BURSA METROPOLITAN MUNICIPALITY

Smart and Green Energy City BURSA

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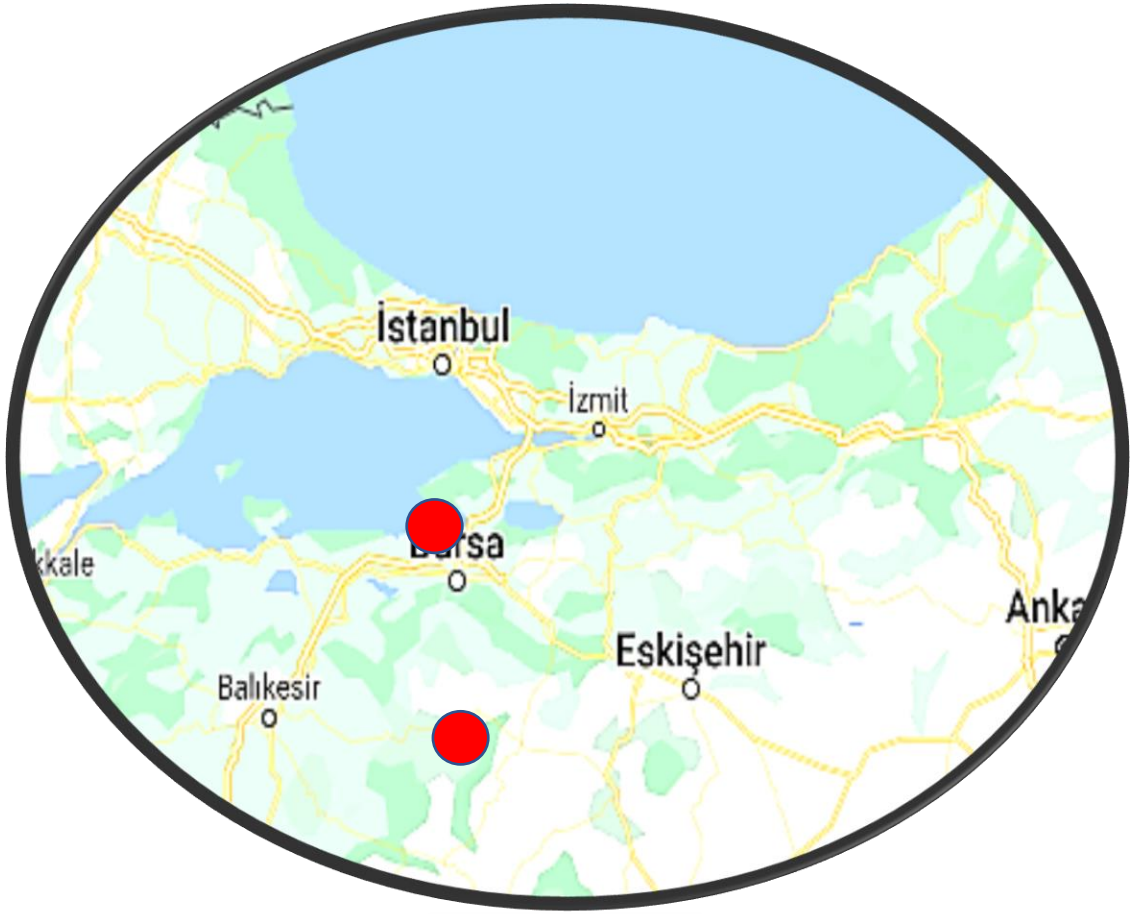
Contents

- Bursa City
- Who we are?
- What have we done so far?
- Strategies and Projects



Bursa City

- 4th largest metropolitan city in Turkey- 3 million population
- 1,5 hour distance to İstanbul
- Unesco Heritage with historical background
- Automotive,textile and machine industrial, 17 industrial zones



Bursa Metropolitan Municipality

- Smart City Department- First municipality
- 9 subsidiary company (food, transport, human resources, culture, environment, geothermal, agriculture ve water management operations.)
- Smart City strategy ready by 2021



BURSA BÜYÜKŞEHİR BELEDİYESİ

Bursa's Smart and Green Energy Transformation

Bursa's Green Energy Vision

"Bursa, the most livable city that creates value from its resources"

- Innovation and Digitalization Priority Development
- High Level Inclusive and Participatory Approach
- Efficient and Effective Resource Utilization
- Sustainable Development and Adaptation to Climate Change

The Importance of Energy Efficiency in the Public

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Energy Efficiency

Energy efficiency is the reduction of energy consumption per unit service or product amount without causing a decrease in the standard of living and service quality in buildings, and production quality and quantity in industrial enterprises.

Goals of Energy Efficiency

-Reducing energy costs

-Reducing the consumption of energy resources

Reducing carbon emissions and other environmental impacts that cause global warming and climate change

Public, commercial and residential buildings constitute approximately one-third of the energy consumption in our country. Considering that there are approximately 175,000 public buildings in Turkey, **public buildings have a great potential in terms of energy efficiency.**

In Turkey's 2012-2023 Energy Efficiency Strategy Document, there is a target of reducing the amount of energy consumed per GDP (energy intensity) **by at least 20% compared to 2011 value until 2023**, and in order to achieve this target, energy efficiency in Public Buildings is of great importance. .

National Energy Efficiency Action Plan

Within the scope of the 2017-2023 National Energy Efficiency Action Plan, it is aimed to reduce Turkey's primary energy consumption by 14% in 2023 with 55 actions defined in 6 categories, including buildings and services, energy, transportation, industry and technology, agriculture and horizontal issues.

Building and Services 12 Actions	Agriculture 6 Actions	**Energy** **10 Actions**
Transportation 9 Actions	Industry and Technology 7 Actions	Horizontal Topics 11 Actions

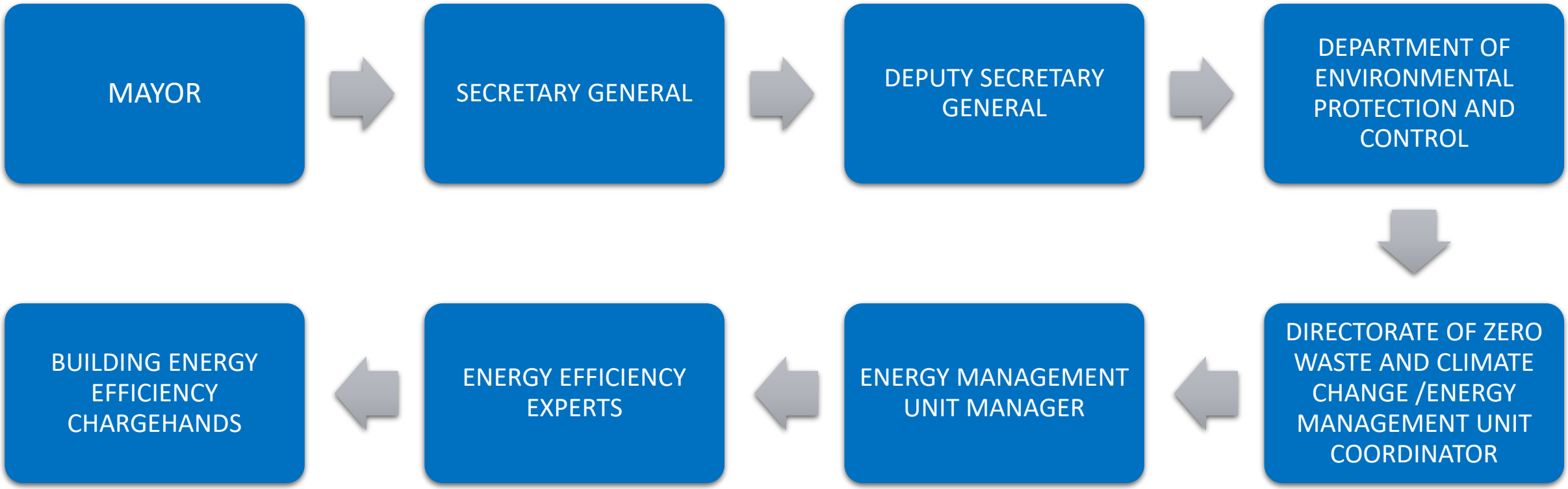
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Energy Management Unit at BMM

Within the scope of the studies carried out and planned to be carried out on behalf of energy efficiency, "Bursa Metropolitan Municipality Energy Management Unit Directive" has been prepared for the Energy Management Unit, which was created under the Zero Waste and Climate Change Branch Directorate of the Environmental Protection and Control Department, in order to coordinate and carry out the works within the body of our municipality.

It was approved by the Ministry of Energy and Natural Resources, Department of Energy Efficiency and Environment on 13.04.2021 and entered into force.

BMM Energy Management Unit Organizational Structure



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Our Studies within the Scope of Energy Efficiency

Energy Manager Trainings

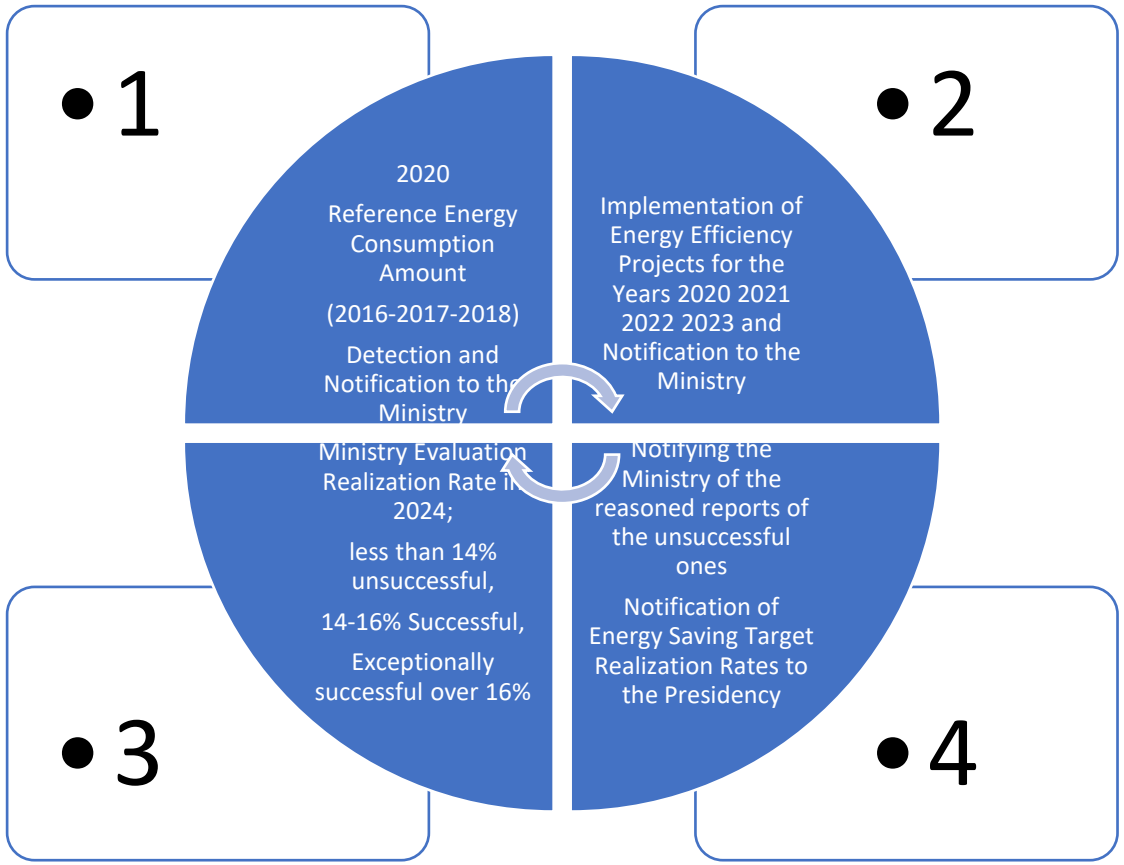
"Energy Manager Trainings" consisting of 2 modules, theoretical and practical, were given to our technical personnel, consisting of 20 people, who will be assigned to carry out energy efficiency studies within our municipality.



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“ Presidential Circular No. 2019/18 Date 15/08/2019

2023 for public buildings that are obliged to appoint an energy manager (annual total energy consumption is 250 TEO (Tonne equivalent Oil) and above or total construction area is 10,000 m2 and above) according to the Presidential Circular dated 15/08/2019 and numbered 2019/18 and the Energy Efficiency Law numbered 5627. A minimum 15% energy saving target has been defined until the end of the year.



Legal Basis

BURSA BÜYÜKŞEHİR BELEDİYESİ

Our Studies within the Scope of Energy Efficiency

Energy audits in buildings that we are legally obliged to do
1-BMM New Service Building
2-Merinos AKKM (Culture and Congress Center Buildings)







Surveys

BURSA BÜYÜKŞEHİR BELEDİYESİ

Use of Renewable Energy Resources

Our Priority Buildings where solar power plants will be established





0,45 MW
Capacity



Annual savings of
1,319,923,2145
TL

Goals

Use of Renewable Energy Resources

Our Priority Buildings where solar power plants will be established





3,5 MW
Capacity



Annual savings of
10,266,069,4461
TL

BURSA BÜYÜKŞEHİR BELEDİYESİ

Use of Renewable Energy Resources

Our Priority Buildings where solar power plants will be established





0,45 MW Capacity

Annual savings of 1,319,923,21 45 TL

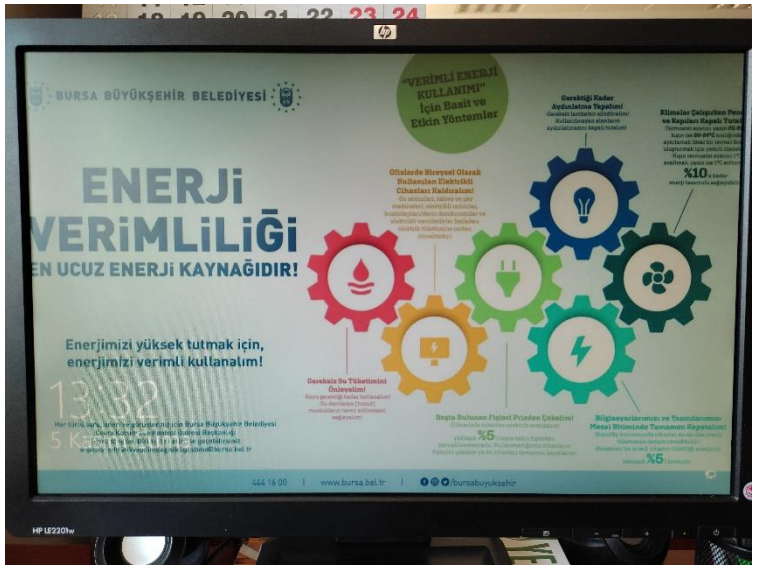
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Use of Renewable Energy Resources



Awareness and Awareness Studies
1- Poster Design
2- Computer Login Screenshot
3- Warning Labels





Goals

BURSA BÜYÜKŞEHİR BELEDİYESİ

Use of Renewable Energy Resources

TS EN ISO 50001 Energy Management System

Within the scope of ISO 50001 «Energy Management System» studies, which is included in the Integrated Management System installation within our municipality, documentation works were completed and internal audits were carried out. After the TSE Audit to be carried out in the coming days, the certification phase will begin.



Climate Street/ Smart and Green City Project Suggestions

BURSA BÜYÜKŞEHİR BELEDİYESİ

Smart City Project Suggestions

No	Project Title	Project Name	Potential Partners
1	Energy Efficiency	Energy Consultancy	Limek Enerji AS
2	Energy Efficiency	Smart Metering in Houses/Workplaces	Limek Enerji AS -BUSKİ
3	Energy Efficiency	Smart Street Lightning	Bursa Governorship-Limak Enerji AS
4	Energy Efficiency	Mock-Up Energy Efficiency Areas	Limek Enerji AS
5	Sustainable Infrastructure	Fertilizer Production from Market Wastes	Osmangazi Municipality(Local)
6	Sustainable Infrastructure	Smart Waste Management	Osmangazi Municipality(Local)
7	Sustainable Infrastructure	Waste Boxes for Children	Osmangazi Municipality(Local)
8	Sustainable Infrastructure	Paper Bag / Net Usage in the Marketplace	*
9	Urban Design	Climate / Pedestrian Station	*
10	Urban Design	Green Bus Stops	BURULAŞ
11	Urban Design	Rain Gardens	*
12	Urban Design	Rainwater Channels	*
13	Urban Design	Water Permeable Floor Coverings	*
14	Urban Design	Plant Tubs	*
15	Mobility	Bike Roads& Shareable Bike and Scooters	*
16	Mobility	Smart Electricity & Charge Stations	*
17	Mobility	Traffic Calming	*
18	Mobility	Green Corridor	*

Projects

Top Project Title	Energy Efficiency		
Project Name	Smart Metering in Houses/Workplaces		
Description	• Monitoring of electricity and water consumption in homes and businesses on the street with smart meters • Warning home / workplaces in abnormal situations 		
Possible Stakeholders	BUSKİ, Limak Enerji A.Ş.		
Impact	■■■	Time	■□□
Cost	■■□	Applicability	■■■

■□□ Low ■■□ Mdm ■■■ High

BURSA BÜYÜKŞEHİR BELEDİYESİ

Projects

Top Project Title	Energy Efficiency		
Project Name	Smart Lightning		
Description	• Light bulbs etc. in existing lighting poles along the street line to transformer systems without any modification. • Making street lighting dimmable with the hardware to be added • Average 40% energy savings • Compliant with Traffic Law		
Possible Stakeholders	Bursa Governorship, Limak Enerji A.Ş.		
Impact	■■■	Time	■□□
Cost	■□□	Applicability	■■■



Projects

Top Project Title	Sustainable Infrastructure (Waste, Water, Environmental Monitoring)		
Project Name	Smart Waste Management System		
Description	• Collection of recyclable waste with smart vending machines within schools or other designated points. • Those who bring waste to the vending machine, etc. rewarding 		
Possible Stakeholders	Osmangazi Municipality		
Impact	■■■	Time	■□□
Cost	■■□	Applicability	■■■

■□□ Low ■■□ Mdm ■■■ High

BURSA BÜYÜKŞEHİR BELEDİYESİ

Projects

Top Project Title	Mobility		
Project Name	Smart Electricity Charging Stations		
Description	• Charging stations for electric vehicles • Solar charging stations for scooters and electric bikes  		
Possible Stakeholders	-		
Impact	■■■	Time	■■□
Cost	■■□	Applicability	■■■

■□□ Low ■■□ Mdm ■■■ High

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Energy Management and Energy Efficiency Strategies

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Projects

Top Project Title	Energy Efficiency		
Project Name	Smart Building		
Description	Bursa Metropolitan Municipality received the "BREEAM In-Use Certificate", Which is the "Green Building Certificate" valid all over the world, as a result of the studies carried out in 2 stages, including the new service building, building performance and building management. The new service building of the Metropolitan Municipality has thus become one of the 4 government buildings in Turkey that have this certificate.		
Possible Stakeholders	BMM		
Impact	■■■	Time	■□□
Cost	■□□	Applicability	■■■


BREEAM®
Code for a Sustainable Built Environment
www.breeam.com
BREEAM In-Use
The assessment of:
Bursa Buyuksehir Belediye Binasi
Zafer Mah. Ankara Yolu Cad., C Blok
No:1
Osmangazi/Bursa
16080
has been carried out according to Technical Manual:
BREEAM In-Use International: 2015
by a Licensed Assessor for:
Bursa Buyuksehir Belediyesi
Certificate Number: BIU00005592-1.0
Issue: 1.0
The assessment process is certified by BRE Global Limited in accordance with the requirements of Scheme Document SD123
Asset Performance: 75.0%
Excellent
Building Management: 75.5%
Excellent
Occupier Management:
Not Assessed
Turkeco Consulting
Duygu Erten
BAUD0249
Catherine Butcher
30 Mar 2021
30 Mar 2022
bre

■□□ Low ■■□ Mdm ■■■ High

BURSA BÜYÜKŞEHİR BELEDİYESİ

Projects

Top Project Title	Energy Efficiency		
Project Name	Energy Surveys		
Description	In Turkey's 2012-2023 Energy Efficiency Strategy Document, there is a target of reducing the amount of energy consumed per GDP (energy intensity) by at least 20% compared to 2011 value until 2023. In the Presidential Circular and the National Energy Efficiency Action Plan (2017-2023), it is emphasized that energy consumption in buildings should be reduced by 15% until 2023. In line with the above-mentioned objectives; Energy studies are carried out in our Metropolitan Municipality Service Building belonging to our Municipality, Merinos Atatürk Congress and Culture Center Buildings, which are under the responsibility of our Municipality, and Bursa Science and Technology Center Buildings.		
Possible Stakeholders	BMM		
Impact		Time	
Cost		Applicability	



BURSA BÜYÜKŞEHİR BELEDİYESİ

Projects

Top Project Title	Energy Efficiency		
Project Name	Solar Power Plants		
Description	In order to ensure the use of renewable energy sources in our buildings by placing solar energy panels on the roofs of these three buildings of our municipality, solar energy projects for these applications were prepared and submitted to the Company providing electricity distribution services in our region.   		
Possible Stakeholders	BMM		
Impact	■■■	Time	■□□
Cost	■□□	Applicability	■■■

Projects

Top Project Title	Energy Efficiency		
Project Name	Energy Laboratory Building		
Description	- Energy Laboratory - Trainings for government professionals 		
Possible Stakeholders	BMM		
Impact	■■■	Time	■□□
Cost	■□□	Applicability	■■■

■□□ Low ■■□ Mdm ■■■ High

BURSA BÜYÜKŞEHİR BELEDİYESİ

Projects

Top Project Title	Sustainable Infrastructure (Waste, Water, Environmental Monitoring)		
Project Name	Integrated Solid Waste Management		
Description	Integrated Solid Waste Management Systems, which adopts innovative technologies on recovery, disposal and rehabilitation of wastes. Energy generation is carried on via using collected and produced methane gas within gas engines. The waste heat coming out from the engines is utilized in heating of social and administrative buildings within our sites, greenhouses existing in some of our sites, fermentation tanks belonging to biomethanization system and some nearby residences and shopping malls. 		
Possible Stakeholders	Limak A.S.		
Impact	■■■	Time	■■□
Cost	■■□	Applicability	■■■

Projects

Top Project Title	Mobility		
Project Name	Electric Vehicle Chargers		
Description	In order to encourage and expand the use of electric vehicles within the service area of our municipality, thus reducing carbon emissions and creating a greener and more livable environment, electric vehicle charging stations are planned to be established at 25 points in total, including our districts. These works will be carried out by Burulaş, which is a subsidiary of the Municipality. 		
Possible Stakeholders	BURULAS		
Impact	■■■	Time	■■□
Cost	■■□	Applicability	■■■

■□□ Low ■■□ Mdm ■■■ High

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Questions?

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BELEDİYESİ



Thank you!

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