

CITYLING Consulting

<u>Team Member Name</u>	<u>Year</u>	<u>Major</u>
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Topic: Brighter Future with Your Energy

Audience: Istanbul Metropolitan Municipality Board of Directors

Sustainable Development Goal

SDG # 11 Sustainable cities and communities: Make cities and human settlements inclusive, safe, resilient and sustainable

SDG # 13 Climate action: Take urgent action to combat climate change and its impacts

Executive Summary

Cities are our future, and UN predicts more than 70% of the world's population will live in cities by 2050. When we look at Istanbul, the ecological and socio-economic structure of the city requires an innovative and sustainable urban management approach. Nearly 15 million people reside in Istanbul today, making it the most populated city in Europe. Increased industrial and commercial activities, fueled by its high population, exert ever-increasing pressures on the infrastructure, superstructure, and ecosystems. In planning projects carried out by ministries and municipalities, problems of the existing transportation systems such as increasing private car ownership and the inadequacy of the public transport network have been discussed extensively. Both inadequacy and crowdedness of the public transportation brings many problems, making people turn to their own vehicles. This causes both more traffic and greenhouse gas emissions.

It is crucial to find solutions that can decrease the impact of private vehicles on traffic and lead to sustainable mobility systems in Istanbul by means of new technologies and sustainable transport. As Cityling, our plan focuses on mobility, pollution, energy, creating green public spaces and improving urban planning and management in a participatory and inclusive way. We propose to build a cycle line as a pilot project which will have a solar powered roof, providing shelter from sun and rain for cyclists while generating energy. By using this cycle line, greenhouse gases that harm the environment and the load on public transportation will be diminished, and society will have the opportunity to use healthier and more environmentally friendly means of transportation. Also knowing that bicycles are rich source of kinetic energy, we propose harvesting the kinetic energy from the small-scale motions of bicycling, such as weaving back-and-forth to maintain balance and according to the study of Yang et al. (2012), it is possible to harvest energy from the natural balancing motion of riding a bike by using microelectromechanical systems (MEMS). So, with our proposed solutions we can reduce the daily traffic of people and prevent air pollution and most importantly we can bring new energy sources to the city.