SBE16
İSTANBUL
City that connects two continents

13 – 15 October 2016

Swissotel The Bosphorus İstanbul

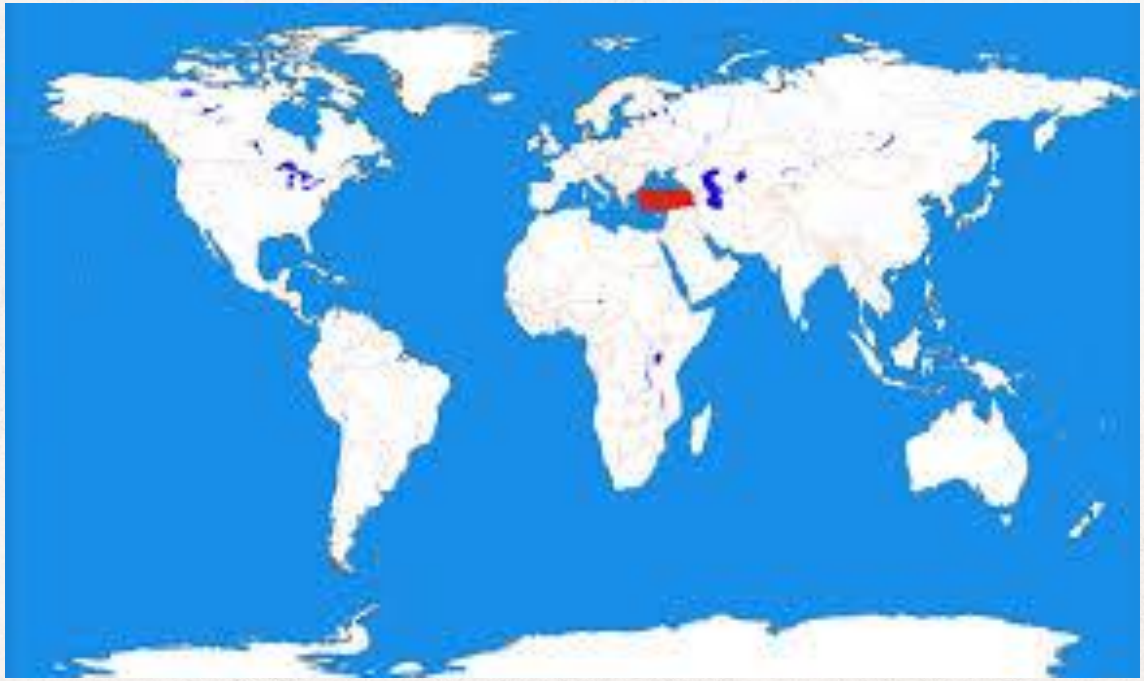
SMART METROPOLES

Integretad solutions for Sustainable and Smart Buildings & Cities

TÜRKİYE İMSAD
İNŞAAT MALZEMESİ SANAYİCİLERİ DERNEĞİ
ASSOCIATION OF TURKISH CONSTRUCTION MATERIAL PRODUCERS

Aygen ERKAL
Secretary General
aerkal@imsad.org

Turkey



Population:	80.000 (2016)
Capital:	Ankara
Area:	85.000 km²

Energy Issues in Turkey

- GDP Growth **9% in 2010**, **8.5% in 2011** and **2.2% in 2012**.
- **Primary energy demand** increased with an average growth rate of **2.9%** between 1990 and 2012
- In 2013, **primary energy consumption** increased by **32%** from 2005.
- About **93%** of primary energy was supplied by **fossil origin resources** in 2013.

Climate Change Issues In Turkey

Mediterranean Basin

increase in temperatures up to **1˚C - 2˚C**

increase in the number of **heat waves** and **very hot days**

Turkey

the average **increase** in temperatures **2.5°C - 4°C,**

inner regions up to **5°C**

Aegean and Eastern Anatolia up to **4°C**

Climate Change Issues In Turkey

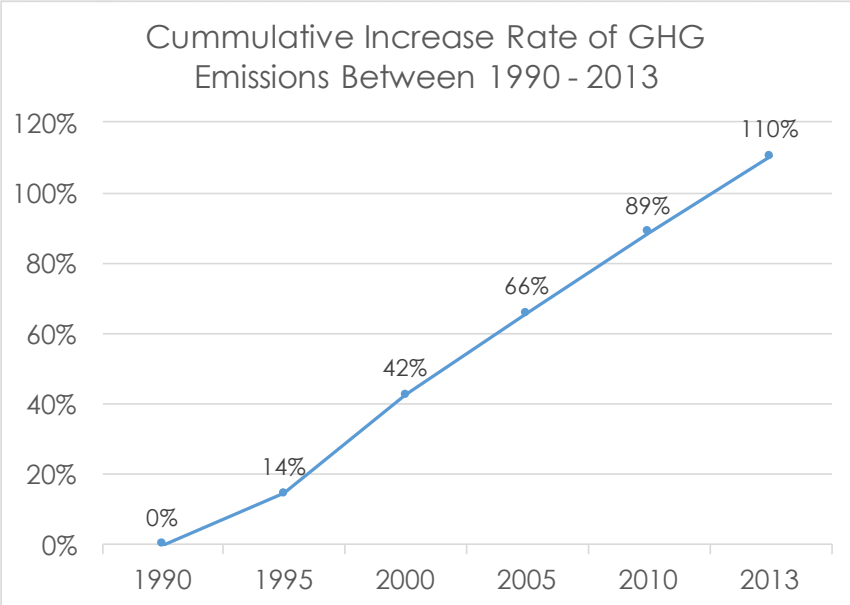
Turkey's national vision according to The Climate Change Action Plan 2011-2023

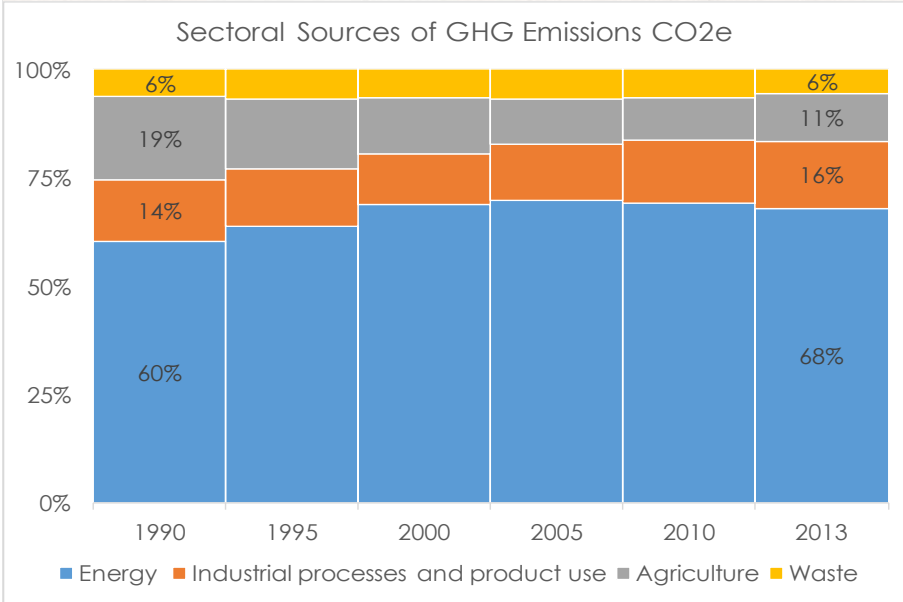
- to become a country fully integrating climate change-related objectives into its development policies,
- disseminating energy efficiency,
- increasing the use of clean and renewable energy resources,
- actively participating in the efforts for tackling climate change within its "special circumstances",
- providing its citizens with a high quality of life and welfare with low-carbon intensity.

Energy consumption of Turkish government buildings has to be reduced by at least **20% in 2023 compared to 2010**

(The Law on Improving Energy Efficiency for the Utilization of Energy Resources and Energy (2011))

Total GHG Emissions of Turkey and Sectoral Change



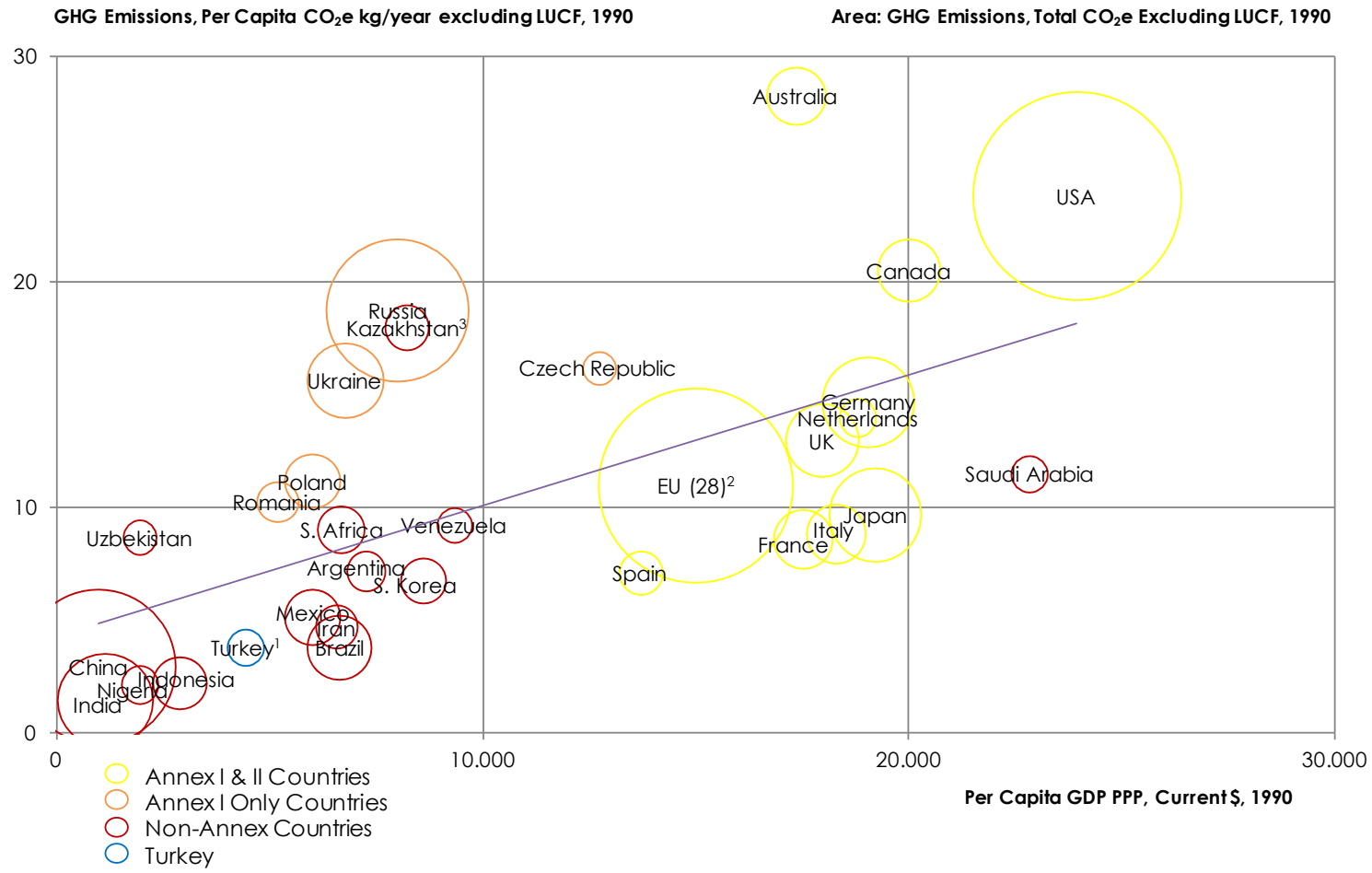


Source: RECTurkey
Data Sources: TUİK

Total GHG Emissions and Sectoral Change (20 years)

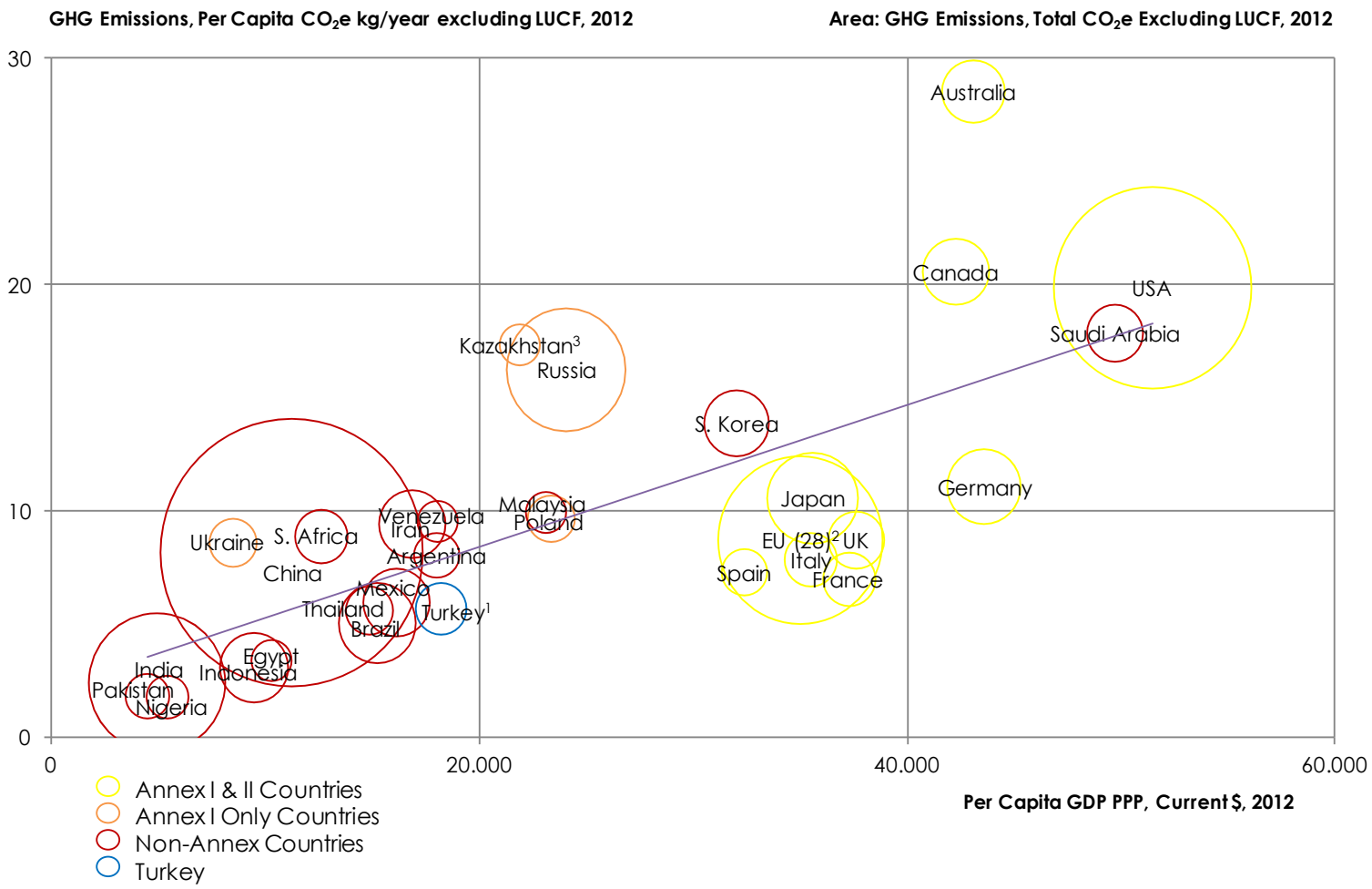
Source: REC Turkey

TOP 30 Emitters - 1990



Source: REC Turkey, WRICAIT, World Bank

TOP 30 Emitters - 2012



Source: REC Turkey, WRICAIT, World Bank

Selected Key Indicators for 11 Developing Countries

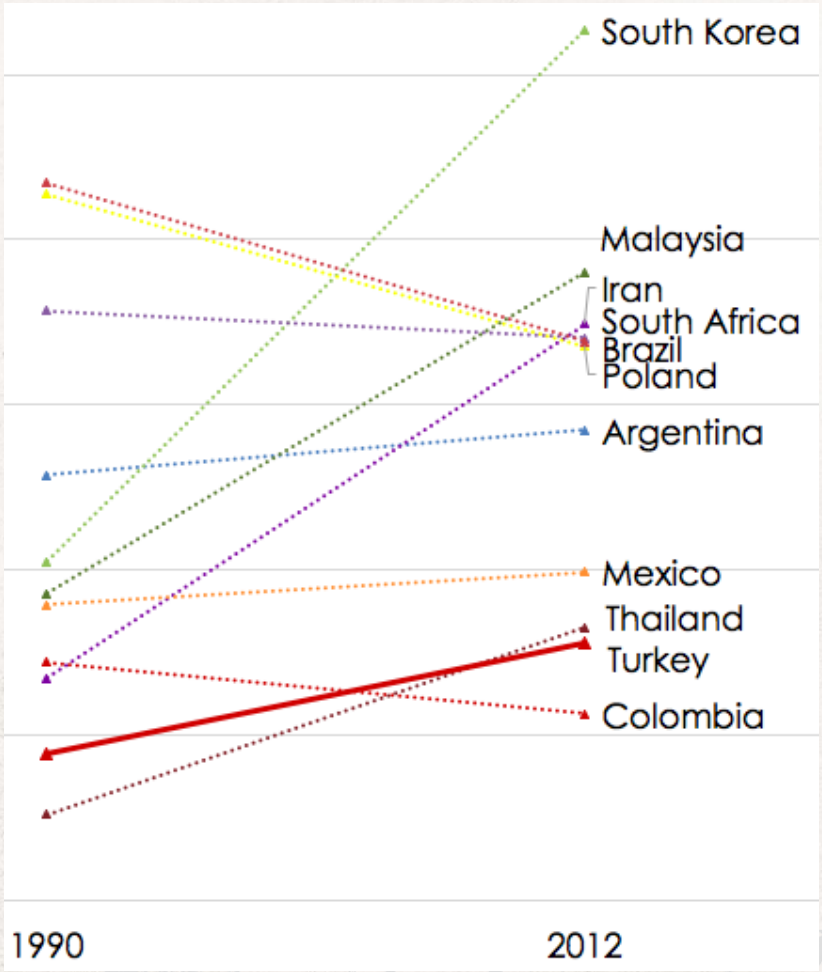
GHG Emissions Rank & Per Capita CO2e kg (1)		Country	Population Rank & Data (millions) (2)		GDP Rank & Data (Billion $) (3)		Total GHG Emissions Rank & Data million ton CO2e (4)		GHG Intensity (Total GHG / Total GDP) Rank & Data (5)	
1	14,93	Malaysia	11	29	11	314	10	288	4	0,92
2	13,23	Korea, Republic of	7	50	2	1223	4	693	7	0,57
3	9,62	Argentina	9	42	5	604	9	338	8	0,56
4	9,35	Iran, Islamic Republic of	3	76	6	587	3	715	1	1,22
5	9,01	Brazil	1	202	1	2413	1	1013	10	0,42
6	8,86	South Africa	6	52	9	397	5	463	2	1,16
7	8,46	Poland	10	38	7	500	8	367	5	0,73
8	6,14	Mexico	2	122	3	1184	2	724	6	0,61
9	5,59	Thailand	5	67	8	397	7	376	3	0,95
10	5,27	Turkey	4	74	4	789	6	420	9	0,53
11	4,26	Colombia	8	47	10	370	11	154	11	0,42

(1) WRI CAIT 2012 (Including LUCF)
(2) World Bank 2012
(3) World Bank 2012
(4) WRI CAIT 2012 (Excluding LUCF)
(5) Calculated

Source: RECTurkey

Change in Per Capita Emissions (1990 – 2012)

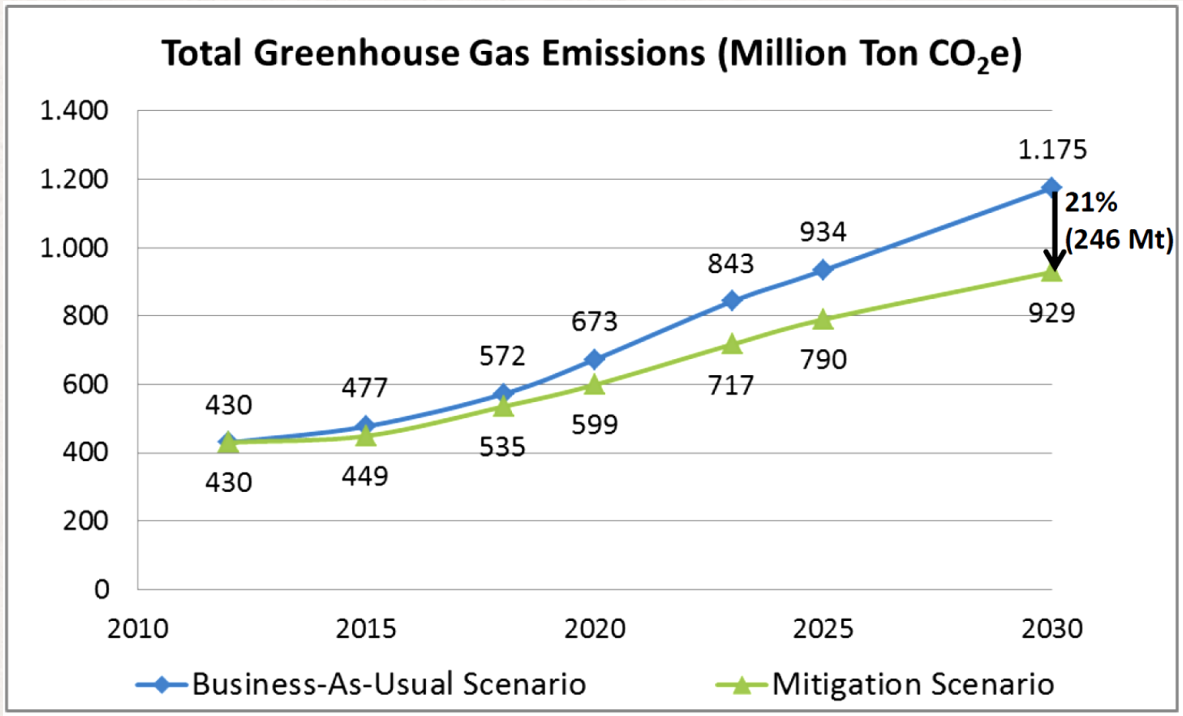
GHG Emissions, Per Capita CO_2e kg



Source: RECTurkey,
Data Source: WRI CAIT (Including LUCF)

Turkey's COP21 Intended Nationally Determined Contribution (INDC)

Turkey declared on 30 September 2015 that there will be up to **21% reduction in GHG emissions** from the Business as Usual (BAU) level by 2030.



Turkey's COP21 Intended Nationally Determined Contribution (INDC)

This decleration is expected to have negative impacts;

- on water and soil resources that are necessary for food production and security
- on development estimates in rural areas.

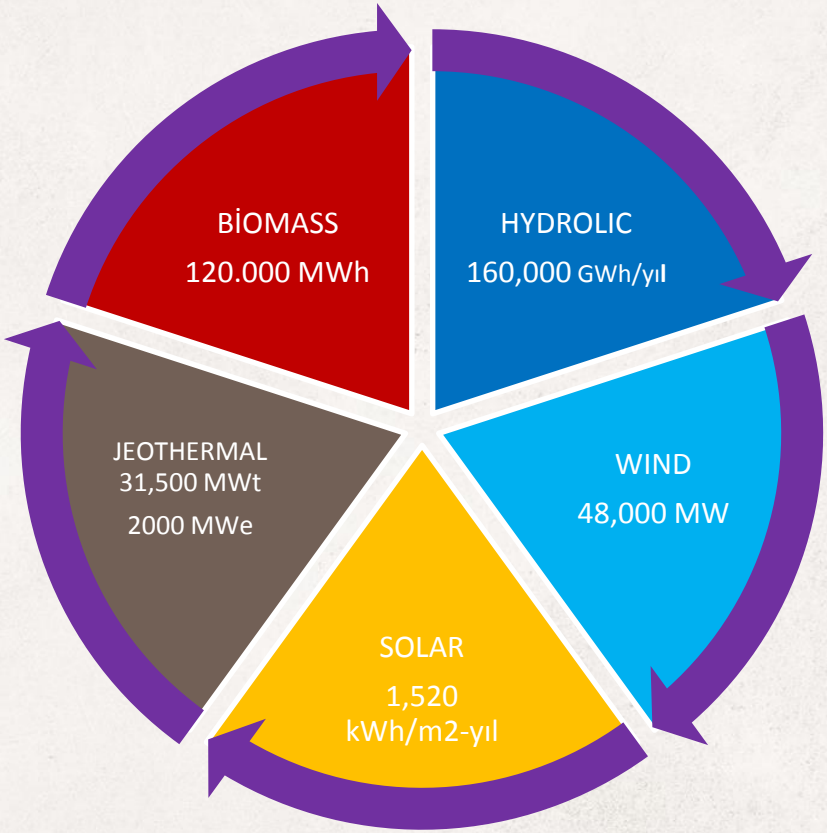
Adaptation as well as **Mitigation** is needed because ;

- Besides the long-term impacts of climate change, Turkey is a country that is currently struggling against the vulnerability of **water resources**
- Coastal areas are facing **rising sea levels, salty water mixing with fresh water** and more frequently observed **meteorological hazards** due to the impacts of climate change

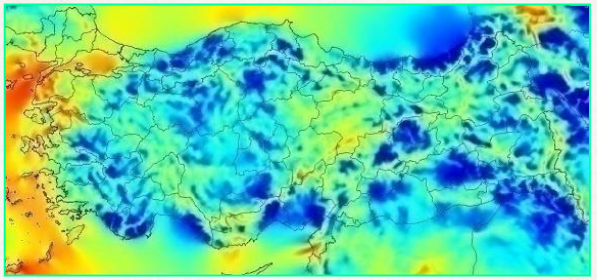
Energy

- 10 GW solar power
- 16 GW wind power
- Tapping the full hydroelectric potential
- Reducing electricity transmission and distribution losses to 15%
- Rehabilitation of public electricity generation power plants
- Establishment of micro-generation, co-generation systems and production on site at electricity production

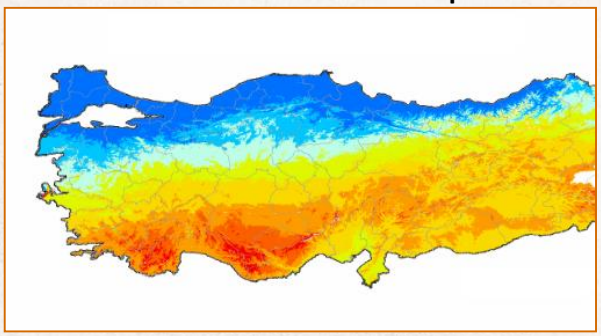
2030 Renewable Energy Potential



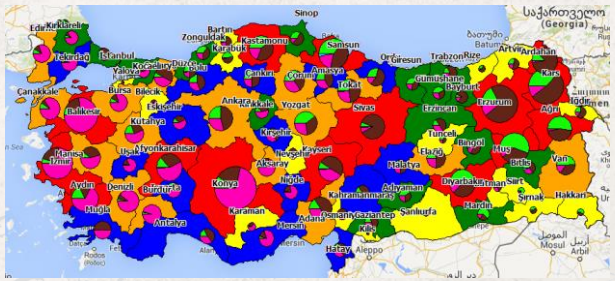
Wind Power Potential Map



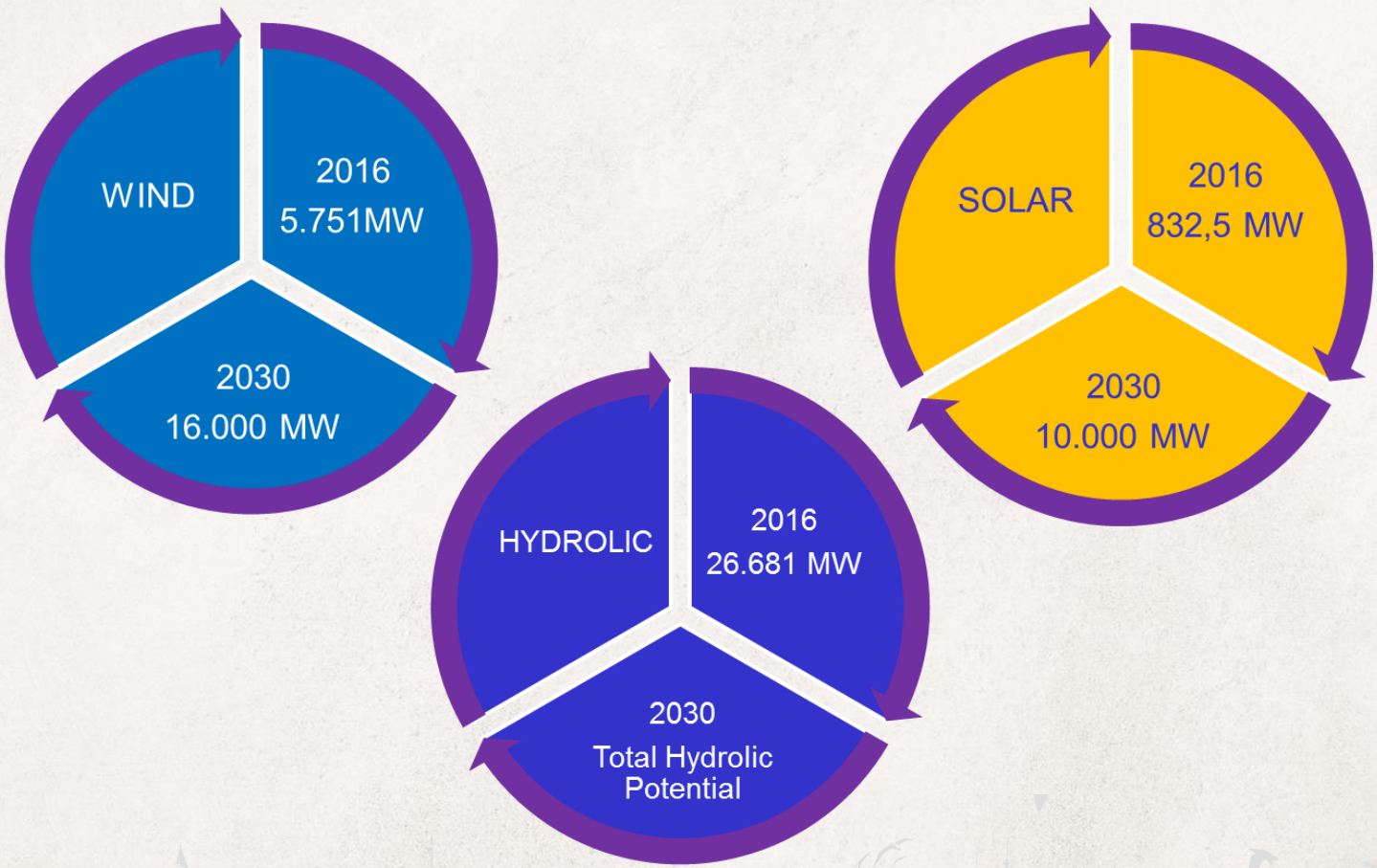
Solar Power Potential Map



Biomass Potential Map



2030 Renewable Energy Policies



Buildings and Urban Transformation

- New buildings in accordance with the Energy Performance of Buildings Regulations
- Energy Performance Certificates for new and existing buildings
- Reducing the consumption of primary energy sources by the use of renewable energy sources
- Green Building, passive energy, zero-energy house design

Why Smart Metropols ?

2/3 of the world population → metropolitan areas mega cities

Urban **population** ↑ 3.3 billion and reach to **5 billion** till **2030**.

So best solutions in practice at global level are necessary to improve **life quality and sustainability** in cities.

350 million people are living in the urban areas in European cities that are nearly **70% of the overall population.**

70% of CO_2 emissions are generated in cities.

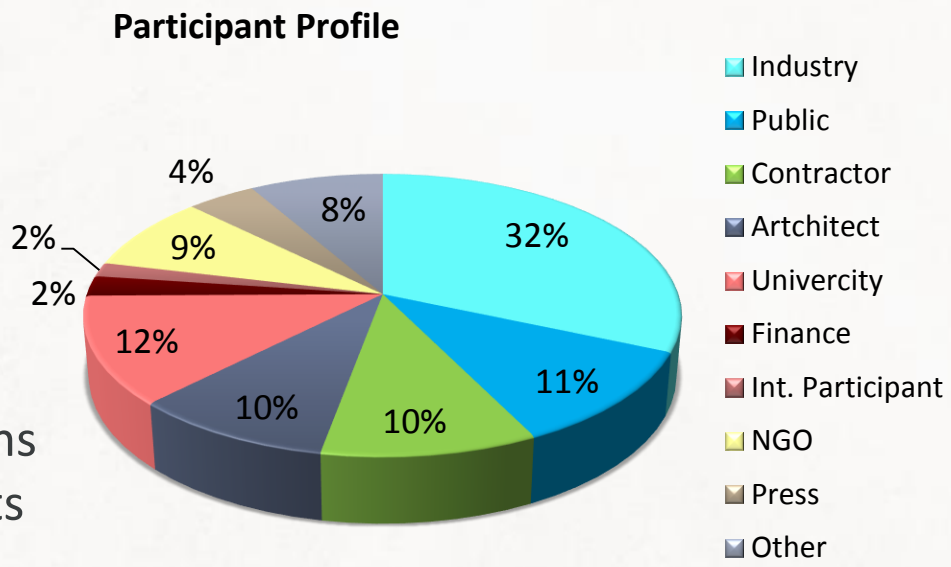
75% of Europe's GDP is produced in metropolitan districts, while their population **only represents 59%** of the total European population.

Metropoles are important!!

SBE16 İSTANBUL with numbers

SMART METROPOLES
Integrated solutions for Sustainable and Smart Buildings & Cities

4	Keynotes
33	Invited Speakers
28	Sessions
40	Topics
168	Abstracts
113	Papers
4	Dedicated Presentations
862	Conference Participants
93	Workshop Participants



The total Carbon Emission of the conference was 20,88 ton CO_{2eq} and it was neutralized.

Program Matrix for SBE16 Istanbul

	Urban areas and building clusters	New and existing buildings	Materials and products
Context: geology, climate, natural resources, ecology, urban fabric, human resources	Current Green House Gas (GHG) emissions Earthquake risk Flooding risk Ecological sensitivity	Earthquake risk Professional skill deficits Worker skills deficits	Minimizing product imports Maximizing product exports
Key performance indicators: Social, cultural, economic, financial, environmental impacts, functionality	Efficiency of local transport Land use efficiency Green space, urban agriculture View corridors and aesthetics Fit with local streetscape	Material efficiency (kg/m2), Daylighting, lighting, thermal comfort, acoustics, Affordability issues for low income groups, Construction waste, Predicted EUI and GHG emissions, Actual energy utilization intensities (EUI) and GHG emissions, Resource efficiency Energy & emissions, Water, Indoor Environmental Quality(IEQ)	Shifting to less scarce mat'ls Production efficiencies Recycling and C&D waste Use of local materials Resource efficiency Energy & emissions
Methods, tools and techniques	Urban area assessment ICT	Integrated Building Design Approach (IBDA), Energy simulations, Building Information Modelling (BIM), Building Environmental Modelling (BEM), Building Assembly Modelling (BAM), Building Optimisation Modelling (BOM), Fluid dynamics simulations, ICT	Production technologies CAD - CAM rapid prototyping Additive manufacturing Reuse of Building components Environmental Product Declarations (EPD) Product databases for BIM ICT
Policies, standards and regulations, action strategies, programs and projects demonstrations	Green neighbourhood standards Solar rights zoning Policies for small urban project development Gov't climate change strategy Gov't water conservation strategy Self-sufficient neighbourhoods Synergy zone demonstrations Mixed-use demonstrations Other demonstrations	Green building standards Regulations for energy & emissions Regulations for water consumption Other building regs or standards Earthquake standards Adaptation to new climate regimes Self Sufficient Buildings Nearly Zero Energy Buildings (NZEB) Incentives for high performance buildings Demonstrations of performance Training for professionals Training for on-site workers Best Practices	Product Environmental Footprints EN 15804
Innovation	Renewables in urban zones Mixed use in small urban zones System synergies in urban zones	Building-integrated PV and SHW Buildings with totally flexible uses DC distribution in buildings Public Private Partnerships (PPP) for high performance buildings Best Practices	Leased building systems Best Practices

New Roadmap For The Construction Sector:

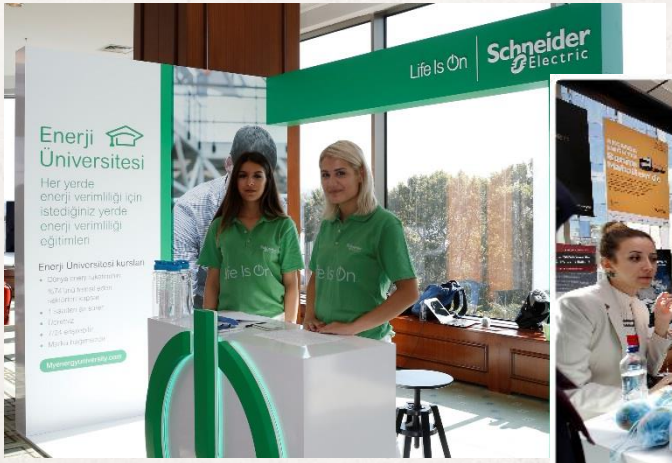
Reduce Your Carbon

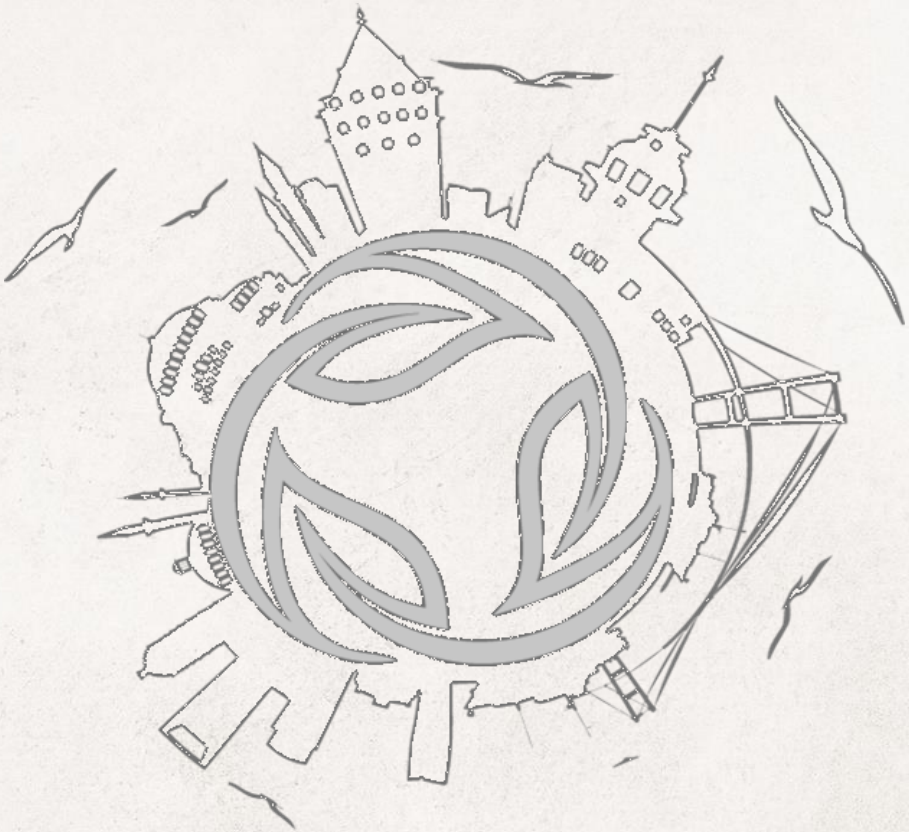
Get An Innovative Approach

And Plan Your Future!

Snapshots From The Conference

Snapshots From The Conference





Thank you…