

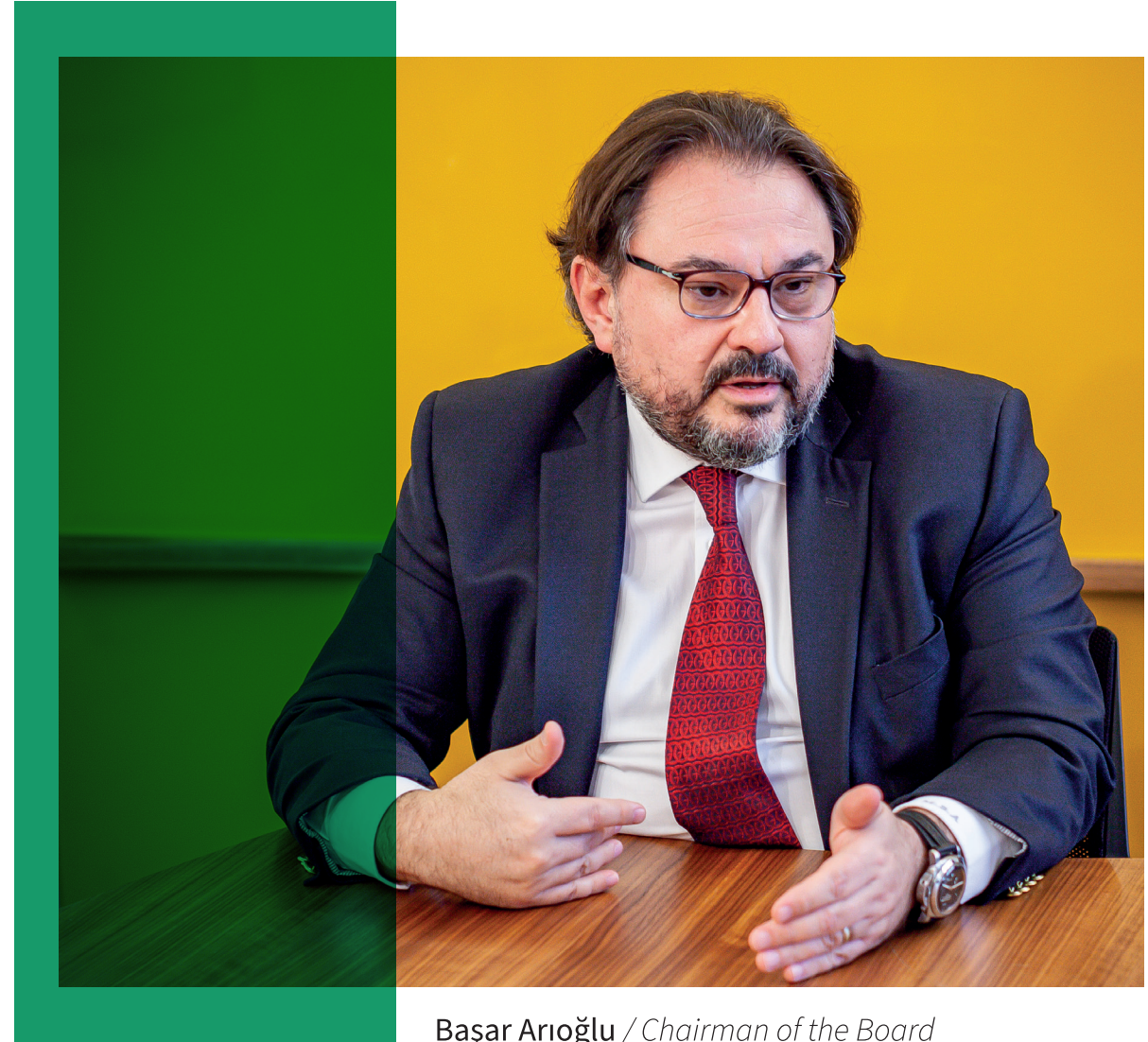
AVRASYA TÜNELİ




A SHORTCUT BETWEEN CONTINENTS



WE'RE PLEASED TO
BRING TO LIFE A
PROJECT THAT
ADDS VALUE TO
ISTANBUL, THE
CAPITAL OF
CULTURE



Başar Arıoğlu / *Chairman of the Board*



Throughout history, countless structures have been built to connect two land masses. While many have succumbed to the passage of time, those that remain continue to inspire as enduring engineering marvels. In designing the Eurasia Tunnel (also known as the Avrasya Tüneli), we didn't just think about the present; we aimed to create a monumental legacy for the future.

The Eurasia Tunnel was carefully planned under the leadership of President Recep Tayyip Erdoğan and the guidance of the Ministry of Transport and Infrastructure. It holds the distinction of being the world's first double-deck highway tunnel connecting two continents beneath the seabed..

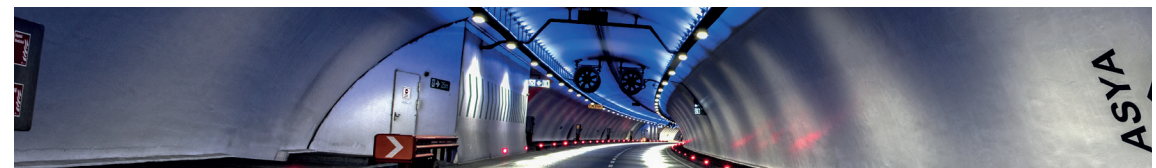
The Eurasia Tunnel was born from a synergy of Turkish engineering and technology, and paves the way for other projects in the sector, serving as a pioneer and an inspiration for the way it was financed through to its construction and operation.

Each phase of the Eurasia Tunnel project was planned with careful consideration of the social and environmental impact, guided by a commitment to sustainability and corporate citizenship. Every aspect of the work took into account the physical, natural, cultural, social, and socioeconomic environment. A remarkable achievement of the project was the total absence of fatal accidents during construction—a testament to the safety measures and training provided. This success was made possible by the extraordinary efforts of 700 engineers and over 12,000 workers, 95 percent of whom were Turkish.

As a result, the Eurasia Tunnel offers a fast, safe, and environmentally friendly transportation alternative in the south of Istanbul. This new architectural symbol has not only alleviated traffic but also added a modern landmark to the city. The use of state-of-the-art technology and high safety standards both during the construction phase and throughout its ongoing operation means the tunnel ensures a quick and comfortable journey for everyone who uses it.

We're pleased to bring to life a project that adds value to Istanbul, the capital of culture. We extend our heartfelt gratitude to all the stakeholders who contributed to the construction of the Eurasia Tunnel, now one of the most beautiful symbols of friendship between Türkiye and South Korea.

AN ENGINEERING MASTERPIECE



OUR VALUES



Reliability



Sustainability



Creating Value



Innovation



Togetherness



Solution Oriented

OUR MISSION;

“Our mission is to provide safe, fast and comfortable transportation that connects continents with intelligent and environmentally friendly solutions.”

OUR VISION;

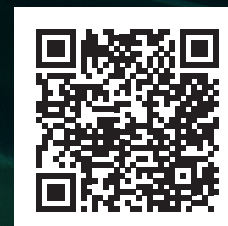
“To continuously increase our contribution to the country’s economy and society with our innovative and sustainable applications, and to be a global pioneer in tunnel operations.”



The Eurasia Tunnel is a landmark achievement in world engineering as the first double-deck highway tunnel to connect the Asian and European continents beneath the seabed. The project was tendered in 2008 to alleviate Istanbul's growing traffic burden, and was undertaken by Eurasia Tunnel Operation Construction and Investment Inc. (ATAŞ), a joint venture between Türkiye's Yapı Merkezi and South Korea's SK ecoplant. Construction began in 2013 and was completed in 3 years and 11 months—8 months ahead of schedule.



The Eurasia Tunnel can be used by cars, minibuses and motorcycles. For detailed information regarding tunnel rules: Scan the QR code.



THE EURASIA TUNNEL; SAVES USERS 1 HOUR PER DAY

The 5.4-kilometer Eurasia Tunnel has been operational since December 22nd, 2016. It serves the high-traffic Kazlıçeşme-Göztepe line in Istanbul, spanning a total of 14.6 kilometers when you include the approach roads. This project achieved numerous industry firsts in both its construction and operation phases, ushering in a new era in global tunneling to inspire projects that otherwise wouldn't have even been attempted.

The opening of the Eurasia Tunnel means travel distances along Istanbul's southern axis have been shortened by approximately 10 kilometers, and a journey between the two continents now takes around 5 minutes. Serving an average of more than 70,000 vehicles per day, the tunnel saves users over an hour on round trips, while also reducing fuel consumption, emissions, and accident-related costs. Based on calculations along the Kozyatağı-Bakırköy corridor, drivers using the tunnel save an average of 23.7 million hours annually, conserve 30,000 tonnes of fuel, cut emissions by 13,000 tonnes, and reduce accident-related costs by 69.3 million vehicle-kilometers. Altogether, this translates to an annual contribution of approximately \$200 million to the national economy. According to an Economic Impact and Return on Expenditure Analysis by Deloitte, the Eurasia Tunnel is projected to deliver total public savings of \$8.6 billion over the contract period—\$7 billion from efficiency gains and \$1.6 billion from external savings. The project is also expected to contribute \$1.7 billion in gross value added, generate an additional \$364 million in tax revenue, and create 53,734 jobs.



More than **70,000**
vehicles per day



Saving **1 hour** per vehicle
per day



30,000 tonnes of fuel
savings per year



13,000 tonnes of
emission reduction per



Annual **70 million** vehicle
km accident cost savings



200 million dollars
contribution to the
economy per year

PROJECT MASTHEAD

Project Name

Istanbul Strait Road Tube Crossing (Eurasia Tunnel) Project

Administration

Republic of Türkiye Ministry of Transport and Infrastructure
General Directorate of Infrastructure Investments (AYGM)

Guarantor

Republic of Türkiye Ministry of Treasury and Finance

Company in Charge

Eurasia Tunnel Operation Construction and Investment Co. (ATAŞ)

Investment Companies

Yapı Merkezi
SK ecoplant

Business and Contract Information

Contract Duration: 28 years 7 months 22 days

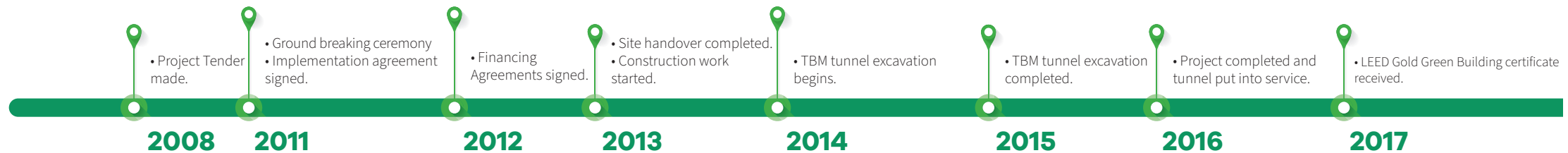
Investment Duration: 3 years 11 months 3 days (47 months 3 days)

Operating Period: 24 years 8 months 19 days

Transfer date: September 22nd, 2041



CHRONOLOGY



European Side

The existing 5.4-kilometer stretch of Kennedy Street was widened, and intersections were improved. To beautify the park along the coastline, 11,642 new trees were planted, and access was improved through pedestrian overpasses and level crossings that meet accessibility standards for disabled people. Bicycle and pedestrian paths were constructed, and play and exercise areas were renewed. The pedestrian area between the city and the sea was extended from 55 meters to 277 meters so the people of Istanbul could connect even further with their coastline.

Passage under the Bosphorus

The most critical phase of the project is the 5.4-kilometer strait crossing. For this section, the world's most advanced tunnel boring machine (TBM) technology, along with other tunneling techniques, was employed. The tunnel comprises 1,672 rings, made up of 15,048 segments crafted from high-strength concrete. To enhance resilience against potential major earthquakes, seismic ring joints were integrated at two separate points. The tunnel also features modern LED lighting, high-capacity ventilation, and a low-slope road design elements that enhance both driving comfort and safety.

Asian Side

Widening roads, improving junctions, and constructing disabled-accessible overpasses along the existing D-100 highway were critical to the project. The Eurasia Tunnel Operation and Maintenance Building, which also includes a museum showcasing the project's construction details, was equipped with sustainable, environmentally friendly, and smart technology. This building was awarded the LEED Gold green building certificate in recognition of its eco-friendly design.



LONG TERM LOAN PACKAGE

Total Financing

\$1,245,121,188

1. Equity

\$285,121,188

2. Loans

\$960 million*

* With a maturity of 18 years, it is the longest-term loan package of any Build-Operate-Transfer infrastructure project in Türkiye.

* With the addition of the South Korean partner's share of equity, 89% is International Direct Investment

Direct Loans

\$550 million

European Investment Bank

European Bank for Reconstruction and Development (EBRD)

Export-Import Bank of Korea

Korean Export Insurance Corporation Secured Loans

\$210 million

Guarantors

Korea Trade Insurance Corporation, Korea Eximbank

Creditors

Sumitomo Mitsui Banking Corporation, Standard Chartered Bank, Mizuho Bank

Loans Guaranteed by Turkish Banks

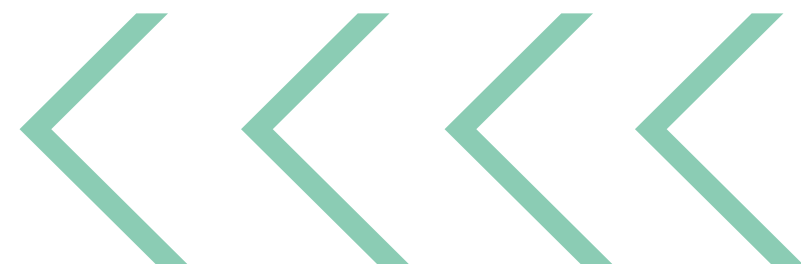
\$200 million

Guarantors

Yapı Kredi Bank, Türkiye İş Bankası, Garanti BBVA

Creditors

European Investment Bank



WINNER OF THE MOST PRESTIGIOUS AWARDS IN THE FIELD



Thomson Reuters Project Finance International
Best Infrastructure Project Finance Deal (2012)



Euromoney
Best Project Finance Deal in Europe (2012)



EMEA Finance
Best Public-Private Partnership (2012)



Infrastructure Journal
Most Innovative Transportation Project (2012)



EBRD
Best Environmental and Social Practice (2015)



International Tunnelling and Underground Space Association
Project of the Year (2015)



ENR
Best Project (2016)



Illuminating Engineering Society
Illuminating Architecture Award (2017)



Korean Society of Civil Engineers
Building Prize of the Year Award (2017)



International Road Federation (IRF)
Global Achievement Award (2017)



New Civil Engineer
Innovation in Maintenance and Renewal (2018)



International Road Federation (IRF)
Project Finance and Economics Award (2019)



Enterprise Asia
International Innovation Award (2020)



New Civil Engineer
Innovation Award in Tunneling Systems, Maintenance and Renewal (2021)



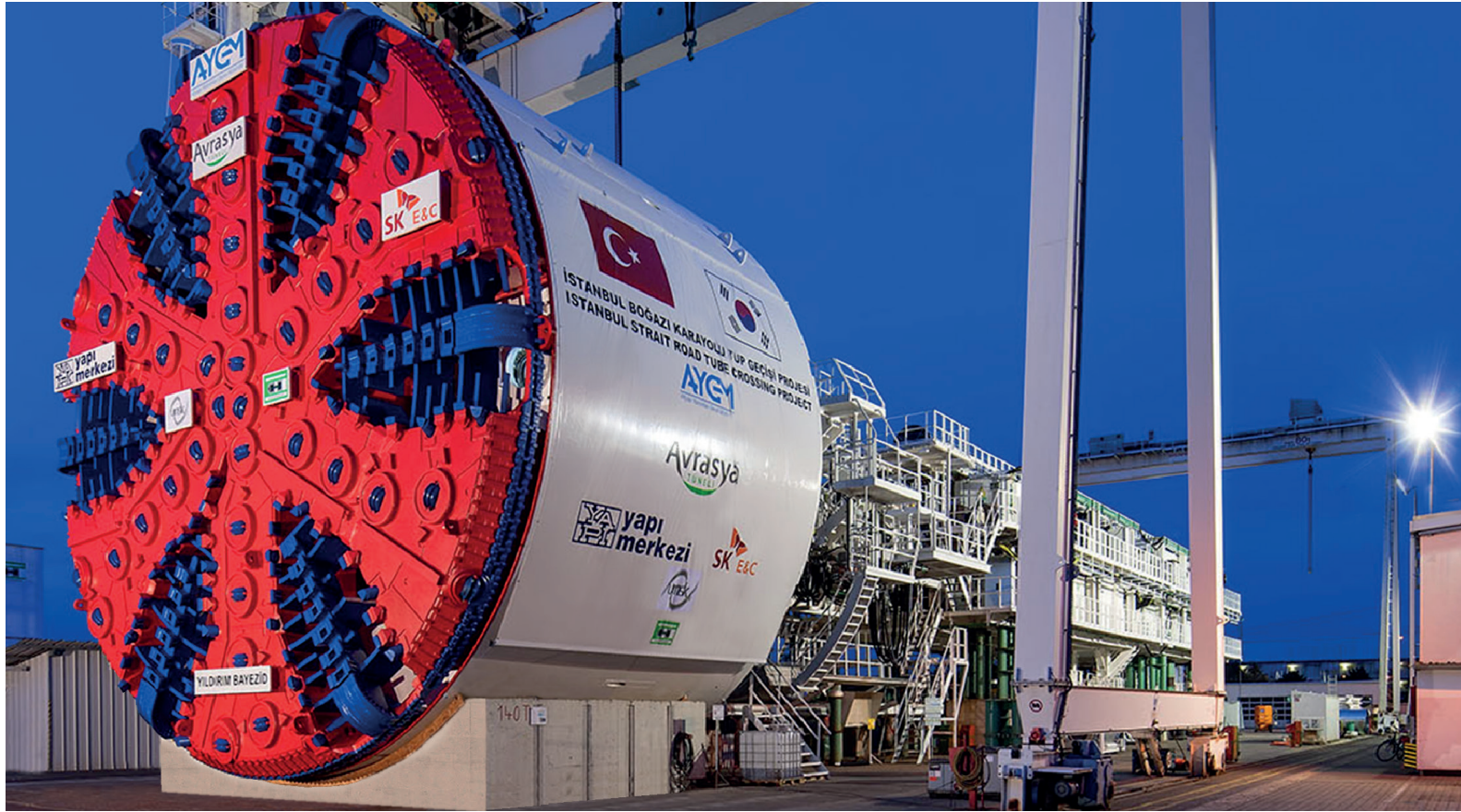
Istanbul PPP Week Awards
Best ESG Project of the Year (2024)

A TURKISH ENGINEERING MASTERPIECE

Thanks to the exceptional synergy between Turkish engineers and cutting-edge technology, the most challenging phase of the project—the undersea highway tunnel—was successfully completed as an exemplar of engineering excellence for the whole world. This section, which reaches a maximum depth of 106.4 meters below sea level, was excavated using a tunnel boring machine (TBM) custom-built for the project by Germany's Herrenknecht AG. From the outset, the TBM was 1st in the world in terms of cutting head power, with 33.3 kW/m², 2nd in design pressure at 12 BAR, and 6th in excavation diameter at 13.7 meters. During the tunnel construction, hyperbaric maintenance and repairs were performed on the TBM four times by specially trained divers under a pressure of 10.8 BAR—a feat that had never been attempted before. All operations were successfully completed, marking a significant achievement in underwater tunneling.

In the tunnel, 1,672 rings 0.60 m thick and 2.00 m wide consisting of 9 segments were used. More than 60,000 tests were carried out to ensure that the segments were long lasting, durable and impermeable.





THE WORLD'S FIRST UNDERSEA DOUBLE DECK HIGHWAY TUNNEL

The Eurasia Tunnel is an exemplary project not only for its design and engineering but also for its human-centered approach. A team of 700 engineers completed it —95 percent of whom are Turkish—along with over 12,000 workers, contributing a total of 14 million man-hours. One of the project's most significant accomplishments is the fact that no fatal accidents or serious injuries occurred throughout the construction process.

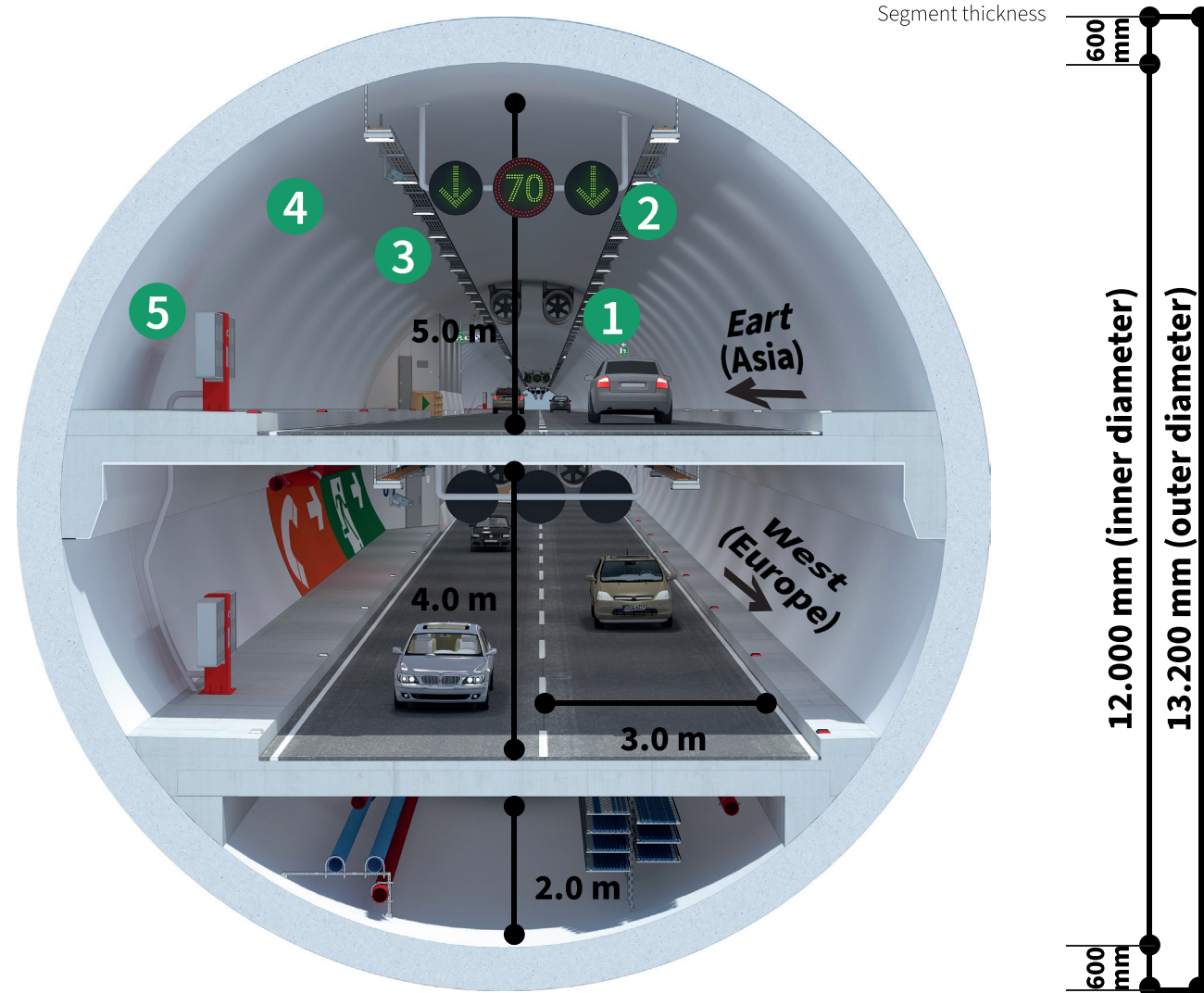
One of the features that makes the Eurasia Tunnel one of the most remarkable structures in the world is the use of seismic joints, which enhance its resistance to earthquakes. The tunnel's design considers earthquake resilience, ensuring it remains fully operational under a “service conditions” earthquake predicted to occur once every 500 years, and structurally sound under a “safety conditions” earthquake anticipated once every 2,500 years.

The Eurasia Tunnel was constructed within a complex and highly seismically active geological region. With a depth of 106 meters, a diameter of 13.7 meters, and a robust, long-lasting construction, it sets a new standard in its field and has garnered worldwide attention. In recognition of its outstanding achievements, the project was honored with the “Best Project of 2016” award by ENR Magazine, a leading authority in the construction sector. Additionally, it's made tunneling history by winning numerous international awards, including the prestigious “Project of the Year” award in 2015 from the International Tunneling and Underground Space Association (ITA), the foremost organization in tunneling.



TUNNEL DESIGN

- 1 Ventilation
- 2 User Information System (VMS+VTS+Public)
- 3 LED Technical
- 4 Lighting CCTV Cameras
- 5 Fire Cabinet



RESPECT FOR ISTANBUL'S HISTORY AND MIMAR SINAN



All design and construction work within Istanbul's historical peninsula, a UNESCO World Heritage Site, was conducted in full compliance with UNESCO's recommendations. As a result, an architectural approach was adopted that harmonizes with the peninsula and its surroundings, preserving Istanbul's iconic silhouette. In the Eurasia Tunnel's interior architecture and lighting design, as well as in the approach arches and portal entrances, motifs and patterns such as the "rosette motif" and "Passion flower"—inspired by the works of Mimar Sinan—were chosen to honor both the city's rich history and the legacy of the renowned architect.

A gradual LED tunnel lighting scheme was introduced - for the first time ever in Türkiye - to provide gradual lighting to for both driver comfort and safety. This design allows drivers to easily adjust to both tunnel lighting and natural daylight at the entrances and exits. In the tunnel's interior architecture and toll booths, where aesthetics were paramount, architectural LED lighting was used to enhance driving comfort and create a new symbol for Istanbul. In recognition of its contributions to lighting design, the Eurasia Tunnel was awarded the Architectural Lighting Award in 2017 by the Illuminating Engineering Society (IES).

Inside the operations and maintenance building, the Dr. Ersin Arıoğlu Eurasia Tunnel Museum offers an in-depth look at the tunnel's construction process. Equipped with state-of-the-art digital mapping technology, virtual reality glasses, interactive touch surfaces, and various narrative techniques, the museum provides an immersive experience for its thousands of visitors. Additionally, it showcases construction artifacts, technical sketches, and source documents related to the project.



CONTROL CENTER ON DUTY 24/7



A meticulous approach taken to the construction of the Eurasia Tunnel has been maintained now that it's operational. The tunnel is managed by smart road technology, featuring systems that ensure the uninterrupted, safe, and efficient flow of traffic. The control room operators monitor traffic flow within the tunnel and approach roads 24/7. All emergency preparedness plans have been designed with a “safety first” principle and are integrated into the SCADA System. Systems such as energy, ventilation, lighting, traffic signage, radio announcements, and access control operate automatically in harmony. Unusual incidents, like accidents or vehicle breakdowns, are instantly detected by over 400 cameras and an automatic incident detection system. In emergencies, specialized rapid response teams use motorcycles equipped with fire-fighting gear, designed specifically for the tunnel structure. Initially, the average response time was three minutes, but improvements over a 20-month period have reduced this to under two minutes. Regular drills are conducted with AFAD, the Istanbul Police Department, the Istanbul Fire Department, and Emergency Health Services to prepare for potential incidents within the tunnel.

VEHICLE SPEED STABILIZED WITH MOVING LIGHTING SYSTEM

In addition to Türkiye's first use of an LED lighting solution inside a tunnel, additional measures were implemented to minimize accidents. The Speed Regulating Moving Lighting System (Pacemaker), introduced in June 2020, helps vehicles adapt to the recommended speed limit of 70 km/h inside the tunnel. This system was patented by the Turkish Patent and Trademark Office on behalf of the Eurasia Tunnel, and resulted in a 69 percent reduction in sudden speed changes at the tunnel's deepest point within one year. Wherever the system was applied, traffic efficiency improved by 8.5 percent, with no traffic accidents recorded. Traffic congestion was also reduced by approximately 53 percent. By cutting exhaust emissions by up to 12 percent, the system contributed to environmental protection efforts. In recognition of its innovative approach, this project received the "Innovation in Tunneling Systems, Maintenance and Renewal" award in 2021 from New Civil Engineers Magazine, which honors the world's top tunneling applications and boasts 50 years of expertise in the field.



EVERY STEP TAKEN WITH GLOBAL SUSTAINABILITY IN MIND

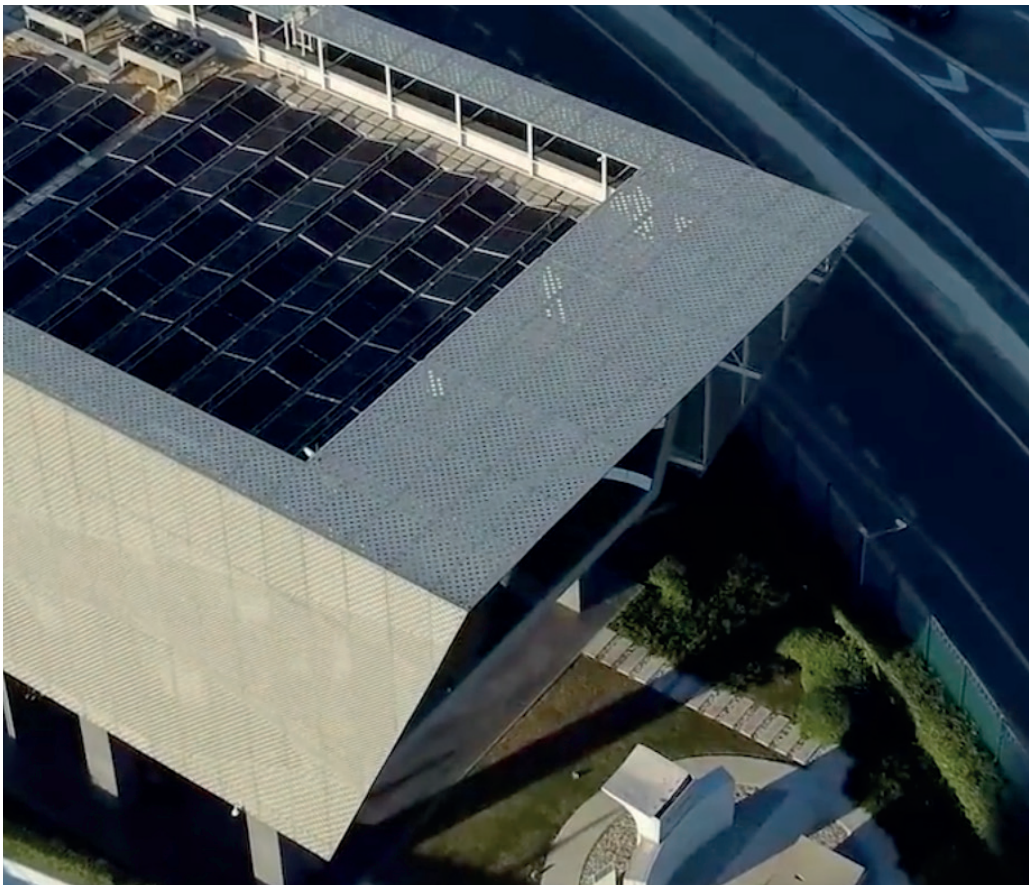
Every aspect of the Eurasia Tunnel project was carefully planned with social and environmental impacts in mind, and executed with a commitment to sustainability and corporate citizenship. From the project phase through construction and operation, all activities were conducted in accordance with the Environmental and Social Impact Assessment (ESIA) regulations, which evaluate effects on the physical, natural, cultural, social, and socio-economic environments. Transparent communication with stakeholders was prioritized at every stage of the project, as outlined in the Stakeholder Participation Plan. Feedback from stakeholders guided adjustments to work plans and design modifications, adhering to international best practices. Additionally, all excavation work on the historic peninsula was conducted under the coordination and supervision of the Istanbul Archaeological Museum Directorate.

Special attention was given to air quality as part of the project. Various tree and shrub species, identified by experts for their positive impact on air quality, were planted across a 7,300-square-meter area surrounding the ventilation shaft on the European side. Additionally, a “biofiltration application” was implemented for the first time in Türkiye. Air quality monitoring stations, established as part of the project and now managed by the Istanbul Metropolitan Municipality (IBB), provide ongoing measurements and reports that are shared with all stakeholders. To date, these measurements have consistently recorded values well below international standard limits.





CARBON NEUTRAL GOAL REACHED



The project's business center was designed as a green building and earned LEED Gold Certification by scoring highly in key areas such as energy efficiency, recycling, and sustainability. All waste generated in the facility is carefully separated into categories—paper, plastic, glass, and hazardous materials—and is disposed of in accordance with proper environmental protocols.

Thanks to its environmentally friendly practices, the project earned the 'Best Environmental and Social Practice Award' from the European Bank for Reconstruction and Development (EBRD) in 2015, recognizing its outstanding commitment to sustainability. Since 2021, the Eurasia Tunnel has been awarded the International Green Energy Certificate (I-REC) for sourcing its electricity from renewable sources as part of its environmental sustainability initiatives. Furthermore, the project took significant steps to offset its carbon footprint from operational activities, earning an ISO 14064 certificate and achieving Carbon Neutral status. The tunnel also became the world's first transportation project to successfully complete the pilot phase of the Blue Dot Network, an initiative led by the OECD to promote sustainable and high-quality infrastructure investments worldwide.

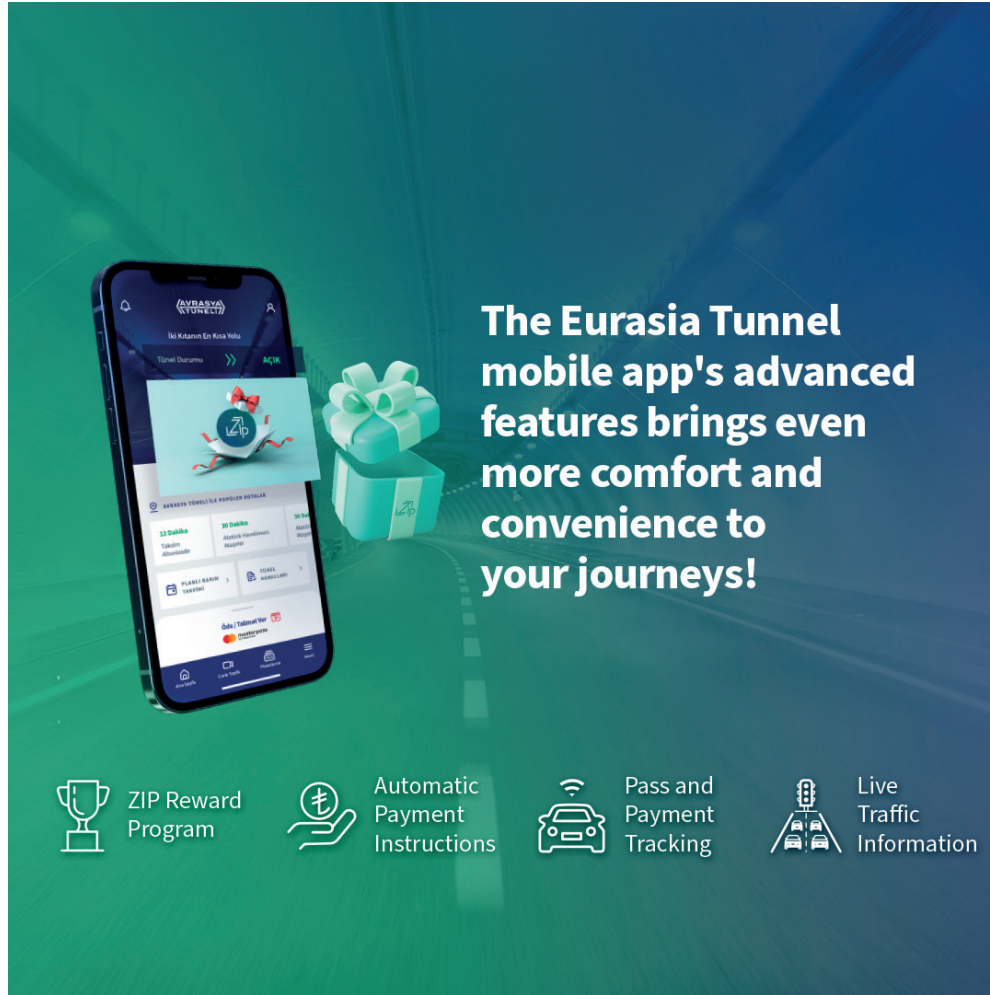
INNOVATIVE SYSTEMS THAT PROVIDE EASE OF PAYMENT



Since its inauguration, the Eurasia Tunnel has made numerous technological advancements to reduce unauthorized crossings and streamline payment processes. As a trailblazer in the industry, the company introduced early notification and automatic payment systems, a first in Türkiye. These innovations include SMS alerts, automatic payments, and quick payment options via credit card, all of which have been successfully developed and implemented.

The automatic payment feature, developed in collaboration with Masterpass, was a significant innovation that transformed the industry. Through the Eurasia Tunnel mobile app, users can set up automatic payment instructions for cards linked to Masterpass, enabling instant collection of unpaid tolls. Additionally, the fast payment feature allows users to complete transactions without re-entering card details, utilizing their Masterpass-registered cards for quick and seamless payments.





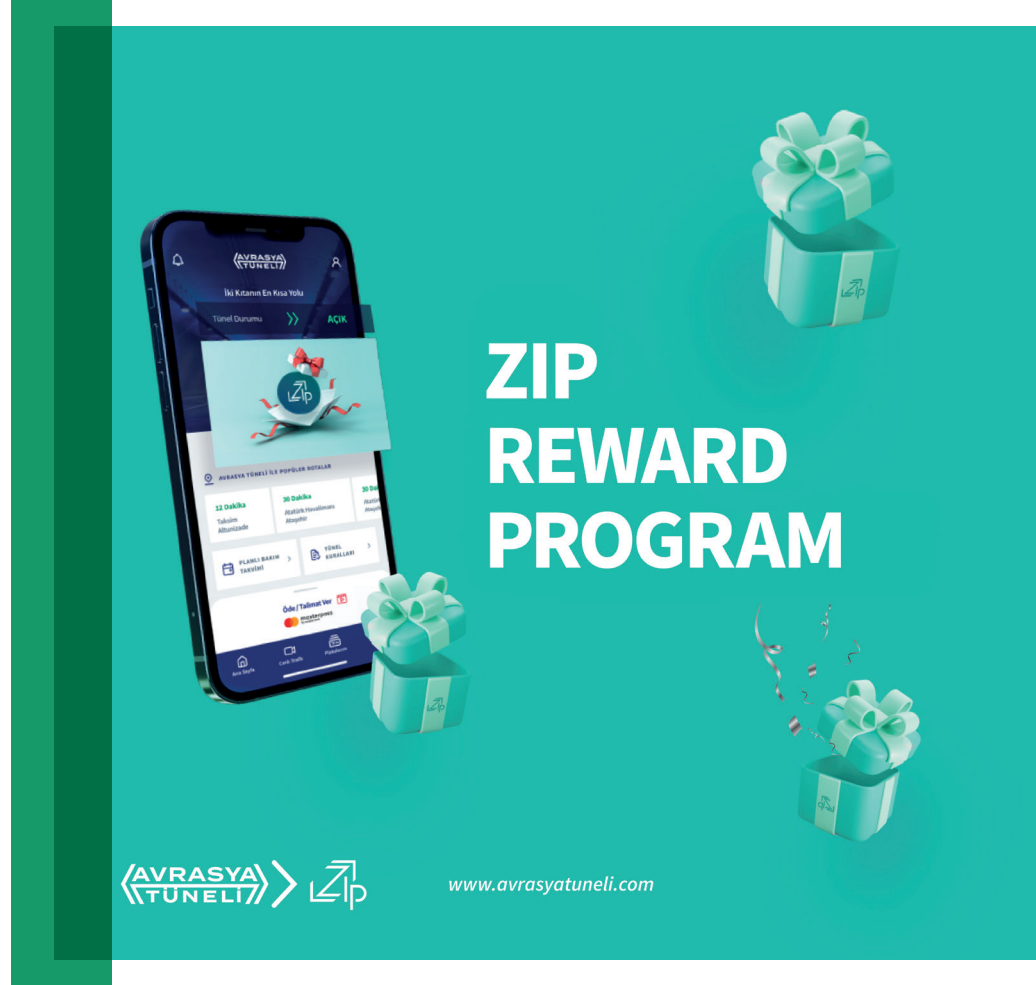
The Eurasia Tunnel mobile app's advanced features brings even more comfort and convenience to your journeys!

- ZIP Reward Program
- Automatic Payment Instructions
- Pass and Payment Tracking
- Live Traffic Information

The Eurasia Tunnel collaborates with various banks to offer users convenient payment options. Partnerships with Yapı Kredi, İş Bankası, Garanti BBVA, and BKM Express enable drivers to pay tolls easily. Users can make payments at these banks' branches, through internet banking, mobile banking apps, or ATMs, providing a range of flexible options to suit their needs.

The Eurasia Tunnel also stands out for its services tailored to corporate users in addition to individual users. Through a dedicated app, corporate clients can query and pay outstanding balances for their entire fleet, receive notifications for any violation passes, and set up automatic payment instructions. This ensures that even if a company vehicle's HGS account lacks sufficient funds, toll payments are still processed securely through automatic payments.

USER-FRIENDLY TECHNOLOGIES



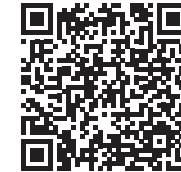
**ZIP
REWARD
PROGRAM**

**AVRASYA
TUNELI**

www.avrasyatuneli.com

User-friendly systems implemented in the Eurasia Tunnel make drivers' lives easier. The Eurasia Tunnel mobile application not only provides users with up-to-date information about the traffic status of the tunnel but also offers features like debt inquiry and quick payment. The Eurasia Tunnel ZIP rewards program, integrated within the mobile application, grants users privileges such as free parking, car rental, and exclusive benefits at various activity centers.

Additionally, the AI-based virtual assistant project "Eurasia Tunnel 24/7" enables users to perform numerous convenient tasks through the tunnel's website and mobile app. Regular updates about the tunnel are shared with users via radio announcements, digital information boards, and social media channels.



EURASIA TUNNEL OPERATION CONSTRUCTION AND INVESTMENT CO. (ATAS)

ATAŞ, the entity responsible for the financing, construction, and operation of the Eurasia Tunnel, was established in 2009 as a partnership between Yapı Merkezi, a Turkish company renowned for its large-scale infrastructure and transportation projects, and SK ecoplant from South Korea.



With over 50 years of experience in large-scale general contracting, Yapı Merkezi has achieved global success in tunnel, bridge, and railway construction. Notable projects include the 1915 Çanakkale Bridge, Dubai Metro, İzmir Metro, Ankara-Konya Railway, Antalya and Istanbul trams, and the light rail systems in Istanbul, Eskişehir, and Kayseri, as well as the Taksim-Kabataş Funicular System. These showcase Yapı Merkezi's expertise and serve as reference projects.

Yapı Merkezi's other notable milestone projects include the construction of the Bosphorus Four Seasons Hotel, the TOGG Gemlik Production Facility—Türkiye's first electric car factory—the restoration of the historic Galata Tower, and the Şişli Plaza high-rise office-residence complex in Istanbul. Committed to building sustainable infrastructures with innovative engineering solutions, Yapı Merkezi strives to create lasting value for future generations through environmentally friendly practices and approaches that support the circular economy.



SK ecoplant was founded in Korea in 1977 as SK Engineering and Construction and has grown significantly since, particularly after a transformation in 2021, to become a leading global provider of environmental and energy solutions. In the environmental industry, SK ecoplant has established strong partnerships with major organizations, including Korea's largest environmental enterprises, and made substantial progress in the upstream recycling industry. In the energy industry, it has expanded its presence in the local fuel cell market and developed a comprehensive value chain for green hydrogen, aimed at driving the global hydrogen economy forward. SK ecoplant has achieved significant milestones in Türkiye with projects like the Eurasia Tunnel and the 1915 Çanakkale Bridge, and also contributed to the construction of the Yavuz Sultan Selim Bridge. With a vision to "Cool the World," SK ecoplant is dedicated to becoming a Climate Solution Leader, aligning all its business models in the environmental and energy industries with climate action initiatives.

Eurasia Tunnel Operation Construction and Investment Co. Publications © 2024



T.C. ULAŖTIRMA VE
ALTYAPI BAKANLIđI

AYGEM
Altyapı Yatırımları Genel Müdürlüğü



**yapi
merkezi**

SK ecoplant