacted as follows:

Construction and Buildings:
- The potential for utilizing the 10 million tonnes of post-conflict construction waste for rebuilding may be underutilized due to resource limitations.
- The combined public procurement program will primarily focus on essential infrastructure repair, with limited capacity for socio-eco-innovation and lifetime design for disassembly.
- A strategic sector transformation will be challenging to achieve, as the focus is on short-term stability rather than long-term sustainability.

Food, Water, and Nutrients:
- The agricultural sector's transition to a circular "food systems" approach, aimed at reducing waste, regenerating land and ecosystems, and promoting healthy diets, may be hindered by resource constraints.
- The focus may be on ensuring food security and stability, with limited capacity for broader circular initiatives.
Textiles:

- The transformation of the textile industry toward lifetime design and Extended Producer Responsibility (EPR) will face obstacles, given resource limitations.
- The social and cultural role of fashion, as well as international trade and supply chains in the industry, may continue to operate conventionally, with limited capacity for circular practices.
- Initiatives like "pre-loved" clothing platforms may struggle to gain widespread traction due to resource constraints.

Plastic and Packaging:

- Synergy between stakeholders to address plastic and packaging issues, including policies against single-use plastics, may face challenges in implementation due to resource limitations.
- The spread of "materials literacy" among households to enable greater waste sorting and recycling may not be fully realized.

Electronics and ICT:

- Rapid innovation and obsolescence in the electronics and ICT sector may persist, with slow progress in implementing EU sector regulation and harmonization of specifications.
- Initiatives like "Fair-phone" and similar projects may have limited reach, particularly in regions with resource constraints.

White Goods/Household Appliances:

- The service economy and resource-sharing models may thrive in regions with stable economies, similar to the UK's "market transformation" example.
- In regions with resource constraints, strategic approaches to promote sustainability may be limited.

Batteries and Vehicles:

- Extended Producer Responsibility (EPR) and leasing models for vehicle batteries, especially for larger electric vehicles, may face resource limitations.
- While automotive disassembly and recovery are well-established, the expansion of these practices may be constrained by the availability of resources and regulatory challenges.

2.3.4 Pros and Cons of the scenario

Pros

- Resource allocation for stability and infrastructure repair
- Efforts to extend product lifespans and maximize material reuse
- Maintaining stability in economic and societal aspects
Cons

- Limited scope of CE practices, and slow progress in adopting CE principles
- Reduced resource efficiency due to resource constraints
- Industrial seclusion from global value chains and markets
- Limited societal and economic benefits of CE practices.
This scenario emphasizes a narrow focus on production and industrial change within the Circular Economy framework. Ukraine experiences stability and economic recovery, but the government's emphasis is primarily on rebuilding the industrial sector. While some resources are allocated to circular society initiatives, the main priority remains in the industrial reconstruction and circularity focusing on economic competitiveness. The country strikes a balance between economic recovery and sustainability by emphasizing the reconstruction of the industrial sector while also promoting circularity.

### 2.4.1 Key CE indicators

- **Balanced investment**: The government allocates resources both for rebuilding the industrial sector and advancing circular practices, recognizing the importance of using fewer materials and extending product lifespans.
- **Economic recovery**: Industrial output increases as a result of the focus on rebuilding, contributing to economic recovery, but efforts are made to minimize material losses.
- **Resource efficiency**: While the primary focus is on industrial reconstruction, resource efficiency is still pursued, albeit to a lesser degree than in Scenario 1.
- **Competitiveness**: The government aims to enhance the competitiveness of Ukrainian industries by integrating them into global value chains and implementing circular principles.
- **Sustainability**: Circular principles are incorporated into the industrial reconstruction process, emphasizing the importance of minimizing material use and regenerating resources while pursuing economic recovery.

### 2.4.2 Transformations in CE actors and systems

**Business-Finance change**

- Industries with a high potential for circular practices in Ukraine, such as manufacturing and renewable energy, undergo significant transformation.
- Investment and funding opportunities are concentrated in sectors aligned with industrial reconstruction.

**Policy-Governance change**

- The government implements policies that promote resource-efficient production, focusing on improving the competitiveness of key industries.
- Circular economy policies remain sector-specific, targeting industrial transformation rather than broader societal change.
Tech Innovation change

- Innovations predominantly revolve around improving industrial processes, waste reduction, and resource optimization.
- Research and development efforts focus on solutions that enhance the productivity and sustainability of industries.

Social-Eco-Cultural change

- The cultural shift toward sustainable consumption and recycling is less pronounced than in Scenario 1.
- Awareness of circular principles is concentrated within industry and business circles.

Urban-Infrastructure change

- Urban areas witness significant infrastructure development primarily in line with industrial reconstruction, such as manufacturing zones and logistics hubs.
- Circular practices in cities are more industry-centric, focusing on industrial waste management.

2.4.3 Key Product Value Chains

In the Global Circular Industry scenario, Ukraine focuses on a balanced approach between industrial recovery and circularity. The emphasis on economic competitiveness and sustainability creates a significant transformation in various product chains. Circular principles and resource-efficient practices will be integrated into these industries, focusing on reducing waste, pollution, and material losses while ensuring economic recovery and competitiveness. Initiatives like 'pre-loved' clothing platforms, sustainable electronics, and resource-sharing models will contribute to a more circular and sustainable economy. Below is how the product chains may evolve in this scenario:

Construction and Buildings

- The 10 million tonnes of post-conflict construction waste may play a crucial role in the rebuilding program, with an increased emphasis on using these materials efficiently to reduce waste and minimize resource use.
- The combined public procurement program may become a catalyst for socio-eco-innovation in construction components, with a focus on designing products for disassembly and recycling to promote a strategic sector transformation.
- The construction sector may experience a significant transformation, adopting circular practices to ensure economic competitiveness while promoting sustainability.

Food, Water, and Nutrients

- The 'food systems' approach will continue to be vital, as Ukraine seeks to reduce waste, regenerate contaminated land, and improve diets.
- Resource-efficient and sustainable agricultural practices may be adopted to address the challenges posed by contamination, aiming to restore ecosystems and ensure food security.
- Circular principles may be incorporated into the entire food supply chain, with a focus on minimizing waste and pollution.

**Textiles**

- The textile industry may undergo a transformation, focusing on lifetime design and Extended Producer Responsibility (EPR) to promote sustainability while ensuring economic competitiveness.
- Efforts to reduce pollution and waste in the industry will become a priority, aligning with Ukraine's dual objectives.
- Initiatives like 'pre-loved' clothing platforms may gain traction, aiming to transition away from the extractive single-use model and promote sustainability.

**Plastic and Packaging**

- Synergy between stakeholders to address plastics in packaging will be critical, with a focus on reducing waste and improving material management.
- Policies against single-use plastics may be expanded to encompass various supply chains, especially food.
- Household engagement in 'materials literacy' may play a significant role in promoting waste sorting and recycling, enhancing material management across the board.

**Electronics and ICT**

- The rapid growth and innovation in the electronics and ICT sector may be addressed through EU sector regulation and harmonization of specifications, supporting economic competitiveness.
- Initiatives like 'Fair-phone' and similar projects may thrive, showcasing possibilities for sustainable electronics.
- The focus will be on reducing electronic waste and maximizing product lifespans.

**White Goods/Household Appliances**

- The service economy and resource-sharing models will become more prevalent, aligning with the strategy for market transformation.
- Ukraine may partner with industry, distribution, designers, and managers to promote sustainability while ensuring economic competitiveness.
- Efforts will be made to reduce waste and pollution from household appliances and promote their longevity.

**Batteries and Vehicles**

- Extended Producer Responsibility (EPR) and leasing models for vehicle batteries, particularly in larger electric vehicles, may be adopted to reduce environmental impacts.
The expansion of automotive disassembly and recovery will align with economic recovery, with active regulation and strategic planning for facilities and logistics hubs.

Environmental impacts and hazardous substances will be actively managed, and EPR approaches will be applied to new products or components, ensuring sustainability in the automotive sector.

2.4.4 Pros and Cons of the scenario

Pros

- Balance between economic recovery and sustainability
- Significant transformation in industries with high CE potential
- Enhanced economic competitiveness
- Resource efficiency to minimize material losses
- Integration of circular principles into industrial reconstruction

Cons

- May require significant government resources
- Focusing on industry might overshadow broader societal change
- Potential disparities in CE development between sectors
- Slow progress in transitioning to a full-scale circular economy
- Challenges in balancing economic competitiveness with sustainability.