PRU
PÎRÎ REİS UNIVERSITY

2025

SUSTAINABLE DEVELOPMENT GOALS REPORT

7 AFFORDABLE AND CLEAN ENERGY

SDG 7

Affordable and Clean Energy

2024–2025 Academic Year and 2025 Financial Year



Piri Reis University
sustainability.pirireis.edu.tr

PRU
PÎRÎ REİS UNIVERSITY

PUBLICATION
Piri Reis University
SDG 7: Affordable and Clean Energy Report
Published: December 2025

SCOPE
2024-2025 academic year and 2025 financial year (1 September 2024 – 31 December 2025); ongoing practices are also covered.

COMPANION PUBLICATIONS
Piri Reis University Sustainability Report 2025 and the other 16 SDG reports prepared according to the THE Impact Rankings indicators.

PREPARED BY
Sustainability Research and Application Center
Directorate of Quality and Strategy Development

LAYOUT AND VISUAL DESIGN
Directorate of Information Technologies

CONTACT
Postane Mah. Eflatun Sk. No:8, 34940 Tuzla / Istanbul, Türkiye
bilgi@pirireis.edu.tr · +90 216 581 0050

Contents

01 Piri Reis University at a Glance 3

02 Our Sustainability Approach and Reporting 4

03 SDG 7: Affordable and Clean Energy 5

04 Indicators, Explanations and Evidence 6

05 Our Activities under SDG 7 9

06 Research Projects Related to SDG 7 13

07 SDG 7 Activity Inventory 15

08 Conclusion and Assessment 16

This report presents Piri Reis University's policies, practices, research and activities under SDG 7, structured according to the THE Impact Rankings indicators and supported by evidence. Links in the indicator section lead to publicly available evidence; internal documents are available on request.

7 AFFORDABLE AND CLEAN ENERGY

INSTITUTIONAL PROFILE

Piri Reis University at a Glance

Piri Reis University (PRU) is a foundation university established by the Turkish Maritime Education Foundation (TÜDEV), which was founded in 1993 by leading representatives of the maritime sector with the support of the İMEAK Chamber of Shipping; the University acquired legal personality upon the publication of Law No. 5733 in the Official Gazette on 8 February 2008. Its roots go back to the TÜDEV Maritime Education Centre, which trained 2,034 officers between 1995 and 2012.

Guided by its vision "to be a specialised university that is a pioneer in Türkiye and respected worldwide, adding value to the sector by striving for excellence in education and research in every maritime-related field", PRU explicitly commits in its mission to educating individuals who have embraced the Sustainable Development Goals; "Social Responsibility, Sustainability and Environmental Awareness" and "Respect for Diversity and Human Rights" are among the institution's core values.

The University provides education through its Faculties of Maritime Studies, Engineering, Economics and Administrative Sciences, Law, and Arts and Sciences, its Maritime Vocational School and its Graduate Institute, on the Sea Campus and the Preparatory Campus on the Marmara Sea coast in Tuzla. The Sea Campus was designed as a BREEAM-certified "Green Campus" and features a trigeneration plant, greywater and rainwater recovery systems and seawater-based cooling infrastructure.

PRU is the only Turkish foundation university that is a member of the International Association of Maritime Universities (IAMU). It was granted institutional accreditation under the YÖKAK Institutional Accreditation Programme on 21 March 2025, and its Maritime Simulators Centre was accredited by The Nautical Institute as an approved Dynamic Positioning (DP) Training Centre on 22 October 2024.

Piri Reis University in Numbers

6,330
total students (2025): 2,171 associate degree, 4,004 undergraduate, 155 postgraduate

210
full-time academic staff (+109 hourly-paid lecturers)

168
full-time administrative staff

5 + 1 + 1
faculties, vocational school and graduate institute

15
maritime simulators (including 3 full-mission bridges)

6
research and application centres (PRUSAM, DENEKAM, PUSEM, etc.)

42
student clubs, 1,996 club members

5 + 4
national and international patent applications in 2025

29%
share of women among students placed in 2025-26 (2014-15: 14%)

Source: Institutional Self-Evaluation Report (KİDR) 2025 (as of 31 December 2025) and sustainability.pirireis.edu.tr. The share of women is based on the table of placed students published on the sustainability website.

SUSTAINABILITY GOVERNANCE

Our Sustainability Approach and Reporting

Piri Reis University's 2023-2027 Strategic Plan is structured in alignment with the United Nations Sustainable Development Goals (SDGs). For each SDG, the sustainability website publicly sets out the links with the Strategic Plan objectives (excellence of the learning environment, research quality, industry–university cooperation, institutional culture and becoming the best university in maritime) together with additional actions.

The Sustainability Research and Application Center (PRUSAM), established in 2024, works on energy management, decarbonisation, sustainable port operations and digitalisation in line with Net Zero targets; the Center's regulation lists the preparation of the sustainability report and similar outputs among its duties. The Social Contribution Commission, chaired by the Rector, and the Quality Coordination Office contribute to monitoring sustainability activities and disseminating them across the institution.

The University's Climate Change Mitigation and Action Policy Document (2023-2027) sets out the goal of becoming a carbon-neutral university by 2050. Campus operations are assured through the ISO 50001:2018 Energy Management System (2024-2027), the ISO 9001:2015 Quality Management System and the Zero Waste Certificate (February 2025).

PRU took part in the Times Higher Education (THE) Impact Rankings 2025 with all 17 SDGs and was placed in the 1501+ band overall. Its strongest results were in SDG 14 Life Below Water and SDG 15 Life on Land (401–600), followed by 601–800 in SDGs 6, 8, 12 and 16, 801–1000 in SDGs 5, 9, 11 and 13, 801+ in SDG 2, 1001+ in SDGs 1, 7 and 10 and 1501+ in SDGs 3, 4 and 17. This report series has been prepared separately for all 17 SDGs based on the THE Impact Rankings indicators and is published together with the general Sustainability Report.

Scope of this report

- Reporting period: 2024-2025 academic year and 2025 financial year (1 September 2024 – 31 December 2025). Ongoing practices are also covered.
- Scope: Sea Campus and Preparatory Campus; all academic and administrative units, research centres and student clubs.
- Data sources: activities published on sustainability.pirireis.edu.tr, pirireis.edu.tr and unit subdomains, KİDR 2025, the 2023-2027 Strategic Plan, institutional directives and policies, and final reports of Scientific Research Projects (BAP).
- Structure: Indicators are organised according to the THE Impact Rankings methodology; publicly accessible evidence links are provided under each indicator.

SDG 7 · AFFORDABLE AND CLEAN ENERGY

Energy-efficient campus and clean energy transition in maritime

Managing energy efficiency on its campus through an ISO 50001-certified energy management system, a trigeneration plant and seawater-based cooling, PRU pioneers the energy transition of the maritime sector through research on waste heat recovery on ships, electric boats and hydrogen technologies.

The Sea Campus was designed to co-generate electricity, heating and hot water with a trigeneration plant equipped with 2 × 800 kVA natural-gas engines. Drawing condenser water directly from the sea saves about 40% of electricity compared with a cooling tower (KİDR 2025). A solar hot-water system with 120 collectors is installed on the roof of Block D3, and KNX lighting automation reduces consumption through daylight and motion sensors. A 2024 energy audit by an authorised firm documented a decline in campus consumption from 926 TOE in 2021 to 812 TOE in 2023 and proposed a package of measures, including an 856 kWp rooftop solar power plant, with an estimated reduction potential of about 615.9 tonnes of CO_2 per year.

Through the Green Transformation Platform established with the İMEAK Chamber of Shipping, the Green Fuels and Technologies Session and the Green Transformation in Maritime Summits, PRU informs the sector about alternative fuels and energy efficiency. BAP projects have studied an Organic Rankine Cycle generating electricity from ship exhaust waste heat (Applied Sciences, Q1), hull ducts reducing ship resistance by up to 37-40%, the electrification of small boats (MAR-DEC) and hydrogen-assisted combustion in diesel engines.

22
related activities and practices (all periods)

11
activities in the reporting period (Sep 2024 – Dec 2025)

8
related research projects (BAP, TÜBİTAK, EU)

~40%
electricity saved by seawater cooling

Highlights of the period

- ISO 50001:2018 Energy Management System certificate (12 June 2024 – 11 June 2027) and Energy Policy
- 2024 energy audit: consumption 926 TOE (2021) → 812 TOE (2023); 856 kWp rooftop PV proposed
- Project to calculate the institutional carbon footprint (BAP-A-2025-01-07)
- Green Fuels and Technologies Session (~150 participants) and the 2nd Green Transformation in Maritime Summit
- THE Impact Rankings 2025 SDG 7: 1001+ band

Indicators, Explanations and Evidence

This section summarises Piri Reis University's policies, practices and activities against the indicators of the Times Higher Education (THE) Impact Rankings methodology for SDG 7. Evidence for each indicator is provided with links.

7.2 Energy efficiency measures on campus

7.2.1 Energy efficiency in new buildings

The Sea Campus Block A teaching building holds BREEAM Excellent certification, and Blocks B, C and D hold BREEAM Very Good certification. The campus was commissioned in 2013 in line with green building principles such as energy and water efficiency, recyclable building materials and a seawater-source heat pump.

EVIDENCE

- Green energy: BREEAM certificate – https://sustainability.pirireis.edu.tr/etkinlikler/yesil-enerji-breeam-sertifikasi/
- Green Campus page – https://pirireis.edu.tr/pruda-yasam/yesil-kampus/

7.2.2 Efficiency upgrades in existing buildings

KNX-based lighting automation (daylight and motion sensors, dimming and scheduling), the trigeneration plant and the solar hot-water system on the roof of Block D3 form part of the energy infrastructure of existing buildings. The 2024 energy audit identified further efficiency measures for boilers, ventilation, lighting, pumps and motors and the building envelope.

EVIDENCE

- Internal document: Sea Campus Energy Efficiency Audit Report (January 2024) (available on request)
- Lighting Automation System – https://sustainability.pirireis.edu.tr/etkinlikler/aydinlatma-otomasyon-sistemi-2/
- Trigeneration – https://sustainability.pirireis.edu.tr/etkinlikler/trijenerasyon/
- Solar panels – https://sustainability.pirireis.edu.tr/etkinlikler/gunes-panelleri-2/

7.2.3 Carbon management and emission reduction

The Climate Change Mitigation and Action Policy Document defines the goal of becoming a carbon-neutral university by 2050 and actions to increase energy efficiency and the use of renewable energy. The BAP Infrastructure project "Calculation of the Institutional Carbon Footprint of Piri Reis University" (BAP-A-2025-01-07) aims to establish an institutional emissions inventory.

EVIDENCE

- Climate Change Mitigation and Action Policy Document (2023-2027) – https://sustainability.pirireis.edu.tr/wp-content/uploads/2024/11/Iklim-Degisikligi-Mucadelesi-ve-Eylemi-Politika-Belgesi.pdf
- Scientific Research Projects (BAP) – https://pirireis.edu.tr/hakkimizda/projeler/bilimsel-arastirma-projeleri/

7.2.4 Plan to reduce energy consumption

The University holds a TS EN ISO 50001:2018 Energy Management System certificate (A'ND, certificate no. T50001/64/2024; 12 June 2024 – 11 June 2027). The published Energy Management System Policy commits to the continual improvement of energy performance, the procurement of energy-efficient products and services, and design that takes energy performance into account.

The Energy Management System Policy (POL.KLT.10, 2 January 2024) commits to legal compliance, continual improvement of energy performance, procurement of energy-efficient products and services and design that takes energy performance into account; it is published on the SDG 7 page of the sustainability website.

EVIDENCE

- Quality Certificates: ISO 9001, ISO 50001, Energy Policy – https://pirireis.edu.tr/hakkimizda/kalite/kalite-sertifikalari/
- News: ISO 50001 certificate obtained (25 September 2024) – https://pirireis.edu.tr/haberler/piri-reis-universitesi-iso-50001-belgesini-aldi/
- ISO 50001 energy management system – https://sustainability.pirireis.edu.tr/etkinlikler/iso-50001-enerji-yonetim-sistemi/
- Energy Management System Policy (POL.KLT.10) – https://sustainability.pirireis.edu.tr/politika/enerji-yonetim-sistemi-politikasi/

7.2.5 Energy monitoring and audits

Within the scope of ISO 50001, energy consumption and significant energy uses are reviewed regularly. Gas consumption and electricity and heat generation at the trigeneration plant are measured regularly.

Under Energy Efficiency Law No. 5627, a detailed energy audit of the Sea Campus was carried out by an authorised firm (fieldwork 1 December 2023 – 31 January 2024, report January 2024). The audit documented a decline in campus consumption from 926 TOE in 2021 to 812 TOE in 2023 and proposed measures, including an 856 kWp rooftop solar power plant, with a reduction potential of about 615.9 tonnes of CO_2 per year.

EVIDENCE

- Trigeneration – https://sustainability.pirireis.edu.tr/etkinlikler/trijenerasyon/
- Quality Certificates: ISO 9001, ISO 50001, Energy Policy – https://pirireis.edu.tr/hakkimizda/kalite/kalite-sertifikalari/
- Internal document: Sea Campus Energy Efficiency Audit Report (January 2024) (available on request)

7.4 Community and clean energy

7.4.1 Energy efficiency education for the community and industry

The Green Fuels and Technologies Session, jointly organised by PRUSAM and the İMEAK Chamber of Shipping on 30 January 2025, reached approximately 150 participants. The "Green Fuels for Green Shipping" workshop of the Faculty of Law and the University of Copenhagen SHOC group (20-21 March 2025) and the 2nd Green Transformation in Maritime Summit, held on campus on 24 December 2025, addressed alternative fuels and net zero emission targets.

Students of the Maritime Vocational School's Hybrid and Electric Vehicles programme visited the EV Charge Show.

EVIDENCE

• "Green Fuels and Technologies Session" jointly organised by the İMEAK Chamber of Shipping and Piri Reis University (30 January 2025) – https://sustainability.pirireis.edu.tr/etkinlikler/imeak-deniz-ticaret-odasi-ve-piri-reis-universitesi-ile-ortaklasa-organize-edilen-yesil-yakitlar-ve-teknolojileri-oturumu-2/

• Green Fuels for Green Shipping workshop (20-21 March 2025) – https://pirireis.edu.tr/haberler/green-fuels-for-green-shipping-sempozyumu-piri-reis-universitesinde-gerceklestirildi/

• 2nd Green Transformation in Maritime Summit (24 December 2025) – https://pirireis.edu.tr/haberler/ii-denizcilikte-yesil-donusum-zirvesi-piri-reis-universitesinde-gerceklestirildi/

• Hybrid and Electric Vehicles and Mechatronics programme students visit EV Charge Show (12 November 2025) – https://dmyo.pirireis.edu.tr/haberler/hibrid-ve-elektrikli-tasitlar-ile-mekatronik-programi-ogrencilerinden-ev-charge-show-ziyareti-2/

7.4.3 Energy efficiency support for industry

Under the sustainability protocol signed with the İMEAK Chamber of Shipping, the "DTO Sustainability Project" is being carried out, sustainability bulletins are prepared for the maritime sector and Green Transformation Platform sessions are organised.

EVIDENCE

• Sustainability protocol with the İMEAK Chamber of Shipping – https://sustainability.pirireis.edu.tr/etkinlikler/imeak-deniz-ticaret-odasi-ile-yapilan-surdurulebilirlik-protokolu/

• Cooperation with the İMEAK Chamber of Shipping focusing on sustainability in the maritime sector: second bulletin – https://sustainability.pirireis.edu.tr/etkinlikler/imeak-deniz-ticaret-odasi-ile-denizcilik-sektorunde-surdurulebilirlik-odaginda-is-birligi-ikinci-bulten/

• University–Industry Cooperation Projects – https://pirireis.edu.tr/hakkimizda/projeler/universite-sanayi-isbirlikleri/

7.4.5 Support for low-carbon start-ups

A battery swapping station patent is an example of low-carbon technologies.

EVIDENCE

• Congratulations: US patent for "A Battery Swap Station" (13 January 2025) – https://denizcilik.pirireis.edu.tr/duyurular/tebrik/

ACTIVITIES AND EVENTS

Our Activities under SDG 7



2nd Green Transformation in Maritime Summit Held at Piri Reis University!

24 December 2025

The 2nd Green Transformation in Maritime Summit, organised by the İMEAK Chamber of Shipping, was held on 24 December 2025 in the Rıdvan Kartal Conference Hall of Piri Reis University. Addressing sustainability, green transformation and carbon-neutral targets in the maritime sector, the summit brought together representatives of the public sector, academia and industry.

SDG 7 SDG 9 SDG 13 SDG 14

Source: https://sustainability.pirireis.edu.tr/etkinlikler/ii-denizcilikte-yesil-donusum-zirvesi-piri-reis-universitesinde-gerceklestirildi/



Hybrid and Electric Vehicles and Mechatronics programme students visit EV Charge Show

12 November 2025 • Maritime Vocational School (MVS)

Our students from the Hybrid and Electric Vehicles and Mechatronics Programmes, accompanied by Lecturer Sefa Merve DURMUŞOĞLU, attended EV Charge Show – Electric Vehicle Charging Technologies and Equipment Fair. Held at the Istanbul Expo Center on 12-14 November 2025, EV Charge Show focuses on electric vehicle charging infrastructure and stands out as the world's largest event in its field. It brings together manufacturers of the hardware and software needed for charging electric vehicles, service providers, solution partners and all stakeholders of the e-mobility ecosystem with public and private sector investors.

SDG 7 SDG 11 SDG 9

Source: https://dmyo.pirireis.edu.tr/haberler/hibrid-ve-elektrikli-tasitlar-ile-mekatronik-programi-ogrencilerinden-ev-charge-show-ziyareti-2/



Electric Vehicle Technologies Event Held at PRU

10 July 2025

The event on "Research and Development of Enabling Technologies for Lightweight Next-Generation Electric Vehicles", organised by the Faculty of Engineering, took place with a presentation by Prof. Dr. Mohammed Saied HAMEN. We thank all participants for their contributions.

SDG 7 SDG 9

Source: https://sustainability.pirireis.edu.tr/etkinlikler/elektrikli-arac-teknolojileri-konulu-etkinlik-prude-gerceklesti/



“Green Fuels for Green Shipping” Workshop Held at Piri Reis University

24 March 2025

The “Green Fuels for Green Shipping” workshop, organised in cooperation with the Faculty of Law and the SHOC (Shipping and Ocean Law Group) working group of the University of Copenhagen, was held at our University on 20-21 March 2025 with Vice-Rector Prof. Dr. Funda Yercan, among others.

SDG 7 SDG 13 SDG 14

Source: https://sustainability.pirireis.edu.tr/etkinlikler/green-fuels-for-green-shipping-calistayi-piri-reis-universitesinde-gerceklestirildi/



“Green Fuels and Technologies Session” jointly organised by the İMEAK Chamber of Shipping and Piri Reis University

30 January 2025 • PRUSAM – Sustainability Research and Application Center

The “Green Fuels and Technologies Session”, jointly organised by the İMEAK Chamber of Shipping and Piri Reis University, was held on Thursday, 30 January 2025, from 14:00 to 17:00 at the Piri Reis University Sea Campus. Held within the Green Transformation Platform Programmes, launched to develop university–industry–public sector cooperation based on maritime energy, environment and sustainability, to produce solutions to sectoral problems and to develop recommendations, the session discussed sectoral innovations, talks with sector representatives, focal points based on the roadmap, and stakeholder solutions.

SDG 7 SDG 13 SDG 14 SDG 17

Source: https://sustainability.pirireis.edu.tr/etkinlikler/imeak-deniz-ticaret-odasi-ve-piri-reis-universitesi-ile-ortaklasa-organize-edilen-yesil-yakitlar-ve-teknolojileri-oturumu-2/



Congratulations: US patent for “A Battery Swap Station”

13 January 2025 • Faculty of Maritime Studies

The patent titled “A Battery Swap Station” by Asst. Prof. Dr. Tolunay KAYAARASI of the Maritime Transportation & Management Programme, Department of Motor Vehicles and Transportation Technologies, PRU Maritime Vocational School, has been registered by the United States Patent and Trademark Office (USPTO).

SDG 7 SDG 9

Source: https://denizcilik.pirireis.edu.tr/duyurular/tebrik/

AVL cooperation summit

10 October 2024 • Faculty of Engineering

The international cooperation established by the Faculty of Engineering in October 2022 with the Graz-based engineering and research company AVL List GmbH under its Partnership Programme continues. Active in development, simulation and testing in the automotive, maritime and energy sectors, AVL develops solutions for greener, safer and more efficient energy generation and mobility. Under the cooperation, the AVL BOOST, AVL CRUISE and AVL FIRE simulation programs have been made available to academics and graduate students.

SDG 7 SDG 13 SDG 17

Source: https://muhendislik.pirireis.edu.tr/etkinlikler/avl-isbirligi-zirvesi/



Green Transformation in Maritime Summit held under the leadership of the İMEAK Chamber of Shipping

2 October 2024 • PRUSAM – Sustainability Research and Application Center

The “Green Transformation in Maritime Summit” was organised by the İMEAK Chamber of Shipping on Wednesday, 2 October 2024, from 09:00 to 16:15. In light of the IMO’s emission reduction targets for 2030, 2040 and 2050 and EU regulations under the European Green Deal such as the Emissions Trading System and fuel taxation, the summit addressed the current situation, challenges and opportunities regarding new technologies, alternative fuels, policies, financing and training in the sector.

SDG 13 SDG 14 SDG 7

Source: https://prusam.pirireis.edu.tr/haberler/imeak-deniz-ticaret-odasi-onculugunde-gerceklesen-denizcilikte-yesil-donusum-zirvesi-duzenlendi/

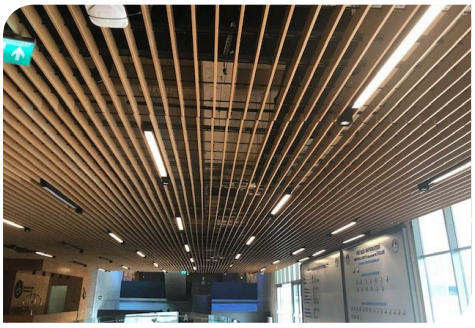


Sustainable campus

Definition of a sustainable campus: a campus that is environmentally conscious, uses resources efficiently, minimises its waste and contributes to the SDGs through interaction with society; it includes renewable energy, water saving, zero waste management and the expansion of green spaces. Image: Block A building.

SDG 7 SDG 12

Source: https://sustainability.pirireis.edu.tr/etkinlikler/surdurulebilir-kampus/



Lighting Automation System

Lighting automation systems can be used in any building as required and are implemented as remote-controlled and smart lighting. With the KNX automation system in operation at our University: • systems operating according to the intensity of ambient light (switching on when daylight decreases); • time-controlled lighting systems such as display lighting.

SDG 7

Source: https://sustainability.pirireis.edu.tr/etkinlikler/aydinlatma-otomasyon-sistemi-2/



Green energy: BREEAM certificate

According to the page, the application for the BREEAM Excellent certificate, which had been awarded to only 365 buildings worldwide, was successful, and the Block A teaching building on the main campus became the 366th building to receive this certificate. Blocks B, C and D on the campus hold the BREEAM Very Good certificate.

SDG 7

Source: https://sustainability.pirireis.edu.tr/etkinlikler/yesil-enerji-breeam-sertifikasi/



Trigeneration

Our University has a trigeneration system. We have 2 natural gas engines with a capacity of 800 kVA each. These engines produce electricity and hot water, and chilled water for the buildings is obtained through absorption chillers. In addition, the cooling water of our gas engines and the condenser sources of the chillers are supplied with water drawn from the sea.

SDG 7 SDG 12

Source: https://sustainability.pirireis.edu.tr/etkinlikler/trijenerasyon/

RESEARCH AND PROJECTS

Research Projects Related to SDG 7

Below are research projects related to SDG 7 that were assessed as highly or moderately relevant to sustainability. They were compiled from final reports of Scientific Research Projects (BAP) and from BAP, TÜBİTAK and EU project records.

BAP-2023-03 · BAP · 2022-2023

Design of a Waste Heat-Driven Organic Rankine Cycle System for Ships

Prof. Dr. Cüneyt EZGİ · Faculty of Maritime Studies

In the context of IMO emission rules, electricity generation by organic and inorganic Rankine cycles driven by the exhaust waste heat of ships' main and auxiliary diesel engines was analysed thermodynamically. Cycle/exergy efficiencies, net power and irreversibilities were calculated for dry, wet and isentropic working fluids; R718 (water), with ODP=0 and GWP=0, was found to be one of the most suitable fluids at high turbine inlet temperatures.

OUTPUTS

Ezgi C., Kepekci H. (2024), 'Thermodynamic Analysis of Marine Diesel Engine Exhaust Heat-Driven Organic and Inorganic Rankine Cycle Onboard Ships', Applied Sciences 14(16):7300 (SCIE, Q1); A chapter was submitted to the Springer book 'Energy Rationality and Management for Decarbonization'

SDG 7 SDG 13 SDG 14

BAP-2020-02 · BAP · 2020-2021

Reducing Ship Resistance by Means of Channels Opened in the Ship Hull

Prof. Dr. Ahmet TAŞDEMİR · Faculty of Maritime Studies

The effect of channels opened in the hull to reduce ship resistance (and hence the required engine power) was investigated through CFD (computational fluid dynamics) analyses and experiments in the AF100 wind tunnel. After the channels were found to increase viscous resistance on NACA12 profiles, the study focused on bluff prismatic bodies. For a prismatic model with three 40 mm-wide channels, total resistance was found to decrease by up to 40% according to CFD and by up to 37% according to the experiments (around 30% on average); numerical and experimental results agreed within a deviation of 6–23%.

OUTPUTS

The report states that work on one publication, one presentation and one patent application is ongoing

SDG 14 SDG 13 SDG 7 SDG 9

BAP-A-2025-01-01 · BAP Infrastructure · 2024-2025 (1st call)

Feasibility and Roadmap for the Electrification of Small Boats for the Decarbonisation of the Sea of Marmara (MAR-DEC)

SDG 13 SDG 14 SDG 7

BAP-A-2025-01-05 · BAP Infrastructure · 2024-2025 (1st call)

Performance and Emission Modelling of a Hydrogen-Assisted Combustion Application in a Diesel Engine

SDG 13 SDG 7 SDG 14 SDG 3

BAP-2025-03-01 · BAP · 2024-2025 (3rd call)

Investigation of the Potential Use of Bio-Based Binders in Sodium-Ion Batteries

SDG 7 SDG 12 SDG 13

BAP-A-2024-02 · BAP Infrastructure · 2024-2025 (2024 BAP Infrastructure call)

Design of a Rim-Driven Propeller Propulsion System for Small Electric Boats

SDG 7 SDG 13 SDG 14 SDG 9

BAP-2024-03 · BAP · 2023-2024 (1st call)

Investigation of an Innovative Solvent-Based Carbon Dioxide Capture and Storage System Using Guanidine- and Imidazole-Based Ionic Liquids for Ships

SDG 13 SDG 14 SDG 7

BAP-L-2025-01-07 · Student BAP · 2024-2025

Design and Thermodynamic Analysis of a Magnetic Refrigeration System for Near-Room-Temperature Applications on a Ship

Student project

SDG 7 SDG 13

ANNEX

SDG 7 Activity Inventory

The table below lists all activities associated with SDG 7 during and before the reporting period that are publicly available on the university's websites. The links serve as evidence.

Date	Activity	Unit	SDG
24 December 2025	2nd Green Transformation in Maritime Summit Held at Piri Reis University!		7 9 13 14
12 November 2025	Hybrid and Electric Vehicles and Mechatronics programme students visit EV Charge Show	Maritime Vocational School (MVS)	7 11 9
10 July 2025	Electric Vehicle Technologies Event Held at PRU		7 9
9 April 2025	Conference on "Eastern Mediterranean Geopolitics" held at Piri Reis University	DETAM – Maritime History Research and Application Center	16 7
24 March 2025	"Green Fuels for Green Shipping" Workshop Held at Piri Reis University		7 13 14
20 March 2025	"Green Fuels for Green Shipping" event by our PRU-ILAWS Club and the Shipping and Ocean Law Group	ÖDEK – PRU-ILAWS Club	13 14 7
20 March 2025	Green Fuels for Green Shipping	Faculty of Law	13 14 7
30 January 2025	"Green Fuels and Technologies Session" jointly organised by the İMEAK Chamber of Shipping and Piri Reis University	PRUSAM – Sustainability Research and Application Center	7 13 14 17
13 January 2025	Congratulations: US patent for "A Battery Swap Station"	Faculty of Maritime Studies	7 9
10 October 2024	AVL cooperation summit	Faculty of Engineering	7 13 17
2 October 2024	Green Transformation in Maritime Summit held under the leadership of the İMEAK Chamber of Shipping	PRUSAM – Sustainability Research and Application Center	13 14 7
	Sustainable campus		7 12
	Sea Water Intake Structure		6 7
	Lighting Automation System		7
	Green energy: BREEAM certificate		7
	Trigeneration		7 12
	Landscape automation		7
	ISO 50001 energy management system		7
	IEES conference		7 12
	Solar panels		7
	Vehicle charging stations		7
	Climate Change Mitigation and Action Policy Document		7 11 12 13 14 15 17

CONCLUSION

Conclusion and Assessment

The ISO 50001 Energy Management System, the Energy Management System Policy, BREEAM-certified buildings and seawater condenser cooling form the institutional framework for energy efficiency. The 2024 energy audit documented a decline in campus consumption from 926 TOE in 2021 to 812 TOE in 2023, and the Green Fuels Session and the Green Transformation in Maritime Summit contributed to the sector's energy transition.

As campus energy use relies almost entirely on natural gas and grid electricity, the most important development area is to implement renewable energy investments such as the 856 kWp rooftop solar plant proposed in the audit. Publishing energy data annually by source and campus and formalising a principle of avoiding carbon-intensive investments are also priorities.



PÎRÎ REİS UNIVERSITY

SDG 7: Affordable and Clean Energy

Piri Reis University · Sustainable Development Goals Report · 2024–2025 Academic Year and 2025 Financial Year

Piri Reis University, Postane Mah. Eflatun Sk. No:8, 34940 Tuzla / Istanbul, Türkiye
sustainability.pirireis.edu.tr · www.pirireis.edu.tr