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ONSHORE POWER SUPPLY (OPS) FOR SOUTH BALTIC PORT AUTHORITIES (2026)

FACTSHEET

QUICK REVIEW

- OPS, also known as shore power or cold ironing, allows ships to connect to the local electricity grid while at berth and switch off onboard auxiliary engines.
- When supplied by renewable electricity sources OPS is becoming a core EU requirement for port decarbonisation and air quality improvement.
- OPS infrastructure supports all vessel fuel types and can become a central component of long-term port decarbonisation strategies.
- Northern European ports are rapidly accelerating OPS deployment.
- Ports should integrate OPS planning with long-term electricity and renewable energy strategies.

TOPIC	OPS STATUS
Technology maturity	High
Infrastructure readiness in Europe	Expanding rapidly
Compatibility with existing fuel systems	Independent of fuel type
FuelEU Maritime compliance potential	Very high
Main environmental challenge	Grid capacity and electricity source
Main investment advantage	Immediate reduction of local emissions in port
Long-term decarbonisation potential	Very high with renewable electricity

CORE INFRASTRUCTURE

- Shore-side electrical connection systems
- High-voltage substations
- Frequency conversion systems
- Cable management systems
- Grid connection upgrades
- Energy monitoring systems
- Safety and grounding systems
- Emergency shutdown systems

INFRASTRUCTURE DEVELOPMENT CHALLENGES

OPS deployment may require:

- Major grid reinforcement
- Renewable electricity procurement
- Coordination with transmission system operators
- Vessel retrofitting for compatibility
- High upfront capital investment

ELECTRICITY PATHWAYS AND COST BENCHMARKS

ELECTRICITY SOURCE	EMISSIONS PERFORMANCE	LIFECYCLE GHG REDUCTION POTENTIAL
Fossil-based electricity	Limited emissions reduction	Moderate
Mixed electricity grid	Moderate emissions reduction	Moderate
Renewable electricity	Very high emissions reduction potential	Very high / near-zero potential

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INTERNATIONAL SAFETY STANDARDS

AREA	MAIN STANDARD
Shore connection systems	IEC/ISO/IEEE 80005 series
Electrical safety	IEC electrical safety standards
Ship safety framework	SOLAS Convention
Port electrical infrastructure	National grid and electrical regulations

INDICATIVE COST POSITION

INFRASTRUCTURE AREA	RELATIVE COST POSITION (2025–2026)
Grid upgrades	High
Shore connection equipment	Moderate–High
Frequency converters	High
Renewable electricity integration	Variable

TYPICAL OPS TECHNICAL REQUIREMENTS

AREA	TYPICAL REQUIREMENT
Voltage	High-voltage shore connection
Frequency	50 Hz or 60 Hz conversion capability
Connection standard	IEC/ISO/IEEE 80005 series
Grid integration	High-capacity electricity supply

EXISTING OPS INFRASTRUCTURE IN THE SOUTH BALTIC REGION

COUNTRY	MAJOR OPS INFRASTRUCTURE	FUTURE OPS DEVELOPMENTS
Lithuania	Initial shore power deployment projects in Klaipėda	Expansion of OPS capacity to support FuelEU Maritime and AFIR requirements
Poland	Shore power projects under development in major ports	Wider deployment in TEN-T ports and passenger terminals before 2030
Germany	OPS infrastructure in major container, cruise and ferry ports	Continued expansion to meet national and EU climate targets
Sweden	Advanced shore power deployment across ferry and passenger ports	Further expansion and integration with renewable electricity systems
Finland	OPS infrastructure in several major ports	Additional capacity and vessel compatibility improvements
Denmark	OPS deployment in major commercial ports	Expansion linked to decarbonisation strategies and AFIR compliance

Contact the DeCoInter project to discuss your port's transition towards alternative fuels and sustainable energy solutions.

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