

Heliosthana 2020 – Game

Practicing the Energy Revolution in a Mediterranean Country

Barcelona, 27 June 2011

Scenario

Heliosthana is an island country in the Mediterranean with a population of about 24 million. A country with a GDP per capita of € 3,500 and 32% of its population living in poverty, it nevertheless has considerable growth rates. Forests cover 1% of the country's surface. Despite – or perhaps because of – the difficult economic situation, Heliosthana has decided to be a pioneer in climate protection and change its national energy strategy.

Heliosthana is not a member of the EU, but it strives to achieve a close cooperation and is a member of the Union for the Mediterranean (UfM). The UfM is a multilateral partnership including the EU member countries and partner countries from North Africa, the Middle East and the Balkans. A central project of the UfM is the Mediterranean Solar Plan (MSP), which promotes different kinds of renewable energy in the region. Heliosthana seeks to fully integrate MSP projects into its national energy strategy.

Although Heliosthana has vast areas of natural space, the majority of its population and its economic activities are concentrated in the country's urban centers. The two most important urban centers are Heliopolis, the business capital, and Eolis, the political and administrative capital. Because of this concentration and the rapid and spectacular development of economic activity zones and residential areas, cities represent a predominant and increasing share of energy consumption and polluting emissions.

The continuous increase in distances between home, the workplace, retail outlets and leisure centers for inhabitants and between places of economic activity for companies, in the context of a neglected public transport network, has increased the number of vehicles on the road (cars, two-wheeled motor vehicles and trucks) and therefore the number of traffic jams. The illusion of single family dwellings for everyone and of disproportionate business centers and shopping malls is confronted with the problem of transport bottlenecks and high real operating costs and a mediocre quality of



life. These sprawling cities without real centers suffer from a twofold lack of consistent urban planning and public transport, resulting in high, increasing extra costs. These problems make the cities less attractive.

At the end of December 2009, when the prime minister of Heliosthana returned from the Copenhagen Summit on Climate Change, she was more than ever aware of the risks of climate change and the new long-term opportunities offered by more sustainable forms of energy. In her opinion, the failure of the Summit, as well as the current situation in general, reflected the failure of the centralized approach with which states managed their energy policy. Her belief was that this central problem of the 21st century could only be tackled including all of society – public and private sector and civil society representatives.

She therefore decided to call all interested stakeholders to convene at the 'Heliosthana 2020 Forum'.

The main objective of the Forum is to devise an action plan in order to achieve a turnaround towards sustainable, efficient and citizen-friendly energy strategy within the next two decades. The process primarily focuses on energy, in particular electricity in the main consumer sectors (residential and industry), yet it also covers the fossil fuels and mobility and urban planning sectors.

The **current situation** in Heliosthana (2011) is characterized by highly inefficient energy use and a significant dependency on expensive and polluting imported fossil fuels. Growing urbanization paired with a rapid economic development, amongst other factors, has fueled a rapid increase in energy demand, which seems to be getting out of control. High costs, uncertainty and multiple crises (rapidly changing fossil fuel prices and shortages) impact on both people and companies.

Key energy data

	pre-2011 trend	trend scenario 2020 ¹	"Heliosthana 2020" objectives
total energy demand	260 000 000 MWh ² (260 TWh)	430 000 000 MWh (430 TWh) (+65%)	300 000 000 MWh (300 TWh) (+15% / -30%) ³
own energy production	9% \pm 23 000 000 MWh (23 TWh)	7% \pm 30 000 000 MWh (30 TWh) (+30%)	20% \pm 60 000 000 MWh (60 TWh) (+161% / +100%)
energy import⁴	91% \pm 237 000 000 MWh (237 TWh)	93% \pm 400 000 000 MWh (400 TWh) (+69%)	80% \pm 240 000 000 MWh (240 TWh) (+1% / -40%)
energy export	none	none	30 000 000 MWh (30 TWh) (exclusively renewable energies)



	pre-2011 trend	trend scenario 2020 ¹	"Heliosthana 2020" objectives
primary energy supply	94% fossil energies (coal, oil, natural gas), 6% renewable energies ⁵	96% fossil energies, 4% renewable energies	80% fossil energies, 20% renewable energies
CO₂ emissions	44 million tons	80 million tons (+80%)	56 million tons (+27% / -30%)

¹ If there was no turnaround in the energy policy, the "trend scenario" would become reality by 2030

² MWh = mega watt hours, TWh = tera watt hours (1 TWh = 1.000.000 mega watt hours)

³ (in comparison with pre-2011 trend / in comparison with trend scenario 2020)

⁴ I.e. the import of fossil energy carrier such as oil, gas and coal

⁵ Mainly large-scale hydro-electricity, while the most efficient technologies such as wind power and solar energy are at an embryonic stage or underdeveloped; biofuels.

Basic facts on Heliosthana

Population	24 million
Population growth	1.5% / year
Urbanization	60%
Economic Sectors (% of GDP ¹ / % of work force)	Primary ² : 15% / 40% Secondary: 28% / 22% Tertiary: 57% / 38%
Unemployment rate	14%
GDP per capita per year	€ 3,500

¹ Gross Domestic Product: the value of all goods and services produced within a country within a year

² Primary sector: dealing with raw materials (i.e. agriculture, fishing, mining, forestry); secondary sector: creating finished products (i.e. production, construction); tertiary sector: production of services (i.e. media, banks, maintenance).



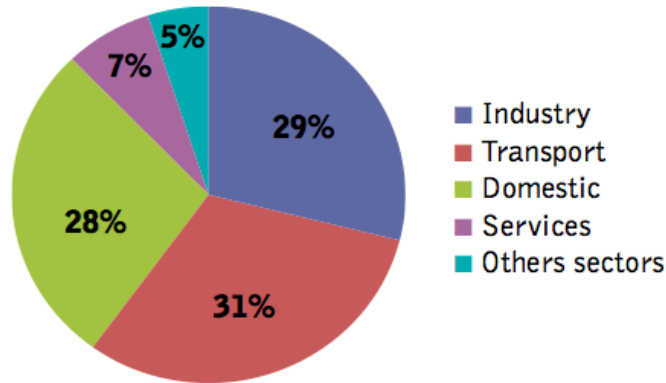
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**CHART 1 : DEMAND PROFILE:
BY ENERGY AND SECTOR**

**Share of the energy consumption of the
different sectors in Heliosthana – 2011**



**CHART 2 : PROFILE OF PRIMARY ENERGY
SUPPLIES BASED ON TYPE OF ENERGY**

**Primary energy supply
– 2011**

