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DEPARTMENT OF ECONOMICS AND FINANCE

**Workshop “Blue Economy and Partnership for
Sustainable Development of Ukraine’s Maritime Sector”**

TRANSFORMATION OF THE UKRAINIAN PORT SECTOR IN THE CONTEXT OF THE “BLUE ECONOMY” AND ENERGY TRANSITION

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From maritime romance to the "blue" economy

Traditional Port Economics

- Focus on **efficiency, cargo handling, and profit.**
- Key revenue sources:
 - Port fees and tariffs
 - Cargo handling charges
 - Land leases and logistics services
- Economic impact: creates **direct, indirect, and induced jobs.**
- □ Transition needed: from profit-only model → sustainable growth model.

Odessa environmentalists initiated the international project Aid 4 Ukraine.

Environmentalists warn that without timely algae removal and pollution control, Odessa's marine ecosystem could be seriously threatened, with increasing danger to fish and vacationers.



EXPECTED STAGES OF THE ENERGY TRANSITION

Awareness, knowledge, development of legislation

Technology development and scaling

Technology implementation and system integration

Electrification and synthetic fuels

Final dephosphorization and zero-emission supply chains

Continuous technological development and energy efficiency
improvement

Strengthening the connection between energy flows and sectors



ENERGY IN TOTAL PRIMARY ENERGY CONSUMPTION

Country	1990	2008	2012	2017	2023
Austria	29,0%	29,9%	34,5%	33,2%	38,9%
Bulgaria	1,5%	3,6%	6,7%	7,6%	13,6%
China	4,7%	7,2%	8,4%	12,2%	16,1%
Greece	1,8%	3,9%	8,0%	11,5%	20,7%
Hungary	0,2%	2,5%	3,2%	3,9%	9,5%
Netherlands	0,3%	2,6%	3,4%	4,6%	16,3%
Romania	4,6%	10,8%	10,4%	16,7%	20,6%
Turkey	12,2%	8,2%	12,6%	13,0%	18,6%
Ukraine	1,0%	2,1%	2,1%	3,0%	8,7%

- ◎ **Blue Economy Approach in Ukrainians Port Economy:**
 - Combine **economic performance** with **environmental protection**.
 - Reduce negative impacts of port operations:
 - Air and water pollution
 - Waste discharge
 - Habitat destruction
- ◎ **Goal:** Build “**Blue Ports**” — efficient, low-carbon, and eco-friendly.

PORT PROFILE BLOCK DIAGRAM FOR ENERGY SAVING SYSTEM

There is no single "best practice" for these measures. The measures are generally applicable to both inland and seaports.

Electricity demand modeling is applicable to all ports, although the greatest benefits are for ports with developed energy infrastructure, allowing them to optimize energy consumption to reduce future needs for additional infrastructure.

Intelligent lighting may be most appropriate that are already technologically advanced.

Energy storage systems are the most applicable for energy storage. There are a large number of off-the-shelf systems available for purchase at container terminals. This equipment is often supplied as an add-on to new equipment, and retrofitting is possible but difficult.

TIS Group (Odesa terminal) and ABB have partnered to implement a low-voltage grid management solution, reducing peak loads and energy costs.

ABB Group

Status: Implementation is underway.

PORT PROFILE IN THE PORT EQUIPMENT DECARBONIZATION SYSTEM

The proximity of urban residents can drive electrification, with demand for improved air quality and reduced noise pollution resulting from diesel engines.

Larger capital investments in infrastructure and equipment may be commercially unviable for small or remote ports and terminals without external financing.

Ports may be less suitable for electrification due to the potential lack of regional power generation capacity

Regions with less stable power system reliability may require backup generation at the port to support essential equipment (e.g., containerized batteries or hydrogen-based OPS systems rather than large diesel generators).



The mobility and flexibility of port equipment may be reduced by the electrification of infrastructure, so smaller multi-purpose ports with a wide range of cargo needs (and limited fleet size) may be less adaptable.

For ports or terminals with low throughput but high equipment usage and long service life, hybrid drive systems may be more suitable than full electrification.

- Responsibility for port equipment often rests with terminal operators.
- The administration, which most often acts as lessor, can encourage, incentivize, or compel private terminal operators to transition to decarbonized equipment, depending on the powers of the port management and regulatory authorities. Some port authorities may also encourage or implement decarbonization measures for terminal equipment through legislation or concession agreements (with the consent of both parties).
- Some port authorities may also decide to financially support the implementation of decarbonization measures by investing in needed modernization or purchasing new electric equipment for terminals.

According to Ukrenergo report, it is beginning construction of infrastructure to connect the first floating power plant with a capacity of ~250 MW in the Odesa region.

Media reports indicate that similar plants (each with a capacity of ~250 MW) are planned for deployment in the ports of Yuzhny, Odesa, and Izmail.

Proposals from Siemens Energy and Karpowership to deploy floating power plants in the waters of Odesa, Mykolaiv, and Izmail have also been reported.

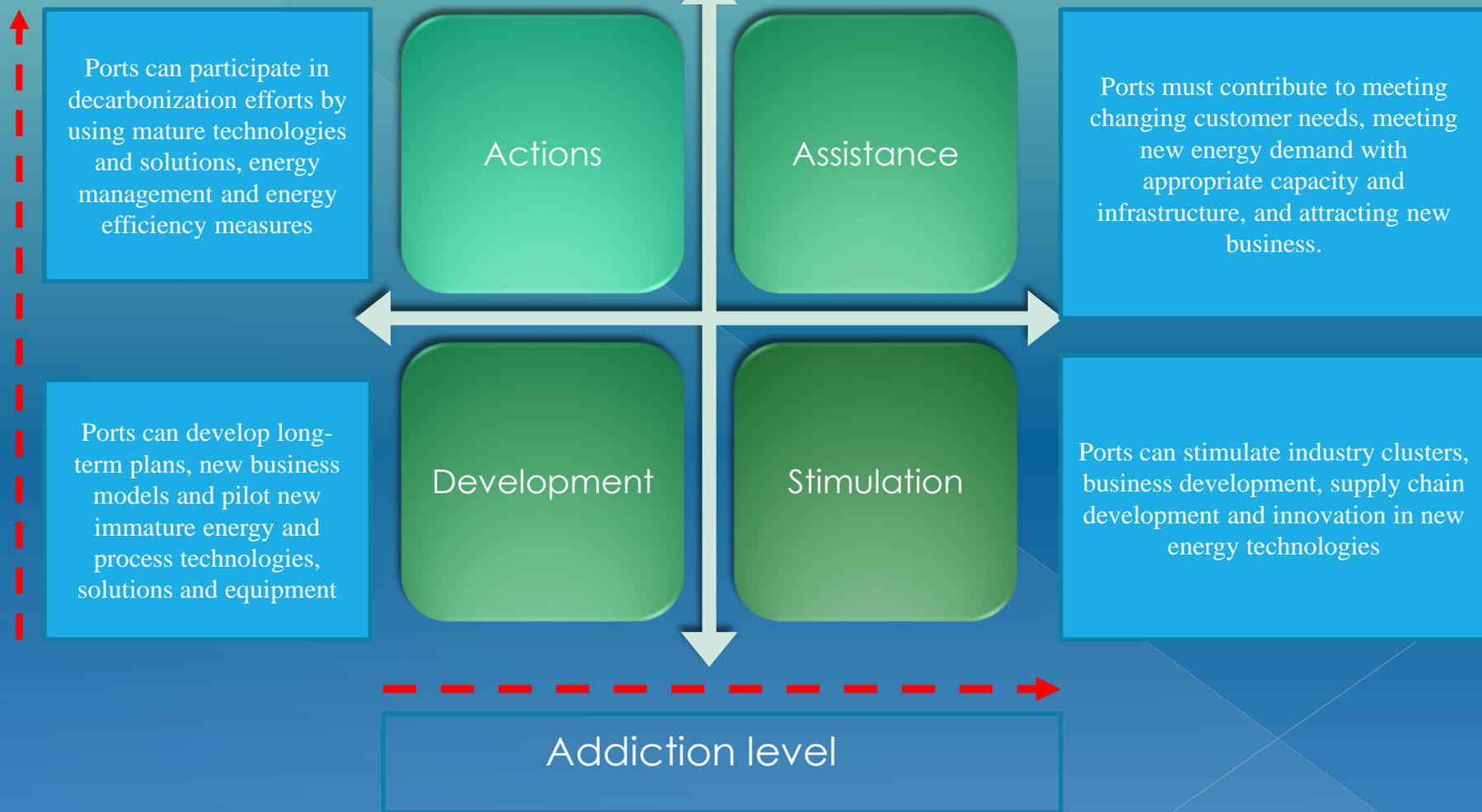
Status: The project is in the preparatory/negotiation phase; the plant's operational status has not yet been confirmed.



IDENTIFICATION OF THE ROLES OF PORT

Maturity level

AUTHORITIES



Challenges

- High cost of green infrastructure
- Need for international cooperation and regulation
- Balancing economic growth with conservation
- Limited access to Blue Finance in developing regions
- Technological adaptation and workforce training

Ukrainian ports are required to comply with general environmental norms and standards, such as emission standards and other requirements that are regulated within the framework of general environmental laws, the legislation on seaports in Ukraine includes regulations aimed at environmental protection, but in this context they cannot be linked to environmental payments and charges.

THANK YOU FOR YOUR ATTENTION

